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Does the way in which the latent phase (early labour) was experienced affect the process, duration and outcome of labour?

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GLOSSARY OF TERMS

Amniotomy	Artificial rupture of the amniotic membranes
Apgar Score	A system for evaluating a new born baby's physical condition at birth. Heart rate, respiration, muscle tone, response to stimuli and colour are evaluated at 1 minute and 5 minutes of age. Each feature is scored 0, 1 or 2. The maximum total for all five features is 10.
Augmentation of labour	An amniotomy or intravenous administration of oxytocin to increase the strength and frequency of contractions.
BBA	Born Before Arrival
Caesarean section category 1	Maternal or fetal compromise which is immediately life-threatening
Caesarean section category 2	Maternal or fetal compromise which is not immediately life-threatening
Cardiotocograph	A means of monitoring the baby's heart rate and variability and also the frequency and duration of uterine contractions. The results of which are printed on paper.
EDD	Expected Date of Delivery of the baby
Labour dystocia	Difficult labour
Meconium	Baby's first faeces, and if passed in utero could indicate fetal distress
MLU	Midwifery Led Unit
Multiparous	Having borne more than one child
Nulliparous	A woman who has never produced a viable offspring
Oxytocin	Naturally occurring neuropeptide produced in the hypothalamus and secreted by the pituitary gland. It is prescribed for a number of obstetric reasons, one being to increase the strength and frequency of uterine contractions.
Parous women	Having borne at least one child
Partogram	A graphical record of maternal and fetal data completed during labour e.g. maternal heart rate, temperature, blood pressure and fetal heart rate, uterine contractions, liquor.
Primiparous	A woman who has been delivered of one infant of 500g regardless of viability.
Puerperal sepsis	Sepsis developed after birth
Pyrexia	An abnormally high temperature

Reiterative	A process for arriving at a decision or a desired result by repeating rounds of analysis
Term	37 to 42 weeks' gestation (pregnant)

ABSTRACT

Title: Does the way in which the latent phase was experienced affect the process, duration and outcome of labour?

Aims

The aims of the study were to identify the symptoms women experience in the latent phase of labour and what influences their decision to seek hospital admission. The study also aimed to explain, if the way in which the latent phase was experienced affected the process, duration and outcome of labour.

Research questions:

1. What symptoms do women experience during the latent phase of labour?
2. Of the symptoms experienced in early labour, do some more than others incite women to seek hospital admission?
3. What was the duration of time from the onset of symptoms to professionals' diagnosing established labour?
4. Are there any associations between the duration of labour and the outcome?

Design: A mixed method design involving questionnaires, interviews and clinical data collection. The study was conducted in two stages.

In stage one, part one questionnaires were used to examine how women experience early labour. In stage one part two data were collected from the Maternity Information System (MIS) for women who completed the questionnaire.

Stage 2 involved interviewing 10 women who had completed the stage one questionnaire.

Sample: Inclusion criteria included low risk women, gestational age 37 to 41 completed weeks. 408 women consented to participate. 54 were lost for various reasons. 354 women who consented remained within the study until data collection were completed. Of these, 235 (66.4%) women completed and returned the questionnaire.

Data Analysis: SPSS for quantitative and some qualitative data i.e. questionnaires, MIS. NVivo and colour coding for qualitative data i.e. questionnaires and interviews. Quantitative data were analysed using descriptive statistics and Cox regression analysis. Qualitative data were analysed thematically.

Outcomes: Symptoms experienced in the latent phase of labour included irregular pain, regular pain, loss of water from the birth canal, blood loss, stomach upset, sleep disturbances or emotional upset.

There was a significant time difference between the women's experience of the onset of symptoms to the time professionals diagnosed established labour.

There was poor agreement with women coinciding with their midwives assessment of the duration of the first stage of labour.

While symptoms, particular pain played a part in women's decision to go to the hospital there were many other influencing factors.

Women felt they were not prepared and that they would like more information to help prepare them for latent phase labour. Also women wanted more care through latent phase labour.

Conclusion: Women do not want to be left to their own devices in early labour and feel that care in early labour should be viewed as a continuum to the pregnancy. The most common symptoms experienced were regular pain, experienced by almost all women (91%) and blood loss experienced by 70% of women. Water loss and regular pain were important predictors of the duration of labour in multiparous women. Longer labours overall for both primiparous and multiparous women required operative births.

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CHAPTER 1 - INTRODUCTION

1.1 INTRODUCTION

The philosophy of midwifery cites the midwife as an expert in recognising, respecting and safeguarding normal processes during normal pregnancy and birth (An Bord Altranais, 2010; The International Confederation of Midwives, 2005). Women-centred-care is fundamental to midwifery practice which focuses on the woman's individual needs and expectations, rather than the needs or aspirations of midwifery or obstetric professionals. Women centred-care also recognises the need for women to have choice, control, and participation in decision making, around her care. This includes her care during the latent phase of labour. The latent phase is considered to be the time between the onset of contractions to cervical dilatation of 3-4cm during which time the cervix becomes completely effaced (Holmes and Baker, 2006). This phase is often over looked by midwives and obstetricians alike.

I am a clinical midwife of twenty two years with a broad range of midwifery experience in three different countries, England, Australia and Ireland. I fully adhere to the above philosophy and I have developed a keen interest in latent phase labour and the impact it may have on women's experience of labour and the possible negative impact women experience in the latent phase may have on the duration and outcome of their labour. I undertook this research because despite the advances in maternity care in all three countries in which I have worked and studies on various aspects of latent phase labour in many western countries, in my experience latent phase labour still does not get the attention it requires from a service planning or clinical front line point of view. The work of Metchild Gross, Germany; Patricia Janssen, Canada; Helen Cheyne, Scotland; Helen Spiby, England and many more, inspired this study, however I wanted to add to the growing, although still relatively small, body of work on the latent phase of labour. Coincidentally, last year the Department of Health, Ireland launched a new maternity strategy - Creating a better future together, National Maternity Strategy 2016-2026 (DoH, 2016).

"This Strategy is intended to provide the framework for a new and better maternity service. The Strategy is focused on, and responsive to, women and their individual needs. The Strategy, recognising that for all women, the transition to motherhood is an event of a huge social and emotional significance, seeks to create a partnership approach to service delivery" (DoH, 2016).

The results come at an opportune time where nationally many changes are happening across the country and the focuses more than ever are on women centre care and the

involvement of family. One of the four strategic priorities identified are that; “a health and wellbeing approach is adopted to ensure that babies get the best start in life. Mothers and families are supported and empowered to improve their own health and wellbeing” (DoH, 2016).

1.2 MATERNITY CARE DURING THE LATENT PHASE OF LABOUR IN IRELAND

Within the Irish context O’Driscoll’s 1969 research on active management of labour had a significant influence in how labour is managed in Irish maternity hospitals and across most of the developed world. Emphasis is on the accurate diagnosis of labour in the first instance in order to manage labour appropriately thereafter. O’ Driscoll (1969, p. 478) cited “the emphasis was on objective evidence, and painful uterine contractions were not accepted as conclusive unless there was a show, spontaneous rupture of the membranes, or dilatation of the cervix”. It was important that a decision was made within hours of the women presenting to the hospital. If the woman was deemed not to be in labour she was transferred to the antenatal ward and after 24 hours if still not in labour she may have been sent home. However, once a woman was diagnosed as being in active labour the intention would be that she would give birth within 12 hours. This approach – defined as active management of labour, has meant that the distinction between latent and active labour became of central importance, as once active labour was diagnosed the ‘clock starts ticking’ towards delivery. Further, O’Driscoll (1969) felt that the decision on diagnosing labour should be taken by an obstetrician and not left to a primiparous woman, who had no personal experience of labour and ‘scant’ knowledge, thus giving priority to medical knowledge over women’s knowledge of her own body. Now the intention is that this decision is made either by the midwife or the obstetrician in partnership with the woman based on history of contractions, show, ruptured membranes and to confirm cervical dilatation on vaginal examination. However, these two issues and the need to clearly distinguish between latent and active phases of labour and the prioritisation of clinical rather than tacit knowledge, have led at times to much confusion when defining the commencement of established labour.

There are 19 maternity units in Ireland providing care to approximately 66,000 women who give birth each year. The majority of units are consultant led. Consultant led maternity units are units where all care is provided to low and high risk women by teams of doctors and midwives. Some maternity units provide midwifery led services, for women considered low risk. In midwifery led units (MLU) care is provided by teams of midwives through the antenatal, intrapartum and postnatal period. In Ireland there are two MLUs, seven maternity units providing community midwifery care, two maternity units

provide postnatal midwifery community care and home births are predominantly provided by self-employed midwives**.**

This study was carried out in a hospital which provides both consultant led and midwifery led care. The majority of women were recruited through the Midwifery Led Unit (MLU) where the midwife "in partnership with the woman, is 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). The MLU in the North East of Ireland was developed, based on the Kinder report (2001), within the context of a randomised controlled trial (Begley et al, 2009) to evaluate the effectiveness of midwifery-led care compared to consultant-led care for healthy low risk women. The MLU provides antenatal, intrapartum and postnatal services with extended postnatal care in the community for up to seven days post birth. Antenatal education is provided by the midwives who work in the MLU. Women are encouraged to phone the MLU when they have symptoms of early labour to get advice on how best to cope with their symptoms at home and when to come to the hospital for assessment.
In undertaking this research I aimed to contribute to the body of knowledge on latent phase labour and to increase understanding on this important stage of labour with the overall aim of improving the care that mothers and babies receive

1.3 AIM OF THE STUDY

To identify the symptoms women experience in the latent phase of labour as perceived by them and examine what influences their decision to seek hospital admission. The study also aims to explain how the latent phase was experienced and how that affected the process, duration and outcome of labour.

1.4 RESEARCH QUESTIONS

Research questions:
What symptoms do women experience during the latent phase of labour?
Of the symptoms experienced in early labour, do some more than others incite women to seek hospital admission?
What was the duration of time from the onset of symptoms to professionals' diagnosing established labour?
Are there any associations between the duration of labour and the outcome?
This is a mixed method study. There are essentially two stages. Stage one incorporates quantitative data from the questionnaire and hospital information system. Stage two incorporates qualitative data from the questionnaire and interviews.

1.5 PREGNANCY

For a woman planning a baby or from the day she first realises she is pregnant whether planned or not healthcare professionals have a significant role to play in partnership with her in ensuring a safe and healthy outcome for her and her baby. She is given an estimated date of delivery (EDD) which is calculated using the first day of her last menstrual period or an ultrasound scan or both. The EDD was first introduced to obstetric practices in the early 1800s by Franz Karl Naegele hence the name Naegele's rule. The rule estimates the EDD by adding a year, subtracting three months, and adding seven days to the first day of a woman's last period (LMP), which essentially amounts to 280 days or 40 weeks. An easier method is adding 9 months and 7 days to the first day of the last menstrual period. This date is then confirmed by an early ultrasound scan. Through the entire pregnancy maternity professionals advise her, monitor her health and her baby and educate her on how to ensure her health and wellbeing for optimum outcome for her and her growing baby. While the merits of calculating an estimated date of birth are well founded, particularly in terms of monitoring the safety of the mother and baby, obstetricians and midwives alike have ensured that women become obsessed by this date. Anxiety mounts even further when the woman goes beyond this date. Labour and labour pain is now seen as something that must be managed by the health profession and society at large is no longer familiar with seeing women in labour and in pain (Camann 2002). The latent phase requires further research in order to provide evidence and information that may be used to encourage women, their families and society to see labour as a normal phenomenon and not something that must be managed or controlled.

1.6 LATENT PHASE LABOUR

Latent phase labour has often been a time where the woman is left to her own devices with peripheral help from the medical professionals. Despite the limited research conducted on latent phase labour we are still a long way away from truly understanding this all important stage in the labouring process. If women do not get rest, or are not hydrated enough or nourished enough through this early stage of labour, their labour could become longer and more painful than if she was well rested, well hydrated and well nourished. Antenatal education classes encourage women to eat and drink through the earlier stages of labour but this advice is not always heeded. Is it because women feel that latent phase of labour is not important or is this because maternity care professionals do not put enough emphasis on the importance of latent phase labour?

Maternity care professionals have yet to agree on when established labour starts. This is discussed more fully in the literature review, and defines latent phase labour and why at times it can have an impact on the overall progress and outcome.

1.7 THE STRUCTURE OF THE STUDY

Chapter 2, following on from chapter 1, the introduction, addresses a narrative review of the available literature on latent phase labour and learning to date about what women want and how a woman's experience of latent phase labour may impact on her overall labour and outcome. The literature review also covers the influence of the woman's partner and family on their influence of latent phase labour.

Chapter 3 addresses the methodology used in order to achieve the best possible means of exploring women's experience of latent phase labour from both a quantitative and qualitative point of view. Various methods were explored to decide how best to interrogate the data to be able to answer the research questions and build upon existing work on latent phase labour.

Chapter 4 details the findings of analysis of the completed questionnaires that women were asked to complete on their experience of latent phase labour. Women were also asked about midwives support during latent phase labour and asked to offer suggestion on how midwives could positively impact on improvements on care during latent phase labour.

Chapter 5 details the clinical data collected from the Maternity Information system and the quantitative data from the questionnaires.

Chapter 6 details the qualitative findings of the interviews conducted on ten women from the 235 women who completed and returned the questionnaires.

Chapter 7 discusses the findings in line with existing research and offer further insights on women's experience on latent phase labour and offer recommendations for midwives and obstetricians on how to improve practices around latent phase labour.

CHAPTER 2 NARRATIVE LITERATURE REVIEW

This chapter details an account of the existing literature and research on the latent phase labour in order to help inform the research questions to add purposefully to the existing work on the latent phase labour, and offer further insight into how women experience early labour, and if this experience impacts on the process and outcome of labour.

Search strategy

A narrative literature review was carried out using database searches of the Cochrane Institute database of systematic reviews; Medline; CINAHL; Pubmed; CSA Illumina; ISI Web of Science; ScienceDirect; Wiley Interscience; Web of Science and Google Scholar. Search terms included: pregnancy, early labour, latent phase of labour, first stage of labour, long latent phase of labour, hospital admissions in early labour, stages of labour, early labour of low risk women, labour duration, labour duration of low risk women, slow progress in labour, early labour complications, support people in labour, preparation for labour, early labour at home, decision to go to hospital.

Results are reported in the following sections:

- Definition of latent phase labour
- Symptoms of latent phase labour
- Diagnosing latent phase labour
- Managing latent phase labour
- Negative outcomes with latent phase labour admissions
- Midwives' perceptions on latent phase labour and what they feel women want
- Preparation for latent phase labour
- Women's understanding and experiences of latent phase labour
- What incite women to seek hospital admission?
- Impact of support people during latent phase labour

The following literature review will appraise research carried out on the latent phase and highlights the need to enquire further into women's experiences of latent labour and explore if this experience impacts on the process of established labour and the ultimate birthing outcome. Much research to date, on the latent phase of labour, has concentrated on management of the latent phase and the evidence on medical interventions women are at increased risks of receiving if they are admitted to hospital prior to onset of active labour (McNiven 1998; Holmes et al. 2001; Janssen et al. 2006). It also addresses the importance of the need for midwives to give the latent phase the recognition it requires.

Review aim

The review aimed to answer the question; Does the way in which the latent phase was experienced, affect the process, duration and outcome of labour? The literature review was based on an initial review of key papers on early labour which helped identify firstly that it was an issue that required further research and secondly guided the search and selection of papers. The literature review was then finally revised and refined based on the findings of my study.

In order to answer this question the literature review focussed on the following topics: Definition of latent phase labour; symptoms of latent phase labour; diagnosing latent phase labour; managing latent phase labour; negative outcomes with latent phase labour admissions; midwives' perceptions on latent phase labour and what they feel women want; preparation for latent phase labour; women's understanding and experiences of latent phase labour; what incite women to seek hospital admission?; impact of support people during latent phase labour;

2.1 DEFINITION OF LATENT PHASE LABOUR

Currently there is little agreement on the boundaries of the latent phase of labour. The first stage of labour describes the time from the commencement of contractions to full dilatation of the cervix. It is sub-divided into the latent phase and the active phase of labour. The latent phase is considered to be the time between the onset of contractions to cervical dilatation of 3-4cm during which time the cervix becomes completely effaced (Holmes and Baker 2006). Gharoro et al. (2006) were quite definite in their definition of latent phase labour including uterine contractions every 10 minutes or longer with the cervix being dilated < 3cm with little or no effacement. Incerti et al. (2011) looked at the variability in the rate of cervical dilation in primiparous women at term. Management of labour followed a set protocol of care. Established labour was diagnosed as regular contractions every ten minutes, for more than 40 seconds, cervical effacement of more than 80 percent and cervical dilation of 2cm.

The active phase of the first stage of labour describes the time between the end of the latent phase to 10cm dilatation of the cervix. A common definition of established labour is; regular strong contractions with cervical dilatation greater than 4cm (Bailit et al. 2005). O' Driscoll and Meagher (1986) also cite, a blood stained show, with or without ruptured membranes. Many studies cited various cervical dilatation of 3 to 4 cm as the progression point from latent to active phase of labour (Bailit et al. 2005; Janssen et al 2006; Spiby et al 2008; Dencker et al. 2010; Gharoro et al. 2006). The active phase also

varies in length, usually between 2 and 6 hours, and usually is shorter for multiparous women than primiparous women.

No degree of cervical dilatation assisted in differentiating between pre-active and active labour. “Adequate cervical change over time (cm/hour) based on at least two appropriately spaced cervical examinations reliably differentiates between labour phases for nulliparous women” (Neal et al. 2014). They accept that while some women may be in active labour prior to cervical dilatation of 4cm although they found that admitting women before cervical dilatation of < 4cm is related to increased risk of caesarean section, regardless of cervical dilatation.

Their overall recommendation was that nulliparous women should be admitted to hospital only after the onset of active labour, but if women are admitted before this, due consideration be given to differentiating early labour progress from labour dystocia.

Midwives and obstetricians may agree what the definition of latent phase is as mentioned, but not when it starts. We have yet to develop an absolute method to decide the symptoms of latent phase labour and the precise time of the onset of the latent phase, and when the latent phase transitions to the active phase of labour. The timing of both varies with each woman. Research has attempted to address this issue as discussed in the next sections, symptoms of latent phase labour and diagnosing latent phase labour.

2.2 SYMPTOMS OF LATENT PHASE LABOUR

Gross et al. (2003) carried out a qualitative study to examine women’s assessment of how and when their labour commenced. A semi-structured questionnaire was given to women in one German hospital over a period of 13 months with women participating. Women were asked to record when labour had started and what symptoms they had experienced at this time. All but 18 women were able to record precisely when labour started. These 18 were then excluded leaving a sample of 217, 107 of which were primiparous and 110 multiparous women. Structured content analysis was used. Eight different categories emerged from the analysis: recurrent pains; non-recurrent pains; watery fluid loss; bloodstained loss of any type including a bloody show; gastrointestinal symptoms; altered sleep patterns; emotional upheaval; others not defined. There were 369 encoded items or sampling units. Two thirds (63.4%) of the sample units were related to either non-recurrent pain or recurrent pain. Women differed significantly in their reporting on the signs of labour. The following are the reported symptoms: recurrent pain 62 (32.8%) by nulliparous women and 80 (44.4%) by multiparous women; non-recurrent pain 51 (27.0%) by nulliparous women and 41 (22.8%) by multiparous women; watery loss 30

(15.9%) by nulliparous women and 17 (9.4%) by multiparous women; blood-stained loss 17 (9.0%) by nulliparous women and 16 (8.9%) by multiparous women; gastrointestinal symptoms 8 (4.2%) by nulliparous women and 2 (1.1%) by multiparous women; emotional upheaval 8 (4.2%) by nulliparous women and 14 (7.8%) by multiparous women; sleep disturbances 6 (3.2%) by nulliparous women and 5 (2.8%) by multiparous women. Women experience an array of symptoms and not just pain.

Further work by Gross et al. (2006) found that only 60% of women reported pains as a sign of labour. The same list of symptoms as described above was used in this study. Women reported some symptoms several days before labour was established e.g. restlessness and altered sleep. Only 66.5% had spontaneous rupture of the membranes either before, as a sign of labour or after their onset of labour. There was a significant difference in the first stage of labour for nulliparous and multiparous women. Some women recorded their onset of labour several days before the baby was born. As with their previous study a structured content analysis was used. They studied three time intervals; from onset of labour until rupture of the membranes, from onset of labour until full dilatation of the cervix and from onset of labour until birth. Cox regression was used for univariate and multivariate analysis. 24% of women did not record ruptured membranes as a sign that labour had commenced, although interestingly women who did report it as a sign of labour had a shorter duration of labour. They also noted that women and clinicians quite often do not agree with the signs of the onset of labour. While there was correlation between many women's perceived symptoms of the onset of labour this could not be applied to all women.

In a later study Gross et al. (2009) carried out a longitudinal cohort study addressing a clearly focused issue on the time of labour onset and it's symptoms as perceived by the women and how this correlated to the clinical diagnosis made by their midwives. The variables measured had been determined by an earlier study by Gross et al. (2003) as discussed above. All women in the study were asked to choose from the same predetermined list of the symptoms they experienced, including subjective and objective measures, negating the risk for classification bias. For analysis they used the Cox regression model enabling investigation of the effects of several variables.

The median duration of the first stage of labour differed significantly between women and midwives 11 hours and 6.5 hours compare to 7 hours and 4 hours for nulliparous and multiparous women respectively. They concluded that women's perception of the onset of labour should be taken into account for intrapartum care.

In an earlier study, Gross et al. (2003) found that women are inherently aware of when their labour starts. Quite often professionals will disregard a women's perception of the commencement of labour. For the majority of women their labours have commenced well before they seek hospital admission (Gross et al. 2003; Gross et al. 2009).

All the above studies emphasise the importance of midwives taking account of women's perception of the onset of labour, and the importance of listening to women in order to involve them in the accurate diagnosis of labour.

2.3 DIAGNOSING LATENT PHASE LABOUR

As already discussed, diagnosing labour is crucial to the subsequent management of labour and possibly the outcome (O' Driscoll 1969). Hanley et al. (2016) consider it one of the most important judgements in maternity care. Hanley et al. (2016) conducted a systematic review of definitions in the research literature and found that the majority of studies did not provide evidence based support for their chosen definitions of labour and recommended the development of a consistent and measureable definition for all stages of labour. Cheyne et al. (2009) also agree that deciding whether or not a woman is in established labour is one of the most difficult judgements for her care when in labour.

Cheyne et al. (2006) conducted a study on midwives perceptions of how they diagnose labour following a midwifery workforce planning tool (Ball and Washbrook 1996) that identified that up to 30% of women admitted to hospital in the UK were subsequently discovered not to have been in labour. There were 13 midwives in two focus groups participating in the study. The midwives described information cues from the woman's perspective and from an institutional perspective. Themes from a woman's perspective included: 'physical signs', 'distress and coping', 'woman's expectations and social factors', and from an institutional perspective themes emerged were: 'organizational factors', 'midwifery care' and 'justifying actions'. In the first instance the midwife needs to make a diagnosis then is required to formulate a management plan. On the basis of these findings they developed a model of decision making for diagnosing labour. Despite the development of this tool aiding the diagnosis there still exists conflicting influences between midwives judgements, women's preferences and institutional resources and guidelines. Further research is required on women's approach to labour and preferences.

Prior to the above study Burvill (2002) aimed to provide a woman-centred holistic approach to diagnosing labour by developing a model of knowledge based on how midwives diagnose labour. She conducted a qualitative study using grounded theory with focus groups and in-depth interviews with a midwife expert. The interviews were

followed by a literature review with a focus on "physiological criteria for labour onset, psychological processes in decision making and socio-political and philosophical perspectives in midwifery practice" (Burvill 2002).

Cheyne et al. (2006) mirrored some of Burvill's findings in terms of physical cues and having a woman centred approached off set by midwives being restricted by protocols and partograms. The midwives in Burvill's (2002) study also discussed the concept that midwifery diagnosis was different to medical diagnosis and felt that diagnosing labour on the basis of contractions and cervical dilatation was not accurate for all women. The midwives talked about intuition and gut feelings and watching, listening and determining cues to be more important than doing an internal examination.

Ragusa et al. (2005) conducted a prospective study of 423 women in two Italian hospitals to determine the most useful criteria for determining if a woman was in established labour or not. They found a positive correlation between reduction of interval between uterine contractions, abdominal pain of increasing intensity, for both primiparous and multiparous women, cervical effacement ($\geq$ 50%), and cervical dilation ($\geq$ 2 cm) on establishing the onset of labour. While they used set criteria to determine the onset of labour there remained 16.5% of instances where there were wrong diagnosis and an acknowledged 7.8% of women where it was not possible to make a diagnosis. While this study offers criteria for determining which women require a medical exam and which did not require a medical exam to diagnose labour, there still remain 24.3% of women in this study that either were not or could not be diagnosed in labour.

Despite the above research there is still little consensus on, and no definitive means of, diagnosing labour and determining when the latent phase of labour has transitioned to established labour. Despite this there still needs to be a management plan to inform health professionals to guide women on how best to manage latent phase labour initially in their homes and then in hospital if admission is required. The following section discusses research conducted on the management of latent phase labour.

2.4 MANAGING LATENT PHASE LABOUR

The previous section addressed the importance of diagnosing labour, while this section will address the importance of the period of time from the onset of symptoms of latent phase labour to established labour and reviews work done to date to best inform how latent phase labour should be managed from both a woman's perspective and a midwifery and institutional perspective.

Traditionally the latent phase of labour, has been viewed as a time where women and their partners do not require the expert care of trained midwives and obstetricians, and in effect has been largely undervalued (Greulich and Tarrant 2007; Barnett et al. 2008). It is a time where the woman is expected to manage on her own strength and the support of a partner, or family member. Despite the several trials carried out over the last ten years, (ELSA trial/Spiby et al. 2008; SELAN trial/Hodnett et al. 2008; Janssen et al. 2006; TELSiS trial/Cheyne et al. 2008), it is still not clear what makes women seek hospital admission in the latent phase of labour and how best to care for them.

Maternity services worldwide place no emphasis on a need to manage the latent phase of labour and encourage women and their birthing partners to stay home for as long as they can cope without the aid of professional support or stronger pain relief.

As previously discussed it is challenging to differentiate between latent phase labour and established labour and if sending women home is of benefit to them. Cheyne et al. (2008) carried out a cluster randomised trial in 14 maternity units across Scotland, over a period of 26 months, to test the effects of, a previously designed, algorithm (Cheyne et al. 2006) for the diagnosis of active labour. Their primary objective was to determine if the use of the algorithm assisted midwives in the diagnosis of labour and resulted in a reduction in the use of oxytocin for labour. Their secondary focus was on medical interventions in labour, admission management and birth outcome.

There were two clearly identified arms of the trial. The experimental group midwives were required to use the algorithm to aid their decision on whether or not women were in active labour. Active labour was described as “painful, regular, moderate or strong uterine contractions and at least one of the following cues: cervix effacing and at least 3 cm dilated, spontaneous rupture of membranes, or show” (Cheyne et al. 2007). The control group received normal care based on midwives’ judgments. As blinding was not possible it seems appropriate that only midwives in the experimental group had knowledge of the details of the algorithm.

The results proved disappointing as use of the algorithm did not reduce the number of women who received oxytocin or other medical interventions. Women in the experimental group although discharged home when not in labour had significantly more admissions prior to established labour. Although women in early labour were not admitted to hospital prematurely it did not produce a clinical benefit in terms of outcomes.

Cappelletti et al. (2016) explored 'first time mother's experience of early labour in an Italian maternity unit'. They interviewed 15 first time mothers, with a low risk pregnancy, who accessed maternity triage and were either admitted or sent home. They used the phenomenological approach of the lived experience. Four themes emerged – 'recognising labour, coping with pains at home, seeking reassurance from healthcare professionals, being admitted versus going home'. Women who were admitted in early labour felt safe. Others were happy to go home. Some women who were sent home were initially disappointed, angered even by the lack of care in early labour and felt discouraged but retrospectively felt it was the right decision, to be in their own environment with their partners and once at home they felt safe. Cappelletti emphasised the importance of informing women about early labour in antenatal classes to boost her confidence in herself while at home and recommended the development of general and specific guidelines on early labour care.

McNiven et al. (1998) conducted a smaller randomised control trial, of 209 women, exploring the effectiveness of early labour assessment, in an attempt to reduce caesarean birth rates for low-risk nulliparous women. There were two groups under review, early assessment group and direct admission group. Women in the assessment group were encouraged to go home or go for a walk prior to being admitted. This study found that women in the early labour assessment group had shorter duration of labour, required fewer epidurals and less oxytocin augmentation 22.9% to 40.4%, than in the direct admission group. Women evaluated their labour and birth experience more positively in the assessment group. There was no significant difference in the groups for operative births. Although numbers were small this study rates early labour assessment positively with regards to overall outcome. Despite being an underpowered study results proved helpful when compared to other larger studies.

Spiby et al. (2008) (ELSA Trial) sought through a multi-centre randomised controlled trial to determine the impact of offering home visits by midwives to low risk nulliparous women in early labour at term between day time hours of 08.00 - 21.00, compared with standard care and assessment in hospital. Under review was duration of labour, birthing outcome, breastfeeding, women's' health at six weeks and associated costs for women and their babies at six weeks. Each woman who consented to participate was sent a questionnaire. Questions covered women's expectations of labour, her worries related to the onset of labour and her preferences for care during labour. Midwives were asked to complete data sets of clinical details when they visited the women at home, labour details and postnatal details on discharge of the woman's care to the community. At six weeks women were sent a questionnaire relating to information related to their labour

experiences, emotional well-being, thoughts on their baby, concerns of their birth companion, physical wellbeing, use of health services and need of 'over-the-counter' medications for themselves or their babies.

Hospital and community midwives were asked to complete questionnaires if they were involved in the care of women participating in the ELSA trial. Heads of Midwifery were interviewed and consultants were asked to complete a questionnaire. The primary outcome was caesarean section or operative vaginal birth with secondary outcomes on interventions, labour duration, maternal complications and neonatal complications.

There were 1,737 participants randomly allocated to both groups of the trial; home assessment group and hospital group. A primary analysis was with intention to treat and a secondary analysis was with per protocol analyses. There were no statistically significant differences detected for primary or secondary outcome measures between the groups. Women receiving home visits rated their experience positively, felt they benefitted for the time at home and felt safe and cared for. There was no difference reported once all women were in hospital in labour. Women in the home care group were less likely not to be in labour when they presented to the labour ward and less likely to feel that they presented to hospital too early. Partners in the home assessment group felt more involved. Many women would opt for a visit at home in a subsequent pregnancy.

Midwives who visited women in their homes experienced an increased job satisfaction. Hospital midwives were less influenced in terms of job satisfaction by participation in the ELSA trial. Heads of Midwifery viewed the home assessment care positively considering benefits for women being at home and avoiding unnecessary hospital presentations and admissions, midwives job satisfaction and less of a strain on hospital resources when women are admitted not in established labour. They also appreciated the need for organisational change.

The majority of obstetricians felt that offering early labour assessment at home would be of benefit to the women and also busy labour ward environments. Few obstetricians mentioned concerns around less learning opportunities for medical students and medical training in general. In terms of reducing cost there was no clear evidence for financial savings.

The ELSA trial while not reducing caesarean section rates or having any significant impact on interventions proved very successful from a woman's point of view. In order to provide home care assessments there needs to be significant organisational changes for

both community and hospital delivery of care. From the woman's point of view it is beneficial, which highlights the importance of women centred care and the need to invest in services to realise this concept.

Janssen and Desmarais (2013) used a previously designed Early Labour Experience Questionnaire (ELEQ). This research was part of a bigger trial conducted over four years. The questionnaires were analysed on 423 low risk nulliparous women. 241 women were randomised to receive care at home and 182 received care by telephone. The ELEQ was used to measure emotional well-being, emotional stress and perceptions of midwifery care. While women rated home visits more positively their affective experiences did not differ between the groups. They suggested that obstetrical units and maternity services should have a more women centred approach towards early labour, organising care to meet women's needs for reassurance and information.

Women who remained at home maintained a sense of power enabling them to make decisions around their labour and birth. Their recommendations to birthing professionals are to be respectful and sensitive to women's preferences thereby promoting the existence of power for women through their labour and birth.

Janssen and Desmarais (2013) found scores for the home care group were higher than the telephone group and suggested appraisal of the ELEQ may instigate changes in early labour care and promote women's confidence in their ability and encourage women to stay home until they are in established labour. Similarly the ELSA trial (Spiby et al. 2008) found home visits were evaluated positively and there was some evidence of an improvement in women's experience of labour.

Many women attest to the benefits of being in the comfort of their own homes in early labour; however there are still areas where the medical professionals can impact positively to ensure women feel empowered and supported while remaining at home.
Staying at home has the added benefit of reducing interventions. Holmes et al. (2001) found that nulliparous women who laboured at home for two hours before being admitted to hospital had a caesarean section rate of 10.3% compared to 4.2% for women who laboured for 4.5 hours at home. The women who were admitted earlier also had oxytocin augmentation and require epidural analgesia.

While managing latent phase labour requires meeting the needs of women there is much research on admission in early labour and interventions used to induce or augment labour with subsequent need for pharmacological methods of pain relief and operative births;

vacuum, forceps or caesarean section. The following section discusses research carried out on the effect of admission in early labour on the subsequent interventions women required and the mode of delivery.

2.5 NEGATIVE OUTCOMES WITH LATENT PHASE LABOUR ADMISSIONS

Women admitted to hospital in early labour may be at increased risk of medical interventions.

Hemminki and Simukka (1986) conducted a study, over a period of 5 months to determine the relationship between the timing of hospital admission and progress of labour of 436 primiparous women, who sought admission because of contractions.

Women were divided into two groups defined as ‘early comers’ and ‘late comers’. They used a cut-off point of four hours of contractions prior to admission. Using a cut-off point of four hours is very subjective. Despite their rudimentary and very subjective means of measuring the speed of labour, the study yielded some interesting results. Women who sought admission early, or had prelabour rupture of membranes without contractions, had shorter labours. However these women received more interventions, more caesarean sections and required longer postnatal stays.

Petersen et al. (2013) carried out a prospective longitudinal study on women’s perceived symptoms of labour and the associated frequency and timing of epidural analgesia. This was the same cohort of women in Gross et al. (2009) study with 131 women excluded because of lack of data regarding symptoms on admission. There were 549 nulliparous women and 490 multiparous women participating. Data were gathered prospectively on a data set separate from the medical records. On admission to the labour ward women were asked about a defined list of symptoms as described in studies by Gross et al. (2003; 2006; 2009) and her perceived time of the onset of labour. Analysis was by Kaplan Meiers logistic regression and Cox regression. The event times for regression analysis were from the time of onset of established labour as diagnosed by the midwife to the time the epidural was employed. Cervical dilatation on admission and prior to epidural analgesia was also recorded. More nulliparous women required epidural analgesia than multiparous women 31.7% and 10% respectively. Nulliparous women required an epidural 5.47 hours after diagnosis of labour by the midwife at a median cervical dilatation of 3.3cm. Multiparous women required an epidural at a median of 3.79 hours following diagnosis by the midwife at a median cervical dilatation of 3cm. Women who perceived their labour to be 15 hours longer than the midwives diagnosis of labour required an epidural more frequently. Gastrointestinal symptoms and irregular pain as

reported by the women were associated with a later need for epidural analgesia. Epidural was required closer to the woman's admission when she had reported watery fluid loss, emotional upset and a show as signs of labour and when the women perceived her labour to have started earlier than the midwife diagnosed labour. Their findings suggest that women's perception of when their labour commences has an impact on the need for epidural analgesia. On this basis it is important that women receive individualised care with regards to timing of labour as perceived by them and the need for epidural analgesia. This individualised care should also extend to the multi-professional team namely obstetricians and anaesthetists.

Janssen et al. (2006) carried out a multisite randomised control trial comparing early labour assessment of women being triaged by telephone or during a home visit. The main outcome measure was caesarean section. They assessed if delaying admission in early labour would prevent the cascade of intervention. Data analyses were by intention to treat, ensuring all participants were analysed by the groups they were originally allocated to. They found that there was no significant difference in the groups when comparing caesarean section rates.

Holmes and Baker (2006) recommend managing the latent phase away from the labour ward as admission in early labour may increase the length of labour and the likelihood of interventions such as artificial rupture of membranes and oxytocin infusion and caesarean birth (Jackson et al. 2003; Hemminki and Simukka 1986; Holmes et al. 2001).

Maghoma and Buckmann (2002) comparing 150 cases to 100 controls found that a prolonged latent phase was associated with increased rates of caesarean section and postpartum pyrexia and puerperal sepsis, mostly related to wound infections. Prolonged latent phase was poorly defined and arbitrarily measured, and did not take into account the woman's perception of when labour commenced. The sample size was also too small to achieve true statistical significance. Despite these limitations the findings are still worth considering.

Holmes et al. (2001), in their retrospective cohort study, of 3,220 women, both primiparous and multiparous, examining the relationship of cervical dilatation on admission and subsequent likelihood of caesarean section, found that the risk of caesarean section decreased slightly with increasing cervical dilatation on admission to hospital. Their data were collected over a four year period from the hospital database. In view of the numbers examined it would appear the cohort represented the population under investigation, and the findings could be generalised to similar cohorts.

Neal et al. (2014) compared labour interventions and outcomes. 52.8% were admitted in pre active labour and 47.8% were admitted in active labour. The likelihood of caesarean section and oxytocin augmentation was higher for women admitted in pre active labour. Peisner (1986) questioned if we could truly in present time identify pre labour from active labour citing "true active labour can only be identified retrospectively based on a determination of progressive of cervical dilation over time. Thus, even cervical dilatations of 3cm, 4cm, or 5 cm do not validly describe the onset of true active labour for many nulliparous women with spontaneous labour onset" (Peisner 1986).

Neal et al. (2014) studied 216 low risk nulliparous women in three tertiary units. For women who had amniotomy, those admitted in active labour had it closer to their admission than those who had this intervention admitted in the pre-active labour group. However women in the pre-active labour group had a longer period of ruptured membranes to birth. The pre-active admission group was no more likely to have amniotomy than the active admission group, but were more likely to be augmented with oxytocin. Also maximum temperatures were higher. Women in the pre-active labour group had a longer duration of first stage of labour. Caesarean section was higher for the pre-active labour group. All caesarean section for dystocia of labour were in the pre-active labour group.

This study did not explore the rates of caesarean section but rather investigated whether or not experiences through the latent phase impact on labour events and ultimate method of birth. It also examined methods of pain relief and rates of augmentation as with the above studies.

Spiby et al. (2008) (ELSA Trial) discussed in the section on latent phase management found no statistically significant difference between the groups for caesarean section in labour and instrumental vaginal birth, which shows similar findings to Janssen et al. (2006). No statistically significant differences were found between groups for type of birth, labour duration, interventions used or maternal or neonatal complications experienced.

Davey et al. (2013) in their randomised control trial comparing caseload midwifery with standard care (COSMO trial) looked at the degree to which labour was established on admission to hospital and the method of birth. Included in this study were women in spontaneous labour, with no previous caesarean section, and not planning to have a caesarean section. There were 753 women allocated to the standard care arm and 779 allocated to the caseload arm of this study. Nulliparous women receiving standard care

were more likely to have their labour augmented, than those in the caseload arm. There was no difference in the use of epidurals between the two groups. Women receiving standard care spent 1.1 hours more time in hospital before the birth. Parous women in the standard care group were more likely to use epidurals but not more likely to require labour augmentation. Parous women in standard care group were admitted earlier in labour with a median cervical dilatation of 4cm compared to median cervical dilatation of 5cm for women in the caseload group. Early admission was strongly associated with caesarean section. They found women cared for by caseload midwifery had fewer caesarean sections than women with standard care 19.4% and 24.9% respectively. They suggest that remaining at home longer may be one reason why caseload midwifery had fewer caesarean sections as continuity of care for caseload women may have meant midwives gave more individualised care and this gave women the confidence to stay at home longer and consequently later admissions to hospital in labour was the likely reason for fewer caesarean sections.

Janssen and Weissinger (2014) reviewed women who perceived their labour to be more than 24 hours at the time of hospital admission which was associated with caesarean section and other obstetrical interventions and outcomes. They used data which had previously been collected for the Early Labour Assessment and Support at Home (ELASH) trial.

Women who perceived their labour to have been > 24 hours prior to admission were at increased risk for caesarean section. Women in the prolonged early labour group had a longer first stage of labour but not necessarily a longer second stage. Also women who perceived to be in labour for 24 hours or more pre admission were admitted with cervical dilatation of 3cm. This group also required as well as obstetrical interventions more narcotic and epidural anaesthesia.

They also explored neonatal outcomes for women who perceived to be in labour for <24 hours versus > 24 hours prior to admission. Meconium stained liquor was more frequent in the prolonged labour group but there was no significant difference in apgar scores. Another interesting observation was that women who had admission with latent phase longer than 24 hours and had augmentation had a lower caesarean section rate than those who did not have augmentation. The suggestion from this study was that recognising and treating a prolonged latent phase labour may reduce caesarean section.

Although the ELSA trial (Spiby et al. 2008) found that there were no significant differences for instrumental vaginal birth or caesarean section between the women who received home visits and those in the standard care group.

Holmes et al. (2001) also found a correlation between early admission and interventions. There was greater use of oxytocin augmentation and epidural analgesia by women who presented earlier in labour and the risk of caesarean section decreased with increasing cervical dilatation at the initial presentation.

Bailit et al. (2005) carried out retrospective cohort research on the outcomes of women being admitted to hospital in active phase of labour versus latent phase of labour. 2,697 latent phase women met the criteria for inclusion in the study. There were more nulliparous women admitted in the latent phase of labour. Nulliparous and parous women admitted in the latent phase of labour experienced arrest of labour and required oxytocin augmentation more frequently and had more caesarean sections and infections compared to women admitted in active labour. They offer two possible explanations; either women who are admitted in the latent phase of labour are more likely to experience dysfunctional labours or admitting women in the latent phase increases their risk of caesarean section due to prolonged exposure to the hospital environment and increased interventions. They also acknowledged the need for increased analgesia in dystocic labour and this need being an influencing factor in women presenting to hospital earlier in labour with the inference being that women who present early may be destined for a dystocic labour. Bailit et al. (2005) suggest the need for a larger study focusing on outcomes for women being exposed to the hospital environment longer.

Rahnama et al. (2006) carried out a cohort study to compare reasons for and rates of caesarean section between 466 nulliparous women admitted in the latent phase of labour to 329 parturient women admitted to labour in the active phase of labour. Active labour was defined as regular, painful contractions with a cervical dilatation of >3cm. The rates of caesarean section was greater i.e. 64.5% in group one compared to 24.3% in group two. The main reason for caesarean section in group one was labour dystocia and in group two, fetal distress. They acknowledge that there are many compounding reasons for the increase in caesarean section but confirmed that admission in the latent phase of labour can increase the rates of caesarean section. They suggest women are only admitted when they are in established labour offering them encouragement and advice but not admitting them.

There is some evidence that early admission is associated with increased interventions and less good outcomes when women are admitted in latent phase labour. The research does not however advocate the need to keep women out of hospital but more so to support them through the latent phase of labour and if they are admitted appreciate when they are in prolonged latent phase or in dystocic labour and manage appropriately. A number of studies have explored ways of managing early labour – gate keeping admissions – providing support etc but none have been particularly effective. Midwives have a significant role to play in this. The next section explores midwives views on the latent phase of labour.

2.6 MIDWIVES' PERCEPTIONS ON LATENT PHASE LABOUR

Midwives while very skilled and knowledgeable around all things labour and childbirth have an enormous responsibility to act as a woman's advocate through her pregnancy and labour and are ideally positioned to impact positively on the organisation of care around the latent phase of labour.

Cheyne et al. (2006) carried out a qualitative study, using focus groups, of midwives' perceptions of the way in which they diagnose labour. Data were analysed using latent content analysis. Midwives based their decisions on various cues, from first impressions of how a woman was coping, and physical cues such as assessment of contractions and vaginal examinations. Diagnosing labour was not the greatest problem facing midwives, but rather various other influences; the woman and her partner, midwifery managers and institutional policies. They concluded that in order to reduce inappropriate hospital admissions in the latent phase further research is needed around supporting women, their partners and midwives in influencing how the latent phase is managed.

Janssen and Desmarais (2013) took a different slant on midwifery care and developed an early labour experience questionnaire (ELEQ). They measured women's experience of early labour and women's perception of care in early labour. There were two groups under exploration, one group received assessment at home from a midwife and the other group received advice on early labour through telephone conversations. While the overall scores were higher for women who received home visits and assessment at home, they found that midwifery care was less important to women than their emotions and moods.

Davey et al. (2013) found a positive correlation between outcome and type of care received. Women cared for by caseload midwifery had fewer caesarean sections than women with standard care 19.4 % to 24.9%. Nulliparous women in the standard care group were more likely to have labour augmented, than those in caseload group. There

was no difference in the use of epidurals. Standard care women spent 1.1 hours more time in hospital before the birth. Parous women in the standard care group were more likely to use epidural but were no more likely to have labour augmented. Parous women in standard care were admitted earlier in labour with cervical dilatation of 4cm compared to cervical dilatation of 5cm with the midwifery caseload group. Early admission was strongly associated with caesarean section. Remaining at home longer may be one reason why caseload midwifery had fewer caesarean sections. Continuity of midwifery care for caseload women may have meant midwives gave more individualised care and this gave women the confidence to stay at home longer which in their trial had the added benefit of being less likely to require a caesarean section birth.

Dixon et al. (2013) also found that midwifery care had positive influences for the women in their care. This research was conducted in New Zealand where it is the norm to receive care from midwifery led services. The study was based on women's perceptions of the stages of labour. While women were aware of the various stages of labour it did not resonate with them in a real sense to the point of understanding what each phase meant and when to possibly go to the hospital. Asking the midwife with whom they already had a relationship was the first course of action. They were reassured by the fact that the midwife knew what was happening and had confidence in her advice. The women were given confidence to stay home by the midwife advising them and reassuring them.

Not all research found a positive correlation with midwifery care. Nolan and Smith (2010) interviewed eight women on their experiences of the advice they were given by midwives to encourage them to stay at home for longer periods of time while they were in early labour. Women felt that the advice given was based on a professional rather than woman centre response to management of early labour. Advice to stay at home is not enough in terms of satisfaction of care received. They found that women wanted their labour validated and needed reassurance. Most women felt that the hospital had an agenda to try and keep them at home for as long as possible and midwives were almost giving women permission to attend. Women felt that midwives did not give due consideration to the stresses she herself was dealing with at home, physical pain and anxiety coupled with at times pressure from her support people to go to the hospital. Of further concern were findings by Spiby et al (2008) where women found midwives at times to be casual and uncaring during telephone calls.

Women were confused by the fact that professionals spend nine months of their pregnancy monitoring them closely and encouraging a healthy lifestyle to optimise the

health of the baby and then come early labour they are expected to go it alone. Women are very reassured by professionals telling them that they are in labour.

Midwives have a responsibility to balance protecting the women from medical intervention and practising with a woman centred approach. Spiby et al. (2014) interviewed midwives on their beliefs and concerns around telephone conversations with women in early labour. While well intentioned they found midwives were acting as gatekeepers to keep women out of the labour ward to protect them from unnecessary intervention but at the risk of women's needs not being heard.

Eri et al. (2011) conducted a similar study in Norway on how midwives communicated with first time mothers in early labour. They interviewed 18 midwives in focus groups. The themes that emerged were "getting the picture; normalising the situation; giving concrete advice; letting the women make the decision; staying at home for as long as possible". The main objective from the midwives' point of view was to keep the women at home for as long as possible 'for their own good' to avoid exposure to medicalisation. The authors argued though, that if the women were in the labour ward the midwives should be able to protect them from unnecessary medical intervention and work in partnership with the women within the philosophy of midwifery 'for women's own good'.

Midwives also have a responsibility to prepare women for labour. The next section addresses how women prepare for labour and what midwives can do to help this preparation. Information should be tailored around women ensuring optimum health and rest as well as giving them information on what to expect in the earlier stages of labour and how best to cope with this, but also reassure them that if care is required in latent phase labour this too will be accommodated and the appropriate advice will be given.

2.7 PREPARING FOR BIRTH, KNOWLEDGE AND EXPECTATIONS

Advance information technology now means that women have an array of media from which to get information, as well as social media ensuring that any women have the opportunity to ask questions and tell their stories. While this should be embraced to a certain extent by health professionals it is imperative that we as midwives assume a lead in the information giving and education on all aspects of labour and birth, but not least of all early labour. As already discussed it is quite often the time where women and their support people are left to their own devices with some contact with professionals through home visits if organisation of maternity services allows for this or over the telephone.

Most information is shared through the pregnancy either in antenatal clinics or childbirth classes.

Information is often based on what to expect in the early stages of labour and how best to cope with pains at home and when to come to the hospital. Just as important is adequate rest and nutrition in the days leading up to labour and the early stages of labour. Dencker et al. (2010) carried out research in two Swedish maternity units involving low-risk nulliparous women who laboured spontaneously to identify any latent phase factors associated with the duration of active labour. A long latent phase few hours of rest and sleep during the preceding 24 hours predicted a long active labour. Sleep deprivation was also a theme identified by Barnett et al. (2008).

Beebe and Lee (2007) looked solely at the impact of sleep disturbance in late pregnancy and early labour: Poor sleep in late pregnancy and early labour has the potential to have adverse effects on labour and birth. Sleep was continuously measured with a wrist actigraphy until hospital admission for delivery. Women completed a self-report questionnaire measure of pain and fatigue in early labour. Sleep progressively decreased in the last 5 days of pregnancy. Women experienced the least amount of sleep the night before spontaneous labour. Advice is for women to be informed of this finding and advised on optimising sleep in the last days of pregnancy. They found a relationship between lack of sleep and perception of pain. Gay and Lee (2004) found that women who had less than 6 hours sleep a night had longer labours and an increased risk of caesarean section.

Higher pain scores were associated with lower Total Sleep Time (TST) the night before. TST decreased and percentage of Wake after sleep onset (WASO) increased as pregnancy advanced. Roehrs et al. (2006) also found that sleep deprivation was associated with hyperalgesia as women were less able to cope with the pains of labour.

Barnett et al. (2008) found in general that the information received in hospital before women were sent home was not enough to help women cope at home. The pain in early labour was far greater than they had expected. Some women felt unprepared especially those with fetal occiput position posterior. They felt that such challenges should be discussed more in antenatal classes to help prepare women. Women were not prepared for the pain and were much deflated when they were sent home. Women felt that the latent phase was undervalued and they were only kept in when they were considered to be in established labour. Barnett et al. (2008) recommended further research on how best to support women at home who are planning a hospital birth. Nolan and Smith (2010)

identified ‘uncertainty about early labour as a theme in their study on women’s experiences on the advice given to stay home in the early stages of labour. The women in their trial felt that the advice they were given to encourage them to stay at home was not enough in terms of satisfaction of care received.

Tilden et al. (2016) compared group prenatal care with standard prenatal care. In terms of appropriate management of latent phase, the group prenatal care suggested that the nature of group prenatal care may give women the knowledge to recognise labour to enable them to stay home for longer and when in established labour to present to hospital. They suggest that an effective early labour system will also provide women with the knowledge and skills to help them cope at home when in early labour.

Their findings suggest that group prenatal care may decrease latent labour hospital admissions and, consequently, decrease the number of interventions and procedures as well as resource expenditure associated with latent labour hospital admissions in low risk women.

Maimburg et al. (2010) conducted a randomised trial of structured antenatal training sessions attempting to improve the birth process. Their aim was to compare the birth process in 1,193 nulliparous women enrolled in a structured antenatal training programme, ‘The Ready for Child’ programme, against routine care. Data were analysed with intention to treat. Data collection was with questionnaires and hospital data base. The Ready for Child entailed nine hours of formal training. They compare women with this formal training to those who did not receive any formal training.

Their outcome measures were: cervix dilatation on admission, use of pain relief and medical interventions during the birth process, and the women’s birth experience. While birth experiences and outcomes were similar in both groups women who attended the ‘Ready for Child’ programme presented to the maternity unit in active labour more often than the control group and required less epidurals for pain relief.

Information sharing appears to work but not necessarily in the traditional sense and not text book driven. Women need to be given information based on an individual basis and structured to meet their needs as determined by them. The following section reviews research around women’s understanding and experience of latent phase labour.

2.8 WOMEN'S UNDERSTANDING AND EXPERIENCES OF LATENT PHASE LABOUR

Given that women are the focus of maternity care it is important to get their views on how they feel their care was managed. Cheyne et al. (2007) conducted a qualitative study of 21 women exploring their experiences through the latent phase of their labour, and factors which influenced their decisions on when to go to the hospital. Interviews were, one to one or in groups, as determined by the participants. Utilising an inductive process they formulated two main themes for analysis, 'preparation' for labour and 'being in labour'. The interviews were analysed using latent content analysis. They found that while women felt they were coping quite well in their homes, they lacked the confidence to stay at home, and felt a certain amount of security from being in the hospital environment. Carlsson et al. (2009) also found that women felt very secure in hospital with midwifery and medical staff.

Carlsson et al. (2012) interviewed 19 women after giving birth to their first baby, using a constructivist grounded theory on their experiences of labour prior to admission to the hospital. Maintaining power' was presented as the main theme, explaining the women's experience of adequate power, when labour commenced and their absolute belief in their ability to go through labour and birth.

Barnett et al. (2008) investigated the impact of sending women home in the latent phase of labour. This study was a subsection of the TELSiS trial. They employed a mixed method approach incorporating diaries completed by the participants and follow-up interviews 4 to 6 months following the birth. The research methods were clearly identified, and diaries are possibly an appropriate method of data collection. Diaries however are very time consuming. 21 women agreed to complete the diary, but only 6 returned it, possibly due to time factors. Of the 6 women that returned diaries, 5 agreed to be interviewed. The response rate of 29% was poor as acknowledged by the researchers. Women had mixed views about being sent home.

They found reasons why women seek hospital admission in latent phase, included; influence of others, sleep deprivation, inability to cope with pain, and the latent phase being undervalued by professionals. Despite being slightly underpowered, the study adds to the findings of larger more reliable studies (Gross et al. 2009).

Beebe and Humphries (2006) conducted an ethnographic qualitative study on pre-hospitalisation labour from a nulliparous woman's perspective. They interviewed 23 women in the postnatal period. They sought to understand the expectations and

experiences of women, experiencing labour for the first time, before they were admitted to the hospital. They found contrasts between expectations and actual experiences. They recommended that midwives are in a unique position to support women more through pre-hospital admission.

Eri et al. (2010) carried out a qualitative study of 17 women in Norway. The aim of this study was to explore women's experiences during the last days of pregnancy while awaiting the onset of labour, paying attention to their body experiences through this period. The themes that emerged were: negotiating on two fronts (with mother/partner and with staff), avoidance of being sent home (being sent home didn't make sense to women who wanted care or some were embarrassed to be in too early), searching for regularity (lots of emphasis on regular contractions and five minutes from a midwife's point of view); experiencing vulnerability (would have appreciated more understanding). Participants kept diaries and in-depth interviews were analysed through life-world phenomenology. The researchers found that too much emphasis is placed on the expected date of birth and felt that women should be encouraged to be more in tune with their bodies as opposed to placing so much emphasis on their expected date of delivery (EDD).

Further analysis by Eri et al. (2010) based on the above study looked at women's experience of waiting for the onset of labour which they called the 'waiting mode'. Women were asked to write about their experiences, but a few important topics were highlighted, such as bodily sensations, emotions, and interactions with others and daily activities. They were asked to start writing at 39 weeks. Interviews were carried out six weeks post birth.

One participant waiting for signs beyond the EDD wrote: "It was an unknown sensation, an unknown pain and a new experience. It was so different from anything else and made me think this must be it" (Eri et al. 2010).
Much of the research asking women what they want suggests women want some degree of care in the latent phase of labour, not necessarily one on one care but are evidently reassured by knowing a professional is nearby should they require support or advice, even if this care is provided at home or over the phone.

Spiby et al. (2008) found that women in the home group, and their partners expressed more satisfaction at spending more time at home in early labour. While such an extensive trial shows no difference in birthing outcomes for women, it shows significant satisfaction rates for women and their partners in the home assessment group. Similarly,

McNiven et al. (1998) found that women in the early assessment group evaluated their labour experience more positively than the women in the direct admission group.

Delay in going to hospital was fear of going in too early and being sent home. It was more distressing again for women who were sent home as even more fearful of a repeat experience. They stated that midwives are in a good position to impact positively on women staying at home. Better support can lead to better labour experience and outcome for women. In Barnett et al. (2008) the women stated that being sent home made them feel anxious and unsupported. Women and their partners were very upset at being sent home. Women weren't prepared for the pain and were much deflated when they were sent home. They felt that latent phase was undervalued and they were only kept in when they were considered in established labour. There were many reasons why women presented to the hospital apart from the obvious reason of being in pain. The following section looks at reasons why women present to hospital in early labour.

2.9 WHAT INCITES WOMEN TO SEEK HOSPITAL ADMISSION?

Many women are influenced by the frequency and regularity of their pains when they decided they wanted to go to hospital or they are advised to do so either by hospital staff over the phone or anxious support people who can no longer bear to see their loved ones in pain. Beebe and Humphries (2006) found that the decision to go to hospital was based on regularity of contractions, or being advised to go by hospital staff over the phone.

Barnett et al. (2008) carried out a mixed method review focusing on the impact of sending women home. Many women were influenced to go to hospital by either their partners or a family member who was supporting them at home. Reasons for presenting to hospital were contractions, ruptured membranes, pain and lack of fetal movement. For one woman it was the family pet as he was stressing out as well.

A subtheme running through some of the research on early labour is the need to encourage women to be more in tune with changes in their bodies in the days and hours leading up to the commencement of labour and not be so fixed on a particular date (Cappelletti et al. 2016) Nolan and Smith 2010). Carlsson et al. (2012) also identified one of their subthemes being 'to listen to the rhythm of the body' and 'trust in themselves'.

Nolan and Smith (2010) recommended research around how women themselves feel about what would encourage them to stay home and what would help build their confidence. Change is required encouraging women to become less dependent on

professionals and the EDD and become more open to recognising and responding to their bodies. Much of this comes from how midwives help women prepare for their birth.

They summarise it quite nicely and suggest we need to do more to reassure women and to help them regain faith in their own bodies and emotional strength to stay home in the early stages of labour. It is important that women are empowered and encouraged to maintain as much control as they can, and this comes with being at home but it is important also that they are supported at home. Supporting women at home includes support for their chosen birthing partners as the birth partners require the support of the professionals as well. Birth partners can also have either a positive or negative influence on the women's experience of latent phase labour.

2.10 IMPACT OF BIRTH PARTNERS/SUPPORT PEOPLE DURING LATENT PHASE LABOUR

The vast majority of women chose to have their partners as their support people in labour. Some women also have extra support at home by a family member, often their mother, or a friend. Most labour wards for health and safety reasons will only allow one support person in the labour ward. For this reason their partners are often joined by well-meaning mothers and friends in their home prior to the women being admitted to hospital. While partners are acknowledged as potentially having a key role to play in early labour and labour their role is currently unclear due to limited research in this area.

One woman in Beebe and Humphries (2006) study acknowledged of her husband that; "I couldn't have done it without him". They found in general that the partners' objectivity and knowing their partner and her pregnancy meant that they could read her feelings and needs accurately.

Longworth et al. (2015) review of fathers' involvement in labour and birth and influence on decision making reports that while evidence shows that fathers' roles have changed since 1980 there remains limited research on how they influence the progress of labour and decision making. Involvement ranges from being a passive observer, by choice to having an active supportive role either by choice or at the encouragement of the midwife. UK policy has recommended further involvement by fathers with National Health Service Institute for Innovation and Improvement 'Promoting Normal Birth' (2010). While countries like the UK and Ireland encourage active participation by fathers, there are many countries where neither the mother nor father is involved in labour or birth. In such cultures the maternity professionals assume full responsibility for decisions regardless of the care required i.e. low or high risk care.

There is less still research on fathers' involvement in the latent phase of labour. Two small studies in the UK, Martin (2003) and Nolan et al. (2011) explored the influence fathers had on the time to go to the hospital. Nolan et al (2011) found that in most instances it was a joint decision while Martin (2003) found many women were influenced by their partners on the right time to go to hospital. This was however from the woman's perspective rather than directly from the partners.

In Sweden, Bäckström and Hertfelt Wahn (2009) interviewed 10 first time fathers in the first postnatal week. The main theme emerged was being involved or being left out, subthemes included: allowing atmosphere, balancing involvement, being seen, feeling left out. Fathers felt they were given good support when they interacted with the midwife. Fathers want to be seen as part of the labouring couple. If they are left out they can feel helpless and not be supportive to their partners.

Fathers found it helpful when the women could communicate their needs to them. Fathers found that when midwives gave reassuring answers which kept them calm, this had a knock on effect of keeping the women calm too. When they did not get answers it made them feel irritated. It was important to fathers that they had done some preparatory work, reading, talking to the midwives at antenatal clinic appointments. Fathers were mindful that the midwives had at times needed to focus on the mother and baby so they didn't interrupt with questions.

Mostly fathers wanted to be involved and to be part of the labouring couple but mainly from the point of view of being supportive to their partners. If they were not involved they felt left out and panic set in, which had a negative impact on their partners. When fathers interacted with the midwife and the midwife answered their questions this built trust between them and helped them to feel calm.

2.11 SYNTHESIS OF DISCUSSED LITERATURE

As evidenced by the literature discussed, there has been a variety of approaches used to explore women's experiences of early labour. While some researchers were more interested in women's viewpoints and utilised a qualitative or mixed methods approach, other studies have taken a more experimental approach and carried out randomised control trials (RTCs) on the management of early labour.

The RCTs have examined clearly identified issues. Janssen et al. (2006) focused on care options of home visits or telephone advice comparing outcomes such as caesarean section rates. Spiby et al (2008) and Janssen and Weissinger (2014) focused on comparing home

visits or hospital care with subsequent outcomes such as caesarean birth and obstetric interventions. While these studies did not find any statistically significant difference in outcomes in terms of interventions during labour (Spiby et al., 2008) or mode of birth i.e. caesarean section (Janssen et al., 2006) women expressed a preference for home care over hospital care for their early labour. McNiven (1998) found a reduction in interventions during labour although the study had a small number of participants, 209 compared to 3,513 participants in Spiby et al. (2008) and 630 in Janssen and Desmarais (2013). McNiven (1998) acknowledged the small sample size as a limitation of the study.

Cheyne et al. (2008) took a different approach by comparing the effectiveness of an algorithm to support midwifery diagnosis of labour looking at maternal and neonatal outcomes. However, they too found no reduction in interventions used. The Cheyne et al. (2008) study extended across 14 maternity units and recruited 4,503 women. The sample size in this study was sufficiently powered and could be considered representative of the general population, although they acknowledged that they could not accurately determine the number of eligible women or the amount of ineligible women in the study hospitals.

A RCT conducted by Davey et al. (2013) focused on midwifery led care versus standard care exploring the degree to which labour was established on admission and subsequent methods of birth. The study included 1,532 women. Early admissions were associated with caesarean sections while women receiving midwifery led care had the confidence to remain at home longer and possibly as a consequence of this had fewer caesarean sections. Maimburg et al. (2010) focused on structured antenatal care versus routine care and included 1,193 primiparous women. This trial was the largest to have looked at antenatal preparation for birth. Although one of their acknowledged limitations was the exclusion of multiparous women and therefore further study including multiparous women is required.

All of the trials included randomised groups to be of similar size at the commencement of the studies. Results were clearly explained and limitations and recommendations for further study were clearly outlined. Recommendations for future practice included examining women's needs in early labour, inclusion of more disadvantaged women and women of different cultural and ethnic backgrounds. Many studies found that informed articulate women were more likely to participate in research and more likely to return questionnaires. Further research is therefore required that includes more diverse groups on the impact of early admissions on interventions required and outcome of birth.

These trials and indeed other research approaches studied distinct elements of early labour care but early labour and labour in its entirety is a complex process, isolating aspects of a complex care process may be the wrong approach and study designs and interventions that take into account the complex nature of early labour are required. One suggestion could be an implementation study, co-designed by midwives and women where both groups come together to design the intervention.

A number of qualitative studies focused on women's perceptions of early labour and impact on duration and outcome (Gross et al., 2003; Gross et al., 2006). A follow up study by Gross et al. (2009) explored women's perceptions, compared to midwives understanding of the onset of labour. Other qualitative studies explored women's satisfaction with advice given and subsequent care received in the early stages of labour (Capelletti, 2016).

While some studies considered midwives experience of looking after women in the early stages of labour Burvill (2002) and Cheyne et al. (2006) explored midwives perceptions of diagnosing labour through focus groups and interviews or focus groups and questionnaires. Study groups were small, 13 and 9 respectively and recommendations from both suggested further study with larger participant groups. Eri et al. (2011) took a slightly different approach exploring how midwives communicated with women in early labour and how midwives perceived themselves to be acting in the best interest of the women by encouraging them to remain at home as long as they could in the early stages of labour.

The methodological approach and design was appropriate in all of the studies included. Focus groups were the predominant method of data collection and this is generally considered to be an appropriate means of data collection to obtain views of participants in particular where discussion may generate additional insights. Findings of the studies were clearly described.

Few studies considered the experience of the people who supported women during labour. Backstrom and Hertfelt (2009) explored first time fathers' experience of supporting their partners during labour. Although the sample size was small with only 10 fathers being interviewed, the latent content analysis used produced some in depth information and shows interesting insights into fathers' experience and how healthcare professionals can influence whether fathers are involved with or excluded from the care of their partners. Despite the small number of participants this study information gained could be transferable to first time fathers in other countries. Further research on fathers'

experience or other birthing support people's experience would give further insights into how midwives could involve support people more. This would have the added benefit of providing more effective emotional and physical support to women in early labour particularly in women's homes prior to presenting to hospital. This would also enhance the birthing experience for the woman but also enable a sense of contribution of care from the partners/support person's point of view.

Other studies included in the review used a quantitative approach considering symptoms in early labour. Gross et al. (2009) examined women's perception of their onset of labour and Petersen et al. (2013) examined the same cohort of women considering their perception of their onset of labour and also frequency and timing of epidural analgesia from the onset of their labour as determined by the midwife. Both studies used a longitudinal cohort method, analysed timings using a robust statistical analysis (Cox regression) and were sufficiently powered with 1,170 and 1,039 women respectively.

Holmes et al. (2001) and Bailit et al. (2005) conducted retrospective, longitudinal studies on women in the latent phase of labour and explored their subsequent need for obstetric interventions and caesarean sections associated with admission while they were still in the latent phase labour. Maghoma and Buchmann (2002) also conducted a retrospective cohort study on women in prolonged latent phase labour and explored the subsequent fetal and maternal risks associated with admission in latent phase labour and prolonged latent phase labour. All studies considered subsequent obstetric interventions and caesarean section births. Women presenting in latent phase labour were more likely to require interventions and more likely to have an operative birth. However Bailit et al. (2005) acknowledged that labour problems may have initiated early presentation to hospital and subsequent interventions rather than early admissions resulting in obstetric intervention. Studies by Holmes et al. (2001), and Bailit et al. (2005) were sufficiently powered with 3,220 and 8,818 respectively. Maghoma and Buchmann (2002) had fewer participants (n=250) but their findings were similar to Bailit et al. (2005) as they found prolonged latent phase labour was associated with obstetric interventions and poor neonatal outcome.

As Holmes et al. (2001) and Bailit et al. (2005) studies were sufficiently powered, results can be confidently applied to similar populations. Maghoma and Buchmann (2002) recommended randomised control trials to show how best to manage prolonged latent phase labour and Bailit et al. (2005) recommended randomised control trials investigating if exposure to healthcare settings in early labour place women at higher risk for intervention and subsequent caesarean birth.

2.12 CONCLUSION

There is still a long way to go towards understanding the physiological processes at play, reaching a standardised definition and improving the care during latent phase labour as dictated by existing research and the women themselves. The evidence to date shows attempts to manage early labour have not worked well, there are negative outcomes associated with early admission and many women have uncertainty and unhappiness about the existing approach to care during the latent phase of labour. There is a need to understand what women's experiences are and how these impacts on labour outcomes. While various studies have looked at this there is a need for more research to be undertaken.

This study will build on the work undertaken by Gross (2006 & 2009) and Janssen (2006, 2013 & 2014) applying it to the Irish context. This study is different as it explores several aspects of women's experience of early labour, including physical and emotional symptoms described by women during early labour exploring how they coped at home, the impact this had on their decision to go to hospital and on the process and outcome. Previous studies (as described above) have focussed on either physical symptoms or affective experience while this study links these aspects together.

A significant gap also exists on research carried out around other support people beyond partners. While the majority of birthing support people are women's partners there are also others such as mothers of women or other family members or friends who may have an influence over a woman's experience of early labour. This study addresses this gap and explores the impact that support people may have on women in early labour particularly during the latent phase of labour in their homes prior to presenting to the hospital.

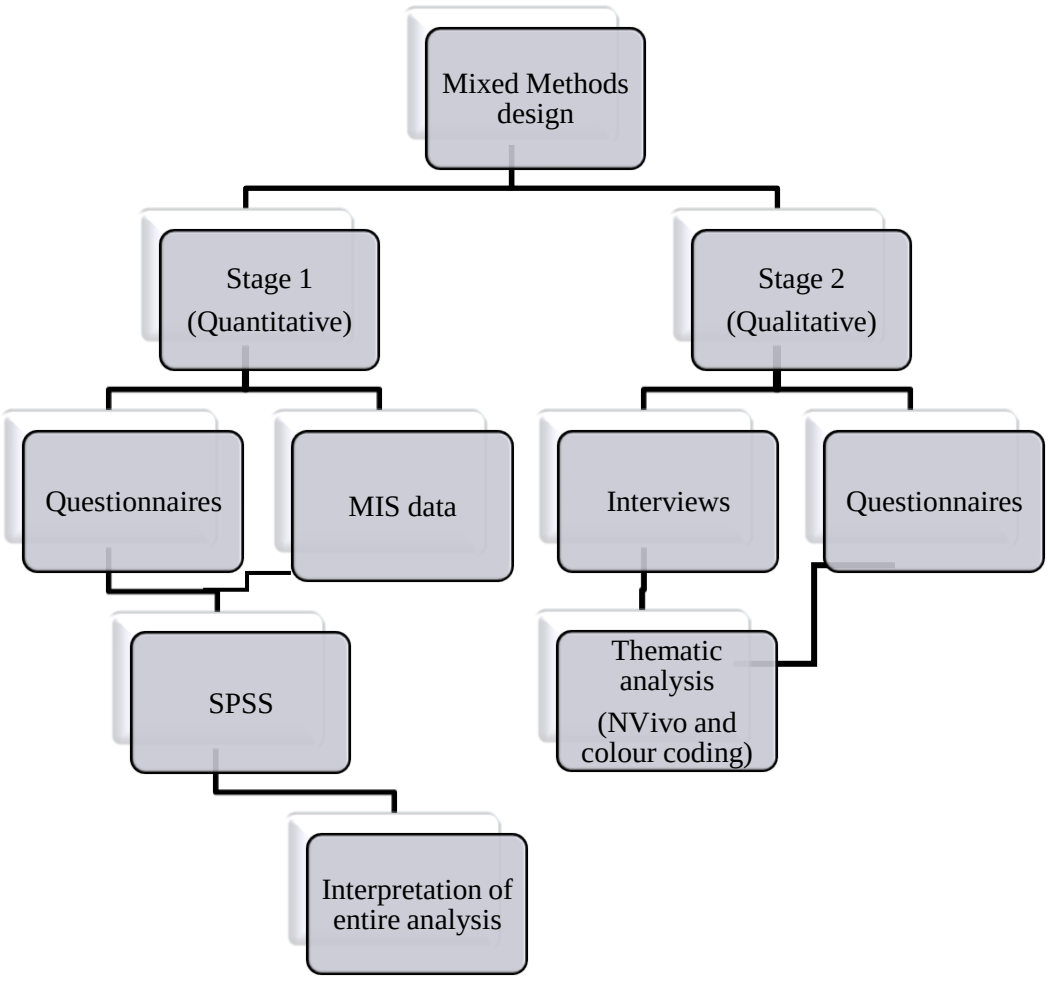
CHAPTER 3 METHODOLOGY

This is a mixed method study. There are essentially two stages. Stage one incorporates quantitative data from the questionnaire and hospital information system. Stage two incorporates qualitative data from the questionnaire and interviews. Quantitative data were analysed using SPSS and Qualitative data were analysed using NVivo and colour coding. This chapter details the methodology and tools used to help answer the question – Does the way in which the latent phase labour (early labour) was experienced affect the process, duration and outcome of labour?

3.1 DESIGN FLOWCHART

The study design is shown below. Questionnaires yielded both quantitative and qualitative data.

Flowchart 1 Study design



3.2 AIM OF THE STUDY

To identify the symptoms women experience in the latent phase of labour as perceived by them and examine what influences their decision to seek hospital admission. The study also aims to explain how the latent phase was experienced and how that affected the process, duration and outcome of labour.

3.3 RESEARCH QUESTIONS

Research questions:

1. What symptoms do women experience during the latent phase of labour?
2. Of the symptoms experienced in early labour, do some more than others incite women to seek hospital admission?
3. What was the duration of time from the onset of symptoms to professionals' diagnosing established labour?
4. Are there any associations between the duration of labour and the outcome?

3.4 METHODOLOGY

This chapter provides information on the methods used to answer the research questions utilising a mixed method design. While qualitative research works within the constructivist paradigm and is concerned with narrative data, and quantitative research works within the postpositivist and positivist paradigm and is concerned with numerical data, mixed methods are concerned with the pragmatist paradigm and are concerned with both qualitative and quantitative data. Mixed methods use any methodological tools required in order to answer the research questions under study. The methods and data collection tools are based on the studies of Professor Patricia Janssen and Professor Mechthild Gross as they have undertaken much of the seminal work in this field. Both Prof. Janssen and Prof. Gross graciously provided me with their data collection tools and I adapted them slightly for the Irish context.

3.5 RATIONAL FOR THE RESEARCH APPROACH TAKEN

A mixed method design was utilised, in order to enhance confidence in the findings (Dixon-Woods et al. 2004). Green et al (1989) suggest mixed methods "augment the information gained from an initial approach", and "add scope and breadth to a study". Hammersley (1996) suggests the main objective of mixed methods is for one method to verify the findings of another. Sandelowski (2000) stipulates that mixed methods can "expand the impact and enhance the flexibility of research designs". Simply put, mixed

methods is the best approach to answering the particular question under investigation in the most robust manner possible (Freshwater, 2006).

In stage 1, part 1 a questionnaire was used to examine how women experienced early labour prior to admission to hospital. The questionnaire used is a modified version of tools previously developed by Mechthild Gross (2005, 2009) and Patricia Janssen (2006) in their respective studies on early labour, and adapted slightly for use within the context of Irish maternity care.

In stage 1, part 2 linked data were collected from the Maternity Information System (MIS), in a hospital in the North East of the Republic of Ireland. This included, length of the first and second stages of labour, medical interventions i.e. oxytocin, and birthing outcomes i.e. normal, instrumental or caesarean section, again using a modified data set developed by Janssen (2006). The questionnaire findings were linked with the clinical data collected, and analysed for associations between experience and outcome. Stage 2 involved interviewing 10 women, on their perceptions of how their experience of the latent phase impacted on their labour and birth.

Data collection occurred sequentially, incorporating a sequential explanatory design. In line with Teddlie and Tashakkori's (2009) sequential mixed method design the qualitative stage emerged from the quantitative stage. As expected the final interview questions evolved from the data collected during stage 1 of the study. The final inferences were then based upon the results of both stages. This typology of mixed method design ensured that the findings from the quantitative data were enhanced and elaborated upon by the qualitative data.

Interviews enabled the women to express their thoughts on their labour and birthing experiences, thereby producing complimentary data directly from the women. This also enabled the researcher to use data from the questionnaires (stage 1 of the study), to inform the interview, thereby increasing the reliability and validity of the data overall. Creswell (2009) suggests follow-up qualitative data provides more depth to the quantitative data, offering further explanation of the quantitative data.

3.6 SETTING

The study took place in one maternity unit in the Republic of Ireland that provides both midwifery and consultant lead maternity care. The annual birth rate at the time of the study was approximately 3,800.

3.7 POPULATION AND SAMPLE

All primiparous (bearing a child for the first time) and multiparous (having previously given birth at least once) women 37 to 42 weeks pregnant, carrying a single viable baby in cephalic presentation and considered low risk (low risk refers to a pregnancy that is anticipated to be problem free, based on a woman's past medical and obstetric history and has continued to be problem free through the pregnancy), were eligible for this study (Table 1).

The sample size was based on birth rate figures for 2010. In 2010 there was an overall birth rate of 3,983, 28.8% caesarean section rate, 17.3% instrumental birth rate, with 53.9% normal birth rate. There were 1,185 low risk women who went into spontaneous labour, giving a potential accessible number of 1,000 to 1,200 women for this study. The planned workable sample was 500 i.e. 40% of the overall accessible figure. The original sample size was 408 which accounts for 34% of the accessible sample size.

Comparison was made for birth outcomes between all low risk women who gave birth in the study maternity unit in 2010 and all women who remained eligible for the study and all women who remained eligible and completed a questionnaire. Data is shown for 2010 as the research proposal was submitted in 2011, and ethics approved in 2012. Data collection was over a 22 month period; 1st May 2013 to 31st March 2015, which was longer than the expected 12 months, as recruitment was sporadic. Given recruitment slowed significantly in the last three months 34% of the accessible sample was considered an acceptable figure to work with.

Comparison is shown between the expected sample size compared to the final sample size. The figures for birth outcomes compared quite well for women who ultimately consented to the study. For women who returned a questionnaire the figures for spontaneous vaginal birth were higher and lower for instrumental and caesarean births (Table 2).

Purposive sampling was used for stage 2. As noted by Tashakkori and Teddlie (2009), purposive sampling entails selecting certain cases based on a specific purpose. As previously mentioned it was expected that this selection of cases was determined by the outcome of analysis of data from stage 1. Interviewees were approached based on their experiences as demonstrated by the questionnaires and MIS data. Data collection and study entry procedures are described below. Selection criteria were based on birth outcomes as opposed to parity. There were 7 primiparous women interviewed and 3

multiparous women interviewed. There were more primiparous women interviewed as primiparous women had more varied early labour experience and birth outcomes than multiparous women.

Table 1. Inclusion and exclusion criteria

Inclusion	**Exclusion**
Single baby Cephalic presentation Admitted in latent phase of labour No pregnancy complications Gestational age 37 to 41 completed weeks.	Mutiple pregnancy Baby presenting in any position other than cephalic Complications through pregnancy as a result of the pregnancy; i.e. gestational diabetes, hypertensive disorders of pregnancy, HELLP syndrome, cholestasis of pregnancy Medical condition Substance abuse Established labour Preterm <37 weeks Postdate >42 weeks Planned IOL Planned CS

Table 2. Comparison of birth outcomes.

	Low risk women who went in to spontaneous labour in 2010		**All women who consented and remained eligible (354)**		**Women who consented, remained eligible and returned questionnaires (235)**	
Description	**Number**	**Percentage**	**Number**	**Percentage**	**Number**	**Percentage**
Low risk at booking	1185	100%	354	100%	235	100%
Spontaneous onset of labour	1185	100%	354	100%	235	100%
Spontaneous vaginal birth	977	82.45%	299	84.4%	217	92%
Other cephalic	5	0.42%	-	-	-	-
Forceps birth	21	1.77%	16	4.5%	6	2.5%

Vacuum birth	96	8.10%	20	5.6%	7	2.9%
Caesarean section birth	71	5.99%	24	6.7%	5	2.1%

3.8 QUESTIONNAIRE: the initial point of study entry

The first point of entry to the study was the questionnaire. The use of open ended questions in the questionnaires (Appendix 1) generated qualitative data enabling participants to use self-report to express their perceptions of when their labour began and elicit exactly the symptoms they experienced in early labour and how they coped with these symptoms. Open ended questions also allowed for free expression of opinions on certain aspects of their care i.e. other comments on early labour prior to admission.
Closed ended quantitative questions were formulated based on the list of symptoms of early labour used by Gross et al. (2005, 2009), and the data set used by Janssen (2006). Janssen's data set was used as it had been used successfully in an early labour trial prior to this study. As Janssen's study incorporated care at home the questions from her data set were either not included at all or modified to formulate questions on advice given to women by midwives over the phone (Appendix 1).

The instruments used by Gross et al (2005) and Janssen et al (2006) were adapted as follows: Gross et al (2005) used a list of symptoms and asked women to record the time and date these symptoms were first experienced. This list was used to inform question (Q)1 one of the questionnaire.

Janssen (2006) developed an assessment form to be completed by midwives at the woman's home. Criteria used in this study included: support person at home i.e. partner, family member, friend; comfort measures being used at home i.e. walking, shower, massage, resting in bed or other.
Janssen (2006) used a postpartum form. The information was taken from the women's healthcare records. Criteria included in this study were taken from the Maternity Information System (MIS):

- ethnicity
- marital status
- employment status
- use of tobacco
- use of alcohol or illicit drugs
- date and time of admission

- position of the baby in utero on abdominal palpation
- vaginal examination on admission
- method of fetal monitoring
- method of pain relief and cervical dilatation prior to each method of pain relief
- method of augmentation of labour
- time and date of rupture of membranes
- length of first, second and third stage of labour
- condition of liquor
- method of birth
- indication for caesarean section
- episiotomy performed
- blood loss
- apgar score of baby at five and ten minutes
- admission of the baby to the special care nursery or the neonatal intensive care and the length of stay in either.

Janssen (2006) also used 'An early labour assessment at home' form. The majority of this form was used in this study i.e. all questions from Q2 to Q10 (Appendix 1). Other questions asked in Janssen's (2006) study related to the obstetric nurse's assessment while in the woman's home. These details were not applicable to this study as there were no home visits by midwives.

3.8.1 Recruitment

Eligible women were initially identified using the inclusion criteria (Appendix 3). Women received information about the study from midwives working in Midwifery Led Unit (MLU) or Consultant Led Unit (CLU) antenatal clinics, at their 28-30 week antenatal visit (Appendix 4). There were posters placed on walls of waiting areas in both the consultant and midwifery led clinics informing women about the study and asking them to consider participating (Appendix 8). At their 37 to 40 week antenatal visit, if they were willing to participate they were asked for written consent (Appendix 5) by either the midwife or doctor providing their care. At this point they were given the study questionnaire (Appendix 1) and an explanatory letter explaining how to complete the questionnaire (Appendix 1a).

All clinic personnel had been briefed through information sessions prior to the start of the study. The aim was to distribute 1,200 questionnaires, with a completed questionnaire to be returned to the researcher. Women were asked to complete the questionnaire in the

early stages of their labour however women had the opportunity to complete this questionnaire on admission to the hospital if appropriate i.e. not in advanced labour, or during their postnatal period. If they were in advanced labour on admission they were not asked for the questionnaire until after the birth while they recovered on the postnatal ward. Designated post boxes were placed on the labour ward, in the MLU, the antenatal ward and the postnatal ward. There were posters in lift areas in the maternity unit thanking women for their participation in the study and reminding them to complete their questionnaire and to give it to the midwife caring for them (Appendix 9). Women who agreed to participate but did not bring the questionnaire to the hospital when they were in labour were given another questionnaire in hospital. The majority of women completed the questionnaire prior to leaving hospital or within the first week after they went home as MLU midwives conduct house visits for seven days after the birth for women availing of MLU care. To increase the number of completed questionnaires, postal reminders were sent out to women who had agreed to participate but for various reasons did not complete the questionnaire within the first week of her baby's birth. This postal exercise yielded a further 50 questionnaires.

In order to answer the question; "Does the way in which the latent phase was experienced affect the process, duration and outcome of labour?", women were asked to record the symptoms they experienced at their perceived onset of labour noting the order and time of same. They were also asked to expand on any further symptoms they experienced beyond this list. Women were asked to describe how they coped with their symptoms at home i.e. methods of pain relief employed. They were also asked to explain, what for them the deciding factor to go to the hospital was.

The questionnaire was designed in three parts. The first section outlined the time and date early symptoms were experienced (quantitative data), the second section entailed a likert scale (quantitative data) and the third section asked semi open and open ended questions. Data conversion from qualitative to quantitative was required in some instances to analyse qualitative data (Appendix 1). Both the converted qualitative and quantitative data from the questionnaire were entered into SPSS for analysis. Qualitative data were entered into excel for analysis through NVivo and colour coding.

3.9 HOSPITAL DATA BASE

Maternity Information System (MIS) is a computer data base that collates demographic data as well as data pertaining to labour, and birthing outcomes for mothers and babies, for example, length of first, second, and third stage of labour, analgesia used, method of fetal monitoring, interventions used, position in second stage, perineal trauma. It also

generates reports for follow on care with community relevant personnel i.e. GP and Public Health Nurse. The information collected by MIS can also be used for audit and research purposes.

Data were collated into an excel sheet based on a pro forma (Appendix 2) developed and used by Janssen (2003 and 2013). Clinical data were matched to questionnaire data. To ensure all data required were collected, hospital records were also accessed where certain relevant data had not been entered onto the MIS, or clarity was required. MIS and data from hospital records were collected for all women who consented, and analysed through SPSS. Data relating to early labour symptoms could only be analysed on women who completed and returned the questionnaire. Part of the consent form sought permission from women to allow the researcher to gain access to women's hospital files.

3.10 INTERVIEWS

Women were asked about the earlier stages of labour as opposed to their perceptions of birthing outcomes. As shown in the literature review little research has been carried out on women's perceptions of latent labour alone. The interviews explored aspects of how the latent phase was managed. Ten women were interviewed.

As interviews use one-to-one interaction between researcher and interviewees, they are considered a powerful data collection strategy (Teddlie and Tashakkori, 2009). Semi-structured interviews afforded the researcher the opportunity to seek further clarification on questions 1, 2, 4 and 5 from the questionnaire if warranted. Interviews were based on open-ended questions to give the researcher optimum opportunity to generate extensive information. The interview schedule (Appendix 6) was based on the information on the questionnaires, MIS information and the research questions. As an interview is considered a social interaction, it was important that the researcher fostered an atmosphere that encouraged active participation (Baumbusch, 2010), and created a relaxed conversational environment. As advised by Teddlie and Tashakkori (2009) the questions were asked in the same order to increase response comparability. Although in some cases some questions overlapped, it was more practical and prudent to allow free flowing conversation as valuable information was presented.

The interviews were conducted on the basis of Rubin and Rubin, (2005) 5 stage approach as follows:

1. The interview began with the researcher introducing herself and explaining her role in the research, as well as reiterating the information in the leaflet the participant was given in the antenatal clinic. At this point opportunities were afforded to the participant to

ask questions about the study. Consent was then sought (Appendix 7). Some interviews were held face to face while others were over the phone. At the initial contact women were given the option of meeting in person or talking over the phone. For women who were interviewed over the phone the consent was read out to them and they were asked to reply accordingly to each question. As this was part of the interview, all consents were audio recorded. Eight women opted to be interviewed over the phone, and two in person. The interviews were audio recorded and transcribed shortly thereafter by the researcher.

2. The interview began with a factual focus, asking about some demographic details i.e. how many pregnancies and babies she had to date and her recent baby's date of birth. This allowed the woman to share something about herself, prior to being asked, possibly, emotional questions.

3. This stage the interview delved deeper into the woman's experience of her latent phase, her labour, and the birth of her baby.

4. The interview then proceeded to more factual, questions, i.e. practical suggestions for professionals from her point of view on advice she felt would have been helpful. Practical less emotional questions were important to draw the interview to a close (Baumbusch, 2010).

5. The interview ended with further casual chat and expressing gratitude to the woman for her time. On few occasions the women digressed into conversation on aspects of their care that was not related to early labour. Women in this instance were given the opportunity to talk, but information not relevant to early labour was not analysed in the interview chapter.

Interviewees were chosen through purposive sampling, selecting women whose experience yielded information rich in relation to those questions. From the ten women invited for interview, seven were primiparous and three were multiparous. The sample was further stratified by type of birth: six women had a spontaneous vaginal birth; three women required instrumental births; one forceps and two ventouse births, and one woman required a category 2 caesarean section (category 2 CS is when there is maternal or fetal compromise which is not immediately life-threatening). Interviews were conducted between ten and twenty weeks post birth however, one interview was conducted eleven months following the birth as it was not feasible for her to be interviewed prior to this. As she had consented to be interviewed earlier she was anxious to participate at this point. While there were no differentials drawn between parity and type of birth it was interesting to see how the mixed sample described their experiences of early labour.

The interviewee was reminded if required on various details around the birth i.e. some quantitative data to aid recall. The intent is, that the combination of quantitative and qualitative data would provide, reliable results which would add to improving midwifery practices around the latent phase of labour, and in doing so enhance the birthing experiences for women, and ultimately improve outcomes i.e. reduction in intervention and caesarean section rates.

3.11 QUALITATIVE DATA ANALYSIS - INTERVIEWS

The interviews were audio recorded in order to retain a permanent record and also allowed the researcher to concentrate on the interview and allow a flow of conversation with little or no interruptions for the interviewee. Each interview was expected to last about twenty minutes. The interview times range from 15 to 24 minutes. Each interview was transcribed verbatim using 'transcribe' software which incorporates an audio player and text editor. The researcher transcribed the interviews which enabled her to become very familiar with the contents of each interview. As qualitative data analysis is iterative, the researcher as expected found that some data analysis began in the field during data collection and continued as interviews were transcribed.

Qualitative data were analysed through NVivo using thematic analysis. Thematic analysis is flexible but also provides a rich, detailed account of the data. It was important that the themes identified captured important information relative to the overall research. NVivo produced broad themes and in order to narrow the focus of the broad themes further analyses was carried out using colour coding through each transcript. As anticipated the analysis was in keeping with the inductive nature of qualitative data, which means that the themes are strongly linked to the data (Patton, 1990). Inductive analyses are a bottom up approach. Braun and Clarke (2006) describe it as 'a process of coding the data without trying to fit it into a pre-existing coding frame'. Also a key feature of analytical induction is negative case analysis (Berg, 2004), which involves identifying cases that do not fit the establishing pattern, thereby discovering new emerging theories and themes.

The analysis followed the six phases described by Braun and Clarke (2006).

Phase 1 – Familiarity with the data

Familiarity began with the researcher transcribing all the interviews herself which informed the earlier stages of analysis. Once the transcripts were completed they were read through and then it was necessary to be immersed in the data by repeatedly reading through searching for meanings and patterns. Field notes had been taken during the audio recording and these notes were expanded upon through rereading of certain sections of the transcripts.

Phase 2 – Generating initial codes

NVivo was used initially to help produce broad themes to get a sense of what was in the data. The research questions were considered at this stage as it was important to start generating themes that would help answer the qualitative research questions. There were many codes identified.

Phase 3 – Searching for themes

Codes were sorted into possible themes. Themes were further subdivided into possible subthemes. There were some codes that did not seem to fit under any particular theme. These codes were retained for later consideration in the analysing process.

Phase 4 – Reviewing themes

This phase in level one involved reviewing the possible themes and sub dividing them into sub themes. Some apparent themes collapsed sensibly together to form one theme. A pattern became obvious with some themes but other themes required recoding. In some instances new themes were identified through the reworking of the odd themes that did not appear to fit within a considered pattern.

Level two entailed reading the transcripts through to consider the validity of individual themes in relation to the entire data set. The data were refined at this stage to ensure all relevant data were coded and all relevant themes were included to ensure accurate representation of the data.

As is recommended good practice (Armstrong et al. 1997), the researcher and her supervisors each analysed three transcripts to ensure inter-rater reliability. This was important to ensure all themes were identified. Following independent coding discussion took place to agree on the themes identified and coded. This resulted in generating more descriptive themes from the initial drafts of the interview analysis. The data analysis consisted of identifying recurrent themes, coding these themes, and categorizing them.

Phase 5 – Defining and naming themes

This phase entailed defining and refining the themes to identify the essence of what each theme was about. It was important that themes were not over lapping enabled the telling of the story of what the data were about. The advice from one supervisor was to ‘find the meaning behind the thing rather than the thing’ and this could be quite challenging at times. Sub themes were produced from the themes. Themes were given titles which were concise, punchy, with the intention of giving the reader a sense of what each theme was about (Braun and Clarke, 2006).

Phase 6 – Producing the report

This phase involved giving an interesting account of the story behind the data and using relevant quotes in the report to demonstrate the prevalence of the theme. Extracts were embedded within the analysis going beyond just a description of the data, while aspiring to make an argument to support the research question.

Peer debriefing was undertaken between the researcher and her two supervisors who read three transcripts to ensure the validity of the information collected. Feedback was then provided to enhance credibility of the defined themes. The research supervisors helped identify both overemphasized and underemphasised constructs resulting in redefining of some themes and expansion on others. Peer debriefing also added to the validity of the findings and guarded against researcher bias.

3.12 QUALITATIVE DATA ANALYSIS – QUESTIONNAIRE

The questionnaires were analysed in the same way with NVivo initially and a broadening of the themes by colour coding thereafter. This was somewhat easier to do as there were only a few open ended questions which required short answers. It was however important that the questionnaire was designed to generate particular data. The questionnaire needed to measure what it was supposed to measure i.e. content validity.

3.13 QUANTITATIVE DATA ANALYSIS

The quantitative data were analysed using SPSS. The demographic data and details on labour and birth were generated in an excel document by MIS reporting capability. From here it was possible to transfer all this data to an SPSS work sheet. Each row in SPSS corresponded to a participant. Each column in SPSS represented a variable in the data. Variables consisted of demographic data, times and dates early labour symptoms were experienced, labour details and birthing details. SPSS enabled description and frequency analysis of numerical data. In some instances it was necessary to convert text data to numerical data in order to determine frequencies (Table 3). Data is reported using, absolute figures, percentages, mean, median and where relevant upper and lower confidence intervals. The MIS and questionnaire quantitative data chapter (chapter 5) details all the quantitative data analysed through SPSS. SPSS also enabled regression analysis with Cox Regression, which is further described in chapter 5.

Table 3. Conversion from numerical to text data (some data)

Numerical data	**Text data**				
	Questionnaire	**Number of coping mechanisms used**	**Symptom experienced**	**Actual coping mechanisms**	**Perineal trauma**
1.	Yes, definitely	Coping1	Regular Pain	Walking	Intact
2.	Yes, somewhat	Coping2	Non recurrent pain	Shower	1st degree SVB
3.	Not sure	Coping3	Watery fluid loss	Resting	2nd degree SVB
4.	Not very much	Coping4	Blood stained loss of any type	Massage	3rd degree SVB
5.	Not at all	Coping5	Stomach upset	Birthing ball	Episiotomy SVB
6.		Coping6	Altered sleep	TENS	Intact Instrumental
7.		Coping 7	Emotional	Bath	1st degree Instrumental
8.				Leaning	2nd degree Instrumental
9.				Kept busy	3rd degree Instrumental
10.				Paracetamol	Episiotomy Instrumental
11.				Rocking	Episiotomy and 3rd degree
12.				Warm compress	Intact Caesarean Section
13.				Sitting	
14.				Hypnobirth	
15.				Relaxing	

16.				Breathing exercises	
17.				Relaxation	
18.				Music	
19.				Homeopathy	
20.				Petting cat	
21.				Hot	
22.				Sitting to standing	
23.				Cold	
24.				Food/	
25.				Reading	
26.				Aromatherapy	

Following descriptive or frequency analysis of the data through SPSS results were shown in table or box plot format which were generated through the SPSS programme.

3.14 VALIDITY AND RELIABILITY

Triangulation as employed in this study, is thought to strengthen the validity and reliability of a study as triangulation uses at least three different types of methods to collect data, controlling bias and helping to generate reliable results. Using a combination of different methods, the researcher obtains a varied viewpoint on a single concept, in this case early labour.

Validity is viewed slightly differently in quantitative and qualitative research. In quantitative research it refers more to the actual tool used and if the tool measured what it was supposed to measure i.e. content validity. In this study the questionnaire was used to record the time ranges from the onset of symptoms of early labour as perceived by the women to the time of established labour as determined by the hospital midwives, generating absolute times from which to work with to determine what symptoms had positive or negative effects on the overall length of labour in both parity groups. Construct validity enabled the researcher to draw conclusion on the basis of the measured outcome i.e. multiparous women who experienced water loss in the early stages of their labour had a shorter labour. External validity was achieved to a certain extent. The findings of this study could be generalized to women in other settings in early labour for how they experienced early labour but in terms of the length of first stage and the overall length of labour this aspect of the study cannot be generalized as both the first stage of

labour and labour overall for primiparous women was two to three hours shorter than for primiparous women in similar studies.

In terms of the validity of the qualitative findings many believe that terms like reliability and validity should be avoided in flexible qualitative design. In qualitative data, validity is concerned more with how the study was carried out and views the validity of a study in terms of credibility, transferability, dependability and confirmability (Lincoln and Guba, 1985). Credibility considers the concepts under investigation from the perspective of the participants and it could be argued that true credibility can only be achieved by the participants of the study judging the credibility of the results. However analysing the interviews and qualitative data of the questionnaires in such an in-depth fashion as outline above and through the use of peer debriefing ensured that the phenomena being studied was reliably demonstrated.

Dependability or reliability from a quantitative point of view is based on the hypothesis of repeatability. This means that if the same study was repeated with the same design and methodology the same results would be achieved. It is in this case difficult to say for sure given the environment in which it was carried out. Not all hospitals in Ireland have a MLU where the ethos of care is built around a home away from home environment.

Confirmability involves referring back to the paper trail and field notes while doing the interviews and recording certain thoughts and concepts that could be referred back to during the writing up phase of the research. There were many such notes taken during the interviews. Once the data analysis was complete these notes were referred back to. This was important from the point of view of recognising the potential for bias or distortion. Certain concepts were asterisked and underlined in the researchers notes as items important to particular women. Many of these highlighted concepts were following analyse, included in the results as themes or subthemes.

Negative case analysis was utilised to ensure that all possible themes were identified and accounted for all known cases through both the questionnaires and the interviews. This entailed revising both the audio files and the transcripts and continuously defining and redefining concepts to identify the final themes and subthemes.

3.15 REFLEXIVITY

In the earlier stages of embarking on this research it was important to identify with a topic that the researcher had an interest in and would not become complacent as time went on.

While understanding and preventing maternal mortality is extremely important to the researcher it was considered not feasible to do a clinical doctorate on maternal morbidity or mortality. Early labour and understanding how women cope on their own in the earlier stages of labour has always held a particular interest for the researcher and the desire to provide space in busy and at times understaffed maternity units has not made it possible to provide care to all women in early labour. If evidence existed to support this rarely researched aspect of labour then perhaps maternity units would plan care around appreciating that some women like to be cared for in early labour. Not only would it prove to be of benefit to the women but would also benefit the hospital in the long run. There have been some studies done on women being admitted to hospital in early labour subsequently requiring lots of interventions through their care and ultimately requiring an instrumental or caesarean birth because of these interventions. This study set out to explore if there was some correlation between women's experience of early labour and the process and duration of labour and ultimate birth.

As a midwife in the unit it was important not to be directly involved in the care of the participants of the study. The majority of women had received care through the midwifery led unit, where I had previously worked. Throughout the entire research journey I no longer worked in this area and can confirm that there was no role conflict.

As a midwife I have many years of clinical experience including looking after women in early labour. As a result I was aware that this was an area of maternity care that often fails to meet women's needs and I also had some expectations about some aspect of the findings as a result. However, I recognised that it was important that I tried to stand back from my role as a midwife and as much as possible try to take a more neutral standpoint in particular in undertaking interviews I tried not to give any clinical advice or 'second guess' women's responses.

Women were very open and honest about their experience of their early labour. As a midwife I would regularly have given phone advice to women regarding the early stages of labour and acted as a gatekeeper and to my mind an advocate in advising women to stay at home as long as possible. Acknowledging the uniqueness of each woman's experience of early labour and not simply asking the standard questions will enable an individualised approach to supporting women through early labour and enable the woman to express her needs rather than eliciting information from a midwifery management point of view.

Clinicians doing research can experience the entire process from beginning to end with a resultant greater appreciation for applying research methods to practice (Higgins et al 2010). They also found that it allows researchers to learn from what works or what does not work in clinical research enabling them to be better prepared for future research. I feel now haven undertaken this research I can relate to this too.

As I had never carried out extensive analysis before I gained important insight on the time required to analyse the questionnaires and transcribe the interviews. On reflection this was time well utilised as this enabled a deeper understanding of what the women had written in the questionnaires and discussed through the interviews. Thematic analysis was used and this allowed me to identify as many themes as possible and understand the meaning behind those themes.

Various stakeholders were identified at the onset of the research. Pregnant and labouring women were the most important stakeholders, followed by midwives who were the main recruiters and givers of care. Doctors were in many cases important stakeholders too when women required medical care as a result of complications during her labour. Management support was required to conduct the study in the first instance and then for ongoing support through recruitment and data analysis. Permission was given to spend time in the medical records department after hours to review 354 women's hospital healthcare records. There had to be a period of education from medical records personnel for the researcher to maintain the integrity of their filing systems.

While some findings mirrored those of similar studies there were some surprising finds as well particularly around the length of labour for primiparous women. This is discussed in more detail in the discussion chapter.

In terms of blocks to the actual study there were none. Triangulation ensured a diversity around the data collected and the mixed methodology utilised. There was at one stage a need for research supervisors to read transcripts to corroborate themes and suggest new or more in depth themes given further insight to interview transcripts. NVivo while useful to a point helped only identify broad themes. There was in-depth data generated from the interviews and the qualitative parts of the questionnaire which ensured ample quotes to choose from to include in the write up.

A literature review was undertaken prior to the research to support the need to undertake the study and further review was required following data analysis which demonstrated support for the findings of the analysis.

3.16 POTENTIAL RISKS AND SAFEGUARDS

Participants were informed that the interview process would take fifteen to twenty minutes. Recalling a traumatic birth may be emotional for some women. It was however the researcher's intention to purposively select women for interview thereby minimising this potential, as women who for instance had a very traumatic labour and/or birth, or whose baby was unwell or died were not approached for interview in the postnatal period. Some women recalled events upsetting to them but not related to latent phase labour. This information was transcribed but not analysed as it was not relevant to the research question.

3.17 ETHICAL CONSIDERATIONS

Ethical approval was sought and obtained prior to commencement of the study. The ethical committee responsible for the Health Service Executive North East (HSE NE) is, 'HSE North Eastern Area Research Ethics Committee'.

All ethical considerations were in line with the principles stipulated by Nursing and Midwifery Board of Ireland (NMBI) (formerly An Bord Altranais (ABA) (2007). The Nursing and Midwifery Board of Ireland is the regulatory body for the nursing and midwifery profession in Ireland. It states that all nurses and midwives involved in research are obliged to ensure that the rights of women are protected at all times. The ethical principles laid down by NMBI are as follows; respect for persons/autonomy, beneficence, non-maleficence, justice/fairness, veracity, fidelity and confidentiality.

3.17.1 Respect

Respecting a woman's autonomy viewed her as an independent person who was able to make her own choices (Rogero-Anaya 1994). This encompassed the right to self-determination which denoted that the woman had the right to decide whether or not to participate in this research study. The researcher ensured that all relevant information was relayed to the woman in order for her to make an informed choice regarding participation. The information leaflet as per Appendix 1 was given to her during the antenatal clinic. The woman was also informed that she could withdraw from the study at any stage.

3.17.2 Beneficence

Beneficence ensures that the woman would potentially benefit from participation in the research. As previously stated the information leaflet contained information regarding

previous research on the latent phase of labour. It was anticipated that this information may have impacted on her decision to choose or not to choose early admission to hospital.

3.17.3. Non-Maleficence

Adhering to the principle of non-maleficence ensured that at no point in the study would she come to any harm. It was not the intention of the researcher for any woman to be denied advice or care. The study is based on exploration of events that occur during the latent phase of labour with the intention of offering an explanation of the events of her subsequent labour and birth, based on the events of the latent phase. She was not offered extra treatment or denied any care.

The principle of justice ensured fairness and equity from the researcher's point of view, before, during and after the research study. All women considered low risk had the opportunity to participate in this study.

3.17.4 Veracity

Veracity entailed the researcher being truthful about the research study and under no circumstances did she deceive the participant. All aspects of the research were explained in detail to the potential participants, aided by a comprehensive information leaflet. The quantitative and qualitative data were not coerced or tampered with to manipulate the results.

3.17.5 Fidelity

Fidelity involves the concept of trust (ICN, 1996). If the participants agreed to partake in the study this denoted an element of trust, which in turn demanded a commitment from the researcher to protect the woman. All aspects of the study were explained including potential risks. Explanations were available through the information leaflet.

3.17.6 Confidentiality

Confidentiality is paramount to any research project. Under no circumstance was the identity of the participant revealed to any party, while the research was being conducted and thereafter. All information that may have led to a woman being identified was not used in the study. Confidentiality was maintained by assigning an identification number

to each woman participating in the research. Identifying information was not entered on a data collecting system or computer database as suggested by Polit and Beck (2004). The information gathered was kept in a locked area, with the researcher being the only person with access.

3.17.7 Consent

Written Informed consent was obtained in the antenatal stages. All women were given all relevant details pertaining to the study, in a clear and comprehensible language. As most women of child bearing age are of sound mind and body, reduced mental capacity was not expected to, and did not provide barriers.

3.17.8 Researcher Role

The researcher roles included: Managing the day to day running of the study; informing potential participants through written information and verbal information sessions during clinic visits and antenatal classes; informing midwives and doctors about the study in order to involve them in the information disseminating stages and gaining consent from participants; talking with women who require further information; monitoring and managing data collection; conducting interviews; data analysis and writing the results.

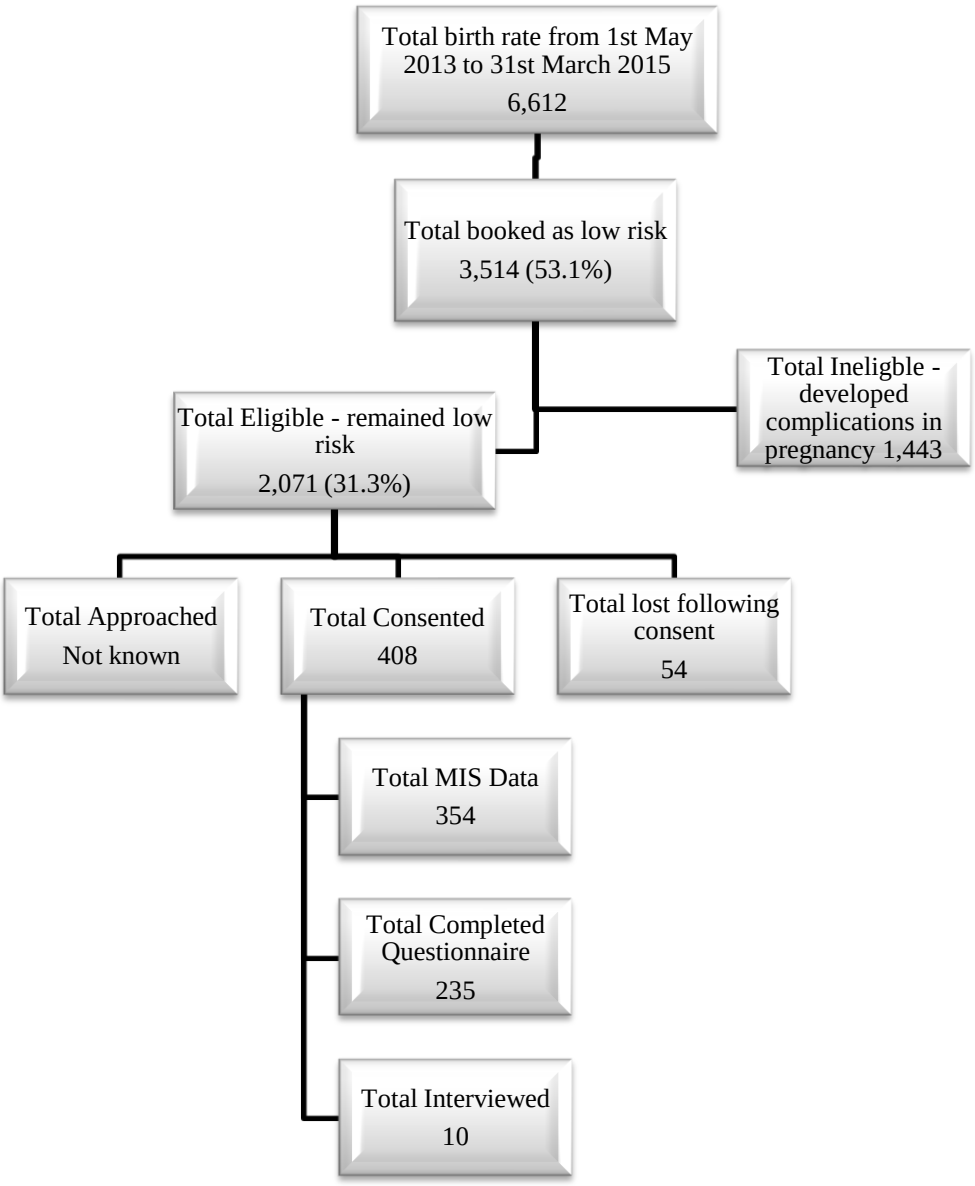
3.17.9 Data Handling

The information gathered was kept in a locked compartment, with the researcher being the only person with access. As per Principle 3.3.2 ‘Moral and legal obligations’ of the University of Stirling Code of Good Research Practice (2009), the safe and secure storage of data will be kept for a minimum of ten years, after which time the data will be securely disposed of, in accordance with the Data Protection Act.

CHAPTER 4 - QUESTIONNAIRE RESULTS

Data were collected between 1st May 2013 and 31st March 2015. The total birth rate during this time was 6,612. The total number of women booked and assessed as low risk was 3,514 (53.1%). The total number of women who were eligible for the study as they remained low risk until the end of their pregnancy was 2,071 (31.3%) women. 408 women consented to take part in the study. Of those who consented 56 (13.7%) women were lost for various reasons following consent e.g. they developed complications in the third trimester or they were induced for postdates. Overall 354 (86.7%) of total consented women were included, of these 235 (66.3% of total consented) returned questionnaires, as shown in flowchart 2.

Flowchart 2. Study entry summary



4.1 SAMPLE DESCRIPTION

Overall 6,612 women gave birth at the hospital during the data collection period. Of these 3,514 were deemed to be low risk at booking and 2,071 remained low risk at term. Women received information about the study at their 28-30 week antenatal visit. Women who were willing to participate were asked to give consent at their 37 – 40 week antenatal visit. At this point 408 women agreed to participate in the study. Of these, 54 women eventually did not meet the inclusion criteria and were therefore excluded. The reasons for this were varied but included development of complications or induction of labour for prolonged pregnancy. Ultimately there were 354 women who consented and remained within the study until data collection was completed. Of this group 133 were primiparous and 221 multiparous. Ultimately 235 (66.4%) women completed and returned the questionnaire (Figure 1).

This chapter first describes the demographic and clinical data extracted from the Maternity Information System (MIS) and hospital records and then the quantitative data from the questionnaire describing the symptoms women experienced in early labour. The hospital MIS is a computer data system that collates demographic data as well as clinical data pertaining to labour, and birthing outcomes for all mothers and babies attending the maternity service. The following demographic data were collected: mother's age; height; estimated gestational age; parity; ethic origin; parental status; employment. The following clinical data were collected: fetal position on admission; cervical dilatation on admission; pain relief; length of first stage of labour (the period from cervical dilatation of 3cm and the onset of regular contractions to full dilatation and effacement of the cervix); length of second stage of labour (full dilatation of the cervix to the birth of the baby), condition of liquor; augmentation of labour; mode of birth; perineal trauma; estimated blood loss; baby weight; apgar score. Demographic data were collected on a proforma based on the data set created by Janssen (2003).

The demographic data provides information on all women who consented and met the inclusion criteria and who also completed the questionnaire. MIS and demographic data were matched to questionnaire data for women who completed and returned the questionnaire. The majority of women completed the questionnaire prior to leaving hospital or within the first week after they went home. To ensure all data required was collected, hospital files were accessed where certain relevant data were not entered onto the MIS system, or where clarity was required i.e. cervical dilatation on hospital admission, position of the baby in utero on admission and prior to all administrations of

pain relief. Also taken from clinical records were Special Care Baby Unit (SCBU) and Neonatal Intensive Care Unit admission details for babies admitted to either care area.
Clinical and demographic data are available for all women (n=354) while the early labour symptoms data are only available for women who completed the questionnaire (n=235) therefore for clarity throughout this chapter analysis and description is presented for two groups:

1. Clinical and demographic data for all the women who consented and remained within the inclusion criteria but not all of whom returned a completed questionnaire (n= 354). This group includes the women who completed and returned the questionnaire (i.e. group 2 below) and 119 women who did not complete and return the questionnaire.
2. The women who completed the questionnaire (all clinical, demographic, and questionnaire data presented n= 235).

The symptoms section describes the timing from early labour, as experienced by the women, to established labour, as diagnosed by midwives, and details times from established labour to the time of birth for the 235 women who returned a completed questionnaire.

4.2 DEMOGRAPHIC DATA

Demographic data for all women who consented and met the inclusion criteria (n=354)

Women's mean age was 30.3 (18 to 42) and they had a mean height of 165.5 cm (range of 152 to 180cm). All gave birth at term and had a mean gestational age of 39.9 weeks (Table 17).

Demographic data for women who completed the questionnaire (n=235)

Of the 235 women who returned questionnaires 220 (94%) were recruited through the Midwifery Led Unit (MLU) and only 15 (6%) were recruited through the Consultant Led Unit (CLU). Of the 220 women recruited from MLU 15 were ultimately transferred and subsequently gave birth in the CLU (Table 4). Ultimately 205 (88%) gave birth in the MLU and 30 (12%) gave birth in the CLU including the 15 transferred from the MLU. The mean age of women was 30.9 years (range 18 to 39) and they had a mean height of 165 cm (range 152 to 180cm). All were at term (37 to 42 weeks of gestation) and the mean gestation when they gave birth was 39.6 weeks (Table 5).

Table 4. Area recruited from and area where gave birth

	Midwifery Led Unit		**Consultant Led Unit**	
	No.	%	No.	%
Recruited	220	94	15	6
Gave birth	205	88	30	12

Table 5. Woman's Age, height and the gestational age at delivery

	Women who consented and met the inclusion criteria n=354					**Women who completed the questionnaire n= 235**				
	No.	**Min**	**Max**	**Mean**	**SD**	**No.**	**Min**	**Max**	**Mean**	**SD**
Mother's age (yrs)	354	18	42	30.38	4.500	235	18	39	30.9	4.249
Height (cm)	354	149.0	185.0	165.5	5.6149	235	152	180	165.4	5.525
Estimated Gestational Age (weeks)	354	37.0	42.0	39.9	.9818	235	37	42	39.6	.988

Parity

Overall 62.4% of women who consented to study participation were multiparous and more multiparous women than primiparous women both consented and returned questionnaires (Table 6).

Table 6. Parity

	All women who consented and met the inclusion criteria		**Women who completed the questionnaire**	
Parity	**Number**	**Percentage**	**Number**	**Percentage**
Primiparous	133	37.6%	75	32%
Multiparous	221	62.4%	160	68%
Total	**354**	**100%**	**235**	**100**

Ethnic Origin

The large majority of women who consented and met the inclusion criteria were white Irish with very few women from other ethnic groups (Table 7).

Table 7. Ethnic origin

	Women who consented and met the inclusion criteria		Women who completed questionnaires	
	Number	**Percentage**	**Number**	**Percentage**
White Irish	305	86.2%	208	88.5%
Any other White background	45	12.7%	25	10.6%
Other (including mixed background)	4	1.1%	2	0.9%
Total	**354**	**100%**	**235**	**100%**

Parental status and employment

The majority of women were in a relationship. Of the women included in data analysis 91.2% were in either part time or full time employment with a wide range of employment reported (Table 8).

Table 8. Parental status and Employment

	All women who consented and met the inclusion criteria		Women who completed the questionnaire	
Family	**Number**	**Percentage**	**Number**	**Percentage**
One parent	24	6.8%	13	5.5%
Two parents	330	93.2%	222	94.5%
Total	**354**	**100**	**235**	**100**
Occupational Status				
Employed	323	91.2%	216	91.9%
Unemployed	20	5.6%	7	3.0%
In Education	11	3.1%	12	5.1%
Total	**354**	**100%**	**235**	**100.0%**

4.3 SYMPTOMS EXPERIENCED IN EARLY LABOUR

The questionnaire first asked about symptoms experienced in early labour. The women were asked to choose from a list of specific symptoms and tick any that they had experienced and record the date and time that they experienced them. These findings are discussed in greater detail in the statistics chapter.

The questionnaire then asked women how they felt when they were in early labour at home. This section consisted of fourteen items with five possible responses based on a five point likert scale; Yes, definitely, Yes, somewhat, Not sure, Not very much and Not at all. The totals shown are based on women who answered the questions.

The following tables (table 9, 9a and 9b) present descriptive statistics for the fourteen item ratings. A large majority of women expressed positive feelings. Most women reported feeling safe (88%) and confident (80%). While 57% felt tense and 46% scared, very few (17%) felt distressed or insecure (13%). The mean and standard deviation are also shown for all fourteen items. The lower the mean, the higher the agreement with the statement i.e. 'safe' shows a mean of 1.56, which equates to 88% reporting feeling safe. Insecure shows a mean of 4.07 with 13% reporting feeling insecure.

4.4 EMOTIONS IN LABOUR AT HOME

Table 9. Emotions in labour

	Safe		**Confident**		**Scared**		**Happy**		**Excited**	
	No.	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
Yes definitely	142	60	72	31	23	10	84	35	100	42
Yes somewhat	67	28	112	49	83	36	91	39	92	39
Not sure	13	6	26	11	10	4	35	15	23	10
Not very much	11	5	17	78	75	32	21	9	16	7
Not at all	2	1	3	1	42	18	4	2	4	2
Total	235	100	230	100	234	100	235	100	235	100
	Mean	**SD**	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**
***Range 1 - 5**	1.56	.84	2.07	1.55	3.57	1.51	2.02	1.01	1.86	.96
Didn't answer	0		5		1					

***Lower mean indicates greater agreement. Range of 1 – 5 is 'Yes, definitely' = 1 and 'Not at all' = 5.**

Table 9a. Emotions in labour

	Anxious		**Relaxed**		**Comfortable**		**Tense**		**Supported**	
	No.	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
Yes, definitely	63	27	41	18	51	21	33	14	178	76
Yes, somewhat	108	46	104	44	107	46	100	43	46	20
Not sure	12	5	26	11	16	7	15	7	5	2
Not very much	40	17	50	21	51	22	59	25	3	1
Not at all	11	5	14	6	9	4	25	11	1	.4
Total	234	100	235	100	234	100	232	100	233	100
***Range 1 - 5**	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**
	2.27	1.16	2.53	1.17	2.40	1.16	2.75	1.27	1.29	.61
Didn't answer	1		41	18	1		3		2	

Table 9b. Emotions in labour

	Distressed		**Insecure**		**In Control**		**Confused**	
	No.	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
Yes, definitely	6	3	8	3	59	25	14	6
Yes, somewhat	34	14	23	10	115	50	40	17
Not sure	16	8	18	8	16	11	20	9
Not very much	89	38	81	35	3	1	91	39
Not at all	87	37	104	44	232	100	232	100
Total	232	100	234	100	232	100	232	100
***Range 1 - 5**	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**
	3.94	1.12	4.07	1.10	2.15	.98	3.79	1.28
Didn't answer	3		1					

Women were asked about the support they received from midwives if they called the hospital while they were still at home (Table 10). The answers to these questions were based on the same Likert scale. 230 (98%) women who completed and returned a questionnaire rang the hospital in early labour at least once. Of these women, 94% felt they had received the information they wanted, 92% felt reassured by the midwife they spoke with, 96% felt the midwife listened to them and 96% had confidence in the midwife they spoke with.

Table 10. Phone call to midwife in hospital

	Did the midwife give you the information you wanted		Did the midwife reassure you with her advice		Did the midwife listen carefully to what you had to say		Did the midwife respect your wishes about going to hospital		Did you feel that you had confidence in the midwife during your phone conversation	
	No.	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
Yes, definitely	186	81	179	78	209	91	208	91	200	88
Yes, somewhat	30	13	32	14	13	5	13	5	17	8
Not sure	5	2	9	4	2	1	6	3	2	1
Not very much	7	3	9	4	6	3	2	1	8	3
Not at all	1	1	0	0		0	0	0	0	0
Total	229	100	229	100	230	100	229	100	227	100
***Range 1 - 5**	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**
	1.31	.91	1.34	.73	1.15	.55	1.14	.47	1.20	.62
Didn't answer	6		6		5		6		8	

***Lower mean indicates greater agreement. Range of 1 – 5 is 'Yes, definitely' = 1 and 'Not at all' = 5.**

4.5 TIMING OF GOING TO HOSPITAL

Only 119 (50.6%) women of 235 answered this question. Of those who responded 40 (33.6%) women felt that they went to hospital too early, 14 (11.8%) women felt they went in to hospital too late and 65 (54.6%) felt it was the right time for them. For the women who felt they went into hospital too early or too late they were asked to further describe their experiences, these responses were analysed thematically. Not all women explained their choices. Table 11 shows the number of women who answered and whether they felt they went to hospital too early, too late or at the right time.

Table 11. Timing of going to hospital

	Too Early	Too Late	Right Time
Number	40	14	65

Of the 40 women who felt that they went to hospital too early 10 (40%) women remained in hospital either because they were not sent home or because they preferred to stay in hospital. Six (15%) women stayed in due to circumstance while 20 (50 %) women were sent home or chose to go home. Four (10%) women went home disappointedly. While they were disappointed they agreed with midwifery advice to go home and await events. Women who presented to hospital too early were asked if they were sent home and if they were sent home, how many times were they sent home. Of the forty women who went in too early, 23 (57.5%) women were sent home. All 23 (100%) women were sent home only once.

4.5.1 Women who felt they went in too early

For women who said that they went in too early four themes emerged from analysis – Women chose to stay in hospital; their symptoms dictated professional advice and/or their choice to either go home or stay; some women went home reluctantly and some women chose to go home when advised to do so (Table 12).

Table 12. Women who went in too early

Too Early	**40**
Chose to stay in	10
Stayed in due to circumstance	6
Went home disappointedly	4
Chose to go home when offered/or requested	20

Choosing to stay in hospital

Some women felt they went in to hospital too early but despite this they remained in hospital. These women felt that despite being in hospital too early they felt reassured by the professional care and the availability of more comfort measures than those available to them at home. In order to maintain anonymity the number prior to each quote indicates study participant.

One multiparous woman explained

> *9: "I could have stayed at home for another while. I was 4cm gone when I came in but had 9 hours left to go. The midwives were lovely and tried to make me and my partner as comfy as possible e.g. the pool".*

A primiparous woman similarly felt

> *4: "I probably did go early but the reassurance of having the midwives there was great and I felt in safe hands. I wasn't sent home but was going to be if I didn't contract further but I did".*

Stayed in due to circumstances

Some women were not in labour but were admitted due to other circumstances dictating the need to admit them, mainly from a clinical point of view. Of these women a number expressed their preference to have stayed at home. When they presented to hospital the regularity of their contractions and intensity of their pain warranted them staying in although they were not in labour. Subsequently they had longer than expected first stage of labour and in hindsight felt they would have preferred to have been home for a little longer.

> *45 – "As my labour was very long from the time I was admitted" (M).*

> *90 - I was getting regular pains/contractions every three to four minutes so when I rang the midwife she said to come in and get checked out. I was observed for a while but they were only lasting 30 to 40 seconds although regular. Probably could have stayed at home a little longer (M).*

Other women were admitted because of the need for closer observation.

> *233 – "I was kept in overnight for observations, as felt baby movements were reduced" (P).*

One woman voiced regret at not staying home longer, and as it was her third baby she felt that her labour was progressing. She also voiced disappointment on assuming she had wasted everyone's time.

> *46 – "As this was my third child I felt confident enough to come to hospital but it took me 12 hours to deliver my daughter. If I stayed at home a little longer, I would not waste everyone's time" (M).*

Women who went home disappointedly

Disappointment

There were only a few women who went home disappointed. They expressed feelings of disappointment not necessarily at going home specifically but rather because they were not in established labour or at least advanced enough for them to stay in hospital.

> *48: "Was disappointed however understood reasons as they were explained to me" (M).*

112: "Was sent home once as contractions subsided was disappointed but felt it was the right decision" (M).

Despite being disappointed the women felt it was the best advice for them.

68: "I was only 1cm dilated. It was for the best as still had much more labour to go" (P).

Women who chose to go home or were happy to go when advised

Having a say

Many women expressed satisfaction at going home and a preference to be at home to allow labour to progress in the comforts of their own home.

98: "Requested to go home as only 3cm dilated and preferred to be at home until active labour"(M).

50: "Contractions 4 minutes apart at 3am. Went to the hospital. I was not dilated. Given choice of staying or going home. Went home. Contractions slowed down. Returned at 5pm. Given choice, went home" (P).

These women felt empowered with the knowledge that they had had their say and could go home and return when they chose to.

Assurance with being able to return

Many women went home as they were assured by the midwives that they could return when they were ready to, or they were advised to phone the hospital again if they were unsure or worried.

279: "I decided to go home and come back. The midwife reassured me I could come back at any stage that I felt unsure or worried" (M).

310: "Was told I could go home if I felt more comfortable to call if I had any concerns" (M).

Women who went in to hospital too early experienced an array of different emotions; anxiety, uncertainty, stress and fear. Some of these women were kept in on the basis of their stress or sent home with the assurance that they could return anytime they wished to.

Deceptive symptoms

Some women felt deceived by their symptoms. The two main symptoms that gave women the impression they may be in labour were either contractions or ruptured membranes. Some women spoke about their membranes rupturing and going to hospital as a result

with expectation of being in labour and being kept in. Some of these women were kept in but others were sent home to await events.

> *79 – "Came in at 09.00hrs because waters were leaking from 23.00 hours the night before. Stayed in hospital until 12.00 hours, was sent home and came back at 16.00 hours" (M).*

> *339 – "I thought my waters had broken in the bath. I came in and had a vaginal exam, a scan and was sent home as I was only 1cm dilated" (P).*

Anxiety

Some women voiced concerns over infection or being anxious about the unknown. The anxiety was relieved by being in hospital and receiving professional care.

> *268: "My waters broke at 17.30 on Saturday. I went to the hospital at around 20.00 hours. I was checked and sent home, my waters continued to break for hours until around midnight, very uncomfortable and afraid of infection" (P).*

Uncertainty

Women also spoke of the uncertainty of what they felt their bodies were telling them. At times the contractions were irregular with no defined pattern then other times regular.

> *40: "I went to the hospital after my waters broke. My contractions were not regular so I was sent home. On the way home my contractions became regular so we turned back to the hospital where I went on the have the baby" (M).*

Timing of contractions was a concern for some women particularly if there was no defined pattern. Again some women went home on the advice of the midwife or others stayed of their own volition or because there were signs that labour was becoming more established.

> *304: "The midwife suggested we come in when contractions were three minutes apart. We left home when contractions were four minutes apart as I was getting a little anxious, so I don't mind that we were a bit early. I was 3cm dilated when I was examined on arrival. Ideally I would've liked to be further on, however I was relieved to hear I was in active labour and not sent home"(P).*

> *90: I was getting regular pains/contractions every 3 to 4 minutes so when I rang the midwife she said to come in and get checked out. I was observed for a while but they were only lasting 30 to 40 seconds although regular. Probably could have stayed at home a little longer" (M).*

4.5.2 Women who felt they went in too late

Women who went in too late were disappointed that they had placed undue stress on themselves and also on their birthing partner. In many instances they were disappointed because they were unable to gain any benefit from the home from home environment of the MLU and not avail of the birthing pool for instance as a form of pain relief as was their planned method of pain relief prior to labour. Many women felt that they put unnecessary stress on their birthing partners also as the journey to the hospital while incredibly uncomfortable and anxious for them created much stress for their partners too (Table 13).

Table 13. Going to hospital too late

Too Late	**14**
Disappointment	2
Anxiety and Stress	3
Unplanned baby born at home	2
Fast progress	5
Judgement	2

Disappointment

Four women expressed disappointment at not being able to use the facilities in the MLU because they were very advanced in their labour by the time they got to the hospital.

> *269: "Wanted to try the birthing pool, but happy otherwise when I showed up when I did" (M).*

> *318: "Contractions became very regular quite quickly and I was already 8cm dilated when I arrived at the hospital. Didn't get to use the facilities in the MLU" (M).*

Anxiety and Stress

Either women themselves were anxious at the rate of progression of their labours or their support people were anxious. Anxiety stemmed predominantly from fear of not making it to the hospital before the baby was born.

> *194: "In some ways I feel I went in too late because my labour seemed to progress so quickly that at one point I really felt we wouldn't make it in on time and my partner became very stressed so he would definitely say too late but in other ways I wanted to stay at home as long as possible and it was great that I wasn't hanging around in labour" (M).*

Two women stayed at home to the point of almost having their baby on route to the hospital. While women expressed relief at making it to the hospital on time, they also expressed the stress of the journey and not knowing if they would make it or if their babies would be born in the car.

> *329 – "Contractions didn't seem too strong but once I began to feel a lot of pressure, waters broke, they were very strong and on arrival to MLU, baby was born 10 minutes later"(M).*

> *349 – "Pains progressed very rapidly from five minutes apart to three minutes apart and then we still had 40 minutes to drive to hospital. Baby was delivered five minutes after arriving at hospital" (M).*

Born at home

Two babies to two different mothers were unexpectedly born at home although the women went to hospital after the birth as the afterbirth wasn't delivered at home.

> *49: "I went after baby born at home. Contractions came so quick together. Such a quick delivery, no time to get to hospital. Went to MLU to deliver the placenta" (M).*

> *278 – "Baby was born at home after very quick labour, one and a half hours, no contractions" (M).*

Fast progress

Some women progressed quickly. While they arrived prior to the birth they felt it very intense when they arrived at the hospital and didn't quite get a chance to become accustomed to their surroundings.

> *347 – "I arrived to hospital fully dilated with the baby on the way. It was as a result quite rushed with no time to settle in. Although it was good for me to as it was over quickly. I didn't ring the hospital until late in my contractions" (P).*

> *33 – "Left it too long to ring the midwife so was at the hospital a bit too late" (M).*

Judgement

Misjudgement was a factor with some women either their judgment alone, or based on advice given to them by the hospital. Some women advanced quicker than they had expected or quicker than the midwife giving advice expected them too.

> *33 – "Left it too long to ring the midwife so I was at the hospital a bit too late" (M).*

60 – "When I initially rang the MLU at 07.45 hours; the midwife explained the pains would need to be at least three minutes apart for at least an hour before coming to the hospital. At this stage my pains were six to ten minutes apart. I then waited until they were three minutes apart for an hour, which was too late as during this time my waters broke and I felt the need to push straight away. We live 45 minutes from the hospital" (M).

4.5.3 Women who felt they went in at the right time

The woman who felt they went in at the right time were either very definite or initially felt unsure but consequently discovered they had presented at the right time. Women either relied on prior experience or were advised accordingly. Other women while initially unsure decided retrospectively that they had presented at the right time as the midwife confirmed established labour following assessment of contractions and internal examination, or they gave birth within a short time of being admitted to hospital (Table 14).

Table 14. Going to hospital at the right time

Right Time	**65**
Prior experience	4
Women centred and Collaborative decision making	7
Time factor	5
Unsure	4
Incidental	16
Chose right time option but did not comment further	29

Prior experience

Many women drew on previous experience of labour and birth to help them decide when to go to the hospital. Women who had given birth previously, regardless of regularity of pain had an inbuilt sense of knowing that things were progressing much quicker than the symptoms were suggesting. It was very important for the women that midwives listened to them and appreciated their intuition and were not reliant on regularity of contractions or cervical dilatation.

2: "I arrived at 2 to 3cm. This was my fourth child. I explained to the midwives that I labour very quickly and go from 2 to 3cm to 10cm extremely quickly. My contractions were not long in length (20 seconds) but coming very close together (three minutes apart)" (M).

41: "I was assessed then gave birth. I knew that I was about to give birth very soon but knew that they thought I had ages to go" (M).

Women Centred

Women noted the importance of the midwife listening to them. One woman despite being in early labour was allowed to stay in as she felt she would progress quicker that her symptoms were suggesting. Another woman was kept in simply because she was too nervous to return home.

53: "I arrived in early labour. I knew I would progress very quickly so it was important to me to be allowed to stay, which I was" (M).

89: "I was kept in as the midwife knew I was anxious" (P).

Time Factor

Women decided on timing of admission retrospectively, particularly if their baby was born within a short time of arriving at the hospital. Many women presented time ranges to describe why they felt they went to hospital at the right time. Interestingly two to two and a half hours was deemed the right time from a woman's perspective.

31: "Arrived at the hospital at 20.30. Baby born at 22:33" (M).

229: "No, I gave birth less than two hours of arriving" (M).

271: "Got there just at the right time for me. Was there at 19:00 and gave birth at 21:30" (M).

Unsure initially

Some women considered time of admission to be the 'right time' based on contractions and cervical dilatation. Many were initially unsure as to whether they were in labour or not when they first presented but were reassured by the assessment by the midwives and cervical dilatation. Other women presented to the hospital again unsure as to whether or not they were in labour but contractions intensified through the course of their assessment and they ended up staying and progressing to give birth, in some instances very quickly.

82: "Option to go home as I was only 2cm dilated but within twenty minutes contractions were three minutes apart so I was told to stay"(P).

226: "Was happy with my timing, went into active labour within 30 to 40 minutes and had use of the birthing ball and gas" (M).

287: "When the water broke, I had no pain but within two hours I had contractions every two to three minutes, was 2cm dilated"(M).

Collaborative decision making

It was important to women that they were part of the decision making process**.** While at times the midwives were giving advice it seemed that this advice was more conversational than directive. This enabled women to be part of the decision around when to go to the hospital.

55 – "I was 3cm dilated and kept in, very happy. It pays to listen to your midwife. I feel if I went to the hospital too early I'd be very disappointed because I would've been sent home, I went just in time" (P).

83 – "I was sent home 10 hours after being admitted and returned three hours later in established labour. Although I was sent home, I felt that I went in at the right time as I was reassured and had some pain relief with the TENS machine" (P).

338 – "Spoke to the Midwife at 18.50, told them I'd be in by 20.00, decided then to go back to bed for rest as pains were 10 minutes apart. Pains worsened rapidly after 20.00. Contractions jumped from 10 minutes to three minutes with a lot of pressure at my back "(M).

Incidental

Some women were admitted to hospital following an assessment, on the basis of progress based on regularity and effectiveness of contractions and cervical dilatation.

61 – "Thought I would be sent home but was 3cm so was kept in which I was very happy with" (M).

226 – "Was happy with my timing, went into active labour within 30 to 40 minutes and had use of the birthing ball, gas etc" (M).

For some, admission was coincidental or incidental. One woman was attending a scheduled antenatal appointment and was admitted on the basis of her cervix being dilated. She did not mentioned in her questionnaire whether she had been having contractions as well.

74 – "I went to have a sweep and discovered I was 4-5cm dilated" (M).

197 – "I wasn't sent home; I was taken in for an examination and kept because my waters had broken. I found the experience very professional, friendly and very reassuring" (P).

Much of the comments in this section were very positive. Even if women were disappointed with being advised to go home they understood that the advice to go home was based on clinical assessment and discussion. Women who were too anxious to go home were admitted regardless of progress in labour, but this number was very few.

4.6 OTHER COMMENTS ABOUT EARLY LABOUR CARE BEFORE WOMEN WERE ADMITTED

Confidence in Care Giver

Very few women answered this question; 15 (6.3%) out of 235. More than 50% of the comments related to the care they received and how important they perceived the midwife to be when they rang for advice or when they were in hospital receiving care.

6: "Greatly advised and reassured by Midwife" (P).

22: "When I phoned the hospital the midwife was very helpful and she said if I felt comfortable to stay at home a little longer then do, but don't be afraid to ring and to keep in mind that this was my third baby, labour may be quicker" (M).

46: "Midwife was very helpful during our conversation on the phone. She made me aware that not every pregnancy is the same" (M).

Women felt that the midwife had considered their needs as individuals as opposed to giving text book advice.

Other symptoms

Some women mentioned other symptoms that they had not written anywhere else in the questionnaire.

28 – "Was only one hour 25 minutes at home before leaving for hospital as was beginning to feel some pressure" (M).

53 – "I had a stomach upset the night before with vomiting, diarrhoea and fever" (M).

Speed of Progress

Some women expected their births to be as quick as they were whereas other women were taken by surprise despite having prior knowledge and experience as a reference point.

> *23 – "He is my second baby, so everything goes very fast and I think normal" (M).*

> *41 – "I was assessed then gave birth. I knew that I was about to give birth very soon but knew that they thought I had ages to go" (M).*

4.7 COMMENTS ON HOW WOMEN COPED WITH THEIR SYMPTOMS WHILE THEY WERE AT HOME

This was an open ended question. Women were also given five options to choose from: walking, shower, massage, resting in bed and other. Both questions were analysed together. The table below details the various methods women used at home to help with the earlier stages of labour and the number of women who employed this form of coping (Table 10). Seven women used nothing at all. Walking was the most popular method of helping women cope with early labour pain with 152 (65%), followed by shower 81 (34.4%), resting in bed 81 (34.4%) and breathing exercises 66 (28%). Interestingly 40 (17%) women used paracetamol (Table 15).

Table 15. List of coping mechanisms used by women in the latent phase of their labour while at home

Coping mechanism	Coping mechanism employed by women in early labour at home	No. of women	
1	Walking	152	64.7%
2	Shower	81	34.5%
3	Resting in bed	81	34.5%
4	Breathing exercises/yoga breathing	66	28%
5	Bath	57	24.2%
6	Paracetamol	40	17%
7	Birthing ball	38	16.2%
8	Massage	33	14%
9	TENS	33	14%
10	Warm compress/hot water bottle	18	7.7%
11	Leaning over against someone/something, kneeling/birthing	14	6%

	positions		
12	Kept busy/housework/shopping/distraction/TV	13	5.5%
13	Rocking/swaying/moving in circles	10	4.3%
14	Hypnobirthing/meditation	6	2.6%
15	Relaxing	6	2.6
16	Relaxation	5	2.1%
17	Sitting on toilet/sitting upright/yoga positions	5	2.1%
18	Music	4	1.7%
19	Food/glucose sweets	4	1.7%
20	Homeopathy	4	1.7%
21	None	10	4.2%
22	Burning oil/aromatherapy	2	0.85%
23	Cold drink including water	2	0.85%
24	Petting cat	1	0.4%
25	Hot drink i.e. Tea/coffee	1	0.4%
26	Sitting to standing	1	0.4%
27	Reading	1	0.4%

The following table details the number of coping mechanisms women used i.e. 225 women used one method of coping and 4 women used as many as seven different methods of coping strategy to help them cope with early labour at home (Table 16).

Table 16. Number of coping means

	coping1	**coping2**	**coping3**	**coping4**	**coping5**	**coping6**	**coping7**
Number	225	189	143	74	38	13	4

4.8 DECISION TO GO TO THE HOSPITAL

The deciding factors to go to the hospital included regularity of contractions, pain, show, and advice from a midwife, spontaneous rupture of membranes, instinct, other symptoms and previous birth. Regularity of contractions is discussed later under midwifery advice, needing pain relief, the journey to the hospital and contractions considered with previous births. Of the women who returned a questionnaire, 221 answered this question. Some women gave more than one reason for her decision to go to the hospital (Table 17).

Table 17. Summary of reasons to go to the hospital.

Reason	No.	%
Contractions	101	46%
Pain	68	31%
Midwife Advice	42	19%
Rupture of membranes	25	11%
Previous Birth	18	8%
Show	9	4%
Needing Pain Relief	9	4%
Journey	4	2%
Family	5	2%
Baby Concern	2	1%
Instinct	2	1%
Partner	3	1%
Anxious	2	1%
BBA	2	1%
Need to Push	1	0.45%
Felt Sick	1	0.45%

4.8.1 Contractions

Regularity of contractions

Some women commented on the strength and regularity of contractions and didn't expand beyond that. This was enough for them to decide that it was time for them to go to the hospital. While there were many other variables the assumption is that the reason women stated was influenced by their understanding of labour or the overwhelming symptom they were experiencing at that time.

3 – "I decided to go into hospital as my contractions got very close together and much stronger" (M).

11 – "Contractions get stronger and more frequent in short space of time" (M).

54 – "The pains were regular and more intense" (P).

Other women commented on contractions combined with other influencing factors.

Contractions and midwifery advice

Many women decided to go to hospital based on contractions and advice from the midwife when they rang the hospital. Women through their antenatal care are advised to ring the hospital for advice prior to making the journey to hospital. The main reason for this is to safeguard the women from an unnecessary journey, unnecessary invasive examination and possible need to return home.

14 – "Pains became more regular, rang the hospital (MLU) got good advice over the phone, so I knew when it was the right time to travel" (M).

253 – "My contractions were every 15 minutes so I rang the MLU and they invited me to the hospital" (P).

Regular contractions and needing pain relief

Other women were incited to go to hospital because of their need for pain relief when they felt they had exhausted all non-medicinal coping strategies employed by them at home prior to this point.

35 – "Regular contractions. Felt the need for entonox" (M).

58 – "The contraction being so close together and the thought of getting into the birthing pool when I got to the hospital" (P).

Regular contractions and consideration of the journey to hospital

Many women were concerned with the extra discomfort of coping with contractions and pain in a car while on the way to the hospital. Unsurprisingly, the further away from the hospital they lived the more concerned they were with how they would cope during the journey. Not only were they concerned about how they would cope with labour but also with the driver, in most instances their partners. Some women made reference to their partners' anxiety while driving them to hospital in labour. The main fear was giving birth in the car.

182 – "Regular contractions and the fact we live a good 50 minutes away from hospital" (M)

336 – "The contractions in my back were getting increasingly stronger and I was afraid I wouldn't be able to handle sitting in the car if they got any worse" (P)

120 – "Contractions were getting closer together five to seven minutes and more intense. Plus with my previous two labours baby arrived quickly so I was anxious that baby would arrive in the car" (M).

Regular contractions and previous birth

Many women who had births previously, determined their admission time by previous experience of labour. Women who have particularly quick labours are advised accordingly through their antenatal period. Women have an inherent instinct around how their bodies react to labour and even without the advice from health professionals women talked instinctively about their need to go to the hospital based on prior experience.

230 – "The contractions started getting much stronger after I had a bath, it was the same familiar feeling I remember from my first pregnancy" (M).

34 – "Contractions were very close together, two minutes apart very strong. As this was my second pregnancy I knew I was very late on in labour" (M).

4.8.2 Pain

While pain was a significant influencing factor, pain was coupled with other symptoms of labour or other variables: regularity of pain, intensity of pain, pain and the inability to cope at home, pain and the need for pain relief, pain and collaborative decision making, pain and anxiety and pain and instinct.

Regularity of pain

Regular pain was a deciding factor for primiparous and multiparous women alike. Regular pain is suggestive in part of established labour. Pains every three to five minutes over a period of time are considered indicative of possible labour for a primiparous woman and regular pains every five to seven minutes are considered significant for a multiparous woman.

97 – "When pains were every three to five minutes apart and too strong to breathe easily through" (M).

139 – "When pain became frequent" (P).

181 – "Pains very regular for a number of hours, pains increasing" (P).

219 – "Pains were becoming more regular" (M).

Intensity of pain

Pain increasing and intensifying was a clear reason for some women to go to the hospital.

2 – "Pain became more severe, taking my breath away and history of quick labours" (M).

8 – "Pain was becoming very intense and regular" (P).

198 – "I had been getting pains all morning but they were manageable. About 13.00 hours I had a show and the pains were getting stronger and closer, reached hospital at 14.00 hours and daughter born at 15.52hours" (M).

Fear was a factor for some women, the absolute need to get to hospital was very apparent as women were fearful of having their baby on route or experiencing the intenseness of arriving in the hospital and having a baby soon after arrival at the hospital.

Need for pain relief

Many women arrived at hospital at a point where they felt that they were no longer able to rely on inherent reserve and endogenous pain relief at home. Some women mentioned the need for professional support as well.

68 – "Too much pain to cope at home" (P).

350 – "The pain became difficult to manage. I wanted the support and reassurance from the midwives" (P).

104 – "I couldn't stand the contractions anymore, was hoping for some pain relief "(P).

While the majority of women coped very well at home they all had a natural need for reassurance and support, as supported by Carlsson (2009) who also found that some women in early labour seek reassurance or wish to handover responsibility to their care provider. Partners often mention the reassurance that comes with being in the hospital environment where they are no longer the only support person. While they still want to be involved and be supportive to the woman in labour there is a sense of relief that comes with being surrounded by professionals and the availability of strong pain relief which was not possible at home.

Anxiety around pain

Many women despite coping well with their pains at home felt they needed the support of a professional or the reassurance that they and their baby were well.

48 – "Pain became regular and more intense. Became more anxious, wanted support from the midwives" (M).

108 – "Pains became more intense, more frequent, was anxious I didn't want to leave it too late going in because first baby, so unsure how long labour would last. Spoke again with midwife who advised if I felt better to be checked out to come in" (P).

Midwives will often offer women to come in to hospital to be checked out if only to allay her fears and anxieties.

Instinct with regards to pain

Some women knew instinctively it was time to go to the hospital based on the intensity of their pains. While pain is a definite sign of labour it varies in strength and regularity depending on the individual woman. Pain thresholds vary also. While women cannot quantify pain they know instinctively how their bodies cope with pain and when pain reaches an intensity to require hospital admission.

19 – "I feel pain every 10 minutes and after that every five minutes. I decided that time especially that my second baby so I feel will be quick and I was right. I was on time two hours and we have Julia" (M).

76 – "Pains got stronger and they were starting to take my breath so I knew it was time" (M).

Collaborative decision making around pain

Seeking advice to help with the decision to go to the hospital was important for many women. While midwives encouraged women to stay home for as long as they could women felt they had reached the point where they could no longer cope but at the same time did not want to be in hospital for too long before they had their baby. They felt that speaking with a midwife merely confirmed their decision.

9 – "I rang and they told me to come in whenever I felt I wanted to but it was my show and the stronger pains that made me go" (M).

277 – "The pain was getting too strong to cope with and based on my feelings and the conversation I had with the midwife on the phone I knew I was in labour" (M).

4.8.3 Show

A show has long been regarded as a sign of labour and an increasing show as a sign that labour is progressing as the tiny blood vessels in the cervix burst as the cervix dilates.

17 – "Regular contractions (eight minutes) and bleeding show lost" (M).

18 – "When I had bloody show, I phoned hospital and was advised to come in as my last baby came very quickly" (M).

124 – "Contractions were getting close, shorter time wise. I could feel pressure, went to the bathroom and I had a show so we left then" (M).

4.8.4 Advice from Midwives

The practice of the unit is to advise women to ring the labour ward or MLU anytime they are worried about their pregnancy or they think they may be going into labour. Usual questions from the midwives are based on ascertaining if the women is in labour or has a problem that requires her being assessed in the hospital. Advice is then given based on an individual basis. If a midwife has the impression the woman may be in labour based on the conversation she/he will advise her to go to the hospital.

9 – "I rang and they told me to come in whenever I felt I wanted to but it was my show and the stronger pains that made me go" (M).

84 – "I rang midwife when pain got too much and she asked me if I wanted to go in and if I felt I should come ahead so we did" (P).

302 – "Advice from midwife, told to take a bath, if pain didn't subside or pain worsens advised to go to hospital" (M)

304 –"Midwife on the phone recommended I wait till contractions were three minutes apart. However at four minutes apart my husband and mother were eager for me to go to the hospital, so I decided to leave then". (P)

Women felt that if a midwife gave the impression that the woman was not in labour through their conversation she advised the woman to be mindful of regularity of contractions, increasing pain and either ruptured membranes or a heavy show, or if she had any concerns about her baby's movements. Advice included comfort measures available to the woman in her home.

4.8.5 Advice from others, not Midwives

Some women sought the advice of family members or friends. Many women were influenced by the people who were supporting them through their labour at home. In the majority of cases, as detailed in another section of this thesis, this was their partner.

175 – "I rang my sister who is a midwife and she told me I should come in and not worry as I could always go back home if nothing much was happening" (M).

At times women's partners would advise them on the basis of them not being able to support the woman in labour or out of concern for her appearing to not be able to cope at home. The role of partners has evolved since the 1970s when fathers were beginning to have a role in supporting women in labour (Longworth et al 2015). Longworth et al (2015) in their review of 27 cases found that fathers struggled between their own fears and anxieties against the desire to support their partner in labour. Partners either adapted a passive or active role. The degree of involvement was dependent on their desire to be involved, the woman's need for their active participation and encouragement from care providers.

4.8.6 Spontaneous Rupture of Membranes

105 – "Membranes broke; pains were six to seven minutes apart; secured childcare, we were up anyway; I had a feeling labour would progress" (M).

281 – "My waters broke and contractions were strong" (P).

298 – "My waters broke. Didn't want to wait too long in case of contractions becoming stronger and not getting to hospital in time for pain relief" (M).

Women are generally made aware of the significance of rupture of membranes during their antenatal period or during antenatal classes.

4.8.7 Instinct

For some women 'they just knew' when the time was right for them to go to the hospital. Some required communication with their midwife despite knowing and others knew instinctively that they needed to be in the hospital.

59 – "Pains were coming very regular and lasting 45 seconds - advised by midwife to come in. This confirmed what I already felt was right" (P).

214 – "Pains started to come much closer together (three to four minutes) though they were still bearable. By time I got to OLOL they were one and a half minutes between them and I was very glad I trusted myself and came in" (M).

4.8.8 Other symptoms

Some women had a variety of symptoms that gave them the impression that they should head to the hospital. Vomiting and diarrhoea is noted to be a sign of early labour but vomiting in labour can indicate progress to an advanced stage as the blood flow is redirected from the stomach to vital organs and the uterus.

> *15 – "Speaking to the midwife; increasing pain; vomiting and diarrhoea" (P).*

> *53 – "I had been sick the previous night my waters/show had gone. My pains had started and as I was very quick with my first labour I was anxious to be at the hospital" (M).*

4.8.9 Previous births

For all aspects of their pregnancy and labour experience women drew on previous experience to inform them. This held true for their decision to go to the hospital as well. Many of the women had previous quick births and knew instinctively to go to the hospital. For the majority of these women their baby was born shortly after arrival at the hospital.

> *37 – "Regular pains which had become stronger. Due to a previous fast labour I was anxious that this did not re-occur. Phoned hospital and midwife advised me to attend hospital" (M).*

> *184 – "Baby number three so I recognised pains were strong enough that I was progressing very quickly. When I arrived in hospital and I was examined I was 6cm. Baby boy born an hour later" (M).*

> *234 – "My previous son was born less than an hour after I arrived in hospital, so with a 30 minute drive I left as soon as I felt I was in labour" (M).*

4.8.10 Other

Some women had a few reasons why they went to the hospital. These reasons were often influenced by others, other children requiring attention or being concerned about the wellbeing of their baby or relying on their instincts as well as symptoms.

> *55 – "I had great family support, and kept in touch with the midwife, who reassured me all the time" (P).*

56 – "When I didn't feel movement after I got sick I decided to ring again and let MLU know I wanted baby's heart beat checked. When I got to hospital my waters broke" (P).

195 – "I knew I was in full labour I probably should have gone in an hour earlier but it was St. Patrick's day and I was trying to get my other two children sorted" (M).

212 – "My husband said to go in I was unsure and then disappointed when I arrived and was told I was only two centimetres but midwife was lovely and asked if I wanted to go home or stay. I explained that last labour was very quick and was anxious so she said stay and we see how you get on. My waters had to be broke as I was slow dilating and then straight away Isabelle was born. Happy days. Everything was good. Thank God" (M).

4.9 SUPPORT PERSON

Women were asked who their support people were to help her and/or advise her when she was in early labour at home. They were given four options: Partner, Family Member, Friend or no one (Table 18).

Table 18. Support person

Partner/ Husband		**Family member**		**Friend**		**No one**	
No.	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
215	61	68	19.3	3	0.85	5	1.4

The family member was the woman's mother, sister, or father on 2 occasions. Crosstabulation showed 60 (17%) women had both her partner and a family member with her (Table 19).

Table 19. Partner and Family member

	Family member	Total
Partner	60	60
Total	60	60

CHAPTER 5 - RESULTS FROM THE MATERNITY INFORMATION SYSTEM (MIS) AND QUANTITATIVE DATA FROM THE QUESTIONNAIRE

5.3 LABOUR DETAILS

5.3.1 Position of the baby in utero on admission

The position of the baby in utero at the first abdominal examination undertaken by the midwives when the women were initially admitted to the hospital was recorded. This information was extracted from the clinical records as it is not recorded on the MIS. The majority of women had a normal fetal position on admission. With regards to the entire group of women who consented, almost 50% of babies were identified as being either right or left occipital anterior (23% and 26% respectively) with 4% considered to be direct occipital anterior. However, a further 23% had no fetal position recorded and therefore the position was unknown (Table 21).

For women who completed the questionnaire, almost 50% of babies were identified as being either right or left occipital anterior (24% and 25.5% respectively) with 0.4% considered to be direct occipital anterior. A further 25.5% had no fetal positions recorded and therefore the position was unknown (Table 20).

Table 20. Fetal position by abdominal examination on admission

	All women who consented and met the inclusion criteria		**Women who completed the questionnaire**	
Position	**No.**	**%**	**No.**	**%**
Right Occipital Anterior (ROA)	83	23%	56	24%
Right Occipital Lateral (ROL)	27	8%	20	8.5%
Right Occipital Posterior (ROP)	23	6%	13	5.5%
Left Occipital Anterior (LOA)	92	26%	60	25.5%
Left Occipital Lateral (LOL)	11	3%	8	3.4%
Left Occipital Posterior (LOP)	15	4%	7	3%
Occipital Anterior (OA)	1	0%	1	0.4%
Occipital Posterior (OP)	13	4%	8	3.4%
Not Stated	83	23%	60	25.5%
Baby Born on Arrival (BBA)	2	1%	2	0.8%
Breech	1	0	-	-
Total	**354**	**100%**	**235**	**100%**

5.3.2 Fetal monitoring

The majority of women in this study received their care through the midwifery led unit (MLU) and were considered low risk. For this reason the majority of babies were monitored in utero by the midwives using a hand held Doppler. Cardiotograph monitoring was only carried out if there was a concern about the baby's heart beat heard with the doppler or the baby passed meconium in labour and required transfer to the consultant led unit (CLU) on the labour ward, or there was other concerns for the mother or the baby in which case the mother was transferred to the consultant led unit. Five women had no monitoring as the baby was born prior to admission to the hospital or immediately on presentation to the hospital.

5.3.3 Cervical Dilatation

Percentages in table 21 are based on the total number of primiparous and the total number of multiparous women who consented and met the inclusion criteria. The mean cervical dilatation for primiparous women at admission was 3.1cm and the mean dilatation for multiparous women was 3.9cm. The most frequent cervical dilatation for both primiparous and multiparous women was 2-2.9cm (Table 21).

Table 21. Cervical dilatation on admission for all women who consented and met the inclusion criteria

Cervical Dilatation	**Primiparous**		**Multiparous**	
	Number	**Percentage**	**Number**	**Percentage**
0 – 1.9cm	19	14.3%	22	10.0%
2 – 2.9cm	57	42.9%	79	35.7%
3 – 3.9cm	24	18.0%	32	14.5%
4 – 5.9cm	19	14.3%	41	18.6%
6 - 9cm	8	6.0%	23	10.4%
10cm	6	4.5%	20	9.0%
BBA	0	0.0%	2	0.9%
Not Stated	0	0.0%	2	0.9%
Total	**133**	**100.0%**	**221**	**100.0%**

Percentages in Table 22a are based on the total number of primiparous and the total number of multiparous women who returned a questionnaire. The mean cervical dilatation for primiparous women at admission was 3.5cm and the mean dilatation for multiparous women was 4cm. The most frequent cervical dilatation for both primiparous women and multiparous women was 2-3cm (Table 22a).

Table 22a Cervical dilatation on admission for women who completed a questionnaire

Cervical Dilatation	Primiparous		Multiparous	
	Number	**Percentage**	**Number**	**Percentage**
0 – 1.9cm	24	32%	42	26%
2 – 2.9cm	25	33%	42	26%
3 – 3.9m	8	11%	23	14%
4 – 5.9cm	10	13%	21	13%
6 - 9cm	4	6%	12	8%
10cm	4	5%	16	10%
BBA	0	0%	2	1%
Not Stated	0	4%	2	1%
Total	**75**	**100**	**160**	**100**

5.3.4 Pain relief

Pain relief for women who consented and met the inclusion criteria

Entonox was the most common form of analgesia with 293 (82.7%) women choosing it as a form of pain relief. Pethidine was chosen by 74 (55.6%) and 42 (19%) and epidural by 20 (15%) and 1 (.45%) of primiparous and multiparous women respectively (Table 23).

Pain relief for women who completed the questionnaire

Entonox was the most common form of pain relief with 194 (82.5%) women using it. Primiparous women, 46.6% started using Entonox at cervical dilatation of around 3 to 5cm. Interestingly, this was similar for 27.5% of multiparous women (Table 23a).

Less than a third, 67 (28.5%), of this group of women chose to use pethidine as a form of pain relief. Most primiparous women (45.3%) who required pethidine did so when their cervix was 3 to 4.5cm dilated. Similarly, the largest number of multiparous women requiring pethidine also had a cervical dilatation of 3 to 5cm i.e. 27.5% (Table 23a).

Very few women chose epidural as a form of pain relief. If a woman chose an epidural or circumstance in labour dictated the suggestion for an epidural women were transferred from the midwifery led unit to the consultant led unit on the labour ward, as more intense monitoring was required (Table 23a).

Combined analgesia

There were 56 (42.1%) primiparous women who chose both Entonox and Pethidine for pain relief, with 16 (12%) primiparous women choosing all three options for pain relief. There were 33 (14.9%) multiparous women who chose combined pain relief of Entonox and Pethidine, with two (1.5%) women choosing entonox and epidural and one multiparous choosing all three options.

Of the 16 primiparous women who chose all three forms of pain relief all subsequently required either a caesarean birth (6/37.5%) or an instrumental birth (10/62.5%). Thirteen (81.2%) of these women required some form of labour augmentation either amniotomy alone (4/25%), oxytocin alone (3/18.7%) or amniotomy and oxytocin (6/37.5%). Of the women who did not require augmentation three (18.7%) required a caesarean section. The only multiparous woman who chose all three forms of pain relief had a normal birth (Table 23a).

Table 23 Pain relief for all women who consented and met the inclusion criteria

Cervical dilatation in cm prior to administration of analgesia	1 – 2.5cm	3 – 4.5cm	5 - 6.5cm	7 – 8cm	9 – 10cm	**Total**
Entonox						
Primiparous	18	58	20	14	8	116
Multiparous	37	63	43	18	16	177
Pethidine						
Primiparous	34	32	4	4	0	74
Multiparous	25	8	7	2	0	42
Epidural						
Primiparous	1	7	9	2	1	20
Multiparous	0	3	0	0	0	3

Table 23a Pain relief for women who completed a questionnaire

Cervical dilatation in cm prior to administration of analgesia	1 – 2.5cm	3 – 4.5cm	5 - 6.5cm	7 – 8cm	9 – 10cm	Total
Entonox						
Primiparous	8	35	14	6	4	66
Multiparous	25	44	31	17	11	128

Pethidine						
Primiparous	17	20	2	2	0	41
Multiparous	15	5	5	1	0	26
Epidural						
Primiparous	0	3	3	0	0	6
Multiparous	0	1	0	0	0	1

5.3.5 Length of first stage of labour

Length of first stage of labour for all women who consented and met the inclusion criteria

The mean length of first stage of labour for all primiparous women who consented was 4 hours and 43 minutes. The 17 primiparous women who required a caesarean section category 1 (immediate threat to life of woman or fetus) or caesarean section category 2 (no immediate threat to life of woman or fetus, which requires early delivery) were excluded as the length of first stage of labour was cut short. However, two primiparous women who had caesarean sections in second stage of labour were included as the length of first stage was recorded. Data on length of labour were not recorded for two primiparous women. These women account for the 19 missing cases.

The mean length of first stage for all multiparous women was 2 hours (Table 24). Data were not recorded for the following cases: Two multiparous women who required a caesarean section during first stage. One multiparous who woman only had second stage of labour recorded as she required a forceps birth on presentation to the hospital. Two multiparous women who did not have first stage of labour recorded as they presented in second stage. Cases where first stage was not recorded were included in the overall length of labour as they had a time of established labour and a time of birth recorded on MIS.

Table 24. Length of first stage for all women who consented and met the inclusion criteria

	Women included	Missing data	Mean (hrs mins)	Median (hrs mins)	Minimum (hrs mins)	Maximum (hrs mins)
Primiparous	114	19	4:43	3:45	00:47	15:0
Multiparous	215	5	2:0	1:30	00:50	9:30

Length of first stage for women who completed a questionnaire

The mean first stage of labour was recorded for 70 primiparous and 157 multiparous. Seven missing cases were accounted for as the birth was by caesarean section, five for

primiparous women and two for multiparous women. Primiparous women had a mean first stage of labour of 3 hours 38 minutes, and multiparous women had a mean first stage of labour of 2 hours and 15 minutes (Table 24a).

Table 24a. Length of first stage for women who completed a questionnaire

	Women included	Missing data	Mean (hrs mins)	Median (hrs mins)	Minimum (hrs mins)	Maximum (hrs mins)
Primiparous	70	5	3:38	3:00	00:47	11:50
Multiparous	158	2	1:52	1:29	00:00	8:04

5.3.6 Length of second stage of labour

Length of second stage of labour for all women who consented and met the inclusion criteria

The mean second stage of labour for all primiparous women who consented was 1 hour and 11 minutes. Women who required a caesarean section were excluded as described above. One primiparous women described above did not have first stage of labour recorded but did have second stage of labour recorded. The mean length of second stage for all multiparous women was 16 minutes (Table 25). Two missing cases

Table 25. Length of second stage for all women who consented and met the inclusion criteria

	Women included	Missing data	Mean (hrs mins)	Median (hrs mins)	Minimum (hrs mins)	Maximum (hrs mins)
Primiparous	115	18	1:11	0:56	0:21	4:33
Multiparous	218	2	0:16	0:11	0:10	2:24

Length of second stage for women who returned the questionnaire

The mean second stage of labour was also recorded for 70 primiparous and 158 multiparous. Cases are missing for five primiparous women who required a caesarean section. Primiparous women had a mean second stage of labour of 56 minutes, and multiparous had a mean second stage of labour of 15 minutes (Table 25a). Two missing cases are on account of both requiring a caesarean section, one a category 1 caesarean section and one a category 2 caesarean section.

Table 25a. Length of second stage for women who returned the questionnaire

	Women included	Missing data	Mean (hrs mins)	Median (hrs mins)	Minimum (hrs mins)	Maximum (hrs mins)
Primiparous	70	5	1:00	0:43	0:03	3:01
Multiparous	158	2	0:15	0:11	1:00	2:24

5.3.7 Total length of labour

Total length of labour including CS births for women who consented and met the inclusion criteria

When all labours were considered including for women who had labour prior to a CS birth, the mean for primiparous women was 6 hours and 30 minutes and the mean for multiparous women was 2 hours 27 minutes (Table 26).

Table 26. Total length of labour for all women who consented and met the inclusion criteria

	Mean (hrs mins)	Median (hrs mins)	Minimum (hrs mins)	Maximum (hrs mins)
Primiparous	6:30	5:2	0:17	18:10
Multiparous	2:27	2:15	0:5	10:16

Total length of labour including CS births for women who completed the questionnaire

When all labours were considered including for women who had labour prior to a CS birth, the mean for primiparous women was 5 hours and 28 minutes and the mean for multiparous women was 2 hours 13 minutes (Table 26a).

Table 26a. Total length of labour for women who completed the questionnaire

	Mean (hrs mins)	Median (hrs mins)	Minimum (hrs mins)	Maximum (hrs mins)
Primiparous	5:28	4:1	1:12	13:38
Multiparous	2:13	2:13	0:8	8:38

5.3.8 Condition of the fetal liquor

The liquor was clear 75% of the time for women who consented and met the inclusion criteria and 75.7% of the time for women who completed a questionnaire (Table 27).

Table 27. Condition of the fetal liquor

	Women who consented and met the inclusion criteria		Women who completed a questionnaire	
Liquor	**Number**	**Percentage**	**Number**	**Percentage**
Clear	269	75%	178	76%
Bloodstained	20	6%	13	6%
Meconium (Grade 1)	26	7%	17	7%
Meconium (Grade 2)	28	8%	18	8%
Meconium (Grade 3)	8	3%	5	2%
No liquor	3	1%	3	1%
Total	354	100%	235	100%

5.3.9 Ruptured membranes

Not all women reported water loss as a sign of early labour, of those who did the median time from ruptured membranes to birth interval as per primiparous women was 5 hours 11 minutes and 5 hours 38 minutes for multiparous women. Ruptured membranes to birth interval as determined by the midwife for primiparous women was a median of 3 hours 47 minutes and 1 hour 52 minutes for multiparous women.

With regards to the woman's perception of ruptured membranes and the midwife diagnosing ruptured membranes there was 35% agreement between midwives and primiparous women (13 of 37 who reported water loss) and 47% agreement between midwives and multiparous women (34 of 72 who reported water loss). Of the women included in the statistics below membranes were artificially ruptured for one primiparous woman and one multiparous woman. Neither of these times was in agreement.

Data were tested for assumptions of normality and did not have a normal distribution therefore non parametric tests are likely to be more accurate. The medians below are more likely to represent the true situation (Table 28).

Table 28. Ruptured membranes or water loss to birth interval

	Primiparous		Multiparous	
	Mean	**Median**	**Mean**	**Median**
Membranes ruptured to birth interval as per midwife	07:04:37	03:47:00	04:34:39	01:52:30
Water Loss as per symptom experienced by women to birth	07:02:11	05:11:00	11:29:15	5:38:00
Agreement between midwife and woman on ruptured membranes	35% agreement		47% agreement	

5.3.10 Augmentation of labour

Augmentation of labour for women who consented and met the inclusion criteria

The majority of women did not require augmentation 85 (63.9%) of primiparous and 184 (83.2%) of multiparous women respectively, with 23 (17.2%) and 31 (14%) requiring amniotomy alone, 10 (7.5%) and 1 (.45%) requiring oxytocin alone and 9 (6.7%) and 2 (.9%) requiring oxytocin and amniotomy combined (Table 29).

Table 29. Augmentation of labour for women who consented and met the inclusion criteria

	None	Amniotomy	Oxytocin infusion	Oxytocin + Amniotomy	Unknown	Total
Primiparous	85	23	10	9	6	133
Multiparous	184	31	1	2	3	221

Augmentation of labour for women who completed the questionnaire

Most women did not require any form of augmentation, 61(81.3%) and 141 (88.1%) women primiparous and multiparous respectively. Amniotomy alone was the most common form of augmentation with 10 (13.3) primiparous and 18 (11.5%) multiparous women requiring amniotomy to augment labour (Table 29a).

Table 29a. Augmentation of labour for women who completed the questionnaire

	None	Amniotomy	Oxytocin infusion	Oxytocin + Amniotomy	Total
Primiparous	61	10	2	2	75
Multiparous	141	18	0	1	160

5.4 BIRTH DETAILS

5.4.1 Mode of birth

Mode of birth for all women who consented and met the inclusion criteria

The majority of women both primiparous 87 (65%) and multiparous 212 (95%) had a spontaneous vaginal birth (SVB), 21 women had an emergency caesarean section (CS), six primiparous and two multiparous women required a category 1 caesarean section (immediate threat to the life of the woman or fetus) and 13 primiparous and no multiparous women required a category 2 caesarean section (maternal or fetal compromise which is not immediately life-threatening). 27 primiparous women required

instrumental births, 13 forceps and 14 ventouse (vacuum assisted vaginal birth), and seven multiparous women, three forceps birth and four ventouse births (Table 30).

Reasons for caesarean section were: Primiparous category 1, five for suboptimal cardiotocograph and one for poor or no progress; multiparous category 1, one for poor or no progress and one where the reason was not stated. Primiparous category 2, two for reasons not stated one for breech, five for poor or no progress and five for suboptimal cardiotocograph. Considering the reasons for all caesarean sections; 10 (48%) were required for a suboptimal cardiotocograph, seven (33%) for poor or no progress, one (5%) for breech and three (14%) where the reasons were not stated. The percentages are based on the total number of caesarean sections i.e. 21.

Mode of birth for women who returned questionnaires

The majority of women both primiparous 61 (81%) and multiparous 156 (97.5%) had a spontaneous vaginal birth (SVB), five women had an emergency caesarean section (CS), one multiparous required a category 1 caesarean section (immediate threat to the life of the woman or fetus) and four primiparous women required a category 2 caesarean section (maternal or fetal compromise which is not immediately life-threatening). Ten primiparous women required instrumental births, five forceps and five ventouse (vacuum assisted vaginal birth), and three multiparous women, one forceps birth and two ventouse births (Table 30a).

Table 30. Mode of birth for all women who consented and met the inclusion criteria

	SVB	CS	Ventouse	Forceps	Total
Primiparous	87	19	14	13	133
Multiparous	212	2	4	3	221

Table 30a. Mode of birth for women who returned questionnaires

	SVB	CS	Ventouse	Forceps	Total
Primiparous	61	4	5	5	75
Multiparous	156	1	2	1	160

5.4.2 Perineal trauma

Perineal trauma for all women who consented and met the inclusion criteria

With regards to perineal trauma, 34% of primiparous women sustained a second degree tear with 48% of multiparous women having an intact perineum (Table 31).

Table 31. Perineal Trauma for all women who consented and met the inclusion criteria

Perineal trauma	Primiparous		Multiparous		Total	
	No.	%	No.	%	No.	%
Intact	21	16%	106	48%	127	36%
1st degree tear (SVB)	12	9%	45	20%	57	16%
2nd degree tear (SVB)	45	34%	58	26%	103	29%
3rd degree tear (SVB)	3	2%	0	0%	3	1%
Episiotomy (SVB)	5	4%	3	1%	8	2%
Intact (Instrumental birth)	0	0%	2	1%	2	1%
1st degree tear (Instrumental birth)	1	1%	1	0%	2	1%
2nd degree tear (Instrumental birth)	6	5%	2	1%	8	2%
3rd degree tear (Instrumental birth)	0	0%	1	0%	1	0%
Episiotomy (Instrumental birth)	19	14%	1	0%	20	6%
Episiotomy and 3rd degree tear	2	2%	0	0%	2	1%
Intact (Caesarean birth)	19	14%	2	1%	21	6%
Total	133	100%	221	100%	354	100%

Perineal trauma for women who completed the questionnaire

46.67% of primiparous women sustained a second degree tear with 53.75% of multiparous women with an intact perineum (Table 31a).

Table 31a. Perineal trauma for women who completed the questionnaire

Perineal trauma	Primiparous		Multiparous		Total	
	No.	**%**	**No.**	**%**	**No.**	**%**
Intact	13	17%	86	54%	99	42%
1st degree tear (SVB)	8	11%	30	19%	38	16%
2nd degree tear (SVB)	35	47%	38	24%	73	31%
3rd degree tear (SVB)	2	3%	0	0%	2	1%
Episiotomy (SVB)	2	3%	2	1%	4	2%
Intact (Instrumental birth)	0	0%	1	1%	1	0%
1st degree tear (Instrumental birth)	1	1%	0	0%	1	0%
2nd degree tear (Instrumental birth)	3	4%	1	1%	4	2%
3rd degree tear (Instrumental birth)	0	0%	1	1%	1	0%
Episiotomy (Instrumental birth)	5	7%	0	0%	5	2%
Episiotomy and 3rd degree tear	2	3%	0	0%	2	1%
Intact (Caesarean birth)	4	5%	1	1%	5	2%
Total	75	100%	160	100%	235	100%

5.4.3 Estimated Blood Loss

Estimated Blood Loss for women who consented and met the inclusion criteria

Primiparous women had a higher relative estimated blood loss than multiparous women, 57% of multiparous women lost 50 to 200mls of blood and 48% of primiparous women lost 250 to 400mls of blood following the birth. While 6% and 0.4% of both groups respectively had a significant loss of more than 1000mls (Table 32).

Table 32. Estimated Blood Loss for women who consented and met the inclusion criteria

Total blood loss	Primiparous		Multiparous		Total	
	No.	%	No.	%	No.	%
50 - 200	35	26%	125	57%	160	45%
250 – 400	64	48%	74	34%	138	39%
450 – 600	16	12%	17	8%	33	9%
650 – 800	6	5%	2	1%	8	2%
850 - 1000	4	3%	1	0%	5	1%
1000 – 1500	8	6%	1	0.4%	9	3%
Total	133	100%	220	100%	353	100%

Blood loss for women who completed the questionnaire

Primiparous women had a higher relative estimated blood loss than multiparous women, 59% of multiparous women lost 50 to 200mls of blood and 49.5% of primiparous women lost 250 to 400mls of blood following the birth. While 3% and 1% of both groups respectively had a significant loss of more than 1000mls. One woman had her baby born before arrival to hospital and her blood loss post birth was not recorded (Table 32a).

Table 32a. Estimated Blood Loss for women who completed the questionnaire

Total blood loss	Primiparous		Multiparous		Total	
	No.	%	No.	%	No.	%
50 - 200	26	35%	94	59%	120	52%
250 – 400	37	49.5%	49	30%	86	37%
450 – 600	8	10%	14	9%	22	9%
650 – 800	1	1%	0	0%	1	0%
850 - 1000	1	1%	1	1%	2	1%
1000 – 1500	2	3%	1	1%	3	1%
Total	75	100%	159	100%	234	100%

5.4.4 Baby weight and Apgar score

Baby weight and Apgar score for women who consented and met the inclusion criteria

The majority of babies (43%) weighted 3500 to 3999gms, with 4% less than 3000gm and 23% considered large for gestational age i.e. >4000gm (Table 33).

Most babies (74%) had an Apgar score of 10 at 1 minute, 85% of babies had an Apgar score of 10 by 5 minutes (Table 34).

Baby weight and Apgar score for women who completed the questionnaire

The majority of babies (42.5%) weighed 3500 to 3999gms, with 3.5% less than 3000gm and 23% considered large for gestational age i.e. >4000gm (Table 33).

Most babies (74.9%) had an Apgar score of 9 at 1 minute, 87.2% of babies had an Apgar score of 10 by 5 minutes (Table 34 and 34a).

Table 33. Baby weight (data missing for two babies)

	Women who consented and met the inclusion criteria		**Who completed the questionnaire**	
Weight	**Frequency**	**Percent**	**Frequency**	**Percent**
<2500gm	2	0.6%	-	-
2500 to 2999gm	12	3.4%	8	3.4%
3000 to 3499gm	108	30.5%	73	31.1%
3500 to 3999gm	152	42.9%	100	42.6%
4000 to 4499gm	70	19.8%	47	20.0%
4500 to 5000gm	10	2.8%	7	3.0%
	354	100%	235	100%

Table 34 Apgar scores (data missing for two babies)

	Women who consented and met the inclusion criteria							
Apgar At 1 minute	**Spontaneous vaginal birth**		**Forceps birth**		**Ventouse birth**		**Caesarean section**	
	No	**%**	**No**	**%**	**No**	**%**	**No**	**%**
2	2	0.7%	0	-	0	-	2	0.6%
3	1	0.3%	0	-	0	-	1	0.3%
4	1	0.3%	1	6.3%	1	5.6%	5	1.4%
5	0	0.0%	1	6.3%	0	-	3	0.9%
6	3	1.0%	2	12.5%	1	5.6%	8	2.3%
7	4	1.3%	1	6.3%	2	11.1%	8	2.3%
8	26	8.8%	1	6.3%	3	16.7%	31	8.8%
9	228	76.8%	9	56.3%	11	61.1%	261	74.1%
10	32	10.8%	1	6.3%	0	-	33	9.4%
	297	**100%**	**16**	**100%**	**18**	**100%**	**21**	**100%**

Apgar At 5 minute	Spontaneous vaginal birth		Forceps birth		Ventouse birth		Caesarean section	
	No	**%**	**No**	**%**	**No**	**%**	**No**	**%**
6	0	0.4%	0	-	0	-	1	4.8%
7	1	0.3%	0	-	0	-	0	-
8	0	0.0%	0	-	2	11.1%	3	14.3%
9	39	13.1%	3	18.8%	2	11.1%	2	9.5%
10	257	86.5%	13	81.3%	14	77.8%	15	71.4%
	297	**100%**	**16**	**100%**	**18**	**100%**	**21**	**100%**

Table 34a Apgar scores

	Apgar score for women who completed the questionnaire							
Apgar At 1 minute	**Spontaneous vaginal birth**		**Forceps birth**		**Ventouse birth**		**Caesarean section**	
	No	%	No	%	No	%	No	%
2	1	0.5%	0	-	0	-	0	-
3	1	0.5%	0	-	0	-	0	-
4	1	0.5%	0	-	0	-	0	-
6	2	0.9%	0	-	1	0.5%	0	-
7	4	1.9%	1	17%	0	-	0	-
8	19	8.8%	0	-	1	0.5%	0	-
9	161	74.9%	5	83%	5	2.3%	5	100
10	26	12.1%	0	-	0	0	0	-
	215	**100%**	**6**	**100%**	**7**	100%	**5**	**100%**
Apgar At 5 minute	**Spontaneous vaginal birth**		**Forceps birth**		**Ventouse birth**		**Caesarean section**	
	No	**%**	**No**	**%**	**No**	**%**	**No**	**%**
7	1	0.5%	0	-	0	-	0	-
8	0	0.0%	0	-	1	14.3%	0	-
9	23	10.7%	1	16.7%	1	14.3%	1	20.0%
10	191	88.8%	5	83.3%	5	71.4%	4	80.0%
	215	**100%**	**6**	**100%**	**7**	**100%**	**5**	**100%**

5.4.5 Babies admitted to neonatal intensive care and special care baby unit

There were 11 (3.1%) babies from the consented and eligible group admitted to the neonatal intensive care unit or the special care baby unit. There were 4 (1.7%) babies admitted to the neonatal intensive care from the group who returned the questionnaire. Reasons for admission for both groups were for respiratory problems at birth, infection at birth or congenital conditions. The majority of babies who were admitted to the NICU also spent time in SCBU before being discharged to the postnatal ward or home. Two babies were discharge from NICU to home (Table 35).

From the questionnaire group, one baby was transferred to a tertiary hospital while the others spent less than three days in NICU. Babies admitted to NICU were transferred to the special baby unit or discharged to the ward within four days. All other babies were discharged well within five days. The baby who was transferred to a tertiary hospital is not included in the figures (Table 35).

Table 35. Babies length of stay in NICU/SCBU for women who consented and met the inclusion criteria

Unit	Mean	Median	Minimum	Maximum
NICU	3.7	2	1	12
SCBU	3.7	3.5	1	8
Combined total stay in both NICU and SCBU	6.7	5.5	1	16

5.5 SYMPTOMS EXPERIENCED DURING THE LATENT PHASE OF LABOUR

The questionnaire listed a set of symptoms. Women were asked to tick the box next to any symptom that they experienced in the latent phase of their labour and recorded the time and date that she started to experience that symptom. Women could choose as many symptoms that they experienced. Symptoms included: Regular pains, non-recurrent pains (including a feeling of traction, pulling or pressure), watery fluid loss, blood stained loss of any type (including a bloody show), stomach upset or feeling sick, altered sleep patterns, emotional upset i.e. weepy or anxious. Some women reported symptoms that occurred after the start of established labour and these reports were excluded as the focus was on latent phase. All symptoms are included in table 36.

5.5.1 Symptoms

Of the 235 women who returned a questionnaire, the most common symptoms experienced were regular pain, experienced by almost all women (91%) and blood loss (70%). It is of note that 31% of women experienced emotional upset (Table 37).

Table 36. Symptoms

Symptom	**Number of Women**	
	No.	%
Regular pain	216	91%
Blood loss	164	70%
Water loss	110	47%
Non recurrent pain	104	44%
Stomach upset	89	38%
Emotional upset	72	31%
Altered Sleep	54	23%

Women were asked to record any symptoms other than those described above. Not all women answered this question. Results from the women who answered are shown below (Table 37). The most common additional symptoms experienced were backache and gastrointestinal symptoms. Percentages are based on the number of women who completed and returned the questionnaire.

Table 37 Other symptoms

Symptom	**Number of Women**	
	No	**%**
Back pain	14	6%
Gastrointestinal symptoms	10	4.2%
Abdominal pain	8	3.4%
PV loss - mucous	4	1.7%
Pain - other	4	1.7%
Pain in legs or feet	4	1.7%
Feeling energetic	4	1.7%
Negative emotions	4	1.7%
Other	4	1.7%
Sleep	3	1.2%
Pain in cervix	1	0.4%
Feeling Tired	1	0.4%
Positive emotions	1	0.4%

5.6 DURATION OF TIME FROM THE ONSET OF SYMPTOMS TO PROFESSIONALS DIAGNOSING ESTABLISHED LABOUR

The questionnaire and MIS data sets were combined to identify the time from onset of symptoms as described by the women until midwives diagnosed established labour – defined as cervical dilatation of 3cm and strong regular contractions.

Duration of time of onset of symptoms to established labour

The following table shows the mean hours between symptoms experienced to onset of established labour, as determined by the midwife for both primiparous and multiparous women. Many women experienced altered sleep and emotional upset from weeks to a month before established labour was diagnosed. Some women put time ranges of over four weeks. For the sake of this analysis times were limited to 7 days (Table 38).

Table 38. Interval between onset of symptoms to established labour

Symptom			**Primiparous**				**Multiparous**			
			Mean (hours)	**Median (hours)**	**Min. (hrs)**	**Max. (hrs)**	**Mean (hours)**	**Median (hours)**	**Min. (hrs)**	**Max. (hrs)**
Regular pain	*P - 69	**M - 147	12.9	9.25	1.5	55.6	8.1	5.0	.08	42.6
Non recurrent pain			30.1	19.3	.25	112.5	25.66	14.6	.75	189.5
Watery fluid loss			16.7	5.6	0	127.25	15.4	7.6	0	169
Blood loss			24.6	14	0	102.25	30.5	11.9	0	155
Stomach upset			11.4	5.25	.33	75.75	15.3	6.75	0	154
Altered Sleep			23.8	28.1	2.25	42.25	25.15	28.2	13	31
Emotional			25.08	14.75	1.5	149.5	22.28	12.38	3.6	76.83

*P = number of primiparous women who experienced regular pain
**M = number of multiparous women who experienced regular pain

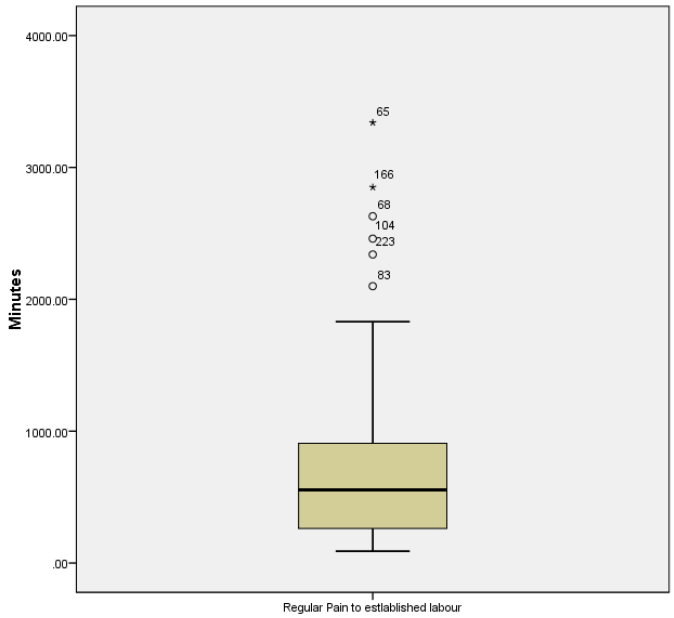
The following box plots are diagrammatic presentations of the above summary for **primiparous women**. The rectangle representing the lower and upper quartiles, with the horizontal line inside the rectangle indicating the median in minutes. The lines outside the boxes indicate variability outside the upper and lower quartiles. The circles indicate samples (each one representing one participant) which are removed from the bulk of the data.

5.6.1 Symptoms experienced by primiparous women

Regular pain experienced by primiparous women

Women experienced regular pain for a median time of 9.25 hours before established labour was diagnosed. The minimum time was 1.5 hours. The maximum time was 55.6 hours (Box plot 1).

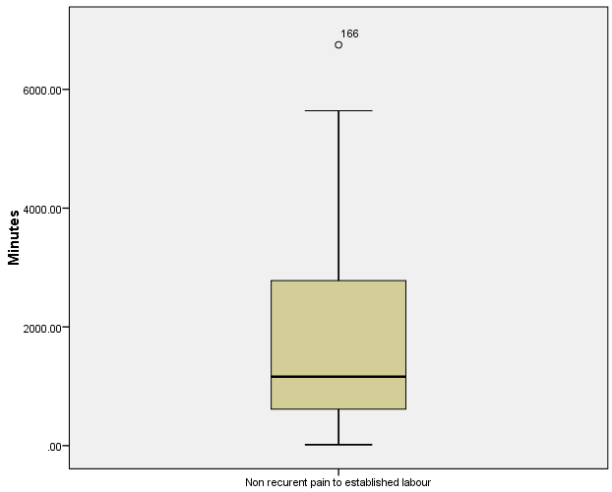
Box plot 1. Regular pain to established labour (primiparous)



Non recurrent pain experienced by primiparous women

Non recurrent pain to established labour shows a median time of 19.3 hours. The minimum time was .25 hours. The maximum time was 112.5 hours (Box plot 2).

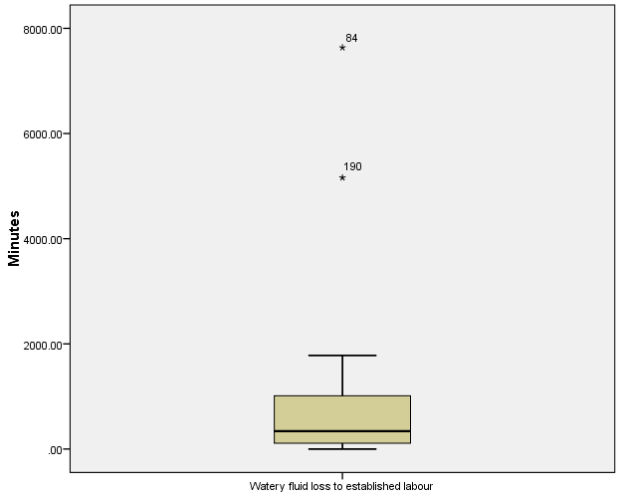
Box plot 2. Non-recurrent pain to established labour (primiparous)



Watery fluid Loss experienced by primiparous women

Women were asked to describe their watery fluid loss, so this may not have been true ruptured membranes. Water loss to established labour shows a median time of 5.6 hours. The minimum time was 0 hours i.e. rupture membranes at commencement of established labour. The maximum time was 127.25 hours. The maternity unit has a policy of induction of labour for confirmed rupture of membranes more than 24 hours. It is therefore unlikely that a woman would have true ruptured membranes for 127.25. Many women present to the unit with suspected ruptured membranes, which may have been what was recorded in this instance (Box plot 3).

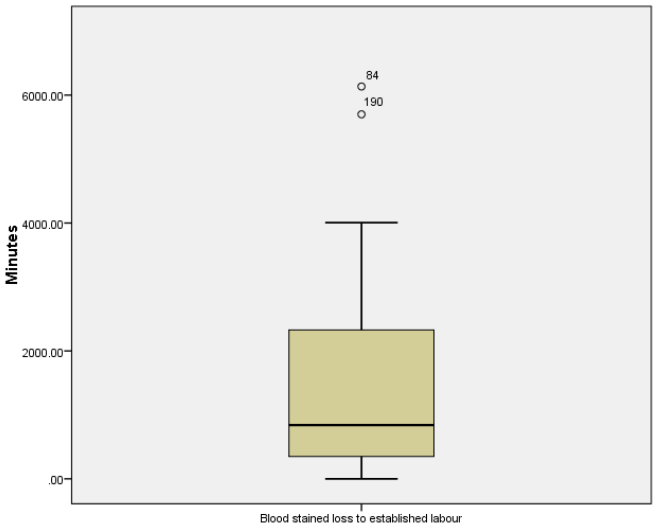
Box plot 3. Watery fluid loss to established labour (primiparous)



Blood stained loss experienced by primiparous women

Blood stained loss to established labour shows a median time of 14 hours. The minimum time was 0 hours, which implies that blood loss was noted at the same time that labour was established. The maximum time was 102.25 hours. Women were asked to record blood loss of any type which accounts for the time ranges (Box plot 4).

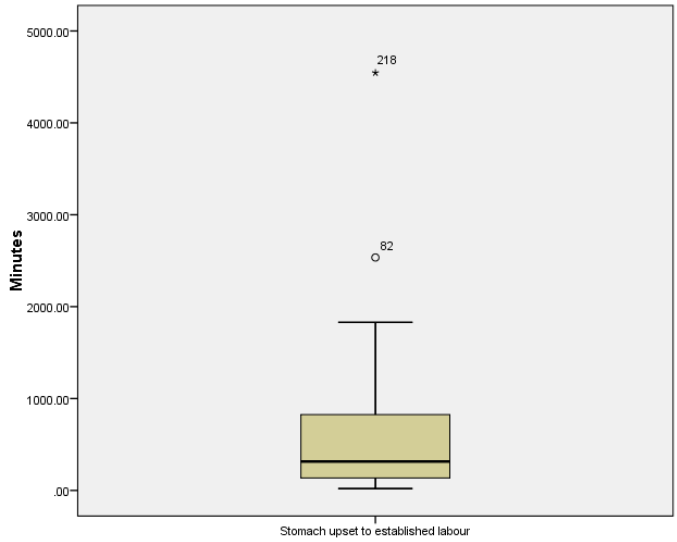
Box plot 4. Bloodstained loss to established labour (primiprous)



Stomach Upset experienced by primiparous women

Stomach upset to established labour shows a median time of 5.25 hours. The minimum time was .33 hours. The maximum time was 75.75 hours (Box plot 5).

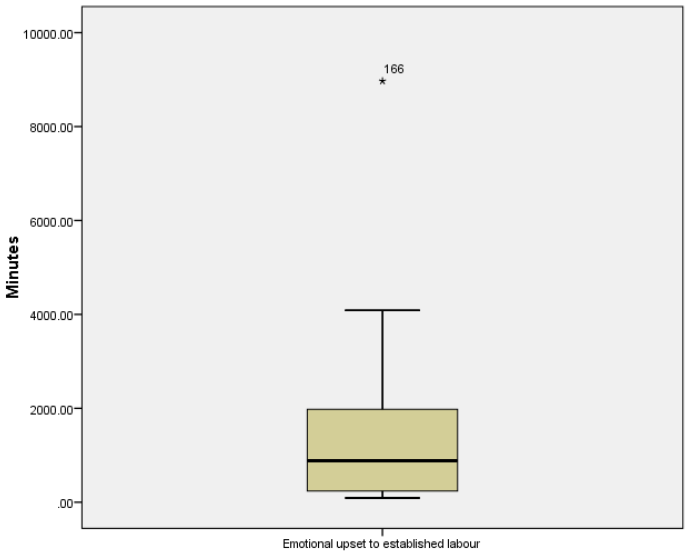
Box plot 5. Stomach upset (primiparous)



Emotional upset experienced by primiparous women

Emotional upset to established labour shows a median time of 14.75 hours. The minimum time was 1.5 hours. The maximum time was 149 hours. One woman recorded emotional upset a few weeks before she went into established labour (Box plot 6) which in essence is not early labour and therefore not recorded in the analysis.

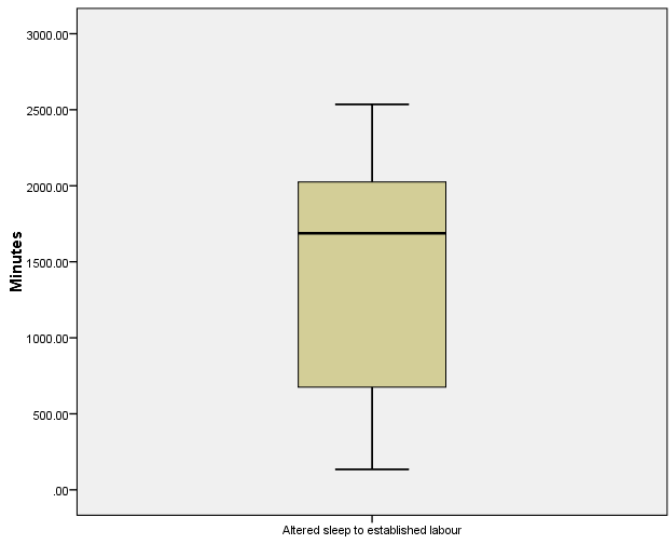
Box plot 6. Emotional upset to established labour (primiparous)



Altered sleep experienced by primiparous women

Altered sleep to established labour shows a median time of 28.1 hours. The minimum time was 2.25 hours. The maximum time was 42.25 hours. One woman recorded altered sleep patterns for a few weeks prior to established labour, but again this is not included in the analysis (Box plot 7).

Box plot 7. Altered sleep to established labour (primiparous)



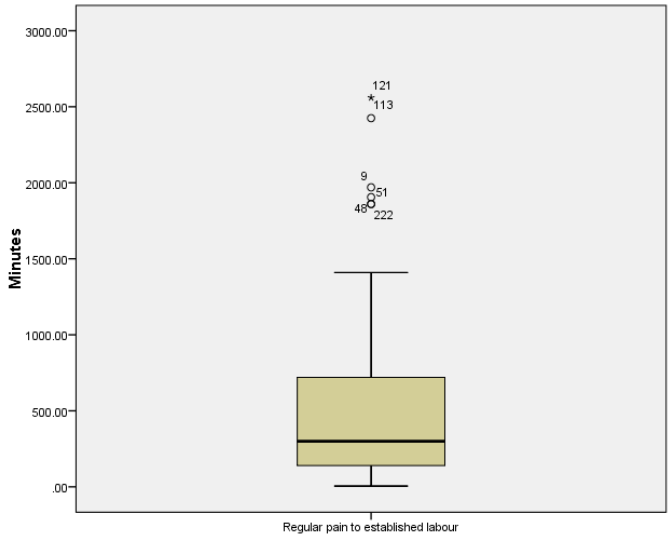
5.6.2 Symptoms experienced by multiparous women

The following box plots are diagrammatic presentations of the above summary for **multiparous women.**

Regular Pain experienced by multiparous women

Regular pain to established labour shows a median time of 5 hours. The minimum time was .08 hours. The maximum time was 42.6 hours (Box plot 8).

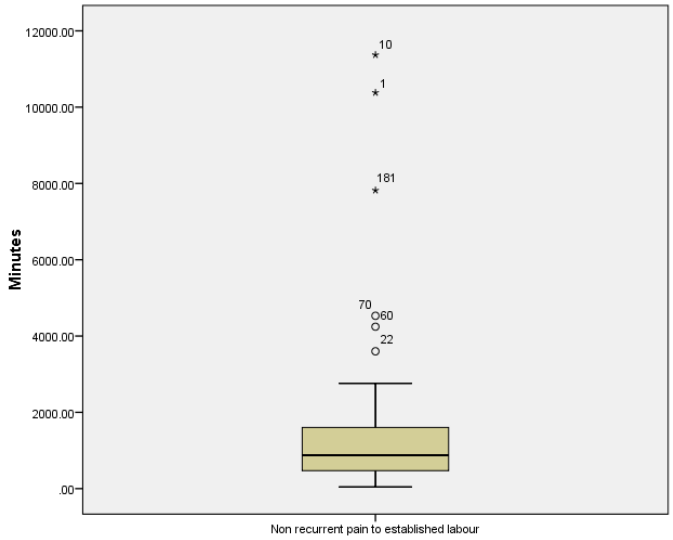
Box plot 8. Regular pain to established labour (multiparous)



Non recurrent pain experienced by multiparous women

Non recurrent pain to established labour shows a median time of 14.6 hours. The minimum time was .75 hours. The maximum time was 189.5 hours (Box plot 9).

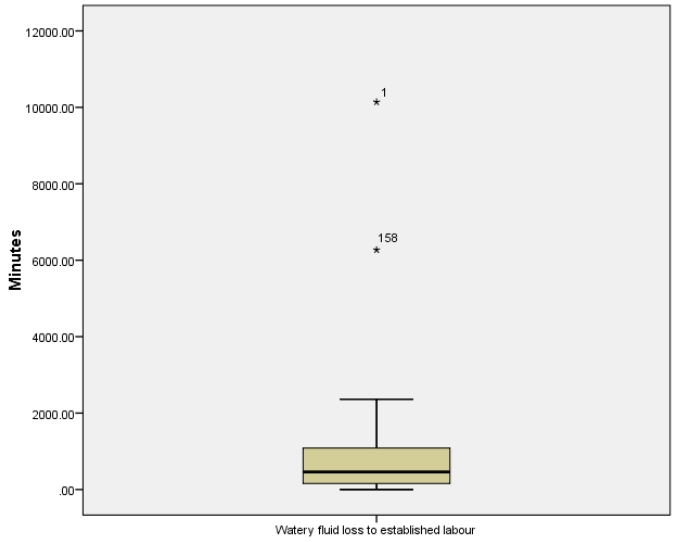
Box plot 9. Non recurrent pain to established labour (multiparous)



Watery fluid loss experienced by multiparous women

Water loss to established labour shows a median time of 7.6 hours. The minimum time is 0 hours. The maximum time is 169 hours (Box plot 10).

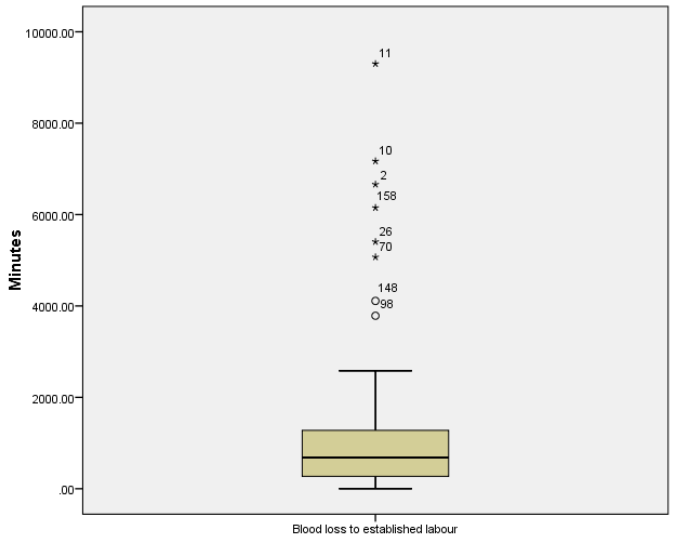
Box plot 10. Watery fluid loss to established labour (multiparous)



Blood loss experienced by multiparous women

The box plot for blood loss to established labour shows a median time of 11.9 hours. The minimum time is 0 hours. The maximum time is 155 hours (Box plot 11).

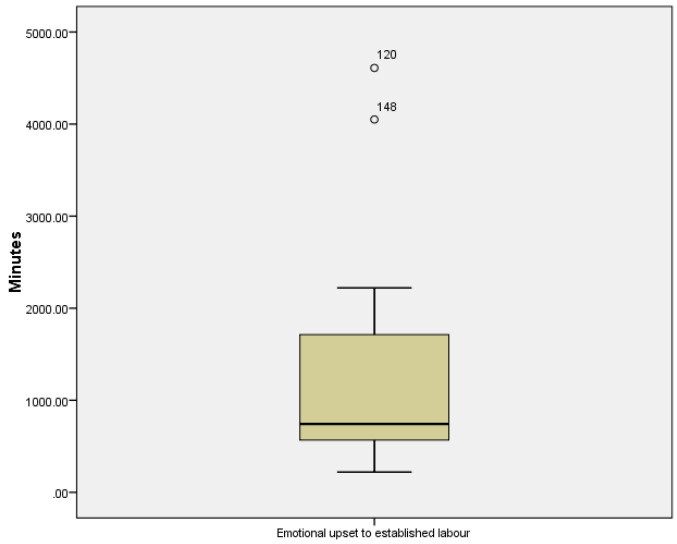
Box plot 11. Blood loss to established labour (multiparous)



Emotional Upset experienced by multiparous women

Emotional to established labour shows a median time of 12.3 hours. The minimum time is 3.6 hours. The maximum time is 76.3 hours. As with a primiparous woman, one multiparous woman became very emotional following the birth (Box plot 12).

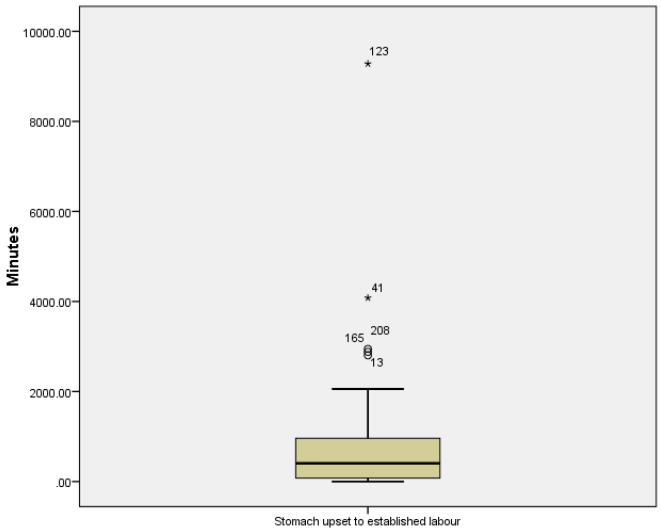
Box plot 12 Emotional to established labour (multiparous)



Stomach upset experienced by multiparous women

Stomach upset to established labour shows a median time of 6.75 hours. The minimum time is 0 hours. The maximum time is 154 hours (Box plot 13).

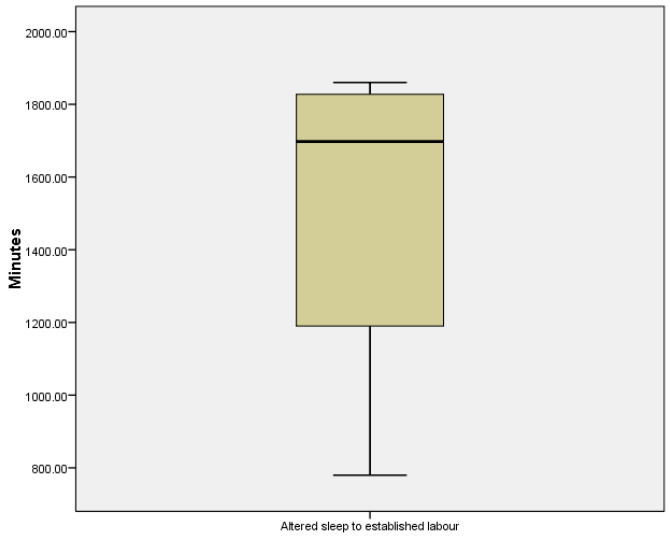
Box plot 13. Stomach upset to established labour (multiparous)



Altered sleep experienced by multiparous women

Altered sleep to established labour shows a median time of 28.2 hours. The minimum time is 13 hours. The maximum time is 31 hours (Box plot 14).

Box plot 14. Altered sleep to established labour (multiparous)



5.7 REGRESSION ANALYSIS - SYMPTOMS OF EARLY LABOUR AND SUBSEQUENT LENGTH OF LABOUR

Cox Regression analysis enabled investigating several variables i.e. the symptoms experienced through the latent phase of labour as demonstrated above, upon the time of the confirmed commencement of the first stage of labour. Covariates were divided into fixed and time invariant covariates. The time invariant covariates were the symptoms experienced by women in the latent phase of labour as per the semi-structured questionnaire. The fixed dependents were based on the demographic data as per MIS and hospital files if required. The hazard ratio is the measurement of the acceleration or retardation of the process of labour, identifying particular characteristics i.e. regular pain compared to a women not experiencing regular pain.

There were 75 primiparous women and 160 multiparous women although two multiparous women only completed the text part of the questionnaire as SPSS analysis shows data for 158 multiparous women (Table 39).

Table 39. Number and percentage of women who reported particular symptoms in early labour.

Early labour symptom	Primiparous (75)		Multiparous (158)	
	Number	Percentage	Number	Percentage
Non recurrent pain	33	44	72	45.5
Regular pain	69	92	146	92
Water loss	37	49	71	45
Blood loss	57	76	106	67
Stomach upset	32	43	57	36
Altered sleep	22	29	31	20
Emotional	29	39	42	26.5

Firstly the bivariate relationships between women's characteristics, presence of symptoms of early labour and overall length of labour were examined using Cox regression (Table 40). Smoking at booking was a significant factor in predicting shorter labours in primiparous women possibly due to lower birth weight babies. The presence of water loss predicted longer lengths of labour in multiparous women (hazard ratio is greater than 1). The presence of regular pain in multiparous women predicted shorter length of labour. Non recurrent pain was not significant at the 0.05 alpha threshold.

Table 40. Demographics and symptoms of early labour

Variable	**Primiparous**			**Multiparous**		
	Hazard ratio	**Confidence Interval**	**P value**	**Hazard ratio**	**Confidence Interval**	**P value**
Demographic data						
Height in centimetres	1.024	.975;1.074	.343	.963	.930;.998	.036
Age	.983	.930;1.039	.541	1.002	.964;1.041	.936
*Smoking at booking	.631	.410;.973	.037	1.210	.931;1.573	.154
Women's symptoms						
Non recurrent pain	.932	.585;1.486	.768	1.376	1.002;1.890	.049
Regular pain	.755	.323;1.760	.515	.446	.246;.812	.008
Water loss	1.224	.773;1.938	.388	1.443	1.047;1.990	.025
Blood loss	.845	.487;1.465	.548	1.029	.739;1.433	.864
Gastrointestinal symptoms	.803	.501;1.288	.362	1.023	.738;1.419	.889
Emotional	1.019	.635;1.635	.936	1.262	.886;1.797	.197
Altered sleep	.724	.435;1.204	.213	1.086	.736;1.603	.678

*Of the women who were smoking at booking there were 6 out of 75 primiparous and 17 out of 158 multiparous.

Variables found to have a P value of <0.10 were selected for the multivariate model, which examined the effect of women's perceptions of symptoms on the length of labour. Cox regression analysis was used to examine the effect of regular pain, non-recurrent pain, water loss, and blood loss on length of labour when smoking status was controlled. The variables with a P value of > 0.1 were eliminated. The variables with a P value of ≤ 0.1 were included. A hazard ratio greater than 1 indicates a longer duration of labour and a hazard ratio of less than 1 a shorter duration compared to women who did not report

experiencing that particular symptom (Table 41). The final model contained three predictors only due to the small number of primiparous women.

Table 41. Cox Model

Variable	Primiparous			Multiparous		
	Hazard ratio	**Confidence Interval**	**P value**	**Hazard ratio**	**Confidence Interval**	**P value**
Demographic data						
*Smoking at booking	.400	.168;.955	.039	1.502	.884;2.553	.132
Women's symptoms						
Regular pain	1.437	.611;3.378	.406	2.447	1.337;4.476	.004
Water loss	.819	.515;1.302	.398	.706	.512;.975	.035

*Of the women who were smoking at booking there were 6 out of 75 primiparous and 17 out of 158 multiparous.

Most women became aware of the onset of their labour due to regular pain or blood loss. Regular pain and water loss were significant predictors of duration of labour in multiparous women when height, age and the occurrence of other symptoms were statistically controlled. The lack of significant findings in the primiparous women may be due to low statistical power due to the low sample size (n=75) i.e. type II error.

Because of the low statistical power with primiparous women, both multiparous and primiparous women were analysed together (Table 42).

Table 42. Demographics and symptoms of early labour

Variable	Primiparous and Multiparous Combined		
	Hazard ratio	**Confidence Interval**	**P value**
Demographic data			
Height in centimetres	.963	.930;.998	.036
Age	1.002	.964;1.041	.936
Smoking at booking	1.40	.931;1.573	.154
Women's symptoms			
Non recurrent pain	1.376	1.002;1.890	.049
Regular pain	.446	.246;.812	.008
Water loss	1.443	1.047;1.990	.025
Blood loss	1.029	.739;1.433	.864
Gastrointestinal symptoms	1.023	.738;1.419	.889
Emotional	1.262	.886;1.797	.197
Altered sleep	1.086	.736;1.603	.678

As with primiparous and multiparous women analysed separately variables found to have a P value of <0.10 were selected for the multivariate model. Regular pain and water loss were significant when both groups were analysed controlling for smoking at booking and 'primiparous/multiparous' and including this as a covariate P values of .012 and P value of .030 for regular pain and water loss respectively. This hazard ratio compares multiparous to primiparous women therefore multiparous women have much quicker labours (as hazard ratio is less than 1 (Table 43).

Table 43. Cox model for combined primiparous/multiparous as a covariate

Variable	Primiparous and Multiparous Combined		
	Hazard ratio	**Confidence Interval**	**P value**
Demographic data			
Smoking at booking	1.209	.777;1.880	.400
Primiparous Multiparous	.321	.235;.438	.000
Women's symptoms			
Regular pain	1.842	1.145;2.964	.012
Water loss	.748	.576;.972	.030

5.8 ASSOCIATION BETWEEN THE DURATION OF LABOUR AND THE OUTCOME

Birth outcomes for all women who consented and met the inclusion criteria

The majority of women gave birth normally; 87 (65.4%) and 211 (95.9%) of primiparous and multiparous respectively. A number of women required caesarean section births, 19 (14.2%) primiparous women and 2 (.9%) multiparous women. A percentage of women required instrumental births; 13 (9.7%) primiparous women, 3 (1.3%) multiparous women required forceps birth, 14 (10.5%) and 4 (1.8%) of primiparous and multiparous women required a ventouse birth (Table 44).

Table 44. Birth outcomes

Type of Birth	Primiparous	Multiparous	Total
CS1 Immediate threat to the life of the woman or fetus	6	2	8
CS2 Maternal or fetal compromise which is not immediately life-threatening	13	0	13
Forceps (Failed Ventouse)	2	0	2
Forceps (non-rotational)	11	3	14
Spontaneous - Other Cephalic	0	1	1
Spontaneous - Vertex	87	211	298
Ventouse (non-rotational)	12	2	14
Ventouse (rotational)	2	2	4

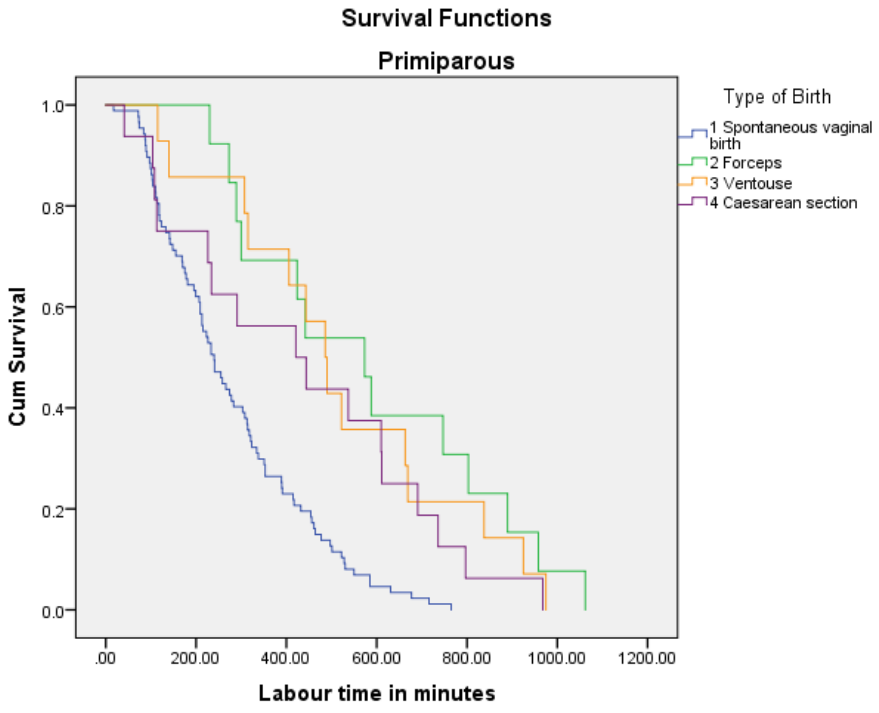
The Kaplan Meier plots show the survival distributions for the different types of birth. For this particular cohort of women the survival curves are different, with the longest labours requiring Forceps births for primiparous women and Ventouse births for multiparous women. The numbers for multiparous women are low for instrumental and caesarean births therefore these findings cannot be generalised for all low risk multiparous women. Caesarean section births where there was no documented labour have been omitted from this part of the analysis (Table 45).

Table 45. Kaplan Meier log rank test

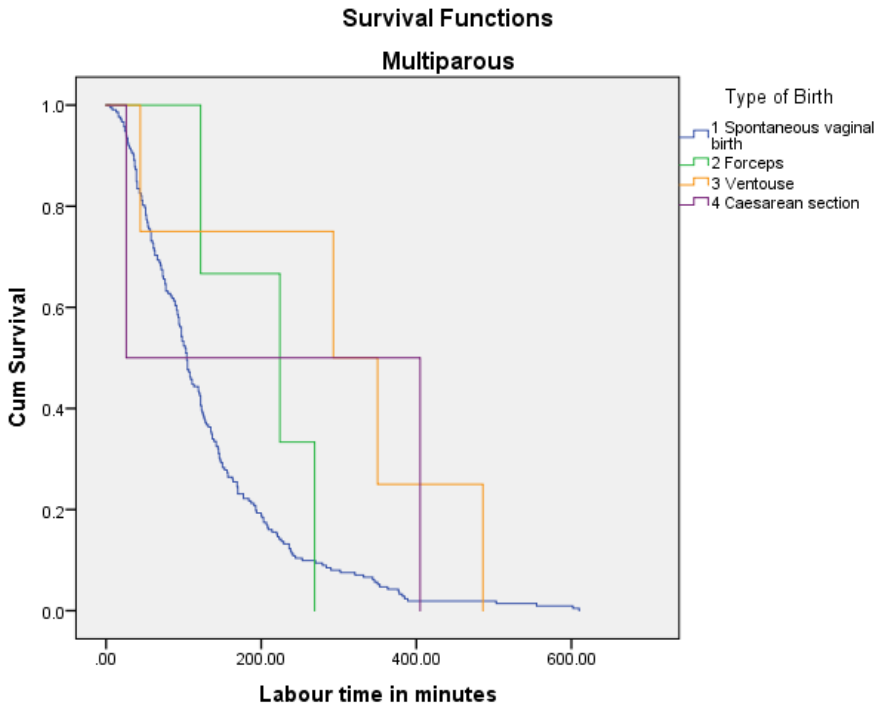
			Mean		
			95% Confidence Interval		
Parity	Type of Birth	Estimate	Std. Error	Lower Bound	Upper Bound
Primiparous	1 SVB	278.816	18.191	243.162	314.470
	2 Forceps	583.000	78.941	428.276	737.724
	3 Ventouse	521.000	71.545	380.771	661.229
	4 CS	433.250	71.406	293.293	573.207
	Overall	354.323	20.818	313.520	395.126
Multiparous	1 SVB	131.307	7.277	117.044	145.569
	2 Forceps	205.000	43.486	119.768	290.232
	3 Ventouse	293.250	92.421	112.106	474.394
	4 CS	215.500	189.500	.000	586.920
	Overall	136.000	7.431	121.435	150.565
Overall	**Overall**	216.860	10.619	196.046	237.675

Survival analysis demonstrates a pictorial view of the above findings for primiparous and multiparous women (Graph 1 and 2).

Graph 1. Survival Functions for primiparous women



Graph 2. Survival Function for Multiparous women



The step like curves is due to the very low numbers in the groups

5.9 SUMMARY OF FINDINGS

The large majority of women were from two parent families and were employed. It is interesting that 50% of both groups presented in labour with the baby in the right or left occipito-anterior presentation which is considered to be the optimal fetal position for labour as the widest part of the baby's head takes up the widest part of the pelvis. This study did not explore outcomes related to position to determine if position was related to subsequent need for augmentation or operative birth. This was not within the remit of this study but further analysis would be interesting.

Women requiring either entonox or pethidine did so at either 3-5cm of cervical dilatation which together with strong regular contractions is considered established labour. Contractions at this point were obviously intensifying and women required the extra support of some medicinal method of pain relief.

All primiparous women requiring all three methods of pain relief with 81.2% having some method of augmentation and ultimately needing an operative birth could be suggestive of a dystocic labour as opposed to interventions causing operative births. In this context it is difficult to say for sure. Research has suggested that interventions can

lead to the need for epidural and operative births. This is discussed further in the literature review.

The length of labour is much shorter for women in this study as opposed to women in other studies (Gross et al, 2006). Although, Incerti (2011) found similar with 4.1 ± 2.4 hours for primiparous labours. One suggestion could be that the majority of women were cared for in a midwifery led unit where women in many instances would have known their carer (Davy et al 2013) and the environment is designed on a home from home basis and midwifery care is continuous one on one, as found in similar studies in terms of interventions (Holmes et al 2007). Incerti (2011) also cited the benefits of one on one care being responsible for lower interventions and operative births, as found in this study too. Alternatively is it because there were some women who had very short labours and this throws off the mean.

In terms of regression analysis water loss and regular pain were important predictors of the duration of labour in multiparous women. The lack of significant findings in the primiparous women may be due to low statistical power due to the low sample size. Longer labours overall for both primiparous and multiparous women required operative births.

CHAPTER 6 INTERVIEW RESULTS

Interviews were carried out to afford the researcher the opportunity to gain deeper insight into women's experiences of early labour. While the questionnaires yielded important data further exploration was required and therefore interviews were conducted with ten of the 235 women who returned questionnaires. Interviews were semi structured affording the researcher optimum opportunity to generate extensive information. The majority of interviews were carried out 10 to 20 weeks following the birth with one interview carried out 11 months following the birth. Despite the length of time following the birth of this interview, the woman's recall was exceptionally clear. Interviews were carried out between March and May 2015 (Table 46).

Table 46. Interviewees

Research number	Parity before this baby	Type of birth	Age of baby at interview
28	2+1	Spontaneous Vaginal Birth	11 months
303	0+0	Caesarean Section category 2	20 weeks
304	0+0	Forceps (non-rotational)	18 weeks
329	1+0	Spontaneous Vaginal Birth	11 weeks
331	0+0	Vacuum	13 weeks
333	1+0	Spontaneous Vaginal Birth	10 weeks
336	0+0	Spontaneous Vaginal Birth	16 weeks
339	0+0	Spontaneous Vaginal Birth	16 weeks
341	0+0	Spontaneous Vaginal Birth	14 weeks
350	0+0	Vacuum	13 weeks

6.1 THEMES

Interview data analysis revealed four main themes. These were made up of a number of sub themes (Table 47).

Table 47. Interview themes

Theme	Sub theme
Before labour and early labour	The importance of being active
	Antenatal classes and knowledge
	Desire for normality and being in control
	This is it
	Coping aids used at home
	The benefits of being at home and confidence from the experience
Going to hospital	Instinctively knowing when to go to the hospital
	Having done enough at home
	Influencing people
Midwives Influence	Advice from midwives prior to admission
	Support from midwives in hospital and need for professional help
	Trusting the midwives
	Collaborative decision making
	Advice for midwives from women
	Midwifery Led Care
Doing things differently for future pregnancies	Knowing from experience

6.2 BEFORE LABOUR STARTS AND EARLY LABOUR

The majority of the women interviewed talked about how they had prepared themselves for the impending birth. Some women were very keen to keep as fit and active as they had been prior to becoming pregnant. Others put emphasis on the importance of information and knowledge to enable them to be involved in decision making with the professionals and with their support people and also to get a sense of what to expect. There was a strong belief among primiparous women that despite what knowledge they had acquired throughout the pregnancy, true appreciation and realisation could only come with the lived experience of labour and birth.

6.2.1 The importance of being active

Women talked about the benefit of providing distractions for themselves on the day their labour commenced by moving about the house or keeping themselves busy in general. As well as distractions on the day one woman who generally keeps fit found maintaining a level of fitness was not only very important for pregnancy but also for the early stages of labour.

> *341: "I think not carrying any excess weight definitely helped because it really is a work out on the day so I think it's not until you're in it you realise my God that fitness absolutely counts towards it, Yeah as I think keeping as active as I could definitely helped me"(P).*

This particular woman usually attends boot camp but could not do so because of her advancing pregnancy. She instead took up swimming and yoga, and found both very useful for breathing properly as a coping strategy in latent phase labour prior to being admitted to the hospital.

> *341: "I found the breathing a really good tool just for focusing on and the yoga in that respect too, with the swimming you have to focus on your breathing as well obviously if you don't choke you know (laugh)"(P).*

Other women did not talk about exercise or activity as a means of preparing for the birth but used activity as a means of distracting themselves in the earlier stages of labour. One woman described going for a walk as she felt she was in the early stages of labour and needed to keep active as a way of keeping calm.

And another woman felt it important to keep active through the day.

> *350: "For the first couple of hours up until about 7am I stayed in bed, the pains weren't that bad I kinda just relaxed tried to stay as calm as possible rather than thinking Oh my God I'm in labour and tensing up you know so they weren't that bad I stayed in bed until seven and I got up the pains increased and got worse as the day went on but I didn't take any pain relief at home I just used em...the birth ball you know the big rubber ball and sitting on that and tried to keep walking around and moving but I didn't take...other than that I didn't do anything"(P).*

Another woman took advice from her mother who had given birth to eight children.

> *336: "I pottered around the kitchen and continued what I was doing...talk to mammy explained to mammy what was happening...she's got eight children. She was pretty sure I was in early labour as well so I just kept going, kept moving for as long as I could and timed them and went on the ball and did my hip flexes and things like that and, by I think it was half 11. They started...they were just gentle*

little things and that's when they went into my back and I thought oh crap. That's when they started getting quite uncomfortable" (P).

Another went to town to take her mind off the pains

339: "I actually went for a walk into town and then back home. I had a ball when they got really bad, I tried to relax as much as possible and went about my day as normal, breakfast lunch dinner, am... watched a bit of TV that was it"(P).

Interestingly many women having their first babies instinctively knew that they had time to go for a walk or go to town. There was never a sense of urgency with them when they described the early stages of labour.

6.2.2 Antenatal classes and knowledge

There were mixed feelings amongst the women in terms of how well prepared they felt they were for their labour and the birth of their baby regarding knowledge gained through the pregnancy. One woman, who had an epidural in labour and required a category 2 caesarean section, while she enjoyed the antenatal classes and would like to have had more than she had, felt that no amount of preparation could prepare her.

303:"I don't think anyone can really prepare you for labour itself. I think you just have to go with it yourself in a way I don't think the midwives could have done or said anything" (P).

Another woman, who had an epidural for her first labour and required a non-rotational forceps for the birth of her baby felt well prepared by doing both one-to-one Gentle Birth preparation and antenatal classes, and was reassured by the consistency of information and the advice given for latent phase labour.

304: "No I found it all very good. It was all very good it was the same things again, the things we covered in Gentle Birth you know I had done that course just a week before the antenatal I found it good because we heard the same things again we had taken everything on board. I felt doing both was brilliant, I felt more prepared then" (P).

Most of the women interviewed had attended some form of antenatal classes, and found them relatively helpful. When asked one woman, who had an epidural and required a rotational ventouse for the birth, if she had attended antenatal classes she responded:

350: "Yeah I did yeah, the full eight hour day. That was excellent one of the midwives did that and she was so informative. She acted out the positions for early labour. She did everything from ball exercises, on the door handle,

squatting with the door handle 'get up and walk around don't stay sedentary'...it was excellent. It was in detail, you couldn't have gotten, couldn't have explained it more (P).

339:"In the antenatal classes they did say to stay relaxed, eat as much as possible, no I don't think there was anything more that they could have added"(P).

Another woman who stayed at home for some time and when admitted to hospital discovered her cervix was 7cm dilated felt the antenatal classes were very helpful for early labour. She had a spontaneous vaginal birth.

341: "For early labour...I did in that I suppose the midwife emphasised, especially for first time mams how long labour can last for so that was in the back of my mind and I really didn't want to be one of those people going into hospital too early and getting sent home or going to hospital and feel like I had been there for three weeks by the time the baby came (laugh). I was glad. I found that that message was conveyed very well, they went through all the different stages of labour so from that perspective that really encouraged me to stay at home for as long as I could"(P).

Only one woman who required a non-rotational forceps for the birth, recalls, from the antenatal classes, being advised to eat and drink in early labour.

304: "Eat, snack what I picked up from it was move around like keep moving to help the baby move down...is that right" (P).

All the women interviewed made reference to knowledge gained through the pregnancy being important. Women who had had previous babies felt more armed with knowledge based on personal experience of birth, but still got further insight on birth from this labour.

329: *"I was comparing that myself and thinking well the last time I was in labour for a couple of days. I know now that your second labour is always faster anyway, but I didn't realise how fast" (M).*

The women felt it was important to attend classes but also used other sources of knowledge i.e. books, leaflets etc.

One primiparous woman found a locally developed antenatal handbook very informative as it was based on the practice of the unit where she would be giving birth.

350: "There is also a handbook that is handed out in the MLU, it's brilliant, and it was excellent" (P).

6.2.3 Desire for normality and being in control

Some women talked about the desire to go into labour naturally as hospital policy dictated induction after 14 days beyond the due date. It was very important to women that they had tried various methods of natural induction as it gave them a sense of being in control of their own bodies, and the knowing that they had tried everything they possibly could before hospital policy dictated the onset of labour, and took that control from them. Methods of natural induction employed were acupuncture, cervical sweep and reflexology. Even though hospital induction was a fear for some they were accepting of medical induction on the grounds of safety for their babies.

One woman who had a spontaneous vaginal birth had three acupuncture treatments and two cervical sweeps, described her experience of encouraging labour pains. She was forty one weeks when she went into spontaneous labour.

> *336: "Acupuncture on the Friday...before or after my sweep and I had another session the Friday the week before that and on the Saturday my friend is an acupuncturist. He did a slightly different variation a much lighter thing for half an hour and I had that two kilometre walk I did, and that seemed to move things (laugh). I had three acupuncture treatments and two sweeps and good long walks" (P).*

One woman attributed the onset of labour to her being very relaxed as a result of reflexology. She went into spontaneous labour at 40 weeks.

> *336: "No I was very relaxed I had reflexology on the Wednesday and I just was really really relaxed, it was just the physical symptoms, I didn't know I was going to go into labour until the contractions started. I was really relaxed, the reflexology probably really helped as well" (P).*

The policy in the maternity unit was to perform two membrane sweeps as an attempt to induce labour naturally. This involves performing a vaginal examination and locating the cervix. A finger is inserted through the internal cervical os, stretching the cervix slightly, and palpating the membranes. Using a circular motion of the finger the membranes are separated from the lower end of the uterus. Women are given appointments a few days apart. Many women go into labour following a membrane sweep. While Andersen et al. (2013) found that sweeping of the fetal membranes spared 15% of formal inductions of labour which could be considered a relatively low success rate, de Miranda et al. (2006) found a substantial reduction in the proportion of women with post term pregnancy at 41 weeks gestation.

One woman who was having her second baby went into labour the evening of having her membrane sweep.

> *333: "I got the sweep done that morning and the midwife who did it said it was a very good sweep and she would be surprised if it didn't happen in the next 24 hours" (M).*

A woman having her third baby described how she went into labour the evening of the day after having a sweep.

> *28: "After the sweep I had a lot of crampy pains as well and I had a lot of show, but again I knew there wasn't anything regular with them, they were very irregular but strong enough crampy pains, am...but not enough to make me think I was going into labour"(M).*

6.2.4 This was it

Most of the women interviewed experienced some degree of pain as a starting point. The nature of this pain and the intensity varied. Most primiparous women described it as pain they had not previously experienced and although they were not particularly painful in the earlier stages the pain was still different which helped them to differentiate from Braxton Hicks contractions experienced in the later stages of their pregnancy. They recalled in detail what they had experienced in the earlier stages giving the researcher the impression that they knew this to be a pivotal point in their pregnancy. Through the interview it was evident that they at that point experienced a fusion of emotions; fear, apprehension, excitement. Mostly there was a sense of anticipation, not necessarily about what labour was to bring, but the excitement that they soon were finally going to hold this little person that had being growing inside them for 40 weeks. Many stated 'I knew this was it'.

> *303: "I was just getting irregular cramping. It wasn't in a pattern but it would come every so often and then it started to become a pattern. I had never felt that pain before so I knew it was starting to become contractions" (P).*

One of the women who was having her third baby described a pattern of pain over a period of a few days and acknowledged that she had experienced similar with her first and second babies.

> *28: "He was born on the Thursday, and the Sunday night previous I was up for two or three hours having crampy type pains, and then they all stopped and I slept and I knew myself they weren't strong enough to be labour pains..., and on Thursday morning I woke with pain and these pains were stronger and a lot more regular and a lot more frequent and I had a show and I was starting to feel*

pressure with these pains and they felt a lot more like labour pains and they were a lot more regular than the previous pains had been"(M).

303: "Maybe at the beginning it was strong period pain but it developed into something way worse than that" (P).

One primiparous woman relied on pain and modern technology to help her decide that she was indeed in labour.

350: "I lay down and suddenly had this kind of pain like a cramp almost like a menstrual cramp and then I go hmm is this a pain and then I kind of just passed it off and I maybe 10 minutes later another one came and I thought what's this, so I had a tracker on my phone an app that was tracking my contractions...I started tracking them and they just kept coming and coming so that kind of gave me a good idea" (P).

Another primiparous woman who was very aware of her body and generally very fit described in some detail where the pain started. Her baby was born by a spontaneous vaginal birth.

341: "Essentially it was just little niggling period like pain but it was more kind of in the lower back or even in the sides, kind of the lower transverse abdominals, kind of like there, it wasn't very painful so for me I was waiting to see if they were very regular and then I thought it might be the proper labour onset, they were regular they were kind of every nine minutes or so then I kind of knew that this is probably the start of the labour process"(P).

Another primiparous woman described her experience of the onset of labour:

336:"I had gone for a nice long walk and I'd come home and I had just starting cooking and my mum came in and I started getting contractions and I had started timing them and they were coming at a regular interval and spaces in between them. I timed them for a good two hours and that's when I kind of thought ok this is it. It had happened before but it went away. I got on my ball. I knew I was overdue, so I got on my ball to try and not stop the labour from progressing you know rather than having the nice relaxing bath, so I kept moving that's how I knew"(P).

One multiparous woman described a pressure type feeling at the onset of her labour.

329: "At 11pm I got a few pains, nothing major, and then I went for a shower washed my hair and said to my husband I think you know, I think it's starting. It

was very mild. I wasn't getting too excited....it wasn't that they were really getting close together it was that I was getting a feeling of pressure" (M).

Very few women talked about vaginal loss as signs of the onset of labour. One woman had a combination of a show and then contractions.

339: "I just starting to get twinges that I felt were Braxton Hicks and then I lost my mucous plug, which was obviously an indication that something was happening, that was kind of it and then the contractions started after that"(P).

The length of labour varied greatly between all ten women. One multiparous woman having her fourth baby described a four day period leading up to the onset of labour.

28: "He was born on the Thursday and the Sunday night previous I was up for 2 or 3 hours having crampy type pains, and then they all stopped and I slept and I knew myself they weren't strong enough to be labour pains but they were strong enough to wake me out of sleep, and then on the Tuesday I saw the doctor in the clinic and because I had been up and that he did a sweep for me and after the sweep I had a lot of crampy pains as well and I had a lot of show, but again I knew there wasn't anything regular with them, they were very irregular but strong enough crampy pains, but not enough to make me think I was going into labour or that, and everything settled down on the Wednesday and on the Wednesday night I went to bed and I slept and I woke up at around 4 o' clock on the Thursday morning, and woke with pain and these pains were stronger..."(M).

Women were very definite in their recall and assertion of when their labour began.

303: "Well I gave birth on the morning of the 6th so it began about 2 or 3am on the 5th" (P).

339: "2 days of contractions, and I went into the hospital at nine and she was born just before 12" (P).

One primiparous woman could not find comfort in any position so walked constantly in early labour.

331: "I was just walking around my house but then as well like. I wasn't in pain but I was kind of getting jumpy and I could kind of feel like not stuff happening I suppose you know like so I knew myself that something was starting but I couldn't sit down. I couldn't actually sit. I didn't know what way the baby was lying but I couldn't actually sit" (P).

A multiparous woman having her second baby described a gradual four hour build up to labour with pressure more so than pain and once her membranes ruptured she had to make a dash for the hospital. The baby was born ten minutes after arriving at the hospital.

6.2.5 Coping Aids Used at Home

Women used a variety of coping aids when they were at home; bath/shower, massage, GentleBirth CDs, TENS machine, Paracetamol, some form of distraction. Some women used one or two coping aids while others used a combination of many. GentleBirth is a birth preparation programme that combines brain science, birth science and technology to encourage women to feel empowered before and during their birth. CDs or Applications are sourced privately by women and used before and during labour (https://www.gentlebirth.com/).

One primiparous woman was out for dinner with friends when her pain started so having to conceal her pains was a good way of coping with them. The fact she was out with friends was a good distraction as well.

> *304: "No they were very mild… I was able to, I was with a bunch of people and I didn't want them to know so I was easily able to hide it" (P).*

Another woman found it helped for her to get out of bed and move around.

> *28: "I was straight up and out of bed and am I was walking around a lot and I am kinda leaning over the back of the chair when I was getting the pains, am...and that's what I did and the time past very quickly"(M).*

With regards to Gentle Birth CDs one woman described them as:

> 304: *"very good I'd been using them for a few months so that just you know that just relaxed me...I used them to psych myself up for labour... They put me right into you know my calming phase" (P).*

Women reported mixed views with using a bath or shower for pains of early labour, which is interesting as this is the advice that midwives often give women in the early stages of their labour. While labouring in a birthing pool is well validated by research, baths and showers in early labour are not.

> *304: "By the time I got into the bath I was a bit uncomfortable, but, you know I stayed in it for about an hour, but I really wanted to get out" (P).*

Regarding TENS, women felt that if they had tried it out beforehand that it worked much better for them.

304: "I'd used it just once in advance of labour, about a week before and I just found it brilliant" (P).

Conversely another primiparous woman did not get much benefit from the TENS machine, although she acknowledged that it may have been her actions or inaction that influenced this.

341: "First of all when I went to the TENS it lay in a box until I was in the middle of labour and at that point I realised that I didn't know how to use it so...laugh...so I eventually put it on at about half eleven or twelve that day, you know the pains were starting to get quite intense around about then, so it probably wasn't very well planned on my part I suppose, so then what happened my husband came home from work and he attached it and fixed it up for me and everything like that am I just didn't find it very beneficial in terms of alleviating the pains"(P).

336: "TENS machine I wouldn't rate it at all. It felt like a tiny little pulse, more annoying than anything" (P).

One primiparous woman found benefit in using a variety of different coping strategies as suggested by preparation Gentle Birth CDs; TENS, bath, massage and Gentle Birth CDs.

304: "Yeah I was just mixing things up and each bit was bringing me a bit closer, it was a bit of a distraction, but yeah I found the massage good"(P).

Another suggestion from the Gentle Birth CDs was to watch a funny movie to help stimulate endogenous oxytocin, so she watched a well-known British stand-up comedian. One woman having her second baby found a bath really helped relax her and suggested that it may even have sped up the contractions.

329: "Yeah the bath helped and it was nice and relaxing and I suppose it, whether it speeded up the contractions I don't know...after that, or it was just a coincidence after that, that everything started happening after that. But I did go for the bath and it was nice and relaxing" (M).

Another primiparous woman talked about the benefits of reflexology to help relax her in the later stages of her pregnancy, i.e. four days before her labour symptoms began.

339: "I was very relaxed. I had reflexology on the Wednesday and I just was really really relaxed, it was just the physical symptoms, I didn't know I was going to go into labour until the contractions started" (P).

Most women found that Paracetamol did not work even though it was regular advice given to them from the hospital. The women felt that it was text book advice rather than individualised advice from midwives with the intention of being helpful. One multiparous woman described the pains becoming very intense after taking the Paracetamol but felt it was not as a result. The implication was that the pains were so intense the Paracetamol did not give any relief. Others felt they were simply redundant as a method of pain relief.

> *341: "I don't know. I wouldn't have rated Paracetamol anyway (laugh) before I was pregnant. I would always have reached for the strongest painkillers (laugh) in the cabinet which is probably the worst thing you can do, so even throughout my pregnancy when I had a headache I never really rated Paracetamol, I never really took it. I did when I was in labour I thought it might take the edge off. I'll be honest I didn't think it helped me. But that's because I don't rate them as a painkiller" (P).*

One woman felt it made her husband feel helpful.

> *336: "I think my husband gave it to me when he came home because that was his job but I didn't take anymore. I just didn't think there was any need. They don't even get rid of a headache for me. I don't really take medication very much. I couldn't see them getting rid of the pain I was in when they don't even get rid of a headache when I'm not in labour so I didn't bother taking them again"(P).*

6.2.6 The benefits of being at home and the confidence to stay at home

Most of the women interviewed found benefit to being at home. There was a sense of freedom in being within the environs of their own home and the freedom to be with whomever they chose to be with. There was also a strong theme emerging over women feeling they were in control of their bodies when they were at home. This control was not necessarily taken from them completely when they were admitted to hospital but in hospital they were limited by hospital protocol. Women acknowledged the reassurance that came with having ready access to advice from a midwife, when the women deemed this necessary.

One primiparous woman who used a contraction application on her phone felt this enabled her to track the timing of the contractions when she was at home and felt part of the decision making process around when to go to the hospital when she phoned for advice.

350: "particularly like I had rang the MLU a couple of hours later to tell them I think I am in labour, I have been tracking them, I was able to give them an idea rather than rushing to the hospital and like I'm in labour and them being like go home you're not even near ready yet so it was it was very helpful I must say, it just tracks the times and how long they are and you can go back through..." (P).

When asked if she would do things any differently in terms of when to go to the hospital, one woman replied:

28: "no I don't think so, I think you know when I came into the hospital I was 6cm so I was happy at that stage that I'd stayed at home. I'd done a lot of it at home on my own so it was the right time to come in and at that stage when I came in as well I started using the gas and air immediately so I needed something else at that stage then, but I continued just standing out at the edge of the bed so using the same kind of positions that I had used at home"(M).

Another woman having her second baby felt the same benefit to staying at home for as long as she could.

333: "It depends on your circumstances on 'M' yes...because I wasn't sure you know what I mean what was going to happen. On your second baby it's totally different. Even if I am going to have a 3rd one now I would wait again as long as possible...For everything to be less disruptive as well. I just think its way better" (M).

One primiparous woman who felt that she possibly stayed home too long still felt the benefit of being at home.

339: *"I liked being at home as long as possible. I hated to be in going through the contractions in hospital. I liked the comfort of my own home but I would be more anxious next time around even though I had a lovely labour and everything"(P).*

The multiparous women acknowledged the benefit of having a baby previously and knowing their body better and compared their experience this time to being less anxious than with their first labour. They had more confidence in their body to remain at home for longer than they had done with their first baby.

On the other hand one primiparous woman felt that she was very anxious at home and would like to have gone in earlier, but was not sure. She put her anxiety down to inexperience.

303: "I think if I am having another baby I'll know when to go to the hospital and stuff and maybe I won't be so anxious and nervous cos I'll have gone through it I think I freaked out when I started feeling contractions..."(P).

Another Primiparous woman while happy to be at home was still a little anxious about how long to stay and the return journey to the hospital.

331: "Yeah it was definitely easier to pass the time but it was just...your first baby you'd be so nervous about like the 25 minute drive home and the 25 minute drive back up again"(P).

One primiparous woman rang the hospital three times prior to going in and discovered when she was admitted her cervix was 7cm dilated which she was both surprised and relieved by, but very happy that she had stayed at home for as long as she did.

341: "I am delighted with how it went you know I kind of went in with no plan thinking it could go anyway and then I was really happy when it went exactly as I had wanted it to go you know that type of way"(P).

6.3 DECISION TO GO TO HOSPITAL

6.3.1 Instinct

A few women talked about 'just knowing'.

Although one woman had been having pains through the day she felt she still knew when the time was right.

333: "Just the contractions were getting a lot stronger and more frequent while he was timing them and I knew myself it was time to get a move"(M).

Some women were nervous of the journey to the hospital or just felt the need to be in hospital for extra reassurance.

336: "The weather wasn't great and we are about half an hour drive from the hospital and I just thought it would be better to be up there, so I just got into the car and headed up there"(P).

6.3.2 Having done enough at home

Pains intensifying and the need for extra pain relief beyond what was available to women at home was the main reason for going to the hospital.

One primiparous describes her experience of not being able to manage the pains anymore and felt the need for professional help.

350: "The pain just became too much and I started to feel sick, physically sick like I was going to get sick when the contractions would come, it was too much I needed a little bit of intervention I think, for more reassurance for a midwife just to check you and kind of say you are at this stage or you know what I mean, a bit of a helping hand rather than from home someone who knows exactly what's happening and what's to come" (P).

6.3.3 Influencing people

Women mentioned a number of people who supported them during latent phase labour. These included; partners, mothers, mothers-in-law, children and siblings

Partners

All ten women talked about the support of their partners. Some partners had the experience of previous children but others were first time fathers. Many women talked about being reassured by the presence of someone who knew them and could be involved in decisions.

Despite having her fourth baby one woman felt very comforted and empowered by the presence of her husband. It was he who prompted her to ring her mother to look after the other children, not because he was nervous but because he felt there was a change in her behaviour.

28: "Once my husband got up I felt more comfortable when he was up to stay at home for a little bit longer"....."suppose probably my husband at that stage had probably asked me maybe once or twice if we should phone my mum to make her way in so he probably noticed a change in me as well to kind of say ok" (M).

For most of the partners their job was to time the contractions or be the go for i.e. Paracetamol, heat pack or be the back massager.

Mothers

Mothers of women in labour at times reflected their own anxieties on to the women in labour. They found it difficult to see their daughters in labour and the daughters found it difficult at times for their mothers to be present also. Although some women while in the very early stages they were happy to be with their mothers, as the labour progressed and the pain intensified they felt mothers to be somewhat distracting.

304: "Yeah I rang the hospital in the afternoon, and they said to hold out until the contractions were three minutes apart, but when they were four minutes apart, some were a bit quicker em so I wasn't really sure. I was with my mum

and my husband and my mum just wanted me in the hospital. So if it was up to me I would have hung on a bit longer, the pressure was on and mum was getting a bit nervous you know"(P).

Another primiparous woman went to her mother's in latent phase labour as a form of distraction but she felt she was making her parents' anxious.

331: "I just like walked around the kitchen and every so often they might say something and I'd be like yeah you know we were trying to like not change the subject but trying to talk about other things as well"(P).

The deciding factor for one woman going to the hospital was the fact her mother-in-law called around. Although pain was a factor as well.

339: "And my mother in law called around and I had her and my own mother looking at me, because it's not very traditional, they were a bit worried, so I decide to go in and plus the pain it was getting unbearable, you know staying at home it was just too much"(P).

Other children played a role as well.

One woman delayed going to the hospital as she had to wait for her mother to arrive to mind her other children before she and her husband were able to leave for the hospital. By the time her mother arrived she was well into established labour as her cervix was 6cm dilated when she got there.

Another woman was nicely distracted organising child minding for her child but first brought her to a long awaited birthday party.

333: "She had a birthday party in the leisure centre that evening and she would have been really disappointed and my husband was working 'til 7 o' clock. She was looking forward to it as I said and I had to bring her to that, while I tried to get myself sorted"(M).

Siblings

One woman who had younger brothers and sisters was anxious to get out of her mother's house before her brothers came home from college.

331: "Yeah, that was another thing I wanted to get out of the house before they all came home and maybe getting all excited and putting it on Facebook or something like that"(P).

Her husband was anxious for her to go to hospital once her waters broke as well. So family and her husband played a part in her going to the hospital.

331: "but then my waters had leaked at home rather than broken so I think then I think once that happened my husband wanted to get back out of the house and back to the hospital but we were home for a good few hours so we did stretch it out at home as well"(P).

6.4 MIDWIFERY SUPPORT

6.4.1 Advice from midwives prior to admission

Women felt calmly reassured by the fact that they could ring the hospital and felt empowered by collaborating with the decision of whether or not to go to hospital.

28: "I got up and was up out of bed and that I rang the hospital at that stage to warn them that I felt at that stage there was definitely something happening and that this was it and am…you know I said to them that the contractions were coming and they were regular but I didn't feel they were regular enough for me to be in the hospital yet…" (M).

28: "When I rang them they ask me was baby moving, had I felt baby move was I happy with all that and am you know...I wasn't thinking about that, but I knew I had felt baby move so they had reassured me about that and they said to me look you come in whenever you want to come in, and I said look that's fine I'll ring you back when I've made the decision to come in to the hospital when they are regular and that"(M).

Another woman felt that although the midwives had essentially left the decision to her she felt reassured by the fact that they also advised her to come in whenever she felt she needed to.

303: "I didn't know myself if it was labour or not so the fact that they said you can come in any time before the appointment did comfort me" (P).

A primiparous woman felt the conversation with the midwives over the phone was helpful.

350: "Yeah I rang them that morning, I waited until they changed over, I think there shift is about half eight or so and they said try a hot bath or a shower if I could if the pain wasn't too bad em or the likes of take a Paracetamol or if the pain went away with the likes of a Paracetamol obviously you are not in labour as such, but try and stay at home for a long as possible because they didn't want me to go in and I suppose mentally prepared to go into hospital but then being told no go back home so it was kinda stay and cope for as long as you can, but at

the same time they said if you can't cope don't hesitate to come in, they didn't put me off going in...they were like if you can try and stay at home and do as much as you can, but if you're worried in any way or panicked in any way come back"(P).

Other women felt calmed and reassured by the advice of the midwives on the phone.

304: "Totally reassured, she mentioned the bath and try to get as much rest as possible. They were all very reassuring and calmed me down" (P).

304: "They just reassured me and calmed me, not that I was hyper or anything like that. They all had the same information. I rang three different times and they all said the same you know, there was no conflicting information so I thought that warranted an excellent" (P).

One primiparous woman, even though she felt in one sense she went to the hospital too early it benefitted her to be there.

336: "I don't know whether it was because it was the MLU and it's such a beautiful place and the midwives are so amazing you know I just had my music playing and I knew I was in safe hands whereas at home I knew I had a 30 to 40 minute drive from the hospital and my back labour was quite uncomfortable to sit in a car you know" (P).

One woman phoned three times, and then decided it was time to go to the hospital. During the first two phones calls she found the advice was appropriate and helpful.

341: "The first time was about 9 o clock in the morning, I did find it useful, one midwife I spoke to had a calming effect, you know not that I was panicking but you have this slightly alarmist feeling when you realise you are in labour and she kind of calmed me down; 'no that's ok that's all fine that's all normal kind of thing'.... I'm glad I stayed at home for as long as I did and my husband phoned then he made the third call just to say we are coming in, we are on our way"(P).

She summed up the phone support stating;

341: "I found them really good it was great to have them on the other end of the phone and just especially if you haven't had any children before and just, for some reassurance" (P).

One woman felt that the advice through phone conversation did not apply to her and it was too text book and the midwife did not necessarily tailor the advice to her individual needs. She was having pressure type pains.

329: "So when the midwife gave me the advice to time them and to come in when they were x minutes apart that didn't apply to me" (M).

This woman gave birth ten minutes after arriving at the hospital, which she found very intense. She and her husband were nervous the entire journey to hospital and were afraid the baby would be born in the car. She stated that she would like to have been in hospital longer. This was her second baby, but her first baby was induced for prolonged rupture of membranes, so she felt she could not compare both labours.

329: "I went into labour at 11 o' clock that night and then to say to my husband, he laughed and said we'll hardly be going to hospital tonight, and I said no I don't think so, but that's how, that's how different it was"(M).

As she correctly acknowledged further in the interview, not all labours are the same.

329: "....labours can be completely different you know you can't really rely on the last time can you, you can't" (M).

6.4.2 Support from midwives in hospital and need for professional help

One primiparous woman felt that she had done as much as she could at home, and felt the need for professional support.

350: "The pain just became too much...I needed a little bit of intervention I think, for more reassurance for a midwife as like just to check you and kind of say you are at this stage or you know what I mean, a bit of a helping hand rather than from home, someone who knows exactly what's happening and what's to come" (P).

All the women I interviewed got to the point where they felt they had done enough at home and wanted the reassurance of a midwife and the safety net of the hospital environment.

6.4.3 Trusting the midwives

Some women felt it was important to them to trust the midwives and not necessarily need to know everything, both before coming in to hospital and while in hospital.

331: "*I didn't freak myself out by reading lots of stuff and lots of stories and everything you know like. That's what worked for me. Some people would probably read more stuff and have more questions but I just kind of went with the flow." "And they said something to me I'd say what does that mean but if they*

said everything was ok in the check-up I'd run out the door and be like yeah no bother" (P).

6.4.4 Collaborative decision making

Most of the women interviewed mentioned the importance of being part of the decision making process, and not only from their point of view, but also important that their partners were part of the decision making process too. Some women I spoke too relied on their partners to be their voices for when labour became too intense. Their partners knew their wishes as they had discussed certain issues prior to going into labour.

One woman described asking for her forewaters to be broken as with her previous birth the hind waters had broken and she required an artificial rupture of membranes (ARM) of the forewaters, so rather than wait for things to progress she asked for her forewaters to be broken, with subsequent very good effect.

333: "I had asked...like if my forewaters had gone but it was the same story again; back waters and I asked could they break my waters you know what I mean...would it slow things that my waters hadn't gone and I asked would it possibly slow things and she said it could so I asked them to break my waters and they done it there and then.....and then I was fully dilated within a few minutes" (M).

6.4.5 Advice for midwives from women

Although most women were complimentary of the care and advice they received from midwives through their pregnancy, they felt that there were areas where delivery of care could be better.

One woman described her experience of advice, as not being tailored to her but rather a text book advice, as mentioned above.

Another woman felt that there should have been more emphasis on the importance of eating in early labour. Her mother suggested she eat, but she did not take her mother's advice. Eating in early labour is important for energy sustenance later in the labour. When asked if it was discussed in antenatal classes she said it had not been.

350: "No they didn't say anything like that on the day it was kind of more to tolerate the pains and what methods to deal with that rather than...when I went into hospital however the midwife offered me tea and toast and I was no, because I had just gotten sick" (P).

She went on to suggest more emphasis on eating for advice in early labour.

> *350: "The only thing I would say would be...like that...food particular, you need food, labour's tough work so you need something, it's like going to work for a day you need to eat in the morning to get you through the day you know what I mean to get you to another point..." (P).*

This same woman was quite critical of the lack of focused support for first time fathers.

> *350: "I think. The only thing I would say...for early labour is Daddies, particularly first time fathers you know what I mean. Everything is focused on mammy and baby for nine months and that is brilliant, the care I had was second to none. But the one thing I would say is more information for Daddies. You know what I mean because I suppose like when you go into the labour the midwives had told him...say this to her, rub her back, try this. They were great when you get there but particularly if you are having early labour at home definitely more advice for first time fathers especially" (P).*

She continued:

> *350: "I particularly think that Daddies don't really know what's to come until they are there and it happens whereas mammy has nine months to prepare and mentally prepare and when you are in antenatal class you are listening to every word and when you are reading that manual....whereas particularly men are more laid back and think it will be fine and then they are in the middle of it 'oh God what did it say in that manual'...they are not as mentally ready as mammy is. Just more support for Daddies as well because they do get a little bit left out like" (P).*

Another primiparous woman felt that midwives could have done more in the antenatal period to help prepare her for the birth.

> *339: "I felt like that there was only so much advice that they could give me over the phone because it wasn't like I had loads of questions or anything, I needed probably just reassurance, I felt as a first time mum it was probably very scary and I don't think the MLU take into account how scary it really is. You're quite scared as a first time mum and you just want to be in hospital, so you have people around you and you feel safer" (P).*

Although despite all this she still felt that staying at home as long as she did was a good decision.

> *339: "Yeah saying that, in spite of what I've said I'm glad I went in when I did and I was only there for three hours, you know so I probably wouldn't have gone in any earlier" (P).*

6.4.6 Midwifery Led Care

Many women recruited to the study chose midwifery led care, and were very satisfied with a midwifery led service.

> *341: "I have to say I was very happy with the service I really didn't think I could have a natural...well if you call gas and air natural. I didn't think I would be capable of having a natural childbirth. I thought when it came to it I would be the one screaming at the person get me an epidural (laugh), but I feel delighted that I was able to do that and I'd definitely try and go that route again " (P).*

She added further in the interview.

> *341: "I was very happy with the MLU from start to finish like everyone was just brilliant. I just felt I was really cared for and you don't always feel like that when you go through the Irish system and it's just a testament to all of the team that work there, and even from my appointment at the start, they being so contactable when I was in early labour at home being so lovely and encouraging through the labour and when they visit you at home and put in the daily calls up to a week after you gave birth" (P).*

6.5 DOING THINGS DIFFERENTLY FOR FUTURE LABOURS

The majority of the women who mentioned doing things differently were primiparous women. Much of their thoughts was based on not knowing previously and now having the benefit of having being through labour and knowing to a certain extent what to expect for the next labour. Women felt they now knew what their bodies were capable of and while the apprehension around labour would probably remain there was a definite sense of being confident in themselves both mentally and physically.

One primiparous woman felt that she should have eaten much earlier in her labour as she didn't feel like eating when her labour had established.

> *350: "It was actually my mam who said it first.. she was the first person, she said you need to try and eat something to keep you going...and I was thinking I should have tried earlier in the day. Like she suggested that morning at 7 o clock and then she went to work and I was thinking nah...I was floating around and I was thinking I would have time you know what I mean but obviously didn't realise in my head that the pain is going to get worse and you are not going to be able to think about let's eat, so should have done, even something small tea and toast or a bowl of cereal just to kind of keep me going because I hadn't eaten since the previous night" (P).*

There was a definite sense of being afraid of the unknown. One primiparous woman who required a category 2 caesarean section felt that she would not panic when she is in labour again.

> *303: "I think if I am having another baby I'll know when to go to the hospital and stuff and maybe I won't be so anxious and nervous because I'll have gone through it I think I freaked out when I started feeling contractions so..." (P).*

6.6 CONCLUSION

While many women shared similar views, their experiences were inherently different, and how they approached and experienced labour whether it was their first baby or they had given birth before shows the uniqueness surrounding early labour and birth. It was apparent from the women that advice given in early labour was given on the basis of midwives trying to be helpful, trying to encourage the women to stay home most likely out of concern for them and in the knowledge that if women were in hospital too long in early labour medical and midwifery staff would feel somewhat compelled to interfere. Unfortunately the same fits all in terms of advice given i.e. have a bath; take Paracetamol does not meet the needs of every woman. Support people had an influence on their time at home and at times influenced their decision on when to go to the hospital.

CHAPTER 7 DISCUSSION

7.1 INTRODUCTION

Labour care in Ireland is similar to many other western countries and has the same approach to caring for women in latent phase labour, i.e. encouraging women to remain at home with family and friends. Midwives have the same gate keeping approach by encouraging women to remain at home and away from the hospital as long as they can in an effort to reduce their risk of unnecessary interventions from prolonged latent phase labour or perceived prolonged latent phase labour. In order to understand Irish women's experience of latent phase labour this study was conducted in one maternity unit in the North East of the country. The research is based primarily on the work of Janssen (2006, 2009), Janssen and Desmarais (2013) and Gross (2003, 2006, and 2009). The aims of this study were to identify the symptoms women experience in the latent phase of labour as perceived by them and examine what influences their decision to seek hospital admission.

7.2 SUMMARY OF MAIN FINDINGS

The study aimed to explain how the latent phase was experienced and how that affected the process, duration and outcome of labour by answering the following questions.

What symptoms do women experience during the latent phase of labour?
Symptoms experienced in the latent phase of labour included irregular pain, regular pain, loss of water from the birth canal, from either a hind water rupture of membranes coming from an opening in the amniotic sac behind the baby's head or true rupture of membranes from an opening or rupture of the amniotic sac in front of the baby's head; blood loss from the birth canal, stomach upset, sleep disturbances or emotional upset (Chapter 5).

Of the symptoms experienced in early labour, do some more than others incite women to seek hospital admission?
While various early labour symptoms, particular pain, played a part in women's decision to go to the hospital there were many other influencing factors (Chapter 4 and 6).

What was the duration of time from the onset of symptoms to professionals' diagnosing established labour?
Quantitative findings from clinical data showed there was a significant time difference between the women's experience of the onset of symptoms to the time professionals diagnosed established labour (Chapter 5). There was a discrepancy between mothers and midwives in defining when labour started.

Are there any associations between the duration of labour and the outcome?

This current study shows poor agreement with only 28.5% primiparous women and 39.4% multiparous women coinciding with their midwives assessment of the duration of the first stage of labour.

Quantitative findings from the MIS data showed that primiparous women in this study who required a combination of analgesia were at higher risk of operative births. The numbers however were low and as such possibly not representative of all primiparous women deemed to be low risk. Another interesting quantitative finding was that women and midwives have little agreement on the time of ruptured membranes which could indicate the need for a more collaborative approach to the diagnosis of labour. In this study women who presented to hospital with a cervical dilatation of 2-3cm were not necessarily at increased risk of interventions (Chapter 5).

Women's overall experience of latent phase labour

It was apparent from the qualitative data that women felt they were not prepared and that they would like more information to help prepare them for latent phase labour. Also women wanted more care through latent phase labour. They would have preferred not to have been left to their own devices at home. While women appreciated midwives being available to give advice over the phone they stressed the importance of this advice being based on an individualised approach to their personal experience of latent phase labour as opposed to what few women viewed as text book advice. Women in general were very complimentary of the midwifery care they received and highly commended the MLU where the majority of participants received their care. Qualitative data from interviews and questionnaires show there are many reasons why women present to hospital in the early stages of labour.

It was also evident from the questionnaires and interviews with women that their partners had a significant role to play in latent phase labour, in contrast other people who were often with women during latent phase, like mothers and or mothers in law were often not as supportive and reflected their anxieties on to the women in labour (Chapters 4, 5 and 6).

Quantitative data from the questionnaire showed that there were many coping aids employed by women in the early stages at home, and women utilised many methods of distracting themselves from the discomfort and pain of early labour contractions.

The quantitative findings from the questionnaire indicate that the majority of women experienced regular pain as an indicator of the commencement of labour.

7.3 STRENGTHS OF THE STUDY

The main strength of this study is that the researcher was able to match the data on women's experiences and perceptions about labour with the clinical data i.e. questionnaire data was linked to Maternal Information System hospital data.

- This study used the same data set used by Gross et al. (2003, 2006 and 2009) and Janssen (2003, 2006) and Janssen and Desmarais (2013).
- This study incorporated a mixed method approach enabling data collection and analysis of qualitative and quantitative data.
- Women were given the opportunity to evaluate their experience of labour incorporating qualitative and quantitative data by completing the study questionnaire.
- A number of women had the opportunity to expand further on their questionnaire through interviews which added to the richness of the qualitative data.
- This study included primiparous and multiparous women.
- The robust statistical analysis enabled the researcher to identify important factors linking women's experiences and outcomes.

7.4 WEAKNESSES OF THE STUDY

The numbers in this study were lower than anticipated, although comparable with numbers in Gross et al. (2003). Their later studies in 2006 and 2009 included higher numbers 651 and 932 respectively which reduced the probability of error. The researcher in this current study did not carry out sample size calculations and was not able to ensure equal distribution of primiparous and multiparous women.

There were more multiparous women than primiparous women participants and with Cox Regression it was difficult to show significant findings in primiparous women which may have been due to low statistical power due to the small sample size.

The study participants were predominantly cared for in low risk midwifery led unit which may have resulted in low power statistics for effect on interventions. Recruitment was challenging especially in the consultant led antenatal clinic. The midwives were regularly reminded to talk to the women about the study. Reasons given for not talking with women or giving them the study information were mainly related to the very busy clinics and midwives reported that they had limited time to talk to the women about anything not directly related to their pregnancy and prioritised discussion around any problems the women wished to talk about during their appointment time. Midwives in consultant clinics felt that time restraints did not allow for the extra time required to recruit women

to the study. Antenatal appointments in the midwifery led unit are generally longer and more time is therefore spent with women answering any questions she may have. As the midwifery led unit was opened a few years prior to commencement of this study based on the MidU trial (Begley et al. 2009) there was also a more positive attitude to midwifery research.

Midwives welcomed the opportunity to explore women's views on care received in the earlier stages of labour. As the vast majority of women were recruited through the MLU this may have biased the study findings and may not be considered representative for all women receiving maternity care in this area.

Women in this study were from a particular area in Ireland sharing similar characteristics i.e. English speaking, Caucasian, educated, self-informed, and motivated to choose a certain type of maternity care. This is a limitation of the findings of this study from a generalizable point of view. Janssen and Desmarais (2013) cited similar limitations with regards to their sample characteristics as the majority of women in their study spoke English and almost half were Caucasian. Eri et al (2010) also accepted that their sample size of 17 was small and from a specific context in Norway which may have limited their findings. However, their findings still offer insight into the experiences of early labour in other contexts. While the current study mainly included women who attended the MLU it has nevertheless generated useful findings that will apply to women in other settings. It is also likely that women receiving care through the MLU were more likely to have a normal birth, as they were considered low risk at time of recruitment and continued to be at the onset of labour.

Gross et al (2005) found that midwifery care had a significant effect on duration of the first stage of labour and considering first stage of labour in this current study was relatively short compared to other studies (Gross et all. 2009) perhaps this would have been worth exploring in this study also.

The following sections discuss the key findings in this study compared to similar studies on latent phase labour. This study replicated studies carried out by Gross et al. (2003, 2006, and 2009) and Janssen et al (2003, 2006) and Janssen and Desmarais (2013).

7.5 SYMPTOMS WOMEN EXPERIENCE DURING THE LATENT PHASE OF LABOUR

Symptoms experienced

This study was built on the studies conducted by Gross et al (2003, 2006 and 2009) in Germany and Janssen et al. (2003, 2006) and Janssen and Desmarais (2013) in Canada, as explained in the methodology chapter. Janssen and Desmarais (2013) developed an Early Labour Experience Questionnaire in order to understand women's affective experience of early labour and how they felt they were supported by obstetrical nurses. Gross et al. (2006) explored the symptoms experienced by women in the latent phase of labour and examined if women's symptoms in the latent phase had an effect on the duration of labour and Gross et al. (2009) examined women's experience and midwives assessments of the first stage of labour.

While 61.4% of women in Gross et al. (2006) and 64.4% of women in Gross et al. (2009), reported regular pain as a sign of labour, almost all (91%) women in this study reported regular pain as a sign of labour. Non-regular pain was experienced by 23.8% of women in Gross et al. (2005), 24.5% in Gross et al. (2009), and 44% of women in this study. A possible reason for this is that pain is the most talked about symptom of labour and women may not relate to the other signs of labour as readily. The second most common symptom in this study was blood loss with 70% of women reporting it as a sign of labour. Women are advised to ring the labour ward or MLU if they experience any blood loss. Water loss was reported by 47% of women in this study compared to only 23.7% in Gross et al. (2006) and 30.9% in Gross et al. (2009). This research found similar findings to Gross et al. (2006) around emotional upset and stomach upset. Many women in both studies experience emotional upset and stomach upset days in advance of the commencement of labour, ranging from hours to days.

With regards to the affective experience of early labour the majority of women scored 'safe' and 'supported' high in both this study and Janssen and Desmarais (2013) study. In both studies women reported feeling equally as 'tense' although fewer women in this study reported feeling distressed. Dixon et al. (2014) in their New Zealand study of 'the journey of labour' reported that all 18 participants in their study reported a feeling of excitement at the beginning of labour, which correlates positively with the Irish and Canadian studies.

Midwifery care

This study also asked questions around care and women's satisfaction with the care they received in early labour. Women scored midwives as listening to them, and reassuring them very high, as with the women in the Canadian trial, which informs us that in general women are happy with the advice received by, and assurances given by, midwives in the early stages of labour. While it is true to say that mostly women were reassured during phone calls and when they were advised to go home in early labour they still felt that there were areas lacking. Women would have preferred face to face care rather than phone support and would have been more appreciative in some instances of receiving individualised advice as opposed to advice they perceived as text book. Women were asked if they felt they went to hospital too early, on time or too late. Of the women who answered this question just over 50% in this study felt they went in on time. This question was answered more positively in the Canadian study. The Canadian study however compared two groups of women, those who received a home visit or those who were advised by phone only. Comparison to this study can only be with the cohort who received telephone support.

Barnett et al. (2008) found, in a very small study, of women in the latent phase of labour that women being told they were not in labour had a significant negative impact on them. The women also felt that latent phase labour was undervalued and women were very disheartened at hearing their cervix was only 1cm or 2-3cm dilated. This arbitrary measurement did not mean a great deal to them when they were in pain and perceived to be in need of professional help and support.

7.6 ONSET OF SYMPTOMS TO ESTABLISHED LABOUR

There was a noted discrepancy between women's and midwives in defining when labour started. Established labour is considered in general to be defined by strong regular contractions with a cervical dilatation of either 3 or 4cm. Women defined their labour by the onset of regular pains; primiparous women who reported regular pain had a median length of labour of nine hours, while midwives defined it as regular strong contractions with cervical dilatation and as such midwives documented median length of labour of four hours and ten minutes. Multiparous women who reported regular pain had a median length of labour of five hours compared to the midwives account of a median length of labour of two hours and thirteen minutes.

Rupture of membranes

Spontaneous rupture of membranes may indicate progress in labour if the woman is contracting as well. However, membranes can rupture pre labour also, which occurs in

8% of pregnant women (ACOG 1998). There is a theoretical risk to introducing infection to the uterus and baby if membranes are ruptured for over twenty four hours. For this reason woman are asked to present themselves to hospital to be assessed if their membranes have ruptured pre labour. If labour has not started within twenty four hours woman are advised on induction of labour to minimise the risk of ascending infection. 70% of women will go into labour spontaneously (Keirse et al. 1996). If women are contracting and the membranes rupture this may indicate progress in labour. Further oxytocin is released with the rupture of membranes and the baby's head (if cephalic) becomes better applied to the cervix also aiding dilatation. This could result in an increase in pain and shorter duration between contractions. To some women it may indicate the need to go to the hospital.

There was very little agreement between the women's perception of ruptured membranes or water loss. Because of the impact of ruptured membranes on care this study looked at the agreement between midwives and women with regard to ruptured membranes. The majority of women in this study did not require any form of augmentation i.e. amniotomy. The interval from water loss or ruptured membranes to birth time was 5 hours 11 minutes and 5 hours 38 minutes for primiparous and multiparous women respectively compared to the midwives confirmation of ruptured membranes to birth interval of 3 hours 47 minutes to 1 hour 52 minutes for primiparous and multiparous women respectively. The agreement overall was 35% for primiparous and 47% for multiparous women respectively. Gross et al. (2009) found similar rates of agreement on the onset of labour between the woman and the midwife considering many symptoms 28.5% and 39.4% for nulliparous and multiparous women respectively, but only found 10% on defining labour with ruptured membranes for both nulliparous and multiparous women.

7.7 DURATION OF LABOUR AND THE OUTCOME

The definition of labour is strong regular contractions with cervical dilatation of 3cm. The most frequent cervical dilatation on admission for both primiparous (42.9%) and multiparous (35.7%) women was 2-3cm.

Length of first stage of labour

This current study shows poor agreement between women and midwives, with only 28.5% nulliparous women and 39.4% multiparous women coinciding with their midwives assessment of the duration of the first stage of labour. Gross et al. (2009) found that primiparous women in units where there was a high participation rate, i.e. more than 50% of births eligible for study inclusion, were more likely to experience a longer first stage

of labour, than units with a lower participation rate. Multiparous women in units with higher participation rates were more likely to experience a shorter first stage of labour. Possible reasons given were increased motivation towards research and longer periods of one to one care from midwives to women during labour. Midwives in Gross et al. (2009) diagnosed labour using set protocols whereas women diagnosed their labour against symptoms experienced by them. Midwives in this study also diagnosed labour on the basis of set criteria and protocols whereas women as with German women diagnosed their labour on the basis of symptoms experienced.

Interventions

This current study was based on low risk pregnancies and the majority of women gave birth in the midwifery led unit and therefore they did not have a significant amount of interventions and operative births. Considering the analysis of the cohort of all women who consented and not just the women who returned questionnaires, the majority of women gave birth normally 65.4% and 95.9% of primiparous and multiparous respectively.

There is good evidence suggesting that women who stay in hospital in early labour are more prone to medical interventions (Baillit et al. 2005). As midwives our concern is to ensure that women have been given the best opportunity possible to keep labour and birth as natural as possible unless complications dictate care.

Women who are admitted with a cervical dilatation of 0-3cm or before labour is established are at higher risk of requiring intervention (Holmes et al. 2011, Rahnama et al. 2006). Holmes et al. (2001) also found that the risk of requiring a caesarean section decreased with increasing cervical dilatation. In this study it was difficult to conclude if women were at an increased risk of caesarean section as the numbers were small. However, primiparous women who used all three methods of pain relief were more likely to require either a caesarean section for birth or an instrumental birth. Over 80% of this group of women in this study had their labour augmented by either amniotomy and or oxytocin. Other studies also have found that augmentation with amniotomy and oxytocin and epidural for pain relief increased the likelihood of caesarean section for fetal distress (Anim-Somuah et al. 2011, Davey 2008).

Despite the numbers being low for caesarean section reasons for caesarean section were comparable to other studies. The primary reason for caesarean delivery in the Canadian study (Janssen et al. 2006) where rates were similar among home and telephone triage groups: 73.4% and 75.2% for non-progressive labour, 23.2% and 22.6% for fetal distress,

and 2.9% and 1.6% for breech position diagnosed during labour. In this current study considering the total number of caesarean sections i.e. 21; 48% were because of a suboptimal cardiotocograph, 33% for poor or no progress, 5% for breech and 14% where the reasons were not stated. There were relatively more caesarean sections performed for poor progress in the Canadian study. The indication for caesarean section for a suboptimal cardiotocograph/fetal distress was higher in the current study. Caesarean sections in this current study were more likely to be performed for a suboptimal cardiotcograph than poor or no progress.

Janssen et al. (2003) found that half of the women admitted to hospital are not in active labour. While almost 43% of primiparous women and 36% of multiparous women in this study were admitted to hospital with a cervical dilatation of 2–3cm it did not necessarily put them at increased risk of requiring interventions.

7.8 REASONS WHY WOMEN WENT TO HOSPITAL

There were a wide variety of reasons why women went to hospital and not necessarily because of symptoms alone, anxiety around giving birth at home or giving birth in the car on the way to the hospital or simply wanting the support of the midwives. Women in this study felt they needed to know how they were progressing. This was a similar finding for Carlsson et al. (2009) who found that women were encouraged by knowing how they were progressing, and this knowledge motivated them. Cappelletti et al. (2016) also found that women were reassured by knowing how they were progressing.

In this study the most common reason for going to hospital was contractions (46%) followed by pain (31%) followed by discussion with the midwife (19%). Carlsson et al. (2009) also found women were incited to seek hospital admission when they felt they could no longer cope with the pain relief on offer in their homes i.e. massage, shower, warm bath. In the majority of cases where discussion with the midwife was an influencing factor this was a joint decision. Women in this study used contraction and pains interchangeably at times but mainly when women said pain they were referring to pain intensifying and requiring pain relief. Contractions were described in terms of regularity and frequency. Cheyne et al. (2007) also found that the main reason women went to hospital was pain or the notion that whatever pain they had at home their expectation was for pain to intensify and in some instances their perceived inability to be able to cope with the pain. A significant motivation to go to hospital was the assurance of stronger pain relief (Cheyne et al. 2007) which was a similar theme running through this current study. Barnett et al. (2008) cited pain as the main factor for women wanting to attend hospital, and their inability to cope with pain given the limited resources at home.

7.9 WOMEN'S EXPERIENCE OF EARLY LABOUR

Women's experience of early labour was dependent to a certain extent on how prepared they felt they were for labour and who was with them in the early stages and what methods of coping they used to help them through this stage.

Preparing for birth

Preparation was intellectual, physical or emotional. Women in this study prepared differently for their birth and their perspective on preparation was different. For some preparation was about gaining insight in order to prepare them or to enable them to understand what was happening and to be involved in the decision making during early labour or established labour and the birth.

For others it was about knowledge requisition in order to be mentally and practically prepared for the birth i.e. plans for what they would do in early labour, who would be with them and if they had other children, preparation around childcare for their children.

Mainly primiparous women attended antenatal classes. Preparation was also based on knowing what was available to them in terms of pain relief, when to phone the hospital, ways of coping with their pains at home prior to availability of stronger pain relief in hospital. One woman who was interviewed joked that her husband's job was to get the paracetamol. Fabian et al. (2005) found that the attendees of antenatal classes in their study used more non-pharmacological and pharmacological forms of pain relief during labour. Women felt that attendance at antenatal classes was helpful to some extent but no amount of preparation could have truly prepared them for the intensity of labour, which was a concept shared by Scottish women in Cheyne et al. (2007) who found classes of limited value until they experienced birth first-hand. Conversely Maimburg et al. (2010) found that formalised antenatal education classes had a role in preparing women for childbirth.

Other women prepared from the point of view of keeping themselves fit, healthy and active in the general sense or as a means of distraction in early labour. Some women were aware of the benefits of nutrition through the pregnancy but also staying fed and well hydrated in the earlier stages. Whether women were having their first child or had children before being prepared was very important to them. Their preparedness for some women was futile as the reality did not meet their expectations, particularly for women who were having their first child, but having a contingency plan and feeling empowered and been equipped with some knowledge reassured them. Fabian et al. (2005) found that

74% of first time mothers found antenatal preparation to be of benefit to them in helping to prepare them for childbirth.

What was important to women through their latent phase of labour?

The vast majority of women in this study were happy to stay at home through the latent phase of labour. Evidence exists demonstrating the importance women place on being listened to in labour. Although further research is required in supporting women to be part of the decision making process of diagnosing labour (Cheyne et al. 2006; Burvill, 2002).There was a strong sense of the importance of being listened to when women rang the hospital for advice or when they presented to hospital and were advised to go home and await events. It was important to them that midwives gave them advice particular to their needs and not text book advice.

Women who were involved in the decision making process felt empowered and respected. While women were happy to stay at home they were greatly reassured by the knowledge that they could ring the hospital at any time and in many cases the decision to go to the hospital was made by them following a conversation with the midwife, in effect the midwife enabled the decision rather than controlled it. This gave women a sense of ownership of their labours. Other women that were unsure were happy for the midwives to advise them either to stay home or go to the hospital. Barnett et al. (2008) suggested that women particularly primigravidas who were sent home in latent phase of labour felt unsupported and may even have increased anxiety levels. A small number of primiparous women in this study felt stressed by being advised to go home but this was out of fear of the unknown, some mentioned in hindsight it was probably the best option for them at the time. Cappelletti et al. (2016) found similar with first time mothers in their Italian study. Some women in their study felt disappointed, angry and fearful when initially sent home following midwifery triage. Some of these women subsequently were comforted by being at home and implemented the advice given to them by the midwives in the hospital. Nolan and Smith (2010) reported how women were reassured after speaking with a health professional to let them know their labour had begun. Other women were reassured having their labours validated by a midwife. They no longer felt isolated or on their own, despite still being at home.

Cheyne et al. (2007) and Burvill (2002) recommended a woman centred holistic approached and being more cognisant of physical cues and involving women more in the decision on established labour and not being restricted by or dependent on protocols and partograms.

Methods of coping in early labour

Women used many methods of coping with the pains of early labour. The most common form was walking with almost 65% of women saying they found being active most beneficial. Over 50% of women in Cappelletti et al. (2016) found movement to give good relief. In this study 34% of women found a shower or resting to be of use. Cappelletti et al. (2016) also found a warm bath or shower to be the most common form of coping aid at home reported by women. Women in Nolan and Smith's (2010) study found it difficult to pass time in early labour and tried to distract themselves with various activities prior to going to the hospital.

In this study whatever women used they either did so out of instinct or had prepared themselves in advance i.e. hynobirthing or meditation which was used by 2.6% of women or breathing exercises/yoga used by 28% of women. While 17% used paracetamol, they found that paracetmaol was not of benefit and was used on the advice of midwives rather than their faith in the medication to be of benefit. Cheyne et al. (2007) found that women employed various methods of non-pharmacological methods of coping with pain at home, TENS machine, birthing balls, baths, massage and distraction activities. Women in their study reported mixed benefit from these various coping aids. Support people also had a role to play in women's experience of early labour.

Support people.

Partners had a significant role to play in helping women through early labour at home and in many cases influenced the decision to go to the hospital. Women felt that partners who attended antenatal classes benefitted from this. Cappelletti et al. (2016) also found partners to be very supportive through early labour at home. The women in their study reported physical support through massage and emotional support through encouragement. Although Cheyne et al. (2007) found the partners wanted to go to the hospital for assessment despite the women coping well at home. Nolan and Smith (2010 also reported partners being worried and anxious as opposed to be supportive. Barnett et al. (2008) found partners to be very anxious; one woman in their study described her partner to being 'petrified'. Eri et al. (2010) found both partners and mothers to be anxious for the woman to be assessed while they were at home despite the woman herself preferring to delay calling the hospital and delay admission.

Other family members were less calming. Many women in this study mentioned anxiety of parents or parents-in-law having a negative effect on their experience in labour. Nolan and Smith (2010) also found mothers of women in labour to have a negative impact on the women in labour, and reflected their anxieties on to the woman in early labour rather

than being of support to them. Barnett et al. (2008) also found mothers of the women in labour to be unable to cope with seeing their daughters in pain and encouraged the women to go to hospital.

Perhaps labour preparation should incorporate parents and parent in-laws as well, not necessarily attendance at classes but information leaflets with a focus on how they can help their daughter or daughter-in-law in labour.

Previous experience

While primiparous women were quite unsure as to when to go to hospital, multiparous women were able to draw on previous experience of having been in labour before. Women who had previously given birth related more to the concept and recognised the signs of labour. Dixon et al. (2013) found similar in their study on women's perceptions of the phases of labour. Primiparous women in this study were quicker to attend hospital or seek advice. Multiparous women on the other hand had prior experience of early labour and established labour and when they rang the hospital it was in many instances to let midwives know they were on their way. Having experienced the gradual build-up of pain and the progression from early labour to established labour enabled them to judge how much time they had to organise themselves and other children. Prior experience gave women the confidence to stay home longer. Cheyne et al. (2007) found similar with multiparous women in terms of feeling comfortable at home for longer.

7.10 RECOMMENDATIONS FOR PRACTICE

The majority of women were happy to stay at home during the latent phase of labour, they were however reassured by having contacted the hospital and receiving advice or for women who went to the hospital to be assessed felt reassured by the assessment despite the initial disappointment of not being further progressed in labour as per cervical dilatation.

Women found advice from midwives to be helpful but felt in some instances that the advice was text book rather than individualised to them and commented on the importance of midwives giving advice based on their needs rather than the usual 'have a shower and take some paracetamol'. Women did not rate paracetamol highly at all.

Women want a sense of ownership over their early labour but also want to know that help and advice is available should they need it. Women do not want to be left to their own devices in early labour and feel that care in early labour should be viewed as a continuum

to the pregnancy and a transition to labour where reassurance and support is required even if this is not in person.
There should be more formal policy on care in early labour and women should be consulted on the development of such a guideline. This would also help towards standardising a definition for active labour, which is needed.

7.11 RECOMMENDATIONS FOR FURTHER RESEARCH

More studies are required on diagnosing established labour accurately. As far as I am aware Cheyne et al. (2008) is the only algorithm developed to aid diagnosis of labour. It has been tested but possibly requires further testing in more settings to evaluate its effectiveness.

Further research is needed on how best to support women in early labour. Support people need more support to encourage women to rely on their instincts and body cues. This should be incorporated into antenatal classes and discussed at antenatal clinic appointments. It is probably not practical or feasible to invite parents and parents-in-law to antenatal classes but perhaps further studies could include parents and parents-in-laws perception of early labour to inform an informative evidence based leaflet on parents and parents-in-law supporting women in early labour at home.

There is also significant potential for further research to explore the perspectives of midwives caring for women in the latent phase of labour. Much of the research to date has centred on women's perspectives or women's experiences of latent phase labour. Carrying out qualitative research on midwives would add strength and credence to the argument for developing guidelines and protocols to supporting women through latent phase labour and organising maternity services around this.

If feasible there could be early labour care areas in maternity units for women too nervous to stay home and studies carried out exploring the impacts on women's experience and outcomes in terms of interventions in labour and method of birth.

I recommend more Irish studies on how we can support women in early labour based on women's needs and the feasibility of doing home visits. Janssen et al. (2013) ELEQ scores have shown more positive results for women who received home visits in early labour considering the overall scores for women who received home visits were significantly higher than women who received telephone support.

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APPENDIX 1. QUESTIONNAIRE

Early Labour Trial

Questionnaire

UNIVERSITY OF STIRLING

SCHOOL OF NURSING, MIDWIFERY AND HEALTH

Early Labour Questionnaire

Your name:_____

Date of birth:_____

Date:_____

Your Height cm

Your Age ……..

This questionnaire asks about when you were in early labour and before you were admitted to hospital.

Please answer as many questions as are relevant to you. If you have not experienced any one particular symptom in question 1 please write N/A (not applicable) in the appropriate box.

Q1. Please tick all the symptoms that apply to you that you experienced and the date and time you experienced them

Regular pains	Date.....	Time.....	☐
Non-recurrent pains (sometimes a feeling of pulling, traction or pressure)	Date.....	Time.....	☐
Watery fluid loss	Date.....	Time.....	☐
Bloodstained loss of any type including a bloody show	Date.....	Time.....	☐
Stomach upset or feeling sick	Date.....	Time.....	☐
Altered sleep patterns	Date.....	Time.....	☐
Emotional i.e. weepy, anxious,	Date.....	Time.....	☐

Any Other symptoms you experienced not listed above

.....

.....

.....

.....

.....

Q2. The following questions; (Questions 2, 3, and 4) require you to circle your answer

While you were in early labour at home did you feel:

Safe

1. Yes, definitely 2. Yes, somewhat 3. Not sure 4. Not very much 5. Not at all

Confident

1. Yes, definitely 2. Yes, somewhat 3. Not sure 4. Not very much 5. Not at all

Scared

1. Yes, definitely 2. Yes, somewhat 3. Not sure 4. Not very much 5. Not at all

Happy

1. Yes, definitely 2. Yes, somewhat 3. Not sure 4. Not very much 5. Not at all

Excited

1. Yes, definitely 2. Yes, somewhat 3. Not sure 4. Not very much 5. Not at all

Anxious

1. Yes, definitely 2. Yes, somewhat 3. Not sure 4. Not very much 5. Not at all

Relaxed

1. Yes, definitely 2. Yes, somewhat 3. Not sure 4. Not very much 5. Not at all

Comfortable

1. Yes, definitely 2. Yes, somewhat 3. Not sure 4. Not very much 5. Not at all

Tense

1. Yes, definitely 2. Yes, somewhat 3. Not sure 4. Not very much 5. Not at all

Supported

1. Yes, definitely 2. Yes, somewhat 3. Not sure 4. Not very much 5. Not at all

Distressed

1. Yes, definitely 2. Yes, somewhat 3. Not sure 4. Not very much 5. Not at all

Insecure

1. Yes, definitely 2. Yes, somewhat 3. Not sure 4. Not very much 5. Not at all

In control

1. Yes, definitely 2. Yes, somewhat 3. Not sure 4. Not very much 5. Not at all

Confused

1. Yes, definitely 2. Yes, somewhat 3. Not sure 4. Not very much 5. Not at all

Q3. If you rang into the hospital during the early stages of your labour at home did:

a) the midwife give you the information you wanted?

1. Yes, definitely 2. Yes, somewhat 3. Not sure 4. Not very much 5. Not at all

b) the midwife reassure you with her advice?

1. Yes, definitely 2. Yes, somewhat 3. Not sure 4. Not very much 5. Not at all

c) the midwife listen carefully to what you had to say?

1. Yes, definitely 2. Yes, somewhat 3. Not sure 4. Not very much 5. Not at all

d) the midwife respect your wishes about going to hospital?

1. Yes, definitely 2. Yes, somewhat 3. Not sure 4. Not very much 5. Not at all

e) you feel that you had confidence in the midwife during your phone conversation?

1. Yes, definitely 2. Yes, somewhat 3. Not sure 4. Not very much 5. Not at all

f) I didn't ring the hospital ☐ (please tick if you didn't ring the hospital)

Q4. Did you feel you went to the hospital at the right time?

1. Too early 2. Too late 3. Right time

Answers to questions 5, 6, 7, 8 and 10 may be as long or short as you like.

Q5. If you feel you went to the hospital too early or too late, please explain:

_____

_____

_____

Q6. If you went to the hospital in early labour; were you sent home? If so how many times were you sent home? Please describe your experiences:

_____

_____

_____

Q7. If you have any more comments about your early labour care before you were admitted, please add:

_____

_____

_____

Q8. How did you cope with your symptoms at home i.e. pain relief?

_____

_____

_____

Q9. Comfort Measures being used at home (please tick the relevant box):

Walking ☐ Shower ☐ Massage ☐ Resting in Bed ☐ Other ☐

What made you decide on when to go to hospital?

_____

_____

_____

Q10. Who was with you to help you and/or advise you when you were in early labour at home (please tick the relevant box):

Support person present:

Partner ☐

Family member ☐

Friend ☐

No-one ☐

APPENDIX 1A.EXPLANATORY LETTER FOR QUESTIONNAIRE

Karn Cliffe
Midwifery Clinical Placement Coordinator
Centre of Nursing & Midwifery Education
Our Lady of Lourdes Hospital
Drogheda
Co. Louth
Tel 0874132708

Dear participant:

Attached is the questionnaire for you to complete in relation to the time you spent in early labour before you were admitted to the hospital (i.e. not advised to go home or wait for proper labour on the antenatal ward). Your answers are confidential and will be entered by the researcher into a database with your study ID number only.

Please answer as many questions as are relevant to you.
On admission to the hospital when you are in established labour, please put this survey into the envelope provided and leave it in the box provided in the admission room or give it to the midwife caring for you.

Thank you for completing this questionnaire it will help us to learn more about how to effectively care for women in early labour.
Faithfully

Karn Cliffe
Midwifery Clinical Doctorate Student

APPENDIX 2. MATERNITY INFORMATION SYSTEM (MIS)

POSTPARTUM FORM

Study ID number_____ Date of birth_____

Height

Gestation

Ethnicity: 1. Caucasian 2. Asian 3. African
4.Eastern European 5. Other

Use of tobacco: 1. Current 2. Former 3. Never
Use of illicit drugs: 1. Current 2. Former 3. Never
Use of alcohol 1. Current 2. Former 3. Never

If socio-demographic form not completed:

Age: _____yrs

Partnered? 1. Have partner 2. Lone parent
Education: 1. Some high school 2. High school complete 3. Fetac
4. Apprenticeship 5. Some university
6. University degree

Employment status: 1. Part time 2. Full time 3. Unemployed
4. Full time education

From onset of any contractions *(by woman's perception)* to admission to hospital > 24 hrs: 1.Yes

Number of visits to admission room *(not including delivery admission)*

Reason for admission i.e. symptoms experience: -

_____

_____

Position of baby on admission (when actually admitted to the hospital and not sent home to await events): *(or 1st VE after)*

1. Vertex anterior 2. Vertex Posterior 3. Transverse 4. Other

Date of final admission _____

Time of admission to labour room_____ hrs

Electronic fetal monitoring: 1. None 2. Admission room only.
3.Intermittent 4. Continuous, with Cardiotcograph (CTG) monitoring

Cervical dilatation on admission cm

Entonox 1.Yes 2. No Cervical dilatation at last exam prior_____cm

Narcotic: 1. Yes 2. No Cervical dilatation prior to first dose_____cm
(Pethidine IM) Cervical dilatation at last exam prior_____cm

Epidural: 1.Yes 2. No Cervical dilatation at last exam prior_____cm

Epidural inserted: Date: _____Time:_____
Total dose epidural fentanyl by bolus_____
Total dose epidural other narcotic by bolus_____ (specify narcotic)
Continuous epidural 1.Yes 2.No
Continuous started Date: _____Time:_____
Rate: _____cc/hr
Dose: _____ug/cc
Continuous ended at delivery____ or Date:_____ Time:_____

Intravenous fluids given 1.Yes 2. No
Augmentation of labour 1.Yes 2. No
1. ARM 2. Prostin 3. Oxtocin
Induction of labour 1.Yes 2. No
1. ARM 2. Prostin 3. Oxtocin

Hours from delivery admission *(admission in which delivery took place)* until delivery _____hrs____min *(doesn't include time in admission rom/antenatal ward)*

Length of first stage:_____hrs ____min
(if C/S in 1st stage, onset of regular contractions until C/S)

Time first stage started Date: _____ Time: _____
Length of second stage: _____hrs ____min (if C/S in 1st stage, length of 2nd stage = 0)
Length of time membranes ruptured prior to birth:_____hrs ____min

Time membranes ruptured Date: _____ Time: _____

Date of Delivery _____ Time of delivery _____hrs

Mode of delivery 1. Vaginal 2. Vacuum 3. Forceps 4. Caesarean section

Episiotomy 1. Midline 2. Mediolateral 3. None

Perineal trauma 1. 1st degree 2. 2nd degree 3. 3rd degree 4. 4th degree

Primary Indication for caesarean section:

1. Dystocia 2. CPD 3. Fetal distress 4. Other____

Blood loss < 500mls 500-1000mls >1000mls

Baby weight _____ g Live birth ☐ Still birth ☐ (please tick)

Apgar at 1 minute:_____

Apgar at 5 minutes:_____

Thick meconium in liquor 1.Yes 2. No

Thick meconium at delivery 1.Yes 2. No

Resuscitation at delivery using IPPV by mask: 1.Yes 2. No

Suction using ET tube: 1.Yes 2. No

IPPV by ET tube: 1.Yes 2. No

Cord gases done_____ U/A pH_____ Base excess_____

****

Admitted to NICU (level III neonatal intensive care) 1.Yes 2. No

Days in NICU_____ days

Days on oxygen (24 hrs and over) _____

Discharged to: 1.Home 2. Other hospital (specify_____) 3. Ward with mother

****

Admitted to SCBU (level II observation nursery) 1.Yes 2. No

Days in SCBU_____ days

Days on oxygen (24 hrs and over)_____

Days ventilated (24 hrs and over)_____

Days on TPN (24 hrs and over) _____

Discharged to: 1. home 2. Other hospital (specify_____) 3. Ward with mother

****

Signature of researcher:

Date completed:

APPENDIX 3. INCLUSION CRITERIA

Name_____ Date of birth_____

Telephone contact_____

Date _____ Time_____

1. Eligibility Checklist

- ○ Primiparous
- ○ Multiparous
- ○ VBAC with no prior labour
- ○ Single baby
- ○ Cephalic presentation
- ○ No voiced complications of pregnancy (see table below of pregnancy complications)
- ○ Gestational age 37 to 41 completed weeks i.e. 41 weeks and 6 days.
- ○ Age 16-42

Complications or pregnancy include
Mutiple pregnancy
Baby presenting in any position other than cephalic
Complications through pregnancy as a result of the pregnancy; i.e. gestational diabetes, hypertensive disorders of pregnancy, HELLP syndrome, cholestasis of pregnancy
Medical condition
Substance abuse
Preterm <37 weeks
Postdate >42 weeks
Planned IOL
Planned CS

Eligible: Yes _____ No_____

2. Offered study: Consented _____ Refused_____

The records of all women who agree to partake in this study will be marked with a purple sticker: ‘Early labour trial’.

APPENDIX 4. INFORMATION LEAFLET

Early Labour Trial

Information leaflet

(booklet form)

Does the way in which the latent phase (early labour) was experienced affect the process, duration and outcome of labour?

UNIVERSITY OF STIRLING

SCHOOL OF NURSING, MIDWIFERY AND HEALTH

You are being invited to take part in a research study. Before you decide, it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. Please do contact me if there is anything that is not clear or you wish further information.

Purpose of the Study

This study is part of a clinical doctorate project. The purpose of the study is to find out if the way you experience the earlier stages of labour (latent phase) affects your experience of established (proper) labour and the type of birth you will have i.e. either normal vaginal birth, vacuum birth, forceps birth or a caesarean section.

Studies in the past have shown that women admitted to hospital in very early labour may be at greater risk of requiring medical interventions i.e. drip for strong pains, epidural, forceps birth. Other studies have shown that women like support in very early labour and would rather not go home when advised to do so.

This study hopes to explore if the way early labour was experienced has an influence on the overall labour and birth. Your care will not be changed in anyway by taking part in this study.

Why have I been chosen?

I am inviting women to take part in this study who have had a normal healthy pregnancy and who go into labour between 37 and 42 weeks of pregnancy and are attending Our Lady of Lourdes Hospital.

Do I have to take part?

You do not have to take part. It is up to you to decide whether or not to take part. If you do take part, you are still free to withdraw at any time without giving a reason. If you decide not to take part or wish to withdraw from the study then this will in no way affect the care you or your baby receive.

What will happen if I consent to take part?

If you consent to take part, you will be given a consent form and a questionnaire at your 37/38 week antenatal appointment. The signed consent form will be placed in an envelope with my details on it, and sent to me. You will be asked to complete the questionnaire either on admission to hospital when you are in proper labour or shortly after giving birth (which ever you prefer). Some questions you may be able to answer at home in early labour. The questionnaire will be about your experiences in early labour before you are admitted to hospital in proper labour.

There will be boxes, labelled 'Early Labour Trial' in various rooms on the labour ward, the Midwifery Led Unit, unit 1, unit 2. You can place the completed questionnaire in any of these boxes.

As this study will require some information about you (e.g. age, job) and details of your labour and birth I also ask your permission to use some details from your hospital notes. Strict confidentiality will be maintained at all times.

As part of the study you may also be asked to take part in an interview around 6 weeks following the birth of your baby. You will be given more information about the interview and asked to agree separately. If you do decide to complete the early labour questionnaire and give me permission to access and use your hospital information you are not under any obligation to go ahead with the interview as well.

Will my taking part be kept confidential?

Any information that is collected in the study will be kept strictly confidential. Your personal details will be removed from study paperwork so that you will only be identifiable by a project number. Information collected will be securely stored in the Centre for Nursing & Midwifery Education at Our Lady of Lourdes Hospital for 10 years, after which it will be securely destroyed.

What will happen to the results of the study?

If the results of this study show that women's experiences in the earlier stages of labour impact on established labour and the type of birth women have this will enable us to improve the care that we give to women in the future.

For example, midwives will be able to give better advice to women and help plan for early labour so that women are not seeking admission too early and are not at risk of receiving unnecessary medical interventions.

The results of this study will be presented in conferences and midwifery/nursing journals.

Contact for Further Information

I hope you will participate in this study but if you have any questions or would like some more information then please contact me:

Karn Cliffe
Midwifery Clinical Placement Coordinator
Centre of Nursing & Midwifery Education
Our Lady of Lourdes Hospital
Drogheda
Co. Louth
Tel 0874132708
Email: karn.cliffe@hse.ie

Supervisors

Dr. Ashley Shepherd & Prof. Helen Cheyne
School of Nursing, Midwifery & Health
University of Stirling
Stirling
Tel: 01786 466334 01786 4666286
Email: ashley.shepherd@stir.ac.uk h.l.cheyne@stir.ac.uk

If you would like some independent advice about whether you should take part in the study, please contact:

Professor William Lauder
Head of School
School of Nursing, Midwifery & Health
University of Stirling
Stirling
Tel: 01786 466345
Email: william.lauder@stir.ac.uk

This research proposal has been reviewed and approved by the local Research Ethics Committee. Thank you for taking the time to read this information.

APPENDIX 5. CONSENT FORM

UNIVERSITY OF STIRLING

SCHOOL OF NURSING, MIDWIFERY AND HEALTH

Project Title: **Exploring the way in which the latent phase was experienced and how this experience is associated with the process, duration and outcome of labour.**

Principal Investigator: Karn Cliffe
Midwifery Clinical Placement Coordinator
Centre of Nursing & Midwifery Education
Our Lady of Lourdes Hospital
Drogheda
Co. Louth
Tel 0874132708
Email: karn.cliffe@hse.ie

Please initial Box

1. I confirm that I have read and understand the early labour and postnatal information sheet(s) dated (March 2012) for the above study. I have had the opportunity to consider the information and ask questions which have been answered satisfactorily. ☐
2. I understand that I will be asked to complete a questionnaire about the early stage of my labour. ☐
3. I agree that my hospitals records may be used for relevant data, and relevant information from the hospital's maternity information computer system. ☐
4. I understand that I may be approached after the birth to take part in an interview on my labour and birthing experience. ☐
5. I understand that my participation is voluntary and that I am free to withdraw at any time without giving a reason, without my medical care or legal rights being affected. ☐

_____	_____	_____
Participants Name	Date	Signature
_____	_____	_____
Name of Midwife taking consent	Date	Signature

APPENDIX 6. INTERVIEW GUIDE

Stage 1

1) Introductions and explanation of the study with reiteration of the information leaflet given during her antenatal period.
2) Participant will be encouraged to ask questions regarding the study.

Stage 2

3) How many babies have you had?
4) How old is your baby now?

Stage 3

5) Tell me about the symptom/symptoms that initially gave you the impression that your labour may be starting.
6) When in your opinion did your labour begin?
7) How did you cope with your symptoms at home i.e. methods of pain relief employed etc?
8) Tell me what made you decide it was time to go to the hospital.
9) What advice did you get from staff?
10) How did you feel about this advice?
11) Was the advice you received from staff helpful?

Stage 4

12) Is there anything you would like to have done differently?
13) Do you think the midwives/doctors could have helped you more in the earlier stages of your labour?

Stage 5

14) Casual chat and expressing gratitude to the woman for her time.

APPENDIX 7. CONSENT FORM FOR INTERVIEW

UNIVERSITY OF STIRLING

SCHOOL OF NURSING, MIDWIFERY AND HEALTH

Project Title: **Exploring the way in which the latent phase was experienced and how this experience is associated with the process, duration and outcome of labour.**

Principal Investigator: Karn Cliffe

Midwifery Clinical Placement Coordinator

Centre of Nursing & Midwifery Education

Our Lady of Lourdes Hospital

Drogheda

Co. Louth

Tel 0874132708

Email: karn.cliffe@hse.ie

Please initial Box

1 I confirm that I have agreed to be interviewed for the above study. ☐

2 I understand that I will be asked questions on my recent labour and birthing experience. ☐

3 I understand that the interviewed is being taped and I agree to same. ☐

4 I understand I can refuse to answer any questions. ☐

5 I understand that the interview will be kept strictly confidential and will be available only to people involved in this study, i.e. researcher, research supervisors. ☐

6 I understand that my participation is voluntary and that I am free to stop the interview at any time without giving a reason. ☐

7 I understand that excerpts of the interview may be part of the final research report, but under no circumstances will my name or any identifying characteristics be included in the report. ☐

_____	_____	_____
Participants Name	Date	Signature
_____	_____	_____
Name of Researcher	Date	Signature

APPENDIX 8. RESEARCH INVITATION POSTER

Early Labour Trial

UNIVERSITY OF STIRLING
SCHOOL OF NURSING, MIDWIFERY AND HEALTH

Would you like to participate in a midwifery research study being conducted in this hospital?

This study aims to explore how early labour was experienced by you.

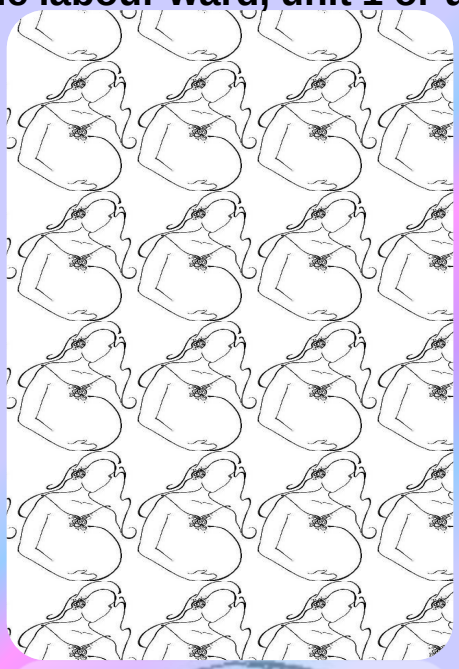
You will be asked to complete a questionnaire and you may be invited for interview 6 weeks after the birth of your baby.

APPENDIX 9. RESEARCH REMINDER POSTER

Early Labour Trial

UNIVERSITY OF STIRLING
SCHOOL OF NURSING, MIDWIFERY AND HEALTH

If you have consented to this trial can you please give your questionnaire to a midwife on the labour ward, unit 1 or unit 2



You may be invited for interview 6 weeks after the birth of your baby. You can of course say no if contacted.
Thank you

APPENDIX 10. PAPER FOR PUBLICATION

For submission to The British Journal of Midwifery

Does the way in which the latent phase (early labour) was experienced affect the process, duration and outcome of labour?

Abstract: This study explores women's experience of the latent phase of labour and the impact this had on the process and outcome of labour. This article addresses Stage 2 which involved interviewing 10 women, on their perceptions of how their experience of the latent phase of labour impacted on their labour and birth. Women employed many means of coping with early labour pains while at home. Midwives in general were supportive through phone calls and when women were sent home when not in established labour. Support people had an influence on a woman's decision of when to go to hospital. Data Analysis was with NVivo and colour coding.

This stage of the study used qualitative methods which aimed to explore women's experience of the latent phase of labour before admission to hospital and what influenced their decision to go to the hospital

Purposive sampling was used for stage 2. Interviewees were approached based on their experiences as demonstrated by the questionnaires and hospital information system data.

Introduction

Currently there is little agreement on the boundaries of the latent phase of labour. The first stage of labour describes the time from the commencement of contractions to full dilatation of the cervix. It is sub-divided into the latent phase and the active phase of labour. The latent phase is considered to be the time between the onset of contractions to cervical dilatation of 3-4cm during which time the cervix becomes completely effaced (Holmes and Baker 2006). Incerti et al. (2011) looked at the variability in the rate of cervical dilation in primiparous women at term. Management of labour followed a set protocol of care. Established labour was diagnosed as regular contractions every ten minutes, for more than 40 seconds, cervical effacement of more than 80 percent and cervical dilation of 2cm.

Methodology

Women were interviewed about the earlier stages of labour as opposed to their perceptions of birthing outcomes. As shown in the literature review little research has been carried out on women's perceptions of latent labour alone. The interviews explored aspects of how the latent phase was managed. Ten women were interviewed.

Data were analysed through NVivo using thematic analysis. It was important that the themes identified captured important information relative to the overall research. Nvivo produced broad themes and in order to narrow the focus of the broad themes further analyses was carried out using colour coding through each transcript.

Before labour starts and early labour

The majority of the women interviewed talked about how they had prepared themselves for the impending birth. Some women were very keen to keep as fit and active as they had been prior to becoming pregnant. Other women put emphasis on information and knowledge being important to them to enable them to be involved in decision making with the professionals and with their support people and also to get a sense of what to expect.

341: "I think not carrying any excess weight definitely helped because it really is a work out on the day so I think it's not until you're in it you realise my God that fitness absolutely counts towards it, Yeah as I think keeping as active as I could definitely helped me"(P).

Antenatal classes and knowledge

There were mixed feelings amongst the women in terms of how well prepared they felt they were for their labour and the birth of their baby regarding knowledge gained through the pregnancy. One woman, who had an epidural in labour and required a category two caesarean section, while she enjoyed the antenatal classes and would like to have had more than she had, felt that no amount of preparation could prepare her.

303:"I don't think anyone can really prepare you for labour itself. I think you just have to go with it yourself in a way I don't think the midwives could have done or said anything" (P).

Desire for normality and being in control

Some women talked about the desire to go into labour naturally as hospital policy dictated induction after 14 days beyond the due date. It was very important to women that they had tried various methods of natural induction as it gave them a sense of being in control of their own bodies.

336: "I had three acupuncture treatments and two sweeps and good long walks" (P).

This was it

Most of the women interviewed experienced some degree of pain as a starting point. The nature of this pain and the intensity varied. Most primiparous women described it as pain they had not previously experienced and although they were not particularly painful in the earlier stages the pain was still different which helped them to differentiate from Braxton Hicks contractions experienced in the later stages of their pregnancy. They knew this to be a pivotal point in their pregnancy.

303: "I was just getting irregular cramping. It wasn't in a pattern but it would come every so often and then it started to become a pattern. I had never felt that pain before so I knew it was starting to become contractions"(P).

Coping Aids Used at Home

Women used a variety of coping aids when they were at home; bath/shower, massage, gentle birth CDs, TENS machine, Paracetamol, some form of distraction. Some women used one or two coping aids while others used a combination of many.

One multiparous woman found it helped for her to get out of bed and move around.

28: "I was straight up and out of bed and am I was walking around a lot and I am kinda leaning over the back of the chair when I was getting the pains, am...and that's what I did and the time past very quickly"(M).

The benefits of being at home and the confidence to stay at home

Most of the women interviewed found benefit to being at home. There was a sense of freedom in being within the environs of their own home and the freedom to be with whomever they chose to be with. There was also a strong theme emerging over women feeling they were in control of their bodies when they were at home. Women

acknowledged the reassurance that came with having ready access to advice from a midwife, when the women deemed this necessary.

When asked if she would do things any differently in terms of when to go to the hospital, one woman replied:

28: "no I don't think so, I think you know when I came into the hospital I was 6cm so I was happy at that stage that I'd stayed at home. I'd done a lot of it at home on my own so it was the right time to come in and at that stage when I came in as well I started using the gas and air immediately so I needed something else at that stage then, but I continued just standing out at the edge of the bed so using the same kind of positions that I had used at home"(M).

DECISION TO GO TO HOSPITAL

Instinct

A few women talked about 'just knowing'.

Although one woman had been having pains through the day she felt she still knew when the time was right.

333: "Just the contractions were getting a lot stronger and more frequent while he was timing them and I knew myself it was time to get a move"(M).

Having done enough at home

Pains intensifying and the need for extra pain relief beyond what was available to women at home was the main reason for going to the hospital.

One primiparous describes her experience of not being able to manage the pains anymore and felt the need for professional help.

350: "The pain just became too much and I started to feel sick, physically sick like I was going to get sick when the contractions would come, it was too much I needed a little bit of intervention I think, for more reassurance for a midwife just to check you and kind of say you are at this stage or you know what I mean, a bit of a helping hand rather than from home someone who knows exactly what's happening and what's to come" (P).

Influencing people

Women mentioned a number of people who supported them during latent phase labour. These included; partners, mothers, mothers-in-law, children and siblings

304: "I was with my mum and my husband and my mum just wanted me in the hospital. So if it was up to me I would have hung on a bit longer, the pressure was on and mum was getting a bit nervous you know"(P).

MIDWIFERY SUPPORT

Advice from midwives prior to admission

Women felt calmly reassured by the fact that they could ring the hospital and felt empowered by collaborating with the decision of whether or not to go to hospital.

28: "I got up and was up out of bed and that I rang the hospital at that stage to warn them that I felt at that stage there was definitely something happening and that this was it and am…" (M).

Support from midwives in hospital and need for professional help

One primiparous woman felt that she had done as much as she could at home, and felt the need for professional support.

350: "The pain just became too much...I needed a little bit of intervention I think, for more reassurance for a midwife as like just to check you and kind of say you are at this stage or you know what I mean, a bit of a helping hand rather than from home, someone who knows exactly what's happening and what's to come" (P).

All the women interviewed got to the point where they felt they had done enough at home and wanted the reassurance of a midwife and the safety net of the hospital environment.

Trusting the midwives

Some women felt it was important to them to trust the midwives and not necessarily need to know everything, both before coming in to hospital and while in hospital.

331: "*I didn't freak myself out by reading lots of stuff and lots of stories and everything you know like. That's what worked for me." (P).*

Collaborative decision making

Most of the women interviewed mentioned the importance of being part of the decision making process, and not only from their point of view, but also important that their partners were part of the decision making process too.

Advice for midwives from women

Although most women were complimentary of the care and advice they received from midwives through their pregnancy, they felt that there were areas where delivery of care could be better.

One woman felt that there should have been more emphasis on the importance of eating in early labour. Her mother suggested she eat, but she did not take her mother's advice. Eating in early labour is important for energy sustenance later in the pregnancy. When asked if it was discussed in antenatal classes she said it had not been.

350: "No they didn't say anything like that on the day it was kind of more to tolerate the pains and what methods to deal with that rather than...when I went into hospital however the midwife offered me tea and toast and I was no, because I had just gotten sick" (P).

Midwifery Led Care

Many women recruited to the study chose midwifery led care, and were very satisfied with a midwifery led service.

341: "I have to say I was very happy with the service I really didn't think I could have a natural...well if you call gas and air natural. I didn't think I would be capable of having a natural childbirth. I thought when it came to it I would be the one screaming at the person get me an epidural (laugh" (P).

Doing things differently for future labours

The majority of the women who mentioned doing things differently were primiparous women. Much of their thoughts was based on not knowing previously and now having the benefit of having being through labour and knowing to a certain extent what to expect for the next labour.

Discussion

Mainly primiparous women attended antenatal classes. Preparation was also based on knowing what was available to them in terms of pain relief, when to phone the hospital, ways of coping with their pains at home prior to availability of stronger pain relief in hospital. One woman who was interviewed joked that her husband's job was to get the paracetamol. Fabian et al. (2005) found that the attendees of antenatal classes in their study used more non-pharmacological and pharmacological forms of pain relief during labour. Women felt that attendance at antenatal classes was helpful to some extent but no amount of preparation could have truly prepared them for the intensity of labour, which was a concept shared by Scottish women in Cheyne et al. (2007) who found classes of limited value until they experienced birth first-hand.

Other women prepared from the point of view of keeping themselves fit, healthy and active in the general sense or as a means of distraction in early labour. Some women were aware of the benefits of nutrition through the pregnancy but also staying fed and well hydrated in the earlier stages. Whether women were having their first child or had children before being prepared was very important to them. Their preparedness for some women was futile as the reality did not meet their expectations, particularly for women who were having their first child, but having a contingency plan and feeling empowered and been equipped with some knowledge reassured them. Fabian et al. (2005) found that 74% of first time mothers found antenatal preparation to be of benefit to them in helping to prepare them for childbirth.

Women scored midwives as listening to them, and reassuring them very high, as with Janssen and Desmarais (2013), which informs us that in general women are happy with the advice received by, and assurances given by, midwives in the early stages of labour. While it is true to say that mostly women were reassured during phone calls and when they were advised to go home in early labour they still felt that there were areas lacking. Women would have preferred face to face care rather than phone support and would have been more appreciative in some instances of receiving individualised advice as opposed to advice they perceived as text book.

Conclusion

While many women shared similar views, their experiences were inherently different, and how they approached and experienced labour whether it was their first baby or they had given birth before shows the uniqueness surrounding early labour and birth. It was apparent from the women that advice given in early labour was given on the basis of midwives trying to be helpful, trying to encourage the women to stay home most likely out of concern for them and in the knowledge that if women were in hospital too long in early labour medical and midwifery staff would feel somewhat compelled to interfere. Unfortunately the same fits all in terms of advice given i.e. have a bath; take Paracetamol does not meet the needs of every woman. Support people had an influence on their time at home and at times influenced their decision on when to go to the hospital.

Key phrases

Before labour and early labour - Women were mostly happy to stay at home while in early labour but would have liked the option of more one on one care.

Going to hospital – Many reasons other than pain influenced women to go to the hospital.

Midwifery support – While midwifery support was overall considered excellent some women felt that midwifes gave text book answers to their queries rather than individualise their responses.

Doing things differently for future pregnancies – Most women felt that they were quite well prepared nothing other than experience could prepare them for labour and the birth and many would do things differently in the future.

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Conflict of interest

There was no conflict of interest. The researcher was not delivering care to any women in this study. Nor was there and financial or any other benefits for the researcher undertaking this study.

Ethical approval

Ethical approval was sought and obtained prior to commencement of the study. The ethical committee responsible for the Health Service Executive North East (HSE NE) is, 'HSE North Eastern Area Research Ethics Committee'.

Informed consent

Written Informed consent was obtained in the antenatal stages.