**THE INTEGRATED NEUROPHYSIOLOGY OF EMOTIONS
DURING LABOUR AND BIRTH:**

A feminist standpoint exploration
of the women's perspectives of labour progress

By

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Abstract

Within childbirth there is a common and widely known explanation of labour and birth which describes and defines the birth process as that of stages and phases. The boundaries between the stages and phases have been determined by cervical dilatation with time parameters set to measure progress. The measurement of cervical dilatation is determined by a health professional and has resulted in an apparent inability of women to determine themselves whether they are in labour and their closeness to the impending birth.

The aims of this thesis were threefold; the first was to critically examine the knowledge base of labour progress, so that the influences on knowledge development were fully understood. Through exploring the historical and theoretical development I found that the current knowledge has come from a male understanding of female anatomy and observational data constructed within a discourse of male, medical, scientific superiority. The second aim of the thesis was to explore the perspectives of women who had experienced a spontaneous labour and birth in order to determine whether the discourse of labour as stages and phases resonated with them. This leads to the third aim of providing a description of the women's voices and perspectives based on their experiential knowledge of spontaneous labour and birth.

A critical feminist ontology and feminist standpoint methodology guided the research which used in-depth one-to-one interviews with 18 women who had experienced a spontaneous labour and birth. Early thematic analysis was developed further through feedback from the participants supporting a co-construction of knowledge.

Analysis revealed that women considered the stages and phases of labour to be an abstract concept which did not resonate with their experiences of labour and birth. An important aspect of labour was having support during the process, in terms of both emotional and physical support from midwives, partners, family and friends present during the labour and birth.

Women's perceptions were dominated by their feelings and a linear pattern of feelings was discerned consistently amongst the participants. The emotions of labour were an important finding in this research but during the feedback process the women requested a scientific foundation to support the findings. I therefore explored the recent advances in theoretical understanding of the role of emotion, cognition, physiology and behaviour. Contemporary theories define emotions and neurohormones as bi-directional and intricately linked to behaviour change and physiological adaptations. I argue that the feelings women have described give an indication of an underlying hormonal influence and a directing of behaviour, necessary for labour to move towards birth. The hormones involved in labour also support maternal behaviour and attachment to the baby. I suggest a new conceptual understanding of labour as the integration of the mind, body and behaviour in which the feelings and hormones that initiate and sustain labour to birth also support the necessary adaptation and transition to becoming a mother. This integrated neurophysiologic concept will help midwives and other health professionals involved in maternity to recognise emotions as a key to understanding physiological labour and birth. It has also highlighted the importance of emotional and physical support during labour. Further research is necessary to test the hypothesis that women experience a similar range of emotions at similar times during a spontaneous labour and birth and to what extent the described emotions resonate with other women's experiences.

Key words: Stages and phases of labour; labour progress; feminist standpoint research; emotions; physiology; behaviour; neuro-endocrines; neurophysiology.

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Chapter one

A common understanding of labour and birth

Introduction

This thesis explores women's experience and knowledge of the transition from the end of pregnancy to the birth of the baby; as such it explores the woman's understanding of labour as it moves towards birth. I argue that the current understanding of labour is based on a theoretical concept which has been developed by men and relies on time parameters and cervical dilatation measurement to determine normality. Determining normality in this way provides an opportunity to also define abnormality or pathology and when time parameters are unmet there is justification for naming the labour as pathological. Pathology requires medical intervention which in turn can lead to increased levels of operative birth and corresponding morbidity. Internationally, there is evidence of increasing rates of intervention with labour and birth becoming more medicalised in many societies (Declercq, Young, Cabral & Ecker 2011; Holmes, Oppenheimer, & Wu Wen, 2001). Increasing levels of intervention cause dissonance for women giving birth with women reporting less satisfaction with their birth experiences (Beech & Phipps, 2004).

Furthermore I argue that the current explanation of labour marginalises the woman's knowledge of herself and her body and privileges the health professional's knowledge over that of the woman. Giving birth is a uniquely female experience yet the current explanation of labour progress with its emphasis on cervical measurement results in many women not being able to discern whether they are in labour or how close to birth they are (Spiby & Green, 2009). This results in early hospital admissions and increased anxiety for women at this time (Cheyne, Terry, et al., 2007). My argument is that there is a need to explore the woman's understanding and knowledge of labour progress and construct an understanding of how labour progresses which incorporates women's voices, understanding and experiences. Developing a knowledge base which privileges women's voices and resonates with women

who have experienced labour and birth will enable women to define labour for themselves.

It may also support challenges to the medical hegemony which currently defines labour progress to birth. Therefore, this thesis examines the current knowledge and theories of labour progress and explores women's knowledge, experiences and perspectives using a critical feminist enquiry approach. It develops an understanding which privileges women's voices and may resonate with women who have experienced labour and support them to understand their labour in a more integrated way.

This first chapter explores how women access information about labour and birth and sets out some of the information that is currently readily available. This provides current explanations and understanding about how labour progresses to birth. It demonstrates that there is a common understanding of labour which is easy to access and which incorporates three stages of labour and different phases during these stages. This understanding sets boundaries and time parameters for each stage or phase as a measure of normality and enables health professionals to define abnormal labour thus justifying intervention. I also reveal who I am and why I am interested in this topic. This chapter addresses the significance of the study and establishes why this is an issue that requires systematic and rigorous investigation.

Why is this issue important to me?

I am a woman who has given birth and a midwife working with women during labour and birth. I have worked as a midwife in the United Kingdom, Germany and New Zealand and whilst there are cultural and philosophical differences in each country the expectations around labour and progress are the same. As a midwife if a woman's labour becomes abnormal I am required to refer to an obstetrician; however, the definitions of abnormal progress have been set by obstetricians, resulting in many differences of opinion between midwives and obstetricians (Dixon, 2005). These differences reflect the philosophical paradigms from which we work and are caused by differing interpretations of progress as well as differing measurements of cervical dilatation. Working as a midwife in New Zealand I strive to provide care that fits within a partnership philosophy, in which pregnancy and childbirth are seen as normal life events

with midwives able to provide continuity of midwifery care (Guilliland & Pairman, 2010). In this partnership model of care the woman and the midwife are each acknowledged for the expertise that they bring to the relationship.

“The midwife for her midwifery intuition, scientific knowledge and experience: the woman for her intuition, intrinsic wisdom, self knowledge and experience” (p. 42). I work with women to support them during what is essentially a physiological process, and in my role I frequently need to be an advocate for the woman. This requires a fine balance between keeping interventions to a minimum, knowing when there is true pathology (and therefore a need to refer to an obstetrician), and trying to ensure each woman has a positive birth experience. As such I need to know that any arguments I make regarding the length and progress of labour are ones that support women to maintain normality and the ability to maintain control over their own body.

At the start of this thesis journey I intended to explore women’s perceptions of the vaginal examination during labour as a means of building on the knowledge gained from my previous Masters research project (Dixon, 2005). In that project I had explored the factors that influenced six New Zealand midwives in their use of vaginal examinations. I discovered that frequently the midwife negotiated with women about the use of vaginal examination to assess progress in labour. These midwives explained that they used a vaginal examination to build a picture of the labour whilst trying to keep the number of vaginal examinations to a minimum. At the same time they also had to negotiate around the expectations of medical colleagues when care was in a hospital environment. They discussed the need for negotiation with the beliefs of the woman because each individual woman had her own expectations around the use of the vaginal examination, with some women expecting and requesting it. The midwives suggested that this was because these women wanted to ‘know’ where they were in labour and what was happening to their bodies. As I considered how to explore the woman’s perceptions and understanding of the vaginal examination I realised that there is a dominant discourse around labour progress which is strongly influenced by the passing of time and increasing cervical dilatation as a measurement for progress. It is not surprising that women want to know ‘where’ they are in labour and whether they ‘fit’ into one of the phases or stages of labour when all the information they are able to access describes the importance of timing and cervical dilatation. I believe that the current emphasis on stages, phases, time

and cervical dilatation is reductionist in that it limits our understanding of labour progress so that we look at the physical measurement of cervical dilatation and time passing as the only conceptual understanding of labour. This way of understanding labour undermines the woman's knowledge and understanding of her own body. During my work as a midwife, I have frequently seen women labouring confidently, who are unconcerned about cervical dilatation and who appear to know that labour is moving towards birth. How do they know? What signals are being given to them by their body? Is time important to them during labour? Then I considered my own birth experience.

Twenty four years ago I gave birth to my daughter. At the time I was a newly qualified midwife and knew very little about childbirth (although probably more than the average woman). During my labour I remember saying to my friend (a midwife colleague providing my midwifery care) that I did not need continuous fetal monitoring because I knew my baby was fine and I would be giving birth soon. She had been concerned because the fetal heart baseline rate was on the low side of normal and she had been advised by midwifery colleagues that the heart rate should be continuously monitored. Strong contractions had only started about four hours earlier and as a first time mother it was expected that my labour would take a lot longer. She listened to me and an hour later I started pushing and gave birth to a healthy daughter. This was my first real insight into my developing understanding that during childbirth women often have an embodied knowledge – of course I could not articulate it in that way at the time, I just had a feeling and 'knew' that it would not be long until my baby was born. On reflection I did not know whether this was related to my existing midwifery knowledge or signals that I was listening to from my own body.

When considering the topic for this thesis, I realised that the current understanding and theory of labour as it progresses towards birth has been based on research undertaken by men based on observation of women, and therefore is lacking any experiential input from women who have experienced labour and birth (Friedman, 1954). Women who have experienced labour and birth may have a different understanding and knowledge of labour as it moves towards birth. There is a need to explore the experience of labour and birth from the woman's perspective.

This thesis aims to construct an understanding of labour and birth which incorporates the woman's knowledge, understanding and experience.

Establishing what is commonly known

I began this process by examining the kinds of knowledge and information about labour and birth that are available to childbearing women and their families. This knowledge may be used by women as a way of framing their understanding of labour and birth. It was therefore important to consider what information women can commonly access and review the descriptions of labour and birth provided by these information sources.

The information available from easy to access sources can provide a way of identifying what is commonly known and therefore can be considered 'common knowledge'. In this sense common knowledge is defined as widespread or general knowledge that can be found frequently and consistently (Allen, 2000). Godden (2008) contends that common knowledge is a 'body of broadly accepted and generally acceptable knowledge' (p. 104). I am labelling the current understanding of labour as it progresses towards birth as common knowledge because (as I will demonstrate) it is consistently stated in childbirth preparation books and websites available on the internet, targeting pregnant women and their families. These are sources of knowledge/information portals which are easily and readily accessible to a large proportion of the population. This information then is *broadly accepted* and appears to be *generally acceptable* as the way of understanding labour and birth. In support of this point I have reviewed a selection of internet sites and childbirth preparation books as a way of demonstrating the commonality of the information that can be accessed by women and their families. In this way I establish that the information provided to women is easy to access and provides this information as 'common knowledge' and therefore the dominant understanding of labour and birth.

Accessing information about labour and progress to birth

When a woman first becomes pregnant she usually wants to find out as much as possible about pregnancy, labour, birth and motherhood.

This need for information extends to the woman's partner and other family members (McElligott, 2001). Women seek information in a variety of ways. A recent study examining where women look for information about childbirth in the United States of America (USA) found that the majority of first time mothers primarily obtained information from books (33%), friends and relatives (19%), the internet (14%), or from health professionals (14%) (Declercq, Sakala, Corry, & Applebaum, 2006). Women who had previously given birth relied mostly (48%) on their own previous experiences as the primary source of information. Regardless of previous birth experience, 76% of women reported accessing information from the internet at some time during their pregnancy.

What should I review?

As a way of establishing what information is easy to get hold of and readily available to women I reviewed information sources that I considered any pregnant woman could access and which provided descriptions of labour. I located childbirth preparation books from my local library and sourced information available from internet sites. In total I have reviewed 12 childbirth books and 10 internet sites. This overview was not intended to be an in-depth critique of these information sources but to demonstrate that there is a prevailing view of labour progress which is commonly found and easily accessible. It is being consistently provided to women – and as such it can be described as commonly known. In the next section I present a review of the online sources of information about labour and birth and describe the information provided.

Internet sources

In New Zealand 83% of the population use the internet compared to 80% in Australia, 53% in Europe and 76.2% in North America (Internet World Statistics, 2009). Anyone can develop a website and the authors are not always easy to find, although clues about who has developed the website can be gained from the web address (Roberts, 2010). With the ability to access websites from all over the world, women are more likely to find information from other countries.

These information sources provide an international perspective and may be strongly influenced by each country's culture and prevailing attitudes towards women and birth.

Websites are created for a variety of reasons, some for commercial purposes, some educational and others for personal or organisational requirements; as such they will be representative of the aims, opinions and views of the organisation and authors (Roberts, 2010). As a way of finding out what information is available to women via the internet I looked at 10 websites. Using the search terms "labour and birth what to expect" in the 'google' search engine returned 11,200,000 results. This was a lot more than I expected and demonstrates the amount of information available on the internet. I decided to explore the first ten sites that appeared on the search page. I reasoned that women would only go to the first page from a search engine site when there were so many options to choose and would refine their search depending on their results. I analysed these first ten sites in more detail.

As indicated in table one, the country of origin of accessed sites includes the United States of America (USA), the United Kingdom (UK), New Zealand (NZ) and Australia. Six were commercial sites selling baby products or childbirth preparation/parenting books (Baby Center; Emma's Diary; Family Resource.com; ivillage; Kiwi Families; What to expect), one was a charitable organisation (March of Dimes), one had been set up to provide information about women's health in the UK (Women's Health.co.uk.), and two had been set up by government organisations to provide information related to healthcare (NHS Choices; Government of Western Australia).

Table 1. *Websites analysed*

No	Website	Country	Authors	Type of website & address
1	March of Dimes	USA	American Charitable Foundation	Charity – can make donations http://www.marchofdimes.com/pnhec/240_1034.asp
2	Emma's Diary	UK	Babycare Tens & Royal College of General Practitioners	Commercial – information and baby care products & diary from conception to birth http://www.emmasdiary.co.uk/pregnancy/other_useful_pregnancy_info/article/Labour_and_birth
3	Kiwi Families for passionate parents	NZ	Online magazine	Commercial – sells childbirth preparation books http://www.kiwifamilies.co.nz/Topics/Birth.html
4	Women's Health.Co.UK	UK	Team of writers	Women's health information – medical focus http://www.womens-health.co.uk/labour.html
5	Ivillage	USA	NBC universal	Commercial site – chat rooms magazine style feel http://www.ivillage.com/parenting/search?q=Stages+of+labour
6	Baby center	USA	Not clear	Commercial site – chat rooms and blogs http://www.babycenter.com/stages-of-labor
7	Family resource.com	USA	Julie Fletcher	Commercial – links to formula feeding adverts http://www.familyresource.com/pregnancy/concerns-and-expectations/what-to-expect-during-labor-labour-delivery
8	What to expect	USA	Foundation	Commercial site selling childbirth preparation books and cord blood banking http://www.whattoexpect.com/pregnancy/labor-and-delivery/landing.aspx
9	NHS Choices	UK	National Health Service	Health information site http://www.nhs.uk/Planners/pregnancyca-replanner/Pages/Labourandbirthhome.aspx
10	Government of Western Australia – Women and Newborn Health Service	Australia	Western Australia Department of Health	Health information site http://www.kemh.health.wa.gov.au/services/midwifery/faq/labour.htm

Website labour descriptions

The majority of these sites described labour as having three stages although one described four stages which included early postnatal care (Government of Australia, www.kemh.health.wa.gov.au Retrieved 7/7/2010).

Each of the sites described contractions as an indicator of the start of labour and the need for the cervix to dilate to 10 centimetres during the first stage of labour.

Generally, second stage was described as the birth of the baby and the third stage the birth of the placenta. Most of the websites described labour as having three stages and described the length, strength and frequency of the contractions during the first stage. One website used the terms true and false labour (Baby Center, www.babycenter.com Retrieved 7/7/2010) and explained the difficulty for the woman 'knowing' when true labour started. Three of the websites described the phases of the first stage of labour in detail (ivillage, <http://www.womens-health.co.uk> Retrieved 7/7/2010; What to expect, <http://www.whattoexpect.com> Retrieved 7/7/2010; Women's Health.co.uk. <http://www.womens-health.co.uk> Retrieved 7/7/2010).

The Women's Health information website described the stages and phases of labour in the following way:

First Stage

The first stage refers to when your cervix begins to dilate and you begin to have contractions that gradually get closer and stronger.

This stage is again divided into three phases:

Latent phase - *The very early period when your contractions just begin and you feel slight discomfort. The cervix dilates to around 3cm to 4cm.*

Active phase - *This is the time when labour contractions are much more regular and come in intervals of 3 or 4 minutes. The cervix may dilate to about 6cm or 7cm and you may find it a little more difficult to talk or relax.*

Transition phase - *The contractions become more intense and painful. The cervix dilates to around 10cm.*

Second Stage

This is the more active phase of labour when you will be actually delivering your baby.

Third Stage

Once the baby is delivered, the uterus shrinks in size and the placenta separates from the uterine wall. (Women's Health.co.uk.

<http://www.womens-health.co.uk>. Retrieved 7/7/2010)

The other two websites that described phases of labour followed this description fairly closely. These descriptions explained the phases of the first stage of labour in relation to the frequency and length of contractions and cervical dilatation.

There was one exception to the general agreement amongst the websites about stages and phases of labour. This was from an American website which described labour as having three stages divided into separate sections starting with early labour which was cervical dilatation to 3 centimetres, then the second stage was described as the active stage when the cervix dilates to 7 centimetres followed by the transition period (from 7 to 10 centimetres) and the birth itself (FamilyResource.com <http://www.familyresource.com/pregnancy/concerns-and-expectations/what-to-expect-during-labor-labour-delivery> Retrieved 7/7/2010).

This description of labour is at odds with the others and mixes the phases of labour with the first and second stages of labour. It is therefore not surprising that women can become confused as to what constitutes labour and how they can discern what is happening to them during labour.

The importance of time

Many of the websites gave advice on what to do and how the woman may feel at each stage or phase of labour, along with a time estimation of how long labour or each stage/phase of labour would last. This time varied between four to eight hours of active labour to 12 to 16 hours total labour. There was also an emphasis on the frequency of contractions and the length of each contraction.

Each website discussed the dilating cervix as the main way of knowing what stage or phase of labour the woman was in, as this quote from one of the American commercial websites explains.

During the middle or active phase of first stage labor, the cervix dilates at an accelerated rate to about seven centimeters. Active phase usually lasts around three hours. (ivillage website, <http://parenting.ivillage.com/pregnancy/plabor>. Retrieved 7/7/2010)

The website continued by discussing the transition stage as being approximately two hours in length for the cervix to dilate to 10 cms. Many of the websites discussed the difficulty of differentiating between the stages and phases of labour as the next quote from another commercial website demonstrates.

Once your contractions are coming at relatively regular intervals and your cervix begins to progressively dilate and efface, you're officially in early labor. But unless your labor starts suddenly and you go from no contractions to fairly regular contractions right away, it can be tricky to determine exactly when true labor starts (Babycenter website, http://www.babycenter.com/0_the-stages-of-labor_177.bc).

Women are advised to contact their health care provider to discuss the optimal time to go to hospital as shown by the next quote from an Australian government website.

It is important to contact your midwife or health care provider to discuss when to come to hospital or any concerns you may have. (Western Australia Government website, <http://www.kemh.health.wa.gov.au/services/midwifery/faq/labour.htm>. Retrieved 7/7/2010)

Women were also told by several of the websites to stay at home when in early labour with the UK government website suggesting that if the woman goes to hospital before labour is established she may be sent home again rather than 'spending extra hours in hospital'. (NHS choices website, <http://www.nhs.uk/Planners/pregnancyareplanner/Pages/Labourandbirthhome.aspx>. Retrieved 7/7/2010).

In summary the websites advised women of three stages and a further three phases of labour and gave time parameters for each stage or phase. Differences were found between websites as to how the three stages and phases of labour were described and labelled (e.g. early labour or latent phase). Time parameters were given for each stage or phase, but these time parameters differed on each website. The boundaries for each phase and stage were defined by cervical dilatation which again differed between websites. The passing of time and time limits for each stage appeared to be an important marker of labour. This review of internet sites has found that there is a consistent concept of labour as stages and phases but differences in descriptions which appear to be dependent on the country of origin and the authors of the website.

Childbirth preparation books

Whether books or the internet are used to access information these sources construct discourses around labour and birth which can be influential in how women perceive childbirth (Kennedy, Nadini, McLeod-Waldo, & Ennis, 2009). Kennedy et al. (2009) found that childbirth book styles in the USA varied between clinical descriptions to humorous commentary but that scientific evidence was often lacking or at times inaccurate. Certain comments and evidence led them to believe that many of the popular childbirth books do not support labour and birth as a physiologically normal process and that “most books will be founded on deep philosophical beliefs, including the discourses of medicine and midwifery” (p. 324). They argue that the information provided within some childbirth books may be one of the causative factors in the increasing levels of intervention and use of technology during labour and birth. This is possibly due to an emphasis on pain during labour leading to increased fear and the normalisation of many interventions. They continue that women and health professionals should be aware of the underlying messages within information sources as they may be influential in the decisions and choices women make during labour and birth.

In order to investigate the information that women can access from childbirth preparation books I examined books which I was able to access from my local library, as a pregnant woman would be likely to do. Whilst some women may buy a book there is an extensive range of books that can be purchased and a variety of prices, so selecting which book(s) to buy can be problematic. A less costly option is to go to the local library and borrow books thus allowing access to a wider range at little or no cost.

I therefore went to my local town library (Rangiora, New Zealand) and located a wide range of childbirth preparation books – some looking at particular aspects of pregnancy (fertility, nutrition) or parenting (toddlers, teenagers). I picked out eight books which described themselves as guides for pregnancy and labour with dates ranging from 1993 to 2005. I already had four books which I had previously purchased from the internet but which are also available in retail outlets in New Zealand. I included these so as to provide an expanded number of books to review. I was therefore able to assess the information about labour and birth for a total of 12 books (Table 2).

Table 2. *Childbirth preparation books reviewed*

No	Title	Country	Authors	Date published
1	Childbirth choices	NZ	The complete book of pregnancy and baby care (Readers Digest)	1993
2	The complete book of pregnancy and baby care (Readers Digest)	Australia	Mackonochie, A., Waters, A., Fraser, P.M. Australian midwives	1996
3	The new pregnancy and childbirth	UK	Shiela Kitzinger (anthropologist and childbirth educator)	1997
4	Up the duff: a real guide to pregnancy	Australia	Kaz Cooke, journalist	1999
5	The complete idiots guide to pregnancy and childbirth	USA	Gliksman, M., Di Eronimo, T. Medical doctors	1999
6	Pregnancy the inside guide: A complete guide to fertility, pregnancy and labour	UK	Professor Ian Greer (Obstetrician)	2003
7	Going it alone: A single woman's guide to pregnancy and birth	NZ & Australia	Mirusch, N., Johns, G. Journalists, both single women	2003
8	(NCT) Pregnancy for parents by parents: The essential guide from conception to birth from the National Childbirth Trust	UK	Editor Metland, D. Five other authors who are antenatal teachers and members of NCT and one practising midwife	2004
9	Your pregnancy week by week: What to expect from conception to birth	UK	Lesley Regan Professor of Obstetrics and Gynaecology	2005
10	Oh baby... birth, babies and motherhood uncensored	NZ	Kathy Fray Mother who also has a sleep product and provides sleep advice	2005
11	Birth: The surprising history of how we are born	USA	Tina Cassidy Journalist	2006
12	The New Zealand pregnancy book; A guide to pregnancy, birth and a baby's first three months (3 rd edition)	NZ	Sue Pullon (GP) Cheryl Benn (midwife)	2008

Who has written these books?

The authors and country of origin varied although all were English speaking. The books were published in one of four countries with the authors also from these countries –New Zealand, Australia, United Kingdom and America. Many of the books were written by health professionals such as obstetricians or general practitioners (Gliksman & Di Geronimo, 1999; Greer, 2003; Pullon & Benn, 2008; Regan, 2005), midwives (Mackonochie, Waters, & Fraser, 1996), childbirth educators (antenatal teachers) (Kitzinger, 1997a; Metland, 2004), and psychologists (Bennett, Etherington, & Houson, 1993). There were four books written by women (mostly journalists) who had given birth (Cassidy, 2006; Cooke, 1999; Fray, 2005; Mirusch & Johns, 2003).

What do they say about labour and birth

There were descriptions of stages and phases of labour in birth in all but one of the books. This book – Birth: The surprising history of how we are born - examined the history of childbirth in America and did not provide advice or information aimed at helping women understand and prepare for labour and birth (Cassidy, 2006). I therefore examined the descriptions of stages and phases of labour in the remaining 11 books. These all provided descriptions of labour as three stages– first, second and third stage, with two also including a fourth stage which was described as a time of stabilisation and bonding with the baby following the birth (Bennett, et al., 1993; Cooke, 1999). Each book also described phases within the stages of the first and sometimes the second stage of labour.

Phases within the first stage were described variously as:

- pre-labour or false labour,
- early first stage (also described as the latent phase in some books),
- active first stage
- transition phase

Second stage was described as pushing, crowning and the birth of the baby although one book also described a latent and active phase in the second stage and prior to the birth (Bennett, et al., 1993). The third stage was generally described as the delivery/expulsion of the placenta with descriptions of the placenta itself.

There were similarities and differences in how labour was described but the most commonly stated description was of the three stages, followed by various descriptions of differently described phases within the stages. One book provided a very different description of the stages by explaining that stage one labour was from ‘the first twinge of a contraction’ and could include a show or the waters breaking (Gliksman & Di Geronimo, 1999). It suggested that *The early stage of labor ends when the contractions are about five minutes apart for an hour.* (p. 274). These authors explained stage two labour as active labour (encompassing the pushing stage) to the birth. The majority of the books discussed contractions, time measurement and cervical dilatation in detail within the stages and phases.

Contractions

The onset of labour was described in a variety of ways with explanations of differences between women but generally included signs such as a show, the waters breaking or contractions. Women were told that it is difficult for them to know whether they are experiencing real labour or pre labour contractions as the differences are difficult to detect with some contractions labelled as false labour (Cooke, 1999; Gliksman & Di Geronimo, 1999; Greer, 2003). Contractions were described in detail with an emphasis on the frequency (every 15, 10, 5, 3 or 2 minutes) and the length of the contractions (lasting less than 60 seconds or between 60 and 90 seconds).

Time measurement and dilatation

Time was a significant issue with the books describing how long each stage or phase would take with details of the length of each stage/phase in hours or minutes as a guide for the women. As with the websites the description of expected times for each stage or phase varied from book to book. Early labour was described variously as taking weeks, days or hours.

Each book clearly described how many centimetres the cervix would be dilated and related that to a stage/phase of labour, however, there were differences between books as to the dilatation for each phase. Some described pre labour and the latent phase as a time when the cervix would dilate to 3, 4 or 5 cms, and active labour was most commonly described as when the cervix was dilated more than 3 cm or sometimes more than 4 cms. Transition was most commonly described as when the cervix was between 7 and 9 cms dilated.

In summary, this assessment of the childbirth preparation books has demonstrated a common understanding of labour as having three stages with disparity in the definitions of the phases within the first and second stages of labour. There were differences in the explanations about time and how long each stage/phase would last, and there were also differences between the description of cervical dilatation expected for the stage/phase and the frequency of contractions for each phase/stage. It is likely that these differences are due to the differing philosophies of the authors and their understanding of the labour and birth process. They may also have been influenced by the cultural expectations around birth within the country of origin.

This section has provided an overview of the information and advice that is being provided to women from internet sites and childbirth preparation books. It has demonstrated that there is a common description of labour which includes three stages and various phases along with time parameters for each stage or phase. There is an emphasis throughout on cervical dilatation as the boundary marker of labour progress from one stage or phase to the next. I argue therefore that this is evidence of a common knowledge because whilst there are differences in the descriptions between the stages and phases of labour, there is a common concept that underpins each description. Labour is compartmentalised into stages and phases with measurement of time and cervical dilatation seen as a necessary requirement to aid understanding. This common understanding is evidence of a dominant discourse or dominant meaning system. Minnich (2005) contends that dominant meaning systems represent knowledge which serves the dominant groups within society. Within the field of childbirth it is argued that obstetric knowledge is a dominant discourse supported by medical hegemony (Bates, 2004; Papps & Olssen, 1997).

The next section will explore the current medical obstetric and midwifery understanding of labour and birth. It seeks to demonstrate that the common understanding of labour as stages and phases has been based on the discourses found within the professional groups considered to have expert knowledge of childbirth, namely obstetricians and midwives. There are a multitude of textbooks and research papers written about labour and birth, many of which are explored more fully in Chapter Three. However, as a means of providing an overview of the health professional discourses I have explored the obstetric and midwifery discourses as found in professional guidelines for clinical practice.

Guidelines for practice

The World Health Organisation has developed evidence based recommendations and guidance for health professionals to support them in clinical decision making when providing labour care (World Health Organisation, United Nations Population Fund, UNICEF & World Bank, 2006). Clinicians are advised that when a woman presents in labour they need to decide on which stage of labour the woman is in.

They classify labour as:

- Cervical dilatation 0 – 3 cm with weak contractions less than two in ten minutes – not yet in active labour
- Cervical dilation of 4 cms or more – early active labour
- Cervical dilatation of 5 cms or more (primigravida) or 6 cms or more (multigravida) – late active labour
- Full dilatation or bulging thin perineum, vagina gaping, head visible – second stage and imminent birth (World Health Organisation et al., 2006, p. D3)

In this guideline, labour is defined by the degree of cervical dilatation and then a labour stage is allocated based on this definition. An emphasis on the need to undertake four hourly vaginal examinations to assess cervical dilatation is provided along with the need to identify obstructed labour, described as a labour of more than 24 hours in length.

Obstetricians in Australia and New Zealand are guided by their professional organisation's guidelines (Royal Australian and New Zealand College of Obstetricians & Gynaecologists, RANZCOG). These guidelines advise that each hospital should have a regimen of observations to record labour progress which includes regular cervical measurement by vaginal examination. They continue that care should be individualised between the patient and her carer but that any slow cervical dilatation (cervical dilatation slower than 1 cm per hour) should be corrected with an oxytocin infusion (RANZCOG, 2010).

The National Collaborating Centre for Women's and Children's Health provides guidelines for intrapartum care for health professionals (both midwives and obstetricians) in the UK (NICE, 2007). This extensive document suggests that labour is a continuous process which for convenience is divided into stages so that definitions can be provided to ensure that women and the staff caring for them can have a shared understanding of the concept. They define the latent first stage of labour as when there are painful contractions and some cervical change with dilatation up to 4 cm, whilst active first stage of labour includes regular painful contractions and progressive dilatation from 4 cm onwards. They provide time limits for the duration of each stage of labour and advise four hourly vaginal examinations of the cervix to assess labour progress.

They state that:

In considering 'normal' labour, it is important to define the boundaries that distinguish what is normal from what is abnormal. These limits can then be used to inform women and their carers about what to expect, and when it is appropriate for midwives to refer women for an obstetric opinion (NICE, 2007, p. 139).

The NICE (2007) guideline argues that the stages and phases of labour are defined as concepts only and as a way of ensuring a shared understanding of labour. However they emphasise the need to identify labour progress by measurement of the cervical dilatation (every four hours) so as to be able to identify a prolonged or abnormal (pathological) labour.

As midwifery discourses are provided by the midwifery professional organisations I looked at guidelines for midwives developed by the Royal College of Midwives (UK) and the New Zealand College of Midwives (NZCOM). The Royal College of Midwives have a practice guideline to define the latent phase of labour. It uses the NICE (2007) definitions of active and latent phase and suggests that a mistaken diagnosis of labour can lead to a diagnosis of prolonged labour (dystocia) and increased interventions (Royal College of Midwives, 2008). They continue that good education about the latent phase could help women to understand and reassure them about the normality of this phase which they describe as being 'particularly difficult to measure' (p. 2). Contrast this to the New Zealand College of Midwives which do not describe stages or phases of labour but instead present decision points (New Zealand College Of Midwives, 2008). These are described as 'times when there ought to be a midwifery assessment' (p. 23).

They suggest these should be:

- When the woman or her support person first lets the midwife know she is in labour
- When the woman wants intermittent support from the midwife
- When the woman wants continuous support from a midwife.

The NZCOM guidelines advise midwives to work with women to ensure that the woman has midwifery care at the times that she wants it.

They would appear to support the woman to make the decision by acknowledging the woman's knowledge and role in decision making during labour.

In summary then the stages and phases of labour found in the majority of professional guidelines for clinicians are similar to those provided in childbirth books and on websites for women. They define the labour stage or phase by cervical measurement. However, each information source provides a slightly different definition for each stage, suggesting a lack of consistency which may cause confusion for both the women and health professionals. Despite this, regular measurement of cervical dilatation is consistently advised along with accepted levels of progress (1 cm an hour) so that pathology can be more easily identified. It would appear that the majority of information provided to women within the popular media (internet, books) has been influenced by and may be attributed to these discourses.

So what's the problem?

The current knowledge and understanding of labour and progress to birth is based on clinical markers such as time elapsed since the onset of contractions and cervical dilatation. The disparity in definitions of the individual phases suggests a lack of consensus and increases confusion for women. By placing emphasis on cervical dilatation and time as the most important markers of labour progress women are less able to understand what is happening during labour and also less able to monitor and understand their own labour as it moves towards birth. Indeed some authors suggest that it is difficult for women to 'know' whether they are even in labour thus ignoring the women's experiential or intuitive knowledge (Cooke, 1999; Greer, 2003). Women are left with questions as to whether they are in labour, what stage or phase of labour they are in, what they should be doing and how they will know when it is time to go to hospital (Spiby & Green, 2009). With each stage or phase of labour being determined by measurement of cervical dilatation (by the health professional) the woman's own judgment and experiential knowledge of labour is undermined. Generally women are not expected to measure their own cervical dilatation, and yet all of the sources of information about the stages and phases of labour that women can access use cervical measurement as the marker for

defining the stage/phase. Therefore, the only way a woman can know what stage or phase of labour she is in has to be determined by the health professional following an assessment of the cervix. This way of assessing labour progress privileges the health professional's knowledge over that of the woman's knowledge of her body and her labour (Nolan, 2001). It is therefore not surprising that women are requesting vaginal examinations to find out 'where' they are within their labour when all of the discourses about labour suggest that this is the only way of 'knowing' (Dixon, 2005).

For the majority of women the onset of labour is a concrete event and generally defined by the experience of contractions but clinicians and researchers consider this too subjective and other measures are used to determine labour onset and progress, such as time of admission to hospital (Gross, Haunschild, Stoexen, Methner, & Guenter, 2003). Hospital admission in what is considered to be early labour is associated with increased interventions (Declercq et al., 2011; Hemminki & Simukka, 1986; Holmes, Oppenheimer, & Wu Wen, 2001) as well as increased levels of anxiety for women (Barnett, Hundley, Cheyne, & Kane, 2008; Cheyne, Terry, et al., 2007; Walsh, 2009). Early hospital admission in many countries also has an impact on hospital resources with women in the early part of labour (also known as the latent phase) taking resources away from others and increasing the pressure on staffing within the maternity hospital (Spiby & Green, 2009).

Setting boundaries for labour progress

The separation into the various phases for the first stage would appear to be arbitrary with differing labels and definitions depending on the country, the health professional and the guidelines being used. NICE (2007) describe the phases of labour as a concept provided to aid understanding, however, it would appear that the opposite is true with differing definitions of phases potentially increasing confusion. Attempts to standardise the diagnosis of active labour by means of an algorithm for midwives to use when assessing women admitted to hospital in labour have not resulted in a better understanding for women or clinicians and has not reduced intervention during labour (Cheyne, et al., 2008). It seems that both clinicians and women have difficulties in defining the differences between early labour and active labour which is exacerbated for women experiencing their first labour and birth (Cheyne, Dowding, et al., 2007).

The need to differentiate the boundaries between each stage and phase of labour is driven by professional and organisational requirements. With up to 30% of women admitted to labour wards in the UK not in labour, there is an impact on the resources for those hospitals (Cheyne, Dowding, & Hundley, 2006). Therefore, there is an organisational requirement to separate the latent phase from the active phase so that resources can be prioritised for women who can be defined as 'in labour'. There is an assumption being made that women who are defined as 'not in labour' do not require hospital midwifery care and they are sent home (Barnett, et al., 2008; Cheyne, Terry, et al., 2007). However, in many cases there is no midwifery care or support provided at home. For obstetricians there is a need to define when normal labour has become abnormal (and diagnosed as dystocia) and requires obstetric input and intervention (NICE, 2007; RANZCOG, 2010). The beginning of labour is poorly understood and difficult to define with the onset defined by the woman and therefore considered to be an unreliable marker for clinicians and researchers (Greulich & Tarrant, 2007). When women are admitted to hospital at this time there is a risk of increased intervention but if sent home women may become anxious and concerned that something may be wrong. This suggests that the current descriptions marginalise the woman's knowledge of labour onset and do not support her to understand her labour and identify that it is moving towards the birth of the baby.

Measuring progress

Once active labour has been diagnosed (with cervical measurement) by the health professionals, the woman is expected to meet time parameters during labour and if/when they are not met, then the labour is labelled as abnormal and prolonged (Nystedt, Hogberg, & Lundman, 2006). These time parameters were set by obstetricians in the 1950s and 1960s following statistical analysis of women's labours and based on their interpretation of the labour from admission to hospital (Friedman, 1954; Philpott & Castle, 1972; Studd & Duiagnan, 1972). The development of this knowledge base will be explored more fully in Chapter Three.

The time parameters themselves are subject to disagreement with some suggesting that the cervix should dilate 1 cm each hour of labour (O'Driscoll,

Jackson, & Gallagher, 1969; Philpott & Castle, 1972; Studd & Duiagnan, 1972) whilst others argue for a slower rate of 0.3 to 0.5 cm per hour (Albers, 2001; Zhang, Troendle, & Yancey, 2002). With cervical measurement being such an important tool in assessing whether a labour is progressing and whether intervention in the labour process is warranted, one would expect a high level of accuracy and consistency from those undertaking the measurements. Unfortunately, this is not the case and frequently the clinician either over estimates or under estimates the actual dilatation (Huhn & Brost, 2004; Tuffnell, Bryce & Lilford, 1989). The cervix cannot be visualised and must be felt with the fingertips resulting in an interpretation of the dilatation by the examiner (Huhn & Brost, 2004; Tuffnell, Bryce & Lilford, 1989). The measurement may also be influenced by the level of experience of the health professional and the woman's position and co-operation. Differences in measurement are compounded when the cervical measurement is undertaken by different personnel through the labour (Tuffnell, Bryce & Lilford, 1989). These differences occur regardless of whether a midwife or obstetrician has undertaken the measurement and will undoubtedly have an impact on diagnosing whether a labour is progressing normally.

A recently published study used sensors with magnetic position tracking on the clinician's fingers to assess the degree of cervical dilatation and made comparisons with the clinician's assessments (Nizard, et al., 2009). A high degree of inaccuracy was found especially when the cervix was between 6 and 8 cms dilatation (38.8% accuracy) whilst accuracy was best at more than 8 cms (70%) and 0 to 4 cm (68.3%). The results confirm the limitations of cervical measurement as a reliable method of evaluation and assessment of cervical measurement.

Despite the acknowledged inaccuracy of cervical measurements and the lack of agreement on what constitutes normal physiological progress, the woman's progress during labour continues to be categorised and measured according to cervical dilatation (World Health Organisation, et al., 2006). When progress is considered to be slow, correction by way of intervention such as artificial rupture of membranes and/or intravenous oxytocin is then provided to ensure that the woman's labour meets the expected time parameters (NICE, 2007; RANZCOG, 2010).

The next section will explore the concerns related to increasing interventions in the process of birth.

Increasing interventions and women's dissatisfaction

Clinical intervention during labour can be considered to be any intervention in the physiological process and therefore a disturbance to the woman's labour rhythms (Kitzinger, 2005; Thorogood & Donaldson, 2006). It is, however, more commonly agreed to be aspects of clinical practice such as artificial rupture of the membranes (ARM), intravenous syntocinon to accelerate labour, epidural anaesthesia, instrumental and caesarean births (Tracy, 2006). In many countries the rates of this type of intervention are increasing, whilst the rates of normal birth are decreasing (Festin, et al., 2009; Tracy, Sullivan, Wang, Black, & Tracy, 2007). Interventions of various kinds have become a routine part of intrapartum care with only a small number of women achieving birth with minimal intervention (Tracy, 2006; Waldenstrom, 2007).

Women who present to hospital in labour early (prior to 3 cm dilated) have a higher risk of oxytocin augmentation, epidural analgesia and caesarean section (Holmes, Oppenheimer & Wu Wen, 2001). If a woman is not meeting the parameters of expected progress during labour then she is diagnosed as having a prolonged labour, and ARM along with intravenous syntocinon to augment or speed up the labour are advised (NICE, 2007; RANZCOG, 2010). There is no evidence to support routine ARM in spontaneous labour and concerns are raised about the unintended side effects of ARM (Smyth, Alldred, & Markham, 2007).

Concerns are also often raised about the woman's ability to cope with the pain of a prolonged labour (Nystedt, Hogberg & Lundman, 2006) resulting in increased use of analgesia such as epidural anaesthesia. Increased oxytocin and epidural use result in higher levels of operative births (Kotaska, Klein, & Liston, 2006; Tracy, et al., 2007). Operative births often result in longer term morbidity for the woman which may include renal failure, pulmonary embolism and increased need for blood transfusion (Kuklina, et al., 2009). High morbidity rates also result in less satisfaction with the birthing experience for women (Beech & Phipps, 2004; Declercq et al., 2008).

In summary, the existing understanding of labour progress sets boundaries and time limits which are marked by the level of cervical dilatation. The separation into different phases is subject to interpretation and often follows organisational or professional needs. A longer length of labour is considered pathological, labelled dystocia and the woman seen as in need of obstetric intervention. At present there is also little recognition of the impact that a change in environment, anxiety and lack of support may have on the woman's body during labour and how these factors can contribute to lack of labour progress (Walsh, 2009). This understanding of labour progress with its emphasis on time, boundaries and measurement does not take into account the individuality of each woman, her body and her labour. It takes away the woman's agency and her autonomy within the labour process. It sets up an expectation that knowledge about labour and birth can only be known by the clinician and increases the requirement for intervention in a physiological process. Globally there is an increasing level of intervention within childbirth which is causing increased levels of long term health morbidity for women resulting in dissatisfaction with maternity systems (Beech, & Phipps, 2004; Declercq et al., 2006; 2008).

Purpose and aims of this thesis

The experience of labour and birth is unique to each woman, her family and her baby. Current descriptions of labour use a reductionist model attempting to fit the woman's experience of labour and birth into a stage or phase of labour. Women are expected to labour in the same way and at a similar rate. This model or theory of labour progress excludes and disempowers women; it privileges the health professional's knowledge and separates the woman's feelings and experiences from her bodily functions. There is an unrecognised discourse which is based on the assumption that the only authority that can define labour is that of the health professional. Therefore the aims of this thesis are:

- To critically examine the discourses, current knowledge and understanding of labour as it moves towards birth
- To explore whether the prevailing understanding resonates with women's experiences of labour as it moves towards birth
- To explore the woman's experiences and perspectives of labour as it moves towards birth and provide a description that encapsulates the woman's voices and experiences.

With such a strong emphasis placed on exploring the woman's understanding of labour progress, it was important to ensure a research methodology that supports a female understanding of the issue. I have therefore used a critical feminist inquiry approach within the research. This is based on an ontology which assumes that all knowledge is filtered through our senses and that reality is socially constructed, complex and ever changing (Hesse-Biber & Leavy, 2006). Critical feminist inquiry challenges the current status quo of knowledge construction and argues that knowledge is situated within perspectives and that the historical assumptions of positivism have maintained unequal power relationships (Hesse-Biber & Leavy, 2006). Within a positivist paradigm, theory can be seen as an attempt to put forward an explanation for a phenomenon but it is often based on the assumption that there is order in the social world. Critical theory argues that positivist knowledge and epistemology have created and maintained unequal power relations and that by examining the dominant ideology a space can be made for a 'counter hegemonic' production of knowledge (Hesse-Biber & Leavy, 2006).

As the researcher I am also a midwife (health professional) and a woman who has given birth. Therefore I considered how to undertake this research in a way that privileged the women's voices and not my own voice and knowledge. I have done this by using a feminist standpoint methodology. This methodology emphasises the importance of providing the woman's voice and of ensuring that the woman's voice is heard above that of other dominant groups or of the researcher. The subjectivity of the researcher is recognised through reflexivity within the research and as such I have explained my decisions, interpretations and insights throughout the research. Feminist research recognises the subjectivity of all research along with a concern for the power relationships that exist within society and between dominant and marginalised groups.

Significance of the study and contribution to knowledge

This research has been undertaken to explore women's understanding, perspectives and experiences of labour and birth of the baby. As such it seeks to provide an understanding of labour that has been informed by women who have experienced labour and birth. It also seeks to determine if time and progress during labour are important elements of the birth experience for the woman.

By developing an understanding which privileges the women's voices this study will support women to better understand what is happening during labour and birth. It is hoped that this knowledge will resonate with other women who have experienced labour. Ultimately, it may lead to different ways of explaining labour and birth for women who are about to undergo this experience for the first time. If women are able to determine for themselves whether they are in labour and whether the labour is moving towards the birth they will be more confident in their own ability to labour and give birth. A different understanding of labour and birth may also support challenges to the current discourse of labour as stages and phases with cervical dilatation the boundary marker. This could result in less reliance on health professionals to 'diagnose' labour and determine whether labour is progressing 'normally'. It may result in a reduction in anxiety for women, increased confidence in their own ability to give birth, and less early hospital admission for women in labour. It may even decrease the need for analgesia and other interventions if women have a better understanding of their body and signs of impending birth. As such this research could have wide influence and may change the current reliance on measurement and boundary setting that define labour and birth.

It is hoped that by providing a description of labour as experienced from the woman's standpoint this research will change thinking and support a paradigm change. Not only for women but also for health professionals when considering time, the body and what can be considered markers of progress for normal labour and birth.

Summary

There is a common and widespread understanding of labour as it moves towards birth, accessible to women through childbirth preparation books and the internet, which details labour as marked by stages and phases. This theory of labour progress describes time and cervical dilatation as markers of progress but does not help the woman who is in labour to define where she is in labour or to understand the experience of labour itself. The discourses of this theory require that each stage and phase of labour should be identified with progress measured. Defining labour in this way has enabled clinicians to argue that the use of technology and interventions are necessary.

The transition from the end of pregnancy to the birth of a baby is a unique process which only women who labour and give birth have experienced as an embodied process. Any theory of labour progress should be able to describe this transition as it is experienced by women. As such it should resonate with women who have laboured and given birth.

This research seeks to explore the woman's understanding of the issue and provide a description that encapsulates the women's voices. It seeks to provide the woman's perspective of how labour moves towards birth and how it is experienced. A feminist critical lens and feminist epistemology and methodology have been used to achieve this and will be apparent throughout the research process.

Structure of the thesis

Chapter Two - Differing paradigms and knowledge construction

The next chapter explores truth, belief and knowledge development. It examines the early concepts and understanding of labour and birth and how these concepts have been the foundation for knowledge development. Knowledge about childbirth has been led by men using a scientific/medical paradigm to claim authority. The knowledge development however, has been influenced by the existing culture of the time in which women were considered inherently inferior. This culture continues to pervade much of contemporary understanding of childbirth. The medical/scientific paradigm has marginalised other forms of knowledge and especially feminist knowledge development. Knowledge about childbirth has been dominated by a male and medical focus which requires boundaries and certainties. Women have unique ways of knowing and feminism has a distinct approach to knowledge construction and research enquiry. This chapter continues by explaining the reason that feminist standpoint methodology has been used to explore the women's experiences and perspectives of labour progress in this study.

Chapter Three – The theories of labour progress

Our current understanding of how a woman's labour progresses towards birth was constructed during the 1950s and has changed little over the subsequent 60 years. This chapter reviews how this theory of labour progress was developed

and became a dominant and far reaching discourse. The structure and limitations of the development of this theory are identified along with gaps within current understanding. A review of alternative and dissenting voices is provided which explores how women who are pregnant or have given birth have not been involved in knowledge generation for this aspect of childbirth. Contemporary understanding of anatomy and physiology is reviewed as it relates to labour and birth and demonstrates a lack of congruence with the current prevailing theory of labour progress. This chapter demonstrates the issues and weaknesses of the current theory of labour progress and identifies the need for research which explores the woman's perspective.

Chapter Four - Talking with women

This chapter outlines how I approached women to talk with them for this research project. It includes details of how I identified women to be included in the study along with the approach used during the interviews and focus group discussion. It also provides the contextual elements of research undertaken within the New Zealand model of maternity services. It was important throughout the research to ensure that the women's voices were privileged. The ethics of undertaking research were considered along with the position of the researcher within the research. A framework for analysis is identified and an explanation of how it was used to analyse the women's voices is provided, thus providing transparency to support trustworthiness and rigour in the analysis. The analysis to the women's voices are presented in Chapters Five, Six and Seven,

Chapter Five – Context, culture and relationships

In this analysis of the women's voices I have explored the woman's social relationships along with the cultural constructs that may have influenced her birth experience. Following this I have explored the extent and impact of power in the relationships women had with their midwives. I found that women often held the power and would choose a midwife who suited their belief systems. Women defined their safety in terms of place of birth and trust in the health professionals. They also identified support as of major importance to them during labour with partners and family the most important providers of emotional and physical support.

Chapter Six – Stages of labour and concepts of measurement

In this analysis of the interviews I looked to see whether the prevailing theory of labour concerning the three stages was identified by women and what influence this had on the women's actual experiences of labour. During the interviews, I found that women did not talk about their labour as in stages or phases and often considered the stages to be an abstract concept. This concept provided a theoretical understanding of labour but it was not practical or useful for women during labour. For women who had previously laboured there was the ability to make comparisons with their previous experiences and therefore experiential knowledge was privileged over other forms of knowledge. I found that some women had requested the use of a vaginal examination to establish that they were in labour and how much longer the labour would last. This demonstrates that whilst the stages and phases of labour may be considered an abstract construct, the discourse of measurement as situated within this prevailing theory continues to dominate many women's understanding of labour as it moves to birth.

Chapter Seven – The women's voices

This chapter defines and explores the woman's voice, describing what women were thinking, doing and feeling at each point in their labour. The descriptions are surprisingly similar and are dominated by the feelings the women described in relation to what was happening to their bodies during the labour. Women describe feeling excited when labour started, then calm and peaceful as the contractions built in intensity and frequency. During this time the women were able to continue with usual aspects of normal life. When the intensity and frequency of the contractions lifted the women described needing to focus on labour itself. Time appeared to become elastic and a few minutes could feel like hours or hours could feel like minutes. Many women voiced surprise at how effectively their body had worked and taken them through labour and birth. Women did not talk about labour in terms of progress but described an embodied knowledge in which the body 'took over' and they lived in the moment.

Chapter Eight – The emotions of labour

This chapter revisits the aims of the thesis, summarises the findings and synthesises this with what is known from other research studies. This thesis has

discovered that whilst women are aware of the prevailing theory of labour, it is seen as an abstract concept that does not resonate with women during labour and birth. Women's perceptions of birth are dominated by their descriptions of their feelings, and a need to focus on each contraction as the intensity of the labour increases. Women did not talk about 'progress' or time during labour and birth, instead they described an inability to think logically and of just 'being' in the moment. Women described their need for support from their partner, their midwife and others chosen to be present at the birth. All of the women received continuity of midwifery care from a midwife chosen by them during pregnancy. This research has uncovered integrative, supportive relationships which support the woman to 'feel safe' during her labour and birth.

Chapter Nine – Towards a paradigm change

The emotions of labour as described by the women in this study are an important finding. However, during the feedback process the women involved asked for a scientific foundation for these findings. This chapter therefore outlines the latest understanding and theorising about emotion, cognition, physiology and behaviour. Major advances and revolutionary changes in theory have occurred within the sciences, resulting in the prioritisation of emotions as a prime director of behaviour, and influencing cognition, memory, reasoning and physiology. Neural structures are developing and changing throughout life, with changes associated with environmental, social, cultural and biological influences. When these advances in scientific understanding are integrated with the findings from this study we find that it is the labour hormones that are linked to the emotions that women feel and the behaviour they exhibit during labour. This thesis provides the foundations of a new conceptual framework, one which integrates the emotions with the mind, body and behaviour resulting in an integrated neurophysiological approach to childbirth.

Chapter Two

Differing paradigms and knowledge construction

Introduction

This thesis concerns the challenging topic of knowledge and knowledge construction (epistemology). I have placed this chapter prior to the discussion of the literature of the field because an understanding of the subjectivity of knowledge and the influence of culture on knowledge development is an important argument within this thesis. This chapter and the next will meet the first stated aim of this thesis, namely:

- To critically examine the discourses, current knowledge and understanding of labour as it moves towards birth.

Describing how the early concepts and understanding of labour developed will support my argument that the current descriptions of labour as stages and phases have been influenced by cultural norms that have existed for centuries and which have been influential in knowledge development. I will argue that science has been androcentrically biased and that women's knowledge has been marginalised by dominant paternalistic discourses. For more than two hundred years our knowledge about childbirth has been dominated by a male medical/scientific perspective which has been built on an assumption of women as inherently inferior to men (Bates, 2004; Papps & Ossen, 1997; Stewart, 2004). This prevailing view of women and their bodies has influenced knowledge development about childbirth and continues to permeate childbirth care provision today (Bates, 2004; Stewart, 2004). The discourses associated with science and obstetrics have claimed authority and marginalised women's knowledge and understanding of the female body. I argue that any knowledge construction or development, especially when related to human physiology, should be grounded in the human experience. Women have unique ways of knowing and feminism has a distinct approach to knowledge construction and research enquiry.

This thesis seeks to explore and explain women's knowledge about labour and giving birth by using a feminist standpoint methodology as a means of understanding the female experience. This methodology argues that some forms of knowledge are valued more than others and that a standpoint can reveal different perspectives within society by providing the views of the dominant groups along with those of the marginalised group. It is by revealing and understanding these perspectives that a fuller picture emerges in which the woman's experiences are the starting point providing alternative ways of constructing knowledge. Using a feminist standpoint approach to this research ensures that we can see the world from the woman's viewpoint, from her embodiment and existence (Smith, 1987).

Dominant meaning systems

In the first chapter I have discussed and demonstrated that there is a common understanding of labour progress which incorporates three stages of labour and a variety of phases of labour. This can be described as common knowledge in the sense that it is commonly known and referred to by both popular media and health professionals when considering labour as it progresses to birth. Minnich (2005) describes dominant meaning systems as those which are in the ascendant and that serve the dominant groups within society. Assumptions and the way we think are influenced by an underlying understanding that we are often not aware of and which influence our judgments (Minnich, 2005). I have described the knowledge about labour progress as a dominant form of knowledge because it provides one way of thinking about labour progress and presents this knowledge as the only way of understanding it. The current understanding has been developed and legitimised by obstetricians and provides a medical view of labour as it progresses to birth (the evidence for this claim will be provided in Chapter Three). There is an underlying assumption within this understanding which classifies the woman's body as one that cannot work efficiently or without the support of the medical professional.

Knowledge development within childbirth has been influenced by the culture and expectations within Western society. Until the 20th century women were viewed as inferior to men with educational or intellectual development limited by society. This cultural understanding has framed the development of

knowledge within childbirth and enabled obstetric knowledge and theoretical concepts to become dominant meaning systems through its legitimisation by those in authority (Harding, 1991).

Presumptions about the nature of women

For almost 2000 years the prevailing understanding of women within society was that they were inferior to men. It was thought that women were ‘naturally’ governed by uncontrollable passions and desires, were more emotional and of nervous disposition, more superstitious, more vulnerable, and therefore more suited to family life (Bates, 2004; Papps & Olssen, 1997; Stewart, 2004). Men were considered superior because they were ‘rational’ thinkers whilst women were ruled by emotion. It was assumed that developing a woman’s intellect would inhibit her emotional abilities and reduce her ability to reproduce (Belenky, et al., 1997). Women were considered inferior to men with women’s bodies seen as being structurally similar but less perfect than man’s (Papps & Olssen, 1997). Women were excluded from the political sphere and given roles that related to men as in wife, daughter or mother. Whilst universities were established in the 13th century, women were excluded from them and did not gain access to tertiary education until the nineteenth century (Bunkle, 1992; Towler & Bramall, 1986). Education and intellectual pursuits were considered unnecessary and possibly dangerous to the reproductive health of women (Belenky, et al., 1997).

There were some men who argued that women should be educated as the following quote demonstrates: “*One of the grand errors of society is, and has been, the mal-education- or the entire neglect of education- of the females of this country*” (Coffin, 1853, p. ix). However, this view was unpopular and unsupported by the majority in society due to the dominant view of women as inferior to men. Women were therefore excluded from the new scientific understandings that represented the scientific revolution during which science gained legitimacy (Papps & Olssen, 1997; Walsh, 2004).

The silence of women

Dorothy Smith (1987) describes the power of the male voice within society and how women have often been the audience or supporters to the dominant male role. She continues that it has been hard for women to develop a voice because the intellectual world has been dominated by men and their viewpoint. This she describes as the standpoint of men. “*What men were doing was relevant to men, was written by men about men for men. Men listened to what one another said*” (Smith, 1987, p. 18). She continues that this developed a way of thinking and discourse from which women were excluded because of a lack of economic status and educational opportunities. This male viewpoint has been represented as universal for all society and as such the perspectives, concerns and interests of only one sex have been the basis of our ways of thinking (Smith, 1987). It is only when we start to question truth and knowledge that we see this often hidden male culture and the exclusion or marginalisation of women’s ways of knowing (Belenky, et al., 1997). The current conceptions of knowledge and truth have been shaped throughout history by a male dominated culture which also had a male majority ensuring that any dissenting female voices were in the minority. Science and male gender are strongly linked and reinforced within science and medicine which has assumed a privileged position of knowledge about the human body (Hekman, 1990; Papps & Olssen, 1997).

Authoritative knowledge

Men have often been in positions which have enabled them to be authorities in the world. Smith (1987) suggests that authority is a form of power, it makes what one person says ‘count’ above or more than another person. She continues that men are invested with authority as individuals and also because they are often in positions of power within institutions. Women lack this authority within society and with other women. Jordan (1997) contends that there are several knowledge systems in existence at any one time but that particular knowledge domains carry more weight and influence than others. This may be due to their ability to explain the world in a way that is more suitable for the particular purpose or because the knowledge domain is associated with a strong power base, or both (Jordan, 1997). She argues that equally legitimate knowledge systems can exist but one system will often gain ascendance and legitimacy over the others. The other knowledge systems are then frequently dismissed or

marginalised by discounting the knowledge and the bearers of that knowledge as ignorant. Therefore an authoritative knowledge is formed which has an ongoing social process that ‘builds and reflects power relationships within a community of practice’ (p. 56). Authoritative knowledge gains ascendancy and power to the point that it is seen as the natural order of things and the only way of seeing or understanding that particular knowledge system.

Within medicine the male scientific orientated view of the body as a separate system to the mind has gained ascendancy over other more holistic knowledge systems. The medical profession have gained cultural, economic, legislative and political power and influence (Papps & Olssen, 1997). Within the majority of Western societies it is only a medical doctor who can sign a death certificate, define if somebody is too sick to work or whether an individual is mentally in/competent (Jordan, 1997). The power of authoritative knowledge is not that it is necessarily right or true but that it is visible, enforced, elaborated. It is knowledge that is seen to count, that provides the basis and justification for decision making, and particular courses of action (Jordan, 1997). Within childbirth the medical profession have achieved an authoritative knowledge status. They set the expectations and agree on what counts in particular situations. They have provided justification for intervention in the birth process by enforcing the idea that the woman’s body is not ‘working’ and therefore requires intervention to ensure correction. Other forms of knowledge such as the woman’s knowledge of her body or the midwives’ knowledge of childbirth are discounted as ‘unscientific’, irrational, or based on subjective and not objective measures (Jordan, 1997).

The next section will explore what is understood about knowledge, knowledge formation and development, and trace the ascendancy of scientific knowledge as a means of defining truths.

The study of knowledge

Epistemology is the study of knowledge; it concerns how we know what we know and whether what we know is based on justified or unjustified belief (Stanford Encyclopedia of Philosophy, 2005).

When considering knowledge from an epistemological perspective there is a need to look at the sources of knowledge, the structure and limits of the

knowledge and on what grounds it is justified as being the basis for belief. The question arises as to what is knowledge, how has it been formed and how do we know whether it is true? In other words, what do we know, how do we know what we know, and how do we know whether what we know is a belief or truth?

Trying to discern what is truth and what is belief and establishing what can be believed and understood to be a universal truth or an individual belief has always been problematic. Knowledge is often considered a combination of both truth and belief although, throughout history, knowledge and beliefs have changed and evolved and what was once considered a truth has subsequently been found to be belief. Philosophers such as Socrates, Plato and Aristotle considered this puzzle and built on each others work to consider how to establish truth and knowledge (Gottlieb, 2000; Wickham, 2004). These philosophers considered the subjectivity of knowledge and attempted to develop ways of considering how to determine individual belief from what could be considered a universal truth using logic and reasoning. However, it was Descartes who developed this thinking further during the 17th century by suggesting that we must doubt all knowledge as a belief until it could be proven. Descartes argued that the only thing he could know was that he was conscious and could think, so everything else needed to be proven before it could be believed (Cottingham, 2000). If the mind had the mental capacity to think and reason, and it was independent of the body, the body could be studied as a separate, physical element without reference to any psychological, spiritual or social influences (Cottingham, 2000; Parratt & Fahy, 2008). He therefore set out to prove any premise through systematic study, which involved a deliberate use of techniques (methods) of studying the world based on logic and reason.

Parratt & Fahy (2008) contend that Descartes argued for a clear separation between the body and soul because it suited his interests to construct this separation in that it enabled the body to be examined without concern for the spiritual aspect of the soul. This argument resulted in the church allowing the examination of dead bodies and an exploration of the internal organs through autopsy (Parratt & Fahy, 2008). Descartes' scepticism has been the basis of modern scientific and medical thinking in which all evidence must be tested through observation and experiment which can be replicated by others to provide evidence of the truth. Once a truth is confirmed it can be built upon by

further exploration. This type of knowledge acquisition (also known as empiricism) is based on the ontological argument that there is one truth which is waiting to be found and which is observable and objective.

Scientific Knowledge

Brenner (2008) states that humans are unique, in that they experience reality and then represent and record those experiences symbolically (often in the written form). He continues that often these symbolic representations are organised into various groups such as scientific, philosophical, artistic and religious disciplines. These have developed as a way of explaining and understanding phenomena in a formal way in an attempt to organise and make sense of the realities of every day human existence and experience. He argues that:

It is possible to look at the subjects and objects of knowledge and the methods for their study as lying on a scale between reality itself and the most abstract representations that are made of it, language and mathematics. All models of reality, as models, require a degree of abstraction. If one excludes, for the time being, non-linguistic representations of reality such as art, all knowledge is constituted by sets of statements of some kind. Starting from the side of language, farthest removed from reality, the statements consist of propositions about abstract, ideal entities; descriptions of reality; and finally, descriptions of reality based on experiment, the domain of science. (Brenner, 2008, p. xvii)

Scientific knowledge then is considered to be the defining of truths by systematic experiments within a field of study. Within this philosophy of knowledge is the need to accumulate knowledge building from a working hypothesis (a theory) which provides conceptual understanding. It is seen as a way of turning knowledge into a truth. “*Theory represents an attempt to move beyond the chaos and abstractions of individual experience to objective and universal truth: to transcend the particular*” (Gunew, 1990, p. 16). Theory can also be defined as an explanation of how phenomena work or are interrelated, with Polit, Beck and Hungler (2001) defining theory as requiring two concepts that are related in a manner that the theory purports to explain. Theories are

created and invented by humans and can be based on observable facts and also on abstractions (Polit, et al., 2001). They suggest that theories can make scientific findings meaningful as well as provide a means of summarising knowledge and stimulating further research and discussion. An alternative and more purely empiricist definition of theory is: “*A body of knowledge and interpretation in a particular area, supported by testable observation, plus a particular interpretation*” (Gavin, 2008, p. 384). Within the scientific philosophy each knowledge claim is subject to a particular interpretation of that knowledge but also to a need to establish objectivity by distancing the self through the scientific discourse of observation and interpretation along with logic and reasoning. When we look at the current dominant understanding of labour progress with its three stages of labour and various phases within those stages, we can identify a theory which seeks to explain the phenomena of labour as it progresses towards birth. This theory purports to provide an understanding of labour progress, based on an understanding of how the body works (the physiology) and related to cervical dilatation and time parameters. It would appear to be a logical, reasoned theory based on objective observation.

In the scientific paradigm, once an initial theory has been identified within a field, it is developed further by more research studies building on the initial knowledge base which further develops the theory. Within each field of the sciences there is an accumulating knowledge base of theories which are either proven or disproven. Thus there is a degree of agreement on some fundamental aspects within a theoretical framework and: “*unity and coherence in the investigations carried out, with generally accepted ideas and procedures and where the findings of one study build directly on those made by another*” (Sharrock & Read, 2002, p. 31). The theoretical frameworks on which the theory and knowledge building is based continues to be influenced by the first studies in the field and the interpretation of the person/s who have undertaken the initial studies until or unless the theory is disproved. Theoretical development is most evident in maths and the physical sciences, which are often considered the purer sciences and in which proof can be provided through the replication of experiments and deductive thinking. The medical and social sciences have had a more difficult journey to provide universal truths, with theories more easily influenced by the social, psychological or cultural arena of

the researcher or those being researched (Oakley, 2000). Therefore replication is more difficult and universal truth is not easily identified.

Questioning empiricism and differing paradigms

Hekman (1990) describes a crisis in Western thought which has come about because of the opposition between what she describes as modernism and postmodernism. Modernism is defined as the dualistic thinking that is fundamental to scientific modes of thinking and which seeks to provide a unified understanding of the world (Gunew, 1990). It is associated with authority and identity and claims that all truth/knowledge can be found through systematic, disciplined enquiry such as scientific research. An alternative view to this is that truth/knowledge is socially constructed through the cultural norms of society (Malpas, 2003). Truth or reality is a product of human social and cultural interactions and therefore dependent on the reality and understandings of the various groups in which these take place. Postmodernism is a form of critical thinking which argues that there are different forms of knowledge, with different criteria for being judged as true or false, and that discourses can often create and sustain the inherent power relationships found in modernism (Foucault, 1975; Hekman, 2004; Malpas, 2003).

One of the founders of post-modern thought, Lyotard, considered the various ways of knowing and dealing with the world and argued that the way knowledge is transmitted affects not just the status of the knowledge but also the value of that knowledge (Malpas, 2003). With the advent of computers, and speedy telecommunications systems, knowledge has become a commodity and can be seen as the basis of power in society. This suggests a shift in power and authority from the individual 'knower' seeking truth for human benefit to knowledge which can be used by groups to further their political and commercial interests.

The feminist paradigm

Feminist critical theory also challenges the philosophy that is foundational to scientific thinking (Harding, 1987; Hekman, 1990). Both postmodernism and feminism criticise the hierarchical view of knowledge but feminist criticism is

more strongly based on the privileging of the masculine way of thinking. There are similarities in both schools of thought in that they consider that:

- *'The body is the locus of domination through which subjectivity is constituted'* (Papps & Olssen, 1997, p. 41)
- Knowledge is a social construct which has been developed through truth and knowledge claims
- Knowledge claims *'have privileged the Western masculine elites as they proclaim universals about truth'* (Papps & Olssen, 1997, p. 41)
- Discourse has the capacity to sustain a way of thinking – as such it develops and sustains hegemony.

For feminism the relationship between masculine knowledge and power is the crucial issue with the dominant discourses producing confusion for women as they struggle to understand themselves from within the masculine perspectives and discourses.

Marginalising other ways of knowing

A major critique of the scientific (empirical) form of knowledge acquisition is that it privileges those who are considered to be the knowledge bearers as the only group who have access to the 'truth' (Fuller, 2002). Any other form of knowledge or understanding is considered 'untrue' or a 'belief', and other forms of knowledge are ridiculed and marginalised (Jordan, 1997). From a feminist perspective scientific knowledge is considered to be 'radically homocentric' (p. 2) because it is defined in terms of man as the subject and has been undertaken with a particularly masculine mode of thought (Hekman, 1990). Science claims that all knowledge should be rational and objective with a knowing subject and a known object but it is only men who can be considered to be rational and the 'knowers' (p. 9). Science is criticised as 'androcentric' (p. 111) because it is based on social biases and prejudices which have been entrenched in custom and also often in law (Harding, 1991).

When considered in this way knowledge can be understood as contextual and influenced by historical understanding, which also means it can be deeply

prejudiced (Hekman, 1990). Both medicine and the human sciences have constructed knowledge of the individual subject which provides the parameters of what can be considered pathological or normal (Foucault, 1975; Papps & Olssen, 1997). Foucault (1975) suggests that it is the structures of knowledge which hold power and regulate the population as well as the individual body. By understanding how knowledge has been formed and the bias or prejudices that may be inherent within the way of knowing, these distortions can be more clearly seen (Oakley, 2000). Oakley (2000) argues that it requires a “meticulous, systematic, transparent, sensitive striving for descriptions of reality” (p. 4) that will help us to make informed decisions on the best way to live. This suggests that if we are to understand the nature of knowledge about childbirth and labour we need to uncover the sources of that knowledge and examine the culture which has influenced its formation.

Uncovering the source of knowledge about labour stages

Globally, throughout history and for the majority of cultures worldwide, women have attended women during childbirth (Donnison, 1988; Goldsmith, 1990; Kitzinger, 1997a; Towler & Bramall, 1986). Childbirth was traditionally seen as a normal part of life and therefore a social act rather than a medical act (Kitzinger, 1997a). Until the early 20th century women who attended women during childbirth (midwives) were respected within their communities for their knowledge about childbirth. This knowledge was generally built from the practical experience of attending births, although some women had an apprenticeship to a midwife for more formal learning (Kitzinger, 1997a). In many towns and cities women were able to earn a good living as a midwife, especially if they built a good reputation (Donnison, 1988). Physicians became involved in childbirth during the 17th century and gradually built a knowledge based on the body's physiology along with their own experiences attending the more difficult births. It is difficult to define how labour was understood by midwives and women prior to the 18th century because the majority of texts about childbirth were written by men and demonstrate the prevailing views and culture of men in society at that time.

One of the few books available was written by Jane Sharp, an educated English midwife. In the chapter about labour she wrote:

When the patient feels her throws coming she should walk easily in her Chamber, and then again lye down, keep herself warm, rest herself and then stir again til she feels the waters coming down and the womb to open; let her not lye long a bed, yet shay lye sometime and sleep to strengthen her and to abate the pain, the child will be stronger. (Sharp, 1671, p. 187)

Thus she described what the women should do during labour but does not conceptualise labour into stages. In her book she also has detailed descriptions on how to tell if the baby is alive or dead.

Men were predominantly called to birth by a midwife when the birth had become difficult and life threatening, so the experience for the man midwife was of difficult births in which the mother or the baby (sometimes both) were close to death. A book written during the 18th century by a French man midwife outlines how he dealt with these problems of childbirth (Lamotte, 1746). In this text he described three types of deliveries – natural delivery, less natural delivery and that against nature. He suggests that a natural delivery is one in which the child is born after nine months of pregnancy without any help except nature; the less natural delivery is described as having some obstructions which make the labour long and difficult but when these issues are addressed all goes well. The delivery which goes against nature is the one in which the woman cannot bring the baby forth without help (Lamotte, 1746). It is clear from this early text that at this time men were more interested in the unnatural or pathological labour than the physiological or normal labour. It was also the male voice which articulated knowledge about childbirth and labour and defined what could be considered the normal and abnormal states for childbirth (Lamotte, 1746).

Cultural influences on knowledge development in childbirth

During the 20th century the male knowledge base became the dominant form of knowledge about childbirth. From the 17th to the 20th century there was a major cultural shift in expectation from one in which giving birth was considered women's work and a normal social act, to one in which giving birth became seen as a medical act requiring medical oversight, care and attention. The next section will explore how this change occurred and was accepted in society.

Papps and Olssen (1997) contend that there were four ‘specific sets of historical factors’ responsible for the increasing medicalisation of childbirth and the ascendance of the obstetric profession (p. 9). These include state legislation and functions, the industrial revolution, the growth of medical science and obstetrics, and midwifery regulation. These factors have been influenced by the pervading cultural presumptions about the nature of women. I examine each of these in more detail in the next section as a way of establishing their combined influences on the changes which resulted in the shift to understanding birth as a medical act with obstetricians as the voices of authority.

State legislation and functions

During the middle ages and into the 14th and 15th centuries childbirth was the province of women throughout Europe (Donnison, 1988). Knowledge of childbirth was passed from woman to woman by narrative and experience. The quality of midwifery care was variable with some midwives receiving apprenticeship training and becoming highly educated, whilst others were more casual assistants whose experience and knowledge was gained through their own births and then those they attended (Donnison, 1988; Papps & Olssen, 1997). During the 14th and 15th centuries there were moves within Europe to regulate midwifery through the church (Papps & Olssen, 1997). In the UK the church, as the formal social institution of the time, issued licenses to women to enable them to practice as a midwife (Donnison, 1988; Papps & Olssen, 1997). In order to gain a license midwives had to swear an oath and have references to their good character from women they had attended, as well as an attestation of their moral character from church clergy (Donnison, 1988). Due to the Guild system of the time in England only barber surgeons had the right to use surgical instruments, so when a baby or mother died a barber surgeon was called to remove the baby (Simonds, Katz Rothman, & Norman, 2007). In Germany, the Netherlands and France it was the municipality that regulated midwives with an examination by physicians or experienced midwives within the municipal city (Papps & Olssen, 1997).

This regulation sought to improve the quality of midwifery care whilst also limiting what midwives could do by requiring the midwife to send for a doctor or surgeon for difficult births (Papps & Olssen, 1997).

During the 17th century scientific enquiry became a popular philosophy and slowly replaced religious authority; anatomical dissection emerged and was an accepted way of improving knowledge of the anatomy of the body (Bunkle, 1992). Men started to take an increasing interest in childbirth and developed scientific theories to support their position. Wagner (1994) argues that the roots of modern technological birth can be traced to the 17th century with the use of surgery and instruments during birth. Forceps were developed during the 18th century and were the province of the barber surgeon, and for the first time enabled a baby to be born without first destroying it (Simonds, et al., 2007). With the advent of forceps men were able to frame their interest in childbirth as a new science for birth which could only be the domain of man midwives (Papps & Olssen, 1997). With the discovery of chloroform during the 1830s forceps could be used without pain thus increasing the popularity of the science of medicine during childbirth for women who could afford to pay.

The industrial revolution

The timing of the industrial revolution varies from country to country but in Britain it began towards the end of the 18th century. At this time there was a change in which the economy moved from being mostly agriculturally based to one which was founded on large scale manufacturing. This entailed the movement of families from the country to towns and cities for work, often resulting in overcrowding and poor living conditions. During this time lying-in hospitals were created in many cities as places for working class women to give birth and as a means of relief away from their families, or to remove unmarried mothers from society until after the baby was born as it was considered a social dishonour to be pregnant without a husband (Murphy-Lawless, 1998; Szurek, 1997). These hospitals provided access for man midwives to gain experience in attending women during labour and provided teaching and learning places for the man midwives. They also 'served to legitimate the management of childbirth by males' (Papps & Olssen, 1997, p. 73). With a lack of knowledge and understanding about the transmission of diseases, the lying-in hospitals had high rates of maternal sepsis and death which was due to poor medical hygiene and the high use of unwashed instruments facilitating the transmission of infection (Loudan, 1992; Murphy-Lawless, 1998; Papps & Olssen, 1997). These poorer

outcomes were believed to be due to the poverty of the working class women who brought the fever in with them (Murphy-Lawless, 1998).

Despite these outcomes the man midwives attacked the reputation of female midwives by suggesting that they were ignorant women and man midwives preferable because of their scientific knowledge and education. In 1746, Lamotte wrote:

There is room to wonder, that whilst all other branches of surgery were carried to such a height, Midwifery should till the beginning of the last century, be entirely left in the hands of ignorant women. (Lamotte, 1746 p iii)

Midwives were increasingly portrayed as ignorant and unhygienic as a means of discrediting and discounting them and promoting the attendance of man midwives for birth (Donnison, 1988). From the 17th through to the 20th century men began to assume and maintain power through a discourse which redefined childbirth as a problematic disease requiring medical expertise to ensure safety (Papps & Olssen, 1997). This discourse was based on scientific, anatomical knowledge which was increasingly seen as the only way to determine the truth about the world.

The growth of medical science and the profession of obstetrics

The medical profession embraced the new scientific philosophy and framed its knowledge as being based on science and therefore modern, logical and reasoned. During the 19th century the foundations of modern maternity care were laid and the new science of obstetrics became recognised (Loudon, 1992). The key feature of the changes was the growth in involvement of male medical practitioners in the management of childbirth for both normal and abnormal births (Loudon, 1992). As men became more involved in childbirth they also started to describe and develop theories of knowledge about labour. In 1853 Coffin, a Professor of Medical Botany, described three stages of labour as:

In all labours, three distinct periods or stages, may be marked:

- *First- the dilatation of the os uteri (mouth of the womb)*

- *Second - the delivery of the child.*
 - *Third – the separation and expulsion of the placenta (afterbirth).*
- Of these the first is much the most tedious, and the management is nearly the same in all labours: for, whatever time may be necessary to accomplish it, this first stage should in every instance, be trusted to nature. (Coffin, 1853, p. 57)*

It is not clear how this understanding of the three stages of labour was developed and whether Coffin was explaining a concept which had been discovered from anatomical dissection. It would appear that the first stage is based on an understanding of anatomy with the description of the dilatation of the os uteri. A subsequent text book written for midwives by a doctor 30 years later also described three stages of labour (Barnes, 1883). Barnes (1883) described the first stage as the dilatation of the cervix which is terminated by the rupture of the membranes, the second stage is the passage of the child through the pelvic canal and expulsion of the child, with the third stage as the ‘casting off and extrusion of the placenta’ (p. 71). In a chapter describing the ‘management of the first stage’, Barnes suggested that the midwife should undertake a vaginal examination to see ‘if all is going on as it should’ (p. 78). Following a detailed explanation of how to undertake a vaginal examination (in which it is recommended that the midwife learn to examine with either hand) Barnes (1883) argued that further examinations are not necessary and ‘only serve to alarm and fatigue the patient’ (p. 80). Instead he contends that the woman should be allowed to walk about the room, rest in a chair or take refreshment as she chooses. He continued that the average duration of a natural labour is 24 hours which is often exceeded by primigravida women and frequently less for multiparous women. This text demonstrates the foundation of the current understanding of labour with a conceptual understanding of three stages of labour, the requirement to measure cervical dilatation and the beginning of time parameters to establish labour normality.

Structures of the state and midwifery regulation

During the early 1900s the majority of women in Europe and many countries such as America, Australia and New Zealand continued to give birth at home attended by midwives (Donley, 1998; Papps & Olssen, 1997; Szurek, 1997;

Wagner, 1994). At this time, a falling birth rate and a high infant mortality rate led to political concerns regarding the health and vitality of the population for many nations. Politicians looked to the sciences and medicine to provide answers as to how to improve health. Midwifery was seen by the medical profession as an obstruction and there was a push for the midwifery profession to be regulated which finally succeeded in the UK in 1902, followed by New Zealand in 1904. Meanwhile in the USA and Canada midwifery became outlawed in many states by 1910 (Donley, 1998; Donnison, 1988; Simonds, et al., 2007). The regulation of midwifery led to the legitimate control of midwifery practice and the female midwifery profession by the male medical practitioners (Bates, 2004).

High maternal mortality rates were attributed to poor midwifery hygiene and care during home births so strict regulations were placed around midwives, dictating their practice (Mottram, 1997). Between 1924 and 1936 the maternal mortality rate increased and obstetricians called for all abnormal cases to be sent to hospital (Donnison, 1988). The causes of death at this time were mostly due to premature application of forceps and maternal sepsis, and there was a higher maternal mortality rate amongst women in higher social classes due to attendance at birth by general practitioners. Despite this evidence the obstetricians suggested that the place of birth was problematic and called for all births to be undertaken in hospitals (Loudan, 1992). This was an effective strategy for controlling birth and birth attendants (Walsh, 2004). In the UK in 1948, following the Second World War, a free national health service was developed to ensure that the health of the nation overall was improved, resulting in free antenatal and hospital care which led to increasing use of hospitals for birth (Bates, 2004; Leap & Hunter, 1993).

In New Zealand the St Helen's Hospitals were set up in the early 1900s to provide training for midwives and 'to meet the maternity needs of working class women' (Donley, 1998, p. 32). These hospitals provided domiciliary or hospital care by midwives who were highly trained and regulated and had good outcomes with regards to maternal and perinatal deaths. Unfortunately, these hospitals were not preserved and by the 1930s public hospitals in New Zealand came under the control of doctors who offered analgesia and technology (Donley, 1998).

In summary the move to increasing hospital births occurred in most countries during the 20th century (with the exception of the Netherlands) due to an argument advanced by obstetricians that hospital births were ‘safer’ than home births despite a lack of statistical data to support this (Stewart, 2004; Wagner, 1994). By reviewing these historical texts, I have demonstrated that the prevailing knowledge claims about childbirth have primarily been influenced by a historical culture which has privileged men and provided them with education and authority. Men have used their privileged positions to undermine the midwifery profession and construct knowledge about childbirth which has been framed as ‘scientific’, therefore increasing the male position of authority. This knowledge formation has been based on a societal view and culture which has devalued and marginalised women’s knowledge.

The concepts and foundation of knowledge and knowledge accumulation within childbirth have therefore been based on the male interpretation and understanding of the female body. This has been the basis of today’s understanding of labour as one of stages, which emerged from an improved anatomical understanding of the body. It is based within the scientific paradigm, but due to the influences of society and the interest of men in pathology the woman’s body during parturition has been articulated as a flawed mechanism. Having traced the historical and cultural influences on the construction of knowledge about childbirth, labour and labour progress, this thesis has demonstrated that medical men have been a strong and dominant group who have made knowledge claims. These knowledge claims have been based on a suggested superiority of male knowledge and scientific thinking and have formed the basis of many theoretical constructs of the woman’s body during childbirth. Harding (2004) argues that “Science never gets us truth” (p. 260) but provides us with claims that have been tested in the contemporary setting and which may change as further evidence and understanding is provided (Harding, 2004a).

Challenges to previously accepted theoretical frameworks

In his consideration of how changes occur within scientific theoretical frameworks, Kuhn (1970) argued that occasionally scientific frameworks or paradigms are overthrown when there are anomalies in research findings

(Sharrock & Read, 2002). When there are sufficient anomalies within a paradigm challenges are made to what can be considered the normal scientific framework.

When we consider the current state of knowledge about labour and birth as demonstrated by the review of internet sites and childbirth books, we can see that there are anomalies in the theory. Firstly there are differing definitions and understandings of the various phases within the stages of labour, (NICE, 2007; World Health Organisation, et al., 2006); secondly, women fail to recognise and understand their stage/phase of labour from the descriptions provided, resulting in unnecessary hospital admission (Cheyne, Terry, et al., 2007). Challenges to a theoretical framework can often come from alternative and revolutionary paradigms and mark the need to redevelop the foundations of the science with the development of new theories and understanding (Sharrock & Read, 2002). These revolutionary changes in paradigm and theoretical frameworks demonstrate that truth and knowledge are claims that are continually being challenged and developed, and that even when a truth is considered to be proven it can subsequently be challenged and disproven.

Discerning a theoretical framework for this research

Within this thesis I aim to explore women's knowledge about labour and therefore provide a challenge to the dominant paternalistic discourses that currently prevail within the contemporary knowledge base about childbirth. I therefore needed to consider carefully how to undertake research that would ensure the women's voices were heard and supported the construction of women's knowledge and understanding about childbirth. As such it would be unquestionably situated within a feminist theoretical epistemology. Women's experiences of childbirth can be understood as 'the embodied realities of those experiences' (Edwards, 2005, p. 45), and can be described as an experience based on the woman's subjective reality.

I therefore explored a framework for approaching this subject in a way that would promote women's ways of knowing and understanding the world.

Women's ways of knowing

Gunew (1990) describes knowing as a 'kind of meaning production' and 'the way that we make sense of the world by learning various sets of conventions' (p.14). Systems that support this learning are language, manners, dress, music, film and mathematics but these systems operate by reflecting our identity, provide awareness and help us to construct our reality. She continues that for women, knowledge can be seen in territorial terms in that it is legitimised in certain institutions to which access has historically been limited. It is only in recent history that women have been able to access many of these institutions (in particular education and medicine) and be in positions of being able to create different meanings and understandings. The educational institutes were originally founded by men for men and have had a predominant male culture, set of values, ways of teaching and sets of principles (Belenky, et al., 1997). Despite increases in the numbers of women accessing further education and entering university, women have often struggled to assert their own authority and to see themselves as authorities or experts (Belenky, et al., 1997). In their exploration of women's ways of knowing, Belenky et al. (1997) describe how women transform from having 'no voice' to the development of an inner voice. The developing inner voice is often described as intuitive and developed further through the integration of reason with emotion. They suggest that women have different ways of knowing and learning than men. For men there is an existing belief in their own intelligence with further education a means of learning complex, contextual ways of thinking which support the traditional, hierarchical world. For women there is a need for confirmation of their intelligence and development of the community around them to support, contextualise, integrate and connect their learning. Smith (1987) argues that it is only when women start to listen to each other that we can start to become authorities for ourselves and other women. She continues that we should use other women as a resource to develop our thinking so that women's discourses and knowledge systems are articulated and included within all aspects of society.

Uncovering women's ways of knowing

Feminists argue that the androcentrically biased sciences and social sciences have left out women and women's perspectives in research (Harding, 1991; Hesse-Biber, Leavy, & Yaiser, 2004). This has led to feminists developing

research methodologies in which women's experiences are an important element of the research and considered a valuable source of knowledge (Hesse-Biber, et al., 2004). One way of exploring women's experiences is by developing knowledge based on women's understanding and standpoint within society.

The standpoint of women

The power of the male voice within society and how women have often been the audience or supporters of the dominant male role was described by Dorothy Smith in her explanation of the 'Standpoint of Women' (Smith, 1987). Looking at the world from the standpoint of women means that we are discovering the subject from the inside, we are seeing the world from the woman's embodiment and her existence. Her world exists in time, with activity and materials, it is a world that is happening, can be observed, spoken of and returned to so that checks can be made on the accuracy of the account. There is a shared meaning and a co-ordination of activities, a co-construction of knowledge and there is a social construction of reality. Women have been silenced and deprived of authority; women's experiences were not represented in a world which held dominant male views from the standpoint of men. The dominant group in society have both personal and public relations of male power. Society and social relations are constructed in a way that advantages the dominant group and enables this group to exert dominance and control over other groups in society (Smith, 1987).

Feminist standpoint epistemology

Harding (2004) suggests that feminist standpoint epistemology was an idea that came about from several different authors working independently and therefore was a manifestation of the need to identify an epistemology that provided the woman's unique perspective on the production and organisation of knowledge (Harding, 2004a). It is precisely because of this development by the different authors that there are different standpoint theories. Jagger (2004) argues that as there are 'many ways of being a feminist' (p. 55) with different ways of viewing the oppression of women, so there are different interpretations of feminist standpoint theory depending on the author and their philosophical perspective.

Smith's (1987) form of standpoint is viewed as a sociology; Hartsock (1983) developed a standpoint based on Marxian concepts of class domination which argues that it is the interactions with nature and production that shape both human beings and theories of knowledge (Hartsock, 1983). In this concept a standpoint is not just an 'interested position' but can also reveal the different perspectives in society with the view that the real relations of humans are not always visible. Material life can set structures and limitations on how we understand social relations with two opposing views available, although the vision of the ruling class/gender, structure and set social relations for all groups. However, if life is structured in opposing ways for the two groups the vision of each will be an inversion of the other, with the dominant group having a partial vision whilst the vision of the oppressed group provides a fuller representation of both views (Hartsock, 1983). This argument continues that oppressed groups can provide an alternative to the dominant group and offer a more comprehensive and impartial viewpoint of society, as it represents the standpoints of both the oppressed and the dominant group (Hartsock, 1983; Jagger, 2004).

Jagger (2004) suggests that because women in contemporary society suffer a form of exploitation and oppression it is possible to gain a less biased and more comprehensive view of reality by using feminist epistemology (Jagger, 2004). However, women's perceptions of reality can be distorted by the male dominant ideology and structure of everyday life, so the standpoint is not discovered solely through a survey of existing beliefs but by a systematic and collective struggle with the existing political, historical and scientific beliefs (Jagger, 2004). It is the incompatibility of the insights into the woman's experiences of reality when compared to the male dominated interpretations of reality that provide the clues as to how reality might be interpreted from the standpoint of women (Jagger, 2004).

McLaughlin (2003) contends that there are two central claims within feminist standpoint epistemology:

- That different groups in our society will have different knowledge about the world
- That some forms of knowledge are valued more than others.

Within standpoint epistemology is the idea that we understand the world around us through our activity but this human activity also limits and structures our understanding. Therefore knowledge can be gained from those in different situations within society (Harding, 1991). Women's experiences are the starting point of research and provide an alternative 'way of knowing' (Clough, 1994). Feminist standpoint epistemology starts with research questions that are 'rooted' in the woman's life and everyday existence (Hesse-Biber, et al., 2004).

Can women speak for each other?

Hirschmann (2004) argues that whilst feminist standpoint theory has been influential in many fields including philosophy and politics it has also come under considerable criticism. One of the criticisms has been that the feminist standpoint provides one viewpoint for women and therefore does not take into account the differences that are inherent between individuals and groups of women such as ethnicity, race, culture, sexuality and class (Hirschmann, 2004). This criticism continues that the standpoint provides the views of the predominantly white academic woman to the exclusion of women of colour, poor women, third world women and lesbians. Hekman (1997) suggests that initially standpoint theory provided a challenge to the dominant masculine definition of truth as embodied by Western society and it provided an alternative truth; however, as the theory developed the differences among women became difficult to answer within the original theory (Hekman, 1997). She continues that "women speak from multiple standpoints, producing multiple knowledge's" (p. 239). This then is the postmodern understanding of the feminist standpoint.

Postmodernism is a concept that is difficult to define and articulate; it is a philosophy that opposes the positivist approach to knowledge of only one universal truth and argues that knowledge is constitutive of social and individual identity (Fuller, 2007). It can be a useful way of challenging the positivist approach to knowledge formation as it accepts the diversity of different knowledge. It has, however, been criticised on the basis that it causes the disintegration of any commonalities and destabilises concepts such as identity, historical progress, and epistemic meaning (Stanford Encyclopedia of Philosophy, 2005). In feminism it has been accused of leading to a loss of political direction and loss of the identity of gender (Edwards, 2005). Feminists

who hold a postmodern view accuse standpoint theorists of holding a position that accepts that knowledge is situated within different meanings and different groups but that argues that this knowledge production is as valid as the modernist understanding of truth and reality. In other words it seeks to match the male knowledge validity with female knowledge validity whilst ignoring differences between groups.

This thesis acknowledges the tension between postmodernism and standpoint theory, in that there is an understanding of the concept that as we are all different therefore we all hold a different knowledge of the world. As such there cannot be one single truth, but many different truths with all knowledge of equal validity (postmodernism). However, it argues for the need to provide a basis of understanding about labour and birth which has been informed by women and provides a voice which has been constructed using a feminist standpoint methodology. This will also support the exploration of the tension that occurs between the dominant theory and the woman's perspective more fully. Within the history of childbirth the domination of male knowledge over female knowledge has occurred to such an extent that female knowledge of childbirth continues to be undervalued in contemporary society. Therefore, before we can take a postmodern position we need to locate a foundation or structure for an alternative basis of knowledge construction. Childbirth is an embodied experience for women, and something that men cannot experience, therefore any knowledge construction has to be informed, developed and validated by women.

This thesis begins this work by building an understanding of labour that is constructed within a feminist epistemology. It may not speak for all women but should be seen as the beginning of an improved theoretical understanding. As such it needs to be located within a discourse that can challenge the dominant theoretical concept whilst also providing an alternative knowledge base which will support women to understand their labour. This thesis seeks to value and argue for women's knowledge as an embodied knowledge of childbirth within the discourses that continue to be understood and valued in contemporary society.

Embodied knowledge

Within science there has been a privileging of objectivity with rational thought considered superior to that of the body as an agent of knowledge (Maher, 2010). Embodied knowledge has been considered subjective and of less value than objective knowledge with women often considered more corporeal, more emotional and therefore more swayed by their biological nature than men (Witz, 2000). Feminist theory has engaged with embodied knowledge by exploring the subjective nature of knowledge production. For feminists there has been a tension between the corporeality of the body and the subjectivity of the woman's location and identity in knowledge development. Women's bodies have often been considered to be essentially (biologically) different to that of men's resulting in gendered explanations of differences as objective truths. Butler (1990) argues that it is not the biology that constitutes the differences but the social discourses that perpetrate them. Harding (2004b) contends that within scientific enquiry beliefs have functioned as evidence because it is the social beliefs that influence the selection of research problems for enquiry and how the research is carried out and the results interpreted. She continues that true objectivity requires strong reflexivity so that assumptions and social influences can be understood and acknowledged. Science has been influenced by social values which have often marginalised women's bodies. Feminist standpoint theory methodology requires reflexivity, examining of assumptions and knowledge interpretation. The results can then be combined and integrated with knowledge that is gained from women's bodies, consciousness and the way that women experience the world. Thus our bodies can be considered an important source of knowledge.

Within medical discourses there continues to be a Cartesian separation of the body from the mind with obstetric discourses often centred on the physiological as it relates to normality or pathology. The influences of the spiritual, social or psychological on the physiological body have been ignored and marginalised (Akrich & Pasveer, 2004). In feminist standpoint theory is the understanding that the woman's location and situation provides the source of knowledge development. In that to build knowledge about women there is a need to embrace the subjectivity of embodied knowledge. It is the woman's embodied knowledge, location, situation and the positioning of the woman within society that can be used to support standpoint knowledge claims (Haraway, 2004).

Additionally, the interpretation and translation of science by feminists can result in an understanding that is located within a situated position. Haraway (2004) argues for a joining of partial views collectively, she contends that the production of knowledge is social with human knower's who interpret and translate this knowledge and imbue it with power. Therefore biological differences can be theorised "*as situational and not intrinsic at every level from gene to foraging patterns, thereby fundamentally changing the biological politics of the body*" (Haraway, 2004, p. 96). Rose (2004) agrees that feminist theorising requires a methodology that can combine objective and subjective "*ways of knowing the world*" (p. 76). In that by fusing the personal, social and the biological, feminist interpretations and new knowledge constructions can be advanced.

Scientific knowledge continues to be valued within contemporary society despite limitations of interpretation. If science is to be interpreted within a feminist perspective it is necessary to have a full understanding of the current interpretations of physiology. Articulating an understanding of labour and birth that combines the woman's situational, and located knowledge with contemporary knowledge of physiology has the ability to provide a translation and interpretation which combines the physiological, psychological, spiritual and social influences. It may provide a challenge to the existing dominant theoretical concept of labour, which may be useful for women. It can be used as a starting point from which further knowledge development can occur and which can then explore women's individual differences and similarities in more detail.

Summary

The control and regulation of childbirth has been a contested place which has been associated with different beliefs and assumptions about the appropriate person and provision of care for women during childbirth (Papps & Olssen, 1997).

Medicine and obstetrics has historically been portrayed as scientific with doctors established as experts in the field. Through a privileging of male scientific knowledge, obstetricians have become the 'experts' who have conceptualised a theory of labour based on knowledge of female anatomy and influenced by a

cultural understanding of women as inferior to men. The obstetrician's territory was originally that of the difficult birth and this understanding of labour has influenced knowledge construction. The framing of obstetric knowledge as scientific knowledge suggested a privileged knowledge position over the woman's own knowledge of her body. Challenges to theoretical frameworks come from alternative paradigms and this thesis is based on a feminist epistemology which seeks to provide an opposition to the patriarchal dominance of current knowledge and generate a different knowledge (McLaughlin, 2003).

The next chapter will discuss how the prevailing view of labour (with phases, time parameters and cervical measurement) has become the dominant understanding in contemporary society. As such it will describe the building of the original concept based on accumulating knowledge. This dominant paradigm has been established and communicated as authoritative knowledge because it is purported to be based on a scientific theory.

Chapter Three

The theories of labour progress

Introduction

In the previous chapter I described how our current understanding of labour having three stages is a concept that developed during the 19th century. The source of this concept was the growing body of ‘anatomical and scientific’ knowledge that was being developed by the medical profession during that period. At the time men were predominantly called to difficult births so formed an understanding of birth as problematic and life threatening. They were also influenced by the cultural beliefs of the time in which women were thought to be inferior to men. The growing profession of obstetrics then proceeded to explain birth as a medical act that would have potentially poor outcomes without medical expertise and support.

In this chapter I will explain how this conceptual understanding of labour has been further developed and built upon during the 20th century to become the dominant theory of labour with stages and phases which is now commonly known. By tracing the theoretical development into contemporary times I aim to demonstrate that the cultural norms and expectations that influenced the formation of this theory have not changed and continue to influence our understanding of labour as it progresses towards birth. I will trace the structure and limits of this knowledge by examining the current published literature in the field and then describe the dissenting voices and gaps in understanding.

From concept to theory

During the early 20th century there was a growing body of work from obstetricians which sought to understand the progress of labour. There were extreme variations in the length of labour and very little consensus on what was considered to be a normal length. A popular hypothesis during the 1930s was that labour and birth evolved following a predetermined number of strong contractions. It was argued that the number of contractions were more important than the time factor involved (Frey, 1929 cited by Friedman 1967).

Contractions were counted every 30 minutes along with the average duration and character of the contractions. It was suggested that following rupture of the membranes it took no more than 300 contractions for primigravid women to give birth, but for multiparous women this was reduced to 200 contractions. During the 1940s Calkins hypothesised that it was possible to predict the approximate length of the first stage of labour by analysing information about the consistency of the cervix - looking at the effacement and dilatation at the start of labour - along with the intensity and frequency of contractions and the level of engagement of the fetal presenting part (Calkins, 1941, cited by Friedman, 1967).

During the 1950s and 1960s Friedman built on this understanding of labour with a series of research studies in which he documented a theory of labour progress for normal labour. This theory used cervical dilatation and elapsed time in labour to define the elements of what he considered to be normal labour. This provided clarification for clinicians and a means of defining normal and abnormal labours so that: “...*the hazards of parturition can be minimized through understanding and ingenuity, through acquired knowledge and its application*” (Friedman, 1967, p. 1). In his initial research Friedman’s sample was 100 primigravid women at term who presented themselves sufficiently early in their labours to permit adequate study. With a few exceptions (4) labour started spontaneously, and resulted in 29 women having a normal birth, 68 having a forceps birth, one caesarean section, one vaginal breech birth and one vaginal twin birth. Friedman describes this sample as “nearly all delivered vaginally with a vertex presentation” (Friedman, 1954, p. 1569).

Cervical dilatation was measured in centimetres and graph paper was used to show 10 divisions from 1 to 10 cms of labour progress along one axis, with the other axis being for time elapsed. From this a graph was formed for each woman’s labour which was referred to as a cervicogram. Friedman described these graphs as being S-shaped or sigmoid in shape and he hypothesised that all labours would follow a similar pattern. If this pattern was not being followed then there was a problem which he defined as primary or secondary inertia of labour. He argued that by recognising inertia early the clinician was able to act sooner to resolve the issue.

He concluded that:

What we have done is to redefine labor in terms of a new dimension (slope), viewing labor as a dynamic process, setting time limits solely on the basis of previous activity, and, finally, demonstrating what may be expected of a normal labour. (Friedman, 1954, p. 1574)

Thus the concepts of measurement and time limits were integrated into an understanding of normality and became the basis for determining pathology.

Establishing the latent and active phases of labour

Following on from this early research Friedman continued to investigate cervical dilatation as a means of predicting labour length for normal labour. In 1955 and 1956 he published two papers, in which he undertook an in-depth analysis of the labour of 500 primigravid women and 500 multiparous women and their rate of cervical dilatation (Friedman, 1955, 1956). Within these papers he describes four phases for the first stage of labour:

- Phase one -also known as the latent phase
- Phase two - the acceleration or active phase which involves a rapid and increasing dilatation of the cervix
- Phase three - also known as the steady period when the maximum slope of acceleration has been reached
- Phase four - or the deceleration period in which the rate of cervical dilatation decreases and slows until full dilatation has been reached.

This gave the S-shape or sigmoid shape described earlier. The separate phases of labour for the primigravid and multiparous women were obtained and examined and the mean value for each phase was calculated along with statistical deviations.

Establishing time limits

From these measurements it was calculated that the mean length of the latent phase for primigravid women was 8.6 hours although there was a range from 1 to 44 hours. It should be noted that many women were eliminated from the study

because they arrived at the hospital in advanced labour so were not included. The mean length of the second stage was described as 0.95 hours; however the hospital policy was to terminate labour by operative delivery after two hours of full dilatation regardless of progress. Friedman provided data on what he considered to be the upper limit for a normal latent phase of labour (20.6 hrs) and for active labour (11.7 hrs) with a minimum of 1.2 cm progress during the stage of maximum slope (active stage). Altogether Friedman stated that the maximum duration of a normal first stage is 28.5 hours and a second stage of 2.5 hours for a primigravid woman. This information was presented in a pictorial manner (known as a cervicogram) which demonstrated normal labour progress.

In the sample of 500 primigravid women only 200 (40%) had a spontaneous birth (and indeed only 200 women could be considered to have an undisturbed labour without iatrogenic tampering), 55.4% had a forceps birth, 1.8% were caesarean sections and 2.8% were breech births. In the study of 500 multiparous women there was a wide variation in the length of the latent phase, although the length of the active and deceleration phase and second stage were narrower. For this group 373 women (74.5%) had a spontaneous birth, 2.4% had a breech birth, 0.8% had a caesarean and 22.3% had a forceps birth.

These studies were undertaken during the 1950s in the Sloane Hospital in New York, North America in which routine hospital care was provided (Friedman, 1955). It was usual to provide sedation in the form of Demerol and Scopolamine with only 19 of the 500 primigravid women receiving no medication at all (Friedman, 1955, 1956). Labour was considered to have started when regular uterine contractions had been established. Cervical dilatation was measured by rectal examination in the majority of cases although if there was any doubt due to a very soft or thin cervix then a sterile vaginal examination would be used. The frequency of cervical measurement varied; sometimes they were done half hourly but more usually hourly or every two hours. In order to ensure uniformity of measurement the same examiner performed each examination.

Friedman's hypothesis was that cervical dilatation was the single major clinical feature that provided a guide to progressive changes of the first stage of labour and paralleled overall progress (Friedman, 1967). He argued that by using an analytical approach with cervical dilatation measured against time,

dysfunctional labour was more easily identified and early intervention of clinical problems could ensure appropriate treatment (Friedman, 1971; Friedman, Niswander, & Sachtleben, 1969).

Critique

Friedman used a positivist approach suggesting that there is an objective reality which can be discovered by a 'neutral' observer, data or facts can be discovered, and a theory developed from the facts (Charmaz, 2003). Walsh and Newburn (2002) suggests that this positivist attitude bases its legitimacy on being unbiased and objective and that the knowledge 'found' can be generalised, making any other explanation invalid. The research presented by Friedman provided what he considered to be objective data and he developed a theory which he believed provided a scientific explanation of how labour progresses. The objective measurements used were cervical dilatation along with elapsed time, and following statistical analysis he suggested that the subsequent labour curve could be generalised to all women in labour. Friedman's work has been criticised on the basis that it used statistical normality and by connecting it to physiological normality (in a false and misleading way) provided a scientific basis on which to build artificial expectations of normality (Katz Rothman, 2007).

Assumptions within the research

When we look at the researcher's underlying assumptions we see the supposition is that childbirth is dangerous. The research was undertaken to reduce the 'hazards of parturition' and provide objective knowledge for obstetricians so they can manage the labour to ensure safety for the woman and baby (Friedman, 1967, p. 1). This suggests an implicit distrust in the woman's ability to labour and give birth without the need for assistance from an obstetrician. The routine care and high level of forceps births is indicative of the obstetric management of the birth process in the United States from the 1920s through to the 1970s. During this time it was routine to sedate a woman through the labour, utilise episiotomy, and remove the baby by forceps (Simonds, et al., 2007). High levels of sedation with a combination of morphine and scopolamine were used (also known as twilight sleep) and ensured women did not remember

what had happened during labour. However, the women still felt and responded to the pain so needed to be restrained in case their thrashing around caused injury (Simonds, et al., 2007). In North America during the 1950s women had little other choice of health care professional, with medicine having full control of childbirth and “*midwifery almost ceased to exist*” (Simonds, et al., 2007, p. 15).

Patriarchal views

The prevailing obstetric viewpoint in the US at the time was that giving birth was problematic and dangerous for both the mother and the baby (Simonds, et al., 2007). Within childbirth the woman was a passive observer to male medical expertise. Women were not asked for their views and care provision was highly medicalised. Care provision by obstetricians could be described as patriarchal in that the obstetricians were thought to ‘know best’ because of their education and expertise and women were expected to comply with their instructions. Patriarchy is described as the systems and social structures that have been set up in which men determine which roles women can play (Bates, 2004).

Limitations

With our current understanding of the needs of women during labour it has become evident that the style of care that formed the basis of this research does not reflect contemporary women’s expectations for a normal labour. There is an increasing understanding that women should be able to follow their own body’s rhythms, be able to move around, and have emotional support during labour (Albers, 2001; Walsh, 2003).

Despite its limitation Friedman’s hypothesis has been the basis of contemporary obstetric understanding of labour progress and continues to be referenced in modern obstetric texts (Arya, Whitworth, & Johnston, 2007). It provided a ‘scientific’ and persuasive argument by using a positivist approach and objectivity of measurements supported by the authority of the ‘expert’. The theory was demonstrated by a cervicogram to aid understanding of what should be considered normal labour along with time parameters so that labour care and management could be standardised.

Development of time limits and expectations of progress

Friedman continued to publish papers and a book describing in detail his theory of 'normal' labour through the 1960s and 1970s (Friedman, 1967, 1971; Friedman, et al., 1969). Following publication and presentation of Friedman's cervicogram in the 1950s, the concept of what could be considered normal labour progress became widespread knowledge amongst obstetricians. The cervicogram did not remain a philosophical concept but became standard knowledge and by the 1970s the majority of American textbooks had reproduced 'Friedman's curve' within their texts and represented it as the standard understanding for normal cervical dilatation in labour (Hendricks, Brenner, & Kraus, 1970). It was only a matter of time before this concept was extended into a more practical format. Glick and Trussell (1970) described their adaptation of Friedman's curve as a teaching tool for doctors and midwives in Mulago Hospital in Kampala, Uganda. By using a special printed form which included the cervicogram and other important aspects of labour, Glick and Trussell (1970) encouraged students and house officers to predict the time of birth using regular frequent vaginal examinations and plotting on the cervicogram. They taught that there were many factors that could affect the progress of labour but the relationship between cervical dilatation and the character of uterine contractions was the most important when identifying dysfunctional labour (Glick & Trussell, 1970).

Development of the partogram

In 1972 Philpott and Castle (1972) introduced a graphic labour record, which they called a partogram, to several British hospitals in Rhodesia. The partogram included the cervicogram and the ability to record other essential features of labour on one sheet of paper. They described the value of using this graphic record as a way of "improving the management of labour in the individual and the administration of the labour ward as a whole" (Philpott & Castle, 1972, p. 163). They argued that the partogram was an efficient way of recording the essential elements of labour and provided a pictorial display that could be used to alert the obstetrician to abnormal developments whilst also being a valuable teaching tool (Philpott & Castle, 1972, p. 163).

Introduction of the partogram to the United Kingdom

Philpott and Castle's partogram was modified and introduced into the United Kingdom (UK) during the 1970s through the Blair Bell Research Society. The introduction of the partogram into hospitals depended on the obstetricians' and midwives' acceptance of the documentation. Proponents argued that cervical dilatation was the most important indicator of labour with the partogram identifying prolonged and dysfunctional labour (Studd, 1973). Within a few years the partogram became a standard way of documenting labour progress and was in use in approximately half of all the teaching hospitals in the UK (Studd, 1973; Studd & Duiagnan, 1972). During the 1970s, Studd and colleagues undertook a series of studies to determine the timing of action and intervention and argued for individualised partograms based on cervical dilatation on admission to hospital (Studd, 1973; Studd, Clegg, Sanders, & Hughes, 1975; Studd & Duiagnan, 1972).

Global advancement of the partogram

In 1987 the World Health Organisation started to promote the use of a standardised partogram for low resource countries as part of the Safe Motherhood initiative (Kwast, Lennox, Farley, Olayinka, & al., 1994). A WHO technical working group developed a partogram which included a latent phase up to 3 cm; during the active phase the cervix was expected to dilate at a rate of 1 cm dilatation an hour. Kwast and colleagues (1994) undertook a multi centre trial using paired hospitals in Indonesia, Malaysia and Thailand as a way of objectively evaluating the partogram. Each hospital was situated in an urban environment, had adequate medical and midwifery staff along with facilities for operative obstetric care, and functioned as a district general hospital. The partogram was introduced after five months of standardised data collection with one hospital of each pair having a further five month delay. A labour management protocol was implemented along with the partogram and advised the following: that there should be no intervention during the latent phase (up to 3 cm) until after eight hours, that the membranes should be ruptured once in active labour, and that at the active phase action line the practitioner should consider one of the following options - oxytocin augmentation, caesarean section, or observation and supportive treatment. The introduction of the partogram and protocol was managed by intensive teaching of relevant staff.

Their results demonstrated a reduction in prolonged labour of over 18 hours (from 6.4% to 3.4%) whilst also halving the number of labours receiving augmentation (from 20.7% to 9.1%). Emergency caesareans also fell from 9.9% to 8.3% along with a reduction in the number of stillbirths from 0.5% to 0.3%. These improvements occurred amongst both nulliparous and multiparous women suggesting that the WHO partogram supported the differentiation of normal progress from abnormal progress (Kwast, et al., 1994).

The areas in South East Asia in which this research was conducted were considered low resource countries. However, even prior to the introduction of the partogram there appears to have been an existing high level of intervention of labour and regular use of augmentation. The introduction of the partogram was supported by intensive education; therefore a standardisation of care during labour was achieved based on a rationale and advice to wait longer before introducing augmentation. It would appear that many of these hospitals had a culture of intervention but with standardisation of practice there was a change in behaviour and culture.

Kwast and her colleagues introduced the modified WHO partogram (modified in 2000 with the removal of the latent phase and active labour starting at 4 cm) to a hospital in Ethiopia in 2007 and reported very different results (Kwast, Poovan, Vera, & Kohls, 2008). In this retrospective, descriptive study they found an increase in the number of operative births for women admitted in the latent phase of labour when compared to women admitted in the active phase of labour following the introduction of the modified partogram. It was apparent that by removing the latent phase and trying to simplify the partogram the protocol for the care and assessment of women in the latent phase of labour had been changed, resulting in increased intervention (Kwast, et al., 2008).

A retrospective cohort study undertaken in Canada found that women who arrived in labour with a cervical dilatation of less than 3 cm were more likely to have a caesarean section along with higher use of oxytocin and epidural use (Holmes, et al., 2001). In this cohort of 3220 women with a low risk spontaneous labour, the women who came to hospital with a cervical dilatation of between 0 and 3 cm had spent less time in labour before admission and were more likely to have obstetric intervention than those women who were admitted

to hospital in more advanced labour. Outcomes were similar whether the women was initially allowed home or not (Holmes, et al., 2001).

Critique of the partogram

The use of a partogram expects women to follow a standard rate of progress during labour. This rate was set at 1cm an hour based on the mean of the slowest 10% of the African primigravid women from Philpott & Castle's (1972) initial retrospective descriptive study, which was not designed to be generalised to other populations. The partogram with its expectation of a normal rate of cervical dilatation during labour of 1 cm an hour for all women was never fully explored or tested by randomised controlled trial, but during the 1970s and 1980s became normalised, standardised and generalised to women throughout the world. The partogram assumes that all women will progress in labour at the same rate and does not take into account the individuality of each woman and her labour, or other elements that may have a detrimental effect on her labour. Alert and action lines also encourage the use of increased interference and intervention during the course of labour which in themselves may generate iatrogenic outcomes for the woman and her baby. The World Health Organisation continues to advocate the universal use of the partogram during labour arguing that it enables the health care practitioner to monitor the health of the mother and baby, identify early deviations from normal labour, and make earlier decisions regarding transfer and referral (Soni, 2009).

A systematic review of the effect and use of the partogram for women in spontaneous labour has found no evidence of benefit and argued against the routine use of the partogram as part of standard labour management and care (Lavender, Tsekiri, & Baker, 2008). This review, which included 6187 women from five studies, aimed to determine the effect of a partogram on maternal and perinatal morbidity and mortality. It looked at the use of partograms versus no partograms and at different partogram designs to determine which was most effective. It found two randomised controlled trials of 1590 women randomised to use or no use of a partogram. When results were pooled they found no significant differences between the caesarean section rate, instrumental birth rate or Apgar scores of less than seven at five minutes, suggesting that there was no difference in outcomes whether a partogram was used or not. When looking at

randomised controlled trials in which partograms were used and groups randomised to a two hour, three hour or four hour action line or no action line, they found little difference in outcomes, except that the women who were randomised to the two hour action line experienced more oxytocin augmentation during labour (Lavender, et al., 2008). Whilst they acknowledge that many hospitals use a partogram as part of standard care, they conclude that there is limited evidence of benefit from the use of the partogram or any particular type of partogram. They argue that it should not be used as a standard labour tool but could be useful as a basis for discussion between clinicians and women until further evidence has been acquired to establish the efficacy of partogram use.

In summary the conceptual understanding of labour as three stages was developed further during the 1950s to include the latent and active phases of labour and was demonstrated as a cervicogram. Time parameters and cervical dilatation were the markers of progress with poor progress labelled by Friedman as pathology requiring intervention to avert morbidity. The concept of labour as phases with time parameters based on cervical dilatation was developed further into a pictorial representation named a partogram. The partogram ignored the latent phase of labour and supported an expectation of cervical dilatation of 1cm an hour as a sign of normal progress. This expectation has been standardised as the normal rate of dilatation for women and used to define normality or pathology. This historical review has demonstrated that there was an initial theory developed which provided a conceptual understanding of labour progress.

This theoretical concept was supported by accumulating knowledge within the field although adaptations have occurred without full scientific evidential support (for example, the move to 1 cm an hour as a universal measurement). The theory has been based on observable facts which have been interpreted in a particular way (defining of normality and pathology). The interpretations of the first study by Friedman have been the basis of knowledge development. The knowledge claims based on this theoretical understanding of labour have been disseminated widely and currently form the basis of labour management for many countries.

The next section will examine other relevant literature looking at the stages and phases of labour; firstly by examining research that has built upon this initial theoretical concept to support and develop the theory further, then by looking at the dissenting, critical and alternate voices. It is the dissenting or alternative voices that can challenge a prevailing theoretical concept by providing sufficient doubt through anomalous findings. When there are sufficient anomalies within the theoretical concepts, paradigm changes can occur (Sharrock & Read, 2002).

Building on Friedman's theory of labour progress

Within the scientific paradigm, once an initial theory has been identified within a field it is developed further by more research studies building on the initial knowledge base to further define and refine the initial concept and theory (Sharrock & Read, 2002). Subsequent studies that used the initial theoretical understanding of labour progress – also known as Friedman's curve - have researched the following areas:

- the impact of parity on the length of labour (Gurewitsch et. al., 2002; Lavender, Hart, Walkinshaw, Campbell, & Alfirevic, 2005; Vahratian, Hoffman, Troendle, & Zhang, 2006), finding that whilst nulliparous women have longer labours, multiparous women have a shorter active phase of labour (Vahratian, et al., 2006), but once parity exceeds four the labour appears slower with a latent phase lasting until 6 cms dilatation (Gurewitsch, et al., 2002).
- the impact of ethnicity on the length of labour (Greenberg et. al., 2006; Jones & Larson, 2003; Debiec, Conell-Price, Evansmith, Shafer, & Flood, 2009). The results suggested that Asian women had slower labours than other ethnicities (Black, Hispanic, White, other) (Debiec, et al., 2009), Hispanic women had a longer first stage duration but a similar second stage duration when compared to Friedman's cohort (Jones & Larson, 2003), and that African/American (black) women had a shorter duration of second stage when compared to other ethnic groups (Greenberg, et al., 2006).

- the impact of age on length of labour (Greenberg, Cheng, Sullivan, Norton, & Caughey, 2007) with results suggesting that older women (>39yrs) were more likely to have a longer labour and higher incidence of prolonged labour.
- the impact of maternal weight on the length of labour (Debiec, et al., 2009) with the results suggesting that women who were heavier were also more likely to have slower labours.

These research studies have used Friedman's initial research and built further on the hypothesis regarding a standard rate of progress for normal labour. However, the results indicate that there are differences between women dependent on age, ethnicity, parity and weight in that each of these factors can affect the rate of labour progress. The theoretical frameworks on which the theory and knowledge building is based have continued to be influenced by the first studies in the field and the interpretation of the person/s who have undertaken the studies.

Dissenting voices – within the existing conceptual framework

During replication of the initial research there are often anomalous results leading to a questioning of the theory. These challenges can provide a dissenting voice from within the scientific research paradigm and often lead to a reconsideration and re-examination of the original theory (Sharrock & Read, 2002).

The time parameters on which Friedman based his four phases have been challenged, with a major concern being the identification and diagnosis of the latent and active phases of labour. In 2002 Zhang, Troedle, and Yancey reassessed the labour curve using a contemporary population in North America and found significant differences in the labour curve for their sample when compared to the Friedman labour curve. Labour management has changed substantially in the United States since the 1950s resulting in higher rates of induction of labour, oxytocin augmentation during labour, epidural analgesia and fetal monitoring. They questioned whether the Friedman labour curves were appropriate for women who were being induced or had their labour augmented and set about investigating the normal length of labour for women in these

circumstances. Their results suggested that the active phase of labour was longer than that identified by Friedman and the deceleration phase was not identifiable (Zhang, et al., 2002). They considered that the changes in contemporary obstetric practice may have confounded the results.

Zhang and colleagues (2010) continued to research labour progress and examined data from the National Collaborative Perinatal Project which recruited women from 12 hospitals in North America from 1959 to 1965 (Zhang, et al., 2010). They did this to remove the confounding influences of contemporary obstetric practice in North America which has high rates of elective and intrapartum caesarean birth. They therefore reviewed labour data from a large cohort of women who gave birth during the 1960s to examine the labour patterns and '*explore an alternative approach for diagnosing abnormal labour progression.*' (p. 705). In their results Zhang et. al. (2010) found that the time of progress from 1 cm to the next became shorter as labour advanced, but that there were difficulties in defining the change from latent phase to the active phase of labour. In the Friedman curve this transition appeared between 3 to 4 cm dilatation however Zhang et al. (2010) found it to be 5 cms (or later for nulliparous women). They failed to identify a deceleration phase and argue that it may be an artefact in the original research. They conclude that whilst the labour curve is easy to understand, its use in a clinical sense is limited because of the variability of women's labours. Therefore, an individual approach to assessment of labour progress is warranted.

Albers (2001) also questioned the original work of Friedman by investigating the length of labour for 4,745 women receiving midwifery-only care in nine hospitals in North America. Care provision included social support, non-pharmacological methods of pain relief, maternal activity and position change, and intermittent fetal heart auscultation (Albers, 2001). The rate of labour was found to be slower than that described by Friedman (1.2 cm an hour) with a slower rate of cervical dilatation described as 0.3 to 0.5 cm per hour for normal birth. The results demonstrate that longer labours did not result in untoward outcomes for the mother or baby.

Other issues with the existing concept

As identified in Chapter One, the major concern for women and caregivers has been the ability to differentiate between the active and latent phases of labour. With the shift in place of birth from home to hospital for most developed countries, women are now required to determine the most appropriate time of admission to hospital. Determining whether they are in the right phase of labour can be difficult when the explanations of labour stages or phases are so strongly dependent on cervical dilatation and when there is such a variation in definitions. The early part of labour – described by Friedman as the latent phase of labour - remains poorly understood and there are large variations in the duration of the early part of labour. There are also differing terms used by clinicians for this part of labour, which causes further confusion for women.

Admission to hospital in what is considered to be the latent phase of labour (less than 3 or 4 cm cervical dilatation) results in increased obstetric intervention during labour such as the use of oxytocin to accelerate the labour and an increased use of epidural anaesthesia (Holmes, et al., 2001). Early hospital admission also increases the use of resources such as labour rooms and caregivers within the hospital (Cheyne, et al., 2006). There have been a number of strategies set up to ensure that women are only admitted to hospital labour wards when they are considered to be in the active phase of labour. These strategies include early labour assessment and triage programs in hospitals (Greulich & Tarrant, 2007), and the use of algorithms to aid midwives' clinical decision making in diagnosing active labour (Cheyne, Dowding, et al., 2008). These algorithms include physical signs being exhibited by a woman, how she is coping with the labour, the expectations of the woman and her family, and the requirements of the institution (Cheyne, et al., 2006).

When a woman is diagnosed as being in the latent phase of labour, being sent home appears to increase women's anxiety and makes them feel unsupported without necessarily changing the outcomes or reducing the levels of intervention received during labour (Barnett et. al., 2008; Cheyne, Terry et. al., 2007). The technicalities of the latent or active phases are irrelevant to women who really require sanctuary, security and support and there is a need for more information about the woman's expectations and needs during this early part of labour (Baxter, 2007).

The current understanding of labour with boundaries to delineate the active and latent phases of labour is problematic. With women being admitted to hospital too early there has been a need to identify and define these stages so that only women in 'active labour' are hospitalised. It would appear that with the current description of labour women are unable to differentiate between the active and latent phases of labour and therefore present to hospital with any, early signs of labour. For health professionals there has also been difficulty in defining the latent and active phases of labour resulting in the use of algorithms to support decision making. Strategies to overcome these issues to date have been to redefine the markers/boundaries between these two stages, such as redefining the latent and active phases based on a cervical dilatation of 4 cm or 5 cm and the use of algorithms to define active labour. This field of research has been based on the initial hypothesis suggested by Friedman – that cervical dilatation is the most important marker of labour progress. This viewpoint can be considered disembodied and mechanistic, with the expectation that every woman will labour at the same rate and in the same way. It ignores the myriad other factors which can inhibit or support labour to move towards birth.

Other dissenting voices – alternative paradigms

Challenges to the existing conceptual frameworks occur when there are sufficient anomalies to the theoretical understanding. These challenges often arise from alternative and revolutionary paradigms which can provide alternative understandings and a different conceptual framework supporting the development of other knowledge.

Challenges to the existing conceptual understanding

Challenges to the medical hegemony and patriarchal control of childbirth by obstetricians have come predominantly from sociologists, anthropologists, feminists and midwives (Buckley, 2005, 2010; Davis-Floyd & Sargent, 1997; Kitzinger, 2005; Oakley, 1979; Odent, 2001; Schmid & Downe, 2010; Stewart, 2004; Walsh, 2003, 2007, 2010; Webb, et al., 2008; Wickham, 2004). These groups have variously argued that all cultures have rules and regulations around childbirth that guide behaviour (McCourt, 2009), but in Western society childbirth is dominated by a medical, technological view which discounts

women's experiences, knowledge and understanding as unimportant and insignificant (Kitzinger, 2005; Oakley, 1993).

Challenges to the existing paradigm of labour progress argue that labour is not linear or one dimensional, but should be considered as rhythmic in nature (Walsh, 2007, 2010). During the normal reproductive cycle, women's bodies move in a cyclic rhythmic movement through hormonal polarities, with hormones changing throughout the menstrual cycle. This cyclic rhythmic movement can also be seen during labour and birth with labour flowing between active and passive phases. The flow of labour cannot be seen when it is restricted by measurements and the linear understanding associated with stages/phases of labour (Schmid & Downe, 2010). These rhythms may be different for each individual woman at different times during her labour and may be influenced by psychological, emotional, and spiritual factors as well as physical.

The process of giving birth can be understood as a dialogue between the physiological systems and consciousness which are interlinked and may be influenced by environmental and emotional factors (Schmid & Downe, 2010). Odent (2001) and Buckley (2005, 2010) suggest that giving birth releases a cascade of hormones similar to those produced during sexual events so may require privacy and security for optimum outcomes. Women should be protected from stimulation from bright lights and the feeling of being observed. Labour and giving birth are intimate events and there is a need to reduce external stimuli during labour (Buckley, 2005, 2010; Odent, 2001).

Midwives have argued that the woman's experience is individual and can be affected by a variety of social, psychological and cultural factors which may also impact on her perceptions of the birthing experience (New Zealand College of Midwives, 2008; Walsh, 2003). As such each woman's labour will be individual to her and her body's rhythms (Walsh, 2003, 2007, 2010). Labour rhythms can be assessed holistically from the visual signs and behavioural cues that women show during labour (Burvill, 2002; Winter & Duff, 2009). Women should be treated as individuals with their own culture, beliefs and understandings, any of which may influence their experience of labour and birth. Thus a social model of childbirth is promoted, one in which the woman is the

focus and centre of care and the woman's autonomy and right to make informed choices are central to care provision (Guilliland & Pairman, 2010; Walsh & Newburn, 2002).

This philosophy of care requires an understanding of the woman's experiences and knowledge of the important issues for women. The next section provides an overview of the research that has explored woman's experiences and knowledge of labour and birth. Whilst it has been predominantly midwives who have explored this issue, others such as childbirth educators have also explored women's experiences of childbirth.

Women's Experiences of childbirth

Simkin (1991) explored the long term impact of the experience of childbirth for 20 women who gave birth during the 1960s and 1970s. She found that women had vivid memories of their childbirth experience which continued for 15 to 20 years after the experience. Those women who felt in control of their childbirth felt that they had accomplished something important and that the experience had contributed to their self-confidence and self-esteem. However, positive associations were not reported amongst those women who had less satisfaction with their birth experience.

The theme of control is repeated by Halldorsdottir and Karlsdottir (1996) who explored women's perspective of giving birth with 14 women who gave birth in hospitals in Iceland. Using a phenomenological approach they described labour as a journey. This journey encompasses the influences of the woman's beliefs about labour prior to the journey, a sense of self during labour as part of the journey itself, and the uniqueness of birth as the journey ends. The woman's beliefs influenced her expectations of birth with women discussing the need for a sense of being cared for, which enhanced their sense of security. They also discussed the need for support from a sensitive midwife and a supportive partner. The women described labour as painful and hard work and articulated wanting a sense of control of self and circumstances; whether they achieved this sense of control made a difference to the woman's perceptions of the birth. Childbirth was described as a powerful and profound life event as well as a physiological and 'highly individual experience' (Halldorsdottir & Karlsdottir, 1996, p. 49).

Machin and Scammell (1997) investigated the way in which women assembled their understanding of pregnancy and birth through the materials of culture in their ethnographic exploration of 40 women's childbirth experiences. They found distinct cultural differences between women who attended National Health Service antenatal classes and those who attended the National Childbirth Trust classes. Despite these differences in beliefs and expectations they found that the women shared similar birth experiences. They discuss women's descriptions of trance like states during labour and suggest that this made the women more vulnerable to suggestions and enabled easier acceptance of the medical boundaries for childbirth (Machin & Scamell, 1997). For women who had expected to experience control during childbirth there was a higher level of perceived emotional trauma. They concluded that birth is a ritualistic practice with boundaries and practices that have been determined by obstetricians and midwives with 'the powerful metaphor of the safety of science on their side' (p. 84). The themes of support and control appear to be central and important for women and have been found in other research studies exploring women's experiences of labour and birth.

Support and control

In a randomised controlled trial involving 615 women Lavender and colleagues (1999) explored women's level of satisfaction with their childbirth experience via a questionnaire with open ended questions (Lavender, Walkinshaw, & Walton, 1999). They found a high level of consistency and agreement between women about factors they considered contributed to a positive labour experience. The main themes were support, control, information, decision making, intervention, and pain relief. With regards to support the women found this one of the most important aspects of labour and considered the midwife and partner or friends present at the birth as sources of support. In this study women expressed the need to maintain personal control during labour, which was sometimes described as difficult with some women feeling that they were not in control; rather it was the hospital and the midwives/doctors who were in control. Many of the women described decision making as being important in relation to being able to decide who would be with them at the birth and what pain relief they should have. Pain in labour was discussed by one in five women with some saying the pain was worse than expected and others suggesting it was not as bad

as they expected. The authors conclude that support, control, pain, information and decision making are all inter-related and need to be considered to ensure a positive birth experience when working with women.

The themes of support and control were also found in a small qualitative study exploring eight women's expectations and experiences of childbirth using a phenomenological approach (Gibbins & Thomson, 2001). Women described support from both midwives and partners as being important for them. Information about childbirth had been gained from childbirth preparation classes and the women felt well prepared for birth. However, the experience of labour was different to their expectations with the feeling of being 'in control' reported to be important; this helped the women to feel positive about their birth experience.

Women's expectations about childbirth can have an impact on their experience of childbirth, their postnatal recovery and their transition to motherhood (Fenwick, Hauck, Downie, & Butt, 2005). Fenwick et. al. (2005) explored the expectations of a self selected cohort of 202 Australian women to identify what influenced women's expectations about childbirth. The women described expectations of control, support and choice and to be actively involved in decision making. They expected to get support from family members with birth in a 'friendly environment' where they could be nurtured and given individualised care. Because birth was considered an uncontrollable event many of the women also described a concept of keeping their options open and being prepared for anything to happen. This was considered a way of retaining a sense of control despite the inability to prepare for the unknown. Some women described birth as a positive and fulfilling experience, whilst others considered it a potentially negative and frightening event, expressing concerns about fear and pain. The researchers concluded that the woman's expectations of childbirth are influenced by her social network especially those of close family and friends, although professional discourses had some influence on how women construct their expectations of childbirth.

Dahlen, Barclay and Homer (2010) also found themes of support and control in their small qualitative study of 19 Australian women. The aim of this research was to explore the first time mother's experience of childbirth at home or in

hospital. The women described feelings of being ‘novices’ because they had no previous experiential knowledge of childbirth. They therefore prepared for birth by accessing information from a range of sources, describing the importance of preparation, information and communication as means of increasing their own feelings of control during the birth. Choice and control were linked with preparation because without information and knowledge about available choices there could be little control over their experience. Support was also considered to be a key factor in this research and was highly valued by the women. Support was reported to be provided by midwives as well as by partners and family members (Dahlen, et al., 2010).

Length of labour

There has been very little research exploring women’s perceptions of length of labour. In one study determining the length of a normal labour and analysing home birth and birth centre births, Gross and colleagues (2005) collected data from a large cohort of women (N=1246) who had an intervention-free environment. They used women’s definition of the start of labour as defined by the onset of contractions (and subsequently documented by the midwife) as a basis for measuring the length of labour. This was the first study to include women’s voices in research exploring length of labour. The results suggest that when all of the factors that could influence labour were considered, parity and timing of midwifery care were found to be the major influences on labour duration. Multiparous women were found to have a statistically significant shorter first stage. Women who had a shorter interval between the onset of regular contractions and the provision of midwifery care also had a shorter first stage, which was statistically significant for both nulliparous and multiparous women (Gross, Drobic, & Keirse, 2005). Gross et. al. (2005) argue that caregivers should discuss the onset of labour with women and not apply arbitrary measures to identify when labour has started. They also suggest that more research is needed into how professional support exerts an effect on labour duration and how these effects can be further optimised.

Both environmental and psychological factors can influence the woman’s labour and birth experiences (Hodnett, Gates, Hofmeyr, & Sakala, 2003; Nolan, Smith, & Catling, 2009). An internet survey of 2,433 women explored the women’s

views of early labour and labour unit triage provision (Nolan, et al., 2009). They found that women who were excited, happy and positive in early labour were more likely to experience a normal vaginal birth. They also found that for some women moving to hospital during early labour could slow the contractions indicating that the physiology of labour can be 'disturbed' by changes in environment. Similarly, a systematic review found that support during labour reduced the use of pain medication and increased the likelihood of having a vaginal birth, whilst also enhancing satisfaction with the birth experience (Hodnett, et al., 2003).

Assumptions and critique

The research undertaken within this paradigm has considered women's views and understanding of labour and birth. Key components have been described as support and control, with much of the research describing women's expectations of both. The question is whether these elements are truly representative of women's requirements or an interpretation by the researcher that supports their own conceptual framework and understanding.

Hewison (1993) suggests that language can be a key factor in determining how experience is framed or reported and when different descriptions emerge then experiences may also reflect the differing descriptions. Do women conceptualise important aspects of birth as control and support, along with informed decision making, because in many developed countries these have become a cultural expectation within childbirth? Are they repeating concepts already introduced prior to childbirth? Or have the researchers identified issues of support and control because they support their own conceptual understanding and arguments? Or are the concepts of support and control important aspects of childbirth for women? Defining truth and knowledge is as difficult within this paradigm as within any research paradigm.

Wagner (2001) argues that the education of women is a vital tool in ensuring that women can gain power over their birth experience. However, there is also a tension in who provides the information and education to women; those who control information will also hold the power and can ensure limited or biased access to information (Wagner, 2001). Oakley (2000) suggests that people will

always find what they are looking for but will not always see something they are not looking for. In this sense they are projecting their own reality or expectations and can be unaware of other issues. With the variety of research studies identifying support and control as important issues for women it is possible that these were the constructs that were important for both the women and the researchers. For the researchers, this concept can be used politically as a means of identifying a need for change in the model of care provision, arguing for care that is more women centred. The question remains as to what was not identified within the research because it was not 'seen' by the researcher.

In summary, research to date has identified anomalies in the current understanding of labour progress with differing rates of progress to that expounded in the initial theory, along with difficulties for women and health professionals when trying to identify the difference between the latent and active phase of labour. Research exploring what is important to women during labour and birth has resulted in the concepts of support and control with women stating that both are important factors for them during labour and birth. These concepts may be cultural constructs of interpretation by the researchers to support arguments for paradigm change. A consistent theme for this paradigm is the argument that there are a multitude of factors that may influence how a woman's body works during labour. They argue that the physical, psychological, spiritual and emotional influences should be considered in a holistic and integrated way. In contrast, for those situated in the medical paradigm the factor considered to be most dominant is the physical element of measuring labour and setting boundaries dependent on cervical dilatation. This one dimensional understanding of labour has been based on knowledge of anatomy and physiology. Over the last 10 years there have been rapid advances in the field of physiology. What then is the contemporary understanding of the physiology of labour and birth? The next section explores recent research evidence outlining the extent of current knowledge of the physiology related to labour and birth.

What else is known about labour and birth?

The concept of the stages of labour has been built from an understanding of anatomy that was first related during the 19th century. This anatomical understanding has described the requirement of the cervix to dilate sufficiently

to facilitate the birth of the baby. The next section explores the current understanding of physiology for parturition, and explains the physiological changes that are required within a woman's body to support her adaptation to pregnancy, labour, birth and parenting as an evolving physiological adaptation.

Contemporary understandings of the physiology of parturition

The exact initiation and orchestration of labour and birth remains unclear despite advances in many related fields. This lack of clarity is caused by the ethical difficulties that limit what can be studied in the human condition, especially during pregnancy and birth.

Understanding parturition – endocrine control

Pregnancy and birth are the result of highly co-ordinated physiological interactions and signalling between neurones, neuroendocrines, endocrine and immune cells (Douglas & Ludwig, 2008). There is a complex interplay between the maternal and fetal systems which supports the continuation of pregnancy and preparation for birth (Challis, Matthews, Gibb, & Lye, 2000). Whilst the initiation of labour remains poorly understood, it is thought that there may not be a single pathway to the onset of labour in humans but several pathways, suggesting a failsafe system (Power & Schulkin, 2005). Before these pathways can occur however, there is a need for different maternal cells to change their behaviour. It is argued that 'the myometrium undergoes dramatic changes in phenotype from early pregnancy until the onset of labour' (Shynlova, Tsui, Jaffer, & Lye, 2009, p. S2) as does the cervix (Gee, 2006). These changes involve cellular proliferation and hypertrophy during pregnancy followed by a contractile phenotype in preparation for labour, resulting in the cells becoming active during labour.

Cell phenotype changes in preparation for labour

During pregnancy the woman's body needs to support the developing baby by enabling the uterus to expand as the baby grows. The myometrium (made up of uterine muscle cells) has an inherent ability to contract 'vigorously and spontaneously without added stimuli' (Norwitz, Robinson, & Challis, 1999, p. 660). During pregnancy the innate contractility of the myometrium requires

suppression. Regulation of the myometrium is achieved through four physiological phases (Blackburn, 2007; Challis, et al., 2000; Norwitz, et al., 1999; Terzidou, 2009). These are:

- Pregnancy – uterine quiescence Phase 0
- Preparation for labour – activation Phase 1
- Labour stimulation - Phase 2
- Involution – Phase 3.

These phases were first demonstrated in animal studies and it is theorised that the same or similar pathways occur for women during childbirth (Challis, et al., 2000).

Pregnancy – uterine quiescence Phase 0

In this first phase the uterine cells need to be able to reduce their inherent contractile properties (Challis, et al., 2000; Norwitz, et al., 1999). This occurs through the majority of the pregnancy and requires the myometrium to be relatively quiescent, enabling the uterus to enlarge but remain relaxed. It is thought that during pregnancy Corticotrophin Releasing Hormone (CRH) and progesterone, along with a variety of uterotonic inhibitors such as prostacyclin, relaxin and nitric oxide, work together to promote uterine relaxation (Blackburn, 2007; Challis et. al., 2000; Smith, et al., 2005; Terzidou, 2009).

Preparation for labour – activation Phase 1

In preparation for labour there is a change required from suppression to stimulation so the myometrium will contract in a systematic and co-ordinated way. The activation phase (one) prepares the myometrium to respond to the stimulation of high levels of uterotonic agonists. It involves an increase in myometrial oxytocin receptors by up to 300 fold at term under the supportive influence of oestrogen. During this phase the uterotonic inhibitors become less effective whilst levels of oestrogen and contraction associated proteins (CAPs) increase (Blackburn, 2007). CAPs include myometrial oxytocin receptors, gap junctions and prostaglandin receptors (Challis, et al., 2000). This activation phase involves several interrelated changes:

- the maturing and changing role of the fetal hypothalamic-pituitary-adrenal axis (HPA)
- prostaglandin synthesis
- functional withdrawal of progesterone
- stretching of the uterus.

Labour initiation is supported by two pathways: the endocrine changes which support preparation and initiation of labour alongside a mechanical pathway. In the mechanical pathway the growing tension within the uterine wall causes biochemical and molecular changes which support labour initiation and continuation (Shynlova, et al., 2009).

Labour stimulation - Phase 2

The myometrium contracts in response to uterotonic stimulators such as oxytocin, prostaglandins and cytokines (Terzidou, 2009). The stimulation of labour involves the concerted release of uterotonics to produce synchronous, high amplitude and high frequency contractions (Fuchs, et al., 1991). Oxytocin, prostaglandin and CRH are all necessary for the maintenance of labour. Co-ordination of contractions occur by coupling of myometrial cells and polarization and depolarization of the cell membranes by electrical signals (Blackburn, 2007).

Involution - Phase 3

The final phase for the myometrial cells is uterine involution, a process that occurs following the birth of the baby and the placenta. It is described as the return of the reproductive system to its non pregnant state (Blackburn, 2007; Shynlova, et al., 2009). Involution involves cellular interactions which support tissue remodelling, apoptosis and cell growth. It is a complex biological process similar to wound healing in which the uterus is remodelled and protected from infection (Blackburn, 2007).

The cervix

From a physiological perspective the cervix has an important role in protecting the fetus from invading micro-organisms and is a structural barrier which

supports the maintenance of the pregnancy (Word, Li, Hnat, & Carrick, 2007). The cervix consists of a connective tissue structure primarily constructed of collagen fibres and a small amount of smooth muscle (Blackburn, 2007). In the past the cervix has been considered a passive structure, responding only to myometrial activity (Gee, 2006). The exact mechanism for cervical dilatation during labour continues to be poorly understood, although Gee (2006) argues that dilatation follows the principles of the ‘Laplace relationship’ (p.184). This is explained as relating to the “*radial force (F) [pressure (P) in a closed vessel] with circumferential tension (T) and radius of curvature (R) in the wall*” (Gee, 2006, p.184). In that contraction amplitude and uterine activity increase the intra uterine pressure in a constant and efficient way causing uterine wall tension and the ensuing cervical dilatation. It has always been assumed that the descending head of the fetus increased uterine pressure and cervical dilatation through constant pressure on the cervix, however, measurements of the head and cervical forces found that these forces were not evenly distributed (Gee, 2006).

There is a phenomenal amount of remodelling of the cervical tissue during pregnancy which occurs in four phases: softening, ripening, dilation and repair. These phases often overlap with ripening preceding the myometrial contractions of labour by several weeks. This concurs with the theory that for women the parturition process occurs over several weeks and there is a preparation phase prior to activation and stimulation of labour (Word, et al., 2007). The current proposed mechanism for cervical dilation involves an inflammatory cascade of cytokines, leukocytes and macrophages infiltrating the cervix leading to the release and activation of matrix metalloproteinases (MMPs) which lead to a change in the collagen content of the cervix, an increase in water content and disruption and degradation of the collagen fibres (Blackburn, 2007).

Summary of physiological adaptations

Pregnancy and parturition are complex and highly co-ordinated behaviours in which the woman’s body adapts physiologically to ensure optimum health for herself and the growing baby. This adaptation involves a myriad of endocrine, neuro-endocrine and immunological responses and complex, interrelated signalling between the maternal and fetal brain (Douglas & Ludwig, 2008). In this physiological understanding of parturition there is no description of stages

or phases of labour and no boundaries provided. This suggests that the separation of labour into stages and phases should be challenged as based purely on anatomy and not as part of a complex physiological process (Winter & Cameron, 2006).

New insights and advances in scientific understanding are now suggesting that emotions are a prime director of behaviour and can influence cognition, memory, reasoning and physiology (Pert, 1997; Caccioppo & Berntson, 2006). Neuroscience is an exciting and developing field that is elucidating an understanding of how the brain functions and influences our physiology and behaviour. These new insights have yet to be fully integrated into the understanding of labour and birth and will be explored in more depth in chapter nine.

The limits of our knowledge – defining the gaps

The theory of labour progress has been constructed based on accumulating 'scientific' knowledge in the field; knowledge that has been found 'objectively'. The concepts on which this theory is framed was a scientific understanding of female physiology, statistical normality and time parameters (Katz Rothman, 2007). Friedman's theory of labour progress was influenced by a patriarchal attitude prevalent within society at the time. The concept was developed through observation of women's labours; the woman's individual perspective, experience or understanding were not examined or thought important. Research studies subsequently undertaken have found differing results and suggest that these are due to differences of age, ethnicity, parity and weight. Replication of Friedman's research using data from the 1960s has resulted in anomalous findings. These anomalies within the original concept and theory suggest that it is time to re-examine this theory and reconceptualise or redevelop the foundations of our understanding of labour. The underlying philosophy of this approach is a perception of the woman's body as a mechanism which will follow a set of rules, it views the woman's body as separate to her mind and ignores the woman's own embodied knowledge.

Challenges to the original concept have come from alternative paradigms and argue against this mechanistic understanding of labour. Exploratory research

undertaken within a qualitative paradigm has found that women have a need for support during labour along with control over decision making. The underlying philosophy for this approach is based on understanding and exploring the issues that appear to be important for the woman. This involves understanding the psychology of the woman and incorporates her experiences and her embodied knowledge.

Lastly the contemporary scientific research about labour physiology suggests that our physiology is the result of an integrated response between the neurones/mind and the body combined. In that it is both the neuroendocrine and endocrine changes that support labour physiology. The philosophical differences between these paradigms are illustrated in Figure 1. It would appear that each has a different way of constructing meaning about labour and birth with philosophies based on mechanistic, psychological and physiological understandings. Each of these approaches provides a partial view of a complex event and provide a valid contribution to the current knowledge base. However, these approaches are isolated within their individual philosophical positioning causing limitations because of the lack of integration between the knowledge bases.

Figure 1. Differing interpretations of labour and birth

It is time for a paradigm change; a re-examination of our understanding of labour and the development of an alternative theoretical framework, one which integrates knowledge from a variety of fields and philosophies to provide an enhanced understanding of the factors that influence a woman's labour as it moves towards birth.

There is as yet limited research examining women's experiences, perspectives and perceptions of labour; specifically, how women experience labour as it moves towards birth. The research studies that have explored women's experiences of childbirth have focused on a variety of aspects of labour and birth but none have explored the women's perspective of labour progress. The first step to an enhanced understanding is therefore talking with women who have experienced labour and birth. Does the experience of labour match the expectations of the stages of labour as described by Friedman, a theory which has become common and popular knowledge? Do women know if they are progressing towards birth and if so how do they know? Is time an important issue for women? What are the important issues for women? These are the questions this research seeks to answer. It will explore the woman's perceptions of labour as it moves from labour onset to the birth of the baby. It has been designed to ensure that women's voices dominate and can be clearly heard; how this has been achieved is described in the next chapter.

Summary

This chapter has outlined how the concept of the active phase and latent phase combined with time parameters was developed from research undertaken during the 1950s (Friedman, 1954). With the creation of the partogram the initial concept was developed further and led to an expectation of cervical dilatation of 1 cm an hour as the standard expected progress for all women. This concept relies on physiological markers such as cervical dilatation, and privileges the health professional's knowledge. This has become the dominant and authoritative discourse about labour, one which has claimed its superiority based on knowledge of anatomy, physiology and scientific research. More recently the original theory has been challenged as further studies offer findings which fail to support contemporary obstetric and midwifery practice. Challenges also come from dissenting voices which explain the need to consider other influences during birth and challenge the existing theory as mechanistic and reductionist.

A review of contemporary understanding of physiology has found little reference to stages or phases of labour, suggesting that the current discourse is based on out dated understandings. There is a need to explore the woman's experience of labour as it moves to birth and uncover the issues that are important to her. The next chapter will describe how I approached women to talk to them about their experiences of labour and birth. It will provide an outline of the research questions, methodology and methods that guided the research, along with ethical considerations.

Chapter Four

Talking with women

Introduction

The previous chapters have outlined what is currently understood about labour progress which has been based on obstetric interpretation. An underlying philosophy is apparent in which there is little trust in the woman's body and her innate ability to give birth along with application of a set of rules about labour which have an expectation that labour will progress at a standard rate for each woman regardless of her subjective experiences. There is a reliance on mechanical markers of labour progress such as cervical dilatation, which can only be understood and undertaken by a health professional, therefore privileging the health professional's knowledge over that of the woman's knowledge of herself and her body. I have identified the need to talk to women about their labour experiences and to gain an understanding of labour that has been informed by the women's understanding and perspective.

This chapter will outline how I approached women to talk to them for this research project. I commence with a summary of the philosophical understandings and assumptions that have been taken into the research and the importance of ensuring that all elements of this research retained an underlying philosophy of privileging the women's voices. A feminist critical lens and feminist standpoint epistemology and methodology have been used to achieve this and will be apparent throughout the research process. I will include a detailed discussion of how I identified women to be included in the study along with the approach used during the interviews and focus group discussion. The context of the research and the impact that the model of midwifery care prevalent in New Zealand may have on the research is also discussed. My position as a midwife researcher and ethical issues were considered along with researcher reflexivity and how this contributed to the undertaking and analysis of the research. A description of how I provided feedback to the participants is also provided.

The aims of the research project

This research project seeks to explore the woman's understanding and perspectives of labour and the transition that occurs in which a woman moves from being pregnant to being 'in labour' and to 'giving birth'.

The aims were:

- To explore whether the prevailing understanding of labour progress with stages and phases resonates with women's experiences of labour and birth
- To explore the women's experiences and perspectives of the way labours starts and moves towards birth and provide a description that encapsulates the women's voices.

Clough and Nutbrown (2002) suggest that at the beginning of a research project it is important to consider the purpose, position and political nature of the intended piece of research as this provides the researcher with an improved understanding. They argue that:

All social research sets out with specific purposes from a particular position, and aims to persuade readers of the significance of its claims; these claims are always broadly political (p. 4).

The question they pose is what is the purpose of the research? Within this research I want to give 'voice' to the woman's perspective of labour progress and challenge the current understanding and expectations as reflected in the medical description of labour as stages and phases. It is hoped that a different understanding of labour will be developed which reflects and integrates the woman's experiences, thereby building women's knowledge. Clough and Nutbrown (2002) argue that research is driven by people who are interested in emerging issues, who create methods to understand the issues and then communicate the outcomes to chosen audiences. I have developed an interest in the transition from pregnancy to labour and birth because of the conflicts I have experienced in my career as a midwife.

These conflicts are often caused by the expectation that a woman's labour can be measured in a standard way without taking into account the context of the situation or other signs that labour may be moving towards birth.

The understanding of labour as stages and phases, measured by cervical dilatation, is pervasive and persuasive. It is a dominant discourse which is widely proclaimed and endorsed through popular media such as the internet, and childbirth preparation books as the only way of understanding labour.

Separating this knowledge of childbirth from the woman's understanding of her experience could be challenging as the knowledge is embedded as a 'cultural' understanding and mediated through a socio-cultural context. To explore this cultural context in more depth required a critical examination of the issues. An optimal way of doing this was to use a theoretical approach of critical feminist enquiry within the research.

Critical inquiry and the challenging of assumptions

Critical theory is based on the principle of critiquing and challenging the norms of society. Critical social theorists such as Immanuel Kant (18th century), Karl Marx (19th century) and Max Horkheimer (1974) have argued that the world has historically been interpreted by way of explanation but that to really understand the workings of society we need to examine society critically. In a research context this philosophy ensures that the principles that guide the research are that it seeks not just to understand or describe the current state of affairs but also to challenge and bring about emancipatory change. It interrogates commonly held values and assumptions and challenges social structures. It seeks to achieve social justice, freedom and equity through critique and continued challenging of assumptions. In this approach culture is viewed as a mirror of the contradictions and oppression of society so it critically questions the role of culture and whether it validates the ongoing oppression and hegemony of the dominant groups of society (Crotty, 1998). This critical approach is used within feminist theory because it supports groups and individuals to develop a critical awareness of their personal reality and exposes power imbalances as part of the criticism of the dominant ideology. As such it challenges social inequality and injustice and can bring about radical change (Guilliland & Pairman, 2010).

Critical feminist theory

Feminism provides a way of looking at the world and a set of values which will influence how you approach a topic (Pugh, 1990, p.109).

Feminist research documents women's lives and experiences as a means of illuminating gender oppression and biases and is used to challenge basic structures and ideologies that oppress women (Brooks & Hesse-Biber, 2007). A critical feminist theoretical perspective brings feminist values, feminist purposes and the feminist cause into the research so the research is done in different ways (Crotty, 1998). Walsh (2004, p. 59) summarises feminist research values as:

- The primacy of women's experience is a fundamental starting and on-going reference point
- Women's voices and values are listened to
- Relationships of equality and reciprocity are established
- Oppressive and dehumanising practices against women are uncovered and challenged
- Empowerment and emancipation are fundamental to the approach.

The values that underpin feminism are also shared by the New Zealand midwifery profession. Midwifery is predominantly a woman's profession providing services to women; as such it focuses on women and their experiences and values different ways of knowing and viewing the world (Guilliland & Pairman, 2010). By working with women and legitimising an alternative body of knowledge midwifery shares many similar values to those of feminism as it attempts to confront and resist systematic injustices based on gender.

As a woman and a midwife I am unable to separate or distance myself from a critical feminist perspective within the research regardless of the methodology that I use. Therefore a large influence throughout will be a feminist theoretical perspective. As such it is necessary for me to be explicit about my worldview so that the context of the research, the logic and arguments that are derived are coherent and justify the rationale for each decision made within the research. A feminist approach advocates for the examination of the experiences and the subjectivity of the persons being studied, (Liamputtong & Ezzy, 2005).

Feminists argue that no research is truly objective because all research is political in nature due to the position of the researcher and the subject that is chosen to be researched. It is this that influences the researcher, not only in what they choose to research but also in how they do the research and how they interpret and analyse that research (Liamputtong & Ezzy, 2005).

Feminism has many diverse theories which mirror the diversity of the feminist situation. This diversity has been described as ‘eclectic [and] interdisciplinary’ as well as ‘intensely personal’ (Kaufmann, 2004). There are, however, some similarities within the different approaches: there is a concern regarding social relationships, power relationships, and a wish to improve the position of women within society (Kaufmann, 2004; Pugh, 1990). Feminist research aims to support empowerment and emancipation for women and promote social justice and social change (Brooks & Hesse-Biber, 2007). Various research methodologies have been used to provide understanding of women and their social activities. However, inherited frameworks of inquiry have caused tension due to what could be described as a predominance of patriarchal theories and concepts (Harding & Hintikka, 2003). Harding & Hintikka (2003) argue that knowledge should be grounded in experience and that human experience differs according to the kinds of activities and social relationships that the human is engaged in. The female experience of the world will be different to that of the male experience; because the masculine perspective has been dominant “the resulting theories, concepts, methodologies, inquiry goals and knowledge claims distort human social life and human thought” (Harding & Hintikka, 2003, p.xxx). Within feminism there is a questioning of knowledge and knowledge construction with research methodologies designed to provide understanding and construction of women’s knowledge.

Methodological approach

To meet the aims of the research project I needed to be able to talk to women about their experiences of spontaneous labour and birth and to ensure that the woman’s voice was represented and dominant within the research.

I therefore needed a methodological approach to research that would support feminist aims within research and:

*Give voice to women's lives that have been silenced and ignored,
uncover hidden knowledge contained within women's experiences and
bring about women-centred solidarity and social change* (Brooks, 2007,
pp. 54,55).

Feminist standpoint epistemology has been described as a philosophy of knowledge building that challenges us to see and understand the world through the eyes of and experiences of women (Brooks, 2007). It is a way of both building knowledge and doing research which places women at the centre of the research process. It builds knowledge based on women's life experiences and seeks to accurately reflect and represent the women's concrete experiences as they engage in their everyday lives. It is based on the need to co-construct knowledge through privileging the women's voices above that of the researchers. It also seeks to repair the historical misrepresentations that have occurred due to the androcentric nature of scientific enquiry and the exclusion of women from the dominant knowledge canons (Brooks, 2007). Standpoint methodology seeks to explain social relations and accounts of nature that are often not easily accessible to "create a different kind of decentered subject of knowledge and of history" (Harding, 2004, p. 8). Standpoint theorists argue that all knowledge claims are relative and socially located but that some locations are more acceptable and preferable than others, and that social values can advance the growth of knowledge (Harding, 2004b).

Cultural values are inherent in many areas of research although often unrecognised or unspecified. Standpoint projects are designed to produce an account of the everyday realities of women's context and culture, in order to produce knowledge about women for women (Harding, 2004b). Women are placed at the centre of the research process and the woman's experience provides the perspective or standpoint on which knowledge is built (Brooks, 2007). As such it reflects the woman's concrete experience which if truly reflective will authenticate the research and provide the "ultimate criterion for credibility" (Brooks, 2007, p. 56). Harding (2004) suggests that politics shape and structure society and that those in positions of power set the limits of

activities so that those groups who have a marginal position in society have lives, experiences or perspectives that are devalued. However, when the starting point is from the perspective of those in a marginal position, the real world and human relations can be seen more clearly (Harding, 2004c).

Mueller (1995) contends that standpoint feminist methodology is a powerful tool which investigates the relationships of gender, class and race as they are experienced at a local and specific level by women. The research topic begins with women, their actual lives, their social situation and how their world is situated, followed by an attempt to understand the forces that shape women's experiences (Mueller, 1995). Exploring the experiences from the woman's perspective provides a unique insight into her world and her perception of how society functions. Articulating and sharing this knowledge can also support challenges to social norms and expectations. It can provide a picture of the differences in social reality that exist for different members of society.

This research project seeks to produce knowledge using feminist standpoint methodology that may challenge the current assumptions about labour length, measurement and progress. It seeks to provide an alternative body of knowledge about labour and birth which is based on the woman's experiential knowledge.

Rigour and reliability – the role of reflexivity

Reflexivity is an accepted process which can validate the research practice. It is considered an integral part of a research process in which the researcher recognises and reflects continuously on their own social background and assumptions and how their own actions, values and perceptions can influence their data collection and analysis (Hesse-Biber, 2007; Lambert, Jomeen, & McSherry, 2010). Hesse-Biber (2007) contends that our background, beliefs and feelings become part of the knowledge construction which is affected by the social conditions in which it is produced in that it is grounded in the location and biography of both the researcher and the researched.

Researcher reflexivity is necessary throughout the research process and requires the researcher to be sensitive to the 'situational dynamics' that exist between the researcher and those being researched. It is a recognition of the power, biases

and privilege that the researcher may impose during the research process (Hesse-Biber, 2007). Harding (1987) suggests that the researcher should be located within the same critical plane as the overt subject matter but that the researcher needs to be explicit about her/his race, gender, class and culture so their influence within the research can be identified. Doing this recognises that the cultural beliefs and behaviour of the researcher can shape the analysis of the research and can be seen to be part of the empirical evidence of the research project (Harding, 1987).

My position within this research is as a white, New Zealand European, middle class woman who has experienced labour and giving birth. I have also been a practising midwife for more than 20 years and have provided care to women during their labour and birth. New Zealand has a midwifery model of practice which is described as the midwifery partnership model (Guilliland & Pairman, 2010). The theoretical underpinnings of the partnership model are that *“midwifery recognizes and values women’s different views of the world and unique ways of knowing.”* (p. 28). This research has explored the women’s experiences and ways of knowing about labour and labour progress. The results of this research will be shared with women, midwives and obstetricians. The purpose of the research was to provide the woman’s voice about how she perceives labour as it moves towards birth. By doing, this other women and health professionals will become aware of the woman’s experiences of labour and birth and of the issues that are important to her. This may change women’s expectations and understanding of labour, challenge or help to define current ideas and theories, and support and provide guidance to midwives and other health professionals when working with women during labour and birth.

Research methods

Undertaking research requires some fundamental design decisions as well as exploration of underlying philosophies and influences on the reasons for the line of enquiry (Janesick, 2003). Janesick (2003) suggests that the researcher starts with the basic question of “What do I want to know in this study?” At the beginning of the research I thought about what it was I wanted to know and understand. While pregnancy, labour and birth are all individual and subjective experiences, I hoped that by talking to women I would be able to gain a deeper

understanding of their perspectives and experiences of labour. How did women decide that labour had started? What was the woman's experience and perspective about how labour moved towards the birth? Does the rate of progress matter to the woman during labour? How do women talk about their labour, the length and the progress towards birth? Does Friedman's theory of phases of labour 'fit' for women? Are women aware of other indicators of progress? Is there an embodied or tacit knowledge - do they inherently know that labour is progressing?

These questions were formulated into some basic questions which would form the research questions and help when considering the choice of data collection methods (Janesick, 2003). Some of the questions I wanted to ask and answer within the research were:

- What are the woman's perceptions and experiences of labour as she transitions from pregnancy to labour and birth?
- Does the prevailing theory of labour progress (with stages and phases) resonate with women who have experienced labour and birth?
- Is time an important factor for women during labour?
- Do women know they are progressing towards birth, and what factors indicate for women that labour is progressing?

The aim of the research was to explore, describe and explain and as such the research questions were focused on what happened, what the women described or did, what it meant to them, and how they made sense of their experience (Hesse-Biber & Leavy, 2006).

Who to talk to, when and how?

For this research I wanted to gain a more in-depth understanding of the woman's perspective and her experience. This would be unethical and difficult to do when a woman was actually in labour or giving birth; however, discussion of experiences, feelings and perceptions can be undertaken after the event. In order to answer the research questions I needed to talk with women who had experienced a spontaneous labour and birth. Therefore discussion with women at some point of time following their birth would be necessary to explore their perspectives.

Using in-depth interviews

In-depth interviews are a useful way of exploring the subjective meanings and interpretations that people give to their experiences and enables various aspects of the interviewee's life to be studied (Liamputtong & Ezzy, 2005). The in-depth interview assumes that individuals have unique knowledge about the topic being researched and requires active asking and active listening (Hesse-Biber & Leavy, 2006). It also enables the examination of pre-existing theory and can provide a means of inductively creating newer or different understandings (Liamputtong & Ezzy, 2005). There is a need to pay attention to language and the way the participant expresses her reality (Hesse-Biber, 2007), in particular listening to what is not said or what could be considered 'muted' language in the hesitations or silences engendered by particular questions. The feminist perspective on in-depth interviewing is that it is a co-creation of meaning with the researcher sensitive to the nuances and listening intently to what is articulated, ready to explore and follow the participant's agenda (Hesse-Biber, 2007). Interviewing is often seen as a conversation between co-participants rather than a simple question and answer session, with information flowing between the researcher and the participant in a two way process. Questions evolve from the conversational cues (Hesse-Biber, 2007). For this research the interview would require that women reflect on their experience of labour and birth. Techniques could be used that would help to set the scene for the woman, such as visualising the end of pregnancy and trying to help her remember the sights and sounds as well as the events of this time.

Issues of researcher power

Feminist research has concern for the power differentials between the researcher and the participants. The researcher can be perceived as having power within the relationship because the researcher sets the agenda and focuses the direction of the interview. Feminist researchers are concerned with reducing the power hierarchy implicit between the researcher and the researched (Hesse-Biber, 2007). One of my major concerns was ensuring that the women's voices were privileged above my own as the researcher or as a midwife. In the interview situation I would be in control and could lead the interview or focus only on issues that appeared to be important to me as the researcher or as a midwife.

To balance this I needed to consider ways of reducing the impact and power of my role. Two ways that could alleviate the power of the researcher to drive the research agenda was firstly by providing each participant with an early analysis and an opportunity to provide feedback on that analysis; and secondly, by providing an opportunity for the participants to attend a focus group to provide direct feedback on the analysis and further contribute to theory building and co-creating knowledge. Using focus groups decreases the risk of the researcher/participant power differential because the group hold the power of what is discussed and what the key issues are for the group (Kitzinger & Barbour, 1999).

The use of focus groups

Focus groups are useful for exploring experiences, issues, concerns and opinions (Kitzinger & Barbour, 1999). Participants are able to talk about their own priorities and can generate their own questions and agenda using their own vocabulary and on their own terms (Kitzinger & Barbour, 1999). The group is asked to focus on a particular set of issues or questions and the researcher encourages the participants to talk to each other within the group. It is recognised that individuals may answer questions differently depending on the situation and context. Within focus groups participants can share and compare experiences, as well as define common problems or solutions which may not have been identified during in-depth interviews (Kitzinger & Barbour, 1999). Whilst in-depth interviews are useful at exploring issues, the researcher sets the agenda and explores the areas that appear relevant to the researcher, whereas in focus groups it is the group that set the agenda and explore the areas that are relevant to the group. Focus groups can be a way of providing another lens on the subject and an insight into the key issues for that group. It can help the researcher work inductively with the group to find out issues about the subject that have not been revealed or identified during the in-depth interviews.

I identified the need to explore the subject with individual women by way of individual in-depth interviews then use a focus group to further explore the issue and discuss and verify my initial analysis based on the individual interviews.

Prior to the focus groups I would provide feedback of my early analysis to all of the participants to ensure that regardless of whether they attended the focus group or not they could continue to provide feedback on the analysis and continue to have an influence if they wished.

Context of research setting

The maternity system in New Zealand is centred on the woman with care provision for all eligible women funded by the government. At the beginning of pregnancy the woman chooses a Lead Maternity Carer (LMC) to provide and co-ordinate her maternity care, with the LMC responsible for care over the duration of the pregnancy, labour and birth and up to six weeks postpartum (Ministry of Health, 2007a). The LMC can be a midwife, general practitioner or obstetrician depending on availability and the woman's choice. By having one primary practitioner providing maternity care women are able to experience continuity of care for the whole of their childbirth experience. The majority of women in New Zealand experience continuity of care from a midwife LMC (Ministry of Health, 2007b). The philosophy of midwifery care in New Zealand is that it takes place in partnership with the woman and combines an understanding of the social, emotional, cultural, spiritual, psychological and physical health of the woman and integrates this knowledge when providing on going midwifery care (New Zealand College Of Midwives, 2008).

Informed decision making is also a key aspect of health care within New Zealand and is legislated through the Health and Disability Commission with the Code of Consumer Rights. Breaches to consumer rights may be investigated and reported. Therefore information sharing and informed decision making are fundamental to health care and maternity services within New Zealand (New Zealand College Of Midwives, 2008).

Partnership and continuity of carer

Midwifery care is founded on the partnership model which views birth as:

a fundamental human event based in the family and the community. The midwifery partnership enables women and midwives to actively work together to reconstruct their meaning of birth and thus society's understanding of birth as a normal life event (Guilliland & Pairman, 2010, p. 34).

Fundamental to this partnership model is the opportunity and ability to build a trusting relationship which is fostered over time by continuity of care and caregiver. Continuity of care provides the woman with time and opportunity to build a relationship with her midwife. It is a reciprocal relationship which recognises that women and midwives have knowledge and expertise which are shared. Expectations, knowledge, trust and philosophy are negotiated, with the power balance equalised between the two (Leap & Pairman, 2010).

The majority of women register with a midwife LMC prior to 15 weeks of pregnancy allowing time for information sharing and informed decision making. Women are often provided with their own maternity health records which are written in language that the woman can understand. These records provide the required factual health information as well as a record of discussions and decision points that have been made individually by each woman and her family. The use of a 'woman held maternity record' is increasingly seen as a necessary component of the midwifery partnership model (Leap & Pairman, 2006). When provided with information and continuity of care in this way, women are able to exercise choice over many aspects of their maternity experience. Integral to many of their choices is that of the place of birth, with women choosing to give birth in a place that fits their philosophy, understanding and perspective.

Whilst exploring women's experiences of labour and birth, this research would also explore the relationships the woman has with those closest to her and her professional advisors, such as the LMC. What impact does having continuity of care from a midwife have on the woman's experiences? What are the power dynamics within these relationships? The influence of the model of maternity care and how it affects the woman's understanding, perspective and experience was expected to surface during the interviews and would be analysed more fully when exploring the impact of relationships.

This research was undertaken in the South Island of New Zealand. The researcher lives close to a South Island city and women were invited to participate if they lived within the city or the adjacent areas.

Within this region there are four primary maternity facilities in which women can receive midwifery led care in a home like setting. Two of these facilities are

urban in that they are situated within the city, and two are rural in that they are situated in small towns outside the city. There is one large urban tertiary maternity facility within the city which has a neonatal intensive care unit, along with obstetricians, midwives, anaesthetists, paediatricians and other specialists. The tertiary unit is the place of transfer for any homebirths or primary facility births that require obstetric input. Women in this region of New Zealand can choose to give birth at home; in a primary facility or in the tertiary facility and the LMC midwives support women in any of these choices.

Who should be asked to participate?

The aim of this research was to explore the woman's perspective about normal labour and birth – in other words a labour that had started spontaneously, progressed spontaneously, and resulted in a normal, spontaneous birth. In this way it could be considered that the birth was physiological from onset to birth. I considered that if a woman gave birth at home she may have been more likely to have a physiological birth without intervention so I wanted to encourage women who had given birth at home to participate. However, I wanted to talk to women with as many different perspectives and experiences of normal birth as possible, so I also needed to talk to women who had given birth in primary facilities and the tertiary hospital as well. I wanted to include women having a first experience of childbirth and those who were having second, third or subsequent children. I believed it was important to gain a variety of women's experiences to draw upon. Therefore purposive sampling (of women who had experienced a normal birth) was necessary with snowball sampling (anybody who was interested and fit the criteria) encouraged. I designed an advertisement inviting women to participate in the research if they had experienced a normal birth within the past six months (Appendix A). Whilst it could be argued that it is equally important to explore the woman's perspectives on interventions that occur during labour and birth it was beyond the scope of this research and would require a much larger research project and considerably more time. It was planned that if women had an induced or augmented labour or used epidural anaesthesia during labour they would be told the aims of the research regarding physiological birth and advised that they did not meet the recruitment criteria.

In the same way any women who had a preterm labour, multiple births or other issues that would suggest the need for obstetric input or close monitoring of labour were also advised that they did not meet the participation criteria.

Time limits on memory?

Defining an optimal time to talk to women was problematic – I wanted to talk to women who were able to remember as much detail as possible about their labour and birth but also needed to be mindful that women need time to adapt to their new mothering role. A literature search revealed that women remember their childbirth experiences vividly whether positive or negative for up to 15 to 20 years following the birth (Simkin, 1991). Many memories were associated with how women were treated and how they conducted themselves and not necessarily with the clinical features of the labour itself. Women with positive feelings recalled supportive care whereas those with negative feelings recalled negative interactions with staff during intrapartum care. Women believed that they had achieved something highly significant when they gave birth which also had a powerful effect on them with a potential for permanent long term recall of birth as a positive or negative experience (Simkin, 1991).

Other studies of women's recall of labour and birth show mixed results. Elkadry and colleagues (2003) interviewed 277 ethnically diverse women who had given birth in an American hospital, within 10 weeks of the birth, and compared their responses with their labour records using a verbally administered questionnaire. A variety of questions were asked which ranged from asking about induction, augmentation, whether membranes were ruptured and why, along with type of birth and perineal trauma. Their results suggested that only 40% were able to answer all the questions correctly and 60% could not recall accurately one major labour management event. The authors found that white older women who had caesarean births had better recall whilst African American mothers had less accurate recall. This result indicates that some physicians may not communicate effectively with some groups of women (Elkadry, Kenton, White, Creech, & Brubacker, 2003). A UK study compared maternal reporting of mode of birth and hospital records and found agreement for 94% of women (Quigley, Hockley, & Davidson, 2007).

For those where there was disagreement it was between whether the birth was a forceps or ventouse birth and whether a caesarean section was planned or an emergency. These authors conclude that maternal reporting of type of birth is highly reliable.

Waldenstrom (2003) found variations in women's memories of labour and birth depending on the timing of the survey. She recruited 2,428 women in early pregnancy and issued a questionnaire at two months postpartum and one year postpartum. The aim of the research was to compare the woman's experiences of labour pain and overall experience of birth between these two time periods. A seven point rating scale of pain intensity was used to measure the recall of pain intensity and the same question about overall labour experience was asked at both survey assessments. The findings demonstrated that 47% of women made the same assessment of pain intensity and 60% the same assessment of the overall experience as they did at two months and one year. However, 35% remembered the pain as less severe and 16% as more severe. For the remembered birth experience, 24% of women remembered it as more negative and 16% remembered it as more positive. Thus there appeared to be some variation in remembered pain and experience. In summary it would appear that women recall the memory of their overall childbirth experience as positive or negative and that the intensity of their feelings may change over time, but that memory of the level of detail is more problematic and may not be well remembered as time progresses.

For this research I wanted to explore what was important to the woman about her labour and birth which may include a high level of detail. I considered what would be the optimum timing for talking to women – a time close enough to the birth to ensure that the memory was still 'fresh' and details would be remembered but also sufficient time for the woman to adapt to her new baby and her mothering role. I decided it would be useful to try to gain participation in the research within six months of the birth of the baby because it was still close enough to the actual birth to ensure that sufficient details would be remembered, whilst also giving women time to adapt to their new role. Ultimately it was the women who decided the timing as they responded to the advertisement and arranged interviews at a time that suited them.

Ethical considerations

In New Zealand ethical approval is required for all health research as part of the New Zealand health research system

(<http://www.ethicscommittees.health.govt.nz/moh.nsf/indexcm/ethics>). This system of ethical approval requires that any health research proposed is approved by a national ethics committee. The role of the ethics committee is to ensure that research participants are protected from the potential risks of research with the primary role the protection of the rights, health and wellbeing of research participants. Regional ethics committees have been established under Section 11 of the New Zealand Public Health and Disability Act 2000 to ensure that the proposed research meets ethical principles. A standard application form assures the committee that the researcher has considered various ethical issues and the risk of participant harm has been minimised. Therefore prior to any data collection I applied for ethics approval from the Upper South B Regional Ethics Committee.

Minimisation of harm

Full consideration of ethical concerns were taken into account when planning this research project (Polit & Beck, 2006; Rees, 1997). Firstly I considered the principle of avoiding harm to the participants during the research process. I concluded that there was little risk of physical harm, however, there could be a risk of emotional or psychological distress during interviews if there were elements of intrusion into embarrassing or negative experiences (Rees, 1997). Asking women about their experiences of labour and birth could cause emotional distress as the events may have been perceived as a negative, stressful experience. To alleviate this issue I carried details of counselling services which I could make available if a woman should become distressed during the interview.

The city in which I undertook the research is a small community, so I needed to ensure there was no risk of social harm to the participant's by inclusion in my research. Each participant was assured of anonymity within the research and confidentiality was maintained during the in-depth interviews and focus group discussion. The participants were reassured that they could access the research personnel at any point in the study to clarify information and they were treated

with respect at all times. They were informed that the research was for a doctoral thesis and that a supervisor worked closely with me to ensure that I kept to my stated aims and methodology.

Cultural and social responsibilities

In New Zealand there is a requirement to consider the cultural issues when research involves participants from various ethnic or cultural groups. The indigenous ethnicity of New Zealand is Māori therefore consultation with Māori representatives was a necessary part of the ethics application. As women who identified as Māori were likely to be involved in the research project, I was required to consider the impact the research may have on any Māori participant. There was a need to ensure that the Principles of the Treaty of Waitangi, which relate to participation, protection and partnership, were carefully considered and implemented. I identified a Māori representative who had both the academic and cultural respect required by the Māori community to provide ethical advice. I was told that issues of marginalisation were considered to be particularly relevant for Māori women who were marginalised on two fronts – being Māori and being women. Therefore I was advised to ensure inclusion of Māori and Pacific Island women within the research.

Once Māori consultation was completed my proposal to undertake this research was approved by the Upper South B Regional Ethics Committee Reference Number: URB/08/03/011 and I could start my advertising and data gathering (Appendix B).

Informed consent

I provided clear, detailed written information about the research (Appendix C) and sent it to the participants prior to setting up an interview. Each participant was reassured that there was no obligation to participate and that withdrawal from the research at any point was acceptable and without consequence. When I met the woman and prior to the interview I again discussed the aim of the research and explained the need to record and transcribe the interview as part of the research process. I explained that the woman's words were the data and that they would be pivotal to analysis. Prior to starting the interview each woman was asked to sign a consent form stating that she had been provided with this

information and agreed to participate in the research (Appendix D). All consent forms, interview notes, audiotapes, and transcriptions of the interviews are kept in a locked filing cabinet and will be destroyed 10 years after the investigation as per ethics committee requirements.

Inviting women to participate

I considered carefully where and how to place the advertisements and flyers asking women to participate in the research in order to get a response from as many women as possible with varied experiences with regards to place of birth and parity. Women who plan to give birth at home often become members of the local home birth support group, so I placed the advertisement in the regional home birth newsletter hoping to attract interest from women who had planned to have a homebirth. I ran this advertisement on two separate occasions with several months between advertisements. I placed flyers in the city's midwifery resource centre midwifery clinics, other midwives clinics and resource centres where they could be seen by women attending. I also placed an advertisement in a local free community newspaper with a circulation to the majority of homes within the city. This advertisement was inserted on two separate occasions over two consecutive months. The advertisements and flyers invited women to email or phone the researcher if they were interested in participating in the research. Once this initial contact was made I followed up by taking details from the woman such as place of birth, type of birth and number of children the woman had given birth to. An information sheet regarding the research (Appendix C) and a consent form (Appendix D) were sent to the woman. This was followed up with a phone call to ensure that the woman was still willing to participate and to set a time, date and place to meet for the in-depth interview.

Data gathering – how did it go?

A total of 22 women demonstrated interest in the research with 18 invited to participate in an in-depth interview. During the telephone discussion it became apparent that four women did not meet the research criteria because they had had an instrumental birth (2) or an epidural (2). They were thanked for their interest in the research and I explained that their experience was extremely valuable but unfortunately did not meet the aims of the research.

Eighteen women participated in the individual in-depth interviews and two women also participated in a focus group discussion. Seven women had given birth at home, seven had given birth in the local tertiary unit, and four had given birth in one of the local primary units (Table 3).

Table 3. Introducing the research participants (pseudonyms used)

Number	Pseudonym	Place of Birth	Parity
1	Lynn	Home	3 rd baby
2	Christine	Home	3 rd baby
3	Mary	Home	2 nd baby
4	Kate	Tertiary unit	3 rd baby
5	Rachel	Primary unit	First baby
6	Carrie	Tertiary unit	2 nd baby
7	Anita	Home	2 nd birth (previous twins)
8	Ella	Tertiary unit	First baby
9	Rhonda	Home	3 rd baby
10	Mary	Tertiary unit	2 nd baby
11	Lucy	Tertiary unit	3 rd baby
12	Janet	Tertiary unit	First baby
13	Julie	Primary unit	2 nd baby
14	Faye	Tertiary unit	First baby
15	Lorna	Primary unit	4 th baby
16	Elaine	Home	First baby
17	Maggie	Primary unit	First baby
18	Melanie	Home	3 rd baby

Maternal identified ethnicity was mainly New Zealand European (16) with one participant who identified as Māori and one as a Pacific Islander. Six of the women had given birth to their first baby and the remaining 12 women had given birth more than once. Thus the participants were able to provide a diverse perspective and range of knowledge and experience of labour and birth.

Getting women to talk about their birth

A set of trigger questions were used for each of the individual in-depth interviews to enhance discussion and support the woman to talk about her individual experiences (Appendix E). The trigger questions were used judiciously and depended on the woman's responses; at times only some of the trigger questions were asked because during the discussion the woman supplied details that had already answered the trigger questions. Many of the questions related to how the woman was feeling at particular times because it was

recognised that recalling emotions can trigger memories of feelings and thoughts and therefore provide a framework for the woman to recount her experience. Mauthner and Doucet (2006) suggest that when a person recounts their story/experiences they make choices as to what they talk about, what they emphasise and what they hold back. They continue that the researcher also makes choices by paying attention to the parts of the story/experience that ‘fits’ the theoretical and ontological framework from which they are working and therefore focuses attention on certain areas and ignores others. I introduced myself as a researcher but also acknowledged that I was a midwife which was the reason for my interest in this area. This provided a common ground for the women to be able to talk to me and know that I would understand their terminology; however, it may also have changed the way they answered my questions and framed up their responses. During the interviews I encouraged the women to talk fully and probed or used follow up questions to clarify certain areas where I felt there was confusion or to clarify timing, experiences or feelings. After the first five interviews I added some extra trigger questions in order to explore the dominant understanding of labour in more detail (Appendix F). I had found very little discussion about the stages or phases of labour in these initial interviews so needed to consider how to explore this issue more fully without using leading questions.

Issues that occurred during the research process

One of the issues encountered during the research was the length of time taken to interview and transcribe the first three individual interviews. These were undertaken with women who had home births and responded to a first advertisement in the regional home birth newsletter. As the researcher I wanted to transcribe these interviews myself so I could get a good understanding of the data to enhance my analysis. However, undertaking transcription and analysis in this way was very time consuming and took six months because I was also working full time and could only transcribe at weekends. To speed up the process I chose to pay to have the subsequent interviews transcribed. These occurred over a three month period, but it took a further five months to get full transcriptions and be able to analyse the transcripts to a point where I could start to get some feedback from the participants and plan a focus group. This meant that the time from the initial interviews to organising a focus group was in

excess of a year for some of the women - a much longer process than initially anticipated. I was concerned that many of the participants would no longer be interested in participating in a focus group discussion. However, I felt it was an important way of gaining feedback on my analysis from the research participants so organised one focus group to which all of the participants were invited.

Feedback to the participants

During the interviews the participants were asked if they wanted to have a CD copy of their interview, and/or a written transcript of their interview. They were also asked if they would be interested in attending a focus group interview. Once all the interviews were transcribed and initial analysis had occurred each participant was provided with a transcript and/or CD of their interview along with the researcher's initial analysis. The research analysis feedback was provided in a survey format and related to the pattern found during the interviews with a description of how the women had described their labour (Appendix G). Space was allowed for the participant to comment on whether she felt the description resonated with her experience of labour. The survey format was used as it provided an explanation to the participants whilst also giving them the opportunity to write remarks and comments as feedback to the researcher. A stamped self-addressed envelope was provided to support the participants to return the feedback. Postal feedback was received from 11 participants. At this time I was also considering how I would describe the participants within the research. Initially I had considered using a code to ensure anonymity of each participant, such as participant one home birth (P1HB).

However, on consideration I realised this was problematic in that it distanced the women from the research for the reader, and that I needed to use names to ensure a more personal connection for the participants within the research. I therefore decided to use a pseudonym for each participant as this would provide a personal connection but also ensure anonymity. As part of the survey I invited each participant to choose a name they would like to be known as and to whom I could attribute comments. At this time two of the participants requested to be known as Mary – a request I have honoured although it may cause some confusion for the reader, the main difference between them is place of birth, one had a home birth and the other a tertiary hospital birth.

Those participants who had indicated they would be interested in attending a focus group were also invited to attend for a focus group interview (Appendix G).

The focus group interview

I set a time and date for one focus group and invited the 16 participants who had indicated they would be interested in attending. Focus groups are dependent on the group interaction to provide insights into the issue being discussed, so work best when the participants have a shared experience (Liamputtong & Ezzy, 2005). For best outcomes focus groups should involve a limited number of participants with the optimum number being between six and 10 participants who have a similar experience (Liamputtong & Ezzy, 2005). Other researchers suggest that a maximum group size is 12, although it is also advised to over recruit and assume that at least two or more participants will not attend (Stewart & Shamdasani, 1990). Incentives are often required to encourage attendance at focus groups and whilst I was providing afternoon tea, there were no other incentives offered. This meant that the only incentive for the women to attend would be continued interest in the research. I was concerned that with so much time passing since the initial interviews many of the participants would no longer be interested in participating. I felt that by inviting all of the participants to this one group I could maximise the number who would attend and may achieve a reasonable group size – I was aiming for 8 to 12 participants. Unfortunately, only two actually attended.

An information sheet (Appendix H) and consent form was developed for the focus group (Appendix I). I started by describing the purpose of the research and of the focus group and that I was looking for:

- Feedback to the researcher on the accuracy of the analysis to date
- What is missing?
- What is most important?
- What is least important?

I set up some ground rules related to confidentiality and anonymity, and stated that all comments would be valued.

To keep the discussion focused I concentrated on two main questions. The first was looking at the dominant theory of labour description and whether it reflected the participants' experiences of labour. The second question was whether the themes I had described related to the experiences of the participants.

The two participants for the focus group interview were friends and indeed one had encouraged the other to participate in the research initially. It was therefore relatively easy to get them talking and discuss the issues as I had planned. It was unfortunate that there were only two participants as with more participants there may have been a broader range of discussion. However, even with only two participants the focus group provided interesting data that supported my initial analysis and suggested areas for further analysis.

Data analysis – How did I analyse the data?

Data analysis is a way of transforming peoples' thoughts, lives and stories into categories, texts and theories (Mauthner & Doucet, 1998). It is an important element of the research process that requires congruence with the aims and philosophical underpinnings of the research process itself. Liamputtong and Ezzy (2005) suggest that data analysis should begin at the start of the research study and should be integral in the design plan and literature review as well as the data collection, interpretation and theory building. They suggest that part of qualitative data analysis is the identification of units of analysis – these are tools to help you understand the data (Liamputtong & Ezzy, 2005). Often these tools can be derived from the analysis of previous research or literature on the subject in which areas or units can be identified and looked for in the data. Many methodologies such as grounded theory or phenomenology have an inherent approach to data analysis in which there is specific guidance on how to go about analysing the data. Other methods of data analysis include content analysis or computer assisted data analysis; however, with the robustness and validity of the research resting on the data analysis there is a need to have a clearly outlined process of how the data is to be analysed.

Mauthner and Doucet (1998) suggest that one of the dilemmas in feminist qualitative research is the lack of guidance about how to undertake data analysis. They outline their concerns when undertaking data analysis of their research and

the dilemma of how to present the women's voices in their own terms. They argue that within the feminist literature there are very few examples of how this has been done (Mauthner & Doucet, 1998). As this research was about providing the woman's voice on labour progress, it was important to consider how these voices were to be analysed. The data collection was aimed at listening to and understanding the woman's perspective so the data analysis needed to have this as a specific objective (Mauthner & Doucet, 1998). Mauthner and Doucet (1998) have outlined a process for analysing feminist qualitative data with the suggestion that the data should be analysed by using three or more readings of the same data. In a first reading the overall plot or story is read so that context, recurrent images, words and contradictions are taken note of. At the same time the reader needs to analyse how she is responding to the text, both emotionally and intellectually. This helps to identify the researcher's own interpretation and understanding and how their feelings may be influencing their interpretation. Within feminist research the reflexivity of the researcher is highlighted as this helps to make more explicit how the researcher has interpreted and influenced the research process (Mauthner & Doucet, 1998).

In another reading of the text the voice of "I" is focused on by looking at how the participant talks about herself, her experiences, and her feelings. This helps to increase understanding of how the respondent speaks of issues that are important to her (Mauthner & Doucet, 1998). In the third reading of the text the researcher is reading for relationships, in the way the participants speak about their relationships with partners, families etc and also the broader social networks in which they live (Mauthner & Doucet, 1998). Further readings can also be undertaken in which the participants are placed in particular cultural or social contexts, depending on the research and the researcher.

This method of data analysis has the merits of ensuring there is a structured way of undertaking the analysis which can be explained and easily understood whilst maintaining congruence with the research methodology, while also keeping the aims of the research to the fore. For this research project I decided to analyse the data using several different readings which would support an understanding of the issues that were important for women during labour. I used the following readings to analyse the data:

First reading: The stages of labour and concepts of measurement

This reading is related to the standpoint of the woman, in which I looked at the overall story and for references to the dominant theory of labour, and at how the woman explained and demonstrated her understanding of it. I was looking to see whether the dominant theory resonated with the woman's actual experience of labour as a way of answering the research question: Does the experience of labour match the expectations of the stages and phases of labour described by current understanding of labour and birth, as explained by childbirth preparation books and internet sites?

Second reading: The women's voices

This reading was looking for the woman's voice, for the "I" voice which could also be considered the voice that separates her view from that of the prevailing understanding of labour and birth. It was hoped to be able to answer the following research questions with this reading:

- What are the woman's perceptions of labour onset and progression to birth?
- How do women know (if they know) that labour is moving towards the birth?
- Does time matter during labour?
- Are there any factors that women identify that indicate labour is moving towards birth?

Third reading: Context of the research, culture and relationships

In this reading I examined the women's stories and considered how they were influenced by social, power and cultural relationships. The model and context of maternity care was considered along with how the woman defined who was important to her. This reading identified the social relationships that were important to the women and attempted to discern power differentials within the professional relationships.

Birth is culturally mediated with expectations formed by those within society, so in this analysis I also explored the cultural and social constructs that supported women during their labour and birth.

Deciding to analyse the data in this way supported a structured approach to the analysis as well as a way of discerning whether the dominant theory of labour progress was of importance to women. It enabled a way of analysing the data which would support the privileging of the women's voices whilst demonstrating an audit trail and a clearly explainable process for how I established what I felt were the important issues that required discussion and further analysis.

When presenting the findings of the analysis I have described each of these three readings in the following three chapters, but have started with the third reading first because it helps to describe the context and culture of the women's stories. I have followed this with the reading for the dominant theory before describing the women's voices and descriptions of their perspectives of labour and birth.

Deciding I had enough data

Hesse-Biber and Leavy (2006) describe a dynamic interaction between data collection and data analysis in which a hypothesis may be formulated. At this point they suggest a return to sampling and further data collection as a means of testing the newly formed hypothesis. This is often seen in a grounded theory approach to data collection and analysis but can also be used in other forms of qualitative inquiry. During this research the data analysis was iterative and occurred from the first interviews and throughout the data collection. The premise was that if there were issues or themes that required further exploration then data collection would continue, either through more individual in-depth interviews or by further discussion in a focus group interview. The data analysis was undertaken by reading/listening to each interview and looking specifically for the issues previously related. During the analysis it became apparent that women described similar emotions at particular times during their descriptions of labour to the extent that a pattern emerged within the first five interviews which could be seen in all subsequent interviews. This pattern formed the basis of the thematic analysis describing the women's voices. After interviewing 18

women I found that there were sufficient similar patterns to suggest that I had reached a point when I could stop interviewing because there were no further new insights being drawn from the data. The initial themes were provided to each of the participants and they were invited to feedback either via the postal survey or within the focus group. Eleven women provided postal feedback with agreement on the majority of the description provided and two women participated in the focus group. Whilst there were only two women who participated within the focus group, the discussion itself was invaluable and led to the final direction for the thesis.

Co-construction of Knowledge

During the focus group discussion the description of emotions of labour were discussed, and the women suggested that there was a need to tie the results to science, as the following discussion indicates:

Participant one...the thing I liked about the stages idea was that I wanted to have a picture in my mind of physically what is happening, what is causing the contractions you know, what is happening physically to dilate the cervix.

Participant two...because if I were reading this in a book perhaps you know period of calm and peace, and tired and sleepy and overwhelmed and excited and all those sorts of things...

Participant one... You'd go where's the science wouldn't you?

Participant two... But if it had some, if it had the medical kind of and you did them together but from a non-science point of view for the purpose of mothers you do the emphasis on this stuff with the bit in the background but obviously from the midwife you start with the medical stuff and then maybe the emphasis is maybe the other way round.

Participant one... but yeah because it's interesting to have those science things but I just felt from the stages things, the categorising that sort of thing wasn't probably quite as helpful...

Participant two...it doesn't really tell you what to expect...

In many ways this conversation highlights the strength of the scientific discourse in contemporary society with these women explaining that they want the 'science' to go with the emotions, although they also discounted the current

categorisation of labour as stages and phases. In this sense it could be argued that they are colluding with the idea that science provides more authority than the woman's experiential knowledge can provide. However, the philosophy underpinning this research was to provide the women's voices and work together to construct knowledge. It was also important to ensure that the women's voices and perspectives were privileged above that of my own as a researcher.

The discussion about the need for science to support the women's experiential knowledge surfaced spontaneously and was unexpected. This suggestion was followed even though there were only two women present at the focus group. What these women were arguing was that the understanding of labour through emotions would be strengthened for them if it was supported by scientific underpinnings. The concept of integrating the women's subjective experiences with objective knowledge fits within feminist standpoint methodology and provided a catalyst for considering how labour and birth can be conceptualised in a different way.

Summary

This research is about exploring each woman's reality and understanding of her experience of labour and birth. It seeks to provide context and interpretation whilst ensuring that her perspective and experiences are articulated and valued during the research process and in the final analysis. This chapter has discussed the research process and described how the research was undertaken. It has explained the philosophical positioning of the researcher and the methodology that has provided context and guidance for the decision making within the research project. The model of maternity care provided to women in New Zealand was discussed as it relates to the context of the research. Ethical concerns and considerations have been described as they pertain to the research process and the necessary application for ethical approval in New Zealand. In-depth interviews and a focus group along with feedback to women were used as a means of co-creating an understanding of labour and birth. Eighteen women participated in the in-depth interviews and two women in the focus group interview.

These women had a variety of experiences related to where their birth took place and previous experiential knowledge of childbirth. An analysis framework has been used that ensures these women's voices were privileged throughout the research process.

The analysis and findings from each of the readings are presented in the next three chapters. The next chapter contextualises the women's descriptions and explores relationships. The women defined who and what was important to them during labour and birth. I discovered that women chose a midwife whose philosophy 'fit with' their own beliefs and values and defined safety according to these beliefs.

Chapter Five

Context, culture and relationships

Introduction

In this chapter I describe the reading of the 18 interviews in which I consider the influences of social, cultural and power relationships. During this reading I examined the transcripts looking for descriptions of relationships and the social and cultural constructs which may have influenced the woman's birth experience. Midwives were the main health professionals involved in care during birth and there appeared to be a high level of trust in the midwife. I explored the extent and impact of power within this relationship and found that women often held the power in that they chose the midwife who would 'fit' their own philosophy and expectations of care. Women explained that support during birth was important to them and that partners, family members and friends were considered important sources of emotional, social and physical support. For some women there was a strong belief in their body and their ability to give birth. Women with this perspective were more likely to choose to give birth at home or in a primary birthing unit. Conversely there were women who defined their safety in terms of being in the hospital environment; these women felt reassured by having other health professionals available to them if required. These discussions demonstrate that the need to 'feel safe' is an important issue for women during labour and birth.

Listening to the women's stories

Overall the women were able to describe in detail their transition from pregnancy to birth along with false starts and labour onset. Some women had a set of their own maternity notes and had read them prior to our interview to check on times for when particular events happened. Each story was unique to the individual woman with a variety of descriptions and experiences, thoughts and actions, and differences in place of birth, previous birth experiences and expectations. What was central to each of the descriptions was that labour occurred spontaneously, at term and progressed spontaneously to a normal vaginal birth.

Detailed memories

In their discussion on women's birth stories Beech and Phipps (2004) state that when women talk about their birth they are often reliving their experience and that the memories of birth are long lasting and imprinted on the woman's memories – whether they were good or bad experiences. During my discussion with each woman I found that they were able to remember their labour and birth in detail, and that this was considered to be an important and significant memory as Christine (third baby, homebirth) wrote on her feedback form:

One of the most intense experiences of my life. I believe that women who have natural births retain significant memories of the event for the rest of their lives.

Each woman in this study was able to recount a vast array of details from her labour and birth which had been within the previous six months, including conversation, thoughts and actions. For women who were not first time mothers, memories from previous births also surfaced and they were able to provide detailed information with comparisons to these births too. This supports the argument of Simkin (1991) and Waldenstrom (2003) that women's memories of birth are detailed, significant, and long lasting.

Owning up to who I am

The women I interviewed were generally very articulate and easy to interview. Prior to the interviews I had considered whether I should represent myself as a researcher and not 'own up' to being a midwife as well. The reason for this was that I wanted the women to be able to talk honestly about themselves, their birth and their maternity care which included midwives as their health professionals. I was concerned that if they knew I was a midwife they may hold back from talking about their midwife in a negative way and I would find it more difficult to explore power relationships in any depth. However, I realised that any 'hiding' of truth would invalidate the feminist aspect of my research. It would privilege my own position and cause an ethical issue because I would be withholding my own knowledge base and misrepresenting myself to the women. I therefore was clear about why I was doing the research and who I was (both midwife and researcher). This did not seem to cause any issues during the

interviews and I was often able to clarify terms and language with the women because of my midwifery knowledge.

The New Zealand context

In New Zealand women have a Lead Maternity Carer (LMC) who they register with at the beginning of pregnancy. This LMC provides antenatal, intrapartum and postnatal care in a continuity of care context. The majority of women in New Zealand choose a midwife to be their LMC and all of the participants in the study had a midwife LMC. The women interviewed had the opportunity to meet a midwife during early pregnancy and form a relationship.

Discerning power relationships

Fahy and Parratt (2006) define power as the ability to 'get others to submit to one's own wishes' (p. 47). As such health professionals are often accused of using coercive power in that they represent choices that support their own philosophy, ideals and beliefs. Fahy and Parratt (2006) describe differing styles of relationship and suggest that there can be integrative or disintegrative power relationships. I reviewed the texts to discern how women described their relationship with their midwives, how they chose a midwife, how they spoke of their midwife, and what their expectations of the midwife were during the labour and birth, with the purpose of examining the power dynamics within the relationship.

Selecting a midwife

On the whole midwives were seen as supportive, knowledgeable and reassuring. Some of the women interviewed described having the same midwife with previous births so they already knew their midwife and had previously built a relationship and knew each other's expectations and philosophy. Other women had to find a midwife that they could work with. Elaine described how she interviewed midwives to find one that would work with her requirements:

And I interviewed quite a few midwives and lots of them weren't comfortable with an unassisted birth so they were just out straightaway,

and M (Midwife), M was okay with possibly having an unassisted birth or her being in the next room, so that's why I decided to go with her. Yep but then I felt like I'd got quite close to M and so far it would be fine to have her there. Yeah.....Yes and I knew she wouldn't interfere if I didn't want her to (Elaine, first baby, born at home).

Elaine had wanted to birth on her own and without a midwife in attendance (an unassisted birth) because she only wanted people that she knew and trusted at her birth. She wanted midwifery care for her pregnancy and after birth care and interviewed several midwives to see if they would work with this requirement but many were not happy to do so. The midwife she chose suggested a compromise situation - she would be in the house but not necessarily in the same room. This suited Elaine's wishes and by the time she was due to give birth she felt she knew her midwife well and could trust her to be present at the birth and to work with her in trying to ensure there was no interference. When I asked Elaine if she felt she had been in control, she answered:

Yes I definitely felt like I was in charge (Elaine, first baby, born at home).

It appeared that having a midwife who would work with her philosophy was very important to Elaine. This was also apparent with Anita who described changing her midwife during the pregnancy.

I was four months pregnant when I, four or five months pregnant, when I switched to this midwife. I had a previous midwife but I didn't feel comfortable with her. She was okay but, but I just had the idea of being rushed. Yeah. Because I had to go into her practice and she had lots of clients. Yeah. I just, I like this midwife better than, she gives all her focus to me when she comes (Anita, second baby, born at home).

In New Zealand women can change their midwife at any time during their childbirth episode if they feel the midwife is not meeting their needs. However, changing midwives is a difficult decision to make and may leave less time to ensure that a supportive relationship is built up. For Anita, changing midwives worked well. Carrie, however, continued with her midwife despite concerns

during her pregnancy. She described the concerns she had with her midwife and during our interview reflected on the impact that the midwife had on her overall childbirth experience.

... it's been really hard for me to separate my whole pregnancy and birth experience from my midwife's care. That's been a huge, yeah, I've had to really think sometimes, was that me or was that because I had some - my care was probably not the best at all times from my midwife. There were a few communication breakdowns and that has actually impacted a lot more on my pregnancy and birth (Carrie, second baby, born at tertiary hospital).

At the end of our interview Carrie's dissatisfaction with her midwife's care became apparent and was centred on her pregnancy care. She stated:

(Midwife) was just the most lovely person but um, yeah, yeah, she was fantastic at the birth and that's what you want at the end of the day but she wasn't really interested in the pregnancy - or she gave you that impression she wasn't really interested in the pregnancy and I think I'd been labelled quite early on, as somebody, it was going to be an easy pregnancy and yeah, and so any time I raised any issues with her, it was very, they were just brushed aside (Carrie, second baby, born at tertiary hospital).

For Carrie the pregnancy was an important time in which she had not felt listened to, however, she felt that the midwife had been good during the birth and had been happy with her intrapartum care. Unfortunately, the impact of the antenatal care had resulted in an underlying dissatisfaction with her total childbirth experience. I did not probe too deeply into this situation as this was not the main intent of the research and the issue only became apparent towards the end of the interview. This was obviously a time that she felt she could discuss it more openly. The antenatal period is the time in which women work out whether the midwife they have chosen will meet their needs. It would appear that sometimes the midwife can provide appropriate intrapartum care but when care does not meet expectations the result is a negative view of the total childbirth experience.

The ability to change midwives during pregnancy and the fact that two of the women did change their midwife demonstrates the importance that women place on having a midwife who meets their personal expectations and needs.

How women described their midwives

The majority of the women interviewed described their midwives in positive terms and clearly articulated the need for trust. Rhonda described having a good relationship with her midwife saying:

...and my midwife who I adore..... I trusted my midwife.... (Rhonda, third baby, born at home).

Mary also talked about trust:

I'd actually said to J (Midwife) I'm going to give that fear over to you in terms of how long it takes like I will trust you if you said to me you've actually been in labour twenty hours and I'm a bit worried about you, you know so I decided to let, to have full confidence in her and P (Partner) (Mary, second baby, born at home).

Mary had a long labour with her first birth but had reflected on her experience with her midwife and described handing over her fear to the midwife and placing trust in her midwife and her partner to keep her safe. Melanie described knowing her midwife from her previous birth:

... I knew that my midwife was superb because she helped me birth with my middle daughter now. So I knew that she would be wonderful (Melanie, third baby, born at home).

The previous knowledge of her midwife and how she had been supportive during her second birth ensured that Melanie felt confident having the same midwife for her third labour and birth.

The women described their midwives as somebody that they liked and felt they could trust. This relationship is formed during the pregnancy for those having their first baby or a different midwife. For many of the women there was the

continuation of a previous relationship with the same midwife from previous pregnancies and births. I looked to see how the women described their midwives' actions during labour and birth to discern whether there were any imbalances in the power relationships displayed at a time of vulnerability for the women.

The midwives' role

The women interviewed all described calling their midwife on the phone when they felt they were in labour. The timing of the phone call depended on the time of day and the woman's need for midwifery support. If they were in early labour the women discussed keeping in contact with the midwife until they reached a point at which they needed continuous support from the midwife. Generally the woman or her partner made the decision of when to call the midwife then discussed with them the next step of whether they needed the midwife to attend them at home or to meet at the hospital. As Christine explained:

Um, so it was more just a heads up, just letting her know that I thought things had started but, no, she didn't come. She kept calling and checking in and I kept saying "no, that's fine, you don't need to come" you know (laughs) I guess because it wasn't my first time I wasn't concerned or anything. I still didn't feel anywhere near full-on labour so, yeah, she just kept checking in every few hours (Christine, third baby, born at home).

Christine knew the midwife lived quite close and was confident to be at home with her partner. Carrie also described talking to her midwife to let her know that she was in labour and her midwife calling later to see how she was going.

Contacted her (Midwife) about, I think it was about 8 o'clock in the morning and um, she just said, "stay in touch during the day, let me know if there are any changes". And then she contacted me later in the afternoon to see how things were going (Carrie, second baby, born at tertiary hospital).

Both Carrie and Christine described calling their midwife to let them know that the labour was intensifying and the midwife attended them (either at home or they met at the hospital).

I looked at the transcripts to see what the women understood and/or expected the midwife to do during labour. As such I was exploring the woman's perspective of the midwife's role. I found the women expected the midwife to guide them as and when they needed guidance. Rachel explained her expectations as:

Um, my midwife is quite, um, more now I know that she's quite, you know "It's very much up to you and your husband and you work through it as a team" stuff and so which is really awesome. But that wasn't quite what I was expecting of that, and so, um, other than telling me to get in the birthing pool, and at one stage, I was screaming quite a lot through the contractions, and then she told me to breathe, and so I changed, and started breathing properly, how I'd been shown in ante-natal or pregnancy yoga as well. I'd done lots on that sort of thing. And um, that really helped. And then, um, that was all she really said to me throughout the labour, or the, yeah once we were in hospital pretty much, otherwise she just left it up to me and J (partner) and talking through it and stuff. She kind of jumped in if she thought I was losing it I think (Rachel, first baby, born in a primary unit).

In many ways Rachel had expected a more directive role from the midwife, but in retrospect was happy with the guidance she received from the midwife. She was aware that the midwife had a philosophy of letting the woman and her partner work together during labour but would offer advice and guidance as needed. Mary suggested that the midwife was able to help by just being there and letting her do what she needed to do:

J (midwife) didn't really she was amazing at just letting me do my thing just helping when she needed to and saying what she needed to (Mary, second baby, born at home).

The women described the role of the midwife as being in the background and 'jumping in' depending on the woman's needs.

Consideration for the midwife

Many of the women showed concern and consideration for their midwife. Julie described waiting a little before calling her midwife to let her know that she was in labour. I probed the reasons for waiting. She replied:

Why did I wait, oh I just thought she deserved a bit of a sleep in, five o'clock instead of four o'clock (Julie, second baby, born in a primary unit).

While Julie described her consideration of the midwife's needs in terms of more sleep during the night, Lorna described feeling guilty for keeping the midwife up in the middle of the night:

Because it wasn't happening so fast as it was last time I was feeling a bit guilty for the midwife and I said like you're just sitting there waiting for me (Lorna, fourth baby, born in a primary unit).

This consideration of the midwife is an unexpected finding and may be a result of the relationship that has formed between the woman and her midwife.

Women described consideration of their children's and their partner's needs, and this consideration appears to extend to their midwife when they labour during the night.

Maggie also described her consideration of her midwife's need to have time off. During her labour the midwives changed and she had a back up midwife provide care. She recalled:

Yep. Yeah, so, so yes the midwife swapped halfway through, but that didn't matter at all because we, we got on fine with both of them and they're both really good (Maggie, first baby, born in a primary unit).

Maggie had obviously met the backup midwife and felt comfortable and trusted her care. The midwife had discussed with her the reason for changing and Maggie explained how they agreed that it was important that the midwife was able to be there for her own family.

It was four o'clock when we arrived at the hospital so and she was due to go off in an hour and I think she thought that I had a long way to go so she said you know would it be okay if she swapped and M (partner) and I were more than happy because we were like these are your kids, your family. You can't keep you know, your priority has to be your own household not your job. And we knew that that's important and it would be sort of not hypocritical but I guess, you know like if what we were, we should do what we, what we would do for our children we should allow her the same courtesy (Maggie, first baby, born in a primary unit).

For the women there was a concern and consideration for the midwife which was a reciprocal process and underscored the relationship that had been built between them.

The ability to meet a midwife during pregnancy means that for most women the relationship can be based on mutual knowledge and expectations. Women choose a midwife to work with based on a shared philosophy, with a requirement that the midwife acknowledges and meets the woman's needs and expectations during pregnancy. When these expectations were not met there was a change to another midwife instigated by the woman. The two women who described changing to a midwife looked for one who would meet their expectations and needs. The women have described expecting the midwife to understand their needs and guide them during labour and birth. The relationship which has been formed between the woman and the midwife appears to be based on trust, shared understanding and consideration.

Guilliland and Pairman (2010) define the concepts of midwifery partnership as based on individual negotiation, equality, shared responsibility, empowerment, informed choice and consent. Within this concept of equality is that power is shared between the woman and the midwife so that a balance is achieved and found to be mutually satisfactory for both partners. The relationship between the midwife and woman that develops following continuity of care has also been described as a professional friendship (Pairman & McAra-Couper, 2010). Leap and Pairman (2010) suggest that a key midwifery skill is the development of trust in the relationship. The midwife's role is to be able to balance trust with a facilitation of the physiological process of birth with the need to know when to

intervene with action when birth deviates from the physiological. This component of professional judgement is a key to 'safety' that midwives contribute within the relationship. The majority of women in this research have described a relationship with their midwife which 'fits' this description of midwifery partnership.

Power and relationships

Fahy and Parratt (2006) argue that the midwife can create and maintain optimal conditions for birth for each woman by considering several 'factors' which can support the woman's power during labour and birth. They suggest that power can be defined as "an energy which enables one to be able to do or obtain what one wants" (p. 47). They define power relationships between midwives and the women in their care as either integrative or disintegrative. In the disintegrative relationship there is an ego-centred power relationship which imposes one person's goals above the other's and results in an undermining of confidence and decision making ability. In the integrative power relationship power is shared within the environment as a means of achieving a shared goal. Within what could be considered a midwifery integrative relationship the woman is supported to integrate both her body and mind so that she is able to respond intuitively and instinctively to her body sensations. In this they suggest that the midwife nurtures the woman's sense of safety by respecting her beliefs, attitudes and values. They continue that the integrative relationship "...harnesses the power of all participants in the birth environment so that all power is focussed on the woman's enhanced mind-body integration" (p. 47). When considering power relationships in this research it can be seen that the women have described integrative relationships with their midwives. Midwives have been chosen by the women because they have similar beliefs and values.

The women described their power within the professional relationships in that they 'chose' a midwife that fits with their own values and beliefs and 'entrusted' the midwife to keep them safe during birth. When there has been a dissonance between the woman's needs or beliefs and that of the midwife (which happened on two occasions) the women have described changing the midwife to ensure they had a midwife who met their needs. The majority of women described their relationship with their midwives as being based on trust and the provision of emotional support and guidance.

Support during labour

Much of the research exploring women's experiences of labour has suggested that support and control are important concepts which are central to a woman's satisfaction with her birth experience (Gibbins & Thomson, 2001; Green & Bason, 2003; Lavender, et al., 1999; Machin & Scamell, 1997). I therefore explored the role of the other people who were present during labour and birth to discern what their role was and whether they were seen as supportive from a woman's perspective.

The partner's role

When reading the text and looking at relationships I realised that the women placed great importance on having their partner present for the labour and birth. The partners were seen as the main source of support, both physical and emotional, and often helped in decision making. Ella shared decision making with her husband and recalls:

(The contractions) They were quite, quite strong and regular and so we called the midwife again and she, well S (partner) called my midwife and she could hear me moaning in the background because I'd always remembered reading that your midwife will want to talk to you to make sure that you are you know at the stage where you need to come in. And she didn't even ask to talk to me, she said right bring her in (Ella, first baby, born at tertiary hospital).

Ella had called her husband to come home from work when she thought she was in labour, and they decided together that they should contact the midwife to discuss hospital admission. A little later when they were at the hospital Ella again recalls asking his advice on whether she should have Pethidine to help with the pain.

...and then I remember going through a couple more contractions on the floor with my husband by my side and I said what do you think I should do (Ella, first baby, born at tertiary hospital).

She explained that she wanted somebody else to help her make the decision and she was glad in hindsight that they had made that decision together. Many of the women suggested that just having their husbands close by was important to them. As Carrie explains:

Yeah, they (the contractions) were hurting a lot - I wouldn't say hurting until later on but they were very, very strong, they were, you know, um, they were rocking. Knowing, to me, knowing that my husband was close by, and also just, I just treat it like waves and I'd know, and then there'd be another one coming along (Carrie, second baby, born at tertiary hospital).

Mary also discussed how it helped her to have her husband involved in her labour. She explained:

He was just pottering around watching TV, oh that's right he, the hot water bottle, he made sure that the hottie was put on my back if I needed it and he would have rubbed my back but I didn't really like being touched at that point for some reason. I was kind of like sometimes like quick put the hot water bottle on and he would. Yeah I guess basically I was very, it was all about me sort of didn't you know, I knew he was there if I needed him (Mary, second baby, born at tertiary hospital).

As Mary explained having her partner there was an important source of support and comfort. Whilst it appeared important for the women to have their partner with them physically, it was often difficult for the partners to know what to do to help. Janet recalls:

He wasn't doing much because I don't think he knew what to do. I think he was sort of like a bit worried as to, he just let me deal with it by myself which I think works, was better because he didn't sort of say anything which was good. Like he was there rubbing my back and things like that, so if I needed him to do anything he was there for me (Janet, first baby, born at tertiary hospital).

It appeared that whilst rubbing the back or getting 'hotties' (hot water bottles) into place appeared important the most significant aspect of having the partner there was having the emotional support. As Carrie explained:

Yeah and I just, yeah, wanted to be quite close to my husband at that stage (Carrie, second baby, born at tertiary hospital).

Sometimes men were given the job of timing the contractions as Lorna and Mary described in their interviews:

...because R (partner) was quite, was quite yep five minutes and then the next one, have you had one yet. And it's like oh it's eight minutes, oh three minutes, oh that one's ten minutes (Lorna, fourth baby, born at primary unit).

...but no I didn't know what time we left here really and what time we got there and how long the contractions were or anything like that. That's A's (partner) job, you can measure them, yep I'm busy dealing with them (Mary, second baby, born at tertiary hospital).

Other jobs for partners were to provide drinks of water between contractions, be somebody to lean onto (physically), and to provide encouragement.

He was giving water and just being encouraging and that type of thing, yeah it was good (Lucy, third baby born at tertiary hospital).

....and I was on my hands and knees and P my husband was in front of me and was kind of it was kind of like he was a battering ram or something like that you know like the rugby players have like I just had my shoulder up against him and every time I had a contraction I'd just push and push into him (Mary, second baby, born at home).

Christine described her partner's job of keeping the pool filled and at the right temperature.

...he kept the birth, because it took the labour took so long, he kept, he had to keep the birth pool maintained at a temperature so he'd empty it out a bit, put a bit more hot water in so that was kind of his job, keeping, keeping that at the right temperature (Christine, third baby, born at home).

It was important to Christine to be able to use the pool during her labour because she was keen to have a water birth. She had been unable to with her first two births so was focussed on having this experience with her third. Therefore, as soon as she thought she was in labour she wanted the pool made ready but then was not actually ready to get into it for some time after it had been filled. For her it was important that somebody was able keep the pool at the right temperature until she needed it.

Another important job for the partners was getting everything organised when moving to the hospital from home. As Julie recalled:

He just rubbed my back and that's quite good, I found that quite good the other time. He rubbed my back and then between times he'd run round and do something. Get the bag, get something or other, I don't know, ring somebody (Julie second baby, born at a primary unit).

Julie was having her second baby and the labour was intensifying quickly. She was reliant on her partner to get childcare organised, phone the midwife, get the bags in the car and get ready to move to hospital because she was focused on the contractions.

The women described the need to have their partners with them and considered them an important source of emotional and physical support during labour, even if the partners did not quite know what to do. Many of the women gave the partner jobs to do such as counting the frequency of contractions or keeping the pool at the right temperature. They also described how the partners helped to keep them physically comfortable by rubbing their back and providing water to drink if they needed it.

In New Zealand partners are encouraged to be with women during labour and birth, and other support persons are also welcomed. In my sample a few women had other support persons involved during their labour and birth. These support persons were other family members or close friends so I reviewed the discussion about the other people present during the labour and birth to establish their influence and their role.

The role of other family members

Some of the women interviewed also described having support from family members during their labour and birth. They discussed having their friends, mothers and sisters at the birth and found them a source of comfort and support. Anita, who was having her second baby, had a cousin, her mother and her partner with her during labour. However when it came to supporting her during labour it was still her partner who was the most helpful as she explains:

Well my cousin didn't have anything to do with it, she was just sitting around. My, my Mum, my Mum helped out with the rubbing of my, of my back and when I was in pain. My husband was definitely my support person. You know my Mum was a bit scared I think with me being yeah so much in pain and, and when I tried to get her to you know to rub something a part of me she was just doing it very gently, you know which is not really much helpful (Anita, second baby, born at home).

She explained further how her partner helped her with the pain:

....so my husband was the main role person in relieving the pain.....when the contractions came I only coped by getting my husband to rub my back or rub the area which is painful, which was mainly my lower tummy or my back at that time. Yes so when I had the contractions I, I hold onto my husband because I yes face to face nice we stand face to face and I just hold onto his neck and so he can just rub my back and, and I also yeah if it doesn't really help I just squeeze his shoulder or squeeze his hand or as hard as I, as hard as I could just to relieve the pain in some way (Anita, second baby, born at home).

Rhonda also had other family members during her labour and her birth:

Yeah I like lots of people around.... I think because it's really special and I think like sharing it and yeah just like sharing experience, it's a good experience that I want to share (Rhonda, third baby, born at home).

Rhonda had a friend, her mum, her sister and her partner at her birth. Looking through her transcript it became evident that her mum and her partner were her main sources of support.

...and my Mum came and helped and mopped my brow for a while as well and I was just leaning on him and just kind of hugging him... (Rhonda, third baby, born at home).

When asked who her main support was she replied:

I'd say she (mum) helped a lot but my partner, he was, yeah he was the one that I was holding on to and hugging (Rhonda, third baby, born at home).

Rachel had both her parents with her during her labour when she was at home. She described their roles as:

... my Dad hung out watching TV and, um, Mum was the run-around person which worked out really well -- we hadn't planned it that way, I'd planned to tell Mum and Dad that I was in labour but that they might catch up with us at the hospital or something, um afterwards, whatever, but, because the football thing, they'd come over early and then, I was just really pleased when they stayed, because I found that I'd yeah, really needed to hold J (partner) hands behind me and, and pushing on his hands and stuff was really good, um, but there were a couple of occasions he needed a break, cramp, and he needed to go to the loo and stuff, so my Mum got in behind me, and I held her hands for a while. In the meantime she was running around getting all the bits and pieces that I needed: drink, food, stuff like that (not that I was eating much) but um,

yeah, yeah, it was really, really good. Dad found it a bit hard. He was breathing with me, he couldn't help himself. (Laughter) He was having chest pains by the end of it. So I think I'll send him away with L (baby) now, that's my wee man, with the next one. (Laughter) (Rachel, first baby, born in a primary unit).

Rachel's parents were with her during labour because she had asked them to stay with her whilst her husband went to play football. However, by the time of the football game the labour had started to intensify so she needed her husband to stay with her. They were not present during the birth.

Some of the women described wanting their partners and/or family around but to have them in the background and not necessarily doing anything for them. As Lynn explained:

I really liked having the kids around in labour actually I think it took the focus, it took the focus off me it kinda feels sometimes like you're in the spotlight you just you know well I like to just you know hover in the corner in the dark and get on with it (laughs). So if the kids are around making lots of noise it's kind of comforting I quite like that. It just makes the whole experience seem more like an everyday experience, which it is, a very special one (Lynn, third baby, born at home).

Lynn was happy to have her children with her during her home birth to keep the experience more normal for both them and herself. She felt that she didn't want to be the focus of attention and continued that:

My husband I think because he sort of is not a hundred per cent sure of what he should be doing and his role is he's quite happy to take over the kids (Lynn, third baby, born at home).

Lynn has suggested that having the children around during labour was also helpful for her partner because he was used to looking after the children and therefore had a practical role.

Kate reported a need to be away from others, and when asked where she got support from, said:

From myself, I just block everyone out, that's how I deal with it, I just - I went in my own room, and they were in the kitchen, I just like to be by myself and just focus on the pain. And I don't like people, you know, around me, trying to touch me, yeah (Kate, third baby, born at tertiary hospital).

She suggested that she wanted support from her partner but not necessarily all the time. Later when she went to hospital she described her partner's support in the following way:

Oh, he was so cruisy. He was kind of like "oh this is my third, you know. I know what I'm doing, all I have to do is let her squeeze my hand and I'll be fine." But know he's really, he was really encouraging and he knows not to get in my space but, he knows when to help. I don't know, he just knows. So, just in the labour he just held my hand, and I just squeezed it and did my thing (Kate, third baby, born in tertiary hospital).

Kate described how by the third birth she and her partner knew how they needed to be during labour. She described needing him there to provide encouragement and physical support (hand holding) but also being aware of her own role of giving birth.

Melanie described her concern that her partner may not cope with her decision to have a home birth. Her partner had been exposed to highly medical births in hospital with a previous partner and this was their first labour and birth together as a couple.

I was a little concerned at how my husband was going to, you know to cope with it because we hadn't done it you know together before, and certainly not this way. He'd you know experienced very medical, caesarean births before with his eldest kids. So, so once I realised that he was actually okay and the support person was there and J (midwife) was there and she's a fabulous calming influence, things were great (Melanie, third baby, born at home).

Melanie explained later in the interview her choice of having her partner, her midwife and her sister-in-law with her for her labour:

I hoped that my husband would be okay with it rather than him becoming overwhelmed. So that was a concern. And I, I knew that my midwife was superb because she helped me birth with my middle daughter now. So I knew that she would be wonderful and my sister-in-law is a practical down to earth fabulous person so I really felt confident going into the labour, particularly having done it you know twice before. I really felt confident that, that it was going to be good (Melanie, third baby, born at home).

Melanie surrounded herself with support from her midwife and sister-in-law as a way of ensuring support for herself and her partner. The foundation of the discussions about supportive relationships was the underlying requirement of trust as Mary described:

The fact that I only had three intimate members of my family and a midwife that I really trusted was really good (Mary, second baby, born at home).

In summary, some women just had their midwife and their partner with them for labour whilst others had friends and other members of their family as well. By having other family members with them during labour the women were able to ensure consistent physical support – in that if their partner needed a break from their role then another support person could step into that role. The partner was generally considered to be the main provider of emotional and physical support during labour.

Women did not always need physical support all of the time – just knowing there was support nearby was considered important, with some women suggesting that they did not like to feel the centre of attention during labour. What was consistent was that the woman chose to have people with her during labour whom she felt she could trust to support and encourage her.

Support from partners, family and the midwife was considered a very important issue for women during labour and birth and related to emotional, physical and social support.

Beliefs and cultural relationships

Within the standpoint methodology it is suggested that further readings of the interview texts are undertaken which explore the participant's particular cultural or social contexts. Culture has many definitions but the one I am considering in this context is that of the socially transmitted pattern of human behaviour which includes thoughts and speech and explains the customary or social beliefs of a social group (Allen, 2000). The majority of the participants were New Zealand European ethnicity with one woman of Māori ethnicity and another of Pacific Island ethnicity. Both of these women chose to give birth at home. With such a small number of different ethnicities it was not possible to look at whether ethnicity influenced the woman's cultural expectations around the birth. What was obvious were the differences in culture and philosophy between women planning to give birth at home and those who planned to give birth in a tertiary hospital environment. I therefore explored the beliefs of the women in relation to their place of birth.

Home birth and beliefs

In this research study there were seven participants who chose to give birth at home, and four who chose to give birth in a primary unit. A primary unit is a facility which provides support for labour and birth along with some limited pharmaceutical analgesia, but it is essentially midwife led and there are no obstetric, anaesthetic or paediatric services available.

The women who gave birth at home had a strong belief in their body and their ability to give birth. They described wanting to give birth without intervention or pharmaceutical analgesia and their belief that this type of birth was better for them and the baby.

Anita explained her reason for wanting a homebirth:

That was one of the reasons that I wanted to have a homebirth. I had, was induced with the boys (twins) and I had an epidural and I also had gas with them but with the epidural I think it has a bad effect on, if yeah bad effect on my back because I always get, always get pain (Anita, second baby, born at home).

Anita described the long term consequences of the epidural as back pain and therefore wanted to avoid any interference during her labour and birth. Rhonda described her reasons for wanting a home birth:

...I hated, absolutely hated being in hospital after I had my other two. I hated it. I didn't see why I should have to stay in the hospital and be miserable by myself it was horrible, you had this baby and then your partner's got to go and you're by yourself in a room with another lady yeah it's just like want, wanted to be at home and then just hop into bed, yep which was exactly how it was, yep it was perfect (Rhonda, third baby, born at home).

Her third baby was her first home birth experience and she described wanting to have her family with her after the birth following her memories of being alone and miserable in the hospital

Lynn had birthed her second baby at home, so having a third at home had been an easy decision. She explained:

Oh definitely I had my ideas oh you know this will all go nice and smoothly at home and I better stay at home with as little intervention as possible I don't want lots of attention I don't want to go to hospital (Lynn, third baby, born at home).

For Lynn being at home allowed her to focus on her labour and have minimal intervention. For the women who gave birth at home there was an acceptance that pharmaceutical analgesia would not be part of their labour. Most of the women used other ways of coping with pain. Generally this was being able to

move and use water during labour but one aspect of home birth that was discussed by several women was the use of hot towels to help with the pain. Lynn described the midwives as her hot towel people saying:

They're my hot towel people (laughs) I love the hot towels even in the bath the hot towels I'd go mad without them I think (Lynn, third baby, born at home).

Melanie also described the midwives' use of hot towels:

You know by that time I'd lost track of what everybody else was doing you know the only thing that mattered was the hot towels, that was fabulous. Every time a contraction started J (midwife) would slam these towels really hard against my back, oh bliss (Melanie, third baby, born at home).

Whilst there was little in the way of pharmaceutical analgesia the women felt that alternative approaches had helped them to cope with the pain of labour. Elaine was a first time mother who had a home birth. She explained why she had been drawn to the idea of a home birth.

I'd read about births and I'd watched different births, DVD's and yeah, I was quite excited about giving birth. Yeah. I think to start with I actually wanted to have an unassisted birth like not have anyone there and just sort of be in my own space and do it myself (Elaine, first baby, born at home).

For Elaine there was a strong belief in birth as a natural process as well as a belief in her own ability to give birth. For the women who had chosen a homebirth there was a belief that birth was a natural process that did not require intervention. For them safety involved being at home, keeping intervention to a minimum and trusting in themselves and the people around them to keep them safe.

Primary unit births and beliefs

The two first time mothers who gave birth in primary units also described a strong belief in their own ability to give birth. Maggie suggested it was because she had felt good during the pregnancy and expected to birth easily because her mother and other family members had done so, as she explained:

Mum is very good at giving birth and had always told us kids, you know my sister and I, that you know we're good at, we're good at having babies in our family. We get pregnant really easily and we carry well and we don't miscarry and then we deliver fine. And we, we just don't have stories or history in our family and so I had that expectation that it would be like that for me. It didn't worry, I thought I'm like my Mum you know, Mum and I even look similar you know. And so yeah I just thought I'll just, I'll be fine you know, that's what we do in our family. We just make babies and have good babies, and so I had expected it to go well (Maggie, first baby, born in a primary unit).

For Maggie her belief in her ability to give birth well was influenced by her family's history of normal healthy pregnancies and births. Rachel did not describe her reasons for her belief in her ability to give birth but had a strong desire to avoid medical intervention and described a belief in herself, her own health and alternative medicines. She described her concern about being overdue as follows:

I was thirteen days overdue when I went into labour, so I was kind of a bit anxious about induction, I REALLY didn't want to be induced, um, but my midwife had agreed to let me go an extra week overdue, because everything had been absolutely fine up until that point (Rachel, first baby, born in a primary unit).

She went on to explain that:

... because I really, I really wanted to birth at B (primary unit), and I really wanted to go into labour naturally and so, and my dates were not perfect, I thought that maybe they were a little bit off, so because of those reasons we thought it was fine to go over. So I was due to go and

have a foetal monitoring on Saturday when I went into labour so it was good timing, didn't even have to bother with that (laughter) never even been to ... (tertiary hospital) yet. (laughter) So yeah, so I was a wee bit anxious and I was starting to get a bit uncomfortable but I'd had a really, really easy pregnancy, so it was only the last week when I was starting to get a bit, some pelvic pains and stuff like that so, other than that. But I was rushing around trying to do lots of things to try and induce the labour, so I'd done a collection of things like reflexology and been to an osteopath and acupuncture and labour tincture and I don't know, everything I could think of (Rachel, first baby, born in a primary unit).

In this description there is a clear desire to give birth without intervention, a discussion of the issues of due dates and her desire to avoid induction by using alternative therapies. Rachel also explained that she felt that her pregnancy had been 'easy' with only the last week getting uncomfortable.

It would appear that their own perception of good health and belief systems strongly influenced these women when choosing the place of birth. Of the other two women who gave birth in a primary unit I did not discern this strong belief although they had both previously had normal births. Lorna (fourth baby) had previously had quick normal births so the choice to give birth at the primary unit may have been driven by her proximity to that unit. Julie had previously given birth in Ireland and described the attitude to birth in that country as:

... and I found that particularly in Ireland. Like the women there seem to be just terrified of birth and they didn't seem to.. seemed really scared of it and you know it was all about pain relief (Julie second baby, born in a primary unit).

Julie described the need to give birth within 12 hours in Ireland and had managed to do so herself but recounted having to be on the bed and have her legs in stirrups. This may have influenced her decision on place of birth. She discussed the need for information for women about positive birth stories and suggested that fear about birth dominates many birth stories.

Tertiary unit birth and beliefs

In contrast there were seven women who gave birth in the tertiary unit. These women defined being in hospital as providing reassurance and safety, as Kate explains:

I just find the hospital safe, a lot of people prefer home births I'm sure but I just like the safety of knowing that there's a theatre, there's a medical staff, you know... (Kate, third baby, born at tertiary hospital).

This belief was echoed by the other women who chose to give birth at the hospital along with a concern about possible need for pharmaceutical analgesia. As Janet explains:

The fact that I was in a place where if something did go wrong that there was medical people around, yep. So that made me a bit more relaxed. Yep. So if she was going to come then there would be people there to help me (Janet, first baby, born at tertiary hospital).

She explained her discussion with her midwife about her need to go to hospital to get pain relief:

She (midwife) did say to me that I could try and stay at home longer if I wanted to. She said some people find it easier being in their home surroundings dealing with pain but by that stage I was sort of had enough and wanted some sort of pain relief so that's when my partner drove up to the hospital (Janet, first baby, born at a tertiary hospital).

Although Janet's midwife would have supported her to stay at home longer, she wanted to have pain relief which explained her reason for going to hospital.

Mary also described wanting to have access to drugs if required:

...but when I did get to the hospital I do remember saying to the midwife I might need drugs soon because I thought just in case if those goes on for more hours I might need to order an epidural or something (Mary, second baby, born at a tertiary hospital).

Mary suggested that she was concerned the labour may last for hours and from her previous birth she knew she would need to order an epidural earlier rather than later. In fact she gave birth very shortly after getting to hospital. Faye (first baby) described being offered the option of an epidural. Whilst initially she said no and used gas and air she eventually said yes:

...and I was four centimetres dilated at that time so I think I thought that it was going to be a very long day so that's why I think I said yeah I'll have an epidural to get rid of this pain (Faye, first baby, born at tertiary hospital).

Faye agreed to have an epidural because she thought it was going to take a long time until she was ready to give birth. The anaesthetist sited an epidural but it did not in fact work and by that time Faye was 8 cm dilated and told that it was too late to have an epidural. Faye described how this made her feel:

Which was a little bit, quite scary for me, I got quite upset then knowing that I was going to have to do it without any pain relief as such. I mean it was nice that I well thought I would be able to do it without it. I had no choice at that time. But yeah it was quite scary at the same time that I would have to go through with it (Faye, first baby, born at tertiary hospital).

Faye has explained her fear and lack of choice at this point when she realised that she would 'have to' labour without any pain relief. Initially when selecting women to participate in this research I had decided to exclude women who had an epidural because of the possible changes to the normal rhythms of labour that epidurals may create. However, I had already started interviewing Faye when she disclosed this information and because the epidural had obviously been ineffective I decided to continue to include her as a participant within the research.

One of the women who gave birth in the tertiary unit did describe a strong belief in her body's ability to give birth:

Um, yeah, I don't know, for me, the most powerful thing was knowing that my body, this is something women have done for years and years and women do it without any medical intervention and um, yeah, bodies are amazing, they just do it. But that for me, somebody had said that to me and that stayed with me the whole time, somebody had said to me that even if you are in a coma, that your body can give birth. Your body knows what to do, so yeah, it's just about that trust thing (Carrie, second baby, born at tertiary hospital).

Carrie has described a strong belief in the power of the woman's body to give birth no matter what, which appears to have supported Carrie to trust herself and her body when giving birth. For Carrie however, there had been health concerns during her pregnancy leading to increased anxiety and she had seen an obstetrician during the pregnancy. So whilst she had a belief in her body's ability to give birth this may have been undermined by her health concerns during pregnancy. Having said this Carrie was also keen to use water during labour and avoid being monitored with a continuous tocograph (CTG) or to be confined to the bed (which she achieved). Therefore, even in the tertiary hospital environment there was the ability for women to achieve birth without intervention if it was important to them.

In summary this analysis has found that for the women who gave birth within the tertiary hospital environment there was mostly a need to have analgesia available and access to other medical personnel as a backup support system. They defined safety in terms of ensuring access to pharmaceutical analgesia and medical personnel.

Defining personal safety

These interviews have revealed that women are active decision makers in choosing their midwife and their place of birth. Sesia (1997) argues that pregnancy and birth are complex phenomena in which cultural values and societal norms play important roles. This research has discerned two competing discourses which appear to be related to choice of place of birth. The first is that of women who strongly believe they can give birth without medical intervention and in which there is an emphasis on physical, psychological and social support

from partners, midwives and other family members. In this research women who had a strong belief in their own ability to give birth have chosen home or a primary unit as their place of birth. The alternative discourse is one in which women consider birth to be 'safer' in the hospital environment. It could be argued that this discourse is based on fear – of the pain associated with labour and fear that the woman's body may not work and may need support from medical professionals. The majority of women who gave birth in the tertiary unit articulated their belief that birth is 'safer' for them in this unit because of access to medical analgesia and medical practitioners. Thus safety is a key feature in decision making and is underpinned by the individual's beliefs about birth. Hall (2008) contends that the place of birth needs to be a spiritually safe environment which supports the woman's need for security. For some women there is an increased perception of safety and privacy when giving birth at home, whilst for others the perception of safety is increased by giving birth in hospital. Women make choices based on their concepts of risk, safety and fear.

Defining personal risk

Skinner (2005, 2010) argues that there is an increasing social anxiety about childbirth despite a growth in knowledge and understanding about causes, incidence and the prevention of negative outcomes. This growth in anxiety has been accompanied by increasing levels of surveillance which have been used as a means of defining risk. There is also an increased accountability of the health professional that accompanies the notion of risk and a suggestion that by reducing risk improved safety can be guaranteed. Edwards (2005) contends that the obstetric model of birth relies heavily on the search for signs of risk which in itself can generate fear and anxiety as well as undermine confidence. For women there is a need to protect themselves and their baby in both a physical and emotional sense in that women want to minimise emotional harm so they can become confident mothers (Edwards, 2005). The woman's beliefs and values provide the definition of what to them is safe or 'risky' and women cannot feel safe if their own beliefs or concerns are not being listened to. Therefore the woman's autonomy and agency is of importance when deciding on place of birth and individual safety. During labour hazards can arise that may threaten the woman's physical or emotional integrity or may be a threat to her social values (Hall, 2008). Other influences may also come from her partner

who may feel 'safer' in the home or the hospital environment or the midwife who may also prefer the hospital or home environment. Therefore the decision as to place of birth is influenced by the needs, expectations and fears of each individual woman, as well as that of her partner.

In New Zealand the ability for the woman to build a relationship with the midwife during pregnancy provides a way of connecting and sharing belief systems. It seems to be important that the relationship which connects the woman and the midwife is based on a shared belief system. It is this that has been constructed by the woman as important for her 'safety' during labour and birth. It also has a powerful influence on the woman's choice of place of birth and confidence in her ability to give birth.

Summary

In this chapter I have described the context of care and the ability for women to build a relationship with their midwife. This has been enhanced by a model of care in which women are able to ensure they have continuity of care by meeting a midwife during pregnancy who then provides labour and birth care. It appears important that this relationship is based on trust and shared beliefs and value systems.

Women described the role of the midwife as being mainly a guide whilst the majority of their physical, social and emotional support came from their partners and other family members during labour and birth. They have described an integrative relationship in which all those present at the birth focused on the woman as a way of supporting her. The discussions on the need to 'feel safe' indicate that this is an important issue for women and an embedded 'need' which if unmet may influence the woman's birth experience.

The next chapter explores the women's expectations about labour and birth. Descriptions of the dominant theory of the stages and phases of labour were looked for and whether they resonated with the woman's actual experience of labour and birth. The women indicated that the stages and phases of labour were not relevant to them during labour but that they did need to have some signposts of what was happening during labour.

Chapter Six

The stages of labour and concepts of measurement

Introduction

In this analysis of the interviews I looked to see whether the prevailing theory of labour concerning the three stages and various phases was identified by women and how this influenced their perceptions and experiences of labour. Women described accessing a variety of sources to find out about labour and birth. During the interviews, I found that women did not talk about their labour as in stages or phases and often considered the stages to be an abstract concept. Some of the women could describe the stages but others were quite vague about them, suggesting little resonance between this clinical description and the woman's actual experience of labour as it progressed towards birth. For women who had previously laboured there was the ability to make comparisons with their previous experiences and therefore experiential knowledge was privileged over other forms of knowledge. Descriptions of labour onset and progression within the prevailing theory did not appear to resonate with the women or provide sufficient clarity for them to understand what was happening. Some women requested a vaginal examination to establish that they were in labour and how much longer the labour would last. This demonstrates that whilst the three stages or phases of labour have little resonance for women, the discourse of measurement, which has its foundation within the prevailing theory, does appear to influence women and creates expectations that this measurement will provide an outline and structure for their labour.

Looking for the dominant discourse

For this analysis I read each individual interview for the overall story and listened to any strong feelings expressed by the women, recurrent words, and contradictions. At the same time any references to the stages of labour or labour phases were listened for, looking to answer the research aim of:

- Exploring whether the dominant and prevailing understanding of labour progress with stages and phases resonates with women's experiences of labour and birth.

The dominant theory of labour is that of three stages of labour with a variety of phases within the first stage of labour (latent, active, transitional), and is described in many childbirth books and on websites. I have described it as a dominant meaning system because it provides one way of looking at labour which is founded on an assumption of labour as mechanistic and based only on anatomy. Dominant meaning systems are those that serve the dominant groups in society (Minnich, 2005). This understanding of labour serves obstetricians and a medical view of labour in which the woman's body needs to be controlled and labour has time limits (Katz Rothman, 2007). In this analysis I am suggesting that the dominant knowledge is a social construct that has been limited by and reflects the values and interests of the dominant social class (Jagger, 2004, p. 2). By looking at labour from the woman's standpoint this research has been able to explore an alternative view of labour and birth.

Standpoint methodology – exploring differing viewpoints

The dominant viewpoint of labour as being in stages and phases may already be known and understood by the women. By exploring their knowledge the research may uncover dissonance with the dominant theory and the woman's own experiential knowledge. When there is a different viewpoint for two different groups within society it is the dominant group who provide the authoritative voice and dominant viewpoint. However, by exploring the understanding of the other (oppressed) group there is the ability to provide the viewpoint of both the dominant group and the oppressed group (Hartsock, 1983). The oppressed group are able to see and understand the dominant viewpoint as well as their own and as such can provide a more comprehensive understanding of reality. Therefore exploring the women's understanding of the stages and phases of labour was an important feature of this research. I commenced by analysing how women had accessed knowledge.

Exploring what women knew about the stages and phases of labour

During the interviews I encouraged the women to discuss the issues that they themselves thought were important, so I did not ask directly about where they had gained knowledge of labour and whether they knew of the stages or phases of labour. However, if a reference was made to a stage or phase of labour or finding out more about labour I used probing questions to gain understanding of where knowledge was accessed and how it was understood. During the analysis I looked for references to textbooks, populist books, antenatal classes and other means of sourcing information. For the women who had previously given birth there was a mixture of experiential knowledge along with gained knowledge from books, magazines, and friends' and families' stories. However, for the first time mothers facing labour was a complete unknown so they were more reliant on other information sources. I therefore analysed their transcripts separately first.

Accessing knowledge

Rachel, Ella, Janet, Faye, Elaine and Maggie were first time mothers so had never experienced labour and birth; they were facing an unknown experience. They relied on a variety of sources to gain knowledge and understanding of what was going to happen during labour and birth and talked about antenatal classes, childbirth preparation books they had read, or stories from relatives and friends about their own births. Only Elaine had been present at a birth before so for the others labour and birth was an unknown entity. Each woman had differing ways of accessing more information as they needed. Faye and Janet revealed that they looked at reference material to guide them as to what was happening when they experienced the first signs of labour. Faye explained that her waters had broken during the night but she had not felt any contractions so rang her midwife, who advised her to wait until the morning and arranged to phone Faye then. So Faye referred to books to find out what should be happening.

I jumped back in bed and we got out the books, read some books about what should be happening and what we will expect to be happening in the next wee while (Faye, first baby, born at tertiary hospital).

When asked which books she had looked at she discussed a book given to her during the antenatal period called 'Bounty' and one called "What to expect when you are expecting". These seemed to reassure her that all was well.

Janet also expressed confusion about whether she was in labour or not. She discussed going to antenatal classes and described her expectations as the following:

Pretty much I was expecting my waters to break or to have a show or to have some niggling a couple of days beforehand. A lot of people said you got a burst of energy beforehand but I didn't get that or a sudden urge to clean but I didn't get that either (Janet, first baby, born at tertiary hospital).

What she had actually experienced were period type pains which lasted for several hours before becoming more intense. During this time she described going onto the internet to check whether she was in labour or not.

Then I thought oh, because I know that those, the Braxton Higgs (sic) they aren't always timed together in a pattern and they don't get closer together, so I actually looked up on the internet while I was in labour as to, because I didn't, the waters didn't break and I didn't have a show so I was a bit confused as to... (Janet, first baby, born at tertiary hospital).

Whilst Janet could not remember which website she went to she did remember what she had asked and the information she found out.

I'd typed in I've had no show my waters haven't broken could I be in labour and it said yep. It said I think only about 10% of women the waters broke. And I didn't actually know that. I thought pretty much everyone's waters broke (Janet, first baby, born at tertiary hospital).

When probed further Janet suggested that using the internet was more of a distraction than anything else and that she had gone there first because she felt it was too early to speak to her midwife. All of the women had a known midwife providing their pregnancy and intrapartum care. Therefore asking the midwife – with whom they already had a relationship - was often the first course of action when women wanted more information.

Asking the midwife

All of the first time mothers spoke to their midwives when they thought they were in labour but often they would wait until a reasonable time in the morning before phoning. As Rachel explained, she waited until 7.30am before phoning the midwife and described looking at her midwifery notes where there were instructions as to when to phone the midwife.

... so yeah it had been going for about four and a half hours when I finally rung the midwife about 7.30 am, and I was kind of, yeah, I was having really mild contractions, they were quite short, like 30 seconds or less, but really regular they were somewhere between two minutes and five minutes apart, just sort of chopping and changing. Um, so I was kind of, I was reading through my notes from my midwife about when to ring her and stuff like that and wasn't really sure, because I'd read somewhere that once they were two minutes apart you should be letting somebody know but they were so mild that I thought well maybe that's not really all there is to it. But of course, I didn't have a clue so, yeah I eventually gave her a ring about 7.30 in the morning and said "it was definitely happening." I figured by that point it was pretty safe, it wouldn't stop, (well here was hoping) (Rachel, first baby, born at primary unit).

Rachel was basing her knowledge of what happened in labour on what she had been told about frequency of contractions and was concerned that she needed to let the midwife know because of the frequency of contractions, not the intensity of the pain. Following her conversation with her midwife she realised she still had some time to go before the birth.

Well my midwife kind of just told me "oh yeah, you'll have a wee way to go." So I was relieved at least that I'd rung her 'cause I'd really wanted to talk to somebody and just, you know, have the reassurance, um but it was kind of like, "oh, ok, so we're just gotta kill some time now" (Rachel, first baby, born at primary unit).

Once Rachel had spoken to her midwife she felt reassured that her midwife was aware of what was happening and they made arrangements for the midwife to keep in close contact. Rachel felt comfortable to continue to stay at home.

For these first time mothers a knowledge of labour as it progressed to birth was gained from books and the internet, however they also described talking to their midwife. They were seeking advice from the midwife as to whether what they were experiencing was labour. Each woman had a midwife as their Lead Maternity Carer who they had met during pregnancy and who had provided intrapartum care for them. This provided the women with somebody they knew and could contact easily to discuss what was happening and reassure them that they could continue at home for longer.

Experiential knowledge

For women who had previously had a baby there was almost always a comparison with previous pregnancies, labour and births. As Lorna explained, the history of the previous labour and birth influenced her actions during the subsequent labour and birth:

I phoned the midwife and given my previous history with child number three she suggested we met at the hospital as soon as we could, so I did. (child number three)... He was born at home, so he had basically contraction with him, show, next contraction phone the midwife and he was out within two hours thereafter (Lorna, fourth baby, born at primary unit).

Another participant, Lynn, was able to recognise the start of her labour because of her two previous births.

I just started having small contractions really, I recognised them as such because of the previous two (births) so um I didn't take much notice to be honest because I thought it could have been another false alarm so...(Lynn, third baby, born at home).

Rhonda also remembered her previous births and during our conversation discussed them:

Yes and I was remembering my other two births so I was wondering if it was going to be the same (Rhonda, third baby, born at home).

For women who had already had a baby the interviews involved a discussion about their previous labours and births. It was the woman's previous experiential knowledge and understanding of how her body worked during labour that influenced her actions and understanding about labour. The previous experiences gave them confidence in their ability to give birth and to know what was happening to their bodies.

Stages and phases of labour

During the analysis I looked for discussion or references to the three stages of labour or the phases of labour. I was looking for words such as the latent phase, active phase, transition phase. I found very few references to the stages or phases of labour by the women when talking about their experiences of labour. One of the questions I asked was whether labour matched the woman's expectations of labour, and would then explore what she knew about labour.

Maggie, a first time mum, remembers hearing about the three stages of labour during antenatal classes but as she explained did not find it useful as a way of knowing what was happening in labour for her.

Honestly that whole stages thing was just like way out of my head. I remember going to antenatal class and they're saying here's this little piece of you, white rope and yellow rope and then red rope or whatever and it all kind of goes up and up and here's some stages and then the next stage there are phases or something like that and it's all a bit

obscure and intangible. And I think that we had a very good antenatal group educator who actually just said look don't worry about trying to figure out these stages. This is what is textbook but it may or may not be for you and these are the terms that are used and she did it more in the way of trying to understand the terms that people around us might be using but not necessarily in terms of what we would actually experience and I think that was quite a healthy way to portray it. I can't even remember what the stages were, I had no idea at the time what stage I was in or not, active/passive I don't, I can't even remember. I do remember being told that you know when I was having the contractions that it was like latent phase or something like that so I was saying oh yeah that's cool. I'm not actually in active phase or whatever. But oh yeah, yeah and then there's like the one afterwards where you have the placenta. Yeah I think I did remember that. But I knew I was going to have a placenta anyway but that wasn't because of antenatal class I knew that beforehand. So I would have expected that whether I'd been taught about stage three or not. I just thought it was really interesting that that was the stage that was included because my brain always just kind of got up have the baby and right placenta or whatever afterwards, it's sort of some other part, yeah (Maggie, first baby, born at primary unit).

For Maggie the idea of stages was quite abstract in that it was a theoretical idea which was separate to and didn't compare to the actual experience of labour, whereas Faye remembered the three stages and was able to describe them, but felt that for her the stages melded together.

Well what I remember, well the first bit is obviously the contractions and things, the waters breaking and contractions. The second stage is when you're actually pushing and the third stage is the placenta. Is that right as I remember? Yes I would say yep, it is in three stages I guess. The pushing and the contractions obviously, well I mean some people I guess are pushing for hours so yes that would be a real big second stage but mine sort of all, first and second sort of went together almost. But no it would be in three stages (Faye, first baby, born at tertiary hospital).

Whilst Faye agreed in principle with the three stages she did not experience labour in these stages. I asked Melanie whether her experience with labour matched how it was described in books and magazines. In her response she has provided criticism of the medical model and explained the need to understand that women participate in labour.

I think labour is often described very clinically and in quite sort of mechanical terms, what they leave out is the wonder and the awe around the whole, the whole experience. And of course in a TV and sort of popular media it's, it's terribly melodramatic and you know it's always the worst case scenario because that makes for good tele and I think that scares a lot of people. The, the other thing that, that's left out of a lot of these things, because so much of the literature is coming from the medical model it's all about how the professionals can manage your labour, so your labour is the process that, that is you know open to management or that is supposed to be managed in order to make it bearable for you rather than being something that you are in control of and that happens you know not with you but that, not really to you but something that you actively participate in. That you actually do. So I think what, what's left out is, is the women you know and saying well, particularly those who, who don't want to participate in the medical you know that says right this has to last so long and we'll give you a bit of that and we'll try that on you know. What's left out is, is the way that labour will progress naturally and normally where you only interfere if something goes wrong. And I think that version of labour is, is extremely empowering and life affirming and transformative for the women (Melanie, third baby, born at home).

When asked about the stages of labour many women were quite vague about them, which suggests there is little resonance between the descriptions provided of labour progress and the actual experience of labour as it progresses towards birth. However Julie provided a lovely description of what she considered to be the stages of labour.

... but I would think that divided into four probably although they do it in three when they're talking about that medically. But I suppose the first

part would be just when contractions aren't close together, they're kind of occasional and it's all rather relaxing. And then the second part is when they're kind of full bore and then the third part is the grumpy stage and then the fourth part is the pushing stage. So I suppose you can hang around in the first stage for ages. You wouldn't want to hang around in the other ones for too long would you? (Julie, second baby, born at primary unit).

In this description Julie suggested that the first stage is a nice relaxing part of labour but that the other three parts are more difficult with a 'grumpy' part just prior to the pushing stage. None of this bears any relation to the three stages of labour or the phases of the first stage as described in popular media. Whilst the majority of women were vague about the stages of labour, I did find some spontaneous references to the transition phase of labour.

The transition phase

Rachel remembered the explanation of the three stages of labour as:

Um, I thought in my mind it, well I remember in the ante-natal class they saying to us about the three stages of labour. So your early phase, your early stage and then you um the actual pushing and then the placenta and the transition being the part before you pushed. Um, the end of the first stage or something like that. And so, yeah, I was expecting to know that I was going to need to push soon because I was in transition, if you know what I mean like, I was expecting to go "oh this is transition" and then go "I'm going to be pushing really soon" and that means its... Um and so I was expecting to be able to identify that. And so if I knew that I'd been through transition or was going through it, that would identify that I didn't have very long to go. But, because I had started those back to back three contractions at like, three-ish in the afternoon, um and they literally just continued right until the end, I don't, I didn't really identify it.... (Rachel, first baby, born at primary unit).

Rachel was able to describe the stages of labour in a vague way and had been expecting to be able to identify transition. She had been told that during

transition there would be back to back contractions which she had actually experienced at home earlier during the labour, so she was unable to define the transition phase during her labour. Lynn also knew about transition but could only pinpoint it after the birth was over.

I was never aware of transition until in retrospect I think ohh I was feeling like this then and so perhaps that was why and I remember feeling shaky and the previous two I had vomited but that was throughout the labour that wasn't so much transition and umm I don't know how I knew with J I wasn't aware of it at the time but afterwards I can't actually remember why but I know I remember thinking oh that must have been when I was in transition but I don't know why ... (Lynn, third baby, born at home).

When questioned, Rhonda remembered a little about transition with her second baby but not with her third.

Lesley: Transition, what did you understand transition to be?

I think is that when you're saying just before you're wanting to push the second stage? And I remember feeling it with, I remember not wanting to be touched with my second one and with H.. but with him it was, I don't remember that to be honest (Rhonda, third baby, born at home).

It would appear that the stages of labour and phases are not consistently remembered by women who have experienced labour and birth. For those who had previously given birth their experiential knowledge came to the fore with each making comparisons between how they felt during this labour and birth and how they felt with the previous labour and birth. For women having their first baby they knew of the stages and phases of labour from classes and childbirth books but felt that they did not bear any relation to their actual experience of labour and birth.

In summary, when analysing the data I found few descriptions of the stages or phases of labour within the women's narratives. After the first five interviews I started to ask each woman to describe her expectations of labour and whether

this matched her experience. This question was designed to uncover their knowledge of the three stages or phases of labour; however, even with this question there was little description of labour as a stage or phase. Women discussed their expectations as being based on their previous birth experiences. It would appear that for women who have experienced labour and birth, the stages and phases of labour are abstract concepts that do not relate to the lived experience of being in labour or giving birth.

Vaginal Examinations

When describing the first stage of labour the dominant theory suggests that it is characterised by contractions along with dilatation of the cervix. Classically measuring cervical dilatation on a regular basis provides proof of labour progress. I was therefore interested to know whether women had experienced vaginal examinations during labour and how they felt about them. Of the 18 women interviewed 11 had a vaginal examination at some point during the labour. None appeared to have a vaginal examination as a regular or routine practice.

I used probing questions to gain more understanding of how women felt about the use of vaginal examinations. For the women who requested a vaginal examination it appeared to be to support an understanding of their place in labour. As Rhonda explained:

I just wanted her, the first one was to see how dilated I was because I wanted to know. Yeah you're doing all that work and I wanted to know how much and I think she wasn't keen because what if I wasn't dilated that much it would have been a real errrr and the first one was for that, I wanted to know (Rhonda, third baby, born at home).

This theme of wanting to know where they were within the labour was repeated by other women as Kate and Mary explain.

You kind of want to know where you are just to be in control of it and sort of to know how far you've potentially got. Thinking "Right, I'm nearly at the end". Sort of an incentive to keep going (Kate, third baby, born at tertiary hospital).

Ah I needed to know, I would have been well devastated if it was like three centimetres or something. Yes, no I wanted to know where we were at I guess (Mary, second baby, born at tertiary hospital).

These women requested vaginal examinations to find out how far on they were in labour. However, the measurement had variable meanings for the women with the actual numbers not always fully understood. Lucy described her feeling of disappointment at not being as far on in labour as she thought she was.

Oh that's always disappointing because you always sort of, you know I sort of think when I get to hospital it would be like seven centimetres type thing and have that in your head but to be honest I really don't know what I was, but I remember sort of thinking that it seemed like I should have been further on than that (Lucy, third baby, born at tertiary hospital).

Ella also described disappointment and concern at finding out she was only 3 centimetres dilated and felt that she might get sent home for not being in labour.

I don't know I just heard three and I thought oh that's less than half. And I don't, and I really don't know where people generally are in terms of how far they're dilated when, when they go in for the first time. But I was yeah I felt disappointed because it didn't feel, to me it didn't seem like three sounded like very much. It sounded like it would be something they would send me home for and I was very disappointed (Ella, first baby, born at tertiary hospital).

In actual fact Ella stayed at hospital and gave birth a few hours later. For some the vaginal examination was seen as a normal part of labour.

Janet explained her midwife told her what to expect:

My midwife said that she explained to me that when I was in labour, or thought I was in labour, to ring her and that she'd come round and do an examination first before we went to the hospital. So I knew about that one. And then she said depending on how your labour goes then you may not need another one at hospital or you may need lots depending on

how long your labour is and all that sort of thing She said that a lot of people don't mind because it gives them knowledge of how far along they have to go as well. And she just said the easiest way to do it is to do a vaginal examination (Janet, first baby, born at tertiary hospital).

The midwife had clearly explained to Janet that vaginal examinations would be done during labour as a way of finding out where she was in labour.

I explored this further by asking what she was measuring. She answered: *I don't really know. Is it, I think is it your cervix opening up, yeah.* And she understood that it was to 10 centimetres and remembers her partner telling her she only had eight more to go and that it was generally 1 centimetre an hour so should only be eight hours. When asked what she thought of that at the time she responded that she thought this was okay because:

Yep because I honestly thought it was going to go for ages like the 24 hour, that's why I wanted to go to the hospital. I thought, because the time had gone quickly though because that was about half past nine or ten o'clock and I'd been awake since four and that time had gone really fast so comparing it to that, how fast that time had gone I didn't think it would be that bad. I thought oh we'll have the baby by five or six o'clock. And that was okay I could deal with that (Janet, first baby, born at tertiary hospital).

Janet had expected her labour to last up to twenty four hours and knowing that she only had eight hours to go made her realise that she would be able to cope with it. In actual fact her labour was shorter than the eight hours expected at that point.

It would appear that for the women who asked for the vaginal examination it was a way of establishing what was happening to their bodies and to help them gauge their labour. This was consistent regardless of place of birth. So despite women having a strong belief in their ability to labour at home or in a primary unit, some still appeared to need reassurance that the labour was moving towards the birth. It is possible that they needed to know because it would help them to determine if they were going to be able to cope with the length and intensity of the labour. The women's request for the use of vaginal examination

to establish where they were in labour suggests a reliance on cervical dilatation as a means of measuring labour progress. This in itself demonstrates that the dominant theory of labour with time parameters is known by women, even if the three stages and phases of labour are not well understood or verbalised. The emphasis on time and measurement was used by women to try to establish where they were in labour and as a means to define how much further time there was prior to the birth.

Potential to cause harm

The vaginal examination has often been considered embarrassing, intrusive and painful and is undertaken during an already vulnerable time for many women (Beech & Phipps, 2004; NICE, 2007). It is reported that for women who have been victims of previous sexual abuse the vaginal examination can cause intensely negative feelings (Parratt, 1994; Robohm & Bittenheim, 1996). In this study I did not uncover any negative feelings towards the vaginal examination with the women expecting to have a vaginal examination or requesting a vaginal examination during labour. This supports Lewin and colleagues (2005) in their assertion that women are generally positive about their experiences with vaginal examination during labour.

A more complex issue is the reliance on cervical dilatation as a marker for labour progress. The question remains as to whether this reliance on the science of measurement can be considered to be disempowering for the woman. Does the reliance on measurement cause women to consider that the health professional knows more about her labour than she does? In this research many of the women have described wanting to 'know' their cervical dilatation but then not really understanding what the level of cervical dilatation actually meant. It appeared to be more of a reassurance that they were in labour than something that could tell them how much longer they would have to labour.

Other means of assessing labour

Not all of the women had vaginal examinations to assess labour progress with one woman, Rachel, stating during the interview that she had not known about them or that they were used as way of measuring progress. Rachel explained her discussion with her midwife on the subject.

My midwife, I knew she didn't really do them or that she didn't really um, at the time I didn't really realize that you had, people did have them. You know what I mean. Like it wasn't till actually talking to other people about their births afterwards and them saying that they were, however many centimetres dilated at this stage, and I didn't have a clue at any point where I was because we didn't do any of that. Um, and yeah, sort of looking back on it, knowing my midwife, I know that that's not what she's about. She just doesn't really worry about that sort of thing. Um, and which I like. But but I guess in some ways you like um it's that, it's a catch 22 in a way. If I'd been quite dilated, it might have been helpful to know that. But had I not been very dilated, I would have been very deflated to hear that. So, I think in some ways, it was probably better just not to know first time round. With my next child, I'll know myself my own labour (Rachel, first baby, born at primary unit).

Rachel clearly describes the potential problem of finding out that the labour is not as far progressed as the woman may wish it to be and how this may make the woman lose confidence in her ability to cope with the labour.

For those women who did not have a vaginal examination they describe being reassured by the midwife who was observing behavioural signs that the labour was moving towards the birth. As Carrie explained:

No well my midwife said to me, she doesn't usually but she would if I want her to. Um, but she had explained all the behavioural signs anyway and said to me, "you know your body, you know you are in labour. We know things are progressing, there's no need to." So I was very reassured by that and just got on with things.

Lesley: And you were happy in yourself that you knew that things were moving?

Yeah. Yeah, I knew. I could feel things, things were happening. Um, yeah, and I mean for me, we hadn't discussed that beforehand. It was interesting, because my midwife this time was a different midwife, and I just sort of expected that that would be part of the process. And, and it's a question that everyone always asks you, you know, um, "how far were

you when you went into hospital?" So I just expected it and I said to her "oh are you going to do it?" and when she explained it to me, I thought "gosh that makes total sense." why do you, you know have to go through something that we don't have to." Well some people do and some people don't. So I felt very, very reassured by that (Carrie, second baby, born at tertiary hospital).

It appears that women need reassurance from others that their labour is moving towards the birth – whether from a vaginal examination or reassurance from the midwife that their behaviours are following a normal pattern.

The decision to move to the place of birth during labour

For women who were giving birth at a hospital or primary unit there was the need to make a decision to move from home to the hospital. This decision was often made following a discussion with the midwife, either during a telephone call or when the midwife had come to the home to assess the situation.

Julie woke at four in the morning but waited until five to phone her midwife and her mother in law to look after her other child. She described the contractions building rapidly and the need to get to the primary unit quickly.

Yeah fairly rapidly really because it was quite, contractions were quite close together at that stage even then really. And by kind of quarter past five we knew that we weren't going to be able to stay at home and wait for the midwife it would be all over otherwise (Julie, second baby, born at primary unit).

Mary got her husband to phone her midwife because she felt her labour was intensifying rapidly.

When I was here when we left it was like I said I need to go now because if I don't go we're having this baby here. So it was kind of like right let's go so we quickly got in the car and went (Mary, second baby, born at tertiary hospital).

Making this type of decision during labour suggests that women are aware of a change in their labour – an increasing intensity that suggests the labour is moving towards the birth. This change in intensity is not described in the childbirth books and internet discussion of the stages and phases of labour; instead there is an emphasis on the number and frequency of contractions. However, Winter and Duff (2009) found that midwives considered that contractions would build in intensity although not necessarily in number or frequency as labour moved towards the birth, and this is considered to be part of the physiological process of labour.

Alternatively women described a slowing of contractions when they moved to hospital. Lucy had seen her midwife earlier in the day and been advised to go for a walk to encourage labour to establish. She described the telephone discussion she had with her midwife after her walk.

Yeah we might have not left for the walk until about 7 or so because we got back, I remember by the time we got back and mucked around it was about 8 when we rung her and, and she said I'll meet you up there at nine. And that probably scared me because I sort of felt like I want to meet you there now because the girls had been so quick you know (Lucy, third baby, born at tertiary hospital).

Lucy was having her third baby and as she had only just got to hospital in time with her other two children was concerned that labour might speed up suddenly, so went to the hospital a little before nine. At this point she found the labour slowed:

It was quite funny when I first got to hospital they seemed to sort of like, you know sort of like slow down a bit and then they just sort of like revved up and there was just this wee lull for about I don't know maybe twenty minutes or something and then things just really heated up from there (Lucy, third baby, born at tertiary hospital).

Mary also described a slowing down of labour when she got to hospital.

Then when I got there as I said it sort of slowed down and then because my waters hadn't broken so she said I was seven centimetres dilated when I got to the hospital....(Mary, second baby, born at tertiary hospital).

This slowing down of labour is a well-known phenomenon that occurs in response to the change of environment from home to hospital (Foureur, 2008). It is due to increased levels of anxiety for the woman as she moves from her comforting home environment to that of the less known hospital environment. It is hypothesised that maternal anxiety causes a disruption of the rhythmic release of endogenous oxytocin due to the release of adrenaline (Foureur, 2008). In her exploration of midwives' knowledge and assessment of labour progress Duff (2005) found that when women started labour spontaneously there were episodes during the labour when the contractions became less frequent. These episodes occurred at varying times throughout the woman's labour and did not appear to be problematic in that the women continued to labour and give birth spontaneously and without intervention. Winter (2009) also found episodes of variable contractions in her study in which she explored independent midwives' perceptions and experience of assessing women's labours in the United Kingdom. The midwives considered that many women had periods during labour when the contractions slowed and became less frequent, and considered these episodes to be a normal part of physiological functioning. Winter and Duff (2009) suggest that this phenomenon could be due to environmental changes disrupting the ability of the hormones to work effectively.

Descriptions of a slowing labour only appeared to occur for a few of the women I interviewed and were described as occurring following transfer to hospital.

Tacit knowledge

Mary's baby was born an hour after she arrived at the hospital. When asked if she knew that labour was moving towards the birth she said yes and no because of the change and slowing of the labour when she moved to hospital; prior to that she knew that she needed to get to hospital quickly because labour was progressing rapidly. When I probed further and asked how she knew this she said:

Do you know I don't know, I just sat up and said I need to go now. I guess I don't know just that feeling in your mind that you think and in your body you think, I just knew that I wouldn't be able to walk there, I wouldn't be able to move, that would be it, I wouldn't be going anywhere. So that yeah it was just, yeah if I don't move now, if I don't actually make myself get up and off this couch now then I'm not going to be able to (Mary, second baby, born at tertiary hospital).

Mary is describing tacit knowledge which may have come from her previous experience of labour and birth. It is difficult for her to explain how or why she knew that the birth was becoming imminent. Lucy also describes tacit knowledge of her labour progress:

Yeah I sort of, like every time I've sort of felt like I must be this or I must be that you know sort of I don't know where it's come from. I don't know what I've got that to base on (Lucy, third baby, born at tertiary hospital).

Tacit knowledge is described as 'knowledge that cannot (always) be specified' (Sanders, 1988, p. 2). It is an implicit and unspecifiable knowledge, something that we are aware of but cannot always explain. Explicit knowledge is considered to be conscious and explainable knowledge in which there has been the identification of a problem and purposive action to find a solution. With tacit knowledge the solution or action may occur without considered thought or problem solving. It is being attentively aware of something as a perception in which there is a comprehension of clues and a subsidiary awareness (Sanders, 1988). Mary and Lucy are identifying an implicit awareness which has occurred without explicit thought but which nonetheless guides their actions as strongly as any explicit knowledge. It suggests an awareness of sensation that implies that birth is imminent and may be due to a bodily sensation that the women are unable to provide an explanation for and appear to have no words or ways of explaining.

Summary

This reading of the women's voices has demonstrated that the three stages and various phases of labour were considered an abstract concept by the women interviewed. These women were aware of the dominant discourse of the stages and phases of labour but did not use them in their descriptions of their experiences of labour and birth. Those women who had previously experienced labour and birth used their experiential knowledge to locate themselves and understand their positioning within the labour. In this they could be considered to be privileging their own knowledge of themselves and their body over that of the dominant medical discourse. For women giving birth for the first time there was a dependence on their midwife and/or their partner to provide information, advice and support in decision making. Whilst the women interviewed suggested that the stages and phases of labour were not relevant to them during labour the need for cervical measurement was still important. Many women including those who gave birth at home requested that the midwife examine their cervical dilatation as a means of establishing where they 'were' in labour. This suggests that the discourse of cervical measurement has become a normalised discourse for women during childbirth. It would appear that when women are in labour they have a need to know how much longer they have to go so that they can judge whether they will be able to cope with the length and intensity of labour. Women needed the midwife to tell them that they were 'in labour' and moving towards birth; whether this was assessed by vaginal examination or by the woman's behaviour, either was sufficient to reassure the woman that she would be able to cope.

The next chapter provides the women's voices as they describe their labour and birth. Women described what they were doing, thinking and feeling at each point in their labour. They describe their labour in terms of their feelings at each point of their labour. The aim of this reading was to explore the women's perceptions of labour and the factors women identify which may indicate the labour is moving towards the birth.

Chapter Seven

The women's voices

Introduction

This chapter defines and explores the woman's voice, looking at how she talked about herself, her experiences and her feelings about labour and birth. Women's descriptions and words were used as a means of understanding their experiences. The women described what they were thinking, doing and feeling at each point in their labour. The descriptions are dominated by the feelings they had in relation to what was happening to their body during the labour. Women described feeling excited when labour started, then calm and peaceful as the contractions built in intensity and frequency. During this time the women were able to continue with usual aspects of normal life. When the intensity and frequency of the contractions increased the women described needing to focus on labour itself. At this point the world appeared to narrow to the woman with a need to focus solely on herself and each contraction. Time appeared to become elastic and a few minutes could feel like hours, or hours could feel like minutes. Many women voiced surprise at how effectively their body had worked and taken them through labour and birth. Women did not talk about labour in terms of progress but described an embodied knowledge in which the body 'took over' and they lived in the moment.

Analysis of the woman's voices

This reading of the transcripts was focused on looking at the text for the "I" voice as a way of exploring how the woman talked about herself, her experiences, her feelings and therefore her perspective. During this part of the analysis I kept in mind the following research questions:

- What are the woman's perceptions of labour onset and progression to birth?
- How do women know (if they know) that labour is progressing towards the birth?

- Are there any factors women identify that indicate labour is progressing towards birth?
- Does time matter during labour?

Exploring the emotions was a key to understanding the woman's experiences, but whilst there were some individual differences in how the women felt during labour, what was also surprising were the similarities in the feelings the women described. When analysing the transcripts looking for the "I" voice a strong pattern emerged in how the women described their feelings during labour and how this affected their experiences and behaviour.

I started the interview by asking the woman how she felt at the end of pregnancy. This was to help her relax as it was generally a fairly easy question to answer, but it also set the scene for her to start picturing herself at the end of pregnancy. There were a variety of responses to this initial trigger question with some women saying they were feeling really good and others becoming impatient. Some of the women described times before labour started when they thought it was about to start and called these 'false starts' but some women had experienced no contractions that they were aware of. I explored this further by asking what they remembered as the first sign that they may have been in labour.

The first signs of labour

The descriptions of the first signs of labour were varied, with the majority suggesting they were of period type pain or contractions, although one woman described having a mucousy discharge and another her waters breaking.

I woke up and I had a bit of blood no no first of all I had a quite a lot of clear, clear mucous (Mary, second baby, born at home).

When my waters broke at, in the middle of the night three o'clock in the morning. I was awake at the time because I'd just been up and been to the loo so I was back in bed when it happened but it was just like a bucket of water was sort of thrown between my legs, yep (Faye, first baby, born at tertiary hospital).

Some participants were able to give the exact time and date of their first signs of labour.

Very first signs? 11.00pm on the 15th of October which was the night before the day she was born, started having contractions every ten minutes and I knew I... (baby's name) was coming. But it was every ten minutes, all through the night, um (Kate, third baby, born at tertiary hospital).

It was Kate's third baby so she may have been more aware of her body's signs of labour, however Maggie was having her first baby and she was also able to give a time and day.

It was Wednesday night at 8 o'clock and I felt like period pain and I was like oh maybe that's one of those Braxton Higgs contractions you know that they sort of talk about and I hadn't had any of those because I thought I was about a month away or whatever (Maggie, first baby, born at primary unit).

For others it took a while to recognise whether they were in labour or not as Rachel explained:

Oh, it started in the middle of the night, so I just woke up, felt period pain type cramps, and I'd had a couple of occurrences of that in the last, in the last couple of weeks before that so I kind of at first thought it was nothing really. Um, and it probably only took half an hour for me to be pretty convinced that it was labour because my contractions started pretty much five minutes apart, well from when I woke up they were about five minutes apart. Mild, really mild but pretty regular, pretty obvious that it kept going, so um, yeah (Rachel, first baby, born at primary unit).

For Lynn, who was having her third baby, there was concern that the signs were a false start.

I just started having small contractions really, I recognised them as such because of the previous two (births) so um I didn't take much notice to be honest because I thought it could have been another false alarm so.. that was Tuesday morning I just had a few contractions and they were off and on throughout the day probably about half past two in the afternoon they were regular and I thought well this time maybe (laughs) sure enough (Lynn, third baby, born at home).

The majority of the women described a period of time when there was something happening to their body that whilst gentle and erratic was also described as like period pains and which over time grew into stronger and obvious contractions.

There were some little pains that started off and then it started to come regularly (Anita, second baby, born at home).

... then on the Thursday morning I started feeling kind of mild contractions I suppose and they weren't too bad (Ella, first baby, born at tertiary hospital).

Kind of like the stitch feeling. Like as if, yeah I had the stitch. And that was, I had the stitch the night before so I don't know whether that was related to the labour or not but then I had it again when I woke up during the night. Just like a, yeah – and then as it progressed it became period pains and then tightening pains (Janet, first baby, born at tertiary hospital).

Even the participants who described having a mucousy discharge or the waters breaking also described a gentle start to labour with period pains.

I didn't expect to go into labour during the day so I was like no I am fine it just feels a little bit different – a little bit different and I was just going about things as usual and um every time I went to the toilet there'd be a little bit more mucous, a little bit more mucous and there'd be a little bit of blood in the mucous and I thought umm Ok and then I started getting

these kinda like I didn't call them contractions I called them little period pains they were nothing really ... (Mary, second baby, born at home).

For Faye, once she realised her waters had broken she contacted her midwife but because there were no contractions she was advised to wait until morning. She then started to get some irregular pains.

... at that point went and had a shower just to, I mean you know it didn't, didn't have contractions or anything straightaway but you know had a shower and while I was in the shower then I got a few niggles then that things were starting, mm... (Faye, first baby, born at tertiary hospital).

However, for Lorna who was having her fourth baby there was concern to get to the hospital quickly because of a previous unplanned homebirth due to a rapid labour. For this most recent birth she found it difficult to differentiate between the signs of labour and a tummy bug.

Okay it was a tricky one. Like I said everyone had a tummy bug and I felt off but I certainly wasn't sick. So whether or not that was a little bit of the tummy bug or early labour signs I still don't know but the first definite sign was a contraction, a full on here we go here's a contraction (Lorna, fourth baby, born at primary unit).

It appears that the most common sign of labour all of the women have described is that of period pains which are often irregular but become regular and stronger and more painful over a period of time. The length of time in which the period pains became more regular and built in intensity was individual to each woman and her labour. What was common to all the women was the excitement and anticipation they described once they were sure they were in labour.

Excitement and anticipation

A question that was asked of all of the women was how did you feel when you thought you were in labour? Without exception women expressed excitement; sometimes this was mixed with apprehension and anxiety but always there was an initial sense of excitement described.

... kind of excited but apprehensive at the same time because it's sort of a bit like I have no idea how this thing is going to come out of me, I have no idea how this is going to work (Maggie, first baby, born at primary unit).

So yeah I was, it was a bit scary that it was all happening I guess as well as, as well as that excitement (Faye, first baby, born at tertiary hospital).

... so it was kind of exciting (Ella, first baby, born at tertiary hospital).

Two women likened the feeling to the excitement and anticipation felt when they were a child waiting for Christmas.

Still excited really (laughs) still very excited, you know Santa Claus is coming I'm going to have a baby soon (Lynn, third baby, born at home).

... with this it was just kind of little pains and it didn't really and it was a sense that something was... it was just an excited feeling like... like Christmas or something I dunno it was just this lovely feeling yeah so just to sit here with that kind of excitement that it was all going to be very ummm yeah so (Mary, second baby, born at home).

It was not just the women who were excited with the partner often sharing the excitement along with other family members such as mothers and sisters.

He was excited. He didn't know what to do though. He sort of jumped out of bed and said because I told him I don't know if I am in labour but I think I am (Janet, first baby, born at tertiary hospital).

All of the women described excitement and anticipation as soon as they realised that they were in labour. This fits with the assertion from Beech and Phipps (2004) that giving birth is an important life event for women and one that is comparable to getting married. It would seem that going into labour – as getting married is for many women – is a significant life event which involves weeks of planning and preparation with anticipation and excitement on the day of the event.

A period of calm and peace

Following the excitement and anticipation many women described a period of time when the period type pains were building and becoming more frequent, more regular and increasing in their intensity. They were generally happy that they were in labour but also happy to be at home during this time – sometimes alone, sometimes with partners or family members present.

I still felt really energetic and really excited and I was still wanting to eat I was still quite hungry so umm I called my mum and she came over to help me and I said to my husband just to keep going cause he wanted to finish up some things so I said keep going I'm all good here I'm feeling really confident and this could be a really long time and so mum came over and helped...(Mary, second baby, born at home).

Mary's husband was at work so she called her mother to help her get organised and look after her other child. Maggie felt confident to stay at home knowing that her husband was not far away, even though it was her first baby.

So he went off to work and I just stayed home and I just had a regular day and every now and again I'd just have this sort of cramping and it was getting worse and worse and yeah and then M (partner) came home and I was still going, oh yeah oh well.

Could be, sometimes the closest they got was sort of 20 minutes but then it could be another hour and that was still happening (Maggie, first baby, born at primary unit).

This was echoed by Rachel who was planning for her husband to go to football despite her knowledge that she was in labour.

Um, and, things were still pretty good at that point, like they, I was still pretty comfortable, like yeah um, I was still thinking at that stage that my husband might go to his football match, that afternoon, and my parents had arrived to keep me company in case he went off to that (Rachel, first baby, born at primary unit).

Rachel had asked her parents to keep her company. Other women described feeling more comfortable being on their own:

... yeah I left him in bed, came out here just because I wanted to be by myself in my space, I wanted that space I suppose during, I felt not claustrophobic but I felt I just wanted my own space you know when I was just going through it, yeah.

Lesley: And you felt comfortable on your own?

I did. Yes I did, yep, yep I knew you know what's not far away, you know I thought it might be a long day he didn't need to be tired as well, so I left him and came out to the living room and made myself comfortable during, you know during contractions, had some breakfast early because I knew I'd be hungry, made myself eat. Yeah but no I felt, yeah I felt fine. I felt secure at home, yes (Faye, first baby, born at tertiary hospital).

For Ella there was excitement at having started labour and then time at home alone where she described being happy and relaxed.

I was, I was excited to have it, to have it, to know that it was going to come soon. When it started that morning because it was quite good actually, it was quite a civilised time of the day, it was 8.30 in the morning that, that yeah I was quite happy. I thought oh this is great. I was keeping myself occupied, I was sewing a nappy and you know just getting on with things and that was quite cool because I felt, I felt I don't know, felt quite chuffed, it's my turn. I'm going to go and deal with this now you know..... So it was quite exciting and, and I felt quite I don't know like proud of myself that I didn't, I didn't feel the need to call my husband and you know the minute it started. I thought no he doesn't need to be here where I can do this. I feel quite, I quite enjoyed being home by myself and I called my Mum every so often and we'd have a wee chat and I quite enjoyed that early stage as being by myself, yeah (Ella, first baby, born at tertiary hospital).

The length of this calm peaceful period was variable; for the majority it seemed to last for several hours but for a few it lasted a day and a night. As Kate

explains, for her the contractions continued all night but did not get stronger or more intense for many hours, causing her impatience and concern.

No, they were enough to keep me awake, so I was exhausted, but not enough to, to, oh actually, yeah, so I went from 11.00, and then at about 3.00pm they were sort of seven minutes, 3.00am sorry, about 7 minutes apart, so my husband and I got up thinking, "oh yeah, this is it, its gonna progress," nothing progressed, I stayed at about 7 minutes till the following morning. Even at 10.00 the following morning, still the same, I was like "oh, for goodness sake, come on already!" (Kate, third baby, born at tertiary hospital).

For Maggie as well the contractions continued without an increase in intensity overnight and through the next morning.

And yeah the Thursday I had the worse sleep and it was getting worse but still quite manageable and still sort of twenty minutes apart type of thing and rang the midwife on the Friday morning to say well it's still happening but it's getting stronger but it's more regular but it's still only twenty minutes (Maggie, first baby, born at primary unit).

For Melanie who had a home birth there had been a few false starts so once she was sure she was in labour she described a period of peace as she waited for the contractions to become stronger.

After that things got very peaceful. We sent all the kids away and my support person came and the contractions were good and steady. My attitude to labour is that every contraction brings me closer to having the baby..... It was actually quite festive really. So I remember we were all having cups of tea, I'd made a fruit cake so we were all eating cake. You know and it was all finally right. You know this is fine, this is happening, it's the real, the real thing. You know not false alarms as so many times. So it was, it was festive. And we had food so I was asking for pineapple and cheese, and it was the middle of summer so it was nice and warm. It was just really idyllic. It was idyllic, it was lovely and I was the queen of the castle. You know whatever I wanted that's what I

got and was spoilt rotten and it was fabulous. I can remember my sister-in-law who was the support person, asking the midwife you know how long she thought we had to go and (the midwife) said when she stops laughing and cracking jokes then we will know that things are finally, you know finally gearing up (Melanie, third baby, born at home).

For others however, this period of time was very short as Elaine explained:

I didn't go back to bed. I came down here and because I couldn't sleep and put on a comedy and started watching that and then..... And yeah watching that and then like within two hours I couldn't lie down any more and so I just started walking around with each contraction and then at some point Mum came down because it first started about 3 a.m. and then I think Mum came down about 6 a.m. and sort of realised oh she actually is in labour (Elaine, first baby, born at home).

Lorna had a history of rapid births so did not describe a period of calm before the contractions built; instead there was a need to get child care organised quickly so that they could move to the hospital.

A little bit rushed because it was in the middle of, it was about 4.30 I think it was and we had the three other children and we had to get R's parents over and in comparison to last time we didn't have a lot of time up our sleeve (Lorna, fourth baby, born at primary unit).

In fact Lorna then spent two and a half hours at the hospital which was a long time for her.

The majority of women described a waiting time which was variable in duration during which time they knew they were in labour but were waiting for the contractions to build. During this period they described being happy to spend time at home either on their own or with a support person. Whilst all of the women had been in touch with their midwife few had actually asked their midwife to be with them at this point.

The women described feeling confident and calm and were fully aware of the world, their needs and their family's needs. They were aware of time passing, were able to join in discussions and conversation and eat meals. The women who already had children also made arrangements for the care of the children as they were aware that they would not be able to do this themselves once labour became more intense.

Increasing pain and moving into 'The Zone'

Following this period of calm and peace the women described a time when the contractions became regular and very intense, and this generally marked the time when women needed to focus on the labour and be in a place of safety. This would mean either going to their intended place of birth or if at home preparing the room and talking to their midwife. Maggie, a first time mother, described when she realised that she needed to move to the primary unit.

And so Dad's put jazz on and reading his book and stuff like that and I'm sitting in the corner and every few minutes going oooh you know, it's getting harder and harder to sort of contain and I'm trying to be polite because his Dad's there you know, it's just crazy and I started to feel quite unsafe. Like something changed and even though I was taking you know noting down times and it was sort of like eight minutes, seven minutes, around the seven minute mark I just sort of felt like I can't be here any more I've got to, I've got to be somewhere safe where I can actually allow myself to feel what I'm going through and not trying to be polite about it. So when M (partner) did come in I just said look I think we should go... (Maggie, first baby, born at primary unit).

Maggie described being unsure what had changed but she suddenly had a need to be in a place where she could focus on herself and the contractions. Christine also described a sudden change in her labour.

I knew that, about 2.30 like I said, in the afternoon, when all of a sudden I couldn't handle the kids being round I thought "Oh, this is serious, you've got to get them out", you know, things were happening... (Christine, third baby, born at home).

Likewise Carrie, who was having her second baby, described an anxiety and instinctive need to move to the hospital.

Um, the contractions hurt. (laughter) And I became really, really anxious to go somewhere to get some air, um, yeah, I became really, really worked up and just needed to go. Although, I didn't actually go till 7.30 'cause I wanted to watch Shortland Street (laughter) That's how I knew that it wasn't quite time... (Carrie, second baby, born at tertiary hospital).

The women described a build-up in the intensity of the contractions and a need to start focusing on them as a way of getting through each contraction. They described an innate need to focus and be in a safe place where they could do this. The increasing intensity of labour was characterised by increasing pain and the need to focus was a means of getting through the pain.

The pain

All but one woman described labour as painful, with the intensity of the pain increasing as the labour built up. For Melanie who had planned to birth at home the intensity of the pain suddenly made her wonder why she had decided to do so.

I distinctly remember being on my knees in the dining room, which we had set up as the birthing room with the birthing pool, saying to whoever was listening that you know for years and years I'd been a campaigner for natural birth and you know gone on about you know how it's not as bad as people think. And now I was kicking myself for being completely and utter crap and whose stupid idea was this. And you know this hurts like hell and J (midwife) turned round to my sister-in-law and said now we're getting serious. So there's very definitely a moment of bugger this, you know this isn't funny any more (Melanie, third baby, born at home).

As Lucy explained her labour was really quick but at the time she had not realised how close to birth she was despite the intensity of the pain. She gave birth within twenty minutes of getting to hospital.

I thought god if I'd known it was going to be this quick I wouldn't have complained so much.

Lesley: About?

Like the pain and things because it was only an hour or something you know, really. You know only I didn't have much in the way of pushing or anything so I felt like I'd been a bit of a sook really. I thought god if I'd known it was going to be this quick I wouldn't have complained so much (Lucy, third baby, born at tertiary hospital).

It was often the increasing pain that made the women realise that the labour was moving towards birth. For Mary the pain was manageable and not as strong as she remembered with her first baby.

I guess when the contractions were happening it was just about breathing and managing the pain etc. and I remember thinking it's not as bad as last time, like it wasn't as painful, it didn't seem that painful you know what I mean (Mary, second baby, born at tertiary hospital).

In contrast, for Lucy the pain was worse than her previous two births, although she considered that this may have been psychological.

Just I don't know this pain seemed so much more intense than the other two. Like just, just like something taken over your body. You know like I really, yeah and probably I think personally I think maybe head space could maybe help with that a bit psychologically as well and I don't think I was in the right space either (Lucy, third baby, born at tertiary hospital).

Further discussion with Lucy elicited a lack of debriefing following her second baby.

I think I probably didn't talk enough about my second daughter's labour because she had complications afterwards and so when we talked about it we always seemed to be talking about her going to Nicu (sic. neonatal intensive care unit) rather than her actually, than actually the birth itself. Whereas with my first daughter it was so quick I was sort of almost in shock. With the second one I sort of probably felt more labour and yeah I think I probably didn't debrief about it enough type thing (Lucy, third baby, born at tertiary hospital).

It would appear that the complications following her previous child's birth may have caused Lucy to feel unsafe during this labour and to perceive the pain as worse.

The Zone

The women described a need to focus in on themselves as a way of getting through the pain of the contractions and a need to shut out the rest of the world, as Janet explained.

It was just, it was just a lot of pain. I was just trying to focus on dealing with the pain. I wasn't really thinking yeah like too far ahead. Like I was just focusing on that moment... (Janet, first baby, born at tertiary hospital).

Maggie also described the increasing need to focus on her own body and of losing sight of what was happening around her once they got to the hospital.

And all of a sudden there was M (partner) with the wheelchair and I got plopped in the wheelchair and I'm still sort of in the middle of a contraction while it's all happening so I kind of lost focus as to who was around and what they were doing because I was so busy like dealing with my own body, you know (Maggie, first baby, born at primary unit).

Mary described being within herself as a way of dealing with the pain and Elaine also described becoming unaware of what was happening around her.

Yeah I guess I was just within myself dealing with managing the pain if you know what I mean (Mary, second baby, born at tertiary hospital).

Yeah but I kind of wasn't aware of her I was just in my own space (Elaine, first baby, born at home).

It seems that during this time when the contractions increased in intensity the woman's world narrowed down to her and the contractions and she became unaware of what was happening around her. A couple of the women referred to this as being in 'the zone'.

I didn't know pretty much, I'm just totally there in my own zone. I was leaning over the pool and M (partner) was mopping my brow (Rhonda, third baby, born at home).

Kate also talked about the need to focus and likened this to being in a zone.

... I had the contractions that were getting more full-on. I just, how did I feel, I felt I was in the zone, I, I wasn't anxious anymore I was fully focussed on doing the job I had to do (Kate, third baby, born at tertiary hospital).

Kate described the need to let the body take over and get on with the job. There was an underlying assumption from the women who had previously given birth that their body would carry on doing the job it needs to do. Melanie also described the need to focus on the pain.

You know and that's the real, at that point you know we had a real kind of stuck between a rock and a hard place sort of feeling. Can't stop it and at the same time really scared of what's going to happen but then on the other side of that there's that, that real yeah deep kind of faraway place that you go where you're just, your brain's just not there any longer and you lose track of time and what everybody else is doing. Nothing else matters and the universe kind of shrinks to this particular, you know this particular job that you have to do which is you know about birthing your baby (Melanie, third baby, born at home).

Melanie has described moving to a 'faraway place' in which time was unimportant and she was unable to focus on what was happening outside her body. She described how the 'universe' narrowed to just her and her body as she prepared to give birth.

Tiredness and feeling sleepy

For some women as labour intensified there was an increasing feeling of tiredness and sleepiness between contractions. As Melanie explained:

Then I remember later on sort of falling asleep between contractions, I remember the really full on contractions where I was chewing the side of the pool. I was. But in between I could actually kind of lie back and I said to J (midwife) oh I fell asleep (Melanie, third baby, born at home).

Lorna also described sleeping between contractions.

Yep. I kind of got to the point where I just wanted to do it by myself, you know. Just leave me, right there's a contraction, right it's finished, I'll go back to sleep now for ten minutes (Lorna, fourth baby, born at primary unit).

Many of the women described feeling tired and exhausted during labour, but not all of them described sleeping between contractions.

Overwhelmed and out of control

Some women described feelings of intense fear, anxiety or panic at a point during labour. It was generally just before they were ready to push. They described feeling out of control and that they felt they could not cope any more. As Mary explained, during her homebirth she got to a point where her anxiety became stronger and she struggled to calm down before the next contraction arrived.

So I had some contractions in the pool and then I started to get a little bit more anxious in the pool because I was feeling like I wasn't able to

calm down before the next one came before the next contraction came and I felt like I was you know starting to struggle andbut I started to feel like I had to push (Mary, second baby, born at home).

The feeling of not being able to cope any more was also described by others such as Janet who was having her first baby. Kate explained that this is the time that her support people needed to help her regain her focus and confidence.

And it sort of got to the stage that I didn't think I could cope any more (Janet, first baby, born at tertiary hospital).

I was just - you're in a well, there's a, there's a no going back zone...I just completely freaked out and I get really like "I can't do this, I can't do this!" like psych myself out. But as soon as people say "yes you can" you can focus again. But, it's just like oh -..... Yeah frightened, just like yeah, just completely freaked out. "Oh here it comes" and you know how bad it's going to be. Yeah. Yeah, just the - frightened of, your whole body's just, the lack of control, you just, yeah, the lack of control. Desperation, you're just desperate... (Kate, third baby, born at tertiary hospital).

For some women this period of time was associated with fear, intense pain and desperation to get the birth over with. It was also a time when many women were worried that they could not continue with this level of pain and started to wish that they could access drugs to help them through the pain, as Rachel explained.

...but then I would say in the last half an hour to 45 minutes before L was born, it started to get quite scary because I realized I was somewhere where, the only option in terms of getting rid of this pain was gas which in my mind at that time, didn't seem like it would do anything at all. So I wasn't even going to bother, and so I was just having these thoughts of "why did I choose this?" Um you know, I could have been I could have been having whatever drugs available. But I knew, I knew deep down that wasn't what I wanted but yeah, it was probably about half an hour there where I was really questioning the decision. And it

probably wasn't that, at that stage I couldn't handle it, it was more the thought that things might still go on for hours. If I'd known how close I was I think I would have probably been quite happy (Rachel, first baby, born at primary unit).

Not all the women experienced this but for those that did it was a time of intense pain, fear, and desperation. This is the stage midwives often refer to as transition and can be one of the hardest parts of labour, both for the woman and her support people. None of the women described this in terms of transition however, only as a time of fear and anxiety. It generally preceded a need to start pushing and heralded the start of what the dominant theory describes as the second stage of labour.

The urge to push

The majority of women started pushing because they felt a change in the contractions and an urge to push during the contractions. For the first time mothers this was a unique feeling and caused some discussion with the midwife as to whether they were really ready to push or not, as Elaine explained:

And then M (midwife) sort of said, I don't know kind of asked, I'm not sure what happened – oh I sort of said is it far away, something like that and I think she said yeah you're fully dilated and at some point she said I could start pushing. And we sort of had a conversation about that, about how to do it (Elaine, first baby, born at home).

For Rachel who was also having her first baby she felt the urge to push but also expressed a concern that she may have been doing something wrong and so had to check in with her midwife.

When I started pushing, I remember pushing through a contraction, and then thinking "I don't know if I'm supposed to be pushing. I better tell D (midwife)." This was going through my mind at the time of the contraction. Then in the in between stage of that, after that contraction, I, I don't think I said it to her then, I think it was after the next one, so I pushed for one or two contractions or, sets of contractions, and then I

was kind of like "I better tell her, in case I'm not supposed to be pushing and I'm going to do something, you know, going to do something wrong!" And, so I said to her "I've been pushing through my contractions 'cause they just, it was too painful and it helped." And she said "Oh yeah, that's fine you just do whatever you need to do!" Because again, I was probably expecting to need to be told when to do that. And in hindsight, I like the fact that I didn't need to be told that and, and that, but I guess that was probably an expectation on, not of the labour as much as maybe on my midwife, I'd heard of stories of being guided through, you know, you see it on TV and stuff, you know "oh push now" or "you can't push yet" and that type of thing, and I was expecting that type of thing (Rachel, first baby, born at primary unit).

Rachel explained an expectation that she would be told when she was ready to push and that pushing without permission could cause problems. Her suggestion that this expectation had come from books and TV demonstrates the influences these types of media have on women's expectations of birth.

However, for one woman this situation did occur. For Ella there had been some concerns regarding the baby's health during the labour so there was an obstetrician as well as her midwife involved with her labour.

No that's right she examined me and I wasn't quite there and then the, the urge to push thing happened which was just about the weirdest experience of my life. And they're saying no, no, no, you can't push yet because they wanted to check that I was fully dilated I think and I remember thinking how can, I remember saying how can I not push. So it was horrible, it was just horrible kind of trying to not push and so they made me wait I think it was only a couple of contractions and I had the gas at that stage (Ella, first baby, born at tertiary hospital).

Ella described how for her the urge to push happened suddenly but once it occurred there was no going back and it was very difficult not to push.

For Elaine giving birth at home there was a need for reassurance and guidance when pushing.

Yeah and it was kind of like I'd just wait for a contraction and then try and push really hard with the contraction and then I'd say to the midwife can I push more than that. And she'd say yes do a really big push and yeah so I would. After each contraction like I'd get a really good break where it was like I wasn't in labour and I'd just chat away and laugh and stuff (Elaine, first baby, born at home).

Pushing – the sting and burn

Many of the women described the sensation of pushing as painful with descriptions suggestive of stinging or burning pain. Faye found the pushing stage extremely painful and suggested that the burning sensation made her want to stop pushing; it was the midwife who persuaded her to continue pushing.

That, well obviously I didn't have to push for long it was really only pushing for about twenty minutes. So at which point well that, that burning sensation is just incredible. That's just I don't know it's just something I've, that's what put me off like saying this baby's not coming out it was that feeling. It was that horrible you know the pushing was fine it was just every time I push I knew that I'd get that. So it would almost, the midwife had to really coax me onto keep pushing it because every time I stopped obviously that would move back up which obviously not what we wanted (Faye, first baby, born at tertiary hospital).

Janet also described the burning sensation when pushing.

Just like, like a burning sensation really. But then it wasn't, yeah it was a different pain. It still hurt but it wasn't as bad as the contractions. Yeah you could just feel it stretching and like yeah (Janet, first baby, born at tertiary hospital).

For the women who had previously given birth the change from contractions to pushing was often very quick and unexpected.

My midwife came, and she had a look and she said something like oh I can see like a plumb sized a bit of his head or something so you're doing

really well. Have you felt like pushing. I said no and she said oh well put your legs a bit further apart and relax those back muscles or something and then I felt like pushing the next contraction and his head came out (Julie, second baby, born at primary unit).

For Julie the urge to push occurred suddenly following a position change suggested by her midwife. Carrie also described a sudden change and feeling the baby move down and the need to push. She described the burning sensation she felt as the head crowned.

At that point he was at the point in my pelvis where it was just, the pain was horrendous, and I thought "oh maybe I should have gone down the epidural track" but luckily he moved so fast, which was kind of good and bad. Yeah it it became, I was totally focussed on what was happening. I mean I didn't, didn't have a chance to think of anything else and, it was over before I knew it. It was a really, really fast yeah, I could feel, I could feel him moving um, and that, that for me was really good to actually know that he was moving and it was gonna happen. I had forgotten about the stinging. That was one thing, and I remember at the time wanting to say to my midwife "you forgot to tell me about the stinging, I forgot about that bit" (laughter) but I couldn't really talk, so, yeah, yeah (Carrie, second baby, born at tertiary hospital).

For Mary there was a sudden change and need to push but her midwife was not in the room, which caused panic.

And so she did that and then she went away to make a cup of tea and that's when I needed to push and I was like get her back in here now. See you read in books that you're not meant to push until you're told to and so I was like and A (partner) was like I can't I have to leave you. I was going but don't leave me. So I was like push that buzzer. So you know we pushed the buzzer and she came back in and I was like oh I need to push and she was like, but the books tell me not to, and she's like no you just do what feels right for you forget about what you've read in the books or whatever. So no not until that next contraction and then it was like I need to push now sort of thing which did freak me out a bit

because it was just, the transition must have been really fast from those waters breaking. Just dilated and then you know the next one was basically yep, it was quite freaky (Mary, second baby, born at tertiary hospital).

Mary described the sudden transition from contractions to pushing and her associated panic and concern that she should not push due to knowledge gained from books. It was permission from her midwife that reassured her that she could push.

Women often described the pushing stage as quite sudden in onset especially for women who had previously given birth. For the first time mothers there was time for discussion and consultation with the midwife about when and how to push well. For some women there was a concern that they should not push until they were told to and one woman was advised not to push until she had been examined, even though she had an overwhelming urge to push.

The birth – Zing!

Once the baby was born some women described feeling wide awake and able to take things in immediately whereas for others there were feelings of disbelief. As Rhonda explained, towards the end of labour she was in the zone and feeling exhausted but immediately following the birth felt wide awake and alert. She considered that this must be due to a hormonal trigger.

I remember feeling really like you're in your own zone and I'm tired, really tired, really, really tired and then once he's here it's, it must be the adrenalin I don't know is it the adrenalin that you just really like zing awake again really awake and happy and alert (Rhonda, third baby, born at home).

The description of being fully aware and cognizant once the baby was born was consistent amongst many of the women.

As Kate explained, following her birth she was comparing her baby to her previous two and felt strong and excited and ready to do it all again.

Um, straight away I compared, was comparing her to my other two. I was like "ooh, who does she look like?" Really, you know, excited. I love

the first kiss. The new-born skin is so soft. And, I was just over the moon that she was here and healthy. Yeah, so, yeah I could do it all again (Kate, third baby, born at tertiary hospital).

Melanie described those first few minutes after the birth as glorious.

Oh it was, it was just glorious. She, she came out, J (midwife) caught her from behind me I was on my knees, she passed her through my legs to C (partner) and he handed her straight to me and I said hello you and then she opened her eyes and we looked at each other and she stuck her tongue out so I stuck my tongue out and we played games in the pool (Melanie, third baby, born at home).

In this description Melanie was instantly responding to her newborn, however for some women there were feelings of disbelief. Suddenly the contractions were over and as Maggie explained she went from focusing on her contractions to the realisation that it was over and whilst she had spent time worrying about how she would cope with the labour before the birth she had not really prepared for being a mother.

A bit amazed really because I thought oh my gosh there's a baby crying and that's just, I've just done it. This thing of birth that I'd been so worried about and wondering how is it going to happen and what's it going to be like, am I going to die, you know it was suddenly just all done. And I was suddenly thrown into this next phase that I had not really spent a lot of time mentally preparing for which was that actual baby (Maggie, first baby, born at primary unit).

Janet described feeling exhausted and overwhelmed by the whole experience along with a sense of detachment from the world.

Exhausted, yep. I didn't actually bond I don't think straight away with the baby like I thought I would. I was probably just so exhausted and overwhelmed and just because I focused in so much on the pushing and I was, I'd blocked everything else out and I was just, so on my own focus that after she was born I just sort of still I think in my own wee world. I

didn't really know what was going on around me (Janet, first baby, born at tertiary hospital).

Carrie also described feelings of shock and disbelief that the birth was over and the baby had been born.

Um, I was, it was really strange, it was like I was in shock. I kept saying "it's a baby" (laughter) and I remember thinking "why am I saying that?" but for me it was just like, "oh my goodness, it really is a baby". And am, yeah, (laughter) all I could say was "it's a baby". Its not like it was gonna be an elephant or anything, (laughter) so it was kind of, I did feel a little detached at that stage, it was kind of a real sense of awe (Carrie, second baby, born at tertiary hospital).

Mary also described her feelings of disbelief that it was all over and her pleasure that she had had the homebirth she had desired.

And I was thinking "oh my god I can't believe that just happened I can't believe I've had my baby at home" (laughs) (Mary, second baby, born at home).

The birth is a special time when women come to realise that they have coped with labour and given birth to their baby. For some it is a time of pleasure and excitement in greeting their baby but for others it is a time of coming back to themselves as they let go of their intense focus and start to come to terms with their labour and birth, as well as the realisation that they now have their baby.

The placenta

Following the birth many women were dismissive of the afterbirth and anxious to get the birth of the placenta done quickly so that they could get up and move around. As Mary explained:

I wanted to give, have the placenta you know the afterbirth sorted out so come on and I wanted, I was ready to get up and have a shower... (Mary, second baby, born at tertiary hospital).

Julie and Lucy were also dismissive when asked about the afterbirth.

Oh she (the midwife) did a bit of a panic I think when she gave me a jab or something or other. I think that's to do with that isn't it. It came out (Julie, second baby, born at primary unit).

... and I birthed the placenta pretty quickly and then my husband, he always had sort of had skin time which is nice and so had that and then I was up on the bed breastfeeding (Lucy, third baby, born at tertiary hospital).

Kate talked about the birth of the placenta as part of the recovery period after the birth.

Then they obviously checked her and had the ecbolic [oxytocic] injection and delivered the placenta and then its just recovery from then on really (Kate, third baby, born at tertiary hospital).

Kate considered the birth of the placenta as part of the recovery process while others considered it to be an anticlimax, with some women saying it happened “*quickly and easily, I was still elated with the birth* (Mary, second baby, born at home). Others suggested that they were absorbed in the baby and not really thinking too much about the placenta other than just wanting to get it over and done with.

Does time matter?

The experience of birth is an important, critical event in a woman's life (Beech & Phipps, 2004). Each of the women I interviewed described their labour and birth as an intense and vivid time and one in which they could remember their thoughts and feelings clearly. For each woman the birth had occurred within the six months prior to our interview and each was able to provide a detailed description of their experience.

All of the women interviewed were very happy to talk about their births and they did so in terms of remembered emotions, thoughts and actions. They described each in vivid detail and in a sequential way in that they remembered what they were doing, feeling, thinking or saying at particular times. However, once the pain of labour intensified the sequence and timing of events became confused with memories augmented by the midwives' notes or support person's memories of when particular actions or conversations occurred. So when asked 'were you aware of time passing and did it matter to you?' the women explained that they were aware of time but not in the usual way. They explained that time becomes elastic during labour with minutes and hours either melting together or spanning out, depending on the woman and her need to focus. The women described periods when minutes would appear to last an hour and hours sometimes felt like minutes. Janet, a first time mother, was surprised at how fast the time had passed.

Like the last part of it went so fast but it just surprised me that, the two hours that I was in hospital before I started pushing was probably the longest, before that the time actually went really quickly. You know a lot quicker than I thought. I thought that being like in so much at the time it would taper off slowly but no. It went really fast. Like I didn't, yeah I didn't know it would go so fast. Yep even at home when I was just doing I think, running around the hours went really fast and like when I rung the midwife and she took about 40 minutes to come round but it only felt like half an hour (Janet, first baby, born at tertiary hospital).

When Rhonda, who was having a third baby, was asked if she was aware of time during the labour she answered:

No. Not at all. It felt like a very long time and to me I think it is a long time although some women will argue they've been in longer but no, no idea of time (Rhonda, third baby, born at home).

Rachel also found she lost track of time and found the labour notes made by the midwife helped her to work out the timings of what was happening during her labour.

I think, before that I could have told you roughly the time I went into the hospital and roughly the times I did my calls to my midwife and stuff like that, um, and then, but when I read over my notes, I didn't realize how quickly he'd arrived and how long I was in the birthing pool, so I'd lost track by that stage (Rachel, first baby, born in primary unit).

Ella, who had her first baby at hospital, described remembering the labour as chunks of time with what she was doing in each chunk of time.

Felt faster, the time just disappeared.... So I remember it in chunks of time. There was a chunk in the bath, there was a chunk in the bedroom, there was a chunk you know after the first exam which just disappeared and then I don't know what happened to the time after the second exam to when he was born because that must have been like an hour and a half because they were doing you know lots of things like monitoring and prodding and checking and whatever and bursting waters and all this kind of stuff but it just, just feels like it's shrunk down that those chunks of time just feel like snippets almost, yes. But that must have happened. Just kind of didn't, yeah I don't really recall the whole period of time I just kind of have flashes of you know me being on the floor or being on the, on the bed or whatever, yes (Ella, first baby, born at tertiary hospital).

It would appear that during the earlier less intense and painful part of labour, time is measured and counted, with many women keeping themselves busy to help the time pass. However, once the pain intensifies there is a need to focus completely on the pain to the exclusion of all else and time becomes meaningless as labour is experienced in the moment. During the intensity of labour time appeared to become elastic; sometimes minutes or hours would melt together or span out depending on the woman and her need to focus.

Conceptualising Time

Time can be considered a social construct in that some cultures emphasise cyclical models of time, often based on seasons and agriculture, while others emphasise a linear progression model of time in terms of the past, present and future (McCourt, 2009). In modern developed society we learn to tell the time during childhood, with time increasing in importance as we become adults when we have to be in particular places at certain times. As such time is an important construct within the developed world requiring standardisation regionally, nationally and globally (Downe & Dykes, 2009). Downe and Dykes (2009) argue that in today's world of increasing technology, consumerism and surveillance the accuracy of time has become an all important discourse. Within childbirth this very discourse about time which involves accuracy and precision can also construct the woman's maternity care experience with a need for accuracy with length of pregnancy and timing of contractions during labour, as well as precision for the timing of each stage of labour. Friedman (1990) argues that time has an embodied experiential meaning: when we are engaged in tasks time passes more quickly but appears to pass more slowly if we are waiting for a particular event or experience or are fearful. An interval is longer if it is remembered in more detail but shorter if remembered in less detail. This is reflected in the women's interviews in that when the pain and intensity of labour was low the women were able to provide rich descriptions of what they were doing and time was consistent with that of normal life. However, once the intensity of the labour increased the women became engaged in focusing on the contractions and time became meaningless as they lost their sense of time and limited themselves to the stimulus of labour. Downe and Dykes (2009) argue that the precision and knowledge of time is lost when the individual is subjectively experiencing time.

When we are engaged in doing or experiencing an event at an individual and embodied level, time becomes subjective and can appear to pass more quickly or more slowly depending on the individual's subjective location.

Birth as an embodied experience

Many of the participants described working with their body and being surprised after the birth at how effectively their body had taken them through the labour.

There was no sense of control, and as Melanie explained in her summary of labour, there was a need to relinquish control.

It's a process where your body really takes over and your brain just has to go on the back burner and relinquish control and that it's amazing, you know to feel this, this, you know your body doing things without you actually commanding it, you know to, to prepare to do this. So in that sense it was really humbling actually to experience the power of, you know of my own, of my own body. I would describe it when you hit that overwhelming wall, that's exactly what it is. It's a wall. And it's kind of like finding that you're on a, that you're on board a runaway train because you don't really know where it's going but it's not going to stop (Melanie, third baby, born at home).

Melanie's summary provides a wonderful description of the power of the body and how it takes over the brain to facilitate the birth. Carrie also described the power of the female body.

... for me, the most powerful thing was knowing that my body, this is something women have done for years and years and women do it without any medical intervention and um, yeah, bodies are amazing, they just do it (Carrie, second baby, born at tertiary hospital).

Janet found she had coped a lot better than she expected but also described her amazement at how her body had just taken over during birth.

Well you don't get a choice but I think I coped a lot better with it than what I thought I would be able to and it was a lot quicker and all that, like it just sort of, it's amazing how your body just takes over and just does it (Janet, first baby, born at tertiary hospital).

These descriptions of the body taking over could be found in nearly all of the interviews. Kate described how she fought her body during her first birth but then allowed her body to take over with her second and third labours.

She described letting her body do its thing in the sense of taking over the birthing process.

Yeah, yeah, and I just let my body do its thing whereas with my first birth, I completely fought it. I fought the pain and it was just, I hated every minute of it. Whereas this time I felt "no, I'll just let my body do, do its thing, it's gonna hurt, but, I can't go back" (laughing) (Kate, third baby, born at tertiary hospital).

Elaine, who gave birth to her first baby at home, described how her body took over. Her only focus was on 'being' in the moment. She described it as a normal and natural process.

Your body just takes over and it's just like you're totally in the moment and it's like a contraction, a break, a contraction, a break. Yeah. I wouldn't say it's painful or it just seems normal. It just seems that's what happens to get your baby out, just a natural process thing Yep (Elaine, first baby, born at home).

In this section the women have described the power of their body and how the body took over the birth process. They described a sense of amazement and awe at how effectively their body had worked during labour. This suggests that labour and birth are an embodied experience, one in which the body is in charge and the women participated but did not control. The feelings generated were positive with labour and giving birth considered to be a powerful experience.

Reviewing my own labour experience – researcher reflexivity

During analysis I started to discern a pattern in how the women were describing their feelings and thoughts during labour. It became evident following the first five interviews and could be discerned in all the subsequent interviews. At this point in the analysis phase I presented this particular aspect of the analysis – the women's voices - to other students and faculty professors within the doctorate programme at Victoria University. During the presentation I noticed an intent

focus from all of the women present and frequently a nod of agreement as I outlined the women's descriptions.

This led me to consider that the descriptions were being recognised by some of those present as similar to their own labour and birth. However, whilst talking I suddenly realised that I was also providing a description of my own birth – in that many of the feelings that the women had described were part of my own birth story. I distinctly remember the feeling of excitement when my 'waters broke' and I knew I would be having my baby within the next twenty four hours. Yet I had not ever consciously considered that as part of the labour experience. I also remember the light period pains I had for about 12 hours after this, during which time I stayed at home, went for an afternoon walk and organised the house – basically just waiting for time to pass. I too sent my partner to work and called my friend (who was also my midwife) to be with me because I needed her for moral support. I should have been in hospital being augmented with syntocinon according to labour ward policy – two hours after spontaneous rupture of membranes (SROM). When I finally gave in and went to hospital (12 hours after SROM) I was still not having strong pains but an internal seemed to hurry things along. At that time I was 4 cms dilated. The contractions became intense and I got to a point at which I started to feel that I was not going to be able to cope with the intensity of the pain. I had some analgesia but in retrospect if I had known I was so close to the birth I would have realised that I was able to cope. I distinctly remember the burning pain of pushing and holding back from really pushing hard because it hurt and then realising that I would have to push if I wanted to give birth (I was therefore able to think rationally) and pushed through the stinging to the birth. I was delighted with myself and my beautiful daughter – I had achieved a normal birth on my terms – no mean feat for a midwife! In retrospect I felt that I had been very 'lucky' and that my labour was different to others, in that the intense part of labour only lasted three to four hours, whilst the earlier period pains I had discounted because the pains were so mild and did not match the 'textbook' descriptions of labour.

Whilst presenting the results of this part of my analysis I realised that I may have subconsciously provided a description of my own labour – this could be described as privileging my own subjective knowledge. It was very important to

get feedback from the women I had interviewed to find out if the descriptions I related as theirs resonated with them. I sent each participant a summary of the analyses and had a discussion with two participants about this during the focus groups. Eleven women sent back the summary survey with their feedback. Overwhelmingly they agreed with my analysis – especially the early excitement, followed by a time in which they felt calm and peaceful followed by the zone. Mary wrote: *Yes, I felt like I was on another planet, it was quite a good feeling.* Some said that they had not felt overwhelmed as Christine wrote: *Not fear or panic or out of control yes to intense pain and wanting to get the birth over and done with.* I was therefore reassured that I had represented the women's voices and perspective of birth.

I realised that I had probably recognised their experiences because they were a mirror of my own and whilst there may be individual differences in our perceptions and what we do, say or expect there is a pattern that appears to be experienced by women during a spontaneous labour and birth.

Summary

This analysis of the women's voices has explored the women's perceptions of labour as it started and moved towards the birth. Women have described their labour in terms of their feelings, thoughts and actions. As such this analysis has provided the women's voices and understanding of their experience. One of the surprising elements was the similarity of the feelings the women talked about at particular points in their labour. The women interviewed have described their labour starting most commonly with light period pains and irregular contractions. At this time women described being excited that labour had started but also feeling calm and peaceful and happy to remain at home and wait for labour to become more intense. For each woman there appeared to be a point in time when the pain associated with the contractions increased in intensity with a clear point described by all of the participants when they had to really focus on the pain as a way of working through it. From this point on their remembrance of time became fuzzy although they clearly identified other emotions such as fear, and feeling out of control and overwhelmed by the pain of the contractions. They were also able to describe the often sudden change which occurred in which they experienced an overwhelming need to push. This heralded a

different aspect of labour – one in which they became focused on pushing and experienced a stinging and burning sensation as the baby's head stretched the birth canal and the baby was born. Following the birth women described the joy of meeting their baby and feeling positive that they had experienced labour on their terms. For some however, there was a feeling of disbelief that the labour was over and the baby was born. It was a time of coming back to themselves after the emotional intensity of the birth and a time of realisation that the next phase of mothering had begun. Once the baby was born many of the women were dismissive of the birth of the placenta and described wanting to get it over with so that they could move freely and continue in their journey of getting to know their baby. Women have described labour as an embodied experience, one in which they participated but did not have control. During the intensity of the experience time became elastic and meaningless as the women lived in the moment and became unaware and unable to focus on the passing of time.

The next chapter will review the findings from this research and synthesise it with what is currently known from other related research studies. The aims of the research will be revisited and the women's perceptions and descriptions of labour discussed further in which the women have defined the importance of their emotions during labour.

Chapter Eight

The emotions of labour

Introduction

This chapter revisits the aims of the thesis, summarises the findings and synthesises them with what is known from other sources. This thesis has explored the women's perspectives and experiences of labour as it progresses towards birth. It has discovered that whilst women are aware of the prevailing theory of labour, it is seen as an abstract concept that does not resonate with women during labour and birth. A previous birth experience appears to provide the optimum understanding for women of how their bodies respond during labour. Women's perceptions of birth are dominated by descriptions of their feelings, and a need to focus on each contraction as the intensity of the labour increases. Many of the feelings discussed have been described in similar research projects exploring women's experiences of childbirth. Women's discussion did not relate to 'progress' during labour and birth, but an inability to think logically was described along with just 'being' in the moment. The temporal meaning of time changed and women felt they were in a different zone, on a different planet or in a world of their own – this too has been identified in other research projects.

A theme that appears to be consistent amongst research into women's experience of childbirth is the need for support with the women interviewed describing the support provided by their partner, their midwife and others present at the birth, and a need to feel safe. Safety was based on the individual's personal philosophy and belief system; however, the 'need to feel safe' was universal and important regardless of place of birth. All of the women received continuity of midwifery care from a midwife chosen by them during pregnancy. It appears to be important for the women to be able to develop a relationship based on trust and shared belief systems. This research has uncovered integrative, supportive relationships which support the woman to 'feel safe' during her labour and birth.

Revisiting the aims of the thesis

The first stated aim of this thesis was to explore and critically examine the knowledge, discourses and understanding of the current dominant theory of labour progress. The first three chapters have established that there is a dominant discourse about labour and birth and that development of the knowledge base for this dominant discourse was influenced by the prevailing beliefs of the time. Examination of historical texts has demonstrated that the current knowledge claims have been strongly influenced by a culture in which women were considered inferior to men. Women's knowledge has been undervalued and largely ignored whilst male medical and scientific knowledge has been privileged. This paradigm has prevailed as the dominant knowledge source about labour progress and is based on male observation of women's labour and birth. This has provided the source of understanding of labour as situated within a stages and phases model which emphasises the need for cervical measurement, time measurement and linear and standardised progress.

This thesis has challenged this theoretical framework as fundamentally flawed and no longer based on contemporary knowledge of physiology. It has argued that when knowledge generation seeks to explain human experience it should prioritise and be based on experiential knowledge about the physical embodied human experience.

The second aim of this thesis was to explore whether the prevailing understanding of labour (as stages and phases) resonated with women's actual experience of labour. Women's subjective knowledge and understanding were the basis of this research in which 18 women were interviewed with the purpose of exploring their perspective of labour and birth and specifically, what they considered to be the important aspects of the experience of labour and birth. The findings suggest that the women in this study found the phases of labour an abstract concept, one which was based on a theoretical construct but which did not resonate with their actual practical experiences of labour and birth. The dominant discourse was seen as the provider of a framework for understanding the anatomy and physiology of labour and birth, but failed to support women to identify ways of understanding their labour or indeed their place in labour as it moved towards the birth. Despite this it would appear that the measurement of cervical dilatation was considered to be important by some of the women.

However, cervical measurement, when provided, did not necessarily support the women to 'know' how much longer the labour would last. This need to know cervical measurement suggests that women are seeking signposts - ways of knowing and understanding their labour, and specifically how many hours or how much more pain they will experience before the baby is born.

The third aim of this thesis was to explore the woman's experiences and perspectives of labour as it moved towards birth and provide a description that encapsulates the women's voices. In this study the women's descriptions of their experiences of labour and giving birth have provided a rich source of information. The analysis of the women's voices has revealed a description which is dominated by the emotions the women felt during their labour and birth. It has also uncovered the need for support during labour from partners, family and friends and the midwife. The next section will identify other research studies which have explored the women's experiences of childbirth. Synthesising the findings from this research with these studies provides support to the argument that women's emotions are an important part of labour and birth. The emotions they have described may be an indication of normal labour and birth physiology. It is also revealed that support during labour is important for women regardless of place of birth or model of care.

The emotions of labour

During the third reading and analysis of my discussions with women I found that whilst the length and experience of labour was individual to each woman, many described feelings and emotions that were similar in nature. There was a pattern to the feelings described that were shared by the women in this study. These emotions were felt to some degree by all of the women at particular times during their labour.

The emotions appeared to occur in a linear movement in that they changed as the labour moved more closely towards birth. They were described as:

- Feeling positive and excited when labour announced itself
- Feeling calm and peaceful for a while and able to organise and interact normally with the world

- The zone – a time of focus on themselves and their body to the exclusion of all else, no longer able or wanting to interact with others or the outside world
- Feeling tired and sleepy for some
- Feeling fearful or overwhelmed for some
- During birth – feeling focused during pushing
- After the birth, feeling wide awake and connecting with the baby or a little shocked and disconnected.

Whilst there may have been other feelings that were part of the individual woman's labour and variations between women, the emotions described above were felt to some degree by each woman interviewed.

Labour onset

The majority of the women in this study were able to provide an exact time and date for the onset of their labour. Most described recognising labour onset because of period-style pains, with one having spontaneous rupture of membranes prior to the start of period pains, another having a show and one who found it difficult to discern labour due to a stomach upset. This is a similar finding to that of Gross et al. (2003) who used semi-structured questionnaires asking women admitted to hospital in spontaneous labour how the labour had 'announced itself' (p. 267). They found that the majority of the 235 women who responded to their questionnaire described experiencing regular or irregular recurrent pain as the onset of labour. Other signs reported included watery loss, blood stained loss, gastrointestinal symptoms, emotional upheaval and sleep disturbances. Gross et al. (2003) found that women were precise in their time of labour onset with some suggesting that the signs and symptoms had occurred over a few days preceding the labour. They found that women did not perceive a distinction between the latent and active phases of labour. Their descriptions resonate with women's descriptions of labour in this study and they suggest that women were often more 'active' in what is often defined as the latent phase and more latent (less active) in what is commonly described as the active phase of labour. Whilst Gross et al. (2003) explored the onset of labour signs and symptoms they did not uncover descriptions of excitement and anticipation in their research.

Excitement and anticipation

The women's descriptions of excitement and anticipation at the onset of labour were a surprise finding in this study. When reviewing other research studies, I found two that discussed excitement as part of the emotions of early labour (Burvill, 2002; Nolan, et al., 2009). Burvill (2002) examined midwifery diagnostic cues to explore how midwives diagnose labour onset. In this qualitative study using a grounded theory approach, Burvill (2002) used focus group interviews with midwives followed by in depth interviews with an expert midwife to elucidate how midwives recognised labour onset. She then developed a model which reported the internal and external signs along with the reactions of women from late pregnancy through to active labour. This model was based on descriptions from midwives of their observation of women's behaviour during labour. Midwives described women in early labour as being excited and happy although also anxious about their ability to cope with labour. During this time of early labour they are also described as organising and sorting out practicalities with the focus on others.

More recently, an internet survey undertaken with 2433 women in the United Kingdom found that women reported being happy, positive and excited in early labour (Nolan, et al., 2009). The aim of the internet survey was to explore women's views on their contact with labour unit triage provision during early labour and also to explore women's experiences of early labour. The survey was conducted over a five week period through a popular, peer reviewed and widely used website. During analysis the researchers separated the responses of those who had given birth in hospital and then compared the responses for the women who had a spontaneous vaginal birth with those who had an assisted birth. They found that significantly more women in the normal birth group reported feeling excited, happy or positive during early labour when compared to the assisted birth group ($P < 0.0001$). They conclude that their results provide a fascinating insight into the psychology of women at this time and question whether these positive feelings could be influential to birth outcome. It would thus appear that feeling excited and positive when labour announces itself is an important finding that may have an influence on the woman's labour and birth.

Calm and peace

All the women I interviewed had a spontaneous labour and normal birth; they also had continuity of care from a midwife Lead Maternity Carer. They described the signs that indicated to them that they may be in labour and their subsequent discussions with their midwife. These discussions appeared to support and reassure them and they therefore described this part of labour as calm and peaceful. A couple of the women described impatience when this period went on longer than they expected but none of them described high levels of anxiety or fear.

Studies from the United Kingdom have found high levels of anxiety for some women at the start of labour. Cheyne et al. (2007), in their qualitative study exploring the early labour experiences of 21 first time mothers, found that women did not know what to expect during early labour and this uncertainty led to higher levels of anxiety. In their small Scottish study women described their concerns about not knowing when to go to hospital, their fear of increasing pain and ability to cope with the pain, and an increased level of anxiety about being diagnosed as not in labour and being sent home again. Similarly, Nolan and Smith (2010) interviewed eight primiparous women and asked about their experiences of being advised to stay at home. These women suggested that staying at home was not relaxing and the women were concerned about how to interpret their labour. There was a high reliance on the health professional's knowledge suggesting a need for labour to be 'authorised' by the hospital personnel and that until it had been acknowledged and documented as labour it was not 'real'. Both of these studies were undertaken in areas in which the women had fragmented care, in that they had a different person providing intrapartum care to that providing their antenatal and post partum care. This style of fragmented care may lead to higher levels of anxiety in early labour as women are not able to talk to a health professional that they have built a relationship with and who will be providing their intrapartum care.

The finding of calm and peace may be related to the continuity of midwifery care received by the women interviewed. They each described making contact with their midwife when they thought they were in labour and they were able to contact their LMC midwife at any time when they had concerns or questions regarding their labour. This may be why there are no descriptions of high levels

of anxiety during early labour. This early part of labour may be of vital importance and may have implications for how the woman perceives her whole labour experience (Baxter, 2007).

What was clear during this time was that women continued to engage with their normal world – they were able to talk, organise and focus on others in that they sent partners to work, talked to their midwife or other family members, and organised food and childcare. Labour had announced itself but the women were able to continue with their normal life during this time in a linear way. They were essentially waiting for time to pass and for labour to become more intense. Their focus was not on themselves but on others. The women were preparing for when the labour would need their full focus but at this time they were able to focus on other tasks. This was also the behaviour described by midwives in their observation of maternal behaviour as reported by Burvill (2002) in the United Kingdom.

A different place in time

At some point during the labour women described a period of time when the contractions became more intense and painful and there was a need to focus on the pain itself. The women described a need to focus on themselves and shut out the rest of the world, a time in which the world narrowed to themselves and their contractions. Several women described this as being in ‘the zone’. A zone is often considered to be a geographical area but in this instance the women are considering themselves to be separated from others in that they are in a different space in both time and experience. On her feedback form one respondent said: “Yes, I felt like I was on another planet” (Mary, second baby, born at home). This change to one of inner focus has also been described as an altered state of consciousness and was found in several other studies (Duff, 2005; Halldorsdottir & Karlsdottir, 1996; Leap, 2000; Machin & Scamell, 1997).

Halldorsdottir and Karlsdottir (1996) used a phenomenological approach to explore the lived experience of giving birth with 14 women who had given birth in hospitals in two regions of Iceland. They found that the women’s sense of self changed and they felt they were in a private world when in labour. They described this world as a shield against the outside world and in which women

lost all sense of time. The women described having lots of people around them but feeling that they were 'worlds apart' (p. 52). Whilst in this separate world the women described losing their sense of time and of being outside of time whilst also reporting a sense of unreality. Halldorsdottir and Karlsdottir (1996) found women expressed a need for caring and understanding and suggest that there is a need for security to be established as a means of enabling the woman to 'go with the flow of her body' (p. 55).

In their ethnography exploring the woman's experience of labour, Machin and Scammell (1997) also found that women described an altered state of consciousness during their labour. In this small qualitative study involving 40 primigravida women exploring the differences in expectations between women who attended National Childbirth Trust (NCT) antenatal classes and those who attended public classes, women described losing their sense of reality as well as losing track of time. Machin and Scammell (1997) suggest that there is a transitional stage in which women become overwhelmed with pain and during which they experience another state of consciousness. They describe this as a trance like state and suggest it is indicative of a transitional rite of passage. They argue that women are vulnerable to suggestion when in this state.

Leap (2000) found references to an 'internal space' (p. 52) in her research exploring the midwifery perspective of pain in labour. In her discussions with midwives she found midwives discussed normal responses to pain and how they observed the women 'letting go' (p. 52). They related this as a positive response and one which suggested the woman's body was working well and releasing endorphins to support her ability to cope with pain. They described their observations of this aspect of labour in which the women withdraw into a space in which they are unable to communicate, and in which they go 'right into their own depth of resources' (p. 52) and become disconnected from their environment and their supporters and carers. One suggested it was similar to being in a bubble. In a study examining midwifery diagnostic cues, Burvill (2002) found that the midwives described a change in behaviour during which the woman becomes withdrawn and focuses entirely on herself as labour moved towards birth. Duff (2005) described similar changes in behaviour. Using existing literature Duff (2005) developed a labour assessment tool (LAT) which provided behavioural cues as a means of assessing labour progress. The aim of

the research was to develop and test these behavioural cues as a means of exploring whether the woman's behaviour during labour could be used as a method of assessing labour progress. The study was undertaken in two Australian hospitals and included observations on the behaviour of 203 women during labour. Midwives looked for specific behaviours during labour as a means of assessing whether particular behavioural cues indicated that labour was moving towards the birth. The specific behaviours were identified by Duff (2005) from the obstetric and midwifery texts and included within the LAT. One of these behaviours was described as 'being in a world of her own' and was seen as part of the 'getting into it' and 'end is in sight' stages of labour described by midwives (p. 336). Descriptions also included physical cues such as agitation, women closing their eyes during contractions and lack of verbal communication. Duff (2005) concluded that there were a range of behaviours that could be observed by midwives which indicated that women were advancing in labour. The pattern of the behaviours ranged in intensity and overlapped so were variable depending on parity and whether the labour was induced or spontaneous. Duff (2005) argues that when midwives observe women during labour they are able to discern that the labour is moving towards the birth due to the behaviour patterns of each woman.

The 18 women in this study have described going into a zone – also likened to a world of their own – in which they needed to focus on themselves and the pain of each contraction. Their focus was internal and they described becoming unaware of what was happening around them. This state of internalisation and changing levels of consciousness can be considered a normal consequence of the pain of labour. However it is also seen as a necessary transformation of the woman into a mother and is sometimes described in spiritual terms (Leap & Anderson, 2008). Spirituality is defined as involving a search for the meaning and purpose of life and often results in a feeling of enlightenment (Hall, 2008). How individuals express spirituality can be affected by social, cultural and historical influences. The intensity of the pain of labour and the internal focus needed to get through often result in descriptions of power and awe causing strong positive feelings which are described as spiritual in nature, in that they cause a feeling of power and transformation for the woman (Hall, 2008).

The pain of labour

All but one of the 18 women involved in this research described their labour as painful with the intensity of the pain building with the intensity of the contractions. They described needing to focus on the pain as a way of dealing with the pain. A variety of pain relieving options were used with women describing the use of pethidine, water immersion, massage, support, position changes, applied heat, and one woman requested an epidural which was commenced but did not work. Whilst all women fully experienced and remembered their perceptions of the pain of labour, none described it as a traumatic ordeal or something that would stop them having another baby.

Pain during labour is often considered purposeful and a sign or signal to the woman that the labour is moving towards the birth (Flink, Mroczek, Sullivan, & Linton, 2009). The experience of pain is influenced by a range of factors which include emotional, cognitive, behavioural and physiological aspects. Leap and Anderson (2008) argue that women often have positive emotions and higher self esteem following the birth when they feel they have coped with labour pain. They continue that there are many theories about the purpose of pain during labour, some of which describe the pain in positive terms in that the pain helps women to find a place of safety and get the support they need to give birth. They argue that pain can heighten joy and altruistic behaviour towards the baby and can trigger the necessary neurohormonal cascade to support the woman to cope with the labour. Women have described childbirth as 'a difficult yet empowering experience leading to a sense of achievement and feeling of pride in their ability to cope with intense pain' (p. 31). The number and variety of studies that have identified this alteration in the woman's cognitive function and the need for internal focus provide support to the importance of this description of labour. The need to focus and disconnect with others around them appears to be a common finding when considering women's experiences of labour and birth. It suggests that this innate need to move to an internal focus is an important facet of labour; one which indicates that the labour is moving towards the birth, and one that birth attendants need to pay attention to and support.

There were other feelings described by some of the 18 women during their interviews. These feelings were not necessarily experienced by all of the

participants, so there is some variability. These emotions were described as tiredness and sleepiness, and/or feeling overwhelmed, panicky or frightened.

Other feelings during labour

Some of the 18 women in this study have described a feeling of being excessively tired and sleepy when labour was strong and the pain was intense with descriptions of being able to sleep between contractions. For others there was a feeling of being overwhelmed by the pain and sometimes panic, anxiety or fear as to whether they would be able to continue to cope with the intensity of the pain. This feeling of panic, anxiety and fear appeared to occur at a time that was close to the birth. Whilst not all of the women in this study related this type of feeling, several other research studies have also described women as being anxious, fearful, panicky and distressed during labour (Cheyne, et al., 2006; Escott, Spiby, Slade, & Fraser, 2004; Halldorsdottir & Karlsdottir, 1996). Winter and Duff (2009) found midwives also observed a change in the woman's behaviour just prior to the second stage - the woman feels she can no longer cope with the pain despite having coped with the labour well until that point. The midwives suggested that these behavioural changes were indicative of the women being 'nearly there', in other words coming close to the birth of the baby. These differences in feelings during the intensity of labour are indicative of the individual nature of the experience for each woman.

Refocusing during the pushing and prior to the birth

The majority of women in this study started to push because there was a change in the nature of the contractions and they felt an overwhelming urge to push. For the first time mothers there was often time for discussion with their midwife on whether they should push and how they should push. Therefore the second stage heralded a time of focus again for the woman – a time of reorientation and focus on the task of pushing. For women who had previously given birth the urge to push sometimes happened suddenly, from one contraction to the next, and there was less time to refocus as they worked instinctively with their body whilst giving birth.

Connecting with the baby

Once the baby was born the women described positive feelings of happiness, awe and joy although for some women there were feelings of shock and disbelief as they started to re-orientate to the present and the reality of the birth. These feelings of awe and joy have also been reported in other studies (Carter, 2009; Fenwick, et al., 2005; Halldorsdottir & Karlsdottir, 1996). This was a time when they needed to refocus and connect with themselves before they could connect with their baby. They came back to themselves from being 'in their own world'. Carter (2009) found in her qualitative sample of 18 women that the women described a sense of connectedness with the baby and a unique understanding of birth as an important female process. The actual experience of giving birth was described as difficult to explain and comprehend with women suggesting that you have to go through it to understand the indescribable nature of the experience.

Labour and birth - an ontological embodied experience

This description of birth as not just an event that is experienced but as one of higher magnitude, fulfilling and spiritual in dimension led Carter (2009) to argue that experience in this context should be considered as the origin of knowledge. She contends that women's accounts of the feelings associated with pregnancy and childbirth suggest that childbirth is an experience of great magnitude and one that exceeds all other human experience. The implication then is that giving birth is an embodied experience that results in an embodied knowledge. Indeed the 18 women I spoke with for this research described labour as a lived, embodied experience, one in which they participated but did not control. They described working with their bodies and letting go along with surprise at the power of their own body's ability to take them through the birth.

Women became engaged in focusing on each contraction and living in the moment. Time became meaningless as they lived their experience. The temporal meaning of time changed and no longer consisted of the past or future; only being in the now was important.

The nature of time

Zwart (1976) suggests that whilst the concept of time appears simple and straightforward there is in fact a philosophical problem with the concept in that the past and future do not exist and time only truly exists in the now. He argues that time can be considered an illusion which is divided into three parts and whilst we are all accustomed to measuring time in these standard parts (past, present and future) the flow of time can appear to be paradoxical. Friedman (1990) explains the uneven flow of time depending on our interactions and experiences which results in a distorted view of time passing. In this sense when we are engaged in tasks that require concentration time will often pass quickly, when we are bored time passes more slowly. Other distortions of time can occur when we know that an interval of time is to be judged; an interval of time appears longer if it is made up of more segments and shorter if we remember it in a simpler way. Time appears to pass more quickly as we get older. These distortions in time passing can lead to memories of time as passing either quickly or slowly with differences in time passing experienced at an individual level.

The women in this research study described alterations in their perception of time passing. When they were in the 'calm and peaceful' part of labour time passed normally – they were aware of time passing and indeed often waiting for time to pass. They described keeping busy and occupied - they found tasks to engage in that required their concentration as a means of helping time to pass more quickly. However, once they were in the part of labour described as 'the zone' they described time as elastic with minutes seeming like hours and hours seeming like minutes. They needed to fully focus on the contractions and described a sense of disengagement with the outside world (one in which time is a linear process) and became fully engaged in their bodily experience. Women described losing their sense of time passing as they were engaged at an individual and embodied level. These fluctuations in temporal experiences echo that of seven mothers involved in a small qualitative research project aimed at exploring the woman's temporal experiences during labour (Beck, 1994). In that study the women described their inability to process time passing and the fluctuating and paradoxical nature of their understanding of time during labour. As the labour moved towards the birth the women described a change in their

temporal experiences with their ability to think clearly inhibited and the awareness and passing of time ceased to be important to them.

Wilcox (2009) argues that lived experience is always an embodied knowledge and is dependent on how we interact with the world. Intellectual traditions in the Western world have historically valued the production of knowledge through objectivity in which the mind is privileged over that of bodily knowledge. The devaluing of subjective knowing has failed to recognise that the individual has the ability to know a subject through their own experiential knowledge (Wilcox, 2009). Therefore, for women to build an understanding and knowledge of childbirth we have to articulate the subjective experience and value this form of knowledge construction. One of the aims of this research project was to explore the woman's experiences and perspective of labour and as such this thesis has articulated the subjective experiential knowledge that 18 women have developed through their experiences of labour. The synthesis of the findings with other research studies exploring the experience of labour and birth has identified similar emotions felt by other women (in different countries and in different circumstances) during labour. This supports an understanding of labour as an emotional journey, one in which women fully participate emotionally, socially and spiritually as well as physically.

The importance of support

Women in this research have described their need for support from their partner, their midwife and others chosen to be present at the birth. The women had care from a midwife and developed a relationship of trust and shared beliefs systems enhanced through continuity of maternity care. The theme of support during labour has been discussed in several research studies looking at women's experiences of labour and birth (Gibbins & Thomson, 2001; Halldorsdottir & Karlsdottir, 1996; Lavender, et al., 1999). Support as a means of increasing feelings of safety has had less emphasis. It was however discussed by Halldorsdottir and Karlsdottir (1996) in their qualitative study of 14 women in Iceland. They found a strong need for security which could be fulfilled by a caring midwife and partner. Women described the need for care and understanding during labour and that kindness, connection, companionship, and assistance were supportive. All these factors were enhanced by a good

relationship with the midwife and helped the women gain control. Lavender, Walkinshaw and Walton (1999) also report that support was considered 'crucial' for the 412 women who responded to their questionnaire, which was administered as part of a large randomised trial aimed at assessing the timing of intervention during prolonged labour. They found that women considered support from the midwife and a partner or friend was necessary for a fulfilling experience. The women reported that the midwife was seen to be a 'comfort' and 'a real friend' whilst the partner and other family members were described as providing support either physically and/or emotionally – often by just being in the room (Lavender, et al., 1999, p. 42). Gibbens and Thomson (2001) described a need to feel 'in control' during labour and that this was achieved by support from their partner along with positive midwifery attitudes. In this small qualitative study exploring eight pregnant women's expectations and experiences of childbirth, they found that each woman felt that her partner was her main source of support. They identified support as encouragement and reassurance which was received from both the midwife and their partner.

This research has therefore echoed the findings from other research studies exploring women's experiences of labour and birth, in finding that support is of vital importance to women during labour. It would appear that support is perceived firstly in a physical sense and determined as ways of providing comfort to the woman's physical needs such as massage, position changes, hand holding, brow mopping etc. Secondly it can be seen as tending to the emotional needs of the woman in the sense of providing guidance, reassurance and positive feedback. The provision of these two types of support appears to provide an environment in which the woman feels safe when she is in labour. The foundation of the provision of support was a trusting relationship – women described their trust in their partners, other family members or friends if present, and their midwife.

Significantly, descriptions of control were not discovered to be important to the women in this research. Halldorsdottir and Karlsdottir (1996) described control in their research as 'having some sense of control regarding her care' (p. 49) whilst Lavender, et al. (1999) identified two types of control – self-control and external control. Self-control was seen as retaining a sense of personal dignity during labour, whilst external control was considered the ability to be in control

of the situation. These research projects described situations in which there was a fragmented style of maternity care and intrapartum care was provided by health practitioners not known to the woman (Gibbins & Thomson, 2001; Halldorsdottir & Karlsdottir, 1996; Lavender, et al., 1999). It would appear therefore that a sense of control over the situation is an important facet of care in situations where the health professional providing labour care is not known to the woman.

The 18 women interviewed in this research have described how their relationship with their midwife was based on trust. They did not describe needing to be in control of the situation. The continuity of care from a midwife appears to have enabled the women to build a relationship and feel confident that discussion about their needs and expectations that occurred during pregnancy would be honoured during labour. Hence they have not identified the need for control during labour and birth as important to them.

Co- constructing an understanding of labour and birth

The coherence of these findings with other similar research findings (albeit with different research agendas) supports the need for a conceptual shift – one in which we start to understand that emotions can provide cues to not just how women are coping with their labour but also how their labour is moving towards the birth. I discussed this concept further with the women when providing feedback to them. An important aspect of this research has been the need to privilege the woman's voice during the research process. Feminist standpoint methodology was used because it is a way of doing research that keeps the woman at the centre and builds knowledge based on the woman's experiences. Standpoint methodology is designed to provide an account of the woman's reality, context and culture. To be authentic it needs to reflect the woman's experiences and be credible for each woman within the research (Brooks, 2007).

Feedback to the women who participated in this research was an important component and a means of co-constructing knowledge about labour and birth. On the whole the feedback from participants reassured me that the descriptions of emotions were valid and did describe how they felt at particular times during their labour. Initially I had been concerned that the emphasis on feelings may

have been due to the trigger questions which were designed to elicit feelings as a way of encouraging women in their detailed memories. However, the similarity of the descriptions of emotions was a surprise and indicative of the importance of these emotions during labour and birth.

During the focus group discussion it became apparent that any new or differing descriptions of labour should also include contemporary scientific understandings to support and provide foundation to the women's knowledge. I had previously reviewed the contemporary understanding of the physiology of labour and birth (Chapter Three) and found little support for the stages or phases of labour as currently described. However, this was prior to discovering the emphasis that women have placed on their feelings during labour.

I therefore set about exploring contemporary understandings of feelings and emotions and their potential influence during labour and birth. These are explained in the next chapter and outline the major advances in thinking and theorising within the fields of neuroscience, neuropsychology, and behavioural neuroscience. This has led me to hypothesise that the feelings the women have described are an important part of the normal physiology of labour and birth. I have integrated the feelings described by the women in this research with the most recent research and theorising about brain activity, emotions and behaviour. The details of which will be described in detail in the next chapter.

Summary

This chapter has summarised the findings from this research project and synthesised them with what is known from related research fields. It has found that the emotions women have described in this research have also been found in other studies exploring women's experiences of labour.

Whilst there are similarities there are also some differences which may be due to the different focus of this research, or may be attributable to the model of maternity care provided in New Zealand. The women have described their emotions as happening in a sequential way and have described a need to focus on the contraction as the intensity of the labour increases. Women did not talk about 'progress' during labour and birth, instead they described an inward focus and a reduced awareness of what was happening around them. The temporal

meaning of time appears to change with minutes becoming hours, and hours seeming like minutes. The women have described 'being' in the moment, suggestive of an embedded ontological experience. The women have described the importance of support during labour which was gained from partners, family, friends and the midwife. The relationship that developed due to the ability to have continuity of midwifery care has supported the building of supportive, relationships which have supported the woman to feel safe during her labour and birth.

Chapter Nine

Towards a different conceptual understanding –a paradigm change

Introduction

In the previous chapters I have presented, analysed and synthesised the women's voices. The emotions of labour as described by the women in this study are an important finding. However, during the feedback process the women involved asked for a scientific foundation for these findings. This chapter therefore outlines the latest understanding and theorising about emotion, cognition, physiology and behaviour. Major advances and revolutionary changes in theory have occurred within the sciences, resulting in the prioritisation of emotions as a prime director of behaviour, influencing cognition, memory, reasoning and physiology. The neural structures of women's brains may differ to those of men's with changes occurring due to pregnancy and motherhood. When these advances in scientific understanding are integrated with the findings from this study we find it is the labour hormones that are connected to the emotions women feel and the behaviour they exhibit during labour. In this final chapter I discuss the insights that have emerged from this research and consider how these findings contribute to the midwifery body of knowledge. The strengths and limitations of the research are identified and discussed along with implications for midwifery practice and areas for further research. This thesis argues for and provides the foundations of a new theoretical and conceptual framework – a different way of understanding labour and birth - one which integrates the mind, body and behaviour. Hormonal changes are necessary for optimal maternal and neonatal health. They commence in pregnancy and culminate during labour and birth. They can most dramatically occur during an uninhibited and undisturbed parturition. Thus this final chapter argues that it is time to discard the paradigm of labour as stages and phases and develop a different conceptual understanding, one which integrates the new contemporary scientific theories of the mind and behaviour with the woman's emotions.

In returning to science I may be challenged to defend this process as somehow undermining or colonising the women's standpoint as revealed in this study. However, I believe standpoint theory encourages the possibility of joining the women's worldview with other understandings as I discuss in the opening to this chapter.

Theoretical justification for a return to science

The philosophy and methodology used within this research is based on providing the woman's standpoint and privileging the women's voices and position. Jagger (2004) contends that the woman's standpoint is not just a reflection of the woman's worldview but is also achieved through a process of political and scientific theorising. The experiences of women can generate insights into the woman's realities but the task for the researcher/theorist is to develop a systematic account of the woman's standpoint.

Science has been described as 'andocentric' and "*alienated abstract knowledge*" (Rose, 2004. p76) because it has had little input from women and women's experiences. Feminist critique has also focused on the claims of science as objective knowledge with the argument that the social interests and values of the researcher cannot be eliminated from the results of the research (Harding, 2004c). Therefore, when science is undertaken by men, male views and values are inherent within the research. Feminist standpoint theory acknowledges that research is socially situated but it also "seeks to transform it into a systematically available scientific resource" (Harding, 2004c. p. 129). It therefore seeks to bring together both the objective abstract ways of knowing about the world with the subjective shared experiences of the world as seen from the woman's perspective. The fusion of the subjective and objective knowledge results in new knowledge and theoretical development. In this the researcher is developing knowledge claims that reflect the interests of women.

The new science of the mind

The completion of the Human Genome Project in 2003 has led to the examination of the functioning and interactions of all the genes in the genome and subsequently has accelerated advances in understanding for many related fields. Science is slowly elucidating a better understanding of how genes regulate cell function and biochemical and immunological processes.

It is now known that genes respond to both environmental and hereditary factors therefore both genetic traits and environmental influences are the cause of our individuality (Blackburn, 2007; Ridley, 2003). Neuroscience is a developing field which is seeking to understand how the brain functions whilst cognitive neuroscience seeks to understand the complex and difficult concepts of thinking which have previously been the province of philosophers and which include language, memory, consciousness and behaviour (Platek, Keenan, & Shackelford, 2007). With the introduction of new tools such as positron-emission tomography (PET) and functional magnetic resonance imaging (fMRI) scans (which allow researchers to see inside the human brain in real time), neuroscience is transforming our understanding of brain activity (Brizendine, 2006). These advances in brain imaging alongside the ability to measure neurochemical changes have improved the ability to investigate the role of the neural structures in the brain and their link to behaviour.

It has been known for some time that hormones influence the functions of organs within the human body but scientific advances during the 1970s and 80s led to an understanding that neurohormones are also intricately intertwined with emotions (Pert, 1997). These emotions have subsequently been found to influence behaviour because they have an effect on how the body adapts physiologically, with the suggestion that all human behaviour is biological in origin (Cacioppo & Berntson, 2006). Whilst there is an increasing comprehension of the molecular constructs that make up our emotional responses these concepts cannot and do not explain or provide a full understanding of the complexity of human behaviour. The brain works in complex ways with multiple intertwined connections, influences and relationships. Thagard (2006) in his review of brain activity, mechanisms and their application to emotional cognition simplified the working of the brain into four components. He identified these as:

- *Molecular influences*
- *The structure and function of the brain/body*
- *Cognitive functions*
- *Social influences*

Each different element has an influence on brain development, activity and behaviour as represented in Figure 2.

Figure 2: The interactions of brain functioning (adapted from Thagard, 2006)

I have therefore used these four components as a way of exploring how each is interconnected and influential in how we think, feel and behave. Each is discussed in more detail in the following section which introduces the latest theories of brain activity and functioning. What do these advances in scientific understanding mean when considered in the context of pregnancy, labour and birth? We now know that hormones and especially neurohormones influence and enhance the ability of the woman's body to adapt to necessary physiological changes. Pregnancy, labour and birth are times of extreme physiological change and major adaptation. These changes which occur throughout the body are necessary for the growth and development of the baby and support the woman's body to adapt to the growing pregnancy.

Molecular influences - the basis of emotions

Until the 1970s scientific and medical philosophy was based on the Cartesian reductionist model of thought in which the body, the mind and the brain were studied and considered separately and within different scientific spheres and specialities (Kandel, 2006). Over the last few decades there has been a seismic shift in understanding in which this model of thinking has been superseded by advances in understanding of biological molecular interactions and their

influence on both the brain and bodily functions (Kandel, 2006; Pert, 1997). This has resulted in a more holistic approach and an integration of many different scientific fields. The discovery of peptides, which link our physiology and our emotions, has resulted in rapid advances and changes in understanding, founded on the construct that these peptides (hormones) form the molecular basis of all emotion (Pert, 1997). Hormones are chemical substances (messengers), secreted by individual or groups of cells into the blood or body fluid and intended to exert a physiological effect on other cells in the body (Blackburn, 2007). They facilitate the maintenance of an optimal internal environment and initiate corrective and adaptive responses to emergencies (Blackburn, 2007).

Neurohormones are hormones which are synthesised and released from neurones; as such they are secreted within the brain to work primarily on the neurones in the brain with a secondary function on different sites within the body via the blood stream (Douglas & Ludwig, 2008). Pert (1997) considers that these information substances are biochemical molecules of emotion: thoughts and emotions are diffused throughout the body and the mind so that it is the thoughts and emotions that cause physiological changes in the body via hormones. The alternative is also true, that physiological changes affecting the body's functions can also cause emotions. There is a vital link between the mind and the body and 'emotions and bodily sensations are intricately intertwined in a bi-directional network' (Pert, 1997, p. 142). Generally this process is unconscious but can be undertaken consciously in some circumstances. Information reaches our consciousness through a filtering process and our body/mind retrieves or represses emotions and behaviour (Pert, 1997). Cells have a molecular basis of memory with biochemical changes facilitated or inhibited following the first or most frequent receptor changing behaviour (Pert, 1997). The way the body reacts to hormones is both physiological and neurological, with emotions related to homeostatic regulation. That is, stimuli in the environment excite a specific pattern of body reaction in which the body prepares to respond or adapt to those stimuli (Damasio, 1994, 2005; Heberlein & Adolphs, 2007; Pert, 1997).

Influences during childbirth

Pregnancy, labour and birth are orchestrated by hormones that work on the woman's body helping it to accept and adapt to the developing baby (Blackburn, 2007; Challis, et al., 2000). The hormones that facilitate labour and birth also support the woman and baby to adapt to the stress and challenges that occur at this time.

Schmid and Downe (2010) suggest that all physiological systems work in a rhythm of polarity in that the sympathetic and parasympathetic systems are working to maintain balance and equilibrium, which they suggest is a dynamic, constantly changing condition. During labour there is a necessity for this balance to be maintained despite the high level of stress that the body is experiencing. The full physiology of labour and birth is not yet fully understood but evidence to date suggests that oxytocin and corticotrophin releasing hormone (CRH) are necessary for labour initiation and progression along with beta-endorphin (Challis, Matthews, Gibb, & Lye, 2000). These neurohormones are mediated by other hormones such as oestrogen and progesterone and influence the production of prostaglandin which has a direct effect on the myometrium to stimulate contractions. These hormones also have an important role in the woman's emotional, physical and social responses to labour, birth and motherhood.

The role of Oxytocin

Oxytocin is a nonapeptide hormone which is expressed in discrete neuronal sites within the hypothalamus and from the posterior pituitary gland (Leng, Meddle, & Douglas, 2008). In the body, oxytocin has an affinity to oxytocin receptors which are expressed in the uterus during labour, the myoepithelium for lactation (milk let down), and also within the central nervous system on the neurons themselves (Leng, et al., 2008). Oxytocin receptors within the myometrium increase in the last few weeks of pregnancy in preparation for labour (Blackburn, 2007). The oxytocin neurons themselves become less sensitive to stressful stimuli in late pregnancy, and it is theorised that this hypo-responsiveness may allow the pituitary to build stores of oxytocin in readiness for parturition and breastfeeding (Leng, et al., 2008). Oxytocin is the prime initiator of rhythmic uterine contractions during labour (Blackburn, 2007; Buckley, 2005; Challis, et al., 2000) and is released from the maternal

hypothalamus in pulses resulting in synchronous uterine contractions (Fuchs, et al., 1991). The oxytocin neurons fire in bursts during labour and birth and breastfeeding, but at all other times oxytocin is discharged in a sustained release (Leng, et al., 2008). It is unclear why it is released in short pulses at this time although it is thought that these pulses increase in frequency, amplitude and duration during labour and are necessary for the maintenance of spontaneous labour (Fuchs, et al., 1991). As the baby's head descends and the cervix and associated soft tissues begin to stretch receptors within these tissues create a feedback loop to increase oxytocin production - resulting in strong expulsive contractions also known as the Ferguson reflex (Blanks & Thornton, 2003; Buckley, 2010). Oxytocin increases levels of beta-endorphin and also appears to have a strong analgesic effect itself (Gimble & Fahrenholz, 2001).

The role of Corticotrophin releasing hormone (CRH)

CRH has a fundamental role in events that require a flight or fight response and therefore has an important role in survival and adaptation. This response is controlled through the hypothalamo-anterior pituitary-adrenal cortex axis (HPA) with the hypothalamus releasing CRH to the anterior pituitary to orchestrate an integrated stress response (Brunton, Russell, & Douglas, 2008; Grammatopoulos, 2008). CRH stimulates the release of adrenocorticotrophic hormone (ACTH) which in turn stimulates the secretion of glucocorticoids and causes the release of cortisol from the adrenal glands (Greenstein & Greenstein, 2000; Kudeika, Hellhammer, & Kirschbaum, 2007). The HPA works alongside the sympathetic-adrenal-medullary (SAM) axis which regulates the release of adrenaline and noradrenaline.

During pregnancy the role of maternal secreted CRH is unclear but it is hypothesised that it integrates the homeostatic mechanisms that enable the mother and baby to adapt to an increasingly stressful environment (Grammatopoulos, 2008). During labour increasing levels of CRH stimulate an increase in myometrial prostaglandin receptors, prostaglandin release, oxytocin release, fetal cortisol and beta-endorphin release (Blackburn, 2007; Petraglia, Florio, & Vale, 2005). The maternal plasma CRH levels of seven women during labour who gave birth vaginally were compared with those of 10 women who had elective caesarean sections (Petraglia, et al., 1990). The results indicated

that for the women who had a caesarean section the maternal plasma levels did not differ significantly from those found prior to the birth. However, for those women who had a vaginal birth the maternal plasma CRH increased progressively during labour reaching a peak at 8 and 9 cm of cervical dilatation and at the birth, followed by a significant reduction in the two hours postpartum. The release of CRH during labour also appears to trigger the release of beta-endorphin – an opiate like compound that is produced by the body in response to pain (Buckley, 2010).

The role of Beta-endorphin

Beta-endorphin is an opioid peptide which mediates the effects of stress (Laatikainen, 1991) and works alongside CRH. β -endorphin is released into the blood stream from the hypothalamus in response to the release of CRH; it is released at the same time and in similar levels to CRH and is thought to support and co-ordinate the body's response to stress. High levels of β -endorphin have a strong analgesic effect and can also have an euphoric effect, with very high levels associated with altered states of consciousness (Buckley, 2010). Maternal plasma concentrations of CRH and β -endorphin have demonstrated a correlated rise during labour with rising β -endorphin in response to pain perception (Mauri, et al., 1990; McLean, Thompson, Zhang, Brinsmead, & Smith, 1994; Pancheri, et al., 1985). The levels of β -endorphin and CRH during labour have been found to reach values similar to those found in athletes during maximal exercise (Laatikainen, 1991).

These then, are the molecular structures that are flooding the body during labour and birth. They will have a direct action on the cells and tissues but simultaneously will influence the woman's emotions and behaviour during labour and following the birth.

The structure and function of the brain/body

The brain and body are linked and integrated by both biochemical and neural circuits. Motor and sensory information is primarily carried from the nerve endings in the body to the brain and back to the body again. The secondary route is via biochemical signals in the blood stream in the form of peptides which act

on both the body and the brain (Pert, 1997). These systems are integrated and work together to generate spontaneous response or reactions, also known as behaviour (Damasio, 1994; Heberlein & Adolphs, 2007; Pert, 1997).

The male and female brain appear the same in structure and whilst male brains are slightly larger than female brains both have the same number of neurones (Brizendine, 2006). It has been suggested that there are structural differences between male and female limbic systems and that women have more neurones in the areas of language and hearing and a larger hippocampus to help with expression of emotions resulting in greater communication skills, along with increased emotional sensitivity and responsiveness in women when compared to men. The argument continues that these differences in structural development between male and female brains may result in different ways of resolving stress and conflict, and different ways of communicating (Brizendine, 2006).

It is however, widely accepted that the structure of the brain is continually developing as a result of the physical, social and cultural environment along with behaviour and cognitive development (Fine, 2010; Swaab & Garcia-Falgueras, 2009). Therefore, differences between male and female neural structures may be the result of environmental, social and cultural behaviours rather than gender or essential biological differences. Our daily realities, our experiences and our behaviours create connections and changes within our neural activity and structures. Whilst genes provide the basic biological structure, it is a combination of both genetics and environment which affect neural structure and development resulting in neuroplasticity - a continually changing and evolving brain structure.

Changes to neural structures during childbirth

Human brain structures are developing and changing throughout life, starting during the intrauterine period (Swaab & Garcia-Falgueras, 2009) and continuing until post menopause (Brizendine, 2006). For women these changes are directly influenced by the hormones oestrogen, progesterone, testosterone, oxytocin and prolactin, all of which can have a strong influence on behaviour. During menstruation there are structural changes within the hippocampus which alter and influence behaviour, memory and verbal ability dependent on menstrual status (Protopopescu, et al., 2008).

These structural changes occur in response to the menstrual hormonal cycle and are suggestive of a high degree of plasticity for the human brain over short and long term intervals.

During pregnancy there are substantial changes in maternal physiology which are regulated by pregnancy hormones. Nevo, Soustiel and Thaler (2010) have found a gradual increase in the cerebral blood flow as pregnancy progresses which they suggest may be due to the impact of oestrogens and progesterone. During the post partum period Kim et. al., (2010) found structural changes and increased grey matter volume in the prefrontal cortex, parietal lobes and midbrain areas. In their research they used MRI scanning to compare the brain structure and activity of 19 postpartum women (with healthy babies) at two points in time – between two and four weeks postpartum and three and four months postpartum. They found structural changes and increased grey matter within certain regions of the brain. The structural changes are in regions which are implicated in maternal motivation and maternal behaviours.

The increase in grey matter and changing neural structures provides more evidence of the high degree of plasticity in these neural structures suggestive of an innate responsiveness to different situations, social and behavioural requirements.

Cognitive functioning- thinking, reasoning and memory

The ability to reason and think have developed through the ability of the brain to generate an internal response in the mode of images (Damasio, 1994; Pert, 1997). As organisms have required a need for more complex behaviour there has been a greater need for memory and the ability to display images internally and order those images. The brain is able to recall a given object, face or scene which may not be an exact reproduction but is a representation of it; these images are momentary reconstructions of patterns that were once experienced. The image recall is a reconstruction of a transient pattern and can be triggered by the sensory cortices, and can also trigger other dispositional representations (images) in other parts of the brain (Damasio, 1994; Pert, 1997). The development of this system relies on the need of the organism to record experiences and the responses made to them in order to adapt to each experience

when there is a need for evaluation and a set of preferences to ensure survival (Dunbar, 2007; Frith, 1996). The mind first assigns a meaning based context, then defines an inner representation of that meaning, labels the representation, and lastly is aware of that internal representation (Frith, 1996). Dunbar (2007) has found (from neuro-imaging) that the processing of representative inputs occurs in different areas of the brain dependent initially on where the representation occurred (whether visual, auditory or olfactory) but is then followed by the involvement of other parts of the brain. These are via pattern recognition (in the sensory regions) and the recognition of the relationship between the patterns (parietal lobes) and an understanding of the meaning of the relationships (in the frontal lobes) (Dunbar, 2007). Neural circuits can be modified by experience and supported by modulator neurons. Located in the brain stem and basal forebrain the modulator neurons transmit neurotransmitters (dopamine, norepinephrine, serotonin and acetylcholine) to regions in the cerebral cortex to signal the positive or negative reactions for each situation (Damasio, 2005). Life regulation involves choices and preferences which are built to achieve maintenance of health and the prevention of circumstances which may lead to death. This is done by the attainment of certain states that will enhance optimal survival and the rejection of states that would lead to disease and death. This hypothesis argues that decision making is dependent on a selective focus on options and outcomes based on previous experience along with environmental factors (Beer, 2007).

Changes to cognitive function during childbirth

Animal studies indicate that cognitive function during pregnancy changes with the cortex becoming larger during pregnancy, although MRI scans on pregnant women have suggested that the neo cortex reduces in size during this time (Brizendine, 2006). There is little research into the cognitive functioning of the female brain during labour and birth. Schmid and Downe (2010) suggest that the high concentration of labour hormones during labour depress the neocortex enabling the limbic and parasympathetic system to become dominant. This supports the woman's body to adapt optimally to the physiological changes and enables her to work with her bodily responses in an unthinking and intuitive manner.

Social influences

Social neuroscience is an emerging field which attempts to examine and integrate how the nervous, endocrine and immune systems influence social processes and behaviour (Harmon-Jones & Winkielman, 2007). It is understood that the brain and body can influence social processes but the opposite is also true, that social processes can influence brain and body functions (Harmon-Jones & Winkielman, 2007). When an individual perceives a situation that is new, uncontrollable or unpredictable there is an increased stress response resulting in increased production of cortisol. Humans are fundamentally social beings and it is argued that emotions have evolved as an adaptive process to ensure protection from predators (fear of snakes etc.) but also to encourage social co-operation and collective action (Norris & Cacioppo, 2007).

Evolving theories are now outlining the apparently innate need humans have to behave in ways that are socially acceptable. How the individual navigates their social world is suggestive of a social behavioural function within the neural processing of stimuli (Beer, 2007). Social co-operation has ensured improved survival of the species and is reliant on reciprocity, cooperation, communication and collective action (Norris & Cacioppo, 2007). Norris and Cacioppo (2007) suggest that we ensure affiliation with other members of our group through engaging in behaviours that contribute to attachment and that healthy social relationships are important for emotional and physical wellbeing. Psychological stressors are individual and highly variable and it is theorised that elements of a situation that can cause an increased stress response may also be those that threaten the 'social self' (Kudielka, Hellhammer, & Kirschbaum, 2007). These are situations which can be classed as uncontrollable but also have a high level of social evaluative threat in that performance can be judged negatively by others (Kudielka, et al., 2007). Cortisol levels have been found to be elevated during tests which include an element of social judgement and in which the individual feels shame or a decrease in social self esteem (Kudielka, et al., 2007). There is therefore a cultural need and expectation that the individual will behave in ways in which others within their proximity will approve.

Research is now focused on understanding how emotion and social cognition interact and whether those interactions are necessary for social adjustment. Another aspect of socialisation which is supported by neural development and

cognition is the ability to recognise emotions in others. Evidence is developing which suggests that neural structures involved in social information processing are also involved in emotional processing (Norris & Cacioppo, 2007). With the use of fMRI neural imaging, Norris et. al. (2004) were able to discern three neural regions which showed evidence of processing social and emotional information. All three regions demonstrated a similar pattern in that when pictures that were emotional in nature and had certain social cues within them were shown to participants, they elicited more neural activation than pictures that were either emotional or social or neither (Norris, Chen, Zhu, Small, & Cacioppo, 2004). Buck (2007) suggests that emotion is both an individual phenomenon and a social phenomenon that is displayed and communicated. As such it is a fundamental requirement of social organisation in which humans are hard wired to respond to social influence and conform to social norms. These social influences generally relate social culture and values to behaviour (Buck, 2007).

As humans we can change the way we feel by changing the way we think, which is suggestive of a cognitive control of emotion (Ochsner, 2007). Interactions are regulated between control systems and emotional appraisal systems and give rise to emotional regulation. The argument here is that in some situations our emotional responses drive our behaviour, whilst in others stored knowledge, contextual information and deliberate attempts to re-evaluate the situation and re-interpret it may result in a different response or behaviour (Ochsner, 2007). Ochsner (2007) suggests that we do this by using controlled attention. Thus we control the impact the stimuli have on us by selectively attending to stimuli that generate a desired response, and then use controlled re-appraisal in which we elicit the desired emotional response depending on context and our goals, wants or needs.

Changes to behaviour during childbirth

Social behaviour forms the basis of human society in that in order to be accepted as a member of society, socially acceptable behaviour is required. Social interactions often lead to social bonds which are defined as behavioural processes in which there is a tendency to prefer and seek contact with others and to seek a partner (Carter, 2007). Hormones that are implicated with social

behaviour and social bonding are oxytocin, vasopressin, corticotrophin-releasing hormone (CRH) and corticosterone, along with oestrogen and testosterone (Carter, 2007). These hormones are implicated in sexual behaviour and support partner bonding. As we have seen previously they are also significantly implicated in the physiological process of labour and birth. The labour hormones have both a molecular and a behavioural function; this dual function enhances certain behaviours that will ensure optimal survival for the baby following birth. Humans like other mammals have an innate need to ensure survival of their offspring – as such there is a need for a change in behaviour to ensure the survival of the baby (Winberg, 2005).

Research into women's response to threat is suggestive of gender differences in that men will exhibit the fight or flight reactions whereas women are more likely to exhibit a pattern of behaviour that has been termed 'tend and befriend' (Taylor, et al., 2000) or 'calm and connection' (Uvnas-Moberg, 2003). It is argued that this difference in behaviour is due to a biological imperative for women with children to maximize the survival of the self and offspring. It involves behaviours that support affiliation and nurturing. These behaviours are designed to promote safety and reduce distress and therefore maximise survival. Befriending is described as a social behaviour in which there is a creation and maintenance of social networks – generally with other females - as a means of increasing safety and support. Tending to offspring is considered an innate behaviour and is necessary for the survival of the offspring. These differences in response are thought to be caused by oxytocin mediated by oestrogen (Taylor, et al., 2000; Uvnas-Moberg, 2003).

Oxytocin regulates a variety of intertwined behaviours and whilst much of the research advances have come from animal studies there is evidence to support similar behavioural effect for humans. In animal studies oxytocin has been found to suppress appetite, stimulate sexual arousal, receptivity and grooming behaviour and reduce anxiety, and it also appears to increase mothering behaviour (Pedersen & Boccia, 2002). In humans oxytocin has been found to improve social memory, reduce stress and anxiety (Neumann, 2008), increase generosity towards others (Zak, Stanton, & Ahmadi, 2007), and increase trust in others (an element of behaviour that is particular to humans) (Kosfeld, Heinrichs, Zak, Fischbacher, & Fehr, 2005). Uvnas-Moberg (2003) has

introduced the concept of oxytocin as being specific to a calm and connection system in the female body. She argues that oxytocin appears to influence many vital operations within the body and causes behaviours that support connection and calm. Oxytocin enhances growth, expulsion (during labour), sociability and curiosity, and reduces stress. It is released during labour and birth, breastfeeding, massage, sex, and touch. During breastfeeding both nursing mothers and their babies become calmer due to the effects of the oxytocin and maternal attachment behaviour is increased. Close body contact supports the newborn's temperature regulation and energy conservation, reduces respiration and crying and increases breastfeeding behaviour (Winberg, 2005). Oxytocin is the link and has been found to increase maternal behaviour supported by prolactin. Prolactin works on many different cell types and does not have a specific endocrine function; it has a range of distinct and what may appear to be unrelated functions. Grattan and Kokay (2008) suggest that the many and widespread functions of prolactin can be considered as a single function – that of inducing or regulating a variety of neuroendocrine adaptations to pregnancy and lactation (Grattan & Kokay, 2008). Prolactin is the only hormone that remains elevated throughout pregnancy, labour, birth and lactation (Grattan, Steyn, Kokay, Anderson, & Bunn, 2008). It is thought that these elevated prolactin levels in conjunction with oxytocin contribute to maternal behaviour (Grattan & Kokay, 2008; Grattan, et al., 2008).

The labour and birth hormones are designed to trigger a transformation in both the body and the behaviour of the mother and baby and create an environment that supports each optimally (Schmid & Downe, 2010). These physiological changes and hormonal secretions all have the capacity to change human behaviour and are implicated in the strong attachment women make to their babies (Carter, 2007).

In summary, the functioning of the human brain is complex although with advances in technology scientists are uncovering new insights into how the brain works. There is increasing understanding that the neural pathways and neural connections develop and change in response to environmental and hormonal factors. The neurotransmitters provide the molecular impetus for the body's environmental changes and can also change the neural structures – especially during particular developmental periods such as puberty and parturition. Neural

functions and hormonal production can be influenced by social influences and the embedded requirement to behave in a socially acceptable manner. All of these can influence our cognitive ability - our ability to reason, remember and think. It would appear that how we think and feel are influenced by our biological drives, how our brain has formed its connections, and an underlying need to behave in a socially acceptable manner and gain positive feedback.

Integrating the science of the mind and the women's emotions during labour and birth

The previous section has outlined the latest theories and understanding from recent research in a variety of fields. Having clarified the contemporary understanding of brain body activity, this section attempts to integrate this with the women's descriptions of their feelings during labour. I will hypothesise an interactive model which is a first step in determining a new way of understanding the complexity of human labour and birth. The next section seeks to explain labour in terms of both the physical effects and emotional affects that the women have described as part of their labour experience. I will put forward a hypothesis in which there is an assumption that the labour hormones are intertwined with the instinctual emotions that women feel and the behaviour they exhibit during spontaneous labour and birth. These emotions and feelings are representations of some of the necessary drives and biological bodily functions that occur during parturition. It is an integration of the physiology, neuroendocrines and endocrines with body, mind and behaviour – an integrated neurophysiology.

Labour announcing itself

The women in this study described the physical signs of labour announcing itself as menstrual (period style) pains which were recognised due to their presence during menstruation. The onset of this physical manifestation of labour initiated positive feelings of excitement and anticipation in all of these women. It is theorised that these positive feelings are caused by a neuro modulator such as dopamine which provides a positive feedback to the limbic system. This positive feedback supports and enhances the further production of oxytocin (Uvnas-Moberg, 2003) which works with the hormone prostaglandin to

stimulate continued rhythmic uterine contractions. At this time the hormone oxytocin is firing from the neurones in the hypothalamus in short bursts which build in frequency, length and strength. The woman's cognitive abilities are unimpaired and she continues with her normal daily activities. The women reported feeling calm and peaceful at this time and able to interact normally with the world. Oxytocin is known to reduce anxiety and may be the cause of this calm peaceful feeling – this effect may be enhanced by the earlier release of a neuro modulator such as dopamine which has been found to enhance the effectiveness of oxytocin (Uvnas-Moberg, 2003).

A different place and time - The zone

The hormones oxytocin and prostaglandin work together to ensure increasing frequency, length and strength of the contractions (Challis, et al., 2000; Fuchs, et al., 1991). Physically therefore the women are experiencing contractions which are increasing in strength and intensity. These contractions become more painful as the baby descends, the cervix dilates and the myometrium retracts. With increasing pain an increased stress response occurs. CRH is produced and levels start to rise, simultaneously, the hormone β -endorphin is produced with levels mirroring that of CRH (Mauri, et al., 1990; McLean, et al., 1994; Pancheri, et al., 1985). As each of these hormones increase there is a reduced functioning of the neocortex and the neural pathways between the limbic system and the body become dominant and fluent highways of information. This is the point at which the women start to feel that their world is 'shrinking' and that they are on a different planet, or in the 'zone'. It also accounts for the different temporal experience of time and the inability to focus on events or people around them. The cognitive part of the brain is still able to function but at this point the limbic system is dominating so the body can proceed with the full physiological adaptation that is required for birth. If the cognitive part of the brain is engaged at this point it is possible that the limbic system will lose dominance and labour will stall or slow.

Feeling sleepy ,overwhelmed and fearful

As the levels of oxytocin, CRH and endorphin rise women are experiencing strong and sustained contractions. The endorphin and oxytocin neurohormones work in balance exerting their analgesic properties and also have a powerful

antistress response (Gimble & Fahrenholz, 2001). These hormones cause reduced gastric functioning which may in turn cause vomiting during labour. The improved analgesic action can also have a sedative effect making the woman feel very tired and sleepy at this point and is indicative of a strong hormonal affect.

Alternatively, the level of pain may be increasing faster than the production of endorphin causing a temporary imbalance – this would result in high levels of stress and fear (CRH) leading to high levels of ACTH and cortisol production but without the corresponding β -endorphin increase to support coping mechanisms. Thus women would feel fearful, panicky or overwhelmed – this often occurs prior to pushing and may also be due to, or the cause of, a surge in oxytocin levels leading to the Ferguson reflex and expulsive contractions.

Time to push – refocusing

Following this surge of oxytocin the women described a sudden and overwhelming urge to push. This appeared to be more specific to women who had previously given birth and therefore had experienced this state. The urge to push is probably due to a surge of oxytocin caused by the stretching of the birth canal – the nerve pathways feedback via the neural pathways resulting in increased oxytocin production (Blanks & Thornton, 2003; Buckley, 2010). The women who had previously given birth were aware of this sensation and able to continue to work with their body to give birth.

However, the first time mothers described becoming more focused during the birth as they needed to concentrate on ‘how’ and ‘whether’ they should push. For the first time mothers the discussion of the re-focusing is suggestive of a re-engagement of the neocortex. In this situation the pushing sensation is a new experience and the woman engages her abilities to reason as a way of understanding the process. It may be a mechanism that supports the woman’s safety in that the neocortex becomes more dominant so that danger or threats can be more fully assessed at this point for women who have not previously given birth.

After the birth

Some women described feeling shocked and a little disconnected from reality immediately following the birth. They described how it took them some time to realise that the baby was born and the labour was over. Other women described feeling wide awake, alert and euphoric following the birth. These feelings are also engendered by oxytocin and β -endorphin. The differences in these feelings are intriguing and deserve more research into whether they are both indicative of a normal adaptive response. The third stage of labour did not appear to engender strong feelings in the women and was considered a usual part of the birth process. We do know that a high level of oxytocin is necessary to ensure the successful completion of the third stage of labour.

A model for women

I have provided a model of this description as a means of representing how it works in an integrated way to facilitate labour and birth (figure 3). This model seeks to integrate the women's feelings with the associated hormonal actions alongside the physical process. It has been built from the women's descriptions of their feelings integrated with the previously described literature and research studies.

Each of the feelings the women have described give an indication of an underlying hormonal influence and a directing of behaviour. This behaviour is often instinctive and emotional because of the dominance of the limbic system enabling and supporting physiology. The feelings and hormones support labour to move towards birth. They are therefore indications of normal undisturbed physiology. Every hormone described will have an impact on or be caused by the woman's feelings, they will also have an impact or be influenced by the physical changes that are occurring – this model is the beginning of understanding the interconnecting roles of feelings, hormones and behaviour.

Figure 3. Model of feelings associated with hormonal and physical changes during physiological labour

The importance of social support

It appears that pregnancy and the process of labour and birth are designed to bring about behavioural changes which culminate at the birth in maternal attachment and mothering behaviour. The hormones that are necessary for social and maternal bonds are also those responsible for the initiation and continuation of labour (Challis, et al., 2000; Taylor, et al., 2000; Uvnas-Moberg, 2003). As such the process of pregnancy, labour and birth is not just a physical process but also a transitional process in which the woman is prepared (biologically) to become a mother and exhibit maternal behaviours.

The discovery that women have a differing response to stress/threat than that of men is important in that it highlights the need for women to 'connect' and 'befriend' as part of a behavioural imperative when faced with a perceived threat or stress (Taylor, et al., 2000; Uvnas-Moberg, 2003). Labour and birth are times of high stress and indeed the spiralling levels of CRH support the argument that there is an increased stress response occurring during this time (Petraglia, et al., 1990). The behavioural effects of oxytocin during stress events for women are to connect with others – thus women have an innate need to connect with others and to gain support from other women. This explains why it is so important that women have support during birth from trusted partners, family and/or friends and the midwife. Trust and support may enhance the physiological processes of labour and birth by increasing oxytocin and β -endorphin release.

The women in this study have identified that it was important to them to have their partners and/or family and a midwife they trusted with them during labour. It seems that this may be a physiologically embedded requirement that is fundamental to enhancing the woman's response to stress. Providing women with support during labour is known to shorten a woman's labour, reduce her need for pain medication, improve the chances of having a normal birth, and result in a woman feeling more satisfied about her birth (Hodnett, et al., 2003). This study provides further evidence that women want and need support from those close to them during labour and birth. More importantly it also argues that this requirement is necessary to enhance the physiology and behavioural adaptations that are necessary during labour and birth.

Mind/body/behaviour - a paradigm change

We need to start conceptualising labour as interconnections of the mind/body/behaviour because clearly the hormones that initiate and sustain labour and birth are also designed to support affiliative and mothering behaviours. This thesis has provided the beginning of a different way of understanding labour and birth – the integration of neurophysiology through the mind, body and behaviour, which will require further discussion and consideration. The model presented is the beginning of an attempt to understand and articulate how feelings, the mind, body and behaviour are interconnected and intersecting. While the model is simple in its construction, the simplicity itself supports an improved understanding of how each component is integrated and works together. It is hoped that this model has provided sufficient scientific foundation (as requested by the focus group) and will strengthen and support an improved understanding of the impact of emotions during labour.

The findings from this research, when integrated with contemporary understanding of neural functioning, support the need for a paradigm change – a different way of understanding and conceptualising labour and birth. Walsh (2003, 2007, 2010) and Schmid and Downe (2010) argue for a change in our way of conceptualising labour with a move away from a linear understanding of stages and phases to one of cycles and rhythms. They argue that women's bodies are inherently cyclical in nature as seen with the menstrual cycle so it seems intuitive that the female body would respond to labour hormones in a rhythmic and cyclical way. This way of explaining labour – based on cycles, activity and transitions support midwifery understanding and conceptualisation. Midwives have long observed women's behaviour and considered that the behaviour provides indicators that labour is moving towards birth (Burvill, 2002; Duff, 2005). We now know that behaviour can be seen as an adaptive response and the manifestation of the drives and instincts of biological processes (Damasio, 1994). As such behaviour is driven by feelings and feelings are derived from and initiate hormones and hormones act on both the brain and the body to ensure the maintenance of an optimal internal environment and corrective adaptive responses.

Emotions and behaviour can provide women and birth attendants with signposts as to how labour is moving towards the birth. It can help women and their birth

companions to understand what is happening during labour and maximise opportunities for supporting physiology.

It is hoped that by providing a different understanding of labour there will be a change from labour measured by stages, phases and cervical measurement to one which acknowledges the importance of feelings and behaviour along with supportive care. We need to explore ways of maximising the instinctive drives that support physiology.

Contribution to knowledge generation

This research has described the feelings/emotions that women identified as important during their labour. These feelings were surprisingly consistent and have been identified in related research. All of the women interviewed had a spontaneous onset of labour and a spontaneous birth. The scientific research into emotions has identified emotion as part of our body's physiological adaptation and a behavioural drive which seeks to ensure optimal health. It therefore seems logical to argue that the emotions the women have described in this study are intrinsically linked to their physiological adaptation to labour and birth. As such they influence the woman's physiological functioning during the process and support her to adapt to the physiological changes that are occurring. They also support a change in behaviour – and a change in thinking and neural structures – so that the baby's needs become prioritised. There is an adaptation of behaviour from that of self and partner towards maternal attachment and nurturing behaviour towards the newborn baby.

This thesis has put forward a model of how feelings may be associated with hormonal and physical changes during labour. It is the beginning of a different conceptual understanding of labour – one which seeks to describe the importance of emotions and how they are connected and integrated with neurohormones in relation to normal physiology. Contemporary theories within the sciences have found emotions and behaviour are part of normal physiological adaptation. When applied to labour we can see that the feelings women describe may provide signs of a normal physiological adaptation to labour and birth.

Conceptualising an understanding of labour and birth in which emotions are seen as intricately linked to optimal physiological adaptations provides an important contribution to knowledge generation. It leads to questioning how this adaptation can be maintained and supported for all women, and what the effects of interruptions in this adaptation might be. Buckley (2005), Foureur (2008), and Odent (2001), amongst others, have described the concept of an ‘undisturbed’ birth in which women are supported to birth in ways which enable the complex hormonal orchestration to unfold without disruption. Buckley (2005) argues that it is important that the primary labour hormones are allowed to build in an undisturbed way during labour to support women to behave instinctively. Foureur (2008) suggests we should change the hospital birthing environment to enhance the ability for women to labour in an undisturbed way. Health professionals need to change practices and support women to labour in ways that ensure the birth hormones can build without interruption or distractions from outside stimuli.

Conceptualising the feelings/emotions of labour as integral to the woman’s physiological adaptation to labour and birth provides support to these arguments. It extends our knowledge base further and argues that these feelings are an important part of labour and birth which should be understood and supported. The feelings and behaviour can provide signs to observers of the woman’s physiological changes as labour moves towards birth.

The importance of social support during labour

Women’s feelings during birth are important and indicative of the hormones that are supporting an enhanced physiological adaptation. It is the hormones and feelings that guide instinctive behaviour and the transition to maternal affiliative behaviour. The maternal stress response – mediated by CRH and oxytocin - drives a biological requirement for women to have support from people they trust during labour. Women need this support to reduce stress and enable their body to continue in its physiological pattern. Support should therefore be seen as a vital requirement for normal labour. This support should come from people the woman trusts – in this research it was a trusted midwife as well as partners and family/friends.

Labour support is necessary and beneficial, is based on an embedded physiological requirement for women, and aids them to labour and give birth without intervention. Hormone levels can be enhanced or inhibited by a variety of environmental, social and emotional influences. This knowledge may help women, birth companions and health professionals to better understand labour and birth. It supports the argument for the need to provide a supportive environment for labour and birth in which women can labour undisturbed but supported (Buckley, 2005; Foureur, 2008).

Limitations of the research

This thesis has provided a significant contribution to knowledge generation. It has discovered the importance of emotions during labour for the 18 women interviewed, and provided a model in which it is theorised that emotions and hormones are integrated with the physical aspects of labour and birth and guide instinctive behaviour and the transition to maternal affiliative behaviour. However, as with all research projects there are limitations which are required to be taken into account when considering knowledge claims.

This research was an exploration of 18 women's perspectives on labour and birth; as such it presents the labour experiences from these women's standpoint and cannot be generalised to the larger population of birthing women. It has used a qualitative research methodology to explore the subject with 18 women who were purposively selected because of their experiential knowledge and who have provided an account of their perspectives. The women were invited to participate if they had experienced a normal labour and birth and were included because they were considered to have 'expert' knowledge. This may have caused some bias with women becoming involved because they had an 'interested' position and they may have been focused on their own agenda and philosophy during discussions. A different group of women may have provided different responses.

It is important therefore to emphasise that this research has only explored the issues that were relevant and important for the 18 women interviewed as part of this research.

Standpoint methodology is criticised because it does not account for differences that can occur between women which may be due to ethnicity, culture, race or class (Hirschmann, 2004). This research provides the 'voices' of a small number of women who have experienced spontaneous labour and birth. As such there may be a vast array of differing perspectives, knowledge and feelings that have not been uncovered. Due to the small number of women interviewed it has not been possible to explore differences that may occur due to ethnicity, culture, race or class but which may nevertheless influence each woman's feelings and experiences during labour.

A further limitation of this research is my own position within the knowledge construction. As a researcher, midwife and woman I have a subjective and therefore 'interested' position within the research. Whilst this can bring different insights and strengths to the research, it will also have influenced what I heard and what I considered to be important concepts. My own philosophy and positioning may therefore have influenced the results and findings. A way of overcoming my own privileged position was to provide feedback to the participants. This provided some reassurance that I was representing the women's voices and perspectives. Improved attendance at the focus group may have provided different insights but this was inhibited by the length of time taken between interviews, analysis and focus group interview.

Lastly, the model of maternity care the women received may also have influenced the results of this research. All the women interviewed gave birth in a small region of New Zealand, and experienced continuity of care from a midwife throughout their childbirth episode. Thus they have had care from a health professional they have been able to build a relationship with in which they described feelings of trust. This model of care will undoubtedly have caused different discussions than those of women who do not routinely receive continuity of care. Different models of care may highlight different emotional responses. It is possible that the women in this research project discussed their emotions because this may have been central to their discussion with their midwife during the pregnancy. There is no way of knowing how much influence the model of maternity care has had on the outcomes of this research.

In summary this research cannot be generalised to all women and differences due to race or culture have not been explored. There may be a variety of issues that were not discussed or uncovered within the research. It is hoped that the findings reported here will resonate with other women who have experienced labour and birth and support women to have an improved understanding of how their bodies work to support their adaptation within the transitions that occur from the end of pregnancy to the birth of a baby. Further research is necessary to test the hypothesis that the feelings these 18 women have discussed are felt by other women during labour.

Recommendations for future research

The strength of the research has been the consistency of descriptions which involved feelings from the women involved in the research. The findings of emotion within related research studies in other countries from different time spans and based on women's experiential knowledge have further strengthened the argument that emotions are an important facet of labour. However, further work is necessary to discover if the emphasis on emotions during labour is a universal finding. The hypothesis that women who have experienced spontaneous labour and birth will also experience a similar pattern of feelings has been identified in this research project. A research project using a quantitative research design is now necessary to test this hypothesis. Testing this hypothesis would further build knowledge and provide evidence that may be representative and could then be generalised to others. Consideration also needs to be given as to which emotions are most commonly discussed and what other emotions are felt during labour and birth. Are there emotions that have not been identified but may be important? Which emotions are part of normal physiology and which may indicate pathology? Further work is required to explore what can enhance physiology and what inhibits this physiology, which may also lead to insights into pathology and how pathology can be identified.

As midwives we work within frameworks which require surveillance to prevent pathology, yet we may find that the surveillance itself causes pathology. We need to continue to improve our understanding of how brain/body/behaviour intersect and connect during labour and birth and gain a better understanding of how this can improve physiology. Midwives need to embrace the changes that

are occurring in the scientific fields of neuroscience, neuropsychology, cognitive neuroscience and behavioural neuroscience. We need to become more aware of and involved in integrating the results so we can improve our theorising and hypothesis formation to support normal physiological parturition. We also need to direct the sciences to gain more accurate measurements of the hormones during labour in order to develop further knowledge and understanding of how each is intricately linked to behaviour and physiology.

Human behaviour is complex and influenced by environmental, social, physical, cultural and spiritual understandings. More research is needed to explore the importance of neurohormones and feelings/emotions during labour and their effect on the woman's physiological adaptation in labour. The descriptions provided in this research have provided a starting point on which to build a better understanding of the importance of feelings during labour.

Implications for midwifery practice

At the start of this research project I set out to explore the woman's perspective of labour and birth. I wanted to know if the dominant discourse of labour as stages and phases supported women to understand their labour. I have found that the stages were considered to be an abstract theory that had little relationship to the women's experience of labour and birth and that the temporal meaning of time changes for women during labour. I have argued that the explanations of labour as three stages and three phases bounded by cervical dilatation and time parameters need to be discarded as part of an old paradigm.

I also set out to develop an understanding of labour that privileges the woman's voice and supports a better understanding for her of what is happening to her body. I have found that the women talked about their 'feelings' during labour and there was a pattern to these feelings - all of the women talked about similar feelings. This has resulted in the hypothesis that women who have experienced spontaneous labour and birth will also experience a similar pattern of feelings, and that these feelings are related to labour hormones.

Integrating the sciences and women's experiences improves our ability to theorise and comprehend the complexity of the physiological, emotional and

physical changes that occur during labour and birth. Discussion and dissemination of the mind/body/behaviour concept will support health professionals and women to improve their understanding of labour physiology. I therefore argue for a different conceptual understanding of labour and birth and support other authors also calling for a paradigm change (Buckley, 2010; Foureur, 2008; Schmid & Downe, 2010; Walsh, 2010). The new paradigm has different ways of explaining labour which include cyclical rhythms. In future it should include an understanding of the importance of the labour hormones to both feelings and normal functioning physiology. The new paradigm can be used by midwives to develop ways of supporting the concept of ‘undisturbed birth’ as a means of ensuring and enhancing labour physiology. This changing paradigm should be embraced by midwives as fundamental to the science of physiology as well as drawing attention to the emotional, psychological, cultural and spiritual influences of normal labour and birth.

Women appear to need signposts as reassurance that their body is working physiologically. The women in this study have described their feelings during labour along with the differing temporal knowledge of time, both of which appear to be indicative of labour moving towards birth. These descriptions have provided some signposts that may help women and their caregivers to interpret the women’s feelings and behaviour during labour as signs that the labour is moving towards birth. One of these signposts is the need to concentrate on each contraction and the ‘feeling’ of being on another planet, or in a ‘zone’. This description suggests that the neocortex is ‘switched off’ and the limbic system is dominating – this knowledge is important for caregivers (obstetricians, midwives and support persons) and supports the need to reduce disruption of this physiological process. We need to use the differing behaviour and emotions as guides and signposts that support reassurance of a normal labour.

The gender differences in hormonal response to stress has generated an understanding that women respond to stress with a need to ‘connect’ with others. Connecting in this way appears to be an embedded behavioural requirement which during labour results in a need for women to have supportive companions and a trusted caregiver. This need for women to ‘connect’ with others during labour can be used by midwives to ensure that each woman has access to support during labour. Labour support should be considered a

fundamental human right for all women. This concept can also be used to support arguments for continuity of midwifery care as the optimum model of maternity care, one which ensures care from a trusted health professional. It explains the need for labour support as a necessary and embedded physiological requirement.

Conclusion

This thesis has been an exploration of 18 women's views on labour and presents the labour experiences from these women's standpoint. It has explored the woman's perspectives and experiences of labour as it moves towards birth. Women described being aware of the prevailing theory of labour as stages and phases but considered it an abstract theoretical concept which did not resonate with the actual experience of giving birth. A previous birth experience appears to provide the optimum understanding for women of how their bodies respond during labour. Women's perceptions of birth are dominated by their descriptions of their feelings, and a need to focus on the contraction as the intensity of the labour increases. Women did not talk about 'progress' during labour and birth, instead they described an inability to think logically and of just 'being' in the moment. This suggests that labour is an embedded ontological experience. All of the women in this research have had a midwife known to them providing continuity of care from pregnancy through the labour and birth. They described an integrated relationship with their midwife based on trust and the provision of emotional and physical support.

Advances in scientific understanding of neurohormones, neural structures, cognition, feelings, behaviour, social influences and physiological processes are providing an improved understanding of brain activity along with human physiology and its effects on human behaviour. It appears that each can have a major influence on our physiological adaptations. A model has been proposed which integrates the women's emotions during labour with the underlying endocrine changes that support parturition and social affiliation. Differing response to stress based on gender differences explain the reason women seek to connect with others during labour as a way of alleviating stress. Thus support during labour is an embedded physiological requirement for women which aids them to labour and give birth physiologically.

By integrating the sciences and women's experiences in this way this thesis has provided a fuller comprehension of the complex physiological, emotional and behavioural changes that occur during labour and birth. It is hoped that this thesis will be the beginning of different ways of constructing knowledge about labour and birth - ways which incorporate women's perspectives and understandings and which privilege the women's voices. This thesis argues for a new conceptual understanding of labour, one which integrates the emotions women feel during labour with their physiological adaptations to labour and birth, and which ultimately results in the woman's transition to loving and tending to her new born baby.

Appendix A

Advertisement for volunteers

Have you got a normal birth story?

I am a midwifery PhD student researching how women experience labour as it progresses to the birth of their baby. I am looking for a variety of birth stories from women who have given birth.

If you have had a normal birth in the last six months and your labour started by itself, then I would love to talk to you.

If you are interested in being a part of this study please contact:

**Lesley Dixon on (03) 314 7384
or dandlatkinson@clear.net.nz**

All contacts will remain strictly confidential.

Appendix B

Health and Disability Ethics Committee Ethics Approval

Upper South B Regional Ethics Committee

Ministry of Health
4th Floor, 250 Oxford Terrace
PO Box 3877
Christchurch
Phone (03) 372 3018
Fax (03) 372 1015

22 April 2008

Ms Lesley Dixon
10 John Leith Place
RD 1
Amberley
7481

Dear Ms Dixon

Ethics Reference Number: URB/08/03/011

The transition from the end of pregnancy to birth: an exploration of the woman's perspective of labour progress

Investigator: Ms Lesley Dixon

Locality: Participant's own homes

The above study has been given ethical approval by the **Upper South B Regional Ethics Committee**.

Approved Documents

Information sheet dated 7 April 2008

Consent form dated 7 April 2008

Questionnaire: Trigger questions for in depth interviews

Accreditation

The Committee involved in the approval of this study is accredited by the Health Research Council and is constituted and operates in accordance with the Operational Standard for Ethics Committees, April 2006.

Progress Reports

The study is approved until **31 December 2010**. The Committee will review the approved application annually and notify the Principal Investigator if it withdraws approval. It is the Principal Investigator's responsibility to forward a progress report covering all sites prior to ethical review of the project in **30 April 2009**. The report form is available on <http://www.newhealth.govt.nz/ethicscommittees>. Please note that failure to provide a progress report may result in the withdrawal of ethical approval. A final report is also required at the conclusion of the study.

Amendments

It is also a condition of approval that the Committee is advised of any adverse events, if the study does not commence, or the study is altered in any way, including all documentation eg advertisements, letters to prospective participants.

Please quote the above ethics committee reference number in all correspondence.

It should be noted that Ethics Committee approval does not imply any resource commitment or administrative facilitation by any healthcare provider within whose facility the research is to be carried out. Where applicable, authority for this must be obtained separately from the appropriate manager within the organisation.

We wish you well with your study.

Yours sincerely

Diana Passe
Upper South B Regional Ethics Committee Administrator
Email: diana_passe@moh.govt.nz

Appendix C

Research Information Sheet

*From pregnancy to birth, exploring how women experience
labour as it progresses to birth*

Information Sheet

Thank you, for the interest you have shown in my research project. Please read this information sheet before deciding whether or not to participate. If you decide not to participate there will be no disadvantage to you of any kind.

As a PhD student at Victoria University of Wellington I am required to undertake research as part of my doctoral thesis. I have chosen to look at how women experience the transition from the end of pregnancy to the birth of their baby. It will be an exploration of the woman's perspectives and experiences of labour and how it progresses to the birth of the baby.

I am hoping to be able to identify some common themes and will use a feminist framework to make sure that the woman's voice remains dominant throughout the research. To be able to do this I need to be able to talk to women about how they identified and experienced labour.

I am inviting women to participate if:

- ❖ they have experienced a spontaneous start to labour
- ❖ they have had a normal birth of a full term baby
- ❖ the baby was born within the last six months
- ❖ they live within the Christchurch area.

Should you agree to take part in this project you will be asked to meet with me to participate in an in-depth discussion. The interview should not exceed one hour and will be audio taped. I will then have the tape transcribed and analyse the data. All participants in the study will remain anonymous and confidentiality

will be maintained. I and my supervisor Professor Maralyn Foureur, will be the only ones who will know who the participants are. A code will be used on all the transcriptions so that you cannot be identified. All data will be kept securely in a locked cabinet for up to ten years after which point it will be destroyed. I will provide written feedback of the themes that I identify and will be asking for your comments and suggestions on my interpretation at that point. Your comments and suggestions on the themes that I have identified from the interviews will be taken into account.

Participation in the research is entirely voluntary and you can choose to withdraw at any time, you do not have to give any reason for your withdrawal. I have secured ethics approval which is a requirement of the University prior to commencing research when human participants are involved.

The thesis will be submitted for marking at the Graduate School of Nursing, Midwifery and Health and deposited in the Victoria University of Wellington Library. It is intended to publish the results of the research in scholarly journals.

If you have any questions or would like to contact myself or my supervisor regarding this project you can contact us by telephone, the contact details are below.

Researcher:

Lesley Dixon Graduate School of Nursing and Midwifery, Victoria University of Wellington

Contact Telephone Number 03 314 7384

Supervisor:

Professor Maralyn Foureur

Graduate School of Nursing, Midwifery and Health, Victoria University of Wellington

Contact Telephone Number 00 61 2 9514 4847

Appendix D

Consent to participate in the research – in depth interview

Research into the transition from the end of pregnancy to birth: an exploration of the woman's perspective on labour progress

- I have been provided with an explanation of this research project. I have had an opportunity to ask questions about the project and have had them answered to my satisfaction.
- I understand that participation is voluntary and I can withdraw without giving reasons at any time and without penalty of any sort. I understand that I can withdraw any information I have provided before data collection and analysis is complete.
- I understand that the information I provide will be kept confidential to the researcher, the supervisor and the person who transcribes the tape recordings of our interview. A code will be used so that when published the results do not use my name and any opinions attributed to me will not identify me.
- I understand that the tape recordings of the interviews will be kept for ten years and will then be electronically wiped unless I indicate that I would like them returned to me.
- It has been explained to me that a copy of the themes as identified by the researcher will be provided for me to examine and give further feedback if I wish to.

I agree to take part in this research

Signed:

Date:

Participants name

Appendix E

Trigger questions for in depth interviews

These are some of the questions that I may use during the individual interviews. Not all of the questions will be used in every interview and it will be dependant on how the participant answers the question as to which questions would be used. The questions are designed to trigger discussion around the issue of labour and birth from the woman's perspective.

1. Was this a first or subsequent baby?
2. Thinking back to the end of your pregnancy, can you remember how you were feeling?
3. What were the first signs for you that labour may have been starting?
4. How did that make you feel?
5. What was your perception/experience of labour as it progressed to birth?
6. Did you know that you were in labour?
7. What were the signs that you were in labour?
8. How did you know that you were in labour?
9. How did you feel about labour at that point?
10. Did you know that labour was moving towards birth?
11. How did you know that labour was moving towards birth?
12. How did you feel about labour at that time?
13. Were you aware of time, did it matter to you?
14. Did the experience of labour match your expectations of labour and birth?
15. What was your expectation of labour and birth?
16. How long did you think your labour and birth would take?
17. How long did your actual labour and birth take?

Appendix F

Becoming more focused during the later interviews

After the first five interviews I added some extra trigger questions which I covered towards the end of the interview if they had not already been discussed. These questions were more directive and were looking for specific information that had been uncovered during the first five interviews. These questions and the reasons they were included were:

Did you have any contractions (false starts) in the weeks preceding labour?

This question was designed to uncover if the woman's labour had been building over several days or weeks or whether it had a specific start time and day. It was also designed to explore how the women differentiated these early contractions from established labour.

Did you have any contractions that were back to back or seemed to double up?

This question was asked because one of the earlier participants had been told by her midwife that when contractions doubled up in this way it was a sign of imminent birth. She did experience this type of contraction but they were throughout the labour. Therefore this question was designed to explore whether women remembered experiencing contractions that behaved in this way and whether they were indeed a sign of progress or a normal event in labour.

Did you have any vaginal examinations?

This question was asked to engage the woman in discussion about the vaginal examination and a means of exploring their use as a labour progress measurement. It was often an issue that surfaced during our discussions but I

added it as a question to ask if the vaginal examination had not been discussed earlier in the interview.

✚ If you were to describe labour to somebody who had never experienced it what would you say?

This question was designed to encourage the woman to consider how labour should be described to enhance understanding for other women. It was seeking to gain the woman's collusion in ways of describing labour that could be understood as woman centred and speaking to women.

✚ Do you think the way labour is described in books and magazines matches your experiences of labour?

This question was designed to support the woman to consider how labour had been described and what she remembered of those descriptions. The aim was to establish whether the woman remembered the stages and phases of labour and whether they felt they were relevant to their experience of actual labour and birth.

Appendix G

Feedback to participants

Date: 8th October 2009

Dear ...

Research: Experiences of normal labour and birth - Feedback

Thank you so much for being part of my research exploring how women experience labour as it progresses to birth. I have now had time to analyse our discussion along with the discussion I have had with other women. I have put together the following description based on these interviews and would like your feedback as to whether the description is one that you can identify with. Please could you take a few minutes to consider the following descriptions and consider whether they match your perceptions and experiences during labour.

I have provided some space for you to write any comments and a stamp addressed envelope for you to return the feedback to me.

I would like to discuss these descriptions further with you in person as part of a focus group discussion. You are invited to attend a focus group discussion on the Monday 19th October between 1pm and 3pm at Fendalton Library Service Centre Cnr Clyde & Jeffreys Rds (there is ample room and parking – attendance is optional)

During the analysis I realised that I wanted to be able to personalise your descriptions of labour by being able to refer to a name rather than refer to you as a number or code. I wondered if there was an alternative name to your own that you would like to be called and which I can use when I refer to your words. This will ensure that I can retain your anonymity. Please put a name below that you would be happy for me to use when referring to your words within my thesis.

New Name

Descriptions of labour

The following are some descriptions of how labour was described during interviews. Please could you read through and provide feedback as to whether the descriptions matched your experiences and perceptions during labour.

The first signs of labour

The first sign of labour most commonly described is that of period pains. These pains were often irregular to start becoming regular, stronger and more painful over a period of time. The length of time in which the pain became more intense was individual to each woman and her labour.

Do you agree that the first signs of labour involved period type pain? What other signs would you suggest indicated labour to you?

Comments

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Excitement

When they started labour women described feeling excited that they were at last in labour. Without exception they expressed excitement although sometimes this was mixed with apprehension and anxiety. The excitement was shared with other family members. Do you agree that excitement is a common feeling felt at the start of labour? Were there other feelings that you felt at that time?

Comments

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A period of calm and peace

After the first signs of labour women described a period of time of peace and calm during which they knew they were in labour and were waiting for the contractions to build. They were happy to stay at home on their own or sometimes with their partner or a family member. They were fully aware of the world, their needs and their family's needs along with time passing. They were able to join in discussions, conversations and eat meals. The women who already had children made childcare arrangements. Does this description match your memories of this time of labour?

Comments

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The Zone

As the contractions become more intense and painful there is a need to focus on the pain. The women described a need to focus in on themselves and to shut out the rest of the world which narrows down to themselves and their contractions. They become unaware of what is happening around them. Time becomes elastic with a minute more like an hour and hours sometimes more like minutes. Does this description match your memories of a time during your labour?

Comments

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Tired and sleepy

Some women described feeling really tierd and sleepy during labour with some feeling that they were falling asleep between contractions. Does this description match your memories of a time of during your labour?

Comments

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Overwhelmed and out of control

The intensity of labour generated feelings of intense fear or panic for some and they described feelings of being out of control, and overwhelmed with the pain. This period of time is associated with fear, intense pain and desperation to get the birth over with.

Does this description match your memories of as time during your labour?

Comments

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Pushing – the sting and burn

The majority of women started pushing because they felt a change in the contractions and an urge to push during the contractions. Pushing was described as causing a stinging and burning sensation when the baby’s head was emerging. For the women who had previously given birth the change from contractions to pushing was often very quick and unexpected. Women could often describe the sensation of the baby moving down at this point.

Does this description match your memories of a time during labour?

Comments

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The birth

Once the baby was born some women described feeling wide awake, for others there were feelings of shock and disbelief. For some it is a time of pleasure and excitement in greeting their baby but for others it was a time of coming back to themselves as they let go of their intense focus and start to come to terms with their labour and birth as well as the realisation that they now have their baby. Does this description match your memories of this time during your labour?

Comments

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The placenta

There were very few descriptions about the birth of the placenta. What are your thoughts about this part of labour?

Comments

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Summary

Labour and birth is an intense and vivid time during which women can remember their thoughts and feelings clearly. They remember the pain and the need to focus as well as various thoughts and conversations. It appears that time becomes elastic during labour with time melting together or spanning out depending on the women and her need to focus. The descriptions provided by the women interviewed suggest that labour started most commonly with light period pains and irregular contractions. The pain appears to increase in intensity

with a clear point described by all the participants when they had to really focus on the pain as way of working through it. Many of the participants described working with their bodies and being surprised after the birth at how effectively their bodies had taken them through the labour. There was no sense of control, and in fact a need to relinquish control.

Any further comments you would like to add?

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Thank you for taking the time to provide this feedback to me.

Appendix H

Information Sheet for focus group interviews

Thank you for participating in the research and being interviewed today. I will send you a summary of the themes as I identify them following analysis of the data which will be towards the completion of the research project.

If you are interested you can continue to be part of this research project by participating in a focus group discussion.

Focus group discussions are a useful way of exploring issues further. They encourage discussion that is led by the participants rather than the researcher. It is expected that issues and early themes that have been identified by the researcher at that point will be the focus of the discussion.

Should you agree to take part in a focus group discussion you will be invited to meet with me and several other women who have also participated in the research project by being interviewed..

The focus group interviews will be held at a mutually convenient time and place for all involved. It is expected that up to 6 women will be invited to attend for a focus group discussion which is expected to last approximately one to two hours and will be audio taped. I will then have the tape transcribed and analyse the data.

This data along with the feedback from individual's regarding the themes drawn from the initial interviews will be taken into account by the researcher.

All participants in the study will remain anonymous and confidentiality will be maintained. I and my supervisor Associate Professor Marilyn Foureur, will be the only ones who will know who the participants are. A code will be used on all the transcriptions. All data will be kept securely in a locked cabinet for up to ten years after which point it will be destroyed.

Participation in the research is entirely voluntary and you can choose to withdraw at any time, you do not have to give any reason for your withdrawal. Ethics approval is required by the University prior to commencing research when human participants are involved. I will have secured ethics approval prior to commencing the research.

The thesis will be submitted for marking at the Graduate School of Nursing and Midwifery and deposited in the Victoria University Library. It is intended to publish the results of the research in scholarly journals.

If you have any questions or would like to contact myself or my supervisor regarding this project you can contact us by telephone, the contact details are below.

Researcher:

Lesley Dixon Graduate School of Nursing and Midwifery, Victoria University of Wellington

Contact Telephone Number 03 314 7384

Supervisor:

Professor Maralyn Foureur

Graduate School of Nursing, Midwifery and Health, Victoria University of Wellington

Contact Telephone Number 00 61 2 9514 4847

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Appendix I

Consent to participate in the research (Focus Groups)

Research into the transition from the end of pregnancy to birth: an exploration of the woman's perspective on labour progress

- I have been invited to and agreed to participate in focus group discussions
- I have been provided with an explanation of this research project. I have had an opportunity to ask questions about the project and have had them answered to my satisfaction.
- I understand that privacy and confidentiality within the focus groups is essential and agree to ensuring that private information shared during the focus group research will not be shared outside of the group discussion.
- I understand that participation is voluntary and I can withdraw without giving reasons at any time and without penalty of any sort. I understand that I can withdraw any information I have provided before data collection and analysis is complete.
- I understand that the information I provide will be kept confidential to the researcher, the supervisor and the person who transcribes the tape recordings of our interview. A code will be used so that when published the results do not use my name and any opinions attributed to me will not identify me.
- I understand that the tape recordings of the interviews will be kept for ten years and will then be electronically wiped unless I indicate that I would like them returned to me.
- It has been explained to me that a copy of the themes as identified by the researcher will be provided for me to examine and give further feedback if I wish to.

I agree to take part in this research

Signed:

Date:

Participants name

References:

- Akrich, M., & Pasveer, B. (2004). Embodiment and Disembodiment in Childbirth Narratives. *Body & Society*, 10(2/3), 63-84.
- Albers, L. (2001). Rethinking dystocia: patience please. *MIDIRS Midwifery Digest*, 11(3), 351 - 353.
- Allen, R. (Ed.). (2000). *The New Penguin English Dictionary*. Middlesex: Penguin Books.
- Arya, R., Whitworth, M., & Johnston, T. (2007). Mechanism and management of normal labour. *Obstetrics, Gynaecology and Reproductive Medicine*, 17(8), 227-231.
- Barnes, F. (1883). *A Manual of Midwifery for Midwives* (2nd ed.). London: Smith, Elder and Co.
- Barnett, C., Hundley, V., Cheyne, H., & Kane, F. (2008). 'Not in labour': impact of sending women home in the latent phase. *British Journal of Midwifery*, 16(3), 144.
- Bates, C. (2004). Midwifery practice: ways of working. In M. Stewart (Ed.), *Pregnancy, Birth and Maternity Care: Feminist Perspectives*. Edinburgh: Books for Midwives.
- Baxter, J. (2007). Care during the latent phase of labour: supporting normal birth. *British Journal of Midwifery*, 15(12), 765-767.
- Beck, C. (1994). Women's temporal experiences during the delivery process: a phenomenological study. *International Journal of Nursing Studies*, 31(3), 245-252.
- Beech, B., & Phipps, B. (2004). Normal birth: women's stories. In S. Downe (Ed.), *Normal Childbirth: Evidence and debate*. London: Churchill Livingstone.
- Beer, J. (2007). The Importance of Emotion-Social Cognition Interactions for Social Functioning. In E. Harmon-Jones & P. Winkielman (Eds.), *Social Neuroscience: Integrating Biological and Psychological Explanations of Social Behaviour*. New York: The Guilford Press.
- Belenky, M., Clinchy, B., Goldberger, N., & Tarule, J. (1997). *Women's Ways of Knowing: The Development of Self, Voice and Mind* (10th Anniversary ed.). New York: Basic books.
- Bennett, A., Etherington, W., & Houson, d. (1993). *Childbirth Choices*. Auckland: Penguin books.
- Blackburn, S. (Ed.). (2007). *Maternal, Fetal, & Neonatal Physiology: A Clinical Perspective* (3rd Edition). St Louis: Saunders Elsevier.
- Blanks, A., & Thornton, S. (2003). The role of oxytocin in parturition. *BJOG: an International Journal of Obstetrics and Gynaecology*, 110(Supple 20), 46-51.
- Brenner, J. (2008). *Logic in Reality*. Paris: Library of Congress Control Number: 2008926590.
- Brizendine, L. (2006). *The Female Brain*. New York: Morgan Road Books.
- Brooks, A. (2007). Feminist Standpoint Epistemology: Building Knowledge and Empowerment Through Women's Lived Experience. In S. Hesse-Biber & P. Leavy (Eds.), *Feminist Research Practice: A Primer*. Thousand Oaks: Sage Publications.
- Brooks, A., & Hesse-Biber, S. (2007). An Invitation to Feminist Research. In S. Hesse-Biber & P. Leavy (Eds.), *Feminist Research Practice: A Primer*. Thousand Oaks: Sage Publications.

- Brunton, P., Russell, J., & Douglas, A. (2008). Adaptive responses of the Maternal Hypothalamic-Pituitary-Adrenal Axis during Pregnancy and Lactation. *Journal of Neuroendocrinology*, 20, 764-776.
- Buck, R. (2007). Love, Hate and Morality: Emotion and Communication as Bridging Concepts in Social Psychology. In P. Van Lange (Ed.), *Bridging Social Psychology: Benefits of Transdisciplinary Approaches*. London: Lawrence Erlbaum Associates.
- Buckley, S. (2005). *Gentle Birth, Gentle Mothering*. Brisbane: One Moon Press.
- Buckley, S. (2010). Sexuality in Labour and Birth: An Intimate Perspective. In D. Walsh & S. Downe (Eds.), *Essential Midwifery Practice: Intrapartum Care*. Oxford: Blackwell Publishing Ltd.
- Bunkle, P. (1992). Becoming Knowers: Feminism, Science and Medicine. In R. Du Plessis (Ed.), *Feminist Voices Women's studies, Texts for Aotearoa/New Zealand*. Auckland: Oxford University Press.
- Burvill, S. (2002). Midwifery diagnosis of labour onset. *British Journal of Midwifery*, 10(10), 600 - 605.
- Butler, J. (1990). *Gender Trouble*. London: Routledge.
- Cacioppo, J., & Berntson, G. (2006). A Bridge Linking Social Psychology and the Neurosciences. In P. V. Lange (Ed.), *Bridging Social Psychology: Benefits fo Transdisciplinary Approaches*. London: Lawrence Erlbaum Associates.
- Carter, C. (2007). Neuropeptides and the Protective Effects of Social Bonds. In E. Harmon-Jones & P. Winkielman (Eds.), *Social Neuroscience: Integrating Biological and Psychological Explanations of Social Behavior*. New York: The Guilford Press.
- Carter, S. (2009). Gender and childbearing experiences: revisiting O'Brien's dialectics of reproduction. *NWSA Journal*, 21(2). Retrieved from <http://search.rdsinc.com.helicon.vuw.ac.nz>
- Cassidy, T. (2006). *Birth: The surprising history of how we are born*. New York: Grove Press.
- Challis, J., Matthews, S., Gibb, W., & Lye, S. (2000). Endocrine and Paracrine Regulation of Birth at Term and Preterm. *Endocr Rev*, 21(5), 514-550.
- Charmaz, K. (2003). Grounded Theory; Objectivist and Constructivist Methods. In N. Denzin & Y. Lincoln (Eds.), *Strategies of Qualitative Inquiry* (2nd Edition ed.). London: Sage Publications.
- Cheyne, H., Dowding, D., & Hundley, V. (2006). Making the diagnosis of labour: midwives diagnostic judgement and management decisions. *Journal of Advanced Nursing*, 53(6), 625-635.
- Cheyne, H., Dowding, D., Hundley, V., Aucott, L., Styles, M., Mollison, J., et al. (2008). The development and testing of an algorithm for diagnosis of active labour in primiparous women. *Midwifery*, 24(2), 199-213.
- Cheyne, H., Terry, R., Niven, C., Dowding, D., Hundley, V., & McNamee, P. (2007). 'Should I come in now?': a study of women's early labour experiences. *British Journal of Midwifery*, 15(10), 604-609.
- Clough, P. (1994). *Feminist Thought: Desire, Power, and Academic Discourse*. Oxford: Blackwell.
- Clough, P., & Nutbrown, C. (2002). *A students guide to methodology*. London: Sage Publications.
- Coffin, A. (1853). *A Treatise On Midwifery, And The Diseases Of Women And Children* (7th Edition ed.). London: Kessinger Publishing Legacy Reprints.
- Cooke, K. (1999). *Up the Duff: a real guide to pregnancy*. Camberwell: Penguin books.

- Cottingham, J. (2000). Descartes Philosophy of Mind. In R. Monk & F. Raphael (Eds.), *The Great Philosophers: From Socrates to Turing*. London: Weidenfeld & Nicolson.
- Crotty, M. (1998). *The Foundations of Social Research: Meaning and perspective in the research process*. St Leonards: Allen and Unwin.
- Dahlen, H., Barclay, L., & Homer, C. (2010). The novice birthing: theorising first-time mother's experiences of birth at home and in hospital in Australia. *Midwifery*, 26, 53-63.
- Damasio, A. (1994). *Descartes Error: Emotion, Reason and the Human Brain*. New York: G.P. Putnam's sons.
- Davis-Floyd, R. (1992). *Birth as an American rite of passage*. Berkeley Ca: University of California Press.
- Davis-Floyd, R., & Sargent, C. (1997). The Anthropology of Birth. In R. Davis-Floyd & C. Sargent (Eds.), *Childbirth and Authoritative Knowledge: Cross-Cultural Perspectives*. Los Angeles: University of California Press.
- Debiec, J., Conell-Price, J., Evansmith, J., Shafer, S., & Flood, P. (2009). Mathematical modeling of the pain and progress of the first stage of nulliparous labor. *Anesthesiology*, 111(5), 1093-1110.
- Declercq, E., Sakala, C., Corry, P., & Applebaum, S. (2006). Listening to Mothers II Report of the Second National US Survey of Women's Childbearing Experiences. Retrieved 19/04/10, from Childbirth Connection:
http://www.childbirthconnection.org/pdf.asp?PDFDownload-LTMIL_report
- Declercq, E., Sakala, C., Corry, P., & Applebaum, S. (Producer) (2008). New Mothers Speak Out: National Survey Results Childbearing Experiences. Retrieved 19/10/10 from
<http://www.childbirthconnection.org/article.asp?ck=10413>.
- Declercq, E., Young, R., Cabral, H., Ecker, E. (2011). Is a Rising Cesarean Delivery Rate Inevitable? Trends in Industrialized Countries, 1987 to 2007. *Birth* 38 (2), 99-104
- Dixon, L. (2005). *Building a Picture: How midwives use vaginal examination during labour*. Unpublished Masters thesis, Otago Polytechnic, Dunedin.
- Donley, J. (1998). *Birthrites: Natural vs Unnatural Childbirth in New Zealand*. Auckland: The Full Court Press in association with NZ College of Midwives.
- Donnison, J. (1988). *Midwives and Medical Men: A History of the Struggle for the Control of Childbirth*. London: Historical Publications Ltd.
- Douglas, A., & Ludwig, M. (2008). The Role of Neuroendocrinology in the Perinatal Period. *Journal of Neuroendocrinology*, 20, 417-418.
- Downe, S., & Dykes, F. (2009). Counting Time in Pregnancy and Labour. In C. McCourt (Ed.), *Childbirth, Midwifery and Concepts of Time*. New York: Berghahn Books.
- Duff, M. (2005). *A Study of Labour*. Unpublished Ph. D. dissertation, University of Technology, Sydney.
- Dunbar, R. (2007). Brain and Cognition in Evolutionary Perspective. In S. Platek, J. Keenan & T. Shackelford (Eds.), *Evolutionary Cognitive Neuroscience*. London: The MIT Press.
- Edwards, N. (2005). *Birthing Autonomy: Women's Experiences of Planning Home Births*. London: Routledge: Taylor & Francis Group.
- Elkadry, E., Kenton, K., White, P., Creech, S., & Brubacker, L. (2003). Do mothers remember key events during labor? *American Journal of Obstetrics and Gynecology*, 189(1), 195-200.

- Escott, D., Spiby, H., Slade, P., & Fraser, R. (2004). The range of coping strategies women use to manage pain and anxiety prior to and during first experience of labour. *Midwifery*, 20, 144-156.
- Fahy, K., & Parratt, J. (2006). Birth Territory: A theory for midwifery practice. *Women & Birth*, 19, 45-50.
- Fenwick, J., Hauck, Y., Downie, J., & Butt, J. (2005). The childbirth expectations of a self-selected cohort of Western Australian women. *Midwifery*, 21, 23-35.
- Festin, M., Laopaiboon, M., Pattanittume, P., Ewens, M., Henderson-Smart, D., Crowther, C., et al. (2009). Caesarean section in four South East Asian countries: reasons for rates associated care practices and health outcomes. *BMC Pregnancy and Childbirth*, 9(9), 17.
- Fine, C., (2010) *Delusions of Gender: The Real Science Behind Sex Differences*. London: Icon Books Ltd.
- Flink, I., Mroczek, M., Sullivan, M., & Linton, S. (2009). Pain in childbirth and postpartum recovery- The role of catastrophizing. *European Journal of Pain*, 13, 312-316.
- Foucault, M. (1975). *The Birth of the Clinic: an Archaeology of Medical Perception*. New York: Vintage Books.
- Foureur, M. (2008). Creating birth space to enable undisturbed birth. In K. Fahy, M. Foureur & C. Hastie (Eds.), *Birth Territory and Midwifery Guardianship*. Sydney: Butterworth Heinemann Elsevier.
- Fray, K. (2005). *Oh baby... birth, babies, & motherhood uncensored*. Auckland: Random House New Zealand.
- Frey, E. (1929). Bedeutung der Wehentafel für die physiologie und Pathologie der Geburt beim vorzeitigen Blasensprung. *Schweiz. Med. Wschr.*, 59, 613.
- Friedman, E. (1954). The Graphic Analysis of Labor. *American Journal of Obstetrics and Gynecology*, 68(6), 1568 - 1575.
- Friedman, E. (1955). Primigravid Labor A graphicostatistical analysis. *American Academy of Obstetrics and Gynecology*, 6(6), 567-589.
- Friedman, E. (1956). Labor in Multiparas A graphicostatistical analysis. *American Academy of Obstetrics and Gynecology*, 8(6), 691-703.
- Friedman, E. (1967). *Labor Clinical Evaluation and Management*. New York: Meredith Publishing Company.
- Friedman, E. (1971). Computer Analysis of Labor Progression IV. Diagnosis of Secondary Arrest of Dilatation. *The Journal of Reproductive Medicine*, 7(4), 176-179.
- Friedman, E., Niswander, K., & Sachtleben, M. (1969). Dysfunctional Labor. *The American College of Obstetricians and Gynecologists: American Academy of Obstetrics and Gynecology*, 33(2), 145-152.
- Friedman, W. (1990). *About Time: Inventing the Fourth Dimension*. Cambridge, MA: The MIT Press.
- Frith, C. (1996). Brain mechanisms for 'having a theory of mind'. *Journal of Psychopharmacology*, 10(1), 9-15.
- Fuchs, A., Romero, R., Keefe, D., Parra, M., Oyarzun, E., & Belsake, E. (1991). Oxytocin secretion and human parturition: Pulse frequency and duration increase during spontaneous labor in women. *American Academy of Obstetrics and Gynecology*, 165(5), 1515-1523.
- Fuller, S. (2002). *Social Epistemology* (2nd ed.). Bloomington: Indian University Press.
- Fuller, S. (2007). *The Knowledge Book: Key Concepts in Philosophy, Science and Culture*. Stocksfield: Acumen Publishing Ltd.

- Gavin, H. (2008). *Understanding Research Methods and Statistics in Psychology*. Los Angeles: Sage publications.
- Gee, H., (2006) Mechanics, biochemistry and pharmacology of the cervix and labour. In J. Jordan, A. Singer, H. Jones, & S. Mahmood (Eds) *The Cervix 2nd Ed*. Oxford; Blackwell Publishing.
- Gibbins, J., & Thomson, A. (2001). Women's expectations and experiences of childbirth. *Midwifery*, 17, 302-313.
- Gimble, G., & Fahrenholz, F. (2001). The Oxytocin Receptor System. *Physiological Review*, 81(2), 629-683.
- Glick, E., & Trussell, R. (1970). The Curve of Labour used as a teaching device in Uganda. *The Journal of Obstetrics and Gynaecology of the British Commonwealth*, 77, 1003-1006.
- Gliksman, M., & Di Geronimo, T. (1999). *The complete idiots guide to pregnancy and childbirth*. New York: MacMillan Inc.
- Godden, D. M. (2008). On Common Knowledge and Ad Populum: Acceptance as Grounds for Acceptability. *Philosophy & Rhetoric*, 41(2), 101-129.
- Goldsmith, J. (1990). *Childbirth: wisdom from the worlds oldest societies*. New York: East West Health Books.
- Gottlieb, A. (2000). Socrates: Philosophy's martyr In R. Monk & F. Raphael (Eds), *the Great Philosophers: From Socrates to Turing*. London: Weidenfeld & Nicolson.
- Grammatopoulos, D. (2008). Placental Corticotrophin-releasing Hormone and its Receptors in Human Pregnancy and Labour: Still a Scientific Enigma. *Journal of Neuroendocrinology*, 20, 432-438.
- Grattan, D., & Kokay, I. (2008). Prolactin: A Pleiotropic Neuroendocrine Hormone. *Journal of Neuroendocrinology*, 20, 752-764.
- Grattan, D., Steyn, F., Kokay, I., Anderson, G., & Bunn, S. (2008). Pregnancy-Induced Adaptation in the Neuroendocrine Control of Prolactin Secretion. *Journal of Neuroendocrinology*, 20, 497-507.
- Green, J., & Bason, H. (2003). Feeling in Control During Labor: Concepts, Correlates and Consequences. *Birth*, 30(4), 235 - 247.
- Greenberg, M., Cheng, Y., Hopkins, L., Stotland, N., Bryant, N., & Caughey, A. (2006). Are there ethnic differences in the length of labor? *American Academy of Obstetrics and Gynecology*, 195(3), 743-748.
- Greenberg, M., Cheng, Y., Sullivan, M., Norton, M., & Caughey, A. (2007). Does length of labor vary by maternal age? *American Academy of Obstetrics and Gynecology*, 197(4), 428.e421-427.
- Greenstein, B., & Greenstein, A. (2000). *Color Atlas of Neuroscience, (electronic resource) Neuroanatomy and neurophysiology* Available from http://ebooklibrary.thieme.com/helicon.vuw.ac.nz/SID00000000000000/ebooklibrary/flexibook/pubid-169111625/show_pdf.html?/pdf/pubid-169111625_1000.pdf
- Greer, I. (2003). *Pregnancy, the inside guide: a complete guide to fertility, pregnancy and labour*. London: Collins.
- Greulich, B., & Tarrant, B. (2007). The Latent Phase of Labour: Diagnosis and Management. *American College of Nurse-Midwives*, 52(3), 190-198.
- Gross, M., Drobic, S., & Keirse, M. (2005). Influence of Fixed and Time-Dependent Factors on Duration of Normal First Stage Labor. *Birth*, 32, 27-33.
- Gross, M., Haunschild, T., Stoexen, T., Methner, V., & Guenter, H. (2003). Women's Recognition of the Spontaneous Onset of Labor. *Birth*, 30(4), 267-271.

- Guilliland, K., & Pairman, S. (2010). *The Midwifery Partnership: A Model for Practice* (2nd ed.). Christchurch: New Zealand College of Midwives.
- Gunew, S. (1990). Feminist Knowledge: Critique and Construct. In S. Gunew (Ed.), *Feminist Knowledge: Critique and Construct*. London: Routledge.
- Gurewitsch, E., Diamant, P., Fong, J., Huang, G., Popovtzer, A., Weinstein, D., et al. (2002). The labor curve of the grand multipara: Does progress of labor continue to improve with additional childbearing? *American Journal of Obstetrics and Gynecology*, 186(6), 1331-1338.
- Hall, J. (2008). Birth and Spirituality. In S. Downe (Ed.), *Normal Childbirth: Evidence and Debate*. Edinburgh: Churchill Livingstone Elsevier.
- Halldorsdottir, S., & Karlsdottir, S. (1996). Journeying through labour and delivery: perceptions of women who have given birth. *Midwifery*, 12, 48-61.
- Haraway, D. (2004). Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective. In S. Harding (Ed.), *The Feminist Standpoint Theory Reader: Intellectual & Political Controversies*. New York: Routledge.
- Harding, S. (1987). *Feminism and methodology*. Milton Keynes: Open University Press.
- Harding, S. (1991). *Whose Science, Whose Knowledge: Thinking from women's lives*. New York: Cornell University Press.
- Harding, S. (2004a). Comment on Hekman's "Truth and Method: Feminist Standpoint Theory Revisited": Whose Standpoint Needs the Regimes of Truth and Reality? In S. Harding (Ed.), *The Feminist Standpoint Theory Reader: Intellectual & Political Controversies* (pp. 255-262). New York: Routledge.
- Harding, S. (2004b). Introduction: Standpoint Theory as a Site of Political Philosophic, and Scientific Debate. In S. Harding (Ed.), *The Feminist Standpoint Theory Reader: Intellectual & Political Controversies*. New York: Routledge.
- Harding, S. (2004c). Rethinking Standpoint Epistemology What is "Strong Objectivity?". In S. Hesse-Biber & M. Yaiser (Eds.), *Feminist Perspectives on Social Research*. New York: Oxford University Press.
- Harding, S., & Hintikka, M. (2003). Introduction. In S. Harding & M. Hintikka (Eds.), *Discovering Reality* (Vol. 2nd Edition). London: Kluwer Academic Publishers.
- Harmon-Jones, E., & Winkielman, P. (2007). A Brief Overview of Social Neuroscience. In E. Harmon-Jones & P. Winkielman (Eds.), *Social Neuroscience: Integrating Biological and Psychological Explanations of Social Behavior*. New York: The Guilford Press.
- Hartsock, N. (1983). The Feminist Standpoint: Developing the Ground for a Specifically Feminist Historical Materialism. In M. Hintikka & S. Harding (Eds.), *Discovering Reality* (pp. 283-310): Kluwer Academic Publishers.
- Heberlein, A., & Adolphs, R. (2007). Neurobiology of Emotion Recognition. In E. Harmon-Jones & P. Winkielman (Eds.), *Social Neuroscience: Integrating Biological and Psychological Explanations of Social Behaviour*. New York: The Guilford Press.
- Hekman, S. (1990). *Gender and Knowledge: Elements of a Postmodern Feminism*. Cambridge: Polity Press.
- Hekman, S. (1997). Truth and Method: Feminist Standpoint Theory revisited. *Signs*, 22(2), 341-365.
- Hekman, S. (2004). Feminist Identity Politics: Transforming the Political. In D. Taylor & K. Vintges (Eds.), *Feminism and the Final Foucault*. Chicago: University of Illinois Press.

- Hemminki, E., & Simukka, R. (1986). The timing of hospital admission and progress of labour. *European Journal of Obstetrics and Gynecology and Reproductive Biology*, 2, 85-94.
- Hendricks, C., Brenner, W., & Kraus, G. (1970). Normal cervical dilatation pattern in late pregnancy and labor. *American Journal of Obstetrics and Gynecology*, 106(7), 1065-1082.
- Hesse-Biber, S. (2007). The Practice of Feminist In-Depth Interviewing. In S. Hesse-Biber & P. Leavy (Eds.), *Feminist Research Practice: A Primer*. Thousand Oaks: Sage Publications.
- Hesse-Biber, S., & Leavy, P. (2006). *The Practice of Qualitative Research*. London: Sage Publications.
- Hesse-Biber, S., Leavy, P., & Yaiser, M. (2004). Feminist Approaches to Research as a Process. In S. Hesse-Biber & M. Yaiser (Eds.), *Feminist Perspectives on Social Research*. New York: Oxford University Press.
- Hewison, A. (1993). The language of labour: an examination of the discourses of childbirth. *Midwifery*, 9, 225-234
- Hirschmann, N. (2004). Feminist Standpoint as Postmodern Strategy. In S. Harding (Ed.), *The Feminist Standpoint Theory Reader: Intellectual & Political Controversies* (pp. 317-332). New York: Routledge.
- Hodnett, E., Gates, S., Hofmeyr, G., & Sakala, C. (2003). Continuous support for women during childbirth. *The Cochrane Database of Systematic Reviews*, Issue 3. Retrieved from <http://www2.cochrane.org/reviews/en/ab003766.html>. doi:10.1002/14651858CD003766
- Holmes, P., Oppenheimer, L., & Wu Wen, S. (2001). The relationship between cervical dilatation at initial presentation in labour and subsequent intervention. *British Journal of Obstetrics and Gynaecology*, 108, 1120-1124.
- Horkheimer, M. (1974). *Eclipse of reason*. New York: Seabury Press
- Huhn, K., & Brost, B. (2004). Accuracy of simulated cervical dilatation and effacement measurement among practitioners. *American Journal of Obstetrics and Gynecology*, 191, 1797-1799.
- Jagger, A. (2004). Feminist Politics and Epistemology: The Standpoint of Women. In S. Harding (Ed.), *The Feminist Standpoint Theory Reader: Intellectual & Political Controversies* (pp. 55-66). New York: Routledge.
- Janesick, V. (2003). The Choreography of Qualitative Research Design. In N. Denzin & Y. Lincoln (Eds.), *Strategies of Qualitative Inquiry* (2nd Edition ed.). London: Sage Publications.
- Jones, M., & Larson, E. (2003). Length of normal labor in women of Hispanic origin. *Journal of Midwifery and Women's Health*, 48(1), 2-9.
- Jordan, B. (1997). Authoritative Knowledge and its Construction. In R. Davis-Floyd & C. Sargent (Eds.), *Childbirth and Authoritative Knowledge: Cross-cultural Perspectives*. Berkeley: University of California Press.
- Kandel, E. (2006). *In Search of Memory: The emergence of a New Science of Mind*. New York: Norton & Co.
- Katz Rothman, B. (2007). Laboring Now: Current Cultural Constructions of Pregnancy, Birth and Mothering. In W. Simonds, B. Katz Rothman & B. Norman (Eds.), *Laboring On: Birth in Transition in the United States*. New York: Routledge.
- Kaufmann, T. (2004). Introducing Feminism. In M. Stewart (Ed.), *Pregnancy, Birth and Maternity Care*. London: Books for Midwives.
- Kennedy, H., Nadini, K., McLeod-Waldo, R., & Ennis, L. (2009). Top-Selling Childbirth Advice Books: A Discourse Analysis *Birth*, 36(4), 318-324.

- Kim, P., Mayes, L., Leckman, J., Feldman, R., & Swain, J. (2010). The Plasticity of Human Maternal Brain: Longitudinal Changes in Brain Anatomy During the Early Postpartum Period. *Behavioural Neuroscience*, 124(5), 695-700.
- Kitzinger, J., & Barbour, R. (1999). Introduction: the challenge and promise of focus groups. In J. Kitzinger & R. Barbour (Eds.), *Developing Focus Group Research: Politics, Theory and Practice*. London: Sage Publications.
- Kitzinger, S. (1997a). Authorative Touch in Childbirth: a Cross-Cultural Approach. In R. Davis-Floyd & C. Sargent (Eds.), *Childbirth and Authoritative Knowledge: Cross-Cultural Perspectives*. Berkeley: University of California Press.
- Kitzinger, S. (1997b). *The New Pregnancy and Childbirth*. London: Doubleday/Dorling Kindersley.
- Kitzinger, S. (2005). *The Politics of Birth*. Edinburgh: Elsevier Butterworth Heinemann.
- Kosfeld, M., Heinrichs, M., Zak, P., Fischbacher, U., & Fehr, E. (2005). Oxytocin increases trust in humans. *Nature* 435(7042), 673-676
- Kotaska, A., Klein, M., & Liston, R. (2006). Epidural analgesia associate with low-dose oxytocin augmentation increases caesarean births: A critical look at the external validity of randomized trials. *American Journal of Obstetrics and Gynecology*, 194, 809-814.
- Kudielka, B., Hellhammer, D., & Kirschbaum, C. (2007). Ten Years of Research with the Trier Social Stress Test - Revisited. In E. Harmon-Jones & P. Winkielman (Eds.), *Social Neuroscience: Integrating Biological and Psychological Explanations of Social Behaviour*. New York: The Guilford Press.
- Kuhn, T., (1970) *The Structure of Scientific Revolutions* (2nd Ed). Chicago: The University of Chicago Press.
- Kuklina, A., Meickle, S., Jamieson, D., Whiteman, M., Barfield, W., Hillis, S., et al. (2009). Severe obstetric morbidity in the United States: 1998 - 2005. *Obstetrics & Gynecology*, 113(2), 293-299.
- Kwast, B. E., Lennox, C. E., Farley, T., Olayinka, I., & et al. (1994). World Health Organization partograph in management of labour. *The Lancet*, 343(8910), 1399-1404.
- Kwast, B. E., Poovan, P., Vera, E., & Kohls, E. (2008). The modified WHO partograph: do we need a latent phase? *British Journal of Midwifery*, 16(8), 527-532.
- Laatikainen, T. (1991). Corticotropin-releasing hormone and opioid peptides in reproduction and stress. *Ann Med*, 23(5), 489-496.
- Lambert, C., Jomeen, J., & McSherry, W. (2010). Reflexivity: a review of the literature in the context of midwifery research. *British Journal of Midwifery*, 18(5), 321-326.
- Lamotte, T., (1746). *A General Treatise of Midwifery: Illustrated with upwards of four hundred curious observations and reflections concerning that art*. London: James Waugh.
- Lavender, T., Hart, A., Walkinshaw, S., Campbell, E., & Alfirevic, Z. (2005). Progress of first stage of labour for multiparous women: an observational study. *British Journal of Obstetrics and Gynaecology: an international Journal of Obstetrics and Gynaecology*, 112, 1663-1665
- Lavender, T., Tsekiri, E., & Baker, L. (2008). Recording labour: a national survey of partogram use. *British Journal of Midwifery*, 16(6), 359 -362.

- Lavender, T., Walkinshaw, S., & Walton, I. (1999). A prospective study of women's views of factors contributing to a positive birth experience. *Midwifery*, 15, 40-46.
- Leap, N. (2000). Pain in labour: towards a midwifery perspective. *MIDIRS Midwifery Digest*, 10(1), 49-53.
- Leap, N., & Anderson, T. (2008). The role of pain in normal birth and the empowerment of women. In S. Downe (Ed.), *Normal Childbirth: Evidence and debate*. Edinburgh: Churchill Livingstone Elsevier.
- Leap, N., & Hunter, B. (1993). *The Midwife's Tale: An oral history from handywoman to professional midwife*. London: Scarlet Press.
- Leap, N., & Pairman, S. (2010). Working in partnership. In S. Pairman, S. Tracy, C. Thorogood & J. Pincombe (Eds.), *Midwifery: Preparation for practice 2e* (2nd ed.). Sydney: Churchill Livingstone Elsevier.
- Leng, G., Meddle, S., & Douglas, A. (2008). Oxytocin and the maternal brain. *Current Opinion in Pharmacology*, 8, 731-734.
- Lewin, D., Fearon, B., Hemmings, V., & Johnson, G. (2005). Women's experiences of vaginal examination in labour. *Midwifery*, 21, 267-277.
- Liamputtong, P., & Ezzy, D. (2005). *Qualitative Research Methods* (2nd Edition ed.). Oxford: Oxford University Press.
- Loudan, I. (1992). *Death in Childbirth: an international study of maternal care and maternal mortality 1800 - 1950*. Oxford: Clarendon Press.
- Machin, D., & Scamell, M. (1997). The experience of labour: using ethnography to explore the irresistible nature of the bio-medical metaphor during labour. *Midwifery*, 13, 78-84.
- Mackonochie, A., Waters, A., & Fraser, P. (1996). *The Complete book of pregnancy and baby care* Sydney: Readers Digest.
- Maher, J. (2010). 'Beyond Control? Resituating Childbirth Pain in Subjectivity.'. *Feminisms along the Edge*, 22. Retrieved from <http://www.chloe.uwa.edu.au/outskirts/archive/volume22/maher>
- Malpas, S. (2003). *Jean-Francois Lyotard*. London: Routledge.
- Mauri, A., Serri, F., Caminiti, F., Mancuso, S., Fratta, W., Gassa, G. L., et al. (1990). Correlation between amniotic levels of alpha-MSH, ACTH and beta-endorphin in late gestation and labour in normal and complicated pregnancies. *Acta Endocrinol*, 123(6), 637-642.
- Mauthner, N., & Doucet, A. (1998). Reflections on a Voice-centred Relational Method: Analysing Maternal and Domestic Voices. In J. Ribbens & R. Edwards (Eds.), *Feminist Dilemmas in Qualitative Research: Public Knowledge and Private Lives*. London: Sage Publications.
- McCourt, C. (2009). Cosmologies, Concepts and Theories: Time and Childbirth in Cross-cultural Perspective. In C. McCourt (Ed.), *Childbirth, Midwifery and Concepts of Time*. New York: Berghahn Books.
- McElligott, M. (2001). Fathercraft: Antenatal information wanted by first time fathers. *British Journal of Midwifery*, 9(9), 56-558.
- McLaughlin, J. (2003). *Feminist Social and Political Theory*. New York: Palgrave Macmillan.
- McLean, M., Thompson, D., Zhang, H. P., Brinsmead, M., & Smith, R. (1994). Corticotropin-releasing hormone and beta-endorphin in labour. *Eur J Endocrinol*, 131(2), 167-172.
- Metland, D. (Ed.). (2004). *NCT Pregnancy for parents by parents: The essential guide from conception to birth from the National Childbirth Trust*. London: Harper Collins Ltd.
- Ministry of Health (2007a). *Primary Maternity Services Notice 2007*: New Zealand Health Information Service 2007.

- Ministry of Health (2007b). *Report on Maternity: Maternal and Newborn Information 2004*: New Zealand Health Information Service 2007.
- Minnich, E. (2005). *Transforming Knowledge* (2nd ed.). Philadelphia: Temple University Press.
- Mirusch, N., & Johns, G. (2003). *Going it alone: a single woman's guide to pregnancy and birth*. Auckland: New Holland.
- Mottram, J. (1997). State Control in Local Context: Public Health and Midwife Regulation in Manchester 1900-1914. In H. Marland & A. Rafferty (Eds.), *Midwives, Society and Childbirth*. London: Routledge.
- Mueller, A. (1995). Beginning in the Standpoint of Women: An Investigation of the Gap between Cholas and Women in Pure. In M. Campbell & A. Manicom (Eds.), *Knowledge, Experience, and Ruling Relations*. Toronto: University of Toronto Press.
- Murphy-Lawless, J. (1998). *Reading Birth and Death: A History of Obstetrics Thinking*. Indiana: Indiana University Press.
- Neumann, I. (2008). Brain Oxytocin: A Key Regulator of Emotional and Social Behaviours in Both Females and Males. *Journal of Neuroendocrinology*, 20, 858-865.
- Nevo, O., Soustiel, J., & Thaler, I. (2010). Maternal cerebral blood flow during normal pregnancy: a cross-sectional study. *American Journal of Obstetrics and Gynecology*, 203, 475.e471-476.
- New Zealand College Of Midwives (2008). *Midwives Handbook for Practice*. Christchurch: New Zealand College of Midwives.
- NICE (2007). *Intrapartum care, care of healthy women and their babies during childbirth*. London: National Collaborating Centre for Women's and Children's Health
- Nizard, J., Haberman, S., Paltieli, Y., Gonen, R., Ohel, G., Nicholson, D., et al. (2009). How reliable is the determination of cervical dilatation? Comparison of vaginal examination with spatial position-tracking ruler. *American Journal of Obstetrics and Gynecology*, 200, 402.e401-402.e404.
- Nolan, M. (2001). Vaginal examinations in labour. *The Practising Midwife*, 4(6), 22.
- Nolan, M., Smith, J., & Catling, J. (2009). Experiences of early labour (1) Contact with health professionals. *The Practising Midwife*, 12(7), 21-24.
- Nolan, M., & Smith, J. (2010). Women's experiences of following advice to stay at home in early labour. *British Journal of Midwifery*, 18(5), 286-291.
- Norris, C., & Cacioppo, J. (2007). I Know How You Feel: Social and Emotional Information Processing in the Brain. In E. Harmon-Jones & P. Winkielman (Eds.), *Social Neuroscience; Integrating biological and Psychological Explanations of Social Behaviour*. New York: The Guilford Press.
- Norris, C., Chen, E., Zhu, D., Small, S., & Cacioppo, J. (2004). The interaction of social and emotional processes in the brain. *Journal of Cognitive Neuroscience*, 16(1818-1829).
- Norwitz, E., Robinson, J., & Challis, J. (1999). The control of labor. *The New England Journal of Medicine*, 341(9), 660 - 667.
- Nystedt, A., Hogberg, U., & Lundman, B. (2006). Some Swedish women's experiences of prolonged labour. *Midwifery*, 22, 56-65.
- O'Driscoll, K., Jackson, R., & Gallagher, J. (1969). Prevention of prolonged labour. *British Medical Journal*, 2, 477-480.
- Oakley, A. (1979). *From Here To Maternity: Becoming a Mother*. New York: Penguin Books.

- Oakley, A. (1993). *Essays on Women, Medicine and Health*. Edinburgh: Edinburgh University Press.
- Oakley, A. (2000). *Experiments in knowing: gender and method in the social sciences*. New York: The New Press.
- Ochsner, K. (2007). How Thinking Controls Feeling. In E. Harmon-Jones & P. Winkielman (Eds.), *Social Neuroscience: Integrating Biological and Psychological Explanations of Social Behaviour*. New York: The Guilford Press.
- Odent, M. (2001). New reasons and new ways to study birth physiology. *International Journal of Gynecology & Obstetrics*, 75, S39-S45.
- Pairman, S., & McAra-Couper, J. (2010). Theoretical frameworks for midwifery practice. In S. Pairman, S. Tracy, C. Thorogood & J. Pincombe (Eds.), *Midwifery: preparation for practice 2e* (2nd ed.). Sydney: Churchill Livingstone Elsevier.
- Pancheri, P., Zichella, L., Fraioli, F., Carilli, L., Perrone, G., Biondi, M., et al. (1985). ACTH, beta-endorphin and met-enkephalin: peripheral modifications during the stress of human labor. *Psychoneuroendocrinology*, 10(3), 289-301.
- Papps, E., & Olssen, M. (1997). *Doctoring Childbirth and Regulating Midwifery in New Zealand: A Foucauldian Perspective*. Palmerston North, NZ: The Dunmore Press Ltd.
- Parratt, J. (1994). The experience of childbirth for survivors of incest. *Midwifery*, 10, 26-39.
- Parratt, J., & Fahy, K. (2008). Including the nonrational is sensible midwifery. *Women and Birth*, 21, 37-42.
- Pedersen, C., & Boccia, M. (2002). Oxytocin Links Mothering Received, Mothering Bestowed and Adult Stress Responses. *Stress*, 5(4), 259-267.
- Pert, C. (1997). *Molecules of Emotion: why you feel the way you feel*. New York: Scribner.
- Petraglia, F., Florio, P., & Vale, W. (2005). Placental expression of neurohormones and other neuroactive molecules in human pregnancy. In M. Power & J. Schulkin (Eds.), *Birth, Distress and Disease: Placenta-Brain Interactions*. Cambridge: Cambridge University Press.
- Petraglia, F., Giardino, L., Coukos, G., Calza, L., Vale, W., & Genazzani, A. (1990). Corticotropin-Releasing Factor and Parturition: Plasma and Amniotic Fluid Levels and Placental Binding Sites. *Obstetrics & Gynecology*, 75(5), 784-789.
- Philpott, R., & Castle, W. (1972). The action line and treatment of abnormal labour. *British Journal of Obstetrics and Gynaecology*, 79, 599-602.
- Platek, S., Keenan, J., & Shackelford, T. (2007). *Evolutionary Cognitive Neuroscience*. Cambridge, MA: The MIT Press.
- Polit, D., Beck, C., & Hungler, B. (2001). *Essentials of Nursing Research. Methods, Appraisal, and utilization* (5th Edition ed.). Philadelphia: Lippincott.
- Polit, D. Beck, C., (2006). *Essentials of Nursing Research Methods, Appraisal, and Utilization* (Sixth Edition ed.). Philadelphia, USA: Lippincott Williams & Wilkins.
- Power, M., & Schulkin, J. (2005). *Birth, Distress and Disease: Placenta-Brain Interactions*. Cambridge: Cambridge University Press.
- Protopopescu, X., Butler, T., Pan, H., Root, J., Altemus, M., Polanecsky, M., et al. (2008). Hippocampal Structural Changes Across the Menstrual Cycle. *Hippocampus*, 18, 985-988.
- Pugh, A. (1990). My statistics and feminism - a true story. In L. Stanley (Ed.), *Feminist Praxis*. London: Routledge.

- Pullon, S., & Benn, C. (2008). *The New Zealand Pregnancy book: a guide to pregnancy, birth and a baby's first three months*. Wellington: Bridget Williams Ltd.
- Quigley, M., Hockley, C., & Davidson, L. (2007). Agreement between hospital records and maternal recall of mode of delivery: Evidence from 12 391 deliveries in the UK Millennium Cohort Study. *British Journal of Obstetrics and Gynaecology*, 114, 195-200.
- RANZCOG (2010). College Statement: Routine Intrapartum Care in the Absence of Pregnancy Complications. Retrieved 15/04/2010, from Royal Australia New Zealand College of Obstetricians & Gynecology <http://www.ranzcog.edu.au/publications/statements/C-obs31.pdf>
- Rees, C. (1997). *An introduction to Research for Midwives*: Books for Midwives, Cheshire England.
- Regan, L. (2005). *Your pregnancy week by week: What to expect from conception to birth*. London: Darling Kindersley Ltd.
- Ridley, M. (2003). *Nature via nurture: genes experience and what makes us human*. London: Harper Perennial.
- Roberts, L. (2010). Health information and the internet: the 5 Cs website evaluation tool. *British journal of Nursing*, 19(5), 322-325.
- Robohm, J., & Bittenheim, M. (1996). The Gynecological Care Experience of Adult Survivors of Childhood Sexual Abuse: A Preliminary Investigation. *Women and Health*, 24(3), 59 - 75.
- Rose, H. (2004). Hand, Brain and Heart: A Feminist epistemology for the Natural Sciences. In S. Harding (Ed.), *The Feminist Standpoint Theory Reader: Intellectual & Political Controversies* (pp. 67-80). New York: Routledge.
- Royal College of Midwives (2008). Midwifery Practice Guideline Latent phase. *RCM Evidence based guidelines for midwifery-led care in labour 4th edition*,
- Sanders, A. (1988). *Michael Polanyi's Post-Critical Epistemology: A reconstruction of some aspects of 'Tacit Knowing'*. Amsterdam: Rodopi B.V.
- Schmid, V., & Downe, S. (2010). Midwifery Skills for Normalising Unusual Labours. In D. Walsh & S. Downe (Eds.), *Essential Midwifery Practice: Intrapartum Care*. Oxford: Blackwell Publishing Ltd.
- Sesia, P. (1997). "Women come here on their own when they need to" Prenatal Care, Authoritative Knowledge, and Maternal Health in Oaxaca. In R. Davis-Floyd & C. Sargent (Eds.), *Childbirth and Authoritative Knowledge: Cross Cultural Perspectives*. Berkeley: University of California Press.
- Sharp, J. (1671). *The Midwives book or the whole art of midwifery discovered*: Henry E. Huntington Library and Art Gallery.
- Sharrock, W., & Read, R. (2002). *Kuhn: Philosopher of Scientific Revolution*. Cambridge: Polity Press.
- Shynlova, O., Tsui, P., Jaffer, S., & Lye, S. (2009). Integration of endocrine and mechanical signals in the regulation of myometrial functions during pregnancy and labour. *European Journal of Obstetrics & Gynecology and Reproductive Biology*, 144S, S2-S10.
- Simkin, P. (1991). Just another day in a Woman's life: Women's long-term perceptions of their first birth experience. part 1. *Birth*, 18(4), 203 - 210.
- Simonds, W., Katz Rothman, B., & Norman, B. (2007). *Laboring On: Birth in transition in the United States*. New York: Routledge.
- Skinner, J. (2005). *Risk and the midwife: A descriptive and interpretive examination of the referral for obstetric consultation practices and*

- attitudes New Zealand Midwives* Unpublished Doctorate, Victoria University of Wellington, Wellington.
- Skinner, J. (2010). Risk and safety. In S. Pairman, S. Tracy, C. Thorogood & J. Pincombe (Eds.), *Midwifery: Preparation for practice 2e* (2nd ed.). Sydney: Churchill Livingstone Elsevier.
- Smith, D. (1987). *The everyday world as problematic*. United States of America: Northeastern University Press.
- Smith, R., Mesiano, S., Nicholson, R., Clifton, V., Zakar, T., Chan, E., et al. (2005) The regulation of human partuition. In M. Power, & J. Schulkin (Eds), *Birth, distress and disease* (pp. 74-87). Cambridge: Cambridge University Press.
- Smyth, R., Alldred, S., & Markham, C. (2007). Amniotomy for shortening spontaneous labour (Publication no. Publication Number 10.1002/14651858.CD006167.pub2). Retrieved 19/04/2010, from Issue 4 The Cochrane Database of Systematic Reviews
- Soni, B. (2009). Effect of partogram use on outcomes for women in spontaneous labour at term: RHL commentary. *The WHO Reproductive Health Library*:. Retrieved 10/09/09 from http://apps.who.int/rhl/pregnancy_childbirth/chilbirth/routine_care/cd005461_sonibl
- Spiby, H., & Green, J. (2009). Is this really it? *Birth*, 36(4), 335.
- Stanford Encyclopedia of Philosophy (2005). Epistemology Retrieved 15/5/2010, from <http://plato.stanford.edu/entries/epistemology/>
- Stewart, D., & Shamdasani, P. (1990). *Focus Groups: Theory and Practice*. London: Sage Publications.
- Stewart, M. (Ed.). (2004). *Feminisms and the body*. London: Books for Midwives.
- Studd, J. (1973). Partograms and Normograms of Cervical Dilatation in Management of Primigravid Labour. [Obstetric]. *British Medical Journal*, 1973(4), 451 - 455.
- Studd, J., Clegg, K., Sanders, R., & Hughes, A. (1975). Identification of High Risk Labours by Labour Nomogram. *British Medical Journal*, 2, 545-547.
- Studd, J., & Duiagnan, N. (1972). Graphic Records in Labour. [Letter correspondence]. *British Medical Journal*, 4(5837), 426.
- Swaab, D., & Garcia-Falgueras, A. (2009). Sexual differentiation of the human brain in relation to gender identity and sexual orientation. *Funct Neurol*, 24(1), 17-28.
- Szurek, J. (1997). Resistance to Technology-Enhanced Childbirth in Tuscany: The Political Economy of Italian Birth. In R. Davis-Floyd & C. Sargent (Eds.), *Childbirth and Authoritative Knowledge: Cross-Cultural Perspectives*. Berkeley: University of California Press.
- Taylor, S., Klein, L., Lewis, B., Gruenewald, T., Gurung, R., & Updegraff, J. (2000). Biobehavioural Responses to Stress in Females: Tend-and-Befriend, Not Fight-or-Flight. *Psychological Review*, 107(3), 411-429.
- Terzidou, V. (2009). Endocrinology of parturition and preparation for labour. *Fetal and Maternal Medicine Review*, 20(1), 67-96.
- Thagard, P. (2006). *Hot Thought: Mechanisms and Applications of Emotional Cognition*. Cambridge, MA: The MIT Press.
- Thom, M., Chan, K., & Studd, J. (1979). Outcome of normal and dysfunctional labor in different racial groups. *American Journal of Obstetrics and Gynecology*, 135, 495-498.

- Thorogood, C., & Donaldson, C. (2006). Disturbances in the rhythm of labour. In S. Pairman, J. Pincombe, C. Thorogood & S. Tracy (Eds.), *Midwifery: Preparation for practice*. Sydney: Elsevier.
- Towler, J., & Bramall, J. (1986). *Midwives in History and Society*. London: Croom Helm.
- Tracy, S. (2006). Interventions in pregnancy, labour and birth. In S. Pairman, J. Pincombe, C. Thorogood & S. Tracy (Eds.), *Midwifery: Preparation for practice*. Sydney: Elsevier.
- Tracy, S., Sullivan, E., Wang, Y., Black, D., & Tracy, M. (2007). Birth outcomes associated with interventions in labour among low risk women: A population-based study. *Midwifery News*, 47(December), 31-35.
- Tuffnell, D. J., N Bryce, F Lilford, R (1989). Simulation of cervical changes in labour : Reproducibility of expert assessment. *The Lancet*, 1089 - 1090.
- Uvnas-Moberg, K. (2003). *The Oxytocin Factor: Tapping the Hormone of Calm, Love and Healing*. Cambridge: Da Capo Press.
- Vahratian, A., Hoffman, M., Troendle, J., & Zhang, J. (2006). The Impact of Parity on Course of Labour in a Contemporary Population. *Birth*, 33(1), 12-17.
- Wagner, M. (1994). *Pursuing the Birth Machine*. Australia: ACE Graphics.
- Wagner, M. (2001). Fish can't see water: the need to humanize birth. *International Journal of Gynecology and Obstetrics*, 75, S25-S37.
- Waldenstrom, U. (2003). Women's Memory of Childbirth at Two Months and One Year after the Birth. *Birth*, 30(4), 284-254
- Waldenstrom, U. (2007). Normal childbirth and evidence based practice. *Women and Birth*, 20(4), 175 -180.
- Walsh, D. (2003). We should go with the rhythm of labour. *British Journal of Midwifery*, 11(11), 656.
- Walsh, D. (2004). Feminism and intrapartum care: a quest for holistic birth. In M. Stewart (Ed.), *Pregnancy, Birth and Maternity Care: Feminist perspectives* (pp. 57 - 70). London: Books for Midwives.
- Walsh, D. (2007). *Evidence-based Care for Normal Labour and Birth: A guide for midwives*. London: Routledge.
- Walsh, D. (2010). Labour Rhythms. In D. Walsh & S. Downe (Eds.), *Essential Midwifery Practice: Intrapartum Care*. Chichester: Blackwell Publishing Ltd.
- Walsh, D., & Newburn, M. (2002). Towards a social model of childbirth: part one. [Professional issues]. *British Journal of Midwifery*, 10(8), 476 - 481.
- Walsh, T. (2009). Exploring the effect of hospital admission on contraction patterns and labour outcomes using women's perceptions of events. *Midwifery*, 25, 242-252.
- Webb, D. A., Bloch, J. R., Coyne, J. C., Chung, E. K., Bennett, I. M., & Culhane, J. F. (2008). Postpartum physical symptoms in new mothers: their relationship to functional limitations and emotional well-being. *Birth: Issues in Perinatal Care*, 35(3), 179-187.
- Wickham, S. (2004). Feminism and ways of knowing. In M. Stewart (Ed.), *Pregnancy, Birth and Maternity Care*. London: Books for Midwives.
- Wilcox, H. (2009). Embodied ways of knowing, pedagogies, and social justice: inclusive science and beyond. *NWSA Journal*, 21(2). Retrieved from <http://search.rdsinc.com.helicon.vuw.ac.nz>
- Winberg, J. (2005). Mother and Newborn Baby: Mutual Regulation of Physiology and Behaviour - A Selective Review. doi:10.1002/dev.20094

- Winter, C., & Cameron, J. (2006). The 'stages' model of labour: deconstructing the myth. *British Journal of Midwifery*, 14(8), 454-456.
- Winter, C., & Duff, M. (2009). The Progress of Labour: Orderly Chaos? In C. McCourt (Ed.), *Childbirth, Midwifery and Concepts of Time*. New York: Berghan Books.
- Witz, A. (2000). Whose Body Matters? Feminist Sociology and the Corporeal Turn in Sociology and Feminism. *Body and Society*, 6(1), 1 - 23. Retrieved from <http://bod.sagepub.com/content/6/2/1>. doi:10.1177/1357034X00006002001
- Word, R., Li, X., Hnat, M., & Carrick, K. (2007). Dynamics of cervical remodeling during pregnancy and parturition: mechanisms and current concepts. *Semin Reprod Med*, 25(1), 69-79.
- World Health Organisation, United Nations Population Fund, UNICEF, & the World Bank. (2006). Pregnancy, childbirth, postpartum and newborn care: A guide for essential practice. Retrieved 19/04/2010, from WHO: http://www.who.int/making_pregnancy_safer/documents/924159084x/en
- Zak, P., Stanton, A., & Ahmadi, S. (2007). Oxytocin Increases Generosity in Humans. *PLoS One*, 2(11). Retrieved from <http://www.plosone.org/article/info>. doi:doi:10.1371/journal.pone.0001128
- Zhang, J., Troendle, J., Mikolajczyk, R., Sundaram, R., Beaver, J., & Fraser, W. (2010). The Natural History of the Normal First Stage of Labor. *American College of Obstetrics and Gynecology*, 115(4), 705-710.
- Zhang, J., Troendle, J., & Yancey, M. (2002). Reassessing the labor curve in nulliparous women. *American Journal of Obstetrics and Gynecology*, 187(4), 824-828.
- Zwart, P. (1976). *About time: A philosophical inquiry into the origin and nature of time*. Amsterdam: North-Holland Publishing Company.