Pain in Childbirth:
Women's Expectations and Experience

Sigfríður Inga Karlsdóttir

Thesis for the degree of Philosophiae in Midwifery

Supervisor:
Herdís Sveinsdóttir

Advisors:
Ólöf Ásta Ólafsdóttir, Sigríður Halldórsdóttir

Doctoral committee:
Billie Hunter, Ingela Lundgren and Thor Aspelund

December 2016

UNIVERSITY OF ICELAND
SCHOOL OF HEALTH SCIENCES
FACULTY OF NURSING

HJÚKRUNARFRÆÐIDEILD

Sársauki í fæðingu: Væntingar og reynsla kvenna

Sigfríður Inga Karlsdóttir

Ritgerð til doktorsgráðu í ljósmóðurfræði

Umsjónarkennari:
Herdís Sveinsdóttir

Leiðbeinendur:
Ólöf Ásta Ólafsdóttir, Sigríður Halldórsdóttir

Doktorsnefnd:
Billie Hunter, Ingela Lundgren og Thor Aspelund

Desember 2016

HÁSKÓLI ÍSLANDS
HEILBRIGÐISVÍSINDASVIÐ
HJÚKRUNARFRÆÐIDEILD

And a woman spoke, saying, Tell us of pain

and he said: Your pain is the breaking of the

shell that encloses your understanding.

Even as the stone of the fruit must break, that

it's heart may stand in the sun,

so must you know pain.

(Gibran, 1993, pp. 82)

ISBN 978-9935-9313-2-0
Printed by Samskipti ehf.
Reykjavík, Iceland 2016

Ágrip

Bakgrunnur: Fáar rannsóknir hafa skoðað væntingar og reynslu kvenna af sársauka í fæðingu og hvaða þættir hafa forspárgildi um jákvæða reynslu af honum. Þá hafa fáar rannsóknir skoðað sársauka í fæðingu út frá heilsueflandi sjónarmiði (salutogenic) og hvernig konur undirbúa sig fyrir sársaukann og hvað þær gera sjálfar til að takast á við hann.

Markmið rannsóknarinnar var að auka þekkingu á væntingum og reynslu kvenna af sársauka í fæðingu og greina hvaða þættir hafa forspárgildi varðandi jákvæða reynslu af sársauka í fæðingu. Markmið rannsóknarinnar var einnig að skoða sárauka í fæðingu út frá heilsueflandi sjónarmiði og hvernig konur undirbúa sig fyrir sársaukann og hvað þær gera sjálfar til að takast á við hann.

Aðferðir: Ritgerðin byggir á þremur rannsóknum. Í fyrstu rannsókninni (*grein I*), sem var eigindleg rannsókn, var notast við aðferðafræði Vancouver-skólans í fyrirbærafræði. Gögnum var safnað með opnum viðtölum við 14 konur, sem voru valdar með tilgangsúrtaki. Skilyrði fyrir þátttöku voru að konurnar hefðu verið heilbrigðar á meðgöngu, að engin alvarleg frávik hefðu átt sér stað í fæðingunni og að börn þeirra hefðu verið heilbrigð. Viðtöl voru tekin við konurnar þegar liðnar voru ekki minna en átta klukkustundir og ekki meira en fjórir sólarhringar frá fæðingunni. Rannsókn tvö (*grein II*) var megindleg þverskurðarannsókn gerð á landsvísu þar sem þátttakendur voru valdir með hentugleikaúrtaki. Lagskipt var eftir búsetu og komu í meðgönguvernd, á 26 heilsugæslustöðvum á Íslandi, snemma á meðgöngu. Spurningalistar voru póstsendir heim til þeirra kvenna sem höfðu samþykkt að taka þátt í rannsókninni, 1111 konur tóku þátt og svarhlutfall var 63%. Þriðja rannsóknin (*grein III*) var ferlirannsókn þar sem konum sem svöruðu spurningalista í rannsókn tvö var sendur annar spurningalisti fimm til sex mánuðum eftir fæðingu. Alls voru greind gögn frá 726 konum. Gögnin voru greind án svara frá konum sem fóru í fyrirfram ákveðinn keisaraskurð. Svarhlutfall var 68%.

Niðurstöður: Helstu niðurstöður rannsóknanna eru þær að konur undirbúa sig á meðgöngu fyrir sársauka og nota eigin aðferðir til að takast á við sársauka í fæðingu. Þær hafa yfirleitt jákvætt viðhorf til sársaukans og margir mismunandi þættir hafa forspárgildi um jákvæða upplifun af sársauka í fæðingu. Með því að rannsaka sársauka fyrst frá sjónarhóli kvenna með eigindlegri aðferð (*grein I*) og út frá þeim niðurstöðum rannsaka fyrirbærið með megindlegum aðferðum (*grein II og III*) fékkst heildræn sýn á sársauka í fæðingu frá sjónarhorn kvenna. Í *grein eitt* var yfirþemað: fæðing er sársaukafull, krefjandi og erfið en eitthvað sem hægt er að komast yfir með mismunandi aðferðum og með aðstoð hvetjandi og valdeflandi ljósmóður. Konurnar notuðu ýmis ráð til að undirbúa sig á meðgöngunni fyrir sársaukann s.s. að afla sér upplýsinga, efla eigin styrk, gera sér grein fyrir eigin viðhorfum og að þróa með sér jákvætt viðhorf til sársaukans. Þegar að fæðingunni kom reyndu þær að láta líkamann leiða sig og treysta honum þrátt fyrir sársaukann. Konurnar lögðu áherslu á að tíminn milli hríðanna væri mikilvægur til þess að öðlast styrk til að takast á við sársaukann. Konunum fannst gagnlegt að fá að vera í eigin veröld án utanaðkomandi truflana, með stuðning frá valdeflandi ljósmóður og styðjandi aðstandanda. Sumum fannst nauðsynlegt að nota mænurótardeyfingu þegar sársaukinn varð yfirþyrmandi, öðrum fannst hjálplegt að gefa frá sér hljóð og muna að sársaukinn tæki enda og þær fengju barnið í fangið. Konunum fannst að sársauki í fæðingu væri ólíkur öðrum sársauka. Í kjölfar fæðingarinnar fannst þeim mikilvægt að vera sáttar við sársaukann og það að takast á við hann hefði styrkt sjálfsmynd þeirra. Í *grein II* voru megin niðurstöður þær að meðaltal styrks sársauka sem barnshafandi konur bjuggust við að finna í fæðingunni var 5.58 (SD = 1.38) mældur á sjö punkta kvarða þar sem lægsta gildi var einn (engin sársauki) og hæsta gildi var 7 (mesti hugsanlegi sársauki). Flestar konur (77%) höfðu jákvæð viðhorf til verkjameðferðar án lyfja og 35% höfðu jákvæð viðhorf til verkjameðferðar með lyfjum. Þær breytur sem höfðu sterkustu forspárgildi um það að vænta mikils sársauka í fæðingu voru eftirfarandi; neikvæð viðhorf til komandi fæðingar, lítil öryggiskennd (e. low manifestation of sense of security) og jákvætt viðhorf til verkjameðferðar með lyfjum. Konur sem bjuggu utan höfuðborgarsvæðisins bjuggust við minni

sársauka í fæðingu en þær sem voru búsettar innan þess. Megin niðurstöður í grein *III* voru þær að stór hluti kvenna upplifðu sársaukann sem fylgdi fæðingunni á jákvæðan hátt þar sem meðalgildi var 4,21 (SD = 1,73) á sjö punkta kvarða sem náði frá einum (mjög neikvæð upplifun af sársauka) að sjö (mjög jákvæð upplifun af sársauka). Þær breytur sem höfðu sterkustu forspárgildi fyrir jákvæða upplifun af sársauka í fæðingu voru: jákvæð viðhorf til fæðingar á meðgöngu, stuðningur frá ljósmóður meðan á fæðingu stóð, notkun mænurótadeyfingar, menntun og lítill sársaukastyrkur í fæðingu. Í rannsóknunum þremur var lögð áhersla á að greina þá þætti sem hafa verið skilgreindir heilsueflandi útkomubreytur í tengslum við konur í barneignarferlinu (salutogenic outcome variables) og samband þeirra við aðrar áhrifabreytur.

Ályktanir: Niðurstöður þessara rannsókna sýna væntingar og reynslu af sársauka í fæðingu frá sjónarhóli kvenna, sem hefur verið nefnt *þriðja sjónarhornið*, þar sem það fyrsta og annað eru sjónarhorn ljósmæðra annars vegar og lækna hins vegar. Niðurstöðurnar ítreka mikilvægi þess að taka tillit til sjónarhorns kvenna við skipulagningu barneignarþjónustu og þeirra heilsueflandi þátta sem geta haft áhrif á jákvæða upplifun af sársauka í fæðingu. Þetta krefst heildrænnar nálgunar og einstaklingsmiðaðrar umönnunnar, sem er í samræmi við salutogenesis þar sem lögð er áhersla á styrk hvers og eins fremur en á áhættu og sjúkdóma. Heilsueflandi þætti þarf að setja í forgang við skipulagningu barneignarþjónustu. Frekari rannsókna er þörf á þessu sviði, til dæmis þarf að rannsaka hvernig vænlegast er að efla jákvætt viðhorf til sársauka í fæðingu.

Lykilorð: verkir, verkjameðferð, væntingar, reynsla, meðganga, fæðing, forspárgildi, ljósmóðurfræði.

Abstract

Background: Few studies have focused on women's expectations and experience of childbirth pain and what predicts a positive childbirth pain experience. Moreover, few studies have explored childbirth pain from a salutogenic perspective and from the perspective of childbearing women, how they prepare for and manage the pain.

Aim: The aim of this doctoral thesis was to increase knowledge about women's expectations and experiences of childbirth pain and to identify predictors of pregnant women's expected intensity of childbirth pain and what factors predict a positive childbirth pain experience. Moreover, the aim was to study childbirth pain from a salutogenic perspective and how women prepare for and manage childbirth pain.

Methods: The thesis comprise three different studies. In the first study, which was a qualitative study (*Paper I*) the Vancouver School of doing Phenomenology was used as a research approach. Data were collected with open interviews with 14 women, selected through purposeful sampling, who had been healthy and had undergone normal labour and produced healthy babies not less than 8 hours to four days before the interview took place. In the second study (*Paper II*), a cross-sectional survey and self-reported questionnaires were used to collect data from pregnant women (n=1111) in Iceland early in the pregnancy, at 26 of the largest primary healthcare centres in Iceland. This consecutive national sample was stratified by residency, the questionnaires were posted to women that had agreed to take part in the study, and the response rate was 63%. The third study (*Paper III*) was a population-based cross-sectional cohort study, where the participants in *Study II* were sent a questionnaire five to six months after childbirth. Data from 726 women were used after removing data for women who had pre-planned C-sections. The response rate was 68%.

In all the studies, the focus was on salutogenic outcomes and their connection to other factors in women's own expectations and experience of childbirth pain.

Results: The main results of the three studies are that women do prepare themselves during pregnancy for managing the pain of childbirth and use their own strategies to manage childbirth pain. They generally have a positive attitude to pain during childbirth and many different factors predict positive childbirth pain experience. By studying pain first from the perspective of women with a qualitative approach (*Paper I*), and from those results investigating the object using quantitative methods (*Paper II and III*) a holistic view of pain in childbirth from the perspective of women was gained. *Paper I*: The overriding theme constructed was: childbirth pain was demanding and difficult but could be managed with different strategies and with support from encouraging and empowering midwives. The participating women used different means to prepare themselves for the birth, including obtaining information, increasing their own strength, taking into account their own attitudes and developing a positive attitude toward the pain. During the birth they tried to let their bodies lead the way and trusted their bodies, despite the pain. The women emphasized that the time between contractions was important in order to develop strength to manage the pain. The results showed also that the women found it useful to be, mentally, in their own world without outside interference, gaining strength from an empowering midwife and a supportive relative. Some thought it necessary to use an epidural when the pain was overwhelming, others felt it helpful to make a noise and to remember that the pain would end and they would be rewarded with a baby in their arms. The women felt the pain of childbirth was unlike any other pain. In the aftermath of the birth they felt it was important to be at peace with the pain and that the effort had strengthened their self-image. *Paper II*: The mean score for the expected intensity of childbirth pain was 5.58 (SD=1.38) measured on a seven-point scale. Most women (77%) had a positive attitude towards pain management without medication and 35% had a positive attitude to pain management with medication. The strongest predictors of a high expected intensity of childbirth pain score were: a negative attitude to the impending

birth, low manifestation of a sense of security, and a positive attitude to pain management with medication. Women living outside the capital area were less likely to have a high expected intensity of childbirth pain. *Paper III*: A large group of women experienced childbirth pain as positive, as the mean score was 4.21 (SD = 1.73) on a seven-point scale ranging from 'very negative' (1) to 'very positive' (7). The strongest predictors for women's positive childbirth pain experience were: a positive attitude to childbirth during pregnancy, support from the midwife during birth, use of epidural analgesia, high level of education and low intensity of pain in childbirth.

Conclusions: The results of these studies highlight women's expectations and experiences of childbirth pain, which has been named the *third paradigm*, the first and second being the midwifery and the medical paradigm. The results emphasize the importance of taking the women's perspective into account when planning childbirth services and health-promoting factors contributing to a positive childbirth pain experience.

This highlights a holistic approach and individualized care, which is in accordance with the theory of salutogenesis that focuses on the strength of each and every individual rather than on risk and diseases. These factors need to be highlighted when planning childbearing services. Further research is needed in this important area, for example, studying the most effective way to enhance positive attitude towards childbirth pain.

Keywords: pain, pain management, expectations, experience, pregnancy, childbirth, predictors, midwifery.

Acknowledgements

Finally, I have made it. Like most things that are important in life, getting my Ph.D. was hard work. I needed to be well prepared, it took a lot of energy, was very challenging and sometimes it was painful, but at the end it was all worth it. In that sense it is similar to childbirth and also regarding how important it is to have good people with you, in order to manage. I have been lucky to have so many good people supporting me on my journey.

First and foremost, I would like to thank all the women who participated in my studies. They trusted me for some of their most memorable experiences from their pregnancy, childbirth and after childbirth. During times that they felt sometimes very strong, powerful and amazing creatures, but sometimes at the same time often vulnerable and fragile. I am grateful to all those women for sharing their experience with me to enrich the literature with women's own expectations of childbirth pain and their experiences.

I thank my doctoral committee, Dr. Herdís Sveinsdóttir, Dr. Ólöf Ásta Ólafsdóttir, Dr. Sigríður Halldórsdóttir, Dr. Ingela Lundgren, Dr. Thor Aspelund and Dr. Billie Hunter. They have guided me through the bumpy road to getting my Ph.D. Thank you for all your support and criticisms, and for believing in me. You have respected my need for independence, but were always prepared to provide feedback and engage in challenging discussion. Sigríður and Ólöf Ásta have been my mentors for decades and I want specially to thank them for their guidance through my academic career. Thank you for sharing your wisdom with me, that has always meant a lot to me. I also want to thank Hildur Kristjánsdóttir, who has always supported me and been so generous to me. Thank you for all your precious time you have given me, to discuss my research projects and for being my co-author. You are so wise and I have learned so much from you.

To all my colleagues at the University of Akureyri. It is a privilege to work by your side and be part of a challenging workplace, with all the support and everyday encouragement that exists. Special thanks to Kjartan Ólafsson for providing advice and support about statistics. I also want to thank all the midwives, obstetricians and assistant nurses at the labour ward at Sjúkrahúsið á Akureyri. Working there parallel with my work as a midwife and hopefully manage to integrate added knowledge into the work at the labour ward.

To Professor Erla Kolbrún Svavarsdóttir, Professor Herdís Sveinsdóttir and to all my fellow Ph.D. students and at the University of Iceland, thank you for fruitful conversations throughout the doctoral seminars at the Faculty of Nursing and thank you for being my partners through the study.

On my journey to finish my PhD I have been travelling a lot. I have worked on the papers in many different places; in Hong Kong when I visited my friend Hulda Þórey, in Sweden when I visited my friend Hrafnhildur Rós, in Australia where a met my friend Nicky Leap and Pat Brodie and also in Mexico where I was invited to visit a maternity clinic which offered care for poor women living in the slum in Monterrey. But I have also been writing in a summerhouse in Iceland and I am thankful to Berglind and Knútur who have been so generous to lend me their place. I also want to thank Inga and Stefán, at Hotel Natur at Þórisstaðir at Eyjafjörður, who have invited me to their place to write several times. To all those glorious, helpful people I want to say, thank you for being so kind to me, you make the world a better place.

This thesis received financial support, for which I am extremely grateful, from the following funds: The Research Fund of the Midwifery Association of Iceland, The University of Akureyri Research Fund, The Memorial Found of Björg Magnúsdóttir, midwife, and Farmer Magnús Jónasson, as well as the Research Fund of Ingibjörg R. Magnúsdóttir, all of which are gratefully acknowledged.

This thesis is dedicated to my family; Bjarni, my husband and my dearest daughters Bryndís Elva, Hildur Marín and Helena Ósk, for supporting me in such a loving way through this process. I am so lucky to be part of your life. I

also want to thank my parents, Kristín and Karl, for being such good parents throughout my childhood, always supporting what I wanted to do and never doubting what I could do and what I wanted to do in life. That was an important message that I have taken with me through life. My siblings Fanney, Guðjón and Svana, it has been a great journey to go through life with you and a privilege in so many ways to be part of your families. Sharing the moments of happiness and sorrow with you has enriched my life in so many ways and made me evaluate both the easy and difficult times in life and made me the person I am today. Without my family I would not have managed.

Contents

List of tables

List of figures

List of original papers

This thesis is based on the following original publications, which are referred to in the text by their Roman numerals (I-III):

I. Sigfridur Inga Karlsdottir, Sigridur Halldorsdottir and Ingela Lundgren (2014). The third paradigm in labour pain preparation and management: The childbearing woman's paradigm. *Scandinavian Journal of Caring Sciences*, *28*(2), 315 -327.

II. Sigfridur Inga Karlsdottir, Herdis Sveinsdottir, Olof Asta Olafsdottir and Hildur Kristjansdottir (2015). Pregnant women's expectations about pain intensity during childbirth and their attitudes towards pain management: Findings from an Icelandic national study. *Sexual & Reproductive Healthcare, 6*(4), 211-218.

III. Sigfridur Inga Karlsdottir, Herdis Sveinsdottir, Hildur Kristjansdottir, Thor Aspelund and Olof Asta Olafsdottir. Predictors of women's positive childbirth pain experience: Findings from an Icelandic national study. Submitted for publication in *Women and Birth.*

Declaration of contribution

The individuals contributing to the planning, execution, and presentation of these studies were Sigfridur Inga Karlsdottir (SIK), Herdis Sveinsdottir (HS), Olof Asta Olafsdottir (OAO), Sigridur Halldorsdottir (SH), Ingela Lundgren (IL), Thor Aspelund (TA), Billie Hunter (BH), and Hildur Kristjansdottir (HK).

Licencing for the use of the Childbirth and Health Study data, for studies II and III was obtained by SIK, supervised by HS, and OAO. Grants were applied for by SIK, and grant applications revised. The original study conception and design was performed out by SIK, HS, OAO, SH and IL. Revision and final conception and design of the study were performed by all parties.

***Study I*:** Literature search, data collection, and data analysis were performed by SIK and supervised and revised by SH and IL. Data interpretation was performed by all parties. The manuscript was drafted by SIK and critically revised by SH and IL.

***Study II*:** Background literature search, analysis and synthesis, and data collection and analysis were performed by SIK and supervised and revised by HS, OAO, TA and HK. Data interpretation was performed by all parties. The manuscript was drafted by SIK and critically revised by HS, OAO, and HK.

***Study III*:** Background literature search, analysis and synthesis, and data collection, cleaning, and analysis were performed by SIK and supervised and revised by HS, OAO, TA and HK. Data interpretation was performed by all parties. The manuscript was drafted by SIK and critically revised by HS, OAO, TA and HK.

1 Introduction

Childbirth is often one of the most painful experiences that women go through during their lives but nonetheless it is also one of their greatest and most wonderful experiences. Therefore, it is surprising how little knowledge is available regarding women's own expectations and experiences of pain, how they manage the childbirth pain and what predicts a positive childbirth pain experience.

Studies have linked different factors to women's experiences of childbirth such as, expectations, former experience, attitude to the upcoming childbirth, attitude to pain management and the use of different pain management methods during childbirth (Hauck et al., 2007; Lindholm & Hildingsson, 2015; Malacrida & Boulton, 2014; Nilsson et al., 2013). Furthermore, a sense of ability to manage childbirth pain and the midwifery care also seem to play an important role in the childbearing experience (Leap et al., 2010). Hence, more information is needed on how these different factors affect women's experience of pain and what predicts a positive experience of childbirth pain.

It is important to strengthen women to deal with childbirth pain in every possible way in order to increase the chances of childbirth satisfaction (Goodman et al., 2004; Lally et al., 2014; Waldenström, 1999). In high income Western Societies midwives are the primary healthcare givers during pregnancy and birth and as such, it is important that midwives pay attention to their relationship with the women they are taking care of (Hunter et al., 2008). Hence, for good quality of care during the childbearing process having knowledge and understanding regarding women's expectations and experience of pain and how women manage the childbirth pain is essential.

According to Gibson (2014) women understand and experience labour as related to two competing views of childbirth pain. One is the biomedical view, where pain is seen as abnormal and where, therefore, analgesia use is encouraged to relieve the pain. The second is the midwifery view where it is

understood as a normal part of labour that should be worked with instead of against it. Physiological factors such as the rise in the pain threshold that occurs during pregnancy and labour makes women more capable of managing childbirth pain. In a study of forty pregnant women at term, the pain threshold was significantly higher during the active phase of labour than it had been during late pregnancy (Caton et al., 2002; Ohel et al., 2007). Even though pain management has been defined as encompassing pharmacological, nonpharmacological, and other approaches to prevent, reduce, or stop pain sensations (medical-dictionary.thefreedictionary.com) the question is what are the attitudes and coping mechanisms of the woman during pregnancy and childbirth. Many papers describe different kinds of pain management pregnant women prefer to use when they give birth, what they actually use and also papers that describe women's perception of pain during childbirth (Adams et al., 2015; Watson et al., 2007; Larkin et al., 2009). A study, using mata-analysis to assess the effects of nonpharmacological approaches to pain management in childbirth found that nonpharmacological approaches are associated with a reduction in epidural rate and a higher satisfaction with the childbirth experience (Chaillet et al., 2014).

A few studies have linked high personal control with various factors connected to childbirth, such as experience of pain, pain management and satisfaction with childbirth experience (Christiaens et al., 2010; Christiaens & Bracke, 2007; Goodman et al., 2004; Wright et al., 2000). Hence, the feeling of being in control during childbirth also decreased the use of pain relief among women (Cheung et al., 2007; Gibbins & Thomson, 2001).

1.1 Childbirth in Iceland

In Iceland, where this research project took place, the population is about 325,000 (Statistics Iceland, 2016) with approximately 4500 births per year and 70% of these births are at the National University Hospital of Iceland (Landspitali) in the capital area of Reykjavik. There are seven other maternity hospitals around Iceland, with different levels of service (Bjarnadóttir, 2014).

Iceland has 45 primary healthcare centres which offer antenatal care for healthy pregnant women. Fifteen of these are in the capital area and the other 30 are located all around Iceland. Midwives are the primary caregivers during normal pregnancy, childbirth and the post-partum period. The Directorate of Health in Iceland has published clinical guidelines suggesting that healthy primipara women (women who are having their first child) in normal pregnancy, should be offered maternity care approximately 10 times and multipara women (women who already have at least one child) approximately 7 times. The service should be provided by a midwife and a family doctor. Moreover, it is recommended that women are offered ultrasound twice, provided by a midwife or an obstetrician, when women are approximately twelve weeks and again at 19 weeks pregnant (Kristjánsdóttir et al., 2010). The services offered throughout the childbirth process are provided by the public healthcare system for all pregnant women (Registers Iceland, 2016).

The mean age of pregnant women is approximately 29 years and primipara women are approximately 38% of pregnant women. The rate of caesarean sections has been between 15-17% for the last few years. At Landspitali, 19% of the women who go into spontaneous labour are given oxytocin during labour and the induction rate was 25% in 2013 (Bjarnadóttir, 2014).

The newest European perinatal health report shows that the fertility rates in European countries varies from 1.17 in Latvia to 2.2 in Iceland. Figures for perinatal mortality rates per 1000 total births varied from 3.2 in Slovakia and Portugal to 9.2 in France. In addition the caesarean section rate varies from 15% in Iceland to 52% in Cyprus (EURO-PERISTAT Project with SCPE and EUROCAT., 2013).

According to the newest report on childbirth in Iceland, where figures for a ten years' period are published, the childbirth rate varied with the years in question. In 2004 the childbirth rate for the whole country was 4187, in 2009 it had raised to 4939, and in 2013 it had dropped again to 4236. The proportion for caesarean sections had also changed over the ten years' period. In 2004

the proportion was 16.6% and went up to 17.1% in 2007 and dropped to 15.5% in 2013. The number of instrumental deliveries varied from 6.5% up to 8.6% for the 10 years period (Bjarnadóttir, 2014).

The antenatal services have also been changing, and the antenatal visits have decreased for healthy women and women are discharged earlier from hospitals after childbirth (Kristjánsdóttir et al., 2010). Midwives offer private services after discharge from hospital for 5-7 days both for women after normal childbirth and after caesarean section and approximately 75% of all women attend the service (Directorate of Health, 2014).

The home birth rate for the last ten years has been increasing and in 2013 the home birth rate was 1.9 % for the whole country, the highest of the Nordic countries (Bjarnadóttir, 2013). There has been a debate about home birth safety in Iceland, as in many other countries (Gottfredsdottir et al., 2015) but a recent retrospective cohort study comparing the total population of planned 307 home births in 2005-2009, to a matched 1:3 of 921 planned hospital births, concluded that for low risk women, home birth was as safe as hospital birth (Halfdansdottir et al., 2015).

In the childbirth report which has been published every year in Iceland since 1994, outcome of care is mainly based on medical diagnosis. The only pain management outcome is whether or not the women have had epidural analgesia and in the last years the epidural rate has been up to 45% (Bjarnadóttir, 2014). No information is available regarding other methods of pain management or the experience of childbirth pain. However, records from the Head Midwife of Landspitali show that the use of nitrogen oxide therapy is approximately 55%, use of bath 26%, acupuncture 9% and use of hot or cold pads 20% (Oral information, Anna Sigridur Vernhardsdottir, June, 2016).

Midwifery education in Iceland, which is a two-year programme, has been at the university level since 1996, with the entry admission requirements a four-year Bachelor of Science degree in nursing and a licence to practice in nursing. Thus, the total length of midwifery education is six years (Ólafsdóttir, 2011). Most of the midwives work for governmental institutions and are the primary

healthcare givers during healthy pregnancy, normal birth and after childbirth. In accordance with Icelandic regulations all midwives are licenced to work as private midwives, offering services for home births and postnatal services at home for 5-10 days, strengthened by official guidelines on contraindications and transfer indications (Directorate of Health, 2007).

1.2 Midwifery and salutogenesis

The International Confederation of Midwives (2014) has published their philosophy regarding midwifery care: A holistic approach, continuous care, enhancing health, partnership with women as well as the carer grounded in understanding of social, emotional, cultural, spiritual, psychological and physical experiences of women as the core components of the philosophy. This philosophy puts the emphasis on the holistic approach and individualized care, which is in line with the theory of salutogenesis that focuses on the strength of each and every individual rather than on risk and diseases. Midwifery models of care have been identified as physio-social approach models, whereas the medical model's philosophical basis is a medico-technical approach (Berg et al., 2012; Hildingsson et al., 2016). In maternity care in western societies, the emphasis on pathogenic outcomes, risk and complications has been criticized. The maternity services have changed from a social to a medicalized system over the twentieth century and healthcare providers are debating whether the focus should be on risk or well-being (Bryers & van Teijlingen, 2010). In the childbirth literature, salutogenesis has been in the spotlight in the recent years, expressing how this approach links to midwifery models of care and can be used to improve the health care system and maternity care. The theory of salutogenesis could form a solid theoretical framework for health promotion looking at what creates health rather than on what are the limitations and the causes of diseases. Furthermore, a salutogenic approach focuses on personal resources and the direction towards health, instead of looking at individuals as only either healthy or sick (Downe, 2009; Ferguson et al., 2015; Perez-Botella et al., 2015; Smith et al., 2014). Focusing on salutogenic outcomes is truly a new way of enhancing the quality

of childbirth services, quality that potentially has positive impact on woman's life for years to come (Downe, 2009).

Aaron Antonovsky published the theory of Salutogenesis in 1979. His studies of survivors of the Holocaust showed that the well-being of the survivors was based on the connection between individuals, their experiences and their social histories. To his surprise he found that among the survivors were people with high levels of optimism and social success. According to Antonovsky, people that generally had the feeling of an inner trust and that everything would be all right were able to identify the benefits and use their general resistance resources in their surroundings (Antonovsky, 1979). A key concept of the theory is' sense of coherence' which is composed of three components: meaningfulness, manageability and comprehensibility. Measuring scale of Antonovsky's which measures people's experience of their own existing and potential resources to manage through life. Sense of coherence is a predictor of health and has been shown to influence the outcome of childbirth (Ferguson et al., 2015). However, the theory of salutogenesis entails much more than sense of coherence, it is a broad theory which focuses on resources, competencies, abilities, and assets of the individual, the group and society.

According to Downe and McCourt (2008) the theory of salutogenesis can be used in maternity care focusing on potentially powerful factors for optimum childbearing. They look at salutogenesis as a way of seeing, as opposed to pathogenesis and value positive childbirth experience and its implications for individual and societal well-being. This is important in our healthcare system, which is rooted in pathology, as the measured outcomes of childbirth are focused on medical diagnoses rather than positive health outcomes (Ferguson et al., 2015; Smith et al., 2014). Women's experience of childbirth pain has already been identified as one of the salutogenic focused outcomes together with mothers own view and normal vaginal birth (Smith et al., 2014).

In Europe, where over 5 million births occur per year, childbirth outcome is considered to be very good with high standards of care. Yet some countries

have up to 52.2% planned caesarean section rate, and the induction rate is almost 30% and has been increasing for years (EURO-PERISTAT Project with SCPE and EUROCAT., 2013).

1.3 Normal childbirth

Normal birth of healthy women is not easy to define. Different approaches to childbirth perhaps explain why. Increasing technicalization and medicalization have influenced which parameters have been used to define normal birth such as: no problems in pregnancy; spontaneous onset; thirty seven to forty three weeks gestation; singleton foetus; presenting by the vertex; clear amniotic fluid; progressively stronger; more frequent uterine contractions; progressive effacement of dilation of the cervix; bulging forewater under pressure from contractions; mother and baby show no abnormality; progressive foetal descent through birth canal resulting in a spontaneous vaginal delivery of a live healthy baby; and complete expulsion of the placenta and membranes (Gould, 2000). A well-known short clinical definition from the World Health Organisation is: normal labour occurring spontaneously at term with a vertex presentation of a singleton foetus and completed within 24 hours without trauma to mother or foetus (Tiran, 1997).

Normality varies between countries and different times and health professionals often identify normal birth as something between natural and common. While some people define normal birth as a natural birth without any intervention, others define labour as normal if it is vaginal and with an epidural for pain management (Waldenström, 2007). The concept of normal birth has also been discussed in connection with the concept of natural, good or good enough birth based on individual experience (Darra, 2009). Hence, no general definition of normal birth is acknowledged worldwide and over the years' different professions have approached the concept differently. In this thesis, however, the definition of the International Confederation of Midwives, partly based on Darra (2009), of normal birth is used: A unique dynamic process in which foetal and maternal physiologies and psychosocial contexts interact (with the goal of mother and baby being well). Normal birth is where the woman

commences, continues and completes labour with the infant being born spontaneously at term, with cephalic birth presentation, without any surgical, medical, or pharmaceutical intervention, but with the possibility of referral when needed (International Confederation of Midwives, 2016).

Larkin et al. (2009) assert that the experience of childbirth is an important life experience for women who have given birth and an individual, complex, painful, powerful process that can change the mother's life. This contributes to reinstating the culture of normality of childbirth, working with the pain tied to the philosophy of midwifery that includes having confidence in the woman to give birth physiologically (Mander, 2011). Seeing childbirth as a life experience with the salutogenic theory in mind, can be an opportunity to turn the focus in maternity care from treatment of poor health to service to health enhancement (Perez-Botella et al., 2015).

1.4 Definition of pain in childbirth

It is widely acknowledged that childbirth is painful, yet it is not formally a part of a definition of childbirth, normal or not. Different theories and definitions of pain have been composed. The International Association for the Study of Pain (2014) has defined it as "an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage" (International Association for the Study of Pain, 2014). This definition has been widely used but perhaps it is not suitable for pain during childbirth. On the other hand, maybe Melzack's and Wall's (1991) wide and multi-layered definition seems to be more suitable for childbirth pain: "a category of experiences, signifying a multitude of different, unique experiences having different causes and characterised by different qualities varying along a number of sensory, affective and evaluative dimensions". Melzack's definition is more in line with women's own description of pain in childbirth which often are different from other kinds of pain (Kennedy et al., 2004).

Mander (2011) claims that most theories have oversimplified the pain experience most particularly childbirth pain. Studies have shown, after all, that

women describe pain in labour as being different from any other pain (Callister et al., 2003). Pain in labour has been looked at as a unique kind of pain, something that brings both pleasure and excitement but also often anxiety (Lundgren et al., 2009; Melender, 2006). Women have, for example, described it as a transformative experience implying victory and strength, healing and short- and long-term outcomes (Kennedy et al., 2004).

1.5 Measuring pain in childbirth

Lack of guidelines for the assessment and documentation of the degree of childbirth pain is widely acknowledged and studies suggest that although pain is discussed in the delivery ward it is not done in a structured or consistent way. This may lead to a great difference in how midwives assess, document and treat childbirth pain (Bergh et al., 2015).

In the research literature on childbirth pain, there is no consensus regarding when and how pain should be measured. Among the most frequently used scales to measure childbirth pain, are the Visual Analogue Scale, Numerical Rating Scale, Verbal Rating Scale and the FACES Pain Scale revised. These measures have strengths and weaknesses, especially in terms of linear qualities and distribution. Perhaps the most important validity criterion, when measuring pain in childbirth, is the ability of the scale to detect changes in the intensity of the pain which they have all proved to have. The Visual Analogue Scale has more ration scale qualities than other pain intensity scales. However, the Numerical Rating Scale seems to be the most responsive and the one that best detects gender differences in pain intensity (Ferreira-Valente et al., 2011).

Other measurements to estimate the intensity of childbirth pain have also been used, such as handgrip force measured by a dynamometer which has the advantage of constant measurements and could be useful when measuring the effect of pain management (Wickboldt et al., 2015).

In a study conducted in Sweden, women's memories of childbirth pain were measured, the main results were that women estimated the intensity of

pain significantly lower one year after childbirth compared to two months after childbirth. The mean score of the intensity of childbirth pain five years after childbirth dropped from 5.6 to 5.0, as measured on a 7-point scale which is interestingly high still five years after the childbirth (Waldenström & Schytt, 2009).

An ethical point of view when doing research is that women state that measuring childbirth pain can interrupt their concentration while they are giving birth and could negatively affect their experience (Jones et al., 2015). Moreover, using scales with a static upper limit does not always work for women to accurately express their pain experience and needs to be expanded upon (Jones et al., 2015). Moreover, when assessing pain in practice, the midwives' own personality, their professional experience, their parity and their own attitude towards childbirth influences midwives' estimation of childbirth pain. That could bias their estimation and also their treatment and choice of pain management (Williams et al., 2013).

1.6 Childbirth pain and culture

In western society, pain is generally looked at as a very negative phenomenon. However, women often describe childbirth pain in a positive way. Research results indicate that some women think it is important not to see the pain as their enemy but so see the pain as something that helps them giving birth (Ampofo & Caine, 2015; Gibson, 2014; Larkin et al., 2009; Mohammad Ali Beigi et al., 2010; Whitburn et al., 2014). Some women seem to accept the pain as part of childbirth and state how important it is to be focused during the contractions so they can manage through the pain (Jones et al., 2015). In general, women often look at childbirth pain experience as part of their human growth especially if they manage it well, but it can also be too much for them which leaves them with a feeling of exhaustion and fear (Lundgren et al., 2009).

Studies have shown that childbirth fear is common but the prevalence of childbirth fear is different between countries (Kjærgaard et al., 2008; Toohill et al., 2014). Callister et al., (2003) summarized eight studies published from

1988 until 2002 to compare the pain experience of various groups of women who have their roots in different cultures. The women in the studies were born, for example in China, England, Thailand, Ukraine and Angola. The researchers conclude that women from different countries and cultures have different perceptions of pain and pain management.

Ever since Melender (1999) published her paper on experiences of fear during pregnancy, the literature has been growing on that topic. A recent study performed in six European countries explored the connection between fear of childbirth and risk of caesarean section. The results show that women with severe fear of childbirth were more likely to give birth with elective caesarean section than women who did not have severe fear of childbirth (Ryding et al., 2015). That study shows that it is important to discuss attitudes during pregnancy and that attitudes can have serious effects on the woman's mode of birth and also on her health after childbirth. According to Toohill et al. (2014) primipara women were more likely to have childbirth fear and the incidence among multipara women was not lower in the group who used epidural analgesia for pain management in their previous childbirth. Many other factors, both health characteristics, demographics and attitudes seem to influence women's use of pain management during childbirth (Stell et al., 2013).The fear of childbirth may influence women's self-esteem and this can in turn affect their capability of managing pain during labour (Cheung et al., 2007; Eriksson et al., 2006; Nilsson et al., 2012). Pain, former experience, fear of complications during labour and fear associated with concerns regarding the size of the baby has been identified as the most frequent items of fear of childbirth (Melender & Lauri, 1999; Nilsson et al., 2012). The attitude of the supporting people also influences the women's perception of pain (King & McCool, 2004). Results from studies have shown that women who are diagnosed early in pregnancy with childbirth fear and go to prenatal counselling have better results in the childbirth experience and a better feeling of control (Hildingsson et al., 2011). Moreover, according to Bergh et al. (2015), women's sense of control and empowerment is increased when professionals respond to their experience of childbirth pain with acknowledgement and understanding.

1.7 'Working with pain approach' versus 'pain relief approach'

Different approaches on how women manage childbirth pain have been discussed in the literature and, two main approaches have emerged; *working with pain* approach and *pain relief* approach (Leap & Anderson, 2008; Leap and Hunter, 2016; Down, 2004). The two different approaches, *working with pain* and towards *pain relief*, both focusing on the mother's experience and her contribution to its control. The working with pain approach is characterised by: seeing the role of pain as an important factor in normal childbirth; seeing pain as something that can have long-term benefits for women's experience and their lives, something that women can work with during childbirth; recognizing a genuine need for pain relief associated with difficult births; and seeing pain as a stimulator of endogenous opioids and part of the hormonal cascades that promote normal birth.

This working with pain approach helps midwives to look at pain as a normal part of childbirth, not necessary to be eliminated, but to be aware of their role to support women's own endorphin release during childbirth to maximize the likelihood of normal childbirth. Moreover, this approach indicates that women's expression of pain often gives midwives important information on the process during childbirth. That approach requires that midwives deal with their own discomfort around pain and that they be aware of their own approach to pain (Leap & Anderson, 2008).

Leap and Anderson (2008) propose that perhaps during pregnancy, women have to start to think of pain in a different way than they have done before. Pain during childbirth should be looked at in a different way than pain caused by anything else. Each approach has its own language describing different attitudes towards pain. The pain relief approach uses language suggesting that pain is a problem, uses a paternalistic approach to pain management, and often underestimates women's own ability to work with childbirth pain. During antenatal service the discussion about pain management is all about medication and whether the risk of a pharmacological

agent outweighs the benefits. On the other hand, the working with pain approach discusses childbirth pain as a normal process. The discussion is woven throughout the labour preparation sessions and the approach indicates the supportive role of birth companion and less use of pharmacological analgesia (Walsh, 2009). Nonpharmacological measures for relief of childbirth pain are relatively neglected in the health and medical literature (Caton et al., 2002), and often too much attention is paid to pain management with medication when pain in labour and birth is discussed. The conventional medical approach to the management of pain in birth has increasingly come to rely on the use of anaesthetic and analgesic drugs, in spite of reservations within the medical establishment itself (Huntley et al., 2004; Jones et al., 2012).

1.8 Women's expectations regarding childbirth pain

In this thesis expectations are defined as "a belief that something will happen or is likely to happen".

It has been repeatedly noticed that women's expectations of pain and pain management influences their birth experience (Gibbins & Thomson, 2001; Gibson, 2014; Lally et al., 2008). Recently, studies have put the focus on women's own expectations (Ampofo & Caine, 2015; Gibson, 2014; Haines et al., 2012; Jones et al., 2015; Lindholm & Hildingsson, 2015) and the strongest predictors for using different types of pain management were parity and preferences. Interestingly, women who used epidural analgesia, regardless of preferences, were two to four times more likely to have a less positive birth experience than women who did not prefer to use or used epidural analgesia during childbirth (Lindholm & Hildingsson, 2015). It has also been found that pregnant women expect childbirth to be painful and prepare themselves for the pain by reading, getting information from their midwives and creating a special attitude towards the pain. They also use imagination and try not to be stressed about the pain which they know will come and be aware that a positive attitude can affect their experience (Gibson, 2014).

Childbirth expectations seem to vary between primiparous and multipara women, and some authors have claimed that multiparas have more realistic expectations than primiparas and that perhaps multiparas need different information during antenatal visits (Hauch et al., 2007). Women prepare themselves differently for pain management, depending on what kind of maternity service they choose. For example, women in the US who chose a midwife's services, focused more on pain management without medication, compared to women choosing an obstetrician's services (Gibson, 2014). Klomp et al. (2014) investigated factors important to pregnant women with regards to their expectations for management of childbirth pain and found out that the most important factors were to get information about management of labour, support from midwife and partner and feeling that they would be able have control of childbirth pain management.

During pregnancy women start to prepare themselves for the pain in childbirth, and during antenatal visits their expectation should be discussed. Different methods that could help women to cope with the pain should be identified so that they could find themselves better prepared to give birth. Methods such as assisting them in identifying their strengths and their different coping strategies should be an important issue during antenatal visits (Escott et al., 2004). Studies have shown that antenatal education can increase women's use of epidural pain management (Ferguson et al., 2013). A direct correlation is between pregnant women's preferences for pain management in labour and their actual use, and parity also has influence on the use of different pain relief methods (Lindholm & Hildingsson, 2015).

Women's expectations regarding support during childbirth are not always met and according to a study by Hildingsson (2015) conducted in Sweden, 31% of women rated the support from midwives worse than they expected and midwives present in 19% of cases were worse than they had expected. Unmet expectations and a negative birth experience also seem to influence future reproduction, because women who have gone through a negative birth experience have fewer children after the negative experience. Moreover, they have longer intervals between children than women whose expectations are

met and go through a positive birth experience (Gottvall & Waldenström, 2002).

Different midwifery models of care emphasize that the service throughout the childbearing process should be organized with the potency of the relationship between the childbearing woman and her midwife as a priority (Renfrew et al., 2014). Through that relationship, in partnership with women, midwives should encourage pregnant women to explore their expectations regarding childbirth pain and work with their own strength to manage through the pain. It is the role of midwives to be “with women” through the childbirth process (Hunter & Warren, 2014).

Most women seem to look at childbirth pain as something that is part of giving birth and studies have shown that if pregnant women’s expectations regarding childbirth are met, they are more likely to experience the childbirth as a positive event (Hildingsson, 2015). Thus, meeting women’s expectations to maximize the likelihood of a positive birth experience is of great importance. Former negative experiences, such as a difficult or traumatic birth experience, can negatively affect expectations and increase the anxiety level. This in turn increases the perception of pain during labour (Nilsson & Lundgren, 2009).

1.9 Women’s experience of childbirth pain

Pain of childbirth is a very complex phenomenon that is hard to describe as it is a natural phenomenon which is linked to bringing forth of new life (Lowe, 2002; Lundgren & Dahlberg, 1998; van Bussel et al., 2010). Childbirth pain is one of the most intense pain experiences through women’s lives (Melzack, 1984; Niven & Brodie, 1996). Other factors than pain have been associated with childbirth satisfaction such as the amount of support received, quality of relationship with caregiver, involvement in decision making and personal expectations (Lavender et al., 1999). In this thesis the experience is defined as "the process of doing and seeing things and of having things happen to you” (Merriam Webster dictionary, 2016).

Perception of pain has been identified as one of the predictors for overall perception of women's childbirth experience and memories of a negative experience of pain in childbirth seems to be long-lasting, and many years after the childbirth those memories can still affect women (Bryanton et al., 2008; Gottvall & Waldenström, 2002; Lundgren et al., 2009; Waldenström & Schytt, 2009).

Findings from a prospective longitudinal cohort study conducted in Australia and Sweden shows that attitudes markedly affect women's experience of childbirth pain and pain intensity. A self-reported questionnaire used in the study contained a set of attitudinal statements regarding birth that was used to identify three different clusters: self-determiners, take it as it comes and fearful attitude. Women in the self-determiners group were more likely to experience less pain intensity and have more positive pain experience than women in the other groups (Haines et al., 2012).

A study conducted in Croatia among 150, both primipara and multipara women shortly after childbirth, show that several psychosocial factors i.e. parity, presence of partner and self-evaluatation of knowledge have been shown as significant to the intenisty and quality of experienced childbirth pain (Meštrović et al., 2015). Moreover, Costa-Martin et al. (2014) found out in their study that attachment anxiety and avoidance were much more correlated with intensity of childbirth pain and anesthetic sonsumption, than demographic and physical factors.

Midwives play a major role in supporting and guiding women through the childbearing process, including managing pain (Jones et al.,2012;Hodnett et al., 2012;Halldorsdottir & Karlsdottir, 2011). Midwives' role is to empower women to increase their sense of well-being and a feeling of being strengthened (Thelin et al., 2014). Studies have also indicated that organisational form of care, information, good preparation regarding pain relief, having support, taking active part and be in control are important for the childbirth experience (Gibbins & Thomson, 2001; Gibson, 2014; Halldorsdottir & Karlsdottir, 1996; Larkin et al., 2009; Malacrida & Boulton, 2014; Spaich et

al., 2013). Support from midwives seems to influence the experience of pain and trusting the midwife and other caregivers is important for women. Thus midwives' support is one of the things that women describe as a factor that helps them manage through the pain of labour (Escott et al., 2004; van der Gucht & Lewis, 2015).

Some women describe the pain in labour as different from any other pain they have experienced, and results show that women described the pain as the most memorable pain they have ever experienced. A bittersweet experience where the pain as such was almost unbearable, but yet they felt more happiness and love than they could imagine. Through the childbirth women also describe a kind of feeling of timelessness and spacelessness and a time when they shut out the external world (Ampofo & Caine, 2015; Callister et al., 2003; Dixon et al., 2014). In a qualitative phenomenological study conducted in Iceland, where 14 women were asked to describe their childbirth experience, pain was one of the factors that the women mentioned. The women described the pain in both positive and negative terms and identified many factors that influenced their experience, e.g. their own attitude towards the pain, preparation, and the care they got during the birth (Halldorsdottir & Karlsdottir, 1996). Moreover, women use many different paradoxical words when they describe childbirth pain. They seem to use both positive and negative words and also identify factors that influence their experience. Childbirth pain has been described as a very powerful feeling, full of energy, strength and sensational ecstasy. But at the same time a terrible feeling and an experience that their body is being torn apart. However, in spite of all these mixed feelings, women sense that they would do anything to get their baby (Lundgren & Dahlberg, 1998). In yet another study, conducted by Berg, Lundgren, Hermansson and Wahlberg, (1996) women used words of the pain being "powerful" and "like a storm" to describe their experience of childbirth pain. Some women even describe the pain as gratifying, expressing that even though it hurts a lot they can see that the pain can lead to something good (Goberna-Tricas et al., 2011). Women describe a negative experience of pain during childbirth not always in single words but in sentences like "something I

had never expected", "tears your whole body" and "feels like going to pieces" (Callister et al., 2003; Escott et al., 2004; Gibbins & Thomson, 2001; Halldorsdottir & Karlsdottir, 1996; Karlsdottir, 2009; Lundgren & Dahlberg, 1998; Lundgren, 2005).

The above descriptions from women's perspective show how excruciating the childbirth pain experience can be, and how important it is for midwives to understand and know women's expectations and experiences of childbirth pain.

1.10 Women's experience of managing childbirth pain

Pain management is defined as "a process that encompasses pharmacological, nonpharmacological, and other approaches to prevent, reduce, or stop pain sensations" (medical-dictionary. thefreedictionary.com). In a critical review of women's experiences of managing pain during childbirth the key conclusion was that childbirth pain was complex and multifaceted and that the experience of managing the pain is universal (van der Gucht & Lewis, 2015).

Mander (2011) has indicated that individual experience of the meaning of the pain is likely to affect one's ability to manage the pain and also the support and other interventions which may happen during childbirth. To be able to manage the pain during childbirth seems to be an important factor in childbirth satisfaction and, therefore, an important factor in their overall childbirth experience.

Women have different kinds of coping strategies to manage pain (Escott et al., 2004; Goodman et al., 2004). According to Callister et al. (2003) women using different coping mechanisms expressed how their faith helped them and how they prepared themselves during their pregnancy and believed that God would help them through the birth. Others thought about the great reward they would get at the end of the labour and some of the women had the experience of seeing other women giving birth and knew that they would also manage through this process. Some women managed through labour by imagining that

they were climbing a high mountain or running a marathon, i.e. they looked at the labour as a difficult task which they would very much like to finish and their rewards would be wonderful at the end. Escott et al., (2004) describe how women focus either on or away from the pain sensations to manage the pain. Other coping strategies that women found helpful include: self-statements, talking to oneself, giving the pain a meaning and concentrating on the fact that the pain would stop. In a qualitative study of Leap et al., (2010) women reflect positively on how, through their pregnancy and labour, their midwives promoted a sense of their ability to manage the challenges of childbirth pain.

In a Swedish study conducted by Waldenström (1999) more than 15 years ago, the experience of 1.111 women was explored in a questionnaire study. Women were asked to rate their childbirth experience on a scale from 1 (very negative) to 7 (very positive). Exactly half of the women rated their childbirth experience as very positive, while 3% of them regarded it as very negative. Women in the group that rated their childbirth experience as very negative had epidural for pain relief in 64% of cases compared with 3% of the women that regarded the childbirth experience as very positive. Ninety-one percent of the women in the group that rated their experience as very negative were primipara women. In another Swedish, randomized clinical trial, multiparous women who gave birth in a birth centre reported a higher pain score and used less pharmacological pain relief than other women giving birth in the hospital. In spite of that they did not experience a lower level of childbirth satisfaction (Waldenström, 1998). Nevertheless, much effort has been spent on providing pharmacological pain relief, maybe at the cost of continuous support of the midwife during birth. It has been considered whether increased use of pain medication has been a substitute for midwives coaching women through childbirth pain (Klomp et al., 2016).

Experience of severe pain in normal labour is one of the factors linked with negative birth experience (Hodnett, 2002; Waldenström et al., 2004). It is therefore very important that midwives and other health professionals, assist women who have gone through a negative birth experience to increase their trust in themselves and increase their ability to experience birth in a positive

way. Pharmacological pain relief such as epidural analgesia, reduces pain but it does not necessarily mean a more positive birth experience (Lindholm & Hildingsson, 2015; Waldenström, 1998; Waldenström, 1999). In a critical review of women's experiences of managing pain during childbirth positive outlook and acceptance of pain was acknowledged as key factor (van der Gucht & Lewis, 2015).

According to the Cochrane database (Anim-Somuah et al., 2011) the use of epidural analgesia does not improve maternal satisfaction with pain relief. However, epidural rate is increasing in maternity care, in the United States more than 61% of women who had singleton birth during vaginal birth received either an epidural or spinal anaesthetic (Meyer & Desai, 2015).

1.11 Summary

In the literature, outcome measures of maternity care are usually concrete and often based on a medical approach. For example, mode of birth, maternal mortality, weight of the new-born, diagnoses or interventions of midwives and obstetricians. The focus is then not on women´s own strategies, that is, their resources and strength or on salutogenic outcomes such as positive experience of childbirth pain. This increased medicalization of childbirth throughout high-income Western societies which, among other things, appears in the increased epidural analgesia rate and caesarean section rate, urges midwives and other healthcare providers to focus and base their work on salutogenic views and on women's own resources and strength. There is, therefore, a need to enhance the salutogenic perspective- and explore positive experience of childbirth pain and its impact on outcome of birth. This information adds to the knowledge about salutogenic outcomes of childbirth which can be valuable when planning healthcare service throughout the childbirth process. Focus on salutogenic outcomes as normal birth, women's own views and their experience of pain is a new way of evaluating the quality of childbirth services, quality that could have positive impact on the woman and her family around the time of childbirth and later in life.

Knowledge on women's expectations and experiences of childbirth pain is available to some extent; however, more information is needed especially on; how women prepare themselves for the pain during pregnancy, how much pain intensity they expect during childbirth, what their attitude is to different approaches or types of pain management, how they describe their experience of childbirth pain and pain management and what predicts that experience.

Different variables affect women's expectations and experience of childbirth and pain is one of them. Women have described childbirth pain as a very powerful feeling, full of energy, strength and a sensational ecstasy, but at the same time it can be an almost unbearable terrible experience. Most women seem to look at pain as something that is part of giving birth. Women prepare themselves by getting information on the childbirth process and different pain management possibilities which can be used during childbirth to manage through the pain.

Being a broad theory, which focuses on resources, competencies abilities and assets of the individual, the theory of salutogenesis is a good theory to base on when studying women's own expectations to pain and experience of childbirth pain in normal birth.

In this thesis three studies are presented: the first shows how women prepare themselves for childbirth pain during pregnancy, how they describe their experience of the childbirth pain and how they manage during and after childbirth: the second one, presents pregnant women's expectations about pain intensity during childbirth and their different approaches to pain management; and in the third one the main focus is on predictors of women's positive experience of childbirth pain.

2 Aims

This thesis comprises three studies presented in three original papers, each using different methodologies; a qualitative, phenomenological approach guided by the Vancouver-School of doing Phenomenology; a quantitative, cross-sectional survey and a population-based cross-sectional cohort study.

The aim of this doctoral thesis was to increase knowledge about women's expectations and experiences of childbirth pain and to identify predictors of pregnant women's expected intensity of childbirth pain and what factors predict a positive childbirth pain experience. Moreover, the aim was to study childbirth pain from a salutogenic perspective and how women prepare for and manage childbirth pain.

1. **Aim of study I/paper I:** To describe women's experiences regarding pain, pain preparation and how they manage pain in normal childbirth.

   The study was guided by the following research questions:

   1. How do women describe their experience of childbirth pain?
   2. How do women prepare themselves for childbirth pain?
   3. What do women do in order to manage childbirth pain?

2. **Aim of study II/paper II:** To explore pregnant women expectations to childbirth pain and to identify predictors of expected intensity of pain and attitude to pain management with and without medication.

   The study was guided by the following research questions:

   1. How much intensity of pain do pregnant women expect during childbirth?
   2. Do pregnant women have a positive or negative attitude to pain management without medication?
   3. Do pregnant women have a positive or negative attitude to pain management with medication?

4. What predicts women's expectations to expected intensity of childbirth pain?
5. What predicts attitude to pain management with and without medication?

3. **Aim of study III/paper III:** To explore women's childbirth pain experience and to identify predictors of women's positive childbirth pain experience.

The study was guided by the following research questions:

1. How much intensity of pain do women experience during childbirth?
2. What predicts positive childbirth pain experience?
3. What predicts women's positive experience of childbirth pain?

3 Materials and methods

The thesis consists of three studies that together describe women's expectations and experience of pain, how women manage childbirth pain and their outcomes and influential factors. Different methods are used in the studies in this thesis; a qualitative study using the Vancouver-School of phenomenology, a quantitative population-based cross-sectional study and a population-based cross-sectional cohort study. It is important to use various different methods when studying complex multifaceted issues of pain and pain management.

Study I was a qualitative study using the Vancouver-School of doing phenomenology as a methodological approach. *Study II* was a quantitative population-based cross-sectional study and *study III* was a population-based cross-sectional cohort study. In *Table 1* there is an overview of materials and methods used in the three studies.

In all three studies, the focus was on salutogenic outcomes, as identified by Smith et al. (2014), i.e. on women's expectations and experience of childbirth pain.

Table 1. An overview of aim, method design and variables, data sources and analysis in studies I-III.

	Study I / paper I	Study II / paper II	Study III / paper III
Aim	To describe women's experiences regarding childbirth pain preparation and management in normal childbirth.	To explore what expectations pregnant women have during pregnancy, regarding intensity of childbirth pain and their attitude to manage the childbirth pain. Hence, to identify predictors of expected intensity of childbirth pain and attitude to pain management with and without medication.	To explore women's childbirth pain experience and to identify predictors of women's positive childbirth pain experience.
Method and design	Qualitative study. Phenomenological approach guided by the Vancouver -School of doing Phenomenology.	Quantitative, population-based cross-sectional study using questionnaires for data collection.	Quantitative, population-based cross-sectional cohort study, using questionnaires for data collection.
Variables	Not applicable.	The main dependent variables were expectations about intensity of childbirth pain and attitudes toward pain management with and without medication.	The main dependent variable was positive experience of childbirth pain.
Data sources	In-depth interviews with 14 women, no less than 8 hours and no more than 4 days from the childbirth, limited to women that had normal labour and healthy babies. The interviews were tape-recorded and transcribed verbatim for each participant.	Pregnant women were recruited through 26 primary healthcare centres in Iceland. The consecutive national sample was stratified by residency. How many women were invited is not known. However, 1765 women initially accepted to participate and the final sample size was 1111 women. They filled out a questionnaire including questions regarding their expectations of intensity of childbirth pain and their attitude to pain management with and without medication.	Women who had filled out a questionnaire in *study II* (n=1111) were sent another questionnaire 5-6 months after childbirth. The questionnaire included questions regarding childbirth pain, pain management and childbirth satisfaction. Women who went to planned caesarean section were excluded. Participants were 726 women and the response rate was 68%.
Analysis	Thematic analysis according to the Vancouver-School of doing phenomenology.	Data analysed consisted of descriptive statistics and three binary logistic regression were performed.	Data analysed consisted of descriptive statistics and multiple regression analysis was used to find predictors for the positive experience of childbirth pain.

3.1 Study I - Women's experience of childbirth pain and the experience of managing the pain -*Method and analysis*

In line with the salutogenic approach of the study, the emphasis was on women's own experience of childbirth pain and managing the pain. This approach informed the aim of the study, the interview guide and the data analysis.

A qualitative method, The Vancouver-School of doing phenomenology, was used as the methodological approach (Halldorsdottir, 2000) in *study I*. Phenomenology has proven a good research methodology to illuminate women's lived experience in the context of giving birth (Miles et al., 2013). The phenomenological approach aims to enlarge and deepen the range of a person's immediate experience (Dahlberg, 2011). The Vancouver-School is a unique blend of phenomenology, hermeneutics and constructivism. All participants are seen in their context and the understanding is that individual perception is moulded by previous experience and their own interpretation of that experience. The aim of the inquiry is oriented to the production of reconstructed understandings from the point of view of the interacting individual. The major strength of the Vancouver-School is that each case construction is verified with the relevant participant, constructing the essential structure of the phenomenon from all the cases, and comparing the structure with the data (Halldorsdottir, 2000).

The Vancouver-School of doing phenomenology is animated by faith i.e. by a willingness to listen, and is characterised by a respect for each participant in the study, who is seen as a truth telling co-researcher (Ricoeur, 1990). This approach is, therefore appropriate regarding the vulnerable woman after birth. There are 12 basic steps of the research process of the Vancouver-School of doing phenomenology (Halldorsdottir, 2000) which are explained in more details in paper I. One open in-depth interview was conducted and recorded

with 14 women after birth. The initial interview question was chosen in line with the salutogenic approach; ‘Can you describe your personal experience of childbirth pain and the strategies you used to prepare for and manage the pain during your recent childbirth? The interviews were analysed for themes and the findings from each participant were constructed into an analytical framework and the essential structure of the findings were verified by four of the participants.

3.2 Study II - Pregnant women expectations of pain in normal childbirth -*Method and analysis*

Studies II and III are part of the Childbirth and Health study in Primary care in Iceland, and the data collection process has been described in detail elsewhere (Kristjánsdóttir et al., 2012). In this quantitative, population based cross-sectional survey, mailed self-reported questionnaires were used to collect data from women recruited at 26 primary healthcare centres distributed evenly around the Iceland that were willing to take part in the study. The catchment area covered about 60% of maternity care for healthy women, serving around 3000 pregnant women per year.

The questionnaire used in *Studies II and III is* mostly based on the Swedish KUB study (Hildingsson et al., 2002) translated and adapted for use in Iceland by the Childbirth and Health Study Group. The questionnaire for both *Study II and Study III* was pretested, first with 31 pregnant women of different ages, parity, and educational background. The questionnaire contained 99 questions about socio-demographic and obstetric background, attitudes to decision making, experience of previous birth and present pregnancy and the Cambridge Worry Scale. In *Study I* only part of the questionnaire was used. The questionnaire used in *Study II* has not been validated in Icelandic settings according to salutogenic outcomes.

The main dependent variables in *Study II* were three; expected intensity of childbirth pain, measured with the question: *How much pain do you think*

you will feel during childbirth?; attitude to pain management with medication, measured with the question: *What is your general attitude to pain management with medication during childbirth?, and* attitude to pain management without medication measured with the question: W*hat is your general attitude to pain management without medication during childbirth?*

As attitude has been identified as a salutogenic focused outcome, those questions in the questionnaire were chosen as the main dependent variables in *Study II*. Hence, for example attitude towards expecting a child, attitude to impending childbirth, preferred mode of birth and considering home birth with a midwife was chosen in advance, with background questions as independent variables in the study.

Midwives introduced the study to pregnant women 18 years and older who were fluent in Icelandic, at their first antenatal visit and invited them to participate. The questionnaire was sent to women who agreed to participate. One reminder was sent to all participants. Altogether 1111 pregnant women participated and descriptive data were presented for all variables. The questionnaire contained questions on sociodemographic and obstetric background, manifestation of a sense of security, expectations and attitude towards the impending childbirth and attitude towards pain and pain management with and without medication. To detect significant relationships between the variables, a chi-square test was used. To adjust for intervariable relations between possible predictors of expectations about intensity of pain, attitudes toward pain management with medication and attitudes toward pain management without medication, three binary logistic regressions were performed. Independent variables that were significantly associated with the dependent variables in a chi-square testing were entered into each regression using backwards elimination.

3.3 Study III - Women's experience of positive childbirth pain experience -*Method and analysis*

A population-based cross-sectional cohort study was used in *study III*. Five to six months after childbirth the women who responded to the questionnaire in *study II* were sent another questionnaire.

The questionnaire used in *Study III*, which like *Study I*I was part of the Childbirth and Health Study in Primary Care in Iceland, contained 107 questions, on health during the last months of pregnancy, physical and emotional well-being, manifestation of a sense of security, use of medications, social support, services used, onset of labour, care during birth, mode of delivery and pain management used in birth. Moreover, questions were posed about the experience of birth, duration of birth, satisfaction with birth and experience of childbirth pain. The questionnaire used in *Study III* has not been validated in Icelandic settings according to salutogenic outcomes.

The main dependent variables in *Study III* were women's experience of childbirth pain measured with: *What was your experience of pain during childbirth?* Other independent variables measured that had salutogenic focus were: Experience of duration of birth, experience of support during birth, experience of birth and overall satisfaction with care during childbirth.

One reminder was sent to all participants. No information was available on how many women were invited to participate but 1765 women agreed to participate in *study II* and were sent questionnaire again 5-6 months after childbirth. Before data analysis was conducted, the women who gave birth by planned caesarean section were excluded from the data. Descriptive data are presented as mean values with standard deviations and percentages. Comparison of proportions between groups was undertaken using cross-tabulations and Pearson's chi-squared test was performed. One stepwise multiple regression analysis was conducted, with the item women's childbirth pain experiences as the dependent variable.

3.4 Participants in studies I-III

An overview of the participants in the studies are presented in *Table 2.*

Table 2. Overview of the participants in study I- III.

Study I	Study II	Study III
The sample was 14 women, seven primipara and seven multipara women. The inclusion criteria were that: the women gave birth in the Regional hospital; were still staying there and were interviewed no less than eight hours and no more than four days after giving birth. The exclusion criteria for the study were if the women had complications during pregnancy, labour and birth, or the early postnatal period; if the women's babies had health problems; or if the women did not speak Icelandic. The women did all give birth at one hospital in the northern part of Iceland.	The sample consisted of 1111 pregnant women attending any of the 26 primary healthcare centres all round Iceland that participated. The inclusion criteria were to be fluent in Icelandic and to be 18 years or older. The average age of the women was 29.4 years, 93% were married or cohabiting with a partner, and the majority (62.9%) had higher education. Sixty-nine percent lived in the capital area, 39.5% were primiparas, and the average length of pregnancy at the time of responding to the questionnaire was 16 weeks.	The sample consisted of 726 women who answered a mailed questionnaire five to six months after childbirth. Forty women who delivered with planned caesarean section were eliminated. The average age of the women was 29.8, 93% were married or lived with a partner and the majority had a university/technical school education. Sixty-eight percent lived in the capital area and 41% were primipara women.

3.5 Ethical considerations

For all three studies approval was obtained from the health institutions concerned. Formal ethical approval to conduct *Study I* was obtained from the Bioethics Committee of Akureyri Hospital (148/2010) and notified to the Data Protection Authority (S4985/2010). All potential participants received oral and written information before they decided to take part. All participants were assigned pseudonyms to protect their anonymity. Studes II and III were approved by the Icelandic National Bioethics Committee (VSNb2008010023/03-1) and reported to the Data Protection Authority (S3695/2008 LSL/--).

4 Summary of main results

This doctoral thesis is an important contribution to the literature on women's perspective regarding childbirth pain. In healthcare around the childbearing process, the focus has traditionally been on the identification of risk factors and the reduction of adverse outcomes. The overall aim of this thesis, however, was to increase knowledge and understanding, within a salutogenic perspective, about women's expectations and experiences of pain, pain preparation and how women manage pain in normal childbirth. This means emphasizing a holistic approach, which in the childbearing context means, focusing on the strength of each and every childbearing woman. Since pain during birth is a complex phenomenon it is useful to examine the expectations and experiences of women with both qualitative and quantitative methods from a holistic perspective. The main results of the three studies are that women do prepare themselves during pregnancy for managing childbirth pain and use their own strategies to manage the pain. They generally have a positive attitude towards childbirth pain and many different factors predict their positive childbirth pain experience, such as attitude to the upcoming birth and former experience of support from midwives during childbirth.

4.1 Study I – Paper I

In *study I*, the results offer insight into the childbearing women's paradigm, that is their own experiences of pain in childbirth; how they prepare for childbirth pain, what they do themselves to manage the pain and what they think about the pain shortly after childbirth.

Figure 1. Three paradigms regarding childbirth pain, the focus of this study is on the childbearing women's paradigm.

The main overriding theme constructed was that *"the childbirth pain was difficult and demanding but could be managed with different strategies and with essential assistance from encouraging and empowering midwives and supportive partners"*. The metaphor of a journey, which has been used in former studies regarding women's experience of childbirth (Halldorsdottir & Karlsdottir, 1996) was chosen to symbolize childbirth pain experience. Four main themes referring to the journey with sub-themes were constructed in the study (see Figure 1).

The first, *preparing for the journey*, clarifies a variety of different strategies used by the participating women. Women for example read about pain management, created a positive imagination of themselves during childbirth and reminded themselves that although it would hurt a lot, it would disappear when the birth was over.

The second main theme constructed was *at the journey's commencement*, clarifying women's experience during early labour, for example how important it was to be in as good mental and physical condition as possible. Accordingly, not to be stressed and the multipara women stated that they had managed during former childbirths. The primipara women were in more doubt and thought that childbirth pain was unpredictable.

The third main theme was *the journey of no return through pain*, clarifying how the women experienced the childbirth pain, what strategies they used to manage it and what they thought was important in order to be able to manage. During childbirth they used "mental pain management", breathing, relaxation and urged themselves that they could manage. Some described, how they went to their "happy place" to manage the pain whereas others described the demanding and difficult nature of childbirth pain, as "overwhelming shadow" with feeling of "being stuck" and some felt "claustrophobic". Women also thought it helped to manage it if they had faith in their own body during the birth as well as using the pain management with or without medication whenever they needed to manage. Some of the women used different pain management techniques such as, a warm bath, hot pads, massage, Entonox, acupuncture or an epidural analgesia. The participating women found it important not just to focus on the contraction and the pain they were experiencing, but also on the time between contractions. Using the time between contractions to rest, focus their thoughts and prepare themselves for the next one was essential in managing the pain. Additionally, the women found the quality of the midwife's presence and professionalism of great importance in managing the pain. The midwives, they described, created a special atmosphere which was warm and secure, and conducive to their managing the pain and a supportive partner was crucial in order to manage the pain.

The fourth and last main theme constructed was *at the journeys end*, presenting women's view on how they saw the childbirth pain after the birth. The women described how their attitude towards the pain after the birth changed, seeing it in a much more positive light, expressing their conclusion that childbirth pain was different from other pain they had experienced.

Being able to manage the pain had in a sense strengthening impact on them. The pain had been worthwhile and somehow acceptable because it was part of giving birth. They also stressed the importance of being able to talk about the pain experience afterwards in order to be at peace with the pain and clarified that their attitude toward pain had changed. An overview of the themes is presented in *Figure 1.*

Childbirth pain was difficult and demanding but could be managed with different strategies and with essential assistance from encouraging and empowering midwives and supportive partners.

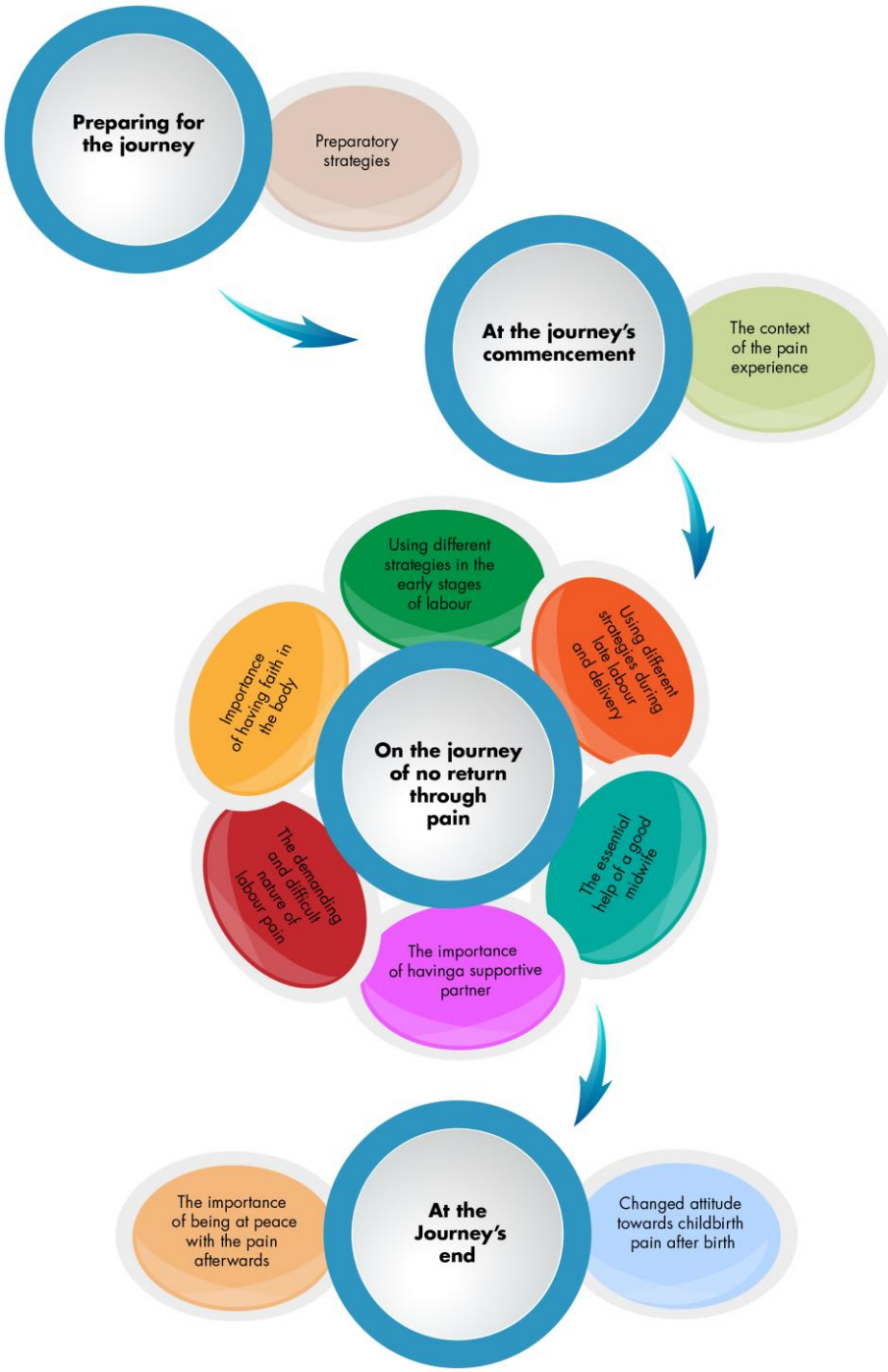

Figure 2. Overview of the main findings in study I.

4.2 Study II – Paper II

The main results in *study II* which were presented in paper II, show that the mean expected intensity of childbirth pain for pregnant women early in pregnancy measured on a 7-point scale was 5.58 (SD=1.38; range 1 to 7), 42% classified as high (≥6) expected intensity of pain and 58% classified as low (<6) expected intensity of pain. Low expected intensity of pain had a significant correlation with living outside the capital area, less formal education, a positive attitude toward expecting a child, a positive attitude toward the impending childbirth, women preferring vaginal birth and considering home birth with a midwife. The results regarding women's attitude to pain management with medication indicated that 35% of the women wanted to use pain management with medication, 59% wanted to try to avoid using it and 6% did not want to use pain management with medication. Additionally, 77% of the women wanted to use pain management without medication whereas 16% wished to try to avoid it and 7% were not interested in using it. The results indicated that 85.6% of the women had a very positive attitude toward expecting a child, 30.1% had a very positive attitude toward the impending birth, and 32.7% had a rather positive attitude.

Three binary logistic regression analyses with backward elimination were performed to identify the predictors of expectations about intensity of pain in childbirth, attitudes toward pain management with medication, and attitudes toward pain management without medication. Only variables with significant associations with each dependent variable were entered into the regression model. Regression analysis, significant predictors of expectant intensity of pain and pain management with and without medication are shown in *Table 3.*

Table 3. Overview of the regression analysis in study II.

I. Expected intensity of pain – Predictors of low intensity	95%		
	OR	**Low**	**High**
Attitude to impending childbirth	2.390	1.72	3.32
Manifestation of sense of security	1.796	1.28	2.52
Attitude to pain management with medication	1.633	1.19	2.24
Education	1.502	1.10	2.04
Consider home birth with a midwife	1.448	1.02	2.04
Residency	.680	.49	.93
II. **Attitude to pain management with medication – Predictors of positive attitude**			
Preferred mode of birth (Caesarean vs. not)	7.751	3.88	15.48
Attitude to home birth with a midwife	3.858	2.49	5.97
Attitude to impending childbirth	1.845	1.35	2.52
Support from partner	.223	.09	.58
Expected intensity of pain	1.593	1.16	2.19
Residency	.601	.43	.84
III. **Attitude to pain management without medication – Predictors of positive attitude**			
Education	2.148	1.57	2.97
Preferred mode of birth	.469	.31	.73
Consider home birth with a midwife	.469	.79	1.50

* Marital status (not cohabiting or married=1/other=0), education (higher education=1/other=0), attitude to the upcoming childbirth (very negative, negative and mixed feelings=1/ rather positive and very positive=0), attitude toward expecting a child (very negative, negative and mixed feelings=1/ rather positive and very positive=0) ATPM-WM (I wish to use pain management with medication =0/ try to avoid using pain management with medication and don't wish to use pain management with medication=1), ATPM-WOM (I wish to use pain management without medication =1/ don't wish to use pain management without medication and not interesting in using it=0), support from partner (I get all the support I need/I get nearly all the support I need=1 / I get little support/I get no support= 0), preferred mode of childbirth (vaginally=0/ cesarean section=1), considering homebirth with a midwife (yes=0/ no/I don't know=1).

As shown, in the *Table 3,* multiple predictors of women's *expected intensity of childbirth pain* were detected. The strongest predictors for low expected intensity of pain were; positive attitude to the impending childbirth,

high manifestation of a sense of security and negative attitude to pain management with medication. Not having higher education, considering homebirth with a midwife and residency outside the capital area, were also strong predictors for low expected intensity of childbirth pain. Predictors for positive *attitude towards pain management with medication* were; considering a caesarean section, not considering home birth with a midwife, having a negative attitude towards the impending childbirth, not having support from partner, expecting high intensity of childbirth pain and living in the capital area. Finally, predictors for positive *attitude to pain management without medication* were; higher education, preferring vaginal birth and considering home birth with a midwife.

4.3 Study III – Paper III

Study III was a population-based cross-sectional cohort study with convenient consecutive sampling, stratified according to residency. Women who participated in *study II* during early pregnancy (n=1111) were sent another questionnaire by post, five to six months after childbirth. Accordingly, 766 women participated in the study, with a response rate of 68%. Forty women who delivered with planned caesarean section were eliminated from the sample.

Thirty-eight percent of the women used epidural analgesia to manage pain and most women experienced support during labour and birth from a midwife or a midwifery student. Forty-four percent of the women had oxytocin stimulation during first or second stage of labour and the mean length of birth was 12 hours.

The study indicated that the large group of women experienced childbirth pain as positive as the mean score was 4.21 (SD = 1.73) on a seven-point scale ranging from ‘very negative’ (1) to ‘very positive’ (7). Experience of childbirth pain was not significantly associated with parity. Further results are presented in *Table 4.*

Table 4. Women's experience of childbirth pain and parity.

Experience of childbirth pain	N (%)	Primipara (%)	Multipara (%)
1 (very negative)	54 (8)	26 (9)	28 (6)
2	83 (11)	29 (10)	54 (13)
3	82 (11)	29 (10)	53 (13)
4	179 (25)	77 (27)	102 (24)
5	134 (19)	61 (22)	73 (17)
6	110 (16)	42 (14)	67 (16)
7 (very positive)	68 (10)	24 (8)	45 (11)
Total	**710**	**288**	**422**

Multiple regression was performed for positive experience of childbirth pain and twenty variables were introduced into the model in steps. In the full model (model 5), where all variables are controlled for the model showed that the strongest predictors for women's positive childbirth pain experience were: experience of duration (b=1.06), a attitude to the upcoming childbirth (b = - 0.30); experience of support from midwife during childbirth (b = 0.30); use of epidural analgesia for pain management (b = - 0.51); and experience of low intensity of pain during childbirth (b = - 0.45). *Table 5* presents five multiple regression models, from a simple mode with just use of epidural as a predictor up to the full model with all potential predictors of women's childbirth pain experience.

Table 5. Multiple regression models for potential predictors of women's childbirth pain experience.

	Model 1		Model 2		Model 3		Model 4		Model 5	
	b	p	b	p	b	p	b	p	b	p
Use of epidural as pain management	-0,98	0,00	-1,01	0,00	-0,75	0,00	-0,71	0,00	-0,51	0,00
Age			0,00	0,79	0,00	0,79	0,00	0,70	-0,01	0,65
Multiparous women			0,13	0,30	0,16	0,21	0,13	0,26	0,10	0,37
Elementary school			-0,40	0,11	-0,51	0,04	-0,33	0,14	-0,28	0,21
University/technical school (higher education)			-0,47	0,05	-0,56	0,02	-0,34	0,11	-0,31	0,14
Recidency outside the capital area			-0,06	0,69	-0,13	0,36	-0,04	0,73	-0,03	0,79
Low manifestation of sense of security					-0,19	0,20	-0,14	0,33	-0,08	0,58
Expected intensity of pain during childbirth					-0,03	0,52	0,12	0,01	0,10	0,03
Attitudes to impending childbirth					-0,31	0,00	-0,29	0,00	-0,30	0,00
Attitudes to pain mangement with medication					-0,35	0,01	-0,28	0,03	-0,28	0,02
Positive attitude to pain management without medication					0,06	0,70	0,16	0,24	0,18	0,18
Support from midwife during childbirth							0,37	0,04	0,30	0,09
Induced labour							0,01	0,93	-0,01	0,97
Vacum or forceps delivery							-0,13	0,61	0,04	0,88
Acut Caesarean Section							-0,03	0,90	0,11	0,60
Length of birth in hours							0,00	0,65	0,02	0,01
Stimulation during childbirth							-0,04	0,51	0,00	0,99
Intensity of pain in childbirth							-0,51	0,00	-0,45	0,00
Experience of duration of childbirth									1,06	0,00
Satisfaid with care during childbirth									0,23	0,06
Ajusted R^2		0,08		0,08		0,13		0,27		0,32

The following variables were coded as dichotomous; use of epidural or not and primipara or multipara, elementary school / other education, university/technical school education, residency outside the capital area or not, high manifestation of a sense of security or low manifestation of sense of security, positive attitude to upcoming childbirth or not, positive attitude to pain management with medication or not, positive attitude to pain management without medication or not, satisfaction with support from midwife during childbirth or not, onset of labour or not, vacuum extraction or vaginal delivery, acute caesarean section or vaginal delivery, oxytocin stimulation during childbirth or not, high intensity of pain or low intensity of pain, positive experience of childbirth duration or not, and positive experience of overall satisfaction with care during childbirth or not.

5 Discussion

In healthcare around the childbearing process, the focus has traditionally been on the identification of risk factors and the reduction of adverse outcomes and on a pathogenic view regarding pain and pain management. The overall aim of this thesis, however, was to increase knowledge and understanding, within a salutogenic perspective, about women's expectations and experiences of pain, pain preparation and how women manage the pain in normal childbirth. This means emphasizing a holistic approach, which in the childbearing context means, focusing on the strength of each and every childbearing woman.

Since pain during birth is a complex phenomenon it is useful to examine the expectations and experiences of women with both qualitative and quantitative methods from a holistic perspective. The results of the studies presented give information about the third paradigm regarding childbirth pain; *the childbearing women's paradigm*. Moreover, within a salutogenic paradigm, the results add new knowledge of predictors of pregnant women's expected intensity of childbirth pain and predictors of a positive childbirth pain experience within the salutogenic paradigm. Since childbirth pain is a complex phenomenon it proved fruitful to examine women's expectations and experiences with both qualitative and quantitative methods to attain a more holistic perspective. By studying childbirth pain, firstly from the perspective of women with a qualitative approach (*Paper I*), and secondly, following on those results, investigating childbirth pain, again from women's perspective, using quantitative methods (*Papers II and III*), a holistic view of childbirth pain from the perspective of childbearing women was expanded upon. Salutogenic outcomes have been identified as factors that contribute to well-being and positive healthy outcomes (Smith et al., 2014). In this thesis the focus is mainly on such factors, for example on attitude, expectations and on positive experience of pain in childbirth.

5.1 Women's experience of childbith pain and the experience of managing the pain (study I)

The findings in *study I* add to the literature regarding women's experience of childbirth pain and the experience of managing the pain. Women used many different strategies to manage the pain, adding to the list of strategies created by Escott et al. (2004) and Leap et al. (2010), particularly regarding "mental pain management" and using the time between the contractions to relax and to gather the strength to manage the pain during next contraction and stay focused. Women's description of their experience of childbirth pain adds to the descriptions by other authors (Callister et al., 2003; Escott et al., 2004; Gibbins & Thomson, 2001; Lundgren & Dahlberg, 1998; Lundgren, 2005) e.g. how they went to their "happy place" to manage the pain whereas others described the demanding and difficult nature of childbirth pain, as "overwhelming shadow" with feeling of "being stuck" and that some felt "claustrophobic". The findings in *study I,* indicate, in line with other studies, that the preparation and experience of and managing childbirth pain is a complex, individual and multifaceted experience (Ampofo & Caine, 2015; Jones et al., 2015; Larkin et al., 2009). The overriding theme identified was how childbirth pain was demanding and difficult but can be managed with different strategies and with support from encouraging and empowering midwives.

Getting valuable information during pregnancy in order to attain the feeling that they were prepared for the childbirth pain was important for the participating women. They saw it as a key issue to "get ready" for the pain, to see the childbirth pain as challenging, to be "mentally prepared" for the pain during pregnancy and to see themselves as capable of giving birth. Some of the women stated that it was important to have faith in their body and the feeling that the body would guide them through the childbirth. These findings indicate, the same as other findings have suggested, that women receiving information, preparing themselves and understanding the origin of the childbirth pain, are more likely to perceive the eventual birth as positive and

perceive childbirth pain as nonthreatening life experience (Gibson, 2014; Hauck et al., 2007; Lowe, 2002).

Lowe (2002) proposes that all strategies that have the potential to reduce women's sense of pain are valuable for increasing the possibility of a positive outcome of childbirth. Findings presented in this thesis show that women used different ways to manage the pain, actions like mental pain management, going to a happy place and counting during the contractions. The women saw epidural analgesia as an alternative, not necessarily good or bad, just something they could use if needed as one of the many ways to manage the pain. One more interesting finding was how women saw the time between contractions as a strategy to use to gather their strength to deal with the next pain period. This is an important insight, not discussed in the literature to any extent. In this sense, it is important to look at a wide range of different strategies to manage childbirth pain and not just on the classical division of pain management with or without medication. That traditional classification probably underestimates the potential of women's own capacity to manage through childbirth pain. Noteworthy is that the women themselves did not talk about or point out if they were using pain management with or without medication, but looked at their own capacity to manage the pain in their own way.

Besides being well prepared, the women in *study I*, felt that the midwives' guidance was very important. Similar findings can be found in many studies (Carlsson et al., 2012; Dixon et al., 2014; Halldorsdottir & Karlsdottir, 1996). The support from midwives and partners was important which refers to the importance of the quality of relationship with the caregiver, involvement in decision making and personal expectations (Hunter et al., 2008; Lavender et al., 1999). Hunter et al. (2008) have stated that the relationship between the woman and her midwife is the hidden thread in the tapestry of maternity care and how important it is to pay attention to how best it can be developed, nurtured and sustained. The partner's support was also important both for the women and their partners, as has been found in other studies (Darvill et al., 2010; Johansson et al., 2015). Furthermore, support from spouses, relatives

or friends during childbirth seems to be a crucial factor in helping women maintain control in labour (Cheung et al., 2007; Gibbins & Thomson, 2001). Women also claim that support and a feeling of teamwork along with the midwife are important factors in the birth experience (Dahlberg & Aune, 2013).

After the birth the women stated that it had helped them greatly to talk about the pain with their midwife in order to make peace with the pain, regardless of positive or negative experience. In a study about the need for postpartum talk about the experience of childbirth (Olin & Faxelid, 2003), one of the issues considered was about pain and pain relief. This relates to how talking about past emotionally laden events results in a variety of psychological, social and physiological changes that often lead to improvements in health (Booth, 2012). From this perspective, the women´s childbirth pain experience in the study can be understood as the dichotomy of great pain and great joy that may coexist. Accordingly, based on a salutogenic view, managing the pain through the birth, for the women in this study, it created a sense of accomplishment, strengthening their self-image with a positive outcome and experience of childbirth. The findings in *study I* became part of the progress of deciding the focus in data analysis in *study II and III* as the findings indicated issues that were important to women regarding childbirth pain.

5.2 Pregnant women's expectations about pain intensity during childbirth and pain management (*study II*)

Study II provided new information on women's expectations early in pregnancy, about intensity of childbirth pain and predictors of attitude towards different types of pain management that relates to the models of working with pain or pain relief (Leap & Anderson, 2008). This study indicates that women have expectations about pain early in pregnancy, with 99% of the respondents answering the question about expected intensity of pain and their attitudes toward pain management. A recent Icelandic study showed that pain experienced worse than expected was a predictor for women's experience of

too little time spent on information about birth during antenatal care (Gottfredsdottir et al., 2016). This indicates that pain in childbirth should be addressed more extensively, early and continuously through pregnancy. Noteworthy, is that guidelines on antenatal care recommended the ideal time for preparation of birth to be before or at 36 weeks of pregnancy (National Institute for Health and Clinical Excellence, 2008).

Most women expected the impending birth to be very painful, (with the mean expected intensity of pain being 5.58 on a seven-point scale). This study confirmed previous findings that pregnant women expect severe childbirth pain. However, it is not easy to compare findings from other studies on expected intensity of pain, as the measurements are different and measured prospective or retrospective, at different times during pregnancy or after childbirth. In some of the studies it seems to be higher but others found lower scores (Abushaikha & Oweis, 2005; Ampofo & Caine, 2015; Ayers & Pickering, 2005; Capogna et al., 1996; Hug et al., 2008).

Cultural differences by residency showed that women lived in the capital area of Iceland expected a higher score of expected pain intensity, that women living in the rural areas. One reason could be that levels of continuity of care is higher in the urban areas and previous studies have claimed that continuous support during labour affects the experience of pain (Hodnett et al., 2012).

The strongest predictors of a high expected intensity of pain were negative attitudes toward impending childbirth, a low manifestation of sense of a security, and a positive attitude to pain management with medication.

No similar studies on predictors of expected intensity of pain was found in the literature. However, other studies have indicated that there is a complex relationship between experience of pain in childbirth and variables such as support, control and attitude to pain (Escott et al., 2005; Gibson, 2014; Leap & Anderson, 2008; Leap et al., 2010; Mander, 2011; van der Gucht & Lewis, 2015; Whitburn et al., 2014).

A large group of the women in our study displayed a positive attitude to pain management without medication and that is in line with other studies

(Leap et al., 2010; Lindholm & Hildingsson, 2015). The variables that predicted this was: higher education, preferred mode of birth and consider home birth with a midwife. On the other hand, the women in the minority group that had a positive attitude to pain management with medication were more likely to have: a negative attitude toward the impending childbirth, caesarean section as the preferred mode of birth, not considering home birth with a midwife, a high expected intensity of pain and residency outside the capital area. No study was found in the literature studying similar predictors. This finding is in line with a prospective survey conducted in UK, showing that a positive antenatal attitudes toward obstetric interventions was a predictor for use of epidural analgesia during birth (Green & Baston, 2007). This also agrees with a study showing that the attitude toward the impending childbirth is a predictor of attitudes toward pain management (Christiaens et al., 2010).

This study detected multiple predictors of women's expected intensity of pain and attitude to pain management, which can be used early and throughout pregnancy to assist women to prepare themselves for the childbirth pain.

5.3 Women's experience of positive childbirth pain experience (*study III*)

In line with a salutogenic view, *study III* emphasized what predicts women's positive childbirth pain experience. In the presented study more than half of the women (62%) had positive attitudes towards the impending childbirth and majority of women had an overall positive childbirth experience. Focusing on the pain experience in particular, the strongest predictors for positive experience were: a positive attitude towards childbirth during pregnancy, support from a midwife during childbirth, the use of epidural analgesia, education and low intensity of pain in childbirth.

One study on predictors in relation to fear, attitudes and belief of childbirth, mode and experiences was found with similar results. Indicating how attitudes have impact on women's experience of childbirth pain and pain intensity (Haines et al., 2012). Results from quantitative studies show that the use of epidural analgesia may contribute to some women's childbirth satisfaction

(Hidaka & Callister, 2012) while other results indicate that use of an epidural does not automatically improve women's birth experience (Anim-Somuah et al., 2011; Lindholm & Hildingsson, 2015; Waldenström, 1999).

Women in this study who experienced low intensity pain during childbirth did experience the pain more positively than women who experienced high intensity pain. Being realistic about expectations of intensity of childbirth pain narrows the expectations-experience gap and potentially supports them in experiencing greater satisfaction with labour (Lally et al., 2008). Recent study from Iceland showed that experiencing pain worse than expected was a predictor for women's experience of too little time spent on information about birth during antenatal care (Gottfredsdottir et al., 2016).

In accordance with woman' centred midwifery model of care midwife's support (Berg et al., 2012; Bryar & Sinclair, 2011; Halldorsdottir & Karlsdottir, 2011) constituted a predictor for a positive childbirth pain experience. Interview data based on birth stories from 20 Icelandic midwives showed how fundamental it is to be present at the side of the woman during childbirth, where a relationship is developed based on reciprocity. The act of being present with the woman "sitting over" during birth, is for the midwives crucial to develop skills and learn to provide support and meet the needs of women and their families (Ólafsdóttir, 2011).

In a critical review of qualitative research investigating women's experience of coping with childbirth pain, different factors seem to influence their experience. Support and feeling safe through the childbirth seem to be key elements to enhance the coping ability and avoid feelings of loneliness and fear. Hence acceptance of pain was acknowledged as important for their coping ability of women and although the studies reviewed were conducted in seven different countries the experience seemed to be universal (van der Gucht & Lewis, 2015).

According to Fahy's and Parratt's (2006) theory, one of the midwives' roles is to create birth territory and use midwifery guardianship to create and maintain the territory. By using integrative power and midwifery guardianship

women's own power can be harnessed. Then it is more likely that the woman feels secure, the birth is more likely to be normal, and the woman is more likely to be content with her birth experience.

In a study conducted in Australia, pregnant women, when asked about their preferences regarding pain relief in childbirth, said that support from a midwife was most highly preferred compared to other methods (Madden et al., 2013). Furthermore, results from a longitudinal Swedish cohort study show that expectations of support from the midwife was less likely to be achieved than expectations of support from partner (Hildingsson, 2015). Accordingly, more attention should be paid to the supportive role during childbirth and the fundamentality continuous support of the midwife at birth, not using pharmalogical pain management as a substitute for the midwife (Klomp et al., 2016; Ólafsdóttir, 2011). A positive childbirth experience can have positive effects on the mother's future life, just as a negative birth experience seems to have a negative impact (Goodman et al., 2004; Lundgren et al., 2009). According to a systematic review of Hodnett et al. (2012) the most pivotal factor for a positive childbirth experience is support. The birth room should be a safe place for childbearing women, a place where they feel safe, connected to their own body, being cared for by a supporting and caring midwife who is aware of their need for encouragement, support and continuous care (Berg et al., 2012; Nilsson, 2014).

Leap and Hunter (2016) address the importance of midwifery support during childbirth and maintain that it can be a challenge for midwives to urge women to find their inner strength when managing childbirth pain. They also state that it is important for women to have a positive attitude to the upcoming birth. This is in line with the results of Study III, as among the strongest predictors for a positive childbirth pain experience were a positive attitude to the upcoming birth and experiencing support from the midwife during childbirth.

This study indicates that there are many predictors for increasing the likelihood of a positive childbirth pain experience that health care providers should bear in mind when planning pregnancy and childbirth services.

5.4 Summary of discussion and future research

In this thesis of three studies, a women's paradigm of childbirth pain is presented within the salutogenic framework. Findings describe women's own expectations and experience of childbirth pain and different approaches to pain preparation and management. One conclusion of the studies is that midwives and other health professionals should work with childbearing women in order to enhance their positive attitude towards childbirth pain. An effective pain relief method preferred by women provides an opportunity to decrease the intensity of the pain and to work with the pain in such a way that it improves women's experience of childbirth. These studies are important and add knowledge about what predicts positive experience of childbirth pain. They give evidence-based information about how to prepare and work with women during pregnancy and birth based on the predictors that contribute to their positive experience of childbirth pain.

According to the participating women in *study I*, focusing not just on the contraction but rather on the time between them helped them to manage through the childbirth pain. That is something that little attention has been paid to, something that could be investigated further from the perspective of women and partners and use the findings to prepare pain management during pregnancy and in childbirth. The intensity of childbirth pain was one of the focuses in study II. Measuring the pain intensity and not how or the ways women manage the pain can be looked at as being under the influence of a medical approach.

For future research it could be valuable, based on a midwifery approach, to study what predicts childbearing women's management of pain - a salutogenic approach that would perhaps improve our services, benefit women, supporting women's own resources in working with the pain or towards pain management. For midwives' quality of care it is important to have a good understanding of how each and every woman prepares herself for childbirth pain and works with the pain during her birth. The findings from this thesis contribute to enhanced understanding of childbearing women's

expectations and experience and is valuable in order to improve childbirth services in the future.

5.5 Strengths and limitations

In *study I*, the interviews were conducted in one geographical area, which might be a limitation, because the experience and culture, and the limitation to women who spoke Icelandic, are probably so similar as not to allow for the expression of the diversity of women. As in all qualitative studies, the researchers' preconceived ideas could have influenced the results. Another limitation could be that the study took place in one labour ward, and some of the interviews took place very shortly after birth. In the Vancouver-School emphasis is placed on the reflection of the participant upon the experience, and preferably six months should pass from the experience to the interview, so that could be considered as a limitation. Finally, the researchers could have commented in more depth on how our interpretation of the findings was shaped by our own background, such as gender and life situation (the authors are all women who have given birth), our education and work experience, as well as our culture. The strengths of *study I* could, on the other hand, be that the authors have many years of experience conducting qualitative research with different methods, especially using the Vancouver-School of doing phenomenology. The authors have all conducted studies regarding women' experience of childbirth, which could be considered as a strength.

In two of the studies, II and III questionnaires were used to collect data which has its advantages and disadvantages. Although the response rate was rather high, it has, as other studies that use questionnaires for date collection, disadvantages concerning the types and the range of the scales used. A limitation of *study II* that has to be considered is that the women's expected intensity of pain and attitudes toward pain management were only measured once. Their attitudes and expectations might have changed before they actually went into labour. Lack of information about non-responders may also conceal selection biases because of the lack of documentation of how many women were invited to participate but did not do so. However, the strength of

this study lies in the sample size, response rate, representativeness of the whole population of pregnant women attending primary healthcare in Iceland, consecutive selection of the study sample, stratification of the sample by residency and that most parts of the questionnaire had previously been used in numerous studies in Sweden, Finland and Iceland. In *study III* the limitation is that women's experiences of pain in childbirth were only measured once and their experience might have changed during the time that passed since they gave birth. Lack of information about non-responders may also conceal selection biases. Moreover, the questionnaire used in S*tudies II and III* has not been validated in Icelandic settings according to salutogenic outcomes which may be a limitation in both these studies.

The strength of this study lies in the sample size, response rate, and representativeness of the whole population of childbearing women in Iceland, consecutive selection of the study sample, stratification of the sample by residency and that most parts of the questionnaire had previously been used in studies in Sweden, Finland and Iceland.

In all the three studies it can both be seen as a strength and a limitation that the candidate has been working along with her academic work in a clinic as a midwife for 26 years. Being an 'inside researcher' can give valuable insight into women's expectations and experience during pregnancy and it could be seen as a strength to for example, have the experience of working with the same woman during her pregnancy, birth and the first week after birth. It puts the focus of the researcher on the whole process and the importance of women's own expectations and experiences. On the other hand, it can also be a limitation, as preconceived ideas could have affected the interpretations of the data and the results (Zulfkar, 2014).

No Icelandic study was found researching women's expectations and experiences regarding pain in childbirth and, thus no Icelandic study could be used for comparison. This has to be taken into account when considering limitations. The findings of the studies may be influenced by Icelandic culture

i.e. Icelandic attitude towards childbirth pain and its management. Therefore, the findings can not be applied directly to other cultures.

5.6 Implication for childbirth services

Midwifery models of care include the perspective that “being with” the woman is pivotal and for the midwife to guide each and every woman through the childbearing process in a reciprocal relationship. One of the midwifery goals is to strengthen the woman in managing her pain during birth. The findings of this research can be used to enhance woman-centred goals regarding childbirth pain management and put forward midwifery strategies and clinical guidelines. This information could be used in prenatal education, during discussion of birth in pregnancy, childbirth and debriefing after childbirth (*Table 6*).

Table 6. Woman-centred midwifery goals regarding childbirth pain.

Childbearing process	Woman-centred midwifery goals	Midwives' strategies based on studies I-III
Pregnancy	• The woman knows different strategies to manage childbirth pain. • The woman has a sense of security and feels capable of managing the childbirth pain. • The woman feels ready to go into labour. • The woman has a positive attitude towards childbirth pain. • The woman has a positive attitude towards working with pain during childbirth.	• To discuss the woman's educational needs during pregnancy. • To discuss the woman's feelings regarding childbirth pain and the strategies she intends to use during labour. • To discuss how the woman thinks her sense of being able to manage through the pain can be improved during pregnancy. • To inform the woman of the different pain management strategies and things she can do to manage the childbirth pain. • To discuss the woman's attitude towards childbirth and childbirth pain. • To discuss how important, it is to have a positive attitude towards childbirth pain. • To practice mental pain management such as imagining a successful childbirth process.
Childbirth	• The woman is aware of different strategies to manage the pain. • The woman is able to listen to and go with the flow of her body. • The woman experiences that her midwife is in harmony with her. • The woman is aware of the supporting role of her midwife and her birth partner.	• To create a connection with the woman and to be sensitive to her needs and wishes regarding pain management. • To encourage the woman to use her mind and her body to manage through the childbirth pain. • To support the woman in every way and encourage her through the labour. • To help her and support her in her choice of strategies to manage childbirth pain. • To create calm and a secure environment for the woman in childbirth. • Being present for the woman without interfering with the flow of her body. • To be in harmony with the woman during childbirth by connecting with her. • To support and encourage her birth partner to support her in every way he or she can.
After childbirth	• The woman is satisfied with the midwifery services she received. • The woman is at peace with the pain. • The woman is satisfied with how she handled the childbirth pain. • The woman has a positive childbirth pain experience.	• Discuss the woman's feelings regarding the childbirth pain after the birth. • Discuss the woman's feelings regarding the effect of her experience of childbirth pain on her life, both positive and negative. • To maximize the likelihood of childbirth satisfaction regarding her experience of pain and pain management.

Woman-centred midwifery goals regarding childbirth pain could also be used as a basis for teaching in midwifery education. Using the opportunity during the childbirth process to strengthen women's own resources and maximize the likelihood of positive childbirth pain experience is of importance and in line with a salutogenic approach.

Although many healthcare providers are critical on the medicalization of childbirth, they must remember that some women need medical services based on their expectations during pregnancy and experiences of pain in childbirth. On the other hand, based on a salutogenic view, it must be acknowledged that most women are perfectly healthy and are not in a great risk of having health problems during their pregnancy and birth.

A mutual understanding between the woman and her midwife of how the woman expects and experiences the pain during the childbearing process is crucial, so that the two parties concerned can work together and maximize the likelihood of a good experience for the woman in terms of childbirth pain. For a good quality of care midwives must be sensitive to women's expectations and experience of pain in childbirth and pay attention to all the different factors that influence women's experience of pain and be aware of how they can affect different factors in order to increase the likelihood of women's positive childbirth pain experience. Working with each woman in identifying her own strength and resources to manage through the childbirth pain is an empowering experience. Women should be given positive messages about their bodies and abilities to give birth using their own capacity by supporting their choice in pain management throughout the childbirth.

Midwifery services must be in accordance with the latest available knowledge within the profession and with the wishes and needs of childbearing women in mind. Midwives should be aware of their role to strengthen women in every way they can and must be aware of the powerful influence they can have on the lives of women and their families. Accordingly, to work with women

on an equal basis to maximize the likelihood of a good experience of childbirth pain is crucial

6 Conclusions

The overall aim of this thesis was to increase knowledge and understanding about women's expectations and experiences of pain, pain preparation and how women manage the pain in normal childbirth. It is based on a salutogenic view, of how women prepare themselves for the pain and how healthcare providers could support women in having a positive experience of childbirth pain. In high-income Western societies, increased technology around childbirth has increasingly focused on what is abnormal and dangerous and less on what healthcare providers can do to improve health and maximize the likelihood of a positive childbirth pain experience. The results of these studies highlight women's own perspective regarding childbirth pain, which we call *the third paradigm.* The first and second paradigm are the midwifery and the medical paradigms. All three paradigms are important and none of them should replace the other when planning childbirth services. By studying childbirth pain, firstly, from the perspective of women with a qualitative approach (*Paper I*), and secondly, based on those results, investigating childbirth pain, again from women's perspective, using quantitative methods (*Papers II and III*), a holistic view of childbirth pain from the perspective of women was expanded.

In view of the fact that the majority of pregnant women are healthy and the majority of births are vaginal births, it is noteworthy how little focus has been on salutogenic views regarding childbirth pain experience. Therefore, the information presented in this thesis on women's predictors on their attitudes to childbirth pain during pregnancy and on predictors on positive childbirth pain experience is valuable and can be used to improve service throughout the childbirth process. The emphasis is on a holistic approach and individualized care, which is in line with the theory of salutogenesis, which in the childbearing context focuses on the strength of each and every childbearing woman, rather than on risk and diseases connected to her condition.

7 References

Abushaikha, L., & Oweis, A. (2005). Labour pain experience and intensity: A Jordanian perspective. *International Journal of Nursing Practice, 11*(1), 33-38.

Adams, J., Frawley, J., Steel, A., Broom, A., & Sibbritt, D. (2015). Use of pharmacological and non-pharmacological labour pain management techniques and their relationship to maternal and infant birth outcomes: Examination of a nationally representative sample of 1835 pregnant women. *Midwifery, 31*(4), 458-463. doi:http://dx.doi.org/10.1016/j.midw.2014.12.012

Ampofo, E. A., & Caine, V. (2015). A narrative inquiry into women's perception and experience of labour pain: A study in the Western Region of Ghana. *International Journal of Africa Nursing Sciences, 3*, 86-93.

Anim-Somuah, M., Smyth, R., & Jones, L. (2011). Epidural versus non-epidural or no analgesia in labour. *Cochrane Database Syst Rev, 12.*

Antonovsky, A. (1979). *Health, stress and coping*. San Fransisco: Jossey-Bass.

Ayers, S., & Pickering, A. D. (2005). Women's expectations and experience of birth. *Psychology & Health, 20*(1), 79-92. http://dx.doi.org/10.1080/0887044042000272912

Berg, M., Ólafsdóttir, Ó. Á., & Lundgren, I. (2012). A midwifery model of women-centred childbirth care–In Swedish and Icelandic settings. *Sexual & Reproductive Healthcare, 3*(1), 79-87.

Berg, M., Lundgren, I., Hermansson, E., & Wahlberg, V. (1996). Women's experience of the encounter with the midwife during childbirth. *Midwifery, 12*(1), 11-15.

Bergh, I. H., Johansson, A., Bratt, A., Ekström, A., & Mårtensson, L. B. (2015). Assessment and documentation of women's labour pain: A cross-sectional study in Swedish delivery wards. *Women and Birth, 28*(2), e14-e18.

Bjarndóttir, R. I. (2014) Yfirlit yfir fæðingar árið 2013. In R. I. Bjarnadóttir, G. Garðarsdóttir, A. K. Smárason & G. I Pálsson (Eds.), Skýrsla frá Fæðingarskráningunni fyrir árið 2013 (pp.6-7). Reykjavík: Landspítali, Kvenna- og barnasvið.

Booth, R. (2012). Emotional expression and disclosure. *The Oxford Handbook of Psychoneuroimmunology,* pp.107-128.

Bryanton, J., Gagnon, A. J., Johnston, C., & Hatem, M. (2008). Predictors of women's perceptions of the childbirth experience. *Journal of Obstetric, Gynecologic, & Neonatal Nursing, 37*(1), 24-34.

Bryar, R., & Sinclair, M. (2011). Midwifery theory development. In R. Bryar M. Sinclair (Ed.), *Theory for midwifery practice* (2nd ed., pp. 59-91). Palgrave Macmillan.

Bryers, H. M., & van Teijlingen, E. (2010). Risk, theory, social and medical models: A critical analysis of the concept of risk in maternity care. *Midwifery, 26*(5), 488-496.

Callister, L. C., Khalaf, I., Semenic, S., Kartchner, R., & Vehvilainen-Julkunen, K. (2003). The pain of childbirth: Perceptions of culturally diverse women. *Pain Management Nursing, 4*(4), 145-154. doi:http://dx.doi.org/10.1016/S1524-9042(03)00028-6

Capogna, G., Alahuhtat, S., Celleno, D., De Vlieger, H., Moreira, J., Morgan, B., . . . Vertommen, J. D. (1996). Maternal expectations and experiences of labour pain and analgesia: A multicentre study of nulliparous women. *International Journal of Obstetric Anesthesia, 5*(4), 229-235. doi:http://dx.doi.org/10.1016/S0959-289X(96)80042-2

Carlsson, M., Ziegert, K., Sahlberg-Blom, E., & Nissen, E. (2012). Maintaining power: Women's experiences from labour onset before admittance to maternity ward. *Midwifery, 28*(1), 86-92.

Caton, D., Corry, M. P., Frigoletto, F. D., Hopkins, D. P., Lieberman, E., Mayberry, L., . . . Young, D. (2002). The nature and management of labor pain: Executive summary. *American Journal of Obstetrics and Gynecology, 186*(5, Supplement 1), S1-S15.

Chaillet, N., Belaid, L., Crochetière, C., Roy, L., Gagné, G., Moutquin, J. M., . . . Bonapace, J. (2014). Nonpharmacologic approaches for pain management during labor compared with usual care: A Meta-Analysis. *Birth, 41(2), 122-137.*

Cheung, W., Ip, W. Y., & Chan, D. (2007). Maternal anxiety and feelings of control during labour: A study of Chinese first-time pregnant women. *Midwifery, 23*(2), 123-130.

Christiaens, W., Verhaeghe, M., & Bracke, P. (2010). Pain acceptance and personal control in pain relief in two maternity care models: A cross-national comparison of Belgium and the Netherlands. *BMC Health Services Research, 10*(1), 268.

Christiaens, W., & Bracke, P. (2007). Assessment of social psychological determinants of satisfaction with childbirth in a cross-national perspective. *BMC Pregnancy and Childbirth, 7*, 26. doi:10.1186/1471-2393-7-26

Costa-Martins, J. M., Pereira, M., Martins, H., Moura-Ramos, M., Coelho, R., & Tavares, J. (2014). The role of maternal attachment in the experience of labor pain: a prospective study. *Psychosomatic medicine*, *76*(3), 221-228.

Dahlberg, U., & Aune, I. (2013). The woman's birth experience—The effect of interpersonal relationships and continuity of care. *Midwifery, 29*(4), 407-415.

Dahlberg, K. (2011). Lifeworld phenomenology for caring and health care research. In G. Thomson, F. Dykes & S. Downe (Eds.), *Qualitative research in midwifery and childbirth: A phenomenological approaches* (1th ed., pp. 19-33). London: Routledge, Taylor & Francis Group.

Darra, S. (2009). 'Normal','natural','good'or 'good-enough'birth: Examining the concepts. *Nursing Inquiry, 16*(4), 297-305.

Darvill, R., Skirton, H., & Farrand, P. (2010). Psychological factors that impact on women's experiences of first-time motherhood: A qualitative study of the transition. *Midwifery, 26*(3), 357-366.

Directorate of Health. (2014). *Faglegar leiðbeiningar fyrir heimaþjónustu ljósmæðra.* Reykjavík: Embætti Landlæknis. doi:http://www.landlaeknir.is/servlet/file/store93/item23146/Fagl-leidbein-heima_ljosmaedur_2014_heildarskjal.pdf

Directorate of Health. (2007). Leiðbeiningar um val á fæðingarstað. (*Guidelines for choice in place of birth).* Reykjavík: Embætti landlæknis.

Dixon, L., Skinner, J., & Foureur, M. (2014). The emotional journey of labour—Women's perspectives of the experience of labour moving towards birth. *Midwifery, 30*(3), 371-377. doi:http://dx.doi.org/10.1016/j.midw.2013.03.009

Downe, S. (2009). Towards salutogenic birth in the 21st century. In D. Walsh & S. Downe (Ed.), *Essential midwifery practice:Intrapartum care* (pp. 289-95) John Wiley & Sons.

Downe, S., & McCourt, C. (2008). From being to becoming: Reconstructing childbirth knowledges. In S. Downe (Ed.), *Normal childbirth evidence and debate* (2nd ed., pp. 3-27) Churchill Livingstone.

Eriksson, C., Jansson, L., & Hamberg, K. (2006). Women's experiences of intense fear related to childbirth investigated in a Swedish qualitative study. *Midwifery, 22*(3), 240-248.

Escott, D., Slade, P., Spiby, H., & Fraser, R. B. (2005). Preliminary evaluation of a coping strategy enhancement method of preparation for labour. *Midwifery, 21*(3), 278-291.

Escott, D., Spiby, H., Slade, P., & Fraser, R. B. (2004). The range of coping strategies women use to manage pain and anxiety prior to and during first experience of labour. *Midwifery, 20*(2), 144-156. doi:10.1016/j.midw.2003.11.001

EURO-PERISTAT Project with SCPE and EUROCAT. (2013). European pernatal health report: The health and care of pregnant women and babies in Europe in 2010. Retrived from: www.europeristat.com

Fahy, K. M., & Parratt, J. A. (2006). Birth territory: A theory for midwifery practice. *Women and Birth, 19*(2), 45-50.

Ferguson, S., Davis, D., Browne, J., & Taylor, J. (2015). Sense of coherence and childbearing choices: A cross sectional survey. *Midwifery, 31*(11), 1081-1086.

Ferguson, S., Davis, D., & Browne, J. (2013). Does antenatal education affect labour and birth? A structured review of the literature. *Women and Birth, 26*(1), e5-e8. doi:http://dx.doi.org/10.1016/j.wombi.2012.09.003

Ferreira-Valente, M. A., Pais-Ribeiro, J. L., & Jensen, M. P. (2011). Validity of four pain intensity rating scales. *Pain, 152*(10), 2399-2404. doi:http://dx.doi.org/10.1016/j.pain.2011.07.005

Gibbins, J., & Thomson, A. M. (2001). Women's expectations and experiences of childbirth. *Midwifery, 17*(4), 302-313.

Gibran, K. (1993). *The prophet*. London: Heinemann.

Gibson, E. (2014). Women's expectations and experiences with labour pain in medical and midwifery models of birth in the United States. *Women and Birth, 27*(3), 185-189.

Goberna-Tricas, J., Banús-Giménez, M. R., Palacio-Tauste, A., & Linares-Sancho, S. (2011). Satisfaction with pregnancy and birth services: The

quality of maternity care services as experienced by women. *Midwifery, 27*(6), e231-e237. doi:http://dx.doi.org/10.1016/j.midw.2010.10.004

Goodman, P., Mackey, M. C., & Tavakoli, A. S. (2004). Factors related to childbirth satisfaction. *Journal of Advanced Nursing, 46*(2), 212-219.

Gottfredsdottir, H., Steingrímsdóttir, Þ., Björnsdóttir, A., Guðmundsdóttir, E. Ý., & Kristjánsdóttir, H. (2016). Content of antenatal care: Does it prepare women for birth? *Midwifery, 39*, 71-77.

Gottfredsdottir, H., Magnúsdóttir, H., & Hálfdánsdóttir, B. (2015). Home birth constructed as a safe choice in iceland: A content analysis on Icelandic media. *Sexual & Reproductive Healthcare, 6*(3), 138-144. doi:http://dx.doi.org/10.1016/j.srhc.2015.05.004

Gottvall, K., & Waldenström, U. (2002). Does a traumatic birth experience have an impact on future reproduction? *BJOG: An International Journal of Obstetrics and Gynaecology, 109*(3), 254-260.

Gould, D. (2000). Normal labour: A concept analysis. *Journal of Advanced Nursing, 31*(2), 418-427.

Green, J. M., & Baston, H. A. (2007). Have women become more willing to accept obstetric interventions and does this relate to mode of birth? data from a prospective study. *Birth, 34*(1), 6-13.

Haines, H. M., Rubertsson, C., Pallant, J. F., & Hildingsson, I. (2012). The influence of women's fear, attitudes and beliefs of childbirth on mode and experience of birth. *BMC Pregnancy and Childbirth, 12*, 55. doi:10.1186/1471-2393-12-55

Halfdansdottir, B., Smarason, A. K., Olafsdottir, O. A., Hildingsson, I., & Sveinsdottir, H. (2015). Outcome of planned home and hospital births among Low-Risk women in Iceland in 2005–2009: A retrospective cohort study. *Birth, 42*(1), 16-26.

Halldorsdottir,. S, & Karlsdottir, S. I. (2011). The primacy of the good midwife in midwifery services: An evolving theory of professionalism in

midwifery. *Scandinavian Journal of Caring Sciences, 25*(4), 806-817. doi:10.1111/j.1471-6712.2011.00886.x

Halldorsdottir, S., & Karlsdottir, S. I. (1996). Journeying through labour and delivery: Perceptions of women who have given birth. *Midwifery, 12*(2), 48-61.

Halldorsdottir, S. (2000). The Vancouver school of doing phenomenology. In B.H. Fridlund C. (Ed.), (pp. 47-81). Studentlitteratur, Lund.

Hauck, Y., Fenwick, J., Downie, J., & Butt, J. (2007). The influence of childbirth expectations on Western Australian women's perceptions of their birth experience. *Midwifery, 23*(3), 235-247.

Hidaka, R., & Callister, L. C. (2012). Giving birth with epidural analgesia: The experience of first-time mothers. *The Journal of Perinatal Education, 21*(1), 24.

Hildingsson, I., Karlström, A., Haines, H., & Johansson, M. (2016). Swedish women's interest in models of midwifery care – time to consider the system? A prospective longitudinal survey. *Sexual & Reproductive Healthcare, 7*, 27-32. doi:http://dx.doi.org/10.1016/j.srhc.2015.11.002

Hildingsson, I. (2015). Women's birth expectations, are they fulfilled? findings from a longitudinal Swedish cohort study. *Women and Birth, 28*(2), e7-e13. doi:http://dx.doi.org/10.1016/j.wombi.2015.01.011

Hildingsson, I., Nilsson, C., Karlström, A., & Lundgren, I. (2011). A longitudinal survey of Childbirth-Related fear and associated factors. *Journal of Obstetric, Gynecologic, & Neonatal Nursing, 40*(5), 532-543.

Hildingsson, I., Rådestad, I., Rubertsson, C., Waldenström, U. (2002). Few women wish to be delivered by caesarean section. *BJOG: An International Journal of Obstetrics & Gynaecology,* 109(6), 618-623.

Hodnett, E. D., Gates, S., Hofmeyr, G. J., Sakala, C., & Weston, J. (2012). Continuous support for women during childbirth. *Cochrane Database of*

Systematic Reviews, 7, cd003766, doi:10.1002/14651858.CD003766.pub5

Hodnett, E. D. (2002). Pain and women's satisfaction with the experience of childbirth: A systematic review. *American Journal of Obstetrics and Gynecology, 186*(5), S160-S172.

Hug, I., Chattopadhyay, C., Roy Mitra, G., Mukherjee Kar Mahapatra ,R., & Schneider, M. (2008). Maternal expectations and birth-related experiences: A survey of pregnant women of mixed parity from Calcutta, India. *International Journal of Obstetric Anesthesia, 17*(2), 112-117.

Hunter, B., & Warren, L. (2014). Midwives′ experiences of workplace resilience. *Midwifery, 30*(8), 926-934.

Hunter, B., Berg, M., Lundgren, I., Ólafsdóttir, Ó. Á., & Kirkham, M. (2008). Relationships: The hidden threads in the tapestry of maternity care. *Midwifery, 24*(2), 132-137.

Huntley, A. L., Coon, J. T., & Ernst, E. (2004). Complementary and alternative medicine for labor pain: A systematic review. *American Journal of Obstetrics and Gynecology, 191*(1), 36-44.

International Association for the Study of Pain. (2014). Retrieved from http://www.iasp-pain.org/Taxonomy

International Confederation of Midwives. (2016). Philosophy and model of midwifery care. Retrieved from http://www.internationalmidwives.org/assets/uploads/documents/CoreDocuments/CD2005_001%20V2014%20ENG%20Philosophy%20and%20model%20of%20midwifery%20care.pdf

International confederation of midwives. (2014). Retrieved from www.internationalmidwives.org

Johansson, M., Fenwick, J., & Premberg, Å. (2015). A meta-synthesis of fathers′ experiences of their partner‘s labour and the birth of their baby. *Midwifery, 31*(1), 9-18.

Jones, L. E., Whitburn, L. Y., Davey, M. A., & Small, R. (2015). Assessment of pain associated with childbirth: Women's perspectives, preferences and solutions. *Midwifery, 31*(7), 708-712.

Jones, L., Othman, M., Dowswell, T., Alfirevic, Z., Gates, S., Newburn, M., . . . Neilson, J. P. (2012). Pain management for women in labour: An overview of systematic reviews. *Cochrane Database of Systematic Reviews (Online), 3*

Karlsdottir, S. I. (2009). Upplifun kvenna af sársauka í eðlilegri fæðingu. In H. Gottfredsdottir, & S. I. Karlsdottir (Eds.), *Lausnarsteinar: Ljósmóðurfræði og ljósmóðurlist* (pp. 299-317). Reykjavik: Hið íslenska bókmenntafélag og Ljósmæðrafélag Íslands.

Kennedy, H. P., Shannon, M. T., Chuahorm, U., & Kravetz, M. K. (2004). The landscape of caring for women: A narrative study of midwifery practice. *Journal of Midwifery & Women's Health, 49*(1), 14-23.

King, T.L., & McCool, W.F. (2004). The definition and assessment of pain (editorial). *Jornal of Midwifery & Women's Health*, *49*(6), 471-472.

Kjærgaard, H., Wijma, K., Dykes, A., & Alehagen, S. (2008). Fear of childbirth in obstetrically low-risk nulliparous women in Sweden and Denmark. *Journal of Reproductive and Infant Psychology, 26*(4), 340-350.

Klomp, T., de Jonge, A., Hutton, E. K., Hers, S., & Lagro-Janssen, A. L. (2016). Perceptions of labour pain management of Dutch primary care midwives: A focus group study. *BMC Pregnancy and Childbirth, 16*(1), 1-9.

Klomp, T., Manniën, J., de Jonge, A., Hutton, E. K., & Lagro-Janssen, A. L. M. (2014). What do midwives need to know about approaches of women towards labour pain management? A qualitative interview study into expectations of management of labour pain for pregnant women receiving midwife-led care in the netherlands. *Midwifery, 30*(4), 432-438. doi:http://dx.doi.org/10.1016/j.midw.2013.04.013

Kristjánsdóttir, H., Steingrímsdóttir, Þ., Ólafsdóttir, Ó. Á., Björnsdóttir, A., & Sigurðsson, J. A. (2012). Barneign og heilsa: Ferlirannsókn meðal íslenskra kvenna frá því snemma á meðgöngu þar til tveimur árum eftir fæðingu barns. *Ljósmæðrablaðið, 90*(2), 13-21.

Kristjánsdóttir, H., Kristinsdóttir, J. D., Aradóttir, A. B., Hauksson. A., Gottfreðsdóttir, H., Reynisson, R., Jónsdóttir, S. S., & Steingrímsdóttir, Þ. (2010). *Meðgönguvernd heilbrigðra kvenna í eðlilegri meðgöngu. klínískar leiðbeiningar (prenatal care of healthy women in normal pregnancy: Clinical guidelines).* Seltjarnarnes: Landlæknisembættið (Directorate of Health).

Lally, J. E., Thomson, R. G., MacPhail, S., & Exley, C. (2014). Pain relief in labour: A qualitative study to determine how to support women to make decisions about pain relief in labour. *BMC Pregnancy and Childbirth, 14*(1), 6-16.

Lally, J. E., Murtagh, M. J., Macphail, S., & Thomson, R. (2008). More in hope than expectation: A systematic review of women's expectations and experience of pain relief in labour. *BMC Medicine, 6*, 7. doi:10.1186/1741-7015-6-7

Larkin, P., Begley, C. M., & Devane, D. (2009). Women's experiences of labour and birth: An evolutionary concept analysis. *Midwifery, 25*(2), 49-59.

Lavender, T., Walkinshaw, S. A., & Walton, I. (1999). A prospective study of women's views of factors contributing to a positive birth experience. *Midwifery, 15*(1), 40-46.

Leap, N., & Hunter, B. (2016). *Supporting women for labour and birth: A thoughtful guide.* London: Routledge.

Leap, N., Sandall, J., Buckland, S., & Huber, U. (2010). Journey to confidence: Women's experiences of pain in labour and relational continuity of care. *Journal of Midwifery & Women's Health, 55*(3), 234-242. doi:http://dx.doi.org/10.1016/j.jmwh.2010.02.001

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* (Second Edition ed., pp. 29-46) Churchill Livingstone Elsevier.

Lindholm, A., & Hildingsson, I. (2015). Women's preferences and received pain relief in childbirth – A prospective longitudinal study in a northern region of Sweden. *Sexual & Reproductive Healthcare, 6*(2), 74-81. doi:http://dx.doi.org/10.1016/j.srhc.2014.10.001

Lowe, N. K. (2002). The nature of labor pain. *American Journal of Obstetrics and Gynecology, 186*(5, Supplement 1), S16-S24.

Lundgren, I., Karlsdottir, S. I., & Bondas, T. (2009). Long-term memories and experiences of childbirth in a nordic context—a secondary analysis. *International Journal of Qualitative Studies on Health and Well-Being, 4*(2), 115-128.

Lundgren, I. (2005). Swedish women's experience of childbirth 2 years after birth. *Midwifery, 21*(4), 346-354.

Lundgren, I., & Dahlberg, K. (1998). Women's experience of pain during childbirth. *Midwifery, 14*(2), 105-110.

Madden, K. L., Turnbull, D., Cyna, A. M., Adelson, P., & Wilkinson, C. (2013). Pain relief for childbirth: The preferences of pregnant women, midwives and obstetricians. *Women and Birth, 26*(1), 33-40.

Malacrida, C., & Boulton, T. (2014). The best laid plans? women's choices, expectations and experiences in childbirth. *Health, 18*(1), 41-59. doi:DO 10.1177/1363459313476964

Mander, R. (2011). *Pain in childbearing and its control: Key issues for midwives and women* (2nd ed.). Sussex: Wiley-Blackwell.

Melender, H. L. (2006). *Journal of Midwifery & Women's Health, 51*(5), 331-339.

Melender, H. (2002). Fears and coping strategies associated with pregnancy and childbirth in Finland. *Journal of Midwifery & Women's Health, 47*(4), 256-263.

Melender, H., & Lauri, S. (1999). Fears associated with pregnancy and childbirth — experiences of women who have recently given birth. *Midwifery, 15*(3), 177-182.

Melzack, R., & Wall,P. D. (1991). *The challenge of pain* (2nd ed.). London: Penguin.

Melzack, R. (1984). The myth of painless childbirth (the John J. Bonica lecture). *Pain, 19*(4), 321-337.

Merriam Webster dictionary. (2016). Retrieved from http://www.merriam-webster.com/dictionary

Meštrović, A.H., Bilić, M., Lončar, L.B., Mičković, V. & Lončar, S. (2015). Psychological Factors in Experience of Pain during Childbirth. *Collegium Antropologicum* 29(3), 557-565.

Meyer, R., & Desai, S. P. (2015). Accepting pain over comfort: Resistance to the use of anesthesia in the mid-19th century. *Journal of Anesthesia History, 1*(4), 115-121.

Miles, M., Chapman, Y., Francis, K., & Taylor, B. (2013). Exploring Heideggerian hermeneutic phenomenology: A perfect fit for midwifery research. *Women and Birth, 26*(4), 273-276.

Mohammad Ali Beigi, N., Broumandfar, K., Bahadoran, P., & Abedi, H. A. (2010). Women's experience of pain during childbirth. *Iranian Journal of Nursing and Midwifery Research, 15*(2), 72-77.

National Institute for Health and Clinical Excellence. (2008). Retrieved from http://www.nice.org.uk/nicemedia/pdf/CG062NICEguideline.pdf

Nilsson, C. (2014). The delivery room: Is it a safe place? A hermeneutic analysis of women's negative birth experiences. *Sexual & Reproductive Healthcare, 5*(4), 199-204.

Nilsson, L., Thorsell, T., Hertfelt Wahn, E., & Ekström, A. (2013). Factors influencing positive birth experiences of first-time mothers. *Nursing Research and Practice,* doi:doi.org/10.1155/2013/349124

Nilsson, C., Lundgren, I., Karlström, A., & Hildingsson, I. (2012). Self reported fear of childbirth and its association with women's birth experience and mode of delivery: A longitudinal population-based study. *Women and Birth, 25*(3), 114-121. doi:http://dx.doi.org/10.1016/j.wombi.2011.06.001

Nilsson, C., & Lundgren, I. (2009). Women's lived experience of fear of childbirth. *Midwifery, 25*(2), e1-e9.

Niven, C. A., & Brodie, E. E. (1996). Memory for labor pain: Context and quality. *Pain, 64*(2), 387-392.

Olin, R., & Faxelid, E. (2003). Parents' needs to talk about their experiences of childbirth. *Scandinavian Journal of Caring Sciences, 17*(2), 153-159.

Ohel, I., Walfisch, A., Shitenberg, D., Sheiner, E., & Hallak, M. (2007). A rise in pain threshold during labour: a prospective clinical trial. *PAIN*, 132(Supplement 1), s104-108. doi:http://dx.doi.org/10.1016/j.pain.2007.05.007

Ólafsdóttir,Ó Á. (2011). *An Icelandic midwifery saga coming to light*. Saarbrücken: Lambert Academic Publishing.

Perez-Botella, M., Downe, S., Meier Magistretti, C., Lindstrom, B., & Berg, M. (2015). The use of salutogenesis theory in empirical studies of maternity care for healthy mothers and babies. *Sexual & Reproductive Healthcare, 6*(1), 33-39. doi:http://dx.doi.org/10.1016/j.srhc.2014.09.001

Registers Iceland. (2016). Retrieved from https://www.island.is/thjonusta/fjolskyldan/barneignir/medganga-faeding/

Renfrew, M. J., McFadden, A., Bastos, M. H., Campbell, J., Channon, A. A., Cheung, N. F., ... & McCormick, F. (2014). Midwifery and quality care: findings from a new evidence-informed framework for maternal and newborn care. *The Lancet*, *384*(9948), 1129-1145.

Ricoeur, P. (Ed.). (1990). *Hermeneutics and the human sciences: Essays on language, action and interpretation.* (J. B. Thomson Trans.). Cambridge: Cambridge University Press.

Ryding, E. L., Lukasse, M., Parys, A. V., Wangel, A., Karro, H., Kristjansdottir, H., . . . Schei, B. (2015). Fear of childbirth and risk of cesarean delivery: A cohort study in six European countries. *Birth, 42*(1), 48-55.

Smith, V., Daly, D., Lundgren, I., Eri, T., Benstoem, C., & Devane, D. (2014). Salutogenically focused outcomes in systematic reviews of intrapartum interventions: A systematic review of systematic reviews. *Midwifery, 30*(4), e151-156. doi:10.1016/j.midw.2013.11.002; 10.1016/j.midw.2013.11.002

Spaich, S., Welzel, G., Berlit, S., Temerinac, D., Tuschy, B., Sütterlin, M., & Kehl, S. (2013). Mode of delivery and its influence on women's satisfaction with childbirth. *European Journal of Obstetrics Gynecology and Reproductive Biology, 170*(2), 401-406.

Statistics Iceland. (2016). Population (mannfjöldi). Retrieved from http://www.statice.is/statistics/population/inhabitants/overview/

Steel, A., Adams, J., Sibbritt, D., Broom, A., Gallois, C., & Frawley, J. (2015). Managing the pain of labour: factors associated with the use of labour pain management for pregnant Australian women. *Health Expectations*, *18*(5), 1633-1644.

Thelin, I. L., Lundgren, I., & Hermansson, E. (2014). Midwives' lived experience of caring during childbirth–a phenomenological study. *Sexual & Reproductive Healthcare, 5*(3), 113-118.

Tiran, D. (1997). *Midwives' dictionary*. London UK: Bailliére Tindall.

Toohill, J., Fenwick, J., Gamble, J., & Creedy, D. K. (2014). Prevalence of childbirth fear in an Australian sample of pregnant women. *BMC Pregnancy and Childbirth, 14*(1), 1.

van Bussel, J., Spitz, B., & Demyttenaere, K. (2010). Childbirth expectations and experiences and associations with mother's attitude to pregnancy, the child and motherhood. *Jorunal of Reproductive and Infant Psychology, 28*(2), 143-143-160.

van der Gucht, N., & Lewis, K. (2015). Women′s experiences of coping with pain during childbirth: A critical review of qualitative research. *Midwifery, 31*(3), 349-358. doi:http://dx.doi.org/10.1016/j.midw.2014.12.005

Waldenström, U., & Schytt, E. (2009). A longitudinal study of women's memory of labour pain—from 2 months to 5 years after the birth. *BJOG: An International Journal of Obstetrics & Gynaecology, 116*(4), 577-583.

Waldenström, U. (2007). Normal childbirth and evidence based practice. *Women and Birth, 20*(4), 175-180.

Waldenström, U., Hildingsson, I., Rubertsson, C., & Rådestad, I. (2004). A negative birth experience: Prevalence and risk factors in a national sample. *Birth, 31*(1), 17-27. doi:10.1111/j.0730-7659.2004.0270.x

Waldenström, U. (1999). Experience of labor and birth in 1111 women. *Journal of Psychosomatic Research, 47*(5), 471-482.

Waldenström, U. (1998). Continuity of carer and satisfaction. *Midwifery, 14*(4), 207-213.

Walsh, D. (2009). Pain and epidural use in normal childbirth. *Evidence-Based Midwifery, 7*(3), 89-94.

Watson, D. B., Murtagh, M. J., Lally, J. E., Thomson, R. G., & McPhail, S. (2007). Flexible therapeutic landscapes of labour and the place of pain relief. *Health & Place, 13*(4), 865-876.

Whitburn, L. Y., Jones, L. E., Davey, M., & Small, R. (2014). Women′s experiences of labour pain and the role of the mind: An exploratory study. *Midwifery, 30*(9), 1029-1035. doi:http://dx.doi.org/10.1016/j.midw.2014.04.005

Wickboldt, N., Savoldelli, G., & Rehberg-Klug, B. (2015). Continuous assessment of labour pain using handgrip force. *Pain Research and Management, 20*(3), 159-163.

Williams, A. C. C., Morris, J., Stevens, K., Gessler, S., Cella, M., & Baxter, J. (2013). What influences midwives in estimating labour pain? *European Journal of Pain, 17*(1), 86-93.

Wright, M. E., McCrea, H., Stringer, M., & Murphy-Black, T. (2000). Personal control in pain relief during labour. *Journal of Advanced Nursing, 32*(5), 1168-1177.

Zufikar, T. (2014). Researching my own backyard inquiries into an ethnographic study. *Ethnography and Education*, 9(3), 373-386.

Original publications

Paper I

Scandinavian Journal of Caring Sciences
EMPIRICAL STUDIES
doi: 10.1111/scs.12061

The third paradigm in labour pain preparation and management: the childbearing woman's paradigm

Sigfridur Inga Karlsdottir RN, RM, MSN, PhD (Candidate) (Associate Professor)[1], **Sigridur Halldorsdottir** RN, MSN, PhD (Professor and Dean)[2] and **Ingela Lundgren** RN, RM, MSN, PhD (Associate Professor)[3]

[1]School of Health Sciences, University of Akureyri, Akureyri, Iceland, [2]Faculty of Graduate Studies, School of Health Sciences, University of Akureyri, Akureyri, Iceland and [3]Institute of Health and Care Sciences, University of Gothenburg, Göteborg, Sweden

Scand J Caring Sci; 2014; 28; 315–327

The third paradigm in labour pain preparation and management: the childbearing woman's paradigm

The study's rationale: Women's experiences regarding labour pain preparation and management have been largely neglected.
Aims and objectives: Explore women's experiences regarding labour pain preparation and management in normal childbirth.
Methodological design and justification: The Vancouver School of doing phenomenology was the methodological approach of the study since it provides inside information about the lived experience.
Research methods: Data were collected through in-depth interviews with 14 participants; seven primiparous and seven multiparous women.
Results: The women described a challenging journey of no return through labour pain, with different landmarks on the journey. They described how they prepared for the pain; the context of the pain experience; how they experienced and managed the pain with different strategies and how they saw the pain at the journey's end. The quality of the midwife's presence and professionalism was of great importance to them. The 'good midwives' they described created a special atmosphere which was warm and secure and was conducive to their managing the pain. The women also described how important it was for them to have a supportive partner, with whom they had a mutual understanding, in order to manage the pain.
Conclusions: In this paper, we are presenting a study within the third paradigm in labour pain preparation and management: the childbearing woman's paradigm – the first and second being the midwifery and the medical paradigm, respectively. Midwives can play a major role in working with women in their preparation and management of labour pain. In the future, more research has to be done to illuminate this essential part of the childbearing woman's paradigm.

Keywords: labour pain, pain management, normal labour, lived experience, care, support, midwifery, phenomenology, qualitative approach, interviews.

Submitted 29 August 2012, Accepted 24 May 2013

Introduction

We assert that women's experiences, views and strategies regarding childbirth may be called the childbearing woman's paradigm. Although pain is strongly connected with childbirth, the strategies women use to prepare for and manage the pain have not been studied much from women's own perspective (1, 2). Pain in childbirth is a complex phenomenon that needs different approaches. Therefore, the childbearing woman's paradigm needs to be further studied, for example, to enhance understanding of how women prepare for childbirth pain, what they do themselves to manage the pain and what consequences it has for them to perceive positive or negative experiences of pain during childbirth. We argue that 'the childbearing woman's paradigm' may be called 'the third paradigm' in labour pain preparation and management; the first and second being the 'midwifery paradigm' and the 'medical paradigm', respectively (see Fig. 1).

We assert that each of the three paradigms has to be considered a potentially important contribution to a holistic childbearing service for the benefit of labouring women. Different contexts call for variations regarding the dominant paradigm. All of these paradigms overlap and influence each other. The midwifery and the medical paradigms are portrayed as different paradigms, referring, for example, to the different focus regarding what is to be

Correspondence to:
Sigfridur Inga Karlsdottir, School of Health Sciences, University of Akureyri, Solborg, P.O Box 224, 602 Akureyri, Iceland.
E-mail: inga@unak.is

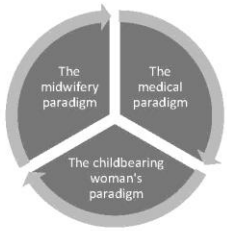

Figure 1 An overview of the different paradigms regarding labour pain preparation and management.

observed and what questions should be asked regarding pain in labour. However, in both these paradigms, emphasis is on what professionals can do for childbearing women, but not on what women can do and indeed do themselves regarding pain and pain management. Not many studies have been conducted within midwifery regarding women's experiences of pain and pain management during labour. The reasons for that are unclear, but perhaps it can be that within midwifery more emphasis has been on developing midwifery services and how best to support childbearing women, but not what childbearing women can do to help themselves.

Some authors write about different approaches to working with pain that are shaped by opposing attitudes and beliefs (3). Labour pain is one of the major concepts in women's descriptions of giving birth to a child (4, 5) and has been described as a major concern of childbearing women and their families (6). Some research results have indicated that there is something unique about labour pain, as it is a natural phenomenon, a natural part of giving birth and linked to the bringing forth of new life (4, 7). Research results have also indicated that women see pain in childbirth differently from any other pain and can feel more happiness and love when a healthy child is born than they could have imagined before the birth (7, 8).

Fear related to childbirth is very harmful, both for the experience of childbirth and also for the experience of pain during childbirth (9, 10). Studies have indicated that midwives and obstetricians have concerns regarding women's fear of labour pain and the effects it has on the incidence of normal birth (11). Lack of information and fear of childbirth have been shown to affect women's self-esteem and may affect their capability to handle pain during labour (12, 13). Moreover, studies have indicated that women actually experience a higher level of labour pain than they expected before birth, which increases the importance of preparing women as well as possible for labour pain, in order to increase childbirth satisfaction (14). Expectations appear to influence the experience of pain in childbirth, and one of the roles of the midwife is to know women's expectations. Unmet expectations and a negative birth experience seem to influence women's decisions about subsequent childbearing (15).

Papers have been published that describe different kinds of pain management during labour (16, 17), and a few papers that describe women's perception of labour and birth and how women deal with the pain during childbirth (4, 18, 19). Authors have stressed the complexity of the relationship between labour pain, pain analgesia and childbirth satisfaction. In a quantitative study, using questionnaires to collect data in early pregnancy and again 2 months after childbirth in a group of 1,111 women, negative birth experience was associated with the experience of pain (20). In contrast, a key finding of a systematic review of women's experience of pain in labour was that women who had analgesia during labour reported as much pain as those who did not (21). Strong correlations were also found between personal control variables and satisfaction with pain relief. Furthermore, some research results indicate that continuity of midwifery care through pregnancy and labour can promote women's confidence in their ability to cope with the challenges of labour pain (22). Therefore, it is important for women and midwives to have a good understanding of how women experience labour pain, and the strategies they use in order to prepare for and manage that pain.

Continuity of midwifery care has also been associated with improved outcomes for women and their babies, including a reduction in the use of epidurals (23).

In summary, arguments have been raised over the years about the best strategies to manage labour pain (6). Even though pain is strongly connected with childbirth, there has been little study of women's strategies to prepare for and manage labour pain. The purpose of the present study was to explore women's strategies to prepare for and manage labour pain in normal childbirth. Our research question was 'What are women's lived experiences of labour pain in normal childbirth and their strategies to prepare for and manage that pain?'

What is considered 'normal childbirth' differs between cultures, changes over time and has been defined in many different ways (11), for example, by different midwifery and obstetric associations. The definition of normal birth used in this study is that of the World Health Organization (24) which is widely used. Simkin and Ancheta (25) have pointed out that it is a 'retrospective definition' and based on health outcomes. The definition is as follows: 'spontaneous in onset, low-risk at the start of labour and remaining so throughout labour and delivery. The infant is born spontaneously in the vertex position between 37 and 42 completed weeks of pregnancy. After birth mother and infant are in good condition' (24). Labour pain is defined as 'an extremely complex

phenomenon with both sensory and emotional components and an ability to command attention and dominate other cognitive processes' (7. p. S16–S17). We use strategy to mean the ways in which a childbearing woman prepares herself to experience and manage labour pain.

Methods

To answer the research question, 'the Vancouver School of doing phenomenology' (26) was chosen as the methodological approach, since it has proven a good research methodology to illuminate women's lived experience in the context of giving birth (18, 27), as well as in the context of the lived experience of pain (28, 29).

The phenomenological approach aims to enlarge and deepen the range of a person's immediate experience; the aim is to give the phenomena under study 'a fuller and fairer hearing' than traditional empiricism has accorded them and 'takes a determined effort to undo the effect of habitual patterns of thought and to return to the pristine innocence of first seeing' (30, p. 680). Phenomenology is not a single, unified body of thought, and one may find multiple interpretations and modifications of phenomenology and its use as a research methodology (26). The 'Vancouver School' is an interpretation of phenomenological philosophy and its use as a research methodology for the human sciences. It is a unique blend of phenomenology, hermeneutics and constructivism (26). The findings are seen as a construction of the researchers, based on the data. Within the Vancouver School, seeing all individuals in their context is emphasised, as well as the understanding that all perceive the world in a unique way and that their perception is moulded by previous experience and their own interpretation of that experience. The enquiry aims are oriented to the production of reconstructed understandings from the point of view of the interacting individual. This methodology fits well when researching vulnerable groups, because there is an emphasis on meeting the participant as an expert in the phenomenon being researched, and hence with a certain level of modesty and unobtrusiveness (26). Moreover, there is characteristically a reverence for participants as persons, and for their experience (26), which is in harmony with ideas of a caring relationship with clients. This approach is therefore appropriate regarding the vulnerable woman immediately after birth. Table 1 and Fig. 2 present an overview of the research process of the Vancouver School and the twelve basic steps of the method.

Recruitment and description of participants

The number of participants within the Vancouver School is typically 5–15 participants or at least 10 interviews (26). The participants in this study numbered 14. The head midwife on the maternity ward at the Regional hospital of

Table 1 Basic steps of the research process of the Vancouver School

Steps in the research process	*What was done in the present study*
Step 1. Selecting dialogue partners (the sample)	Fourteen women were selected through purposeful sampling
Step 2 Silence (before entering a dialogue)	Preconceived ideas were deliberately put aside
Step 3 Participating in a dialogue (data collection)	One interview with each participant, total of 14 interviews
Step 4. Sharpened awareness of words (data analysis)	Data collecting and data analysis ran concurrently
Step 5. Beginning consideration of essences (coding)	Seeking repeatedly to answer the question: What is the essence of what this woman is saying?
Step 6. Constructing the essential structure of the phenomenon from each case (case construction)	The main factors in each participant's story are highlighted and the most important factors are constructed into an analytic framework
Step 7. Verifying each case construction with the relevant participant (case verification)	This was done with all participants
Step 8. Constructing the essential structure of the phenomenon from all the cases (metaanalysis of all the case constructions)	All researchers participated in this final data analysis process
Step 9. Comparing the essential structure of the phenomenon with the data (verification of the metaanalysis)	To ensure this factor, all the transcripts were read over again
Step 10. Identifying the overriding theme which describes the phenomenon (identifying the essence of the phenomenon)	The third paradigm in labour pain preparation and management: the childbearing woman's paradigm characterised by a challenging journey of no return through labour pain
Step 11. Verifying the essential structure with some research participants (verification of the findings)	The results and the conclusions were presented to and verified by four participants
Step 12. Writing up the findings (multivoiced reconstruction)	The participants were quoted directly to increase the trustworthiness of the findings and conclusions

Modified from 26. Used with permission.

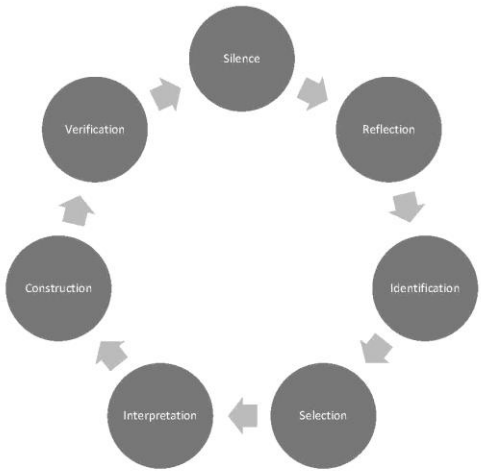

Figure 2 The process of doing phenomenology in the Vancouver School [Modified figure from 26, p. 56. Used with permission]. This cycle is repeated in each of the 12 steps of the Vancouver School.

Northern Iceland invited women to participate in the study and handed the introductory letter to them. We decided to have an equal number of primiparous and multiparous women in the sample, to better reflect the experience of both groups, since our thought was that primiparous and multiparous women may experience labour pain differently. Therefore, after seven primiparous women had been interviewed, only multiparous women were invited to participate by the head midwife. The women in our study used a range of conventional pain managements, as illustrated in Table 2. All the participants had 6–8 antenatal visits to their midwife during pregnancy, which is the norm in Iceland in healthy pregnancies.

We wanted to explore women's experience of labour pain in a hospital environment as soon after birth as was possible and ethically appropriate. The inclusion criteria were therefore that the women gave birth in the Regional hospital; were still staying there and were interviewed no less than 8 hours and no more than 4 days after giving birth. The exclusion criteria for the study were if the women had complications during pregnancy, labour and birth, or the early postnatal period; if the women's babies had health problems; or if the women did not speak Icelandic.

Ethical considerations

Women in the sample were all given written and verbal information before they agreed to participate in the study. They also signed an informed consent before the interviews were conducted, and confidentiality and anonymity were assured, both verbally and in writing. To protect anonymity in presentation of findings, the women were all given pseudonyms. The length of hospital stay for mothers and babies has decreased during the last three decades (31, 32), and in Iceland, most women remain in hospital only for 1 or 2 days after a normal birth. Since research results indicate that women's lives greatly change when they return to their homes (33), we wanted to interview the women before they went home. Only one interview was conducted at the hospital with each woman since, in our professional opinion, two interviews would have been too much for them. Moreover, we were aware of the need to avoid long interviews and to be sensitive to the potential exhaustion and distractions affecting women in the early postnatal period, particularly primiparous women (34).

Data collection

The first step in the process of doing a phenomenological study of the Vancouver School is 'silence' and because it is a process it means that this reflective silence is re-entered again and again throughout the study (26). The first author, the primary researcher, a midwife with more than two decades' experience of working with childbearing women, conducted all the interviews. In the

Table 2 Contextual information about the participants

Pseudo-nym	*Age*	*Rel.**	*Children*	*Hours since birth*	*Length of interview (minute)*	*Conventional pain management*
Anna	25 30	M	2	52	32	Entonox/shower
Beth	25 30	C	1	27	40	Acupuncture/hot pad
Danielle	30 35	C	1	48	45	Bath
Ellen	25 30	C	1	27	23	Massage/acupuncture/hot pads/epidural
Frida	25 30	C	2	49	18	Entonox/bath
Gilda	25 30	S	1	33	29	Hot pads/bath
Helen	20 25	C	1	28	26	Massage
Ingrid	20 25	S	1	8	31	Epidural
Jean	30 35	M	4	41	38	Acupuncture/bath
Kate	20 25	C	1	29	30	Acupuncture/bath
Lena	35 40	M	4	24	40	Massage
Mary	30 35	C	3	35	21	No conventional pain management
Nina	30 35	C	3	20	34	No conventional pain management
Olivia	35 40	C	3	24	49	No conventional pain management
Average	29		2	32	32	

*Relationship status: M: married. C: cohabiting, S: single.

above-mentioned silence, the researcher reflected on her own preconceptions about the phenomenon and wrote them down. This primary researcher has been working part-time in clinic for more than two decades and has gained some insight into 'the childbearing women's paradigm'. She has noticed that women do different things to prepare themselves for the pain of childbirth and use many different ways to manage through the pain while they are giving birth. However, how little the childbearing women's paradigm has been studied is truly remarkable and was one of the reasons why the authors decided to study women's own strategies to prepare for and manage the pain during childbirth. That was part of the preconceived ideas that the authors started with before the research was conducted. Throughout the study, the researcher kept a 'reflective journal' where she wrote down her thoughts about the study that was unfolding.

One open in-depth interview was conducted with every participant, 14 interviews in all. Every participant was interviewed in a special room on the maternity ward, which ensured privacy. The initial interview question was 'Can you describe for me your personal experience of labour pain and the strategies you used to prepare for and manage the pain during your recent childbirth?' Each interview was tape-recorded and lasted from 18 to 49 minutes. The average length was 32 minutes. The data collection and data analysis were based on the twelve basic steps of the research process of the Vancouver School.

Data analysis

At every step, the primary researcher went through the research process of the Vancouver School (see Fig. 2). The interviews were recorded and transcribed, and the transcriptions analysed for themes. The findings from each participant were constructed into an analytical framework, in accordance with steps 3–6 of the Vancouver School. This is one of the major strengths of the Vancouver School, as it means that every participant has a voice in the findings (26). The first author repeated this procedure for each participant, constantly repeating steps 1–6 until a holistic understanding of the participants' experience was constructed. After the initial work of the primary researcher (steps 1–6), all three authors participated in the data analysis (see steps 7–12 in Table 1).

Validity and reliability

The research process of the Vancouver School has some inbuilt strategies designed to enhance validity and reliability, particularly 'member checking' in steps 7 and 11 (see Table 1), which is an important part of verification. The 'researcher triangulation' in this study proved fruitful, especially in steps 8, 10 and 12, where the expertise of three seasoned professionals, two experienced midwives with more than 20 years' experience as midwives and midwifery scholars, and one expert in the methodology, were combined. Triangulation is one of the strategies designed to increase validity and reliability in qualitative research (26). 'Peer debriefing' was also used as a strategy to increase validity, introducing the study to midwives, nurse/midwives and other health professionals. A 'reflective diary' was used at all stages of the research process, as required by the Vancouver School.

Findings

The women described a challenging journey of no return through the pain of labour and delivery, with different

landmarks on the journey. They described how they prepared for the pain (e.g. through 'creative imagination'); the context of the pain experience (e.g. whether they were tired at the journey's commencement and whether they were primiparous or multiparous women); how they managed the pain with different strategies (e.g. by 'mental pain management' and 'going with the flow of their bodies'); and how they saw the pain at the journey's end. The quality of the midwife's presence and professionalism was of great importance to them. The 'good midwives' they described created a special atmosphere which was warm and secure and was conducive to their managing the pain. The women also described how important it was for them to have a supportive partner in order to manage the pain.

Preparing for the journey

Preparatory strategies. A variety of different strategies to prepare for the journey of pain during pregnancy were used by the women. They prepared themselves, for example, by reading, getting information from their midwives, going to antenatal classes and creating a special attitude towards labour pain. 'Creative imagination' was identified by Danielle, who had just had her first child, as an important way of preparing for the birth:

> During the pregnancy I imagined that I saw myself giving birth to the child and everything would be okay. Millions of women have already given birth to their children and I thought I could go through it, just like all the others. I wanted to give birth.

Beth, who had just had her first child, felt that the best preparation was not to be stressed before the birth: 'I was not stressed; I knew it was going to hurt but that it would disappear when the birth was over'. 'Having a positive attitude towards the pain' and 'a feeling of being ready to handle it' and 'looking at the birth as a challenge' and 'the pain as a part of having a child' were also mentioned as preparatory strategies.

At the journey's commencement

When the women were commencing on their journey of pain, their contexts were different. Some were already exhausted to begin with, and the primiparous women did not know what to expect, so some of them felt stressed.

The context of the pain experience. Mental and physical condition was important and needed to be as good as possible, for example, to have had a good night's sleep before the birth. Ingrid, who had just had her first child, described the opposite: 'I was so tired, I had not slept for the last 24 hours and the pain was too much'. During pregnancy, it was difficult for some of the primiparous women to know what the pain would be like. The pain was not so unpredictable for the multiparous women, such as Mary, mother of three, who said: 'It does not take that much time and then it is over. You have done it before and you know what you are going to go through'.

On the journey of no return through pain: experiencing and managing labour pain

The women all felt that the pain was difficult, but manageable with a range of different strategies whenever needed. Their strategies differed during labour and delivery. All the women recounted how essential the midwife was in helping to manage the pain, as well as a supportive partner.

The demanding and difficult nature of labour pain. The demanding and difficult nature of the pain itself was described in many different ways by the women, for example, by concepts such as 'immense pressure', 'like a fire', 'like awful menstrual pain' and 'an overwhelming shadow'. Beth, who had just had her first child, noted that there were 'several different kinds of pain… or stages … little by little, more and more intense'. Some of the women felt that the pain itself was 'unbearable', 'uncomfortable', 'not good', 'horrible' and 'disturbing'. During the worst pain, some of the women felt they wanted to escape, as Anna, a mother of two, stated: 'I wanted to get away but I knew I had to be tough'. Frida, also a mother of two, described the same feeling in another way: 'the pain captured me … you have to wait until it is finished. I got a feeling that I was stuck, [it felt] a little like claustrophobia. It was not good'.

The importance of having faith in the body. Most of the women related the importance of having faith in one's body during labour and delivery. Many of the women reacted to the pain with full confidence in their own bodies, trusting that the body would know what to do. Some talked about 'going with the flow of the body', however, hard it might be. Although most of the women stressed how difficult and demanding the pain was, others felt that the pain was not as bad as they had expected and they had the feeling that they could manage through the birth. Their personality, the women felt, also affected their experience of the pain and helped some of them in managing the pain, as Mary, mother of three, explained: 'I usually don't make any fuss. I am calm and just take things as they are'.

Using different strategies in the early stages of labour. Going 'out to dinner', 'taking a shower' and 'going for a walk' with their husband were among the strategies women

used to manage the pain in the early stages of labour while the pain was not yet too bad. Nina explained:

> At the beginning of labour it was good to keep on doing what you were doing … to pick my son up from school, cook dinner and to do the things I was in the habit of doing at that time of the day.

Seeing the pain as manageable, even if it was difficult, was crucial to the women. Nina recounted: 'It was difficult but manageable, and then it was okay. I could handle the pain even if it was very painful'. It was important for the women not only to focus on the contractions, but also on the time between them, to relax and to gather the strength to manage the pain during the next contraction and stay focused. Lena, mother of four, explained:

> I thought it was manageable … the time between contractions also matters; you get a little rest so you do not get too tired. The time between contractions was important, time that you should use to prepare for the next one and be focused.

Using different strategies during late labour and delivery. When the pain got worse, other strategies were used by the women to manage the pain, for example, 'to be egocentric', 'only to think about yourself and nothing else'. Olivia, mother of three, explained her way of dealing with the pain at this time in the following way:

> It is something like 'mental pain management'. To think only of one contraction at a time, each one is doing something useful for you.

Some of the women described the strategy of 'going with the flow' of their body and how their body somehow guided them during the birth. As Kate, who had just had her first child, explained: 'I felt like my body guided me through the birth; it just happened, I don't know how, but it was best that way'.

Sometimes, when they experienced too little time between contractions, they had to use strategies other than those they intended, like Ellen, who had just had her first child, who said: 'There was no time between contractions so I had to have the epidural block'. The women also described how important it was to be able to move during contractions and explained their own way of dealing with the pain. Jean, mother of four, said:

> During the contractions I don't want anyone to touch me, no-one to talk to me, massage my back or anything. I just stood, moved a little, closed my eyes, thought about a beach and the only thing that came to my mind was a happy place, somehow to go to my own place; to breathe slowly and to go to that place. I felt that helped.

Important strategies which were also mentioned were as follows: using music, acupuncture, a hot bath, massage, and hot or cold pads, counting in the mind, walking around and changing position frequently, as well as Entonox or an epidural. Ingrid, who had just had her first child, recalled: 'I did not manage to relax at all, I was just humming with tension, but after I got the epidural block then it was okay'. Using an epidural block was sometimes the only way to manage, and the women felt it was important that their midwives had supported them in making that decision. To 'make some noise' helped some women to manage as Frida, mother of two, recounted: 'It helped to make a little pushing sound'. What the women found helpful towards the end was to 'remember that now the worst pain was almost over' and 'soon they would have their baby in their arms'.

The essential help of 'a good midwife' in managing the pain. Having 'a good midwife' was important for the women in managing the pain and sometimes made all the difference. Having a midwife who was sensitive to their needs and had a good partnership with them made them feel safe and enabled them to use all the different strategies they needed in order to manage the pain. It was important for them that the midwife was sensitive to the strategies they needed to use in order to manage the pain from time to time. They said that not only what the midwife 'did' mattered, but also what she 'said' and her 'presence', as Frida, mother of two, stated: 'She was just there, not telling me to do this or do that, she was just there for me'. The 'good midwives' they described created a special atmosphere which was warm, secure and conducive to their managing the pain. They were also encouraging and empowered the women to do what they needed to do in order to manage the pain. Daniela, who had just given birth to her first child, asserted:

> I could give birth in any circumstances, just if I had a midwife with me. That was what counted. It was so important. They talked me through the labour and birth, and they gave me compliments and encouraged me. They were so professional, they knew exactly what they were doing and gave me all the information I needed.

The quality of the midwife's professionalism was of great importance. The women felt that a midwife who was sensitive to their needs and their different strategies, and who communicated well, sometimes without talking, was of great importance. The special connection they felt with their midwife helped them in dealing with the pain. Nina, mother of three, stated: 'She really cared for me. We understood each other even if we did not talk much … [she was] someone who helped me manage' [the pain]. Sometimes just to be present was the only thing women needed from their midwives. And Kate, who had just had her first child, reminisced:

> She just came into the room and started to talk and somehow she immediately became our friend … she was so wonderful, always giving me compliments. I didn't need to ask her to do anything, she just did it. She was so cheerful and wonderful. During the

> second stage she guided me completely through the birth. Everything was so wonderful that night.

The importance of having a supportive partner present to help in managing the pain. The participants also described how important it was for them to have had their partner with them during the birth experience to help them in managing the pain, someone with whom they had a mutual understanding and with whom they could share the experience and who understood them and their needs. Kate said:

> It gave me unbelievable strength to have him [in order to manage the pain]… Just to have him with me and to see him. I didn't want him to do anything, just to know that he was there. We talked about everything during the pregnancy and it was so good to have him with me.

Olivia, mother of three, said about the presence of her husband: 'He understood everything much better than someone that I don't know.

At the journey's end

The women related that they had a changed attitude towards the pain after birth, seeing it in a much more positive light. Interestingly, some felt that the pain strengthened them when they had accomplished it, and all stressed the importance of being able to talk about the pain experience afterwards in order to be at peace with the pain after birth.

Changed attitudes towards the pain after birth. The women's attitude towards pain sometimes changed after they had given birth. They related that they felt that labour pain was different from other pain experiences. Ingrid, one of the young primiparous women, explained her new attitude to menstrual pain in this way: 'I will never complain about menstrual pain again, because it is nothing'. Some of the women felt that the pain had not been nearly as bad as they had expected. However, in some instances, pain was experienced more intensely than they had thought before birth. Changed ideas regarding pain included the response from some of the women that, although during the first hours after birth they felt that they would never go through such a painful experience again, the following day, when they felt the joy and happiness of having their baby in their arms, the pain had a different meaning for them.

The empowering nature of labour pain. The women saw the pain afterwards in a more positive light than any other pain and felt that the pain changed their ideas of themselves. Since they could manage the labour pain, they would be capable of anything in life, so it strengthened their self-image. In this sense, labour pain has a unique meaning to the women. Nina, mother of three, stated:

> I thought it was worth it to have so much pain because when it is over it feels so good. I saw the pain as a task that I needed to accomplish. It empowers you when you have accomplished it.

The importance of being at peace with the pain afterwards. Talking about the pain afterwards with their midwife and their partner seemed to be part of being at peace with the pain after birth. For the women, in this study, the pain was something acceptable because it was part of giving birth, something they thought helped women giving birth. The women emphasised that the pain was completely worthwhile, that they wanted to have another child some day and the pain would not deter them in this plan. They all talked about how the pain was a memorable part of the labour they experienced, something that they would not forget. Pain had gained a meaning, because it was needed so that they could give birth to their child. The women stated that they were at peace with the pain, and did not have bad memories, even though it had been very demanding, difficult and challenging.

Discussion

In this paper, we are presenting a study within the third paradigm in labour pain preparation and management: the childbearing woman's paradigm – the first and second being the 'midwifery paradigm' and the 'medical paradigm', respectively (see Fig. 1). We assert that each of the three paradigms influence the others and then there are many external factors that affect the childbearing woman's paradigm, for example, her mate, societal norms and values, to mention only a few. These external factors need to be studied further. However, in this study, only the internal factors are studied, that is, the woman's own experiences regarding labour pain. Some aspects of 'The childbearing woman's paradigm' have already been explored (e.g. 4, 12, 18, 27), but not labour pain preparation and management.

This study offers insights into women's challenging journey of no return through labour pain. In a previous study, we have used the metaphor of a journey (18). In a phenomenological study where participants have freedom in expressing themselves they tend to 'begin at the beginning' and progress towards 'the end'. Therefore, in such a powerful experience as giving birth to a child the metaphor of 'a journey' is in our view entirely appropriate. The experience of labour pain is a complex, individual and multifaceted response to sensory stimuli generated during childbirth (35), and women's overall experiences are an important outcome

of labour (15). However, women's own perspective regarding labour pain has been largely neglected (2, 12, 36). In the present study, the primiparous and multiparous women experienced a similar journey. However, the primiparous women did not know what to expect, so some of them felt stressed when faced with the unknown.

The dichotomy of great pain and great joy in normal childbirth

The women's descriptions of labour pain involved a deep and mostly unexpressed lived experience of pain. We have not found such detailed descriptions of women's labour pain before. Some used concepts such as 'like a fire', 'unbearable', 'horrible' and 'disturbing', and during the worst pain, some of the women felt they wanted to escape, but they were on a challenging journey of no return. Frida described how she felt trapped, which made her feel claustrophobic. Suffering is a frequent consequence of pain (7), and caregivers tend to underestimate the pain and suffering of labouring women (37). Suffering, which is different from pain, is not an outcome that is usually measured after childbirth. The assumption is that suffering is unlikely if indicators of satisfaction are positive after birth (38). Lowe suggests that if a woman understands the origin of her pain (cervical dilation and descent of the foetus), perceives the eventual birth as highly positive (hence pain as a 'good' sign of progress towards a desired goal), and perceives labour and its pain as nonthreatening life experiences to be mastered, she may experience great pain, but not suffer (7). When individuals are confident that they can cope masterfully with a challenge, exhilaration is experienced, rather than suffering. In contrast, helplessness and suffering are experienced when individuals have insufficient resources and are unable to cope (39, cited in 7). From this perspective, the women in our study can be better understood; great pain, a great sense of accomplishment and great joy may coexist.

Preparing for labour pain

The women in our study stated that it was important for them to get valuable information during pregnancy in order to attain the feeling that they were prepared for the labour pain. Other research results indicate the same (40). The women seemed to see labour pain as a challenge that had to be handled, and pain was simply a natural part of that event, similar to what other researchers have found (41). Studies indicate that it is important for women to have a choice (5), and during antenatal visits and classes for expectant parents, more attention should be paid to what women can do to prepare themselves for the pain during childbirth.

Managing labour pain

The results of this study indicate that women use different methods to manage the pain in labour and delivery. One of them used what she called 'mental pain management' when she focused on one contraction at a time, breathed slowly and closed her eyes. Others thought only of 'going with the flow' of their bodies through that contraction. Many of them used the phrase 'to be in their own world', 'be egocentric' and reminded themselves that they could handle the pain, with or without medication. Other researchers have indicated how important it is for women during labour and birth to be allowed to be in their own world, undisturbed (18) and to trust their own body (8), and that the role of the midwife is to create a 'birth territory' (42) where the midwife is an essential guardian of the woman so that she feels secure, the birth is more likely to be normal, and the woman is more likely to be contented with her experience. Other ways of managing the pain, like 'going to a happy place' and 'counting during the contraction', were methods that the women in our study used and were something they saw as important ways to manage the pain. Lowe proposes that all strategies have the potential to reduce women's sense of helplessness and may mitigate or even prevent suffering (7).

Pain in labour and delivery with or without medication

The findings in this study indicate that very little of the women's attention was focused on the management of pain by pharmacological means. They appeared to focus their attention mainly on how they prepared themselves during pregnancy, what they did to manage the pain and how their midwives guided them so they could manage.

Nonpharmacological measures for relief of labour pain are relatively neglected in the health and medical literature (6), and often too much attention is paid to pain management with medication when pain in labour and birth is discussed. The conventional medical approach to the management of pain in labour and delivery has increasingly come to rely on the use of anaesthetic and analgesic drugs, in spite of reservations within the medical establishment itself (43, 44).

The women see epidural analgesia as an alternative, not necessarily good or bad, just something they could use as one of the many strategies to manage the pain.

The importance of the good midwife

One of the most intense of all pain experiences through women's lives is labour pain (45, 46), and four factors seem to be consistent in their association with childbirth satisfaction: the amount of support received, quality of relationship with caregiver, involvement in decision-making and personal expectations (47). The women in

the present study related how important it was for them, in order to be able to manage the pain, to have a good, caring midwife present, who was professional and with whom they felt connected. Sometimes the midwife's presence was enough, giving them the sense of security they needed. Research results have indicated that a good midwife can give the woman a sense of security, encouragement and caring guidance through the birth, making the woman feel empowered, safe and at ease. On the other hand, an uncaring encounter with a midwife can result in the women feeling unconnected and alone, even abandoned (27, 48, 49). Research results by Eliasson et al. (50) further indicate, unfortunately, that not all midwives are perceived as 'good midwives', and studies have found that memories of labour pain are very long-lasting and influence women's lives for years (15, 36). Furthermore, a recent study suggests that woman's subjective birth experience is the most important factor in the development of post-traumatic stress symptoms following childbirth (51), supported by a recent systematic review (52) where the researchers found that poor support during labour and delivery was one of the risk factors for developing post-traumatic stress disorder following childbirth.

A central concept in the midwife–woman relationship is that the midwife is 'available' and provides confirmation in a caring relationship including supportive actions and openness to the woman's own emotions and knowledge (53). In a systematic review of nonpharmacological relief of pain during labour, Simkin and O'Hare found that emotional support, guidance and support were important (54). The good midwives helped the women in this study to keep a sense of control, which made them feel they were in charge of managing the pain. In a recent Swedish study, women regarded the hospital as a place where you have to ask someone else for permission for whatever action you take and hence felt it restricted their sense of freedom (41). Understanding the meaning of pain, women's perceptions of pain and culture-specific pain behaviours is fundamental in order for midwives to facilitate satisfying birth experiences for women of diverse cultures (55), an essential part of promoting normal birth which is a core professional responsibility according to the 'International Confederation of Midwives Definition of a Midwife' (56).

The importance of the supportive partner

Support during labour has been widely discussed in the literature (57), and partners' support during the whole childbirth process has been described as crucial to women. Their presence by the women's side as fully informed, active participants seems to be an important factor in women's sense of security (43). Women describe various kinds of personal support during the childbirth process, for example, from their mother, their partner and from peers. They identify partners' support as being of paramount importance. The partner's encouragement is important for them in order to manage (58).

The importance of attaining peace with the pain after birth

The women in our study stated that it had helped them greatly to talk about the pain with their midwife after the birth in order to make peace with the pain, although it had been very difficult and challenging to manage. In a study by Olin and Faxelid (59), the majority of parents wanted to talk to their primary midwife at the maternity ward before discharge about the delivery, for example, about pain and pain relief. We assert that it is of the utmost importance that women make peace with the pain after birth and that every woman be listened to about her experience of pain, because talking about past emotionally laden events results in a variety of psychological, social and physiological changes that often lead to improvements in health for those who participate in the disclosure process (60).

Limitations of the study

As in all qualitative studies, the researchers' preconceived ideas could have influenced the results. Furthermore, the interviews were conducted in one geographical area, which might be a limitation, because the experience and culture is probably so similar as not to allow for the expression of the diversity of women. That the study took place in one hospital, and some of the interviews took place very shortly after birth, could also be a limitation, as in the Vancouver School emphasis is placed on the reflection of the participant upon the experience, and preferably 6 months should pass from the experience to the interview. Finally we, as researchers, could have commented in more depth on how our interpretation of the findings was shaped by our own background, such as our gender and life situation (we are all women who have given birth), our education and work experience, as well as our culture (Icelandic and Swedish).

Clinical implications

As a result of the findings of this study, the authors suggest that it is important to develop better ways to prepare women during pregnancy, to help them better manage labour pain. This includes finding better ways to talk to women about birth and the pain associated with it. The findings of the present study indicate that midwives should pay more attention during antenatal visits and antenatal classes to different strategies, for example, 'creative imagination' as a strategy to prepare for labour pain as well as 'mental pain management', 'going to a happy place', 'counting' and other strategies that the women in this

study found important to help them in managing the pain. The women in our study pointed out that it is very important to focus on the time between contractions rather than the contractions themselves, to use the time to rest, focus their thoughts and prepare themselves for the next one.

Conclusions

In this paper, we have presented a third paradigm in labour pain preparation and management: the childbearing woman's paradigm. In the future, more research should be done to illuminate this important paradigm, where the woman is seen as being in charge of the labour and delivery process, and midwives and other health professionals are seen as professionals with a mission in supporting women in retaining a sense of control during the challenging journey of no return through labour pain. Midwives play a major role by focusing on how women can prepare themselves during pregnancy for labour pain, and by working with each woman in identifying the best strategies to manage the pain for this particular woman. Pain is one of the dominant factors in women's perception of the childbirth experience, and midwives must be aware of their important role as someone who can work in partnership with the woman throughout the pain, and be aware of their midwifery goals and how they can maximise the likelihood of the women experiencing well-being during and after the birth.

Acknowledgements

Foremost, we thank all the women who participated in our study and gave their time and shared their experiences. We also thank the head midwife on the main labour ward in North Iceland who helped us with recruiting participants. Finally, we thank our colleagues at the University of Akureyri, School of Health Sciences.

Author contributions

Sigfridur Inga Karlsdottir contributed to the study conception. Sigfridur Inga Karlsdottir, Sigridur Halldorsdottir and Ingela Lundgren contributed to the study design. Sigfridur Inga Karlsdottir provided the data collection and drafting of manuscript. Sigfridur Inga Karlsdottir, Sigridur Halldorsdottir and Ingela Lundgren contributed to data analysis. Sigridur Halldorsdottir and Ingela Lundgren provided critical revisions for important intellectual content.

Ethical approval

The study was approved by the Bioethics Committee of Akureyri Hospital (no. 148/2010) and notified to the Data Protection Authority (S4985/2010). The participants were all assigned pseudonyms to protect their anonymity.

Funding

We acknowledge the financial support of the University of Akureyri Research Fund, the Icelandic Midwifery Association Research Fund and The Ingibjörg R. Magnúsdóttir Research Fund.

References

1 Anderson FWJ, Johnson CT. Complementary and alternative medicine in obstetrics. *Int J Gynecol Obstet* 2005; 91: 116–24.
2 Leeman L, Fontaine P, King V, Klein MC, Ratcliffe S. The nature and management of labor pain: part II. Pharmacologic pain relief. *Am Fam Physician* 2003; 68: 1115–22.
3 Leap N, Anderson T. The role of pain in normal birth and the empowerment of women. In Normal Childbirth: Evidence and Debate 2nd edn (Downe S ed), 2008, Churchill Livingstone, Edinburgh, 29–46.
4 Lundgren I, Dahlberg K. Women's experience of pain during childbirth. *Midwifery* 1998; 14: 105–10.
5 Hauck Y, Fenwick J, Downie J, Butt J. The influence of childbirth expectations on Western Australian women's perceptions of their birth experience. *Midwifery* 2007; 23: 235–47.
6 Caton D, Corry MP, Frigoletto FD, Hopkins DP, Lieberman E, Mayberry L, Young D. The nature and management of labor pain: executive summary. *Am J Obstet Gynecol* 2002; 186 (Suppl 1):S1–15.
7 Lowe NK. The nature of labor pain. *Am J Obstet Gynecol* 2002; 186(Suppl 1):S16–24.
8 Lundgren I, Dahlberg K. Midwives' experience of the encounter with women and their pain during childbirth. *Midwifery* 2002; 8: 155–64.
9 Cheung W, Ip WY, Chan D. Maternal anxiety and feelings of control during labour: a study of Chinese first-time pregnant women. *Midwifery* 2007; 23: 123–30.
10 Melender H. Fears and coping strategies associated with pregnancy and childbirth in Finland. *J Midwifery Womens Health* 2002; 47: 256–63.
11 Waldenström U. Normal childbirth and evidence based practice. *Womens Birth* 2007; 20: 175–80.
12 Nilsson C, Lundgren I. Women's lived experience of fear of childbirth. *Midwifery* 2009; 25: e1–9.
13 Goodman P, Mackey MC, Tavakoli AS. Factors related to childbirth satisfaction. *J Adv Nurs* 2004; 46: 212–9.
14 Lally JE, Murtagh MJ, Macphail S, Thomson R. More in hope than expectation: a systematic review of women's expectations and experience of pain relief in labour. *BMC Med* 2008; 6: 1125–40.

15 Gottvall K, Waldenström U. Does a traumatic birth experience have an impact on future reproduction? *BJOG: Int J Obstet Gy* 2002; 109: 254–60.
16 Burges Watson D, Murtagh MJ, Lally JE, Thomson RG, McPhail S. Flexible therapeutic landscapes of labour and the place of pain relief. *Heal Place* 2007; 13: 865–76.
17 Marmor TR, Krol DM. Labor pain management in the United States: understanding patterns and the issue of choice. *Am J Obstet Gynecol* 2002; 186(Suppl 1):S173–80.
18 Halldorsdottir S, Karlsdottir SI. Journeying through labour and delivery: perceptions of women who have given birth. *Midwifery* 1996; 12: 48–61.
19 Larkin P, Begley CM, Devane D. Women's experiences of labour and birth: an evolutionary concept analysis. *Midwifery* 2009; 25: e49–59.
20 Waldenström U. Experience of labor and birth in 1111 women. *J Psychosom Res* 1999; 47: 471–82.
21 Hodnett ED. Pain and women's satisfaction with the experience of childbirth: a systematic review. *Am J Obstet Gynecol* 2002; 186: S160–72.
22 Leap N, Sandall J, Buckland S, Huber U. Journey to confidence: women's experiences of pain in labour and relational continuity of care. *J Midwifery Womens Health* 2010; 55: 234–42.
23 Hatem M, Sandall J, Devane D, Soltani H, Gates S. Midwife-led versus other models of care for childbearing women. *Cochrane Database Syst Rev* 2009; 3. Retrieved from: http://apps.who.int/rhl/reviews/CD004667.pdf (last accessed 12 June 2013).
24 World Health Organization (WHO). Care in Normal Birth: A Practical Guide. Report of A Technical Working Group, 1999, WHO, Geneva.
25 Simkin P, Ancheta R. Dysfunctional labour: general considerations. In The Labour Progress Handbook: Early Interventions to Prevent and Treat Dystocia, 3rd edn (Simkin P, Ancheta R eds), 2011, Wiley-Blackwell, Oxford, 15–50.
26 Halldorsdottir S. The vancouver school of doing phenomenology. In Qualitative Methods in the Service of Health (Fridlund B, Hildingh C, eds), 2000, Lund, Studentlitteratur, 47–81. Retrieved from http://staff.unak.is/not/sigridur/The%20Vancouver%20School.pdf (last accessed 12 June 2013).
27 Halldorsdottir S, Karlsdottir SI. Empowerment or discouragement: women's experience of caring and uncaring encounters during childbirth. *Health Care Women I* 1996; 17: 361–77.
28 Gudmannsdottir GD, Halldorsdottir S. The primacy of existential pain and suffering in residents in chronic pain in nursing homes: a phenomenological study. *Scand J Caring Sci* 2009; 23: 317–27.
29 Skuladottir H, Halldorsdottir S. The quest for well-being: self-identified needs of women in chronic pain. *Scand J Caring Sci* 2011; 25: 81–91.
30 Spiegelberg H. The Phenomenological Movement, 3rd enlarged edn, (historical introduction by Herbert Spiegelberg) 1984/1965, Maritinus Nijhoff, The Hague.
31 Brown S, Small R, Faber B, Krastev A, Davis P. Early postnatal discharge from hospital for healthy mothers and term infants (review). *Cochrane Database Syst Rev* 2002; 3: CD002958.
32 Löf M, Crang Svalenius E, Persson EK. Factors that influence first-time mothers' choice and experience of early discharge. *Scand J Caring Sci* 2006; 20: 323–30.
33 Hjälmhult E, Lomborg K. Managing the first period at home with a newborn: a grounded theory study of mothers' experiences. *Scand J Caring Sci* 2012; 26: 654–62.
34 Haga SM, Lynne A, Slinning K, Kraft P. A qualitative study of depressive symptoms and well-being among first-time mothers. *Scand J Caring Sci* 2012; 26: 458–66.
35 Lundgren I, Karlsdottir SI, Bondas T. Long-term memories and experiences of childbirth in a Nordic context—a secondary analysis. *Int J Qual Stud Health Well-being* 2009; 4: 115–28.
36 Fenwick J, Hauck Y, Downie J, Butt J. The childbirth expectations of a self-selected cohort of Western Australian women. *Midwifery* 2005; 21: 23–35.
37 Sheiner E, Sheiner EK, Hershkovitz R, Mazor M, Katz M, Shoham-Vardi I. Overestimation and underestimation of labor pain. *Eur J Obstet Gynecol Reprod Biol* 2000; 91: 37–40.
38 Simkin P, Bolding A. Update on nonpharmacologic approaches to relieve labor pain and prevent suffering. *J Midwifery Womens Health* 2004; 49: 489–504.
39 Chapman CR, Gavrin J. Suffering and its relationship to pain. *J Palliat Care* 1993; 9: 5–13.
40 Öhman SG, Grunewald C, Waldenström U. Women's worries during pregnancy: testing the Cambridge Worry Scale on 200 Swedish women. *Scand J Caring Sci* 2003; 17: 148–52.
41 Carlsson I-M, Ziegert K, Sahlberg-Blom E, Nissen E. Maintaining power: women's experiences from labour onset before admittance to maternity ward. *Midwifery* 2012; 28: 86–92.
42 Fahy KM, Parratt JA. Birth territory: a theory for midwifery practice. *Women Birth* 2006; 19: 45–50.
43 Jones L, Othman M, Dowswell T, Alfirevic Z, Gates S, Newburn M, Jordan S, Lavender T, Neilson JP. Pain management for women in labour: an overview of systematic reviews. *Cochrane Database Syst Rev* 2012; 3. Art. No.: CD009234.
44 Huntley AL, Thompson Coon J, Ernst E. Complementary and alternative medicine for labor pain: a systematic review. *Am J Obstet Gynecol* 2004; 191: 36–44.
45 Melzack R. The myth of painless childbirth. *Pain* 1984; 19: 321–37.
46 Niven C, Brodie E. Memory for labor pain: content and quality. *Pain* 1995; 64: 387–92.
47 Lavender T, Walkinshaw S, Walton I. A prospective study of women's views of factors contributing to a positive birth experience. *Midwifery* 1999; 15: 40–46.
48 Hunter B, Berg M, Lundgren I, Ólafsdóttir OA, Kirkham M. Relationships: the hidden threads in the tapestry of maternity care. *Midwifery* 2008; 24: 132–7.
49 Halldorsdottir S, Karlsdottir SI. The primacy of the good midwife in midwifery services: an evolving theory of professionalism in

midwifery. *Scand J Caring Sci* 2011; 25: 806–17.

50 Eliasson M, Kainz G, von Post I. Uncaring midwives. *Nurs Ethics* 2008; 15: 500–11.

51 Garthus-Niegel S, von Soest T, Vollrath ME, Eberhard-Gran M. The impact of subjective birth experiences on post-traumatic stress symptoms: a longitudinal study. *Arch Womens Ment Health* 2012; 16: 1–10.

52 Andersen LB, Melvaer LB, Videbech P, Lamont RF, Joergensen JS. Risk factors for developing post-traumatic stress disorder following childbirth: a systematic review. *Acta Obstet Gynecol Scand* 2012; 91: 1261–72.

53 Lundgren I, Berg M. Central concepts in the midwife-woman relationship. *Scand J Caring Sci* 2007; 21: 220–8.

54 Simkin P, O'Hara MA. Nonpharmacologic relief of pain during labor: systematic reviews of five methods. *Am J Obstet Gynecol* 2002; 186: S131–9.

55 Callister LC, Khalaf I, Semenic S, Kartchner R, Vehvilainen-Julkunen K. The pain of childbirth: perceptions of culturally diverse women. *Pain Manag Nurs* 2003; 4: 145–54.

56 ICM. *International definition of a midwife*. 2011. Retrieved from http://www.in- ternationalmidwives.org/Portals/5/2011/Definition%20of%20the%20Midwife%20-%202011.pdf (last accessed 12 June 2013).

57 Hodnett ED, Gates S, Hofmeyr GJ, Sakala C, Weston J. Continuous support for women during childbirth. *Cochrane Database Syst Rev* 2011; 2: Art. No.: CD003766.

58 Darvill R, Skirton H, Farrand P. Psychological factors that impact on women's experiences of first-time motherhood: a qualitative study of the transition. *Midwifery* 2010; 26: 357–66.

59 Olin R-M, Faxelid E. Parents' needs to talk about their experiences of childbirth. *Scand J Car Sci* 2003; 17: 153–9.

60 Booth RJ. Emotional expression and disclosure. In The Oxford Handbook of Psychoneuroimmunology (Segerstrom SC, ed), 2012, Oxford University Press, New York, NY, 105–25.

Paper II

Sexual & Reproductive Healthcare 6 (2015) 211–218

Contents lists available at ScienceDirect

Sexual & Reproductive Healthcare

journal homepage: www.srhcjournal.org

Pregnant women's expectations about pain intensity during childbirth and their attitudes towards pain management: Findings from an Icelandic national study

Sigfridur Inga Karlsdottir [a,*], Herdis Sveinsdottir [b], Olof Asta Olafsdottir [b], Hildur Kristjansdottir [b]

[a] School of Health Sciences, University of Akureyri, Solborg, P.O. Box 224, 602 Akureyri, Iceland
[b] Faculty of Nursing, University of Iceland, Eiriksgata 34, Reykjavik 101, Iceland

ARTICLE INFO

Article history:
Received 11 January 2015
Revised 13 May 2015
Accepted 19 May 2015

Keywords:
Attitude
Pain
Pain Management
Pregnancy

ABSTRACT

Background: Pregnant women expect childbirth to be painful. However, little is known about their expectations of the intensity of pain in childbirth (EIPC) and their attitudes to pain management.
Method: The design was a cross-sectional survey, with self-reported questionnaires used to collect data from low-risk pregnant women (N = 1111) early in pregnancy at 26 of the largest primary health care centres in Iceland. This consecutive national sample was stratified by residency.
Results: The mean score for the EIPC was 5.58 (SD = 1.38) measured on a 7 point scale. The strongest predictors of a high EIPC score were: negative attitude to the impending childbirth (OR = 2.39), low manifestation of a sense of security (OR = 1.80), and a positive attitude to pain management with medication (OR = 1.63). Women living outside the capital area were less likely to have a high EIPC (OR = 0.68). Most women (77%) had a positive attitude towards pain management without medication and 35% had a positive attitude to pain management with medication.
Conclusions: The study detected multiple predictors of women's EIPC and attitude to pain management. Early and throughout pregnancy, midwives and health care professionals need to address these predictors in order to assist women to prepare themselves for the pain of labour.

Introduction

A key element in childbirth is the perception of pain [1]. Pregnant women expect childbirth to be painful and prepare themselves to cope with the pain [1–6]. However, quantitative studies are lacking on pregnant women's perspectives of the intensity of pain and attitudes towards pain management during pregnancy and childbirth.

Pain in childbirth is unique, different from any other pain. Studies have shown that different attitudes, meanings of pain and cultural background seem to affect women's experience of pain in childbirth [7]. Research has indicated different approaches to pain management: pragmatic, natural, deliberately uninformed, and planned [8]. A recent prospective study conducted in Sweden on pregnant women's preferences and actual use of pain relief methods during birth show that preference for certain pain relief methods was the most important factor in actual use [9]. One study found that trusting one's body and facing the pain is one of the elements that seems to influence a positive birth experience [10].

A salutogenic approach offers a philosophy that can be useful for conceptualizing women's experiences through the childbearing process, with the emphasis on salutary as opposed to pathogenic [11,12]. The concept of salutogenesis is based on Antonovsky's theory [13], which is concerned with understanding what generates and maintains healthy outcomes instead of focusing on outcomes linked to illness or disability [11,14]. Salutogenically-focused outcomes such as maternal experience, attitudes towards care and emotional well-being can be measured to draw attention to parameters that influence positive experience, optimum childbearing and a woman's strength and her own resources [11].

How women prepare themselves and how they face the challenge of pain in childbirth can be regarded as salutogenic. Thus, the focus in maternity care on pain and pain management during childbirth should be on women's own expectations, perspectives and resources.

Women's experience of prenatal health care during pregnancy has been linked to their sense of security [15], which seems to influence their ability to cope with pain and childbirth [10] and the level of preparedness they feel for their impending motherhood [16]. In general the experience of pain in childbirth can influence women's lives for many years, either positively or negatively [1,17,18].

* Corresponding author. School of Health Sciences, University of Akureyri, Solborg, P.O. Box 224, 600 Akureyri, Iceland. Tel.: +003544608460.
E-mail address: inga@unak.is (S.I. Karlsdottir).

http://dx.doi.org/10.1016/j.srhc.2015.05.006
1877-5756/

Most studies on women's expectations about the intensity of pain in childbirth have been retrospective [19] or conducted late in pregnancy [20–23]. Studies conducted in England [20], Jordan [21], Ireland [19] and India [23] show that women expect a high intensity of pain. In a study conducted in five European countries where women were asked during the last month of pregnancy about their expectation about intensity of pain in childbirth, they reported the expected intensity of pain on a 100 point scale as 75–95. Age, education or social class did not make a significant difference in their expectations [22]. A systematic review, which includes results from 13 qualitative and 19 quantitative studies on expectations and experiences of pain and pain management identified four main themes: the level and type of pain, pain relief, involvement in decision making, and control, and indicated that pregnant women have a positive attitude towards pain management without medication, but there seems to be a gap between women's expectations and their actual experience [24]. A meta-analysis showed that a non-pharmacologic approach for pain management during labour was associated with a reduction in epidural analgesia and higher maternal satisfaction with childbirth [25]. In a secondary analysis of three qualitative studies in three Nordic countries, women viewed pain not just as difficult, demanding, and hard to handle but also as a valuable experience that can contribute to their personal growth [18].

It is important to base maternity services on theories that support salutogenic views on pregnancy and childbirth, such as the midwifery model of care which is based on a reciprocal relationship with the woman [26] and on theories of professional caring [27]. To plan antenatal care from the women's point of view, more knowledge is needed about their expectations, attitudes and preferences in managing pain in childbirth.

There is a shortage of salutogenic outcome studies in pregnancy and childbirth. The present study adopted a salutogenic perspective to describe pregnant women's expectations about the intensity of pain in childbirth and their attitudes towards pain management with or without medication and to identify predictors of these expectations and attitudes.

Methods

Setting and design

This national study took place in Iceland, which has about 325,000 inhabitants. Approximately 4500 women give birth in Iceland each year, and 70% of these births are at the University Hospital (Landspitali) in the capital area of Reykjavik. There are seven other maternity hospitals around Iceland, with different levels of service, and the home birth rate is 2.2% for the whole country. The live birth per 1000 population number is 14.13 and the perinatal death rate is 2.9 per 1000 births, including all perinatal deaths after 22 gestational weeks (first week deaths, stillbirths by 22 weeks, and births at 500 grams or more) [28]. The rate of caesarean section has been between 15 and 17% for the last few years. The mean age of the pregnant women is approximately 29 years and primipara women are approximately 38% of pregnant women [29].

In Iceland there are 45 primary health care centres which offer antenatal care for healthy pregnant women. In these centres, midwives are the primary caregivers during a normal pregnancy.

This study is part of the Childbirth and Health study in Primary care in Iceland, and the data collection process has been described in detail elsewhere [30]. The design was a cross-sectional survey, with mailed self-reported questionnaires used to collect data from women recruited at 26 health care centres distributed evenly around the country from February 2009 to March 2010. The catchment area covered about 60% of maternity care for healthy women, serving around 3000 pregnant women per year. Midwives introduced the study to pregnant women 18 years and older who were fluent in Icelandic, at their first antenatal visit and invited them to participate. The questionnaire was sent to women who agreed to participate. One reminder was sent to all participants.

Questionnaire

The questionnaire used in the study was mostly based on the Swedish KUB study [31], translated and adapted for use in Iceland by the Childbirth and Health Study Group, an interdisciplinary group of four advanced researchers studying primary care in Iceland.

The questionnaire was pretested, first with 31 pregnant women of different ages, parity, and educational background. They were asked to comment briefly on the clarity of the text and on the questions they answered. Four of the participants then commented verbally on issues, such as the length and clarity of wording, as described in Erlingsdottir et al. [30]. Minimal changes were made in response to their comments.

Measures

The variables and their values are listed in Table 1. The main dependent variables on salutogenically focused outcomes were:

(a) Expectations about intensity of pain in childbirth (EIPC) measured with the question: *How much pain do you think you will feel during childbirth?* Measured with a numerical scale where 1 stood for no pain at all to 7 for the worst imaginable pain. The answers to the EIPC question were not normally distributed, the data were negatively skewed, and the mean was 5.58. Therefore, the variable was recoded into two groups labelled high EIPC and low EIPC, with a cutting point of 6.0. Low expectations were defined as a score <6 and high as expectations as a score ≥6.

(b) Attitudes towards pain management with medication (ATPM-WM) were measured with the question: *What is your general attitude towards pain management with medication during childbirth?* The responses were: wish to use medication for pain management (classified as positive attitudes towards ATPM-WM), try to avoid using it, and do not want to use it (classified as negative attitudes towards ATPM-WM).

(c) Attitudes towards pain management without medication (ATPM-WOM) were measured with the question: *What is your general attitude towards pain management without medication during childbirth?* The responses were: wish to use medication for pain management (classified as positive attitudes towards ATPM-WOM), try to avoid using it, and not interested in using it (classified as negative attitudes towards ATPM-WOM).

The participant's manifestation of sense of security about pregnancy and birth was measured with a 9-item scale which was a part of a Finnish instrument measuring women's sense of security through the whole childbirth process [15]. Examples of the items tested were: *I feel calm, I am confident that my childbirth will go well, I feel well balanced.* Responses ranged from 1 = totally agree to 4 = totally disagree. As the responses to the questions about manifestation of a sense of security were not normally distributed, the data were negatively skewed with the mean score slightly below 2.0, the variable was recoded into two groups where a score of >2 suggested a low level of a sense of security and a score of <2 suggested a high level.

The manifestation of a sense of security scale had shown good internal consistency in a Finnish sample, with a Cronbach alpha coefficient of 0.87 [15]. In the current study the Cronbach alpha coefficient was 0.83.

Table 1
Descriptive findings for study variables.

	n	%		n	%
Age (n = 1111)			**Manifestation of sense of security (n = 1078)**		
<20	18	1.6	High (<2)	811	75.2
20–24	168	15.1	Low (>2)	267	24.8
25–29	405	36.4	**Attitude towards expecting a child (n = 1109)**		
30–34	328	29.6	Very positive	949	85.6
35–39	155	13.9	Rather positive	118	10.6
≥40	37	3.4	Mixed feelings/rather negative/very negative	42	3.8
Marital status (n = 1111)			**Attitudes to impending childbirth (n = 1109)**		
Married/cohabiting	1032	93.0	Very positive	334	30.1
Partner	31	3.0	Rather positive	363	32.7
Single/divorced/other	48	4.0	Mixed	348	31.4
Education (n = 1109)			Rather negative	46	4.1
Elementary school	123	11.0	Very negative	18	1.6
High school or similar	291	26.0	**Preferred mode of birth (n = 1102)**		
Higher education	695	62.9	Vaginal	1023	92.8
Residence (n = 1110)			Caesarean section	79	7.2
Capital area	763	68.6	**Consider home birth with a midwife (n = 1109)**		
Outside the capital area	347	31.2	Yes	208	18.7
Parity (n = 1110)			No	723	65.3
Para ≥ 1	671	60.5	Do not know	178	16.0
Para 0	439	39.5	**Expected intensity of pain during childbirth (n = 1100)**		
Length of pregnancy (n = 1095)			Expectant intensity (score = 0–5)	458	41.6
≤14	285	25.6	Expectant intensity (score = 6–7)	642	57.7
15–19	706	65.1	**Attitude towards pain management with medication (n = 1106)**		
20–24	85	7.6	Do not wish to use it	67	6.1
≥25	19	1.7	Try to avoid using it	652	59.0
Support from partner (n = 1107)			Wish to use	387	35.0
I get all the support I need	839	75.8	**Attitude to pain management without medication (n = 1104)**		
I get almost all the support I need	229	20.7	Not interested in using it	79	7.2
I get little support	28	2.5	Try to avoid using it	175	15.9
I get no support	11	1.0	Wish to use	850	77.0

Data analysis

Statistical analyses were carried out using SPSS 21 for Windows. Descriptive data are presented for all variables. To detect significant relationships between the variables, a chi-square test was used. To adjust for intervariable relations between possible predictors of expectations about intensity of pain, attitudes towards pain management with medication and attitudes towards pain management without medication, three binary logistic regressions were performed. The responses "try to avoid using it" and "do not want to use it" were counted as a negative attitude.

Independent variables that were significantly associated with the dependent variables in a chi-square testing were entered into each regression using backwards elimination. The significance level was set at 0.05.

The study was approved for ethics by the Iceland National Bioethics Committee (VSNb2008010023/03-1) and reported to the Data Protection Authority (S3695/2008 LSJ/–). Approval was also obtained from the health institutions concerned.

Results

The response rate was 63% and 1111 questionnaires were analysed. The average age of the women was 29.4 years (SD = 5.1), 93% were married or cohabiting with a partner, and the majority (62.9%) had higher education (technical school or university education ≥ 3 years). Sixty-nine percent lived in the capital area, 39.5% were primiparas, and the average length of pregnancy at the time of responding to the questionnaire was 16 weeks (SD = 2.94). The sample was representative of the population regarding age, marital status, residency, and parity [30].

Most women expected the impending birth to be painful, with the mean expected intensity of pain being (EIPC) 5.58 (SD = 1.38; range 1–7), 41.6% classified as high EIPC and 57.7% classified as low EIPC. One-third of the women (35%) said they wanted to use pain management with medication during birth and 77% wanted to use pain management without medication. The majority of the women received all the support they needed from their partner (75.8%), and 75.2% reported a high manifestation of a sense of security. In the study, 85.6% had a very positive attitude towards expecting a child, 30.1% had a very positive attitude towards the impending birth, and 32.7% had a rather positive attitude. Table 1 displays the descriptive findings for the study variables.

Associations between dependent variables and EIPC, ATPM-WM and ATPM-WOM

Women with a low expectations about the intensity of pain in childbirth (EIPC) were significantly more likely to live outside the capital area, have less formal education, have a positive attitude towards expecting a child, have a positive attitude towards the impending childbirth, prefer vaginal birth, were considering home birth with a midwife, expressed negative attitudes towards pain management with medication (ATPM-WM) and positive attitudes towards pain management without medication (ATPM-WOM), and had a high manifestation of a sense of security. The associations between the EIPC and the independent variables are described in more detail in Table 2.

Women with a positive ATPM-WM were significantly more likely to be single or divorced, live in the capital area, manifest a low sense of security, have little support from a partner, have negative attitudes towards the impending childbirth, prefer a caesarean section, were not considering home birth with a midwife, and had a high EIPC. The ATPM-WM is described in more detail in Table 3.

Higher education, preferring vaginal birth, considering home birth with a midwife, and expecting a high intensity of pain all had a significant relationship with a positive ATPM-WOM. The ATPM-WOM is described in more detail in Table 4.

Table 2
Study variables by women's expected intensity of pain during childbirth (%).[a]

	Low EIPC (<6) %	High EIPC (≥6) %	p		Low EIPC (<6) %	High EIPC (≥6) %	p
Age (n = 1100)			0.09	**Support from partner (n = 1097)**			0.54
<20 (n=18)	50.0	50.0		I get all the support I need (n = 830)	42.3	57.7	
20–24 (n = 166)	45.8	54.2		I get almost all the support I need (n = 228)	41.2	58.8	
25–29 (n = 400)	40.5	59.5		I get little support (n = 28)	32.1	67.9	
30–34 (n = 327)	36.4	63.6		I get no support (n = 11)	27.3	72.7	
35–39 (n = 152)	48.0	52.0		**Attitude towards expecting a child (n = 1099)**			**0.05**
≥40 (n = 37)	51.4	48.6		Very positive (n = 939)	42.1	57.9	
Marital status (n = 1098)			0.87	Rather positive (n = 118)	44.9	55.1	
Married/cohabiting (n = 1023)	41.9	58.1		Mixed feelings/rather negative/very negative (n = 42)	22.0	78.0	
Partner (n = 31)	38.7	61.3		**Attitude to impending childbirth (n = 1099)**			**0.01**
Single/divorced/other (n = 44)	36.4	63.3		Very positive (n = 331)	57.4	42.6	
Education (n = 1109)			**0.01**	Rather positive (n = 361	44.0	56.0	
Elementary (n = 120)	45.8	54.2		Mixed (n = 344)	29.9	70.1	
High school or similar (n = 288)	48.3	51.7		Rather negative (n = 45)	13.3	86.7	
Higher education (n = 690)	38.3	61.7		Very negative (n = 18)	0.0	100	
Residence (n = 1099)			**0.01**	**Preferred mode of birth (n = 1091)**			**0.01**
Capital area (n = 757)	38.0	62.0		Vaginal (n = 1014)	42.9	57.1	
Outside the capital area (n = 342)	49.7	50.3		Caesarean section (n = 77)	26.0	74.0	
Parity (n = 1099)			0.12	**Consider home birth with a midwife (n = 921)**			**0.01**
Para 0 (n = 433)	43.9	56.1		Yes (n = 205)	51.2	48.8	
Para ≥ 1 (n = 665)	40.2	59.8		No (n = 716)	35.9	64.1	
Length of pregnancy (n = 1090)			0.35	**Attitude to pain management with medication (n = 1095)**			**0.01**
≤14 (n = 280)	43.7	56.3		Don't wish to use it (n = 66)	60.6	39.4	
15–19 (n = 706)	40.8	59.2		Try to avoid using it (n = 646)	47.2	52.8	
20–24 (n = 85)	40.8	59.2		Wish to use it(n = 383)	29.5	70.5	
≥25 (n = 19)	36.5	63.5		**Attitude to pain management without medication (n = 1093)**			**0.05**
Manifestation of sense of security (n = 1068)			**0.01**	Not interested in using it (n = 78)	30.8	69.2	
High (<2) (n = 804)	46.4	53.6		Try to avoid using it (n = 174)	48.3	51.7	
Low (>2) (n = 264)	27.3	72.7		Wish use it (n = 841)	41.4	58.6	

[a] Chi-square analyses.

Predictors of EIPC, ATPM-WM and ATPM-WOM

Three binary logistic regression analyses with backward elimination were performed to identify the predictors of expectations about intensity of pain in childbirth (EIPC), attitudes towards pain management with medication (ATPM-WM), and attitudes towards pain management without medication (ATPM-WOM). Only variables with significant associations with each dependent variable were entered into the regression model. The relevant variables were coded as shown in Table 5.

For the EIPC model, the following variables were entered into the regression: education, residence, attitudes towards the impending childbirth, attitudes towards expecting a child, ATPM-WM, ATPM-WOM, preferred mode of birth, considering home birth with a midwife, and manifestation of sense of security. For the ATPM-WM model, the following variables were entered: marital status, residence, support from a partner, attitudes towards the impending childbirth, preferred mode of birth, considering home birth, manifestation of a sense of security and EIPC. For the ATPM-WOM model, the following variables were entered: education, preferred mode of birth, considering home birth and EIPC.

The EIPC model showed, holding other independent variables constant, that a high EIPC was associated with a negative attitude towards the impending childbirth (OR = 2.39, 95% CI 1.72–3.32), a positive ATPM-WM (OR = 1.63, 95% CI 1.19–2.24), having higher education (OR = 1.50, 95% CI 1.10–2.04), not considering home birth (OR = 1.44, 95% CI 1.02–2.04), and a low manifestation of sense of security (OR = 1.80, 95% CI 1.28–2.52). Women living outside the capital area were less likely to have a high EIPC (OR = 0.68, 95% CI 0.49–0.93).

The ATPM-WM showed, holding other independent variables constant, that a positive ATPM-WM was associated with a negative attitude towards the impending childbirth (OR = 1.84, 95% CI 1.35–2.52), caesarean section as the preferred mode of birth (OR = 7.75 95% CI 3.88–15.48), not considering home birth (OR = 3.86, 95% CI 2.49–5.97), and a high EIPC (OR = 1.60, 95% CI1.16–2.19). Women who were supported by their partners were less likely to have a positive ATPM-WM (OR = 0.22, 95% CI 0.091–0.547). The same applied to women living outside the capital area (OR = 0.60, 95% CI 0.43–0.84).

The ATPM-WOM model showed, holding other independent variables constant, that women who had higher education (OR = 2.15, 95% CI 1.57–2.97), preferred caesarean section (OR = 0.469, 95% CI 0.31–0.73) and would not consider home birth (OR = 0.49, 95% CI 0.79–1.50) were less likely to have a high ATP-WOM.

The three models are presented in Table 5.

Discussion

The aim of the study was to explore what expectations women have during pregnancy, regarding pain and pain management during childbirth. In this study the strongest predictors of a high EIPC were negative attitudes towards impending childbirth and a low manifestation of sense of security. Other predictors of a high EIPC included a positive ATPM-WM and residency in the capital area.

This study confirmed previous findings that pregnant women expect childbirth to be painful [3,24] and provided new information on women's EIPC early in pregnancy. The mean score was high: 5.58 on a 7 point scale. Previous studies performed late in pregnancy [21,22,32] or after childbirth reported higher or lower scores [22,23]. The difference in results could have been related to different measurement methods, different cultural contexts, or perhaps the length of the pregnancy. In this study, the mean length of pregnancy was 16 weeks, and fewer than 1% did not answer the questions about EIPC and ATPM-WM.

Women who resided outside the capital area were less likely to have a high EIPC or a positive ATPM-WM. This finding could have been due to the urban or rural cultural settings where the

Table 3
Study variables by women's attitude to pain management with medication (%).[a]

	Do not want to use	Try to avoid using it	Wish to use	P
Age (n = 1106)				0.46
<20 (n = 18)	0.0	61.1	38.9	
20–24 (n = 167)	3.0	63.5	33.5	
25–29 (n = 403)	6.0	60.0	34.0	
30–34 (n = 328)	7.3	58.2	34.5	
35–39 (n = 154)	8.4	53.9	37.7	
≥40 (n = 36)	2.8	52.8	44.4	
Marital status (n = 1104)				**0.05**
Married/cohabiting (n = 1030)	5.8	60.2	34.0	
Partner (n = 44)	9.1	43.2	47.7	
Single/ divorced/other (n = 30)	10.0	36.7	53.3	
Education (n = 1098)				0.47
Elementary (n = 122)	6.6	51.6	41.8	
High school or similar (n = 289)	6.6	60.6	32.9	
Higher education (n = 693)	5.8	59.6	34.6	
Residence (n = 1105)				**0.01**
Capital area (n = 761)	4.9	56.5	38.6	
Outside the capital area (n = 344)	8.7	64.2	27.0	
Parity (n = 1104)				0.62
Para 0 (n = 437)	6.4	60.2	33.4	
Para ≥ 1 (n = 665)	5.7	58.2	36.1	
Length of pregnancy (n = 1097)				0.55
≤14 (n = 282)	4.3	56.9	38.8	
15–19 (n = 711)	6.5	59.2	34.3	
20–24 (n = 85)	7.1	63.5	29.4	
≥25 (n = 19)	5.3	68.4	26.3	

	Do not want to use	Try to avoid using it	Wish to use	p
Manifestation of sense of security (n = 1074)				**0.05**
High (<21) (n = 808)	6.7	60.5	32.8	
Low (>21) (n = 266)	3.8	54.9	41.4	
Support from partner (n = 1102)				**0.01**
I get all the support I need (n = 835)	6.3	59.6	34.0	
I get almost all the support I need (n = 229)	5.2	62.9	31.9	
I get little support (n = 28)	7.1	21.4	71.4	
I get no support (n = 10)	0.0	30.0	70.0	
Attitude towards expecting a child (n = 1104)				0.16
Very positive (n = 944)	5.8	60.0	34.2	
Rather positive (n = 118)	6.8	57.6	35.6	
Mixed feelings/rather negative/very negative (n = 42)	9.8	39.0	51.2	
Attitude to impending childbirth (n = 1104)				**0.01**
Very positive (n = 331)	9.7	66.2	24.2	
Rather positive (n = 362)	6.4	64.4	29.3	
Mixed (n = 347)	2.9	53.9	43.2	
Rather negative (n = 46)	2.2	21.7	76.1	
Very negative (n = 18)	0.0	11.1	88.9	
Preferred mode of birth (n = 1097)				**0.01**
Vaginal (n = 1018)	6.5	61.9	31.6	
Caesarean section (n = 79)	0.0	22.8	77.2	
Consider home birth with a midwife (n = 927)				**0.01**
Yes (n = 207)	12.1	73.4	14.5	
No (n = 720)	3.5	51.9	44.6	
Expected intensity of pain during childbirth (n = 1095)				**0.01**
Expectant intensity <6 (n = 458)	8.7	66.6	24.7	
Expectant intensity ≥6 (n = 637)	4.1	53.6	42.4	

[a] Chi-square analyses.

Table 4
Study variables by women's attitude to pain management without medication (%).[a]

	Not interested in using it	Try to avoid using it	Wish to use	P
Age (n = 1104)				0.60
<20 (n = 17)	17.6	11.8	70.6	
20–24 (n = 167)	8.4	13.2	78.4	
25–29 (n = 403)	6.2	17.6	76.2	
30–34 (n = 327)	5.8	15.9	78.3	
35–39 (n = 154)	9.1	14.3	76.6	
≥40 (n = 36)	11.1	16.7	72.2	
Marital status (n = 1102)				0.08
Married/cohabiting (n = 1027)	6.5	15.7	77.8	
Partner (n = 44)	15.9	18.2	65.9	
Single/divorced/other (n = 31)	16.1	19.4	64.5	
Education (n = 1102)				**0.01**
Elementary (n = 121)	11.6	24.0	64.5	
High school or similar (n = 288)	10.8	18.4	70.8	
Higher education (n = 693)	4.9	13.4	81.7	
Residence (n = 1103)				0.46
Capital area (n = 758)	7.7	15.2	77.2	
Outside capital area (n = 345)	6.1	17.4	76.5	
Parity (n = 1102)				0.52
Para 0 (n = 437)	8.2	16.0	75.7	
Para ≥ 1 (n = 665)	6.5	15.8	77.7	
Length of pregnancy (n = 1094)				0.95
≤14 (n = 284)	8.1	16.3	75.6	
15–19 (n = 706)	6.7	16.1	77.2	
20–24 (n = 85)	8.2	11.8	80.0	
≥25 (n = 19)	5.3	21.1	73.7	

	Not interested in using it	Try to avoid using it	Wish to use	p
Manifestation of sense of security (n = 1071)				0.10
High (≥2) (n = 805)	6.1	15.5	78.4	
Low (>2) (n = 266)	9.8	16.5	73.7	
Support from partner (n = 1100)				0.13
I get all the support I need (n = 833)	7.2	16.3	76.5	
I get almost all the support I need (n = 228)	5.7	15.4	78.9	
I get little support (n = 28)	10.7	10.7	78.6	
I get no support (n = 11)	27.3	0.0	72.7	
Attitude towards expecting a child (n = 1102)				0.11
Very positive (n = 942)	6.8	15.9	77.3	
Rather positive (n = 118)	5.9	16.9	77.1	
Mixed feelings/rather negative/very negative (n = 42)	19.5	12.2	68.3	
Attitude to impending childbirth (n = 1102)				0.11
Very positive (n = 331)	4.8	18.4	76.7	
Rather positive (n = 361)	6.1	16.1	77.8	
Mixed (n = 346)	9.8	14.5	75.7	
Rather negative (n = 46)	13.0	10.9	76.1	
Very negative (n = 18)	5.6	5.6	88.9	
Preferred mode of birth (n = 1095)				**0.04**
Vaginal (n = 1017)	6.8	16.5	76.7	
Caesarean section (n = 78)	12.8	9.0	78.2	
Consider home birth with a midwife (n = 926)				**0.01**
Yes (n = 207)	0.5	14.0	85.5	
No (n = 719)	9.6	16.3	74.1	
Expected intensity of pain during childbirth (n = 1093)				**0.03**
Expectant intensity (<6) (n = 456)	5.3	18.4	76.3	
Expectant intensity (≥6) (n = 637)	8.5	14.1	77.4	

[a] Chi-squared analyses.

Table 5
Regression analysis, significant predictors of expectant intensity of pain and pain management with and without medication.

	B	SE	Wald	Sig.	OR	95% CI	
						Low	High
I. Expected intensity of pain							
Attitude to impending childbirth	.871	.167	27.174	.001	2.390	1.72	3.32
Attitude to pain management with medication	.490	.161	9.224	0.02	1.633	1.19	2.24
Education	.407	.156	6.778	0.009	1.502	1.10	2.04
Consider home birth with a midwife	.370	.176	4.412	0.036	1.448	1.02	2.04
Residency	−.386	.162	5.663	0.017	.680	.49	.93
Manifestation of sense of security	−585	.173	11.452	0.001	1.796	1.28	2.52
Constant	−1.477	.347	18.132	0.000	.288		
II. Attitude to pain management with medication							
Residency	−.509	.172	8.771	0.003	.601	.43	.84
Support from partner	−1.501	.458	10.726	0.001	.223	.09	.58
Attitude to impending childbirth	.612	.158	14.968	0.000	1.845	1.35	2.52
Preferred mode of birth	2.048	.353	33.690	0.001	7.751	3.88	15.48
Consider home birth with a midwife	1.350	.222	36.822	0.001	3.858	2.49	5.97
Expected intensity of pain	.465	0.162	8.231	0.004	1.593	1.16	2.19
Constant	−.686	.493	1.935	0.164	.504		
III. Attitude to pain management without medication							
Education	.765	.160	22.7	0.001	2.148	1.57	2.97
Preferred mode of birth	.044	0.297	12.041	0.01	.469	.31	.73
Consider home birth with a midwife	−.746	.217	11.773	0.001	.469	.79	1.50
Constant	1.323	.216	37.382	0.001	3.756		

Backward binary logistic regression analyses. Defined; marital status (not cohabiting or married = 1/other = 0), education (higher education = 1/other = 0), attitude to the upcoming childbirth (very negative, negative and mixed feelings = 1/rather positive and very positive = 0), attitude towards expecting a child (very negative, negative and mixed feelings = 1/rather positive and very positive = 0), ATPM-WM (I wish to use pain management with medication = 0/try to avoid using pain management with medication and don't wish to use pain management with medication = 1), ATPM-WOM (I wish to use pain management without medication = 1/don't wish to use pain management without medication and not interesting in using it = 0), support from partner (I get all the support I need/I get nearly all the support I need = 1/I get little support/I get no support = 0), preferred mode of childbirth (vaginally = 0/ cesarean section = 1), considering home birth with a midwife (yes = 0/no/I don't know = 1).

hospitals are located and the different level of pain management services, such as epidural analgesia. Outside the capital area, levels of continuity of care are usually higher because the same midwives or small group of midwives care for the women during pregnancy, childbirth, and the postpartum period. A previous study suggested that continuous support during labour seems to affect the experience of pain [33].

In common with other studies [6,9,34], the large majority of the women in our study displayed a positive ATPM-WOM. The main predictor of attitudes towards pain management without medication was higher education, which could indicate that women with higher education are more aware of different approaches to pain management. The main predictors of a positive ATPM-WM were positive attitudes towards caesarean section, not considering home birth with a midwife, and negative attitudes towards the impending childbirth.

This finding is in line with results showing that women with positive antenatal attitudes towards obstetric interventions predicted epidural analgesia use during birth [35]. This also agrees with a study showing that the attitude towards the impending childbirth is a predictor of attitudes towards pain management [36].

Surprisingly, there was no significant difference between the primiparas' and multiparas' EIPC or between their ATPM-WM and ATPM-WOM. This was in sharp contrast to findings on actual experiences of pain in childbirth showing that primiparas experience a higher intensity of pain [32,37]. Furthermore, multiparas more often report positive birth experiences [5]. Unrealistic expectations might indicate that women are not prepared appropriately for childbirth [24].

The association between the women's manifestation of a sense of security and their EIPC and attitudes towards pain management has not been studied to any great extent. It has been demonstrated that the care that midwives and other health professionals provide is important to increase the confidence of pregnant women in handling the upcoming childbirth [15,17].

This study adds new information on predictors of women's EIPC and their attitudes towards pain management during childbirth. It also demonstrated, linked to a higher manifestation of a sense of security, that the majority of women are positive about the impending childbirth and to pain management without medication.

The study findings suggest that intervention studies are needed to determine how best to prepare for pain in childbirth and at what time during pregnancy to include clinical guidelines for antenatal care during early pregnancy with a focus on salutogenic perspectives and outcomes of care [11]. As satisfaction with childbirth has been linked to fulfilment of expectations, being in control, and being involved in decision making, such clinical guidelines could help to reduce the gap between expectations and experiences of pain during birth [24]. Many studies have shown that a positive childbirth experience can create a feeling of power and pride and have a positive effect on women's self-esteem [17]. The importance of a positive childbirth experience has been confirmed in evidence-based models of woman-centred care in childbirth [26] and theory based on caring and uncaring encounters with health professionals [27].

Guidelines on antenatal care for healthy pregnant women recommend that the ideal time for discussions about preparation for birth, including information about coping with pain, is before or at 36 weeks of pregnancy [38]. However, the present study indicated that women have expectations about pain much earlier, with 99% of the respondents answering the question about EIPC and their attitudes towards pain management. The wish for pain free labour has been linked to culture, as a study conducted in Australia and Sweden indicated that 56.2% of the Australian sample wished for as pain free labour as possible compared to 78.9% of the Swedish sample [39]. Thus, midwives and health providers should take the opportunity to discuss women's expectations about the intensity of pain early in and throughout the pregnancy, in addition to assessing their resources and preferences for coping with pain.

A limitation of this study is that the women's EIPC and attitudes towards pain management were only measured once. Their attitudes and expectations might have changed before they actually went into labour. The strength of this study lies in the sample size, response rate, representativeness of the whole population of

pregnant women attending primary health care in Iceland, consecutive selection of the study sample, and stratification of the sample by residency. Most parts of the questionnaire had previously been used in numerous studies in Sweden, Finland and Iceland [14,30,40].

Conclusion

This Icelandic national study provides an overview of multiple predictors of pregnant women's expectations about intensity of pain and attitudes towards pain management. The women expected a high intensity of pain, with the strongest predictors having been negative attitudes towards childbirth, a low sense of security and positive attitudes towards pain management with medication. At the same time a majority of pregnant women did not appear to view pain in childbirth as something that necessarily has to be avoided and had positive attitudes towards the impending childbirth and to pain management without medication. In order to meet different views and expectations a salutogenic view should be adopted at the place of birth with a wide choice of pain management options.

Further research is needed on expectations and attitudes towards pain and pain management at different times during pregnancy and on women's resources in coping with pain in childbirth. A follow-up study of this Icelandic sample would be important to explore predictors for the women's actual experiences of pain and pain management.

Acknowledgements

The authors thank: All the women who participated in our study, the midwives who participated in the data collection and the steering committee of the Childbirth and Health Study, Johann A. Sigurdsson, and Hildur Kristjandottir. We also acknowledge the financial support from the University of Akureyri Research Fund, the Research Fund of Ingibjorg R. Magnusdottir, the research fund of Bjorg Magnusdottir and Magnus Jonsson and the Icelandic Midwifery Association Research Fund.

References

[1] Larkin P, Begley CM, Devane D. Women's experiences of labour and birth: an evolutionary concept analysis. Midwifery 2009;25(2):e49–59.
[2] Fenwick J, Hauck Y, Downie J, Butt J. The childbirth expectations of a self-selected cohort of Western Australian women. Midwifery 2005;21(1):23–35.
[3] Karlsdottir SI, Halldorsdottir S, Lundgren I. The third paradigm in labour pain preparation and management: the childbearing woman's paradigm. Scand J Caring Sci 2013;28(2):315–27.
[4] Lally JE, Thomson RG, MacPhail S, Exley C. Pain relief in labour: a qualitative study to determine how to support women to make decisions about pain relief in labour. BMC Pregnancy Childbirth 2014;14(1):6–16.
[5] Hauck Y, Fenwick J, Downie J, Butt J. The influence of childbirth expectations on Western Australian women's perceptions of their birth experience. Midwifery 2007;23(3):235–47.
[6] Madden KL, Turnbull D, Cyna AM, Adelson P, Wilkinson C. Pain relief for childbirth: the preferences of pregnant women, midwives and obstetricians. Women Birth 2013;26(1):33–40.
[7] Leap N, Anderson T. The role of pain in normal birth and the empowerment of women. In: Downe S, editor. Normal childbirth: evidence and debate. 2nd ed. Edinburgh: Churchill Livingstone Elsevier; 2008. p. 29–46.
[8] Klomp T, Manniën J, de Jonge A, Hutton EK, Lagro-Janssen ALM. What do midwives need to know about approaches of women towards labour pain management? A qualitative interview study into expectations of management of labour pain for pregnant women receiving midwife-led care in the Netherlands. Midwifery 2014;30(4):432–8.
[9] Lindholm A, Hildingsson I. Women's preferences and received pain relief in childbirth – a prospective longitudinal study in a northern region of Sweden. Sex Reprod Healthc 2015; 69(1), corrected proof, available online 14 October 2011.
[10] Meyer S. Control in childbirth: a concept analysis and synthesis. J Adv Nurs 2013;69(1):218–28.
[11] Smith V, Daly D, Lundgren I, Eri T, Benstoem C, Devane D. Salutogenically focused outcome in systematic reviews of intrapartum interventions: a systematic review of systematic reviews. Midwifery 2014;30(4):e151–6.
[12] Downe S, McCourt C. From being to becoming: reconstructing childbirth knowledge. In: Downe S, editor. Normal childbirth evidence and debate. Edinburgh: Churchill Livingstone; 2008. p. 3–27.
[13] Antonovsky A. The salutogenic model as a theory to guide health promotion. Health Promot Int 1996;11(1):11–18.
[14] Perez-Botella M, Downe S, Magistretti CM, Lindstrom B, Berg M. The use of salutogenesis theory in empirical studies of maternity care for healthy mothers and babies. Sex Reprod Healthc 2015;6(1):33–9.
[15] Melender HL, Lauri S. Experiences of security associated with pregnancy and childbirth: a study of pregnant women. Int J Nurs Pract 2002;8(6):289–96.
[16] Persson EK, Fridlund B, Kvist LJ, Dykes A. Mothers' sense of security in the first postnatal week: interview study. J Adv Nurs 2011;67(1):105–16.
[17] Leap N, Sandall J, Buckland S, Huber U. Journey to confidence: women's experiences of pain in labour and relational continuity of care. J Midwifery Womens Health 2010;55(3):234–42.
[18] Lundgren I, Karlsdottir SI, Bondas T. Long-term memories and experiences of childbirth in a Nordic context – a secondary analysis. Int J Qual Stud Health Well-being 2009;4(2):115–28.
[19] McCrea BH, Wright ME. Satisfaction in childbirth and perceptions of personal control in pain relief during labour. J Adv Nurs 1999;29(4):877–84.
[20] Green JM. Expectations and experiences of pain in labour: findings from a large prospective study. Birth 1993;20(2):65–72.
[21] Oweis A, Abushaikha L. Jordanian pregnant women's expectations of their first childbirth experience. Int J Nurs Pract 2004;10(6):264–71.
[22] Capogna G, Alahuhtat S, Celleno D, De Vlieger H, Moreira J, Morgan B, et al. Maternal expectations and experiences of labour pain and analgesia: a multicentre study of nulliparous women. Int J Obstet Anesth 1996;5(4):229–35.
[23] Hug I, Chattopadhyay C, Mitra GR, Kar Mahapatra RM, Schneider M. Maternal expectations and birth-related experiences: a survey of pregnant women of mixed parity from Calcutta, India. Int J Obstet Anesth 2008;17(2):112–17.
[24] Lally JE, Murtagh MJ, Macphail S, Thomson R. More in hope than expectation: a systematic review of women's expectations and experience of pain relief in labour. BMC Med 2008;14:6–7. doi:10.1186/1741-7015-6-7.
[25] Chaillet N, Belaid L, Crochetière C, Roy L, Gagné G, Moutquin JM, et al. Nonpharmacologic approaches for pain management during labor compared with usual care: a meta-analysis. Birth 2014;41(2):122–37.
[26] Berg M, Ólafsdóttir ÓÁ, Lundgren I. A midwifery model of women-centred childbirth care – in Swedish and Icelandic settings. Sex Reprod Healthc 2012;3(1):79–87.
[27] Halldorsdottir S, Karlsdottir SI. The primacy of the good midwife in midwifery services: an evolving theory of professionalism in midwifery. Scand J Caring Sci 2011;25(4):806–17.
[28] World Health Organization. World Health Statistics 2014. <http://www.who.int/gho/publications/world_health_statistics/2014/en/>; 2014 [accessed 09.06.15].
[29] Bjarnadóttir RI, Garðarsdóttir G, Smárason AK, Pálsson GI. Skýrsla frá fæðingarskráningu 2012. Reykjavik: Landspitalin; 2013 (in Icelandic).
[30] Erlingsdottir A, Sigurdsson EL, Jonsson JS, Kristjansdottir H, Sigurdsson JA. Smoking during pregnancy: childbirth and health study in primary care in Iceland. Scand J Prim Health Care 2014;32(1):11–16.
[31] Hildingsson I, Rådestad I, Rubertsson C, Waldenström U. Few women wish to be delivered by caesarean section. BJOG 2002;109(6):618–23.
[32] Ayers S, Pickering AD. Women's expectations and experience of birth. Psychol Health 2005;20(1):79–92.
[33] Hodnett ED, Gates S, Hofmeyr GJ, Sakala C, Weston J. Continuous support for women during childbirth. Cochrane Database Syst Rev 2012;(10).
[34] Leap N, Dowell N, Newburn M. Working with pain in labour: an overview of evidence. New Digest 2010;59:22–6.
[35] Green JM, Baston HA. Have women become more willing to accept obstetric interventions and does this relate to mode of birth? Data from a prospective study. Birth 2007;34(1):6–13.
[36] Christiaens W, Verhaeghe M, Bracke P. Pain acceptance and personal control in pain relief in two maternity care models: a cross-national comparison of Belgium and the Netherlands. BMC Health Serv Res 2010;10(1):268. doi:10.1186/1472-6963-10-268.
[37] Ranta P, Spalding M, Kangas-Saarela T, Jokela R, Hollmén A, Jouppila R, et al. Maternal expectations and experiences of labour pain? Options of 1091 Finnish parturients. Acta Anaesthesiol Scand 1995;39(1):60–6.
[38] National Institute for Health and Clinical Excellence. http://www.nice.org.uk/nicemedia/pdf/CG062NICEguideline.pdf; 2008 [accessed 03.10.14].
[39] Haines H, Rubertsson C, Pallant JF, Hildingsson I. Womens' attitude and beliefs of childbirth and association with birth preference: a comparison of a Swedish and an Australian sample in mid-pregnancy. Midwifery 2012;28(6):e850–6.
[40] Hildingsson I, Waldenström U, Rådestad I. Women's expectations on antenatal care as assessed in early pregnancy: number of visits, continuity of caregiver and general content. Acta Obstet Gynecol Scand 2002;81(2):118–25.

Paper III

Predictors of women's positive childbirth pain experience: Findings from an Icelandic national study

Paper III submitted for publication in Women & Birth

(Submitted in January 2016, minor revision and submitted again in May. Still in revision).

First and Corresponding author:
Sigfridur Inga Karlsdottir, RN, RM, MSN, PhD, Cand. University of Iceland

Second Author:
Dr. Herdis Sveinsdottir, RN, MS, PhD

Third author:
Hildur Kristjansdottir, RM, RN, M.Ed.

Fourth author:
Dr. Thor Aspelund, PhD

Fifth author:
Dr. Olof Asta Olafsdottir, RN, RM, MSN, PhD

Abstract

Background: Pain in childbirth has been identified as one of the major components in the childbirth experience and an important topic that needs to be addressed during pregnancy, birth and the after-birth period.

Aim: The aim of the study was to describe women's childbirth pain experience and to identify predictors of women's positive childbirth pain experience.

Method: A population-based cross-sectional cohort study design was implemented, with convenient consecutive sampling, stratified according to residency. Pregnant women were recruited through 26 health care centres. Participants were sent a questionnaire by mail during early pregnancy and another one five to six months after childbirth. A multiple regression analysis was done, with women's childbirth pain experiences as the dependent variable.

Findings: Altogether 726 women participated in the study, with a response rate of 68%.

The strongest predictors for women's positive childbirth pain experience were positive attitude to childbirth during pregnancy; support from midwife during childbirth; use of epidural analgesia and low intensity of pain in childbirth.

Discussion: A large group of women experienced childbirth pain as positive, which is in consistent with studies that have demonstrated that pain in childbirth is different from other kinds of pain. In addition to epidural use as a predictor for positive childbirth pain experience, many other strong predictors exist and must be acknowledged.

Conclusion: When planning pregnancy and childbirth services, predictors of positive experience of childbirth pain should be considered and investigated further.

Keywords: pain, childbirth, predictors, experience, expectations.

Introduction

Pain in childbirth has been identified as one of the major components in the childbirth experience, an important topic that needs to be addressed during pregnancy, birth and the postnatal period.[1-3] Women describe pain in labour as being different from any other pain that they have experienced, and some women have described it as the most memorable pain that they have ever experienced.[4] A review of women's experiences of coping with pain during childbirth show that many women have a positive outlook on and pragmatic acceptance of pain during childbirth.[5] Studies have indicated that women expect labour to be painful and that women can experience pain in childbirth either positively or negatively.[6] However, research is lacking on what predicts women's positive childbirth pain experience.

Women's childbirth pain experience is a multifocal phenomenon and as such has to be looked at from many different perspectives. Klomp et al.[7] found that three main themes explained women's expectations for management of labour pain: preparation, support and control, as well as decision-making. A systematic review of women's childbirth pain experience found strong correlations between personal control and satisfaction with pain relief.[8] The perception of pain is one of the strongest predictors of the overall childbirth experience.[9]

Various forms of pain management are available for women during birth. But pain experience during childbirth and its connection to women's childbirth satisfaction is complex. Women's sense of control, how they cope

with labour pain,[10] and the choices that they have regarding pain relief during labour[11] have all been linked to positive overall childbirth satisfaction. Pregnant women have a different attitude to pain management depending on whether it is with or without medication. In a study by Karlsdottir et al.[12] only 35% of pregnant women had a positive attitude to pain management with medication, while 77% had a positive attitude to pain management without medication. Furthermore, pain management with medication does not automatically imply increased childbirth satisfaction.[13]

Women's childbirth pain experience has been linked to women's health after childbirth. Women who felt much pain during childbirth and women who experienced birth negatively were more likely to suffer from posttraumatic stress syndromes after childbirth than those who experienced less pain or had a good childbirth experience.[3] Studies have also indicated that women's perceived high level of pain during birth is one of the factors that makes a birth experience traumatic.[14-16]

The experience of labour pain seems, therefore, to be complex, and numerous factors might impact women's experience of labour pain. A systematic review shows that women generally experience a higher level of labour pain than they expected before birth.[17] Studies indicate that the gap between expectations and experience causes harmful childbirth experience.[18] Experiences of pain during the first stage of labour, feelings of powerlessness, lack of social support have been identified as predictors for traumatic childbirth experience.[19,20] Midwives are the primary caregivers during birth and the quality of their care greatly influences women's experience of pain.[21] There is

a dearth of studies on women's childbirth pain experience, as well as a lack of research on what predicts these experiences. Knowledge regarding women's perspective on childbirth care is needed if midwives and other health care professionals are to have a positive influence on women's experience of labour pain. The aim of this study was to describe women's pain experience in childbirth and to identify predictors of women's positive childbirth pain experience.

Method

Setting and design

Iceland has about 325,000 inhabitants and approximately 4,500 women give birth each year. Forty-five primary health care centres around the country offer antenatal care for healthy pregnant women. Midwives are the primary caregivers during a normal pregnancy, childbirth and post-partum period. Almost all pregnant women attend antenatal care regularly over their pregnancy and meet the same midwife repeatedly during their antenatal visit. Midwives offers prenatal classes and either midwives or obstetricians offer screening tests for some chromosomal abnormalities during the 11^{th} -14^{th} week and ultrasound check during the 18^{th} -19^{th} week. Yearly, 70-75% of births take place at the Landspitali National University Hospital of Iceland, in the capital area of Reykjavik (hereafter called Landspitali) and the remaining births take place in seven other maternity hospitals around the country, each with different levels of service. The home birth rate is 1.9% for the whole country and the caesarean section rate has been 15–17% for the last few years.[22] In Iceland

midwives attend all births so the only situation where a midwife would not attend a delivery would be in an ambulance or a sudden, unplanned homebirth. The live birth rate per 1000 population is 13.1 and the perinatal mortality rate is 3.1 per 1000 births, including all perinatal deaths after 22 gestational weeks (first week deaths, stillbirths, after 22 weeks or children born 500 grams or more).[23]

This study is part of the Childbirth and Health Study in Primary Care in Iceland,[24] which is based on the "KUB" study ("Kvinnors upplevelse av barnafödande" / "Women's experience of childbirth") on pregnant women carried out in Sweden in 1999–2000.[25] We implemented a population-based cross-sectional cohort study design and convenient consecutive sampling stratified according to residency. The catchment area covered about 60% of maternity care for healthy women, serving around 3,000 pregnant women per year. The sampling was a convenience sample stratified by residence from 26 health care centres out of 45, distributed evenly around the country. The health care centres were chosen to attain a distribution similar to births in the entire country with a ratio of 70:30 for the capital and rural area respectively. The data collection took place from February 2009 to March 2010.

Midwives introduced the study to pregnant women 18 years and older who were fluent in Icelandic at their first antenatal visit. Participants were sent a questionnaire by mail during early pregnancy and another one five to six months after childbirth. Data from both these questionnaires are published in this paper.

Women were asked to answer a comprehensive questionnaire on the following items: socio-demographic and obstetric background; manifestation of a sense of security; expectations and attitude to the impending childbirth; and attitude to pain and pain management with and without medication. Five to six months after childbirth, the women who responded to the questionnaire during pregnancy were sent another questionnaire that contained questions on such items as childbirth pain experience; intensity of pain during labour; pain management used; birth outcome; and overall satisfaction with care during labour. One reminder was sent to all participants. The data collection process has been described in more detail elsewhere.[26]

Questionnaire

The design of the study was based on a similar cohort study among pregnant women in Sweden, the KUB study (Kvinnor upplevelse av barnafödande). [27] The questionnaires had been used in Sweden and were translated and back-translated and adapted to Icelandic setting before use. All questionnaires were pretested, translated and adapted for the Icelandic context by the Childbirth and Health Study Group. The Icelandic questionnaire was pre-tested with 31 pregnant women of different ages, parity and educational background. They were asked to comment briefly on the clarity of the text and on the questions they answered. Four of the participants were contacted and gave verbal comments, such as on the length and clarity of wording, as described in Erlingsdottir, et al.[26] Minimal changes were made.

Measures

The dependent variable in the present study was women's childbirth pain experience, measured with the question *what was your experience of pain during childbirth?* Responses ranged from 'very negative' (1) to 'very positive' (7). The participants' manifestation of a sense of security was measured in data collection that was carried out during pregnancy using a 9-item scale, which was part of a Finnish instrument measuring women's manifestation of a sense of security during pregnancy.[24] Examples of the items tested were: *I feel calm, I am confident that my childbirth will go well* and *I feel well balanced.* Responses ranged from 'totally agree' (1) to 'totally disagree' (4). As the responses to the questions on manifesting a sense of security were not normally distributed, the data were negatively skewed with the mean score slightly below 2.0. The variable was recoded into two groups labelled low <2 and high ≥2. The scale measuring the manifestation of a sense of security had shown good internal consistency in a Finnish sample, with a Cronbach's alpha coefficient of 0.87.[28]

Pain intensity was measured on a scale of 1 to 10 where 1 indicated, did not feel any pain and 10 the most imaginable pain. Midwife support was measured with a multiple answer question; who if any of the following were of support to you during labour. Among the options was firstly husband/father of the child, second midwife and continued with: my mother, girlfriend, the child's siblings, a doula, an obstetrician, a paediatrician, midwifery student, health care assistant, medical student, others and last, I didn't get any support. A list of different variables and responses are shown in *Table 1.*

Data analysis

Before data analysis was conducted, the women who gave birth with planned caesarean section were excluded from the data. Descriptive data are presented as mean values with standard deviations and percentages (*Table 1*). A comparison of proportions between groups was undertaken using cross-tabulations and Pearson's chi-squared test as illustrated in *Table 2*. Significance level was set at 0.05.

A multiple regression analysis was done, with the item *women's childbirth pain experiences* as the dependent variable. In the multiple regression model, we used several variables as independent variables, beginning with epidural use and then the demographic variables of age, parity, education and residency. The following variables measured during pregnancy were put in next: manifestation of a sense of security; expected intensity of pain during childbirth; attitude to pain management with medication; and attitude to pain management without medication. Subsequently, variables measuring birth outcomes were put in the model. These were: onset of labour, mode of childbirth, birth duration, stimulation during childbirth and perception of intensity of pain. Finally, experience of length of birth and women's overall satisfaction with care during labour were put in the model. Age, expected intensity of pain, attitude to the impending childbirth and intensity of pain in childbirth were the only variables that were continuous; all other variables were put into the model as categorized. The following variables were coded as dichotomous outcomes; use of an epidural, parity, education, residency, manifestation of a sense of security, attitude to upcoming childbirth, attitude to

pain management with medication, attitude to pain management without medication, satisfaction with support from midwife during childbirth, onset of labour, mode of delivery, oxytocin stimulation during childbirth, intensity of pain during childbirth, experience of duration of childbirth and overall satisfaction with care during childbirth.

All analyses were performed with SPSS 21 software.

Ethical considerations

The study was ethically approved by the Icelandic National Bioethics Committee (VSNb2008010023/03-1) and reported to the Data Protection Authority (S3695/2008 LSL/--). Approval was also obtained from the ethics committees of the health institutions concerned. Participants received both written and verbal information before participation, and their right to withdraw during participation was made clear.

Results

The number of woman who filled out the questionnaire during pregnancy came to 1.111 (response rate 63%); of these women, 765 responded again five to six months after birth. Data from 766 women were analysed, giving a response rate of 68%. Forty women who delivered with planned caesarean section were eliminated.

The average age of the women was 29.8 years (SD = 5.0), 93% were married or lived with a partner and the majority (66 %) had a university/technical school education. Sixty-eight percent lived in the capital

area and 41% were primipara women. The sample was representative of the population regarding age, marital status, education, residency and parity.[26]

Seventy-six percent of the women showed high manifestation of a sense of security during pregnancy, while 24% showed low manifestation. Compared to multiparous women, primiparous women showed significantly higher manifestation of a sense of security (80% vs. 73%). The majority of the women expected the upcoming birth to be painful, with mean expected intensity of pain (EIPC) being 5.61 (SD = 1.3; range 1 to 7) with no significant difference between primiparous and multiparous women. However, primiparous women had a significantly more positive attitude to the upcoming birth, but no significant difference was found between the attitude of primiparous and multiparous women to pain management with or without medication.

This study showed that a large group of women experienced childbirth pain as positive as the mean score was 4.21 (SD = 1.73) on a seven-point scale ranging from ‘very negative’ (1) to ‘very positive’ (7). The majority of the women (63%) gave birth at Landspitali and 81% of the primiparous women had a vaginal birth, compared to 89% of the multiparous women. Six percent of women gave birth by vacuum or forceps delivery and 10% had acute caesarean section. Over a third of the women (38%) used epidural analgesia to manage pain and most women experienced support during labour and birth from a midwife (88%) or midwifery student (15%). The mean length of birth was 12 hours and 44% of the women had oxytocin stimulation during the first or second stage of labour.

When women were asked about their experience of the duration of birth, 33% stated that it was shorter than they expected, 41% stated that the time was as expected and 26% stated that it had been prolonged. The majority of women (64%) claimed that their overall satisfaction with the care they received during childbirth was very good, 30% felt that it was good, 4% stated that the care was neither good nor bad and 1.5% stated that the care was bad or very bad. More descriptive findings are presented in *Table 1.*

Table 1. Descriptive findings

Variable	n (%)	Variables	n (%)
Age	**726**	**Mode of childbirth**	**726**
Mean and SD	29.8 (5)	Vaginal birth	611 (84)
≤24	98 (13)	Vacuum /forceps delivery	43 (6)
25–29	271 (38)	Acute Caesarean Section	72 (10)
30–34	216 (30)	**Length of childbirth in hours**	**709**
35≥	141 (19)	Mean	9.9 (10.2)
Parity	**725**	Ten hours and less	478 (67)
Primiparous women	294 (41)	Eleven hours and more	231 (33)
Multiparous women	431 (59)	**Stimulation during childbirth**	**708**
Education	**726**	No stimulation	409 (56)
Elementary school	67 (9)	Yes during first stage	217 (30)
High school or similar	181 (25)	Yes during second stage	62 (8)
University/technical school education	478 (66)	Don't know	20 (6)
Residence	**725**	**Intensity of pain in childbirth**	**719**
Capital area	490 (68)	Mean and SD	5.5 (1.4)
Outside the capital area	236 (32)	1	14 (29)
Manifestation of sense of security	**704**	2	32 (4)
Mean and SD	1.7 (0,4)	3	16 (2)
High	533 (76)	4	82 (11)
Low	171 (24)	5	99 (14)
Expected intensity of pain during childbirth	**722**	6	316 (44)
Mean and SD	5.6 (1.3)	7	160 (22)
1	2 (0.3)	**Experience of duration of childbirth**	**726**
2	12 (2)	Prolonged	190 (26)
3	39 (5)	Took a short time	230 (33)
4	93 (13)	Appropriate long	296 (41)
5	153 (21)	**Support during childbirth**	**725**
6	184 (25)	Midwife	**636 (88)**
7	239 (33)	Midwifery student or other health professional	89 (12)
Attitudes to impending childbirth	**725**	**Women's overall satisfaction with care during childbirth**	**725**
Very positive	211 (29)	Very good	466 (64)
Rather positive	242 (33)	Good	223 (30.5)
Mixed feelings (both positive and negative)	230 (32)	Neither good or bad	27 (4)
Rather negative	29 (4)	Bad	6 (1)
Very negative	13 (2)	Very bad	3 (0.5)
Attitude to pain management with medication	**722**	**Experience of childbirth**	**723**
Do not wish to use it	49 (7)	Very positive	270 (37)
Try to avoid using it	426 (59)	Positive	209 (29)
Wish to use	247 (34)	Both positive and negative	206 (29)
Attitude to pain management without medication	**723**	Negative	17 (2)
Not interested in using it	46 (6)	Very negative	21 (3)
Try to avoid using it	119 (17)	**Pain management used**	**726**
Wish to use	558 (77)	Epidural used	278 (38)
Onset of labour	**720**	Epidural not used	448 (62)
Spontaneous labour	532 (74)		
Induced labour	180 (25)		

Variables that r evealed significant difference with experience of childbirth pain were: manifestation of a sense of security; attitude to impending childbirth; pain management with and without medication; stimulation during birth; expected intensity and actual intensity of pain in childbirth; experience duration of childbirth; satisfaction with care during labour; experience of birth; and use of epidural during childbirth. More findings are presented in *Table 2*.

Table 2. Experience of pain in childbirth and other measured variables.

Variable	p
Age	0,21
Parity	0,42
Education	0,97
Residence	0,52
Manifestation of sense of security	**0,05**
Expected intensity of pain during childbirth	0,31
Attitudes to impending childbirth	**0,01**
Attitude to pain management with medication	**0,01**
Attitude to pain management without medication	**0,01**
Onset of labour	0,13
Mode of childbirth	0,63
Length of birth in hours	0,16
Stimulation during childbirth	**0,05**
Intensity of pain in childbirth	**0,01**
Experience of duration of childbirth	**0,01**
Support during childbirth	0,24
Experience of childbirth	**0,01**
Pain management used	**0,01**
Women's overall satisfaction with care during childbirth	**0,01**

The results from the multiple regression analysis are shown in Table 3. Twenty variables were introduced into the model in steps. Holding other independent variables constant, the models showed that the strongest

predictors for women's positive childbirth pain experience were: positive attitude to the upcoming childbirth (b = - 0.30); experience support from midwife during childbirth (b = 0.30); use of epidural analgesia for pain management (b = - 0.51) and experience of low intensity of pain during childbirth (b = - 0.45).

More variables that predicted women's positive childbirth pain experience are shown in Table 3.

Table 5. Multiple regression models for potential predictors of women's childbirth pain experience.

	Model 1		Model 2		Model 3		Model 4		Model 5	
	b	p	b	p	b	p	b	p	b	p
Use of epidural as pain management	-0,98	0,00	-1,01	0,00	-0,75	0,00	-0,71	0,00	-0,51	0,00
Age			0,00	0,79	0,00	0,79	0,00	0,70	-0,01	0,65
Multiparous women			0,13	0,30	0,16	0,21	0,13	0,26	0,10	0,37
Elementary school			-0,40	0,11	-0,51	0,04	-0,33	0,14	-0,28	0,21
University/technical school (higher education)			-0,47	0,05	-0,56	0,02	-0,34	0,11	-0,31	0,14
Recidency outside the capital area			-0,06	0,69	-0,13	0,36	-0,04	0,73	-0,03	0,79
Low manifestation of sense of security					-0,19	0,20	-0,14	0,33	-0,08	0,58
Expected intensity of pain during childbirth					-0,03	0,52	0,12	0,01	0,10	0,03
Attitudes to impending childbirth					-0,31	0,00	-0,29	0,00	-0,30	0,00
Attitudes to pain mangement with medication					-0,35	0,01	-0,28	0,03	-0,28	0,02
Positive attitude to pain management without medication					0,06	0,70	0,16	0,24	0,18	0,18
Support from midwife during childbirth							0,37	0,04	0,30	0,09
Induced labour							0,01	0,93	-0,01	0,97
Vacum or forceps delivery							-0,13	0,61	0,04	0,88
Acute Caesarean Section							-0,03	0,90	0,11	0,60
Length of birth in hours							0,00	0,65	0,02	0,01
Stimulation during childbirth							-0,04	0,51	0,00	0,99
Intensity of pain in childbirth							-0,51	0,00	-0,45	0,00
Experience of duration of childbirth									1,06	0,00
Satisfaid with care during childbirth									0,23	0,06
Ajusted R^2		0,08		0,08		0,13		0,27		0,32

Discussion

Prior studies have demonstrated that the pain experience is one of the main components in the childbirth experience.[1,2] However, the focus of these studies was not on women's childbirth pain experience and what predicts positive childbirth pain experiences. In this study, we emphasized what predicts women's positive childbirth pain experience and found that the strongest predictors were a positive attitude to childbirth during pregnancy, support from a midwife during childbirth, the use of epidural analgesia and low intensity of pain in childbirth.

Findings on the impact of a positive attitude towards the impending childbirth on the women's childbirth pain experience are in line with a prospective cohort study.[9] The study of Haines, Rubertsson, Pallant and Hildingsons[29] also indicated that attitude markedly affected women's experience of childbirth pain. Measured on a 7-point scale ranging from "very positive" (1) to "very negative" (7), the mean score of the experience of childbirth pain for a group of women who were identified as self-determiners was 3.71. Women who were identified as "taking it as is comes" scored 3.93 and those who were identified as being fearful scored 4.11. In the presented study 38% of the women stated that they had mixed feelings or a negative attitude towards the impending childbirth. One compelling conclusion that can be drawn from these figures is that midwives and other health professionals have to attend to women's attitude towards childbirth during pregnancy to increase the likelihood that the pregnant women will adopt a positive attitude towards this coming life event.

Attitude to pain management both with and without medication was a predictor for women's childbirth pain experience. Studies have indicated that there is direct correlation between pregnant women's preferences for pain management in labour and their actual use.[30] An effective pain relief method provides women with the opportunity to decrease the intensity of the pain and to work with it in such way as to improve their experience of pain. In our study, use of epidural analgesia constituted a strong predictor for a women's positive childbirth pain experience. Results from quantitative studies have stated that the use of epidural analgesia may contribute to some women's childbirth satisfaction,[31] while results from Lindholm and Hildingsson[30] indicate that use of an epidural does not automatically improve women's birth experience. Studies have also shown that antenatal education can increase women's use of epidural pain management. [32]

Women who experienced low intensity pain during childbirth did experience the pain more positively than women who experienced high intensity pain. This finding is in line with the findings of a study conducted in Norway which showed that the majority of first time mothers experienced childbirth as expected and that around 20% of the same group experienced childbirth as something that exceeded their expectations.[33] Other researchers have stated that women's realistic expectations of intensity of childbirth pain narrow the expectations-experience gap and potentially support them in experiencing greater satisfaction with labour.[17]

In our study, midwife support constituted a predictor for positive childbirth pain experience. In a study conducted in Australia, pregnant women,

when asked about their preferences regarding pain relief in childbirth, said that a supporting person in the form of a midwife was most highly preferred compared to other methods.[34] Furthermore, results from a longitudinal Swedish cohort study show that expectations on support from the midwife was less likely to be achieved than expectations on support from partner.[35] Accordingly, more attention should be paid to the role midwife support plays during childbirth as it seems to be one of the factors that women believe to be important in effectively managing labour pain.

The association between women's childbirth pain experience and other variables has not been studied to any great extent. Other factors that seem to affect women's experience of childbirth pain need to be studied further. In addition to the use of medicated pain management these include their attitude to the impending childbirth; their attitude to childbirth pain management during pregnancy; the support they receive from the midwife during childbirth; and their satisfaction with care during childbirth. The focus of research to date has been overwhelmingly on pain management, with scant scientific attention being given to other issues that heath care professionals would do well to take cognizance of when planning pregnancy and childbirth services. Experience of childbirth can affect a woman's life for many years after the childbirth, as studies have shown, and a positive childbirth experience can affect women's self-esteem.[2] Maximizing the likelihood of a good childbirth experience is therefore of the utmost importance for the well-being of the childbearing women and, consequently, her new born baby. That said, a concept analysis on women's experience of labour and birth found that no

agreement as yet exists on the type and timing of interventions offered to women prior to, during or after childbirth.[1]

The present study adds to the knowledge of women's positive childbirth pain experience and of what predicts that experience. These findings should be used to improve guidelines on antenatal services to assist women's preparation for expected pain of childbirth. Hence, midwives should assist women throughout the pregnancy to identifying and believe in their own strength and to identify and work with their attitudes to the childbirth and to the pain itself.

Although the results can be used in planning and dispensing antenatal care, it must be stressed that more studies are needed. It is important to determine how women can prepare themselves for the pain of labour and how healthcare providers can plan pregnancy and childbirth services with the results of this research in mind. Successfully incorporating new knowledge into antenatal and perinatal care could increase the likelihood of women having a more positive, if not outright positive experience of childbirth pain. In the light of such promising likelihoods, salutogenic outcomes,[36] such as women's childbirth positive pain experience, should be measured postnatally.

A limitation of this study is that women's experiences of pain in childbirth were only measured once and their experience may have changed during the time that had passed since they gave birth. Lack of information about non-responders may also conceal selection biases. Additionally, although this cohort study offers a wealth of information on Icelandic women, it has its limitations regarding application to other cohorts with a different

cultural, linguistic or socioeconomic status. The strength of this study lies in the sample size, response rate, and representativeness of the whole population of childbearing women in Iceland, consecutive selection of the study sample and stratification of the sample by residency. Most parts of the questionnaire had previously been used in studies in Sweden, Finland and Iceland.[24,27,28]

Conclusion

There are many factors that affect women's experience of pain in childbirth that healthcare providers should bear in mind when planning pregnancy and childbirth services. Our study provides an overview of multiple predictors of women's positive childbirth pain experience – for example, women's attitudes towards upcoming childbirth, the use of an epidural and support from a midwife during childbirth. Addressing these variables during pregnancy and childbirth is of the utmost importance to maximize the likelihood of a positive childbirth pain experience.

References

1. Larkin P, Begley CM, Devane D. Women's experiences of labour and birth: An evolutionary concept analysis. *Midwifery.* 2009;25(2):49-59.

2. Leap N, Sandall J, Buckland S, Huber U. Journey to confidence: Women's experiences of pain in labour and relational continuity of care. *J Midwifery Women's Health.* 2010;55(3):234-242. doi: http://dx.doi.org/10.1016/j.jmwh.2010.02.001.

3. Garthus-Niegel S, Knoph C, Soest T, Nielsen CS, Eberhard-Gran M. The role of labor pain and overall birth experience in the development of posttraumatic stress symptoms: A longitudinal cohort study. *Birth.* 2014;41(1):108-115.

4. Callister LC, Khalaf I, Semenic S, Kartchner R, Vehvilainen-Julkunen K. The pain of childbirth: Perceptions of culturally diverse women. *Pain Management Nursing.* 2003;4(4):145-154. doi: http://dx.doi.org/10.1016/S1524-9042(03)00028-6.

5. Van der Gucht N, Lewis K. Women′s experiences of coping with pain during childbirth: A critical review of qualitative research. *Midwifery.* 2015;31(3):349-358. doi: http://dx.doi.org/10.1016/j.midw.2014.12.005.

6. Lundgren I, Karlsdottir SI, Bondas T. Long-term memories and experiences of childbirth in a nordic context—a secondary analysis. *International Journal of Qualitative Studies on Health and Well-being.* 2009;4(2):115-128.

7. Klomp T, Manniën J, de Jonge A, Hutton EK, Lagro-Janssen ALM. What do midwives need to know about approaches of women towards labour pain management? A qualitative interview study into expectations of management of labour pain for pregnant women receiving midwife-led care in the netherlands. *Midwifery.* 2014;30(4):432-438. doi: http://dx.doi.org/10.1016/j.midw.2013.04.013.

8. Hodnett ED. Pain and women's satisfaction with the experience of childbirth: A systematic review. *Obstet Gynecol.* 2002;186(5):S160-S172.

9. Bryanton J, Gagnon AJ, Johnston C, Hatem M. Predictors of women's perceptions of the childbirth experience. *Journal of Obstetric, Gynecologic, & Neonatal Nursing.* 2008;37(1):24-34.

10. Rijnders M, Baston H, Schönbeck Y, et al. Perinatal factors related to negative or positive recall of birth experience in women 3 years postpartum in the netherlands. *Birth.* 2008;35(2):107-116. doi: 10.1111/j.1523-536X.2008.00223.x.

11. Chaillet N, Belaid L, Crochetière C, et al. Nonpharmacologic approaches for pain management during labor compared with usual care: A Meta-Analysis. *Birth.* 2014.

12. Karlsdottir SI, Sveinsdottir H, Olafsdottir OA, Kristjansdottir H. Pregnant women's expectations about pain intensity during childbirth and their attitudes towards pain management: Findings from an icelandic national study. *Sexual & Reproductive Healthcare.* 2015;6(4):211-218. doi: http://dx.doi.org/10.1016/j.srhc.2015.05.006.

13. Alehagen S, Wijma B, Wijma K. Fear of childbirth before, during, and after childbirth. *Acta Obstet Gynecol Scand.* 2006;85(1):56-62.

14. Simpson M, Catling C. Understanding psychological traumatic birth experiences: A literature review. *Women and Birth.* 2015.

15. Haines HM, Hildingsson I, Pallant JF, Rubertsson C. The role of women's attitudinal profiles in satisfaction with the quality of their antenatal and intrapartum care. *Journal of Obstetric, Gynecologic, & Neonatal Nursing.* 2013;42(4):428-441. doi: 10.1111/1552-6909.12221.

16. Nilsson C, Lundgren I, Karlström A, Hildingsson I. Self reported fear of childbirth and its association with women's birth experience and mode of delivery: A longitudinal population-based study.

Women and Birth. 2012;25(3):114-121. doi: http://dx.doi.org/10.1016/j.wombi.2011.06.001.

17. Lally JE, Murtagh MJ, Macphail S, Thomson R. More in hope than expectation: A systematic review of women's expectations and experience of pain relief in labour. *BMC Med.* 2008;6:7. doi: 10.1186/1741-7015-6-7.

18. Malacrida C, Boulton T. The best laid plans? women's choices, expectations and experiences in childbirth. *Health.* 2014;18(1):41-59.

19. Soet JE, Brack GA, DiIorio C. Prevalence and predictors of women's experience of psychological trauma during childbirth. *Birth.* 2003;30(1):36-46.

20. Waldenstrom U, Hildingsson I, Rubertsson C, Radestad I. A negative birth experience: Prevalence and risk factors in a national sample. *Birth.* 2004;31(1):17-27.

21. Karlsdottir SI, Halldorsdottir S, Lundgren I. The third paradigm in labour pain preparation and management: The childbearing woman's paradigm. *Scand J Caring Sci.* 2013;28(2):315-327. doi: 10.1111/scs.12061.

22. Ragnheiður I. Bjarnadóttir, Guðrún Garðarsdóttir, Alexander K. Smárason & Gestur I. Pálsson. Skýrsla frá fæðingarskráningu 2012 (In Icelandic). Reykjavík:Landspítali, 2013.

23. World health organization. http://data.euro.who.int/hfadb/. Updated 2014. Accessed 05/08, 2014.

24. Hildur Kristjánsdóttir, Þóra Steingrímsdóttir, Ólöf Ásta Ólafsdóttir, Amalía Björnsdóttir & Jóhann Ág. Sigurðsson. Barneign og heilsa: Ferlirannsókn meðal íslenskra kvenna frá því snemma á meðgöngu þar til tveimur árum eftir fæðingu barns (Childbirth and health. A cohort study among Icelandic women from early pregnancy until two years after giving birth. In Icelandic, english summary). *Ljósmæðrablaðið.* 2012;90(2):13-21.

25. Hildingsson I, Waldenström U, Rådestad I. Women's expectations on antenatal care as assessed in early pregnancy: Number of visits, continuity of caregiver and general content. *Acta Obstet Gynecol Scand.* 2002;81(2):118-125.

26. Erlingsdottir A, Sigurdsson EL, Jonsson JS, Kristjansdottir H, Sigurdsson JA. Smoking during pregnancy: Childbirth and health study in primary care in iceland. *Scand J Prim Health Care.* 2014;32(1):11-16.

27. Hildingsson I, Rådestad I, Rubertsson C, Waldenström U. Few women wish to be delivered by caesarean section. *BJOG: An International Journal of Obstetrics & Gynaecology.* 2002;109(6):618-623.

28. Hanna-Leena Melender R. Experiences of fears associated with pregnancy and childbirth: A study of 329 pregnant women. *Birth.* 2002;29(2):101-111.

29. Haines HM, Rubertsson C, Pallant JF, Hildingsson I. The influence of women's fear, attitudes and beliefs of childbirth on mode and experience of birth. *BMC Pregnancy Childbirth.* 2012;12:55. doi: 1471-2393-12-55 [pii].

30. Lindholm A, Hildingsson I. Women's preferences and received pain relief in childbirth – A prospective longitudinal study in a northern region of sweden. *Sexual & Reproductive Healthcare.* 2015;6(2):74-81. doi: http://dx.doi.org/10.1016/j.srhc.2014.10.001.

31. Hidaka R, Callister LC. Giving birth with epidural analgesia: The experience of first-time mothers. *The Journal of perinatal education.* 2012;21(1):24.

32. Ferguson S, Davis D, Browne J. Does antenatal education affect labour and birth? A structured review of the literature. *Women and*

Birth. 2013;26(1):e5-e8. doi: http://dx.doi.org/10.1016/j.wombi.2012.09.003.

33. Aasheim V, Waldenstrom U, Rasmussen S, Schytt E. Experience of childbirth in first-time mothers of advanced age - a norwegian population-based study. *BMC Pregnancy Childbirth.* 2013;13:53-2393-13-53. doi: 10.1186/1471-2393-13-53 [doi].

34. Madden KL, Turnbull D, Cyna AM, Adelson P, Wilkinson C. Pain relief for childbirth: The preferences of pregnant women, midwives and obstetricians. *Women and Birth.* 2013;26(1):33-40.

35. Hildingsson I. Women's birth expectations, are they fulfilled? findings from a longitudinal swedish cohort study. *Women and Birth.* 2015;28(2):e7-e13. doi: http://dx.doi.org/10.1016/j.wombi.2015.01.011.

36. Smith V, Daly D, Lundgren I, Eri T, Benstoem C, Devane D. Salutogenically focused outcomes in systematic reviews of intrapartum interventions: A systematic review of systematic reviews. *Midwifery.* 2013;30(4):e151-156. doi: 10.1016/j.midw.2013.11.002; 10.1016/j.midw.2013.11.002.