KU LEUVEN

FACULTEIT GENEESKUNDE
BIOMEDISCHE WETENSCHAPPEN

De verwachtingen en ervaringen van Belgische koppels omtrent een keizersnede

The PEECS study: Parents' Expectations and Experiences concerning Cesarean Section in Belgium

Masterproef voorgedragen tot het behalen van de graad van Master in de biomedische wetenschappen door

Jolien ONSEA

Promotor: Prof. dr. Tim VAN MIEGHEM
Dienst Gynaecologie en Verloskunde
UZ Leuven
Begeleider: Prof. dr. Tim VAN MIEGHEM

Leuven, 2015-2016

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PREFACE

Writing this master's thesis has been a challenging but rewarding task. It was especially the interaction with the patients throughout the course of the study I enjoyed most. Moreover, during the past year, this thesis project enabled me to gain experience in the set-up of a study protocol and the additional administration that is associated with clinical studies.

To be able to complete writing this master's thesis I had the assistance of several people, which is why I would like to take advantage of this opportunity to express my gratitude.

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CONTENT

PREFACE ..... **I**

CONTENT ..... **II**

LIST OF ABBREVIATIONS ..... **IV**

ABSTRACT ..... **V**

1. INTRODUCTION **1**

2. LITERATURE OVERVIEW **2**

2.1. CESAREAN SECTION: PROCEDURE 2

2.2. CESAREAN SECTION – INDICATIONS 3

2.2.1. Elective cesarean sections *3*

2.2.2. Urgent and emergency cesarean sections *3*

2.3. ELECTIVE CESAREAN: COMPLICATIONS AND EXPERIENCES 4

2.3.1. Neonatal complications *4*

2.3.2. Maternal complications *6*

2.3.3. Parental experiences and satisfaction *12*

2.4. THE NATURAL OR GENTLE CESAREAN SECTION 15

3. OBJECTIVES **16**

4. METHODS **16**

4.1. LITERATURE REVIEW 16

4.2. PEECS STUDY 17

4.3. STUDY POPULATION 17

4.3.1. Recruitment *17*

4.3.2. Eligibility criteria *17*

4.4. INTERVIEWS 18

4.5. QUESTIONNAIRES 19

4.6. IN-HOSPITAL DATA COLLECTION 20

4.7. STATISTICS 20

4.7.1. Power calculation *21*

5. RESULTS **22**

5.1. ANTEPARTUM INTERVIEW 24

5.1.1. Feelings towards the cesarean section *24*

5.1.2. Expectations towards breastfeeding and care *25*

5.1.3. Knowledge of the procedure *25*

5.1.4. Expectations towards delivery *27*

5.1.5. Expectations towards recovery *28*

5.2. POSTPARTUM INTERVIEW 28

5.2.1. To which extent expectations were met 29
5.2.2. Pain 29
5.2.3. Breastfeeding and care for the newborn 29
5.2.4. Postoperative recovery and mobilisation 30
5.2.5. Experiences during delivery 30
5.2.6. Involvement in childbirth 31
5.2.7. Duration of hospital stay 31
5.2.8. Future pregnancy 31
5.2.9. Contentment and birth experience 32
5.2.10. What could have been done better? 32
5.3. QUESTIONNAIRES 34
6. DISCUSSION 40
6.1. PARENTS' EXPECTATIONS AND EXPERIENCES 40
6.2. STUDY LIMITATIONS 42
7. CONCLUSION 43
REFERENCES .....
APPENDIX I: STRUCTURED INTERVIEW QUESTIONS I
ANTEPARTUM INTERVIEW I
POSTPARTUM INTERVIEW III
APPENDIX II: ANTEPARTUM QUESTIONNAIRE Q1-A V
APPENDIX III: POSTOPERATIVE QUESTIONNAIRE XV
APPENDIX IV: POSTPARTUM QUESTIONNAIRE Q1-B XIX

LIST OF ABBREVIATIONS

BMI	Body Mass Index
CDC	Centre for Disease Control
CPAP	Continuous positive airway pressure
DVT	Deep venous thrombosis
ECDC	European Centre for Disease Prevention and Control
ESG	European Society of Gynecology
IgA	Immunoglobulin A
IQR	Interquartile range
LATCH	Latch, Audible swallowing, Type of nipple, Comfort, Hold
MSCS	Maternal Satisfaction Scale for Cesarean Section
NHS	English National Health Service
NICU	Neonatal intensive care unit
NND	Neonatal death
NRS	Numeric Rating Scale
PCEA	Patient-controlled epidural analgesia
PCIA	Patient-controlled intravenous analgesia
PPH	Persistent pulmonary hypertension
PPS	Patient Perception Score
PROM	Premature rupture of the membranes
Q1-A	Antepartum questionnaire
Q1-B	Postpartum questionnaire
Q2	Postoperative questionnaire
RDS	Respiratory distress syndrome
RSV	Respiratory syncytial virus
SSI	Surgical site infection
STS	Skin-to-skin
TAP	Transversus abdominis plane
TTN	Transient tachypnea of the neonate
VAS	Visual Analogue Scale
VTE	Venous thromboembolism
W-DEQ A/B	Wijma Delivery and Expectancy/Experience Questionnaire A/B

ABSTRACT

Background The most important outcome of any type of delivery is a healthy mother and child. However, we cannot lose sight of the impact of maternal psychosocial health on the relationship between mother and newborn. Our aim was to gain insight in parental expectations and experiences concerning cesarean section in Belgium.

Methods Expecting couples scheduled for delivery by planned cesarean section were recruited at the University Hospitals Leuven, Belgium. Three questionnaires were administered to both partners, one prior to delivery, one just after delivery and a final one six weeks postpartum. Questionnaires assessed the couples' expectations, fears and satisfaction prior to and after cesarean section. Moreover, all participants underwent structured interviews twice, prior to delivery and six weeks after delivery.

Results Fifteen couples underwent a 'standard' cesarean and six had (an unplanned) variation on a 'gentle' cesarean section. Overall, satisfaction with cesarean section was high. However, women in the standard group felt less involved in childbirth and both groups still would prefer vaginal delivery for a future pregnancy. Participants in the gentle group showed less fear of childbirth after delivery than prior to delivery. There were no differences in total questionnaire scores between groups or between mothers and partners in one group.

Conclusion The interviews showed that there is room for improvement in satisfaction around cesarean section, and the 'gentle' cesarean section may help achieve this. These results were only weakly supported by the questionnaires. To successfully implement the 'gentle' cesarean section, more research is needed to confirm its safety.

1. INTRODUCTION

A cesarean section is an operative procedure that has been performed since ancient times. The origin of the term 'cesarean' remains obscure. According to the Oxford English Dictionary, it is derived from the 'lex Caesare', which was a law during the eighth century BC stating that a baby should be cut from the womb if the mother was dying or dead before birth. Another explanation is that the term is derived from the Latin verb 'caedere', which means 'to cut'. According to a more far-fetched but more popular hypothesis, the term 'cesarean section' is derived from Julius Cesar who allegedly was born via cesarean section. However, this seems very unlikely since there are reports declaring that the mother of Cesar was still alive after birth. It wasn't until the 19th century that operative practices improved and that the indications changed from a dying or dead mother to a mother that was still alive (1)(2). After that, with the development of antibiotics and the implementation of the low transverse uterine incision during the 20th century, mortality previously associated with cesarean section continued to decrease. Over the past decade, the rate of cesarean sections has increased in Belgium, reaching 20.6% in 2014 (3). This growth is mainly due to a rise in the number of elective or planned cesarean sections. In countries like the US and Brazil, cesarean section rates are even higher: 31.7% in the US (2013) and 45.9% in Brazil (2006) (4).

Despite the evolution of operative practices, a cesarean section still comes with several risks for the mother: a higher risk of venous thromboembolism, adhesions, higher infection rates, a longer recovery period compared to vaginal delivery, more hemorrhage and intraoperative complications (5). A cesarean section also decreases the chance of successful breastfeeding and leads to a delay of the first breastfeed as well as to a reduction in the incidence of exclusive breastfeeding (6). The risks for the fetus include neonatal trauma, but are predominantly related to respiratory morbidity. Transient tachypnea of the neonate occurs most in neonates that have been delivered by cesarean section. The same goes for primary pulmonary hypertension and respiratory distress syndrome (7).

There is evidence to believe that mothers who have had a cesarean section are generally less satisfied with childbirth than women who delivered vaginally. In addition, these women are more likely to suffer from postnatal depression, bonding difficulties and unsuccessful breastfeeding (8). A more gentle and family-centred approach to this type of childbirth has therefore gained interest. However, qualitative evidence supporting the safety of this approach as well as the true need of such an approach is lacking.

The aim of this thesis project is to gain insight in the contentment of Belgian couples after a standard cesarean section and whether there is a need for a change, even when this change implies potential risks.

2. LITERATURE OVERVIEW

2.1. CESAREAN SECTION: PROCEDURE

Although minor variations exist on the cesarean section technique, we here describe the procedure as it is performed in the University Hospitals Leuven, and in most hospitals in the developed world.

An anesthesiologist, gynecologists, a midwife or nurse, a pediatrician or respiratory therapist and the partner are present in the operating theatre during a cesarean delivery. A cesarean section is usually done under spinal, epidural or combined spinal-epidural anesthesia. The anesthesiologist initiates epidural anesthesia with the woman in a sitting position, while monitoring maternal vital parameters. When the epidural catheter is in place, the woman can lie down and her pain perception will be tested using cold stimuli, since the nerve fibers that register pain and cold are the same. When sufficient anesthesia is obtained (usually until dermatome T4), a bladder catheter is inserted and the cesarean section can start. Using a Pfannenstiel incision, the surgeon will find his way through the skin, the subcutaneous fat tissue and the fascia of the musculus rectus abdominis. The mm. recti are pulled apart so that the peritoneal cavity can be opened. The bladder is reflected and the lower uterine segment is incised. Making a low transverse incision, the amniotic sac will rupture and amniotic fluid will be drained. The baby is then delivered and the umbilical cord is cut. A midwife or a pediatrician will weigh and examine the baby to make sure there are no respiratory problems or other complications. It takes several minutes until the baby is returned to the parents. Skin-to-skin contact is usually initiated with the father, but only established with the mother after completion of surgery. After delivery of the baby, the placenta is removed and the uterus will be closed in two layers to prevent uterine scar rupture in a future pregnancy (9). There is evidence that not suturing the muscles and visceral and parietal peritoneum accounts for less pain, infections and adhesions (10). To provide postoperative pain relief, the anesthesiologist performs either a bilateral transversus abdominis plane block (TAP-block) or leaves the epidural catheter in place to achieve patient-controlled epidural analgesia (PCEA). The choice between both types of pain relief depends on the preference of the anesthesiologist. Further pain treatment consists of NSAIDs (Non-Steroidal Anti Inflammatory Drugs), paracetamol and tramadol if necessary.

2.2. CESAREAN SECTION – INDICATIONS

A distinction is made between three types of cesarean section: urgent, emergency and elective cesarean section.

2.2.1. ELECTIVE CESAREAN SECTIONS

An elective cesarean section is planned in advance, when the woman is not able to give birth vaginally or when the risk of complications with vaginal birth is too high. This type of cesarean section is performed in case of following indications: uterine factors (previous cesarean section(s), placenta previa, uterine leiomyomas and a transmyometrial incision), abnormal fetal lie (breech or transverse lie), multiple pregnancy, previous anal sphincter injury, some maternal disease(s) and psychosocial indications (11)(12).

2.2.2. URGENT AND EMERGENCY CESAREAN SECTIONS

Indications for *urgent* cesarean sections are failure to progress in labor, fetal malposition and fetal compromise without immediate life-threatening risk. *Emergency* cesarean sections are performed when an immediate life-threatening risk for mother or baby exists (11). Examples of life-threatening risks are placental abruption and bleeding because of placenta previa, intra-uterine asphyxia and (pre)eclampsia. Maternal and neonatal outcomes are usually worse (more bleeding, lower Apgar-scores, more fetal distress) after emergency cesarean section compared to urgent and elective cesarean section (13).

2.3. ELECTIVE CESAREAN: COMPLICATIONS AND EXPERIENCES

Maternal and neonatal complication rates are summarized in table 1 and 2, respectively.

2.3.1. NEONATAL COMPLICATIONS

The most commonly seen neonatal complications after elective cesarean section include respiratory morbidity and neonatal trauma.

2.3.1.1. RESPIRATORY MORBIDITY

It is known that elective cesarean delivery is associated with an increased risk of respiratory morbidity (14). Respiratory morbidity can refer to persistent pulmonary hypertension (PPH), transient tachypnea of the neonate (TTN), respiratory distress syndrome (RDS), bronchiolitis and allergic disease. Respiratory morbidity of the newborn is more common when the cesarean section is performed before 39 weeks of gestation (15).

2.3.1.1.1. PPH – TTN – RDS

In utero, the main source of oxygen is the placenta and not the lungs. Only a small fraction of the right ventricular output (5 to 10%) is directed to the pulmonary vascular bed. Therefore, fetal pulmonary hypertension is normal during pregnancy. When the baby is born, a dramatic cardiopulmonary transition has to occur in order to start exchanging oxygen by the lung instead of by the placenta. This phenomenon is characterized by a reduction in pulmonary vascular resistance and pulmonary artery pressure in addition to a tenfold rise in blood flow. When the cardiopulmonary transition fails to occur, this will result in persistent pulmonary hypertension of the newborn. When left untreated, this can result in serious complications like severe hypoxemia (16). TTN or wet lung syndrome is a condition that is characterized by the presence of fluid in the lungs, which causes the newborn to breathe very rapidly. Signs of hypoxia and cyanosis – including blue skin color, rapid breathing, grunting and retractions – are usually present. TTN usually resolves after 24 hours when adequate treatment (extra oxygen) is provided (17). RDS occurs when the neonate has failed to produce enough surfactant. Therefore, this condition is more commonly seen in premature infants, whose lungs are not completely mature yet (18).

In a retrospective study of 29,669 births, 0.37% of babies delivered by elective cesarean section suffered from persistent pulmonary hypertension in comparison to 0.08% after vaginal delivery. 3.1% was diagnosed with transient tachypnea of the neonate and 0.2% developed RDS compared to 1.1% and 0.16% of babies delivered by vaginal delivery, respectively. Also, neonates that were born by elective cesarean section were 4.6 times more likely to develop pulmonary hypertension than those that were born by vaginal delivery (7). One hypothesis for these results is that labor has a protecting influence on the incidence of RDS. This theory is supported by evidence of lower rates of RDS when labor precedes cesarean delivery (19).

2.3.1.1.2. BRONCHIOLITIS

Bronchiolitis is an illness that is mostly caused by the respiratory syncytial virus (RSV). Also known as the 'cold virus' and transmitted by droplet infection, RSV can cause serious respiratory morbidity that requires hospitalization especially in children younger than 12 months (20). The typical symptoms for bronchiolitis initially resemble an upper airway infection (coughing, runny nose, low-grade fever). In a later stage, these symptoms can evolve into the sudden occurrence of symptoms of lower airway infection (dyspnea, tachypnea, hyperinflation, wheezing and retractions), especially in very young children. Approximately 3.1% of children delivered by elective cesarean section and younger than 12 months develop bronchiolitis requiring hospitalization. For children younger than 12 months and born by vaginal delivery, this rate is 2.7% according to an Australian population-based retrospective study. One possible explanation for these findings is the different immunological background of children born by vaginal delivery versus those born by cesarean delivery. Once the child is older than 12 months, the hospitalization rates for bronchiolitis decrease. The same study also looked into the development of pneumonia in relation to the mode of delivery, but no significant relation between elective cesarean and number of hospitalizations for pneumonia was found (20).

2.3.1.1.3. ALLERGIES

An association has been reported between elective cesarean section and the development of allergies later in life. The hypothesis of a retrospective cohort study was that children that were delivered vaginally have a different composition of intestinal flora than children who were delivered via cesarean section. Indeed, with a vaginal delivery, the baby is exposed to the vaginal microbial flora of the mother, while those delivered by cesarean section receive their intestinal flora merely by skin contact and contact with environmental surfaces. This hypothesis is supported by the fact that premature rupture of the membranes (PROM), which occurs in approximately 10% of all term deliveries and allows in utero transfer of the vaginal bacterial flora to the intestinal tract of the baby, is associated with a lower risk of developing any allergic disease (21).

2.3.1.2. NEONATAL TRAUMA

A review dealing with the association between elective cesarean section and neonatal trauma showed an incidence for brachial plexus injury ranging from 0.04% to 0.09% after elective cesarean section (22). In a prospective multi-center cohort study, 1.1% of all cesarean deliveries were complicated by fetal injuries. This study showed that the occurrence of fetal trauma varies with the type of surgical incision, with the indication and with the duration of the skin incision-to-delivery interval. Neonatal trauma in elective cesarean sections is rare, and the incidence is certainly lower (0.5% after elective repeat cesarean) than after failed vaginal delivery (6.9%). Neonatal trauma occurs most often after vaginal instrumental deliveries and after unsuccessful trials of labor: in this study population 29 cases out of 1000 vacuum or trial of forceps deliveries were complicated by skin lacerations in comparison to 7 out of 1000 births by elective cesarean delivery. Also, cephalohematoma occurs more often in cesarean deliveries for unsuccessful trial of labor as well as in vaginal deliveries with unsuccessful trial of forceps or vacuum deliveries (23).

2.3.2. MATERNAL COMPLICATIONS

Complications associated with cesarean section are adhesions, uterine rupture, placenta previa, intrapartum and postpartum hemorrhage, intraoperative complications, infections, venous thromboembolism (VTE), problems with breastfeeding initiation, intrapartum death and pain.

2.3.2.1. ADHESIONS

One of the potential consequences after every abdominal surgery, and thus also after cesarean section, is the formation of adhesions. They are defined as fibrous connections between two different anatomic surfaces and, when present, adhesions account for a higher risk of postoperative complications like infertility, a higher risk of ectopic pregnancy, pelvic pain, bowel obstruction and the need for difficult repeated surgical procedures (24). The number of adhesions increases with increasing number of previous cesareans and the most frequent adhesion sites are seen between the uterus and the bladder and between the uterus and the abdominal wall (25).

2.3.2.2. UTERINE RUPTURE

A cesarean section results in a scar of the uterus. This scar is susceptible to rupture during a subsequent pregnancy. Uterine rupture is rare, but is related to a higher level of adverse maternal and perinatal outcomes and occurs most often during vaginal delivery after cesarean section. The location of the initial incision of the uterus is one of the factors that determine the risk of uterine rupture. This risk is lowest in women who had a standard low transverse incision and is highest in women who had other types of hysterotomies (26). According to a prospective observational study performed by Landon et al, the rate of uterine rupture in women who underwent a trial of labor was 0.7%. 0.4% of women who went into labor spontaneously suffered from uterine rupture. This rate increased when labor was augmented by oxytocin or when labor was induced. The absolute risks found in this study were small, but in absence of randomized controlled trials, they should certainly be taken into account during the counseling of pregnant women who have already undergone a cesarean section (27).

2.3.2.3. PLACENTA PREVIA AND INVASIVE PLACENTATION

As stated above, the diagnosis of placenta previa is one of the indications for cesarean delivery, but also a consequence of cesarean section. After the first cesarean section the risk of placenta previa increases with increasing number of subsequent cesarean sections (28). This was confirmed by a large retrospective cohort study aiming at characterizing the association between cesarean delivery, placenta previa and placental abruption in subsequent pregnancies. In their subpopulation of 156,475 pregnancies, the authors found that the risk of placenta previa was 50% higher among women with a previous cesarean delivery compared to women with a previous vaginal delivery (they found rates of 0.63% vs. 0.38%, respectively) (29). A large retrospective cohort study of women who had an elective cesarean section for a singleton at term in the English National Health Service (NHS), found a doubled risk of postpartum hemorrhage and obstetric trauma and a fourfold risk of blood transfusion in women with placenta previa. In addition, 1% of the women with placenta previa in this cohort had to undergo hysterectomy compared to only 0.03% in women without placenta previa (30). Women with a previous

cesarean section are at higher risk of developing placenta accreta (31). Placenta accreta is a general term for conditions that are characterized by the abnormal implantation of the placenta. In placenta accreta, the implantation of the placenta is not limited to the decidua basalis but is extended to the myometrium. This condition is a major risk factor for severe postpartum bleeding, which in most cases necessitates a hysterectomy. Placenta accreta can be subdivided into three categories: placenta accreta, placenta increta and placenta percreta. With placenta accreta the placental villi are attached to the myometrium, while in placenta increta and percreta the placental villi invade or cross the myometrium, respectively (32). A retrospective review looked into the incidence of placenta accreta requiring hysterectomy in women who had a previous cesarean section. The incidence of placenta accreta was rather low from 1975 until 2002 with 1.06 per 1000 women who had a previous cesarean section. However, during the period of 2003 until 2010, the incidence of placenta accreta rose to 2.37 per 1000 women who had a previous cesarean delivery, which correlates with the institutional rise of cesarean section rate. In this study, placenta accreta was defined as a placenta being abnormally adherent to the uterus, requiring peripartum hysterectomy. No distinction was made between the subtypes of placenta accreta (33).

2.3.2.4. INFECTIONS

Fever, wound infections or surgical site infections (SSIs), endometritis and urinary tract infections are potential infectious complications of cesarean section. Fever, however, is not an absolute indicator of the presence of an infection; a slight fever after operative procedures is commonly seen. SSI is the most common complication after a cesarean section next to urinary tract infections. According to the Center for Disease Control (CDC), SSIs can be classified into three categories: superficial incisional SSIs, deep incisional SSIs and organ/space SSIs. The first category is limited to the skin and the subcutaneous tissue of the incision. In deep incisional SSIs deep soft tissue, including fascia and muscle layers, is involved. Organ/space SSIs involve any part (organs or spaces) of the anatomy other than the incision site (34). The European Centre for Disease Prevention and Control (ECDC), which is responsible for the coordination of the surveillance of healthcare-associated infections, published a report of the situation in 2008 until 2009. Belgium was not included in this report because of a discontinuation of data reporting after 2007. Of the 132,044 cesarean sections performed throughout the participating countries, 3.6% of women developed an SSI within 30 days. 86% of these were diagnosed as a superficial incisional SSI, 10% as a deep incisional SSI, 3% as an organ/space SSI and 1% was unknown (35). Since a few years, it has been standard practice to use antibiotic prophylaxis in women who undergo cesarean section in Belgium. In this light, the results reported above may be an overestimation. Preoperative antibiotic prophylaxis halves the risk of SSI. The risk of SSI is higher in urgent or emergency cesarean section and women with obesity or other underlying medical conditions.

Endometritis is a collective term for uterine infections and continues to be a major problem after cesarean delivery. Without antibiotic prophylaxis the incidence of endometritis would be around 20%. However, when antibiotic prophylaxis is given, a reduction of 60% in the rate of endometritis can be seen (36). A retrospective study looking at the epidemiology of postpartum infections found an

infection rate for endometritis of 0.8% in women who had a cesarean section, compared to 0.2% in women who delivered vaginally (37). In contrast, a prospective observational study looking at women with an uncomplicated singleton pregnancy who had already undergone a cesarean delivery in the past, found the occurrence of endometritis in 1.8% of the women who underwent repeated elective cesarean section (27). Gilbert et al used propensity score matching to compare the outcomes of elective repeated cesarean delivery with the outcomes of trial of labor. In the elective repeated cesarean delivery group 2.1% of women developed endometritis, compared to 3.6% of women who had a trial of labor (38). These numbers often vary because of a lack of postoperative surveillance. Possibly, these types of infections occur weeks after the delivery, thereby remaining undetected for the study collaborators.

Urinary tract infections occur more often in women who underwent a cesarean section. One of the possible explanations is the need for a urinary catheter during and after surgery (39). However, not much data exist on the epidemiology of urinary tract infection after cesarean section in combination with standard antibiotic prophylaxis.

2.3.2.5. VENOUS THROMBOEMBOLISM

The risk of venous thromboembolism (VTE) increases during pregnancy and peaks around delivery. According to a meta-analysis and review performed by Kourlaba et al, the pooled incidence rate of pregnancy-related VTE is 1.2 in 1000 deliveries. For deep venous thrombosis and pulmonary embolism, the pooled incidence rate is 1.1 and 0.4 per 1000 deliveries respectively (40). Cesarean section is a risk factor for the development of venous thromboembolism. Compared with vaginal delivery, the incidence rates for VTE after elective and emergency cesarean delivery are doubled and tripled respectively (41). 15 to 25% of VTEs are recurrent events and the recurrence rate of women with risk factors (including cesarean section) for VTE who did not receive thromboprophylaxis ranges from 2.4% to 12.2% in comparison to 0 to 2.4% in women who did receive anticoagulation. Therefore, thromboprophylaxis after cesarean section is justified. Indeed, European guidelines around venous thromboembolism during pregnancy and the puerperium recommend a low-molecular weight heparin as the drug type of choice for thromboprophylaxis (42). In the study population of Landon et al, 0.1% of the women who underwent repeated elective cesarean section developed thromboembolic disease, despite thromboprophylaxis. This entailed deep venous thrombosis as well as pulmonary embolism (27). Similarly, in women who underwent their second cesarean section in the study of Silver et al, deep venous thrombosis was diagnosed in 0.15% (31).

2.3.2.6. INTRAOPERATIVE COMPLICATIONS

Intraoperative complications include lacerations (of the uterus, vagina, bladder and bowels), intraoperative blood loss exceeding 1000mL, intraoperative hysterectomy and preoperative uterine rupture. Not many recent studies are available on the incidence and risk factors of intraoperative complications during cesarean section. Silver et al found a positive relation between intraoperative complications (hysterectomy, blood transfusion, lacerations) and number of cesarean deliveries. Of the 6201 women who had their first cesarean section, 0.65% had to undergo hysterectomy. Regarding

other intraoperative complications, 0.09% had a laceration of the bladder, 0.11% presented with bowel injury and 0.03% had an ureteral injury (31). Vaginal lacerations occur rarely with elective cesarean section, as was shown by Bergholt et al. In their study population, vaginal lacerations complicated only emergency cesarean sections (1.7%) (43).

Since the uterus receives a large proportion of blood (600mL/minute) towards the end of pregnancy, women can lose a significant amount of blood during child delivery. Some intrapartum bleeding, however, is normal and usually women adapt well. Pregnancy imposes important cardiac changes, including a 50% increase in blood volume. This increase accounts for a reserve of 1000 to 1500mL of circulating blood volume towards the end of pregnancy. Nevertheless, there are conditions that are characterized by an abnormal volume expansion: preeclampsia, eclampsia and chronic renal disease. In women with these conditions even normal blood loss at delivery can result in decompensation and hemorrhagic shock. Other causes for excessive bleeding during cesarean delivery include uterine atony, injuries to the uterus, bowel or bladder, vaginal or cervical laceration. Excessive intraoperative bleeding during cesarean section is generally defined as blood loss exceeding 1000mL (44). Approximately 2% of women who undergo an elective cesarean section, will suffer blood loss more than 1000mL (45).

2.3.2.7. POSTPARTUM HEMORRHAGE

Postpartum hemorrhage is one of the principal causes of maternal morbidity and mortality. Several studies have shown a relation between the previous mode of delivery and postpartum hemorrhage, with cesarean section being one of the risk factors. The highest transfusion rate is seen in women who gave birth by an intended vaginal delivery with a history of previous cesarean delivery. When a previous cesarean delivery is followed by a planned cesarean delivery, the risk of transfusion is significantly lower compared to a planned vaginal delivery after a previous cesarean delivery. Still, there is a significant higher risk of blood transfusion for women whose birth was by cesarean section in comparison to women who had a vaginal delivery first (46). Important risk factors for blood transfusion after cesarean delivery include primary cesarean deliveries, eclampsia or HELLP (Hemolysis, Elevated Liver enzymes, Low Platelet count) syndrome, abnormal placentation and pre-existing severe anemia (47).

MATERNAL	Intraoperative complications				Blood loss ≥1000mL	Blood transfusion	Wound dehiscence	DVT	Infection	
	Hysterectomy	Cystotomy	Bowel injury	Ureteral injury					Endometritis	Wound infection
Kolas et al (45)					**2.1%**					
Kok et al (48)						0.4%				3.4%
Gilbert et al (38)	0.3%	0.2%							2.1%	
Silver et al (31)	**0.65%**	**0.09%**	**0.11%**	**0.03%**		4.05%	**0.37%**	0.27%		
Landon et al (27)	0.6%					**1%**		0.1%	1.8%	
Bergholt et al (43)						0.7%				
ESG (42)								0-2.4%		
Yokoe et al (37)									0.8%	
ECDC (35)										**3.6%**
TOTAL MATERNAL COMPLICATION RATE										**10.1%**

Table 1. Summary of literature on maternal complications after cesarean section. Percentages in bold were used to obtain the total maternal complication rate. DVT: deep venous thrombosis.

NEONATAL	Respiratory complications				Apgar <7 (5 min)	NICU	Resuscitation	NND	Neonatal trauma
	TTN	PPH	RDS	CPAP					
Alexander et al (23)									**0.5%**
Zanardo et al (49)						1.3%	5.5%		
Doan et al (50)	1.45%	0.03%	0.19%	0.26%	0.14%		2.92%		
Kok et al (48)			1.1%		0.8%				
Gilbert et al (38)	3%		1%					**0.03%**	
Levine et al (7)	**3.1%**	**0.37%**	**0.2%**						
TOTAL NEONATAL COMPLICATION RATE									**4.2%**

Table 2. Summary of literature on neonatal complications after cesarean section. The need for CPAP, an Apgar score below 7 and the need for NICU admission and resuscitation overlaps with the respiratory complications and neonatal death, which is why they are not included in the total neonatal complication rate. Percentages in bold were used to obtain the total neonatal complication rate. NND: neonatal death; NICU: admission of the neonate to the neonatal intensive care unit; CPAP: Continuous Positive Airway Pressure.

2.3.2.1. BREASTFEEDING

Apart from the fact that breastfeeding is an important factor in the bonding process between mother and child, it also has lifelong benefits for mother and child. During the first five days and especially during the first 24 hours after birth, breast milk consists out of colostrum. This dense, yellowish substance contains a high concentration of antibodies, including immunoglobulin A, and has laxative properties. The laxative properties of colostrum help to pass the first stool or meconium, which can become rather dense and dry and difficult to pass. IgA antibodies are directed against Escherichia coli (E. coli) and are not present in bottle-feedings. This is one of the reasons why breastfed babies are less likely to develop enteric infections than bottle-fed babies (51). In addition, breast milk also contains important carbohydrates like galacto-oligo saccharides (GOS) and fructo-oligo saccharides (FOS) that act as probiotics and lead to better absorption of nutrients in the bowel (52). For the mother, breastfeeding is associated with the secretion of oxytocin by the posterior pituitary. This hormone promotes the involution of the uterus and reduces the risk of severe postoperative bleeding (51). Breastfeeding also helps the mother to achieve her pre-pregnancy weight faster (53). Despite the benefits, the rate of women who breastfeed exclusively after six months, especially after cesarean section, remains low. A recent meta-analysis showed strong support for the hypothesis that cesarean delivery has an inverse relation with breastfeeding initiation. Also, the authors found that the rate of women who breastfeed exclusively is lower after cesarean delivery. In contrast, when breastfeeding is initiated successfully shortly after cesarean birth, no difference can be found with the group that delivered vaginally at six months postpartum (54). The quality of breastfeeding is evaluated by the LATCH scoring system.

	0	1	2
Latch	Too sleepy or reluctant No sustained latch or suck achieved	Repeated attempts for sustained latch or suck Hold nipple in mouth Stimulate to suck	Grasps breast Tongue down Lips flanged Rhythmical sucking
Audible swallowing	None	A few with stimulation	Spontaneous and intermittent (<24h old) Spontaneous and frequent (>24h old)
Type of nipple	Inverted	Flat	Everted (after stimulation)
Comfort	Engorged Cracked, bleeding, large blisters or bruises Severe discomfort	Filling Reddened/small blisters or bruises	Soft Non-tender
Hold (positioning)	Full assist: staff holds infant at breast	Minimal assist (i.e. elevate head, place pillows for support) Teach one side, mother does other Staff holds and then mother takes over	No assist from staff Mother is able to position and hold infant

Table 3. The LATCH scoring system as designed by Jensen et al (55). Each category can be scored from 0 to 2, which leads to a minimum (failed breastfeeding) and maximum (optimal breastfeeding) score of 0 and 10 respectively (56).

This tool allows for systematic documentation and standardized communication between caregivers. LATCH evaluates five areas (Table 3) of breastfeeding assessment: Latch, Audible swallowing, Type of nipple, Comfort and Hold.

2.3.2.2. MORTALITY

Maternal mortality in developed countries is extremely rare nowadays, especially after elective cesarean delivery. There is no difference in maternal mortality between elective cesarean section and vaginal delivery. However, a cesarean delivery implies other complications that can interfere with subsequent pregnancies (placenta previa, placenta accreta, uterine rupture, ectopic pregnancies) and may cause more severe maternal morbidity and mortality (5).

2.3.2.3. POSTOPERATIVE PAIN

Postoperative analgesia is one of the most important aspects of postoperative care. Severe pain can keep the mother from mobilization and caring for her newborn, which may result in a higher risk of venous thrombosis and failure to bond with the baby. Postoperative pain is generally measured using VAS (visual analogue scale) or NRS (numeric rating scale) scores. For the VAS score, the patient scores the pain on a ruler of 10cm. In this way, the caregiver can easily score pain in an objective way, on a scale of 1 to 10. The NRS scoring system is similar, with the exception that the pain is scored on a scale of 1 to 10 without the use of a ruler. According to the Term Breech trial, the level of pain after 24 hours of delivery does not differ according to mode of delivery (vaginal or cesarean birth). In contrast, compared with women who delivered vaginally, more women in the cesarean section group reported pain on the outside of the abdomen (9.9% vs. 5.7%) and deep inside the abdomen (8.8% vs. 4.6%) (57).

2.3.3. PARENTAL EXPERIENCES AND SATISFACTION

In countries where more cesarean deliveries are performed without medical indication, many studies have been done on maternal and neonatal outcomes and women's or parental satisfaction after cesarean section. These studies are particularly useful to look at outcomes because of the exclusion of maternal or fetal morbidities that could influence postpartum health. Women request a cesarean section because of fear of childbirth, tocophobia (fear of labour pain) and negative experiences during a previous birth (58).

Women who underwent a cesarean section often report feeling vulnerable, like an inactive participant during birth, disempowered and in lack of control over the decision-making process. Many women see their cesarean section as a failure, despite the good outcome, because vaginal birth is still considered as the standard mode of delivery (59). Also, there is evidence that women who delivered via cesarean section, when compared to those who delivered via vaginal birth, are less likely to see childbirth as an exciting event (60). The difficult recovery, being worried about the baby's health and the birth not being natural are also drawbacks to a cesarean section (61).

When looking at parental preferences, it appears that the majority of women who already had a cesarean section and a vaginal delivery prefer a vaginal delivery (80%). Primiparous women (women who delivered once already) have a stronger tendency to opt for vaginal delivery (58). Moreover, women who preferred and got a cesarean section are less satisfied with the overall care they received (60).

The quality of care given by the medical staff (nurses, doctors, midwives…) plays a big part in the experience of women after a cesarean section. They want to be reassured, respected and they need to be adequately informed about the cesarean in itself, but also about the baby's health status and about the intensity and duration of postoperative pain. It appears that too many women undergoing cesarean section have a lack of knowledge about the procedure and about the recovery period. For multiparous women it becomes even more important to receive information and to be more involved in the decision making process (58)(59)(62).

Recent studies using questionnaires have shown that satisfaction after cesarean section does not significantly differ between mothers and fathers. The main contributors to feeling satisfied with birth by cesarean section are the perception of sufficient medical care and the health of the baby, a nice birth environment (for the fathers) and sufficient support (for the mothers). For fathers, a lower satisfaction rate is associated with a primary cesarean section and an Apgar score less than 7 after 5 minutes. The majority of the fathers prefer a vaginal delivery. When the previous birth experience was negative or there were previous cesarean deliveries, fathers are more likely to prefer cesarean section (63)(64).

2.3.3.1. MEASURES AND TOOLS USED TO ASSESS PATIENT EXPERIENCES

To assess parental satisfaction and expectations concerning child delivery, the adequate measures and surveys should be used. Staff-woman interaction, information or knowledge, involvement in decision-making, pain relief and birth environment are important subjects to look into (65).

Several questionnaires with regard to childbirth exist and they all differ in content and quality. The quality of questionnaires is based on two important criteria: validity and reliability. Reliability refers to the capacity of a tool to produce consistent results every time. Validity refers to the extent to which the survey measures what it is supposed to measure. Sawyer et al reviewed several types of questionnaires that focus on childbirth. In this review, two questionnaires are described that are applicable to operative deliveries, the Patient Perception Score (PPS) and the Maternal Satisfaction scale for Cesarean Section (MSCS). The PPS is a simple three-item questionnaire that was validated for operative delivery as well as for vaginal birth, and the MSCS is a more detailed questionnaire that deals with four items and was made specifically for women undergoing an elective cesarean section. The higher the mother scores on this questionnaire, the higher the satisfaction with birth (maximal score is 154). Both surveys have their specific pros and cons. Pros for the MSCS are its proven face validity[1], content validity[2] and construct validity[3] versus the questionable reliability. The PPS has

[1] Does the test measure what it is supposed to measure?
[2] Does the test cover the domains to be evaluated?
[3] Does the test measure the right construct?

construct validity and high reliability, face validity and content validity have not been confirmed. Also, the PPS was not specifically designed for elective cesarean section (65). Another important questionnaire is the Wijma Delivery and Expectancy/Experience Questionnaire (W-DEQ). This questionnaire with 33 items is in fact designed for vaginal delivery, but it has been modified to fit cesarean deliveries as well (66). There are two versions of the questionnaire: version A is given before delivery and focuses on the expectations of the mother about the delivery, and version B focuses on the experiences and thus characterizes to which extent the expectations were met after delivery.

A frequently used scale for questionnaires is the Likert scale, designed by Rensis Likert in 1932. This easy to construct scale is versatile: it can be adjusted to measure several types of affective characteristics (67). The standard Likert scale has five response categories and has bipolar endpoints measuring the degree of agreement of the participant:

1	2	3	4	5
Strongly disagree	Disagree	Neutral	Agree	Strongly agree

A distinction is made between true Likert scales and Likert-type scales. A true Likert scale is a scale with several items that, when combined into a single score, can provide insight into a certain characteristic of the participant. A Likert-type scale contains items or questions that are stand-alone and unique by which the researcher will make no attempt to obtain a composite score (68).

There is no consensus on how many response categories should be used in rating scales. Nevertheless, it is known that scales with only two to four points are usually the least reliable (low test-retest reliability). Generally spoken, reliability, validity and discriminating power increase with the number of response categories, up to about seven response categories (69). Another important issue when dealing with questionnaires and rating scales, is the decision whether or not to use a midpoint. Again, no consensus exists on the use of a midpoint in questionnaire scales. A midpoint enables the participant to opt for a neutral or a ‘no opinion’ response. Some may refer to this as ‘an easy way out’. Indeed, the option of a neutral answer brings about the issue of satisficing. Satisficing, a combination of ‘satisfy’ and ‘suffice’, is the phenomenon in which the participants will select the option that is ‘good enough’ instead of searching for the best possible choice (70). On the other hand, eliminating the midpoint forces the participants to choose a positive or a negative option, which can distort results as well. Either way, the choice of the appropriate scale mainly depends on the type of research and thus the type of questions. If the research subject is fit to the current situation of the participant, it is expected that the participant will have a certain opinion and will show no indifference to the subject (for example, a questionnaire looking into the quality of support given to people that were recently diagnosed with cancer) (71)(72)(73).

2.4. THE NATURAL OR GENTLE CESAREAN SECTION

In an attempt to improve parents' satisfaction and potentially decrease some of the downsides of the 'standard' cesarean section, the concept of a more 'natural' or 'gentle' cesarean section has gained more interest. This type of delivery tries to mimic a natural vaginal delivery as much as possible, but without falling short on sterility and safety (74).

The aim of the natural cesarean section is to improve maternal and fetal outcomes and parental satisfaction. Several studies (8)(74)(75) looking into the practical aspects and benefits of such an approach have been performed and now more and more hospitals implement (a variation on) this technique.

During a gentle cesarean section, it is key to create a relaxing atmosphere by dimming the lights, having a warmer operating theatre and playing background music (74). Also, with this more natural approach, the baby is 'walked out of the abdomen', meaning that the surgeon compresses the fetal chest, mimicking the effect of contractions and thereby expelling fluid from the fetal lungs. When the baby's head is born, the baby is allowed to 'autoresuscitate' by breathing through its mouth and nose while still being connected to the placental circulation. Also, the surgical drapes will be lowered so that the mother can watch the birth. Once the baby is born, the midwife (who is still sterile), receives the baby directly from the surgeon and places him or her onto the mother's bare chest (8). In this way, early skin-to-skin (STS) contact is established. There is evidence that the implementation of early STS contact after birth is beneficial for breastfeeding: breastfeeding initiation is faster and there is a higher chance of breastfeeding exclusively (6).

Women who underwent a gentle cesarean section are more satisfied of their birth experience (74). The possibility to see the delivery of the baby and to have skin-to-skin contact immediately after birth is considered very important to parents. Actively involving the parents in the birth process is also an important factor. This can be done by letting the partner cut the umbilical cord or by actively involving parents in the process by explaining every step (8)(74).

Although the beneficial effects of such a more 'natural' procedure seem logical from a theoretical point of view, strong evidence supporting them is lacking. Moreover, the maternal and neonatal safety of this procedure has never been documented. The only data on maternal or neonatal outcomes that are available focus on elective standard cesarean sections, as described above.

3. OBJECTIVES

Prior to introducing a new surgical technique (i.e. gentle cesarean section), with a potential compromise on infant and maternal safety, the need for such a technique should be established in the population. The objective of this thesis project is therefore to gain insight in parental expectations and experiences concerning standard cesarean section in Belgium.

4. METHODS

4.1. LITERATURE REVIEW

The above presented literature review was the first step in this project to characterize the indications, complication rates and the experiences of women regarding cesarean section. Articles were sought in the Pubmed database and the LIMO database of KU Leuven using a combination of following search terms:

- Elective cesarean section
- Cesarean section on maternal request
- Experiences and expectations cesarean section
- Neonatal/maternal outcomes cesarean section
- Pain management cesarean section
- Tapblock/PCEA
- Gentle/natural cesarean section

The references of one particular article by D'Souza et al (5) were looked through. Articles older than 15 years were excluded, as both the cesarean section technique (blunt dissection, suture material) and perioperative care (antibiotic prophylaxis, thromboprophylaxis, etc.) have evolved in the last decades. As a consequence, only articles that date from 1999 until 2014 were used. All abstracts were reviewed (n=121) and articles of potential relevance to the present study were read in full (n=46). Reference lists of articles were hand-searched and yielded additional cites.

We found epidemiological data on childbirth in Belgium in the database of the Agency of Care and Health (Agentschap Zorg en Gezondheid) (3). The description of the history of the cesarean section was mainly based on two articles, of which one was found in the historical database of the University of Antwerp (2). Another history-related article was found in the database of the US National Library of Medicine (NLM) (1).

4.2. PEECS STUDY

Since no Belgian data are available on the subject, the objective of this thesis project is to gain insight in parental expectations and experiences concerning standard cesarean section in Belgium. This goal is achieved by designing a study protocol for a prospective observational cohort study using qualitative questionnaires and structured interviews in 24 women (12 nulliparae and 12 multiparae). The design of the interviews and the choice of questionnaires were based on the results of a literature review (see literature overview above). The study was named 'Parents' Expectations and Experiences concerning Cesarean Section in Belgium' (PEECS) and ethical approval was granted on the 24th of November 2015 by the Ethical Committee of the University Hospitals Leuven (S58593). The timing of both the questionnaires and the interviews is summarized in Figure 1.

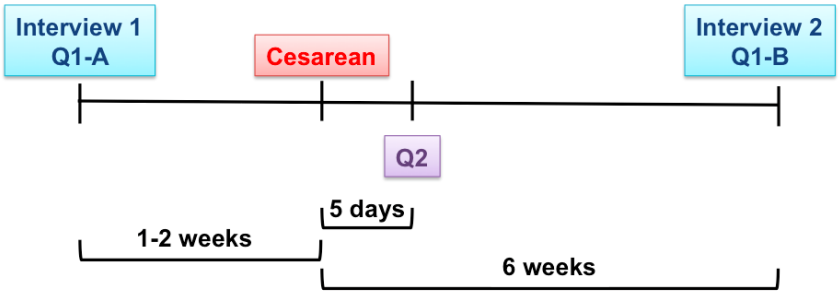

Figure 1. Flowchart of the PEECS study.

4.3. STUDY POPULATION

4.3.1. RECRUITMENT

All patients were recruited at the University Hospitals Leuven, Belgium. At the time of booking the cesarean section, typically between 32 to 36 weeks of gestation and during an outpatient visit, the treating physician informed the patient of the study. In case the patient expressed that she was willing to participate or that she wanted more information, the study was further explained by the study collaborator. Informed consent was obtained from both the patient and her partner before any study-related practices took place.

4.3.2. ELIGIBILITY CRITERIA

Inclusion and exclusion criteria are detailed in the table below. In brief, we wanted to select a group of low-risk women having routine pregnancy follow-up and undergoing an elective cesarean section at the University Hospitals Leuven. Their partners were also included in the project. Women undergoing a cesarean section on maternal request (without medical indication) were excluded as they may have a different perception of the procedure.

Eligibility criteria	
Inclusion criteria	**Exclusion criteria**
- Dutch-speaking pregnant women - Singleton pregnancy - Aged 18-50 years - Booked for planned cesarean section ≥37 weeks of gestation - Available partner - Informed consent given	- Emergency cesarean section - Younger than 18 years of age or older than 50 years of age - Multiple pregnancy - Inability to provide consent (because of language issues, etc.) - Partner not consenting - BMI >35 kg/m^2 - Maternal or fetal pathologies expected to affect pre-and postnatal maternal or neonatal management - Cesarean section on maternal request

Table 4. Inclusion and exclusion criteria for the PEECS study.

4.4. INTERVIEWS

Women and their partners underwent two structured interviews (one 1 to 2 weeks prior to the cesarean, one 6 weeks after). The questions in the first interview revolve around three main topics: feelings, expectations and knowledge, while the questions in the second interview are a continuation of the first one (Table 5). Interview questions were based on literature and on practical experience. The standardized interview questions are provided as appendix I.

	Feelings	**Expectations**	**Knowledge**
Interview 1	Concerning the decision to deliver via cesarean section	Concerning: - Breastfeeding - Birth in general - Postoperative recovery - Pain	Concerning: - The information that was received - The operative procedure
Interview 2	Concerning: - The duration of the stay - The birth process - The preferred mode of delivery	To which extent the expectations were met? - Breastfeeding - Birth in general - Postoperative recovery - Pain	

Table 5. Set-up of the structured interviews used in the PEECS study.

4.5. QUESTIONNAIRES

The questionnaires in this study (appendix II, III and IV) are based on existing and validated questionnaires. One to two weeks prior to the cesarean delivery, the mother-to-be and her partner received the first questionnaire (Q1-A) either through e-mail or during a standard outpatient visit. Five days after the delivery, while mother and child were still in hospital, the couple received a second questionnaire (Q2). Six weeks after the cesarean section, during a standard outpatient visit or by e-mail, they received the final questionnaire (Q1-B), which is a continuation of the first one (Fig. 1). All questionnaires were in Dutch and were completed individually by the woman and her partner.

The first and last questionnaires are based on the Wijma Delivery Expectancy/Experience Questionnaire Version A and B (W-DEQ A and W-DEQ B). Version A is used to assess the expectations of women before delivery and version B verifies the experiences of women after they have delivered their baby. Because the W-DEQ questionnaires are generally not applicable to surgical deliveries and because it is clinically not meaningful to ask the same question twice (in the questionnaire as well as in the interview), these questionnaires were modified. The adjustment of the W-DEQ questionnaires for cesarean delivery was also carried out by Wiklund et al (66). In addition, the original questionnaires only focus on women and not on their partners. Thus, some questions were slightly altered to fit the partners as well.

In our modified versions only 16 of the original 33 questions remain. As in the original questionnaire, every question is rated on a linear scale of 0 to 5 (6 points), with a maximal score of 80 (5x16). Also, in version A, four questions concerning the information the couple received, were added. In version A as well as in version B a question concerning the pain during, just after and at six weeks postpartum, was added. Questions concerning pain were scored on a 10 cm VAS scale. The added questions (about information (W-DEQ A) and pain (W-DEQ A and B)) were not included in the total questionnaire score. The higher the couple scored on the W-DEQ questionnaire, the higher their fear of childbirth.

The second questionnaire (Q2) is based on the MSCS (Maternal Satisfaction for Cesarean Section) questionnaire. This is a detailed questionnaire specific for elective cesarean birth. It contains 22 items to assess women's satisfaction with cesarean section under regional anesthesia. The questionnaire is subdivided into four subjects:

- Interaction with family/staff
- Anesthetic/technical effects
- Intra/postoperative events
- Side effects

The questions of the MSCS questionnaire were adjusted so that they were applicable to the partners as well. As stated above, it is not meaningful to ask the same question twice, which is why a modified version of the MSCS questionnaire was used. The modified version only contains 10 questions for the partner and 11 questions for the mother. The questions concerning pain (during and just after delivery)

were transformed into a score on a VAS scale. Also, the questions concerning the technical and side effects of the anesthesia were left out because they were irrelevant to this study, which only considered the expectations and experiences couples have about cesarean delivery. The MSCS questionnaire is scored on a Likert scale with seven elements, with a maximum score of 154. Since the questions asked in the questionnaire are straightforward and directly applicable to the current situation of the couple, the midpoint was left out. This implied a maximal score for mothers of 54 (6x9) and a maximal score for the partners of 48 (6x8). To be able to compare these scores, they were transformed to a score on 50. The higher the score, the higher the couple's satisfaction with birth.

An important notion to remember is the fact that all questionnaires have questions that are scored on a reverse scale. Thereby, in order to get to the total questionnaire score, these individual scores need to be reversed. This is the case for questions 2, 4, 5, 7, 9, 10 and 11 in Q1-A and Q1-B and for question 7 in Q2.

4.6. IN-HOSPITAL DATA COLLECTION

Out of the patient's medical file, the following data were obtained:

- Demographics: age, parity, ethnicity, gestational age at delivery, BMI, employment, drugs or alcohol use, smoking, birth weight and Apgar scores
- During the days in hospital:
    - LATCH scores (based on the 'Zoek-hap-Zuigreflex schaal' registered by the midwifes at the ward) in case of breastfeeding
    - Pain scores registered by the midwifes at the ward
    - Pain medication

4.7. STATISTICS

As described above, the PEECS study consists of three 'contacts' with the couple:

1. Before delivery: interview 1 and Q1-A
2. Recently after delivery: Q2
3. Six weeks after delivery: interview 2 and Q1-B

Total and ordinal (the score for each question) questionnaire scores were registered in an Excel database.

Interviews were analyzed using qualitative content analysis, which means that all interviews were typed out and summarized. The summary of the interviews was achieved by specifically looking for the presence of key words or concepts within the texts and by relating them to each other. This process is often referred to as a relational content analysis (76). Due to recruitment difficulties and the fact that six women had a (variant of the) gentle cesarean section, which was unforeseen, the final PEECS population consisted out of 15 couples who had a standard cesarean section (multiparous as well as

nulliparous couples) and six couples who had a gentle cesarean section. None of these couples knew in advance they would have a more gentle approach to cesarean delivery. Therefore, the outcomes of the topics in the first interview were only compared between mothers and partners. To be able to compare the scores of Q1-A with Q1-B, the six couples that had a gentle cesarean section were analyzed separately, as were their outcomes of the final interview. All questionnaire scores were transformed to fit one and the same scale for that questionnaire. Thus, in case of a reverse scale, scores were adjusted so that they were in accordance with the 'normal' scale scores in that questionnaire. For Q1-A and Q1-B this means, the lower the (individual) score, the less fear of childbirth. For Q2, a higher total score represents a higher level of satisfaction.

Statistical analysis was performed using the JMP Pro Version 12.1.0. Given the small sample size, only non-parametrical statistical tests were used with the significance level set at $p<0.05$. All tests were two-sided.

Demographical data (women's age, BMI, ethnicity, parity, questionnaire scores…) were described using standard descriptive, non-parametrical statistics (medians, inter-quartile ranges, percentages). Differences in ordinal questionnaire scores between two groups (either between mothers and partners or between mothers or partners of the standard cesarean group versus those of the gentle cesarean group) were characterized using the Fisher Exact test. VAS, LATCH and total questionnaire scores were compared using the Wilcoxon Rank Sum test. The Wilcoxon Matched Pairs Signed Rank test was used to investigate the difference between Q1-A and Q1-B (pain) scores, between Q2 and Q1-B pain scores and between feeding scores of the first interview with those of the second interview. To test whether there is a relationship between the expected pain or breastfeeding scores and the perceived scores and between the preoperative questionnaire scores and the postoperative scores, the Spearman Rank Correlation test was applied.

4.7.1. POWER CALCULATION

Usually, qualitative research is performed until data saturation is achieved. However, there are no guidelines or rules that indicate in advance when data saturation will be obtained. Guest et al performed a methodological study and review in an attempt to standardize sample sizes in qualitative research. They found that, when the aim of the study is to describe a shared perception, belief or behavior among a relatively homogeneous group, a sample of 12 will be sufficient (77). Nevertheless, in this study, one of the goals was to compare the expectations and experiences of nulliparae with those of multiparae. Since both groups would be quite homogeneous because of the inclusion and exclusion criteria, a sample size of 24 women (12 women in each group) was chosen. However, due to recruitment difficulties and the fact that some of the women had a (variant of the) gentle cesarean section, the multiparous group and the nulliparous group were taken together into one group of 15 women. The six women who had a gentle cesarean section were not included in this group and their questionnaire scores and last interview were analyzed separately.

5. RESULTS

Of the proposed 24 patients, only 21 could be recruited for the PEECS study. Main limitations on eligibility were comorbidities, insufficient knowledge of Dutch to complete questionnaires and interviews and the absence of a partner. Three women, two multiparous women and one nulliparous woman, refused to participate in the study. Although this was not foreseen, six women had a (variant of the) gentle cesarean section. They were analyzed separately. During the course of the study, two couples were lost to follow-up and for them, there was no second interview or six weeks postoperative Q1-B. In addition, one couple and one additional partner in the standard group did not fill in the final questionnaire (Q1-B). Two partners in the standard group did not participate in the final interview.

Table 6 presents patient characteristics for both groups. Overall, the PEECS cohort is a selected cohort of healthy, employed, Caucasian women. There were no statistically significant differences concerning age, BMI, pregnancy duration, birth weight, Apgar scores, traumatic birth experience, indications for cesarean, conception, type of anesthesia and the choice for breastfeeding between the group that underwent standard cesarean section and the group that underwent a gentle cesarean. The most common indication in the standard group was repeat cesarean, followed by malpresentation and vaginal laceration. For the gentle cesarean group, the most common indication was malpresentation, followed by repeat cesarean section and abnormal placentation. Most women in both groups had a TAP-block to manage immediate postoperative pain. In each group, one woman received a TAP-block immediately after surgery but required extra pain treatment by PCEA.

	Patient characteristics		
	Standard cesarean (n = 15)	**Gentle cesarean (n = 6)**	**P**
Age (years, IQR)	30 (4)	28 (3.8)	NS
BMI (kg/m^2, IQR)	22.1 (2.6)	23.4 (5.8)	NS
Gestational age at delivery (weeks, IQR)	39 (1)	38.9 (1.1)	NS
Birth weight (g, IQR)	3420 (290)	3145 (693)	NS
Apgar 1min	9 (0)	9 (0.3)	NS
Apgar 5min	10 (0)	10 (0)	NS
Previous traumatic birth (n, %)	5 (33.3)	1 (16.7)	NS
Indication (n, %)			NS
Repeat cesarean	9 (60)	2 (33.3)	
Vaginal laceration	1 (6.7)	0	
Abnormal placentation	0	1 (16.7)	
Malpresentation	5 (33.3)	3 (50)	
Conception (n, %)			NS
Spontaneous	13 (86.7)	5 (83.3)	
ICSI	1 (6.7)	0	
IUI	1 (6.7)	1 (16.7)	
Smoking, alcohol or drug use (n, %)			NS
No	15 (100)	6 (100)	
Yes	0	0	
Ethnicity (n, %)			NS
Caucasian	15 (100)	6 (100)	
Employment (n, %)			NS
No	0	0	
Yes	14 (93.3)	6 (100)	
Unknown	1 (6.7)	0	
Type of anesthesia (n, %)			NS
PCEA	2 (13.3)	0	
TAP	10 (66.7)	4 (66.7)	
TAP + PCEA	*1 (6.7)*	*1 (16.7)*	
PCIA	1 (6.7)	0	
Unknown	1 (6.7)	1 (16.7)	
Planned on breastfeeding (n, %)			NS
Yes	11 (73.3)	5 (83.3)	
No	4 (26.7)	1 (16.7)	

Table 6. Patient characteristics. $\alpha = 0.05$. NS: not significant.

5.1. ANTEPARTUM INTERVIEW

The main outcomes of the first interview are detailed in Table 7 and Figure 2.

5.1.1. FEELINGS TOWARDS THE CESAREAN SECTION

Couples were asked how they felt towards the decision to deliver their baby via cesarean section. Most women and partners had positive or neutral feelings towards the decision to have a cesarean section and argued that this would be the safest option to deliver their baby. Nevertheless, eight (38.1%) women still reported to be disappointed with this decision and three (14.3%) felt afraid or hopeless.

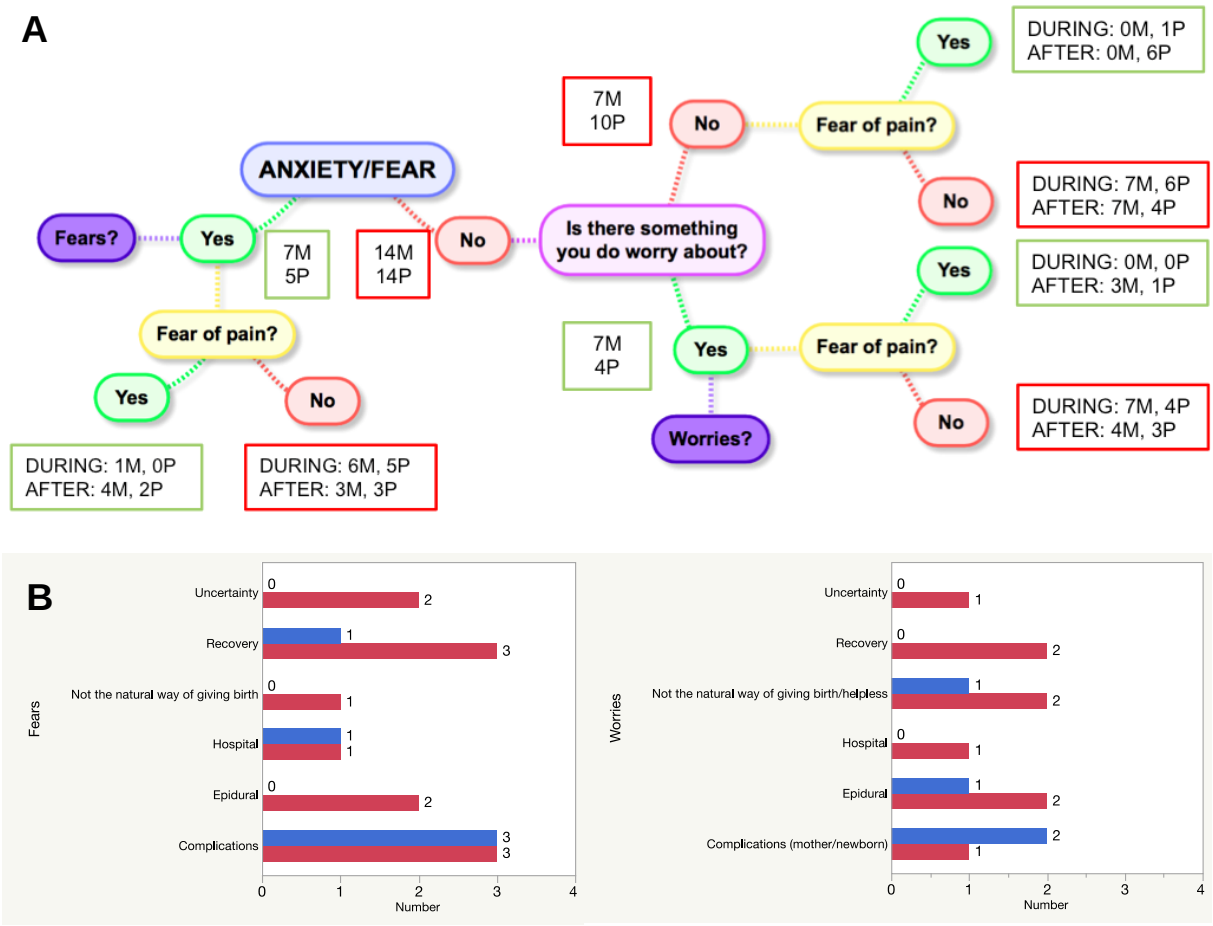

Figure 2. Schematic presentation of the fears and worries of couples in the PEECS study. A. Overview of the distribution concerning fears and worries in the PEECS study. DURING: Fear of pain during the cesarean section; AFTER: Fear of postoperative pain. M: Mothers; P: Partners. **B.** Reported fears and worries.

All couples were asked if they were anxious or afraid thinking of the delivery. Seven women (33.3%) and five partners (26.3%) reported they were afraid. They mentioned fears of complications, everything hospital-related, placement of the epidural, a difficult recovery, the uncertainty

accompanying an operative procedure and the fact that this type of procedure is not the natural way of giving birth. Most women and partners initially reported to have no fears towards the delivery. However, when these people were asked if there was something they worried about, half of the women and four partners reported the same worries or fears as those in the group that initially reported to be afraid.

5.1.2. EXPECTATIONS TOWARDS BREASTFEEDING AND CARE

5.1.2.1. EXPECTATIONS ON FEEDINGS AND INFLUENCE OF POSTOPERATIVE PAIN

When couples were asked what they expected of the first breastfeedings or bottle-feedings, most women and partners were prepared that breastfeeding would go rather slow or difficult at first. All multiparous couples that planned on breastfeeding already had the experience of breastfeeding after their previous delivery. Thereby the arguments 'it will go better than last time' or 'it will go equally as well as last time' are only applicable to them. Most women who were planning on bottle-feeding did not know what to expect because they either breastfed after their previous delivery or because it was their first child. Their partners were more positive and expected it to go well.

Most women and partners considered postoperative pain would have no influence on breastfeeding. Arguments to support this vision were:

- It is not the pain that could interfere with breastfeeding, but the lack of hormones that are produced during vaginal birth.
- A vaginal delivery is painful as well.
- If there's pain, this means that postoperative pain treatment should be increased.

Those who thought postoperative pain would have an influence reasoned that this would be because of a lack of mobility or because they would be less relaxed or at ease.

5.1.2.2. INFLUENCE OF POSTOPERATIVE PAIN ON THE CARE FOR THE NEWBORN

Couples were asked whether they thought postoperative pain would have an influence on the care for the newborn, provided by the mother. Most women and partners thought this would indeed have an influence during the first few days, due to a lack of mobility. They expected not to be able to get out of bed or even take the baby out of its cot during the first days in the hospital. Those who did not expect pain would have an influence reasoned that if the pain would increase and become intolerable, more pain treatment should be started.

5.1.3. KNOWLEDGE OF THE PROCEDURE

Couples were asked if they could explain the procedure step by step. Most couples had a realistic image of how the procedure would take place, except for when it came to the preoperative preparations (placement of the drip-feed and the urinary catheter) and complications. Complications that were mentioned most were blood loss and wound complications like infection. Six women (28.6%) and six partners (31.6%) were unable to mention any potential complications at all.

	ANTEPARTUM INTERVIEW	
	Mothers (n,%) n = 21	**Partners** (n,%) n = 19
FEELINGS TOWARDS THE DECISION TO DELIVER VIA CESAREAN SECTION (		
The fact that it is planned, is an advantage.	4 (19)	1 (5.3)
Neutral/Positive feelings since it is the safest option.	**8 (38.1)**	**13 (68.4)**
Fear/Hopelessness	3 (14.3)	3 (15.8)
Disappointment	**8 (38.1)**	2 (10.5)
EXPECTATIONS TOWARDS BREASTFEEDING/BOTTLE FEEDING AND CARE ***(N breastfeeding = 16; N bottle feeding = 5)***		
Influence of postoperative pain on breastfeeding/bottle feeding		
It will have an influence.	4 (25) / **3 (60**)	3 (15.8) / 2 (40)
It will have no influence.	**11 (52.4)** / 1 (20)	**8 (42.1) / 3 (60)**
I don't know if it will have an influence.	1 (4.8) / 1 (20)	3 (15.8)
Influence of postoperative pain on care for the newborn		
It will have an influence during the first few days.	**13 (61.9)**	**10 (52.6)**
It should not have an influence.	7 (33.3)	8 (42.1)
I don't know if it will have an influence.	0	1 (5.3)
Expectations towards the first breastfeedings/bottle feedings		
It will go better than last time.	1 (4.8)	1 (5.3)
It will go equally as well as last time/it will go well.	4 (19) / 1 (20)	**5 (26.3) / 4 (80)**
It will go slow or difficult at first.	**10 (47.6)**	**6 (31.6)**
I don't know what to expect.	1 (4.8) / **4 (80)**	2 (10.5) / 1 (20)
EXPECTATIONS TOWARDS DELIVERY		
Expectations		
Technical, not at all romantic	4 (19)	2 (10.5)
Step by step information	2 (9.5)	0
It will go smoothly, without complications and it will be over fast.	**8 (38.1)**	**14 (73.7)**
Excited/nervous (nulliparous)	5 (23.8)	0
Helpless/subjected/redundant	3 (14.3)	2 (10.5)
The delivery will go better than last time. (multiparous)	3 (14.3)	2 (10.5)
The recovery will be difficult.	1 (4.8)	0
The recovery will be easier than last time. (multiparous)	2 (9.5)	1 (5.3)
Involvement in childbirth		
Reassured when I can see/touch the baby.	6 (28.6)	5 (26.3)
Not much involved (screen blocking view/subjected/baby first to the partner)	**15 (71.4)**	6 (31.6)
Good/more involved than with previous delivery. (multiparous)	2 (9.5)	5 (26.3)
Hoping medical staff will not withhold information.	3 (14.3)	0
It's good I can support my wife more.	0	**8 (42.1)**
Interaction partner		
Interaction is possible, my partner will be next to me.	**20 (95.2)**	**15 (78.9)**
Interaction will not be ideal.	1 (4.8)	0
I don't know if this is possible.	0	4 (21.1)
Holding the baby for the first time		
Too bad I cannot hold the baby first.	4 (19)	0
The baby will be held first by the father – in the same room.	**13 (61.9)**	**16 (84.2)**
The baby will be held first by the father – in a separate room.	4 (19)	0
Maybe the baby will be held first by the mother.	4 (19)	1 (5.3)
I don't know who will hold the baby first.	0	2 (10.5)
Bonding with the baby		
It will be possible in the operating theatre if I can touch or see the baby.	8 (38.1)	2 (10.5)
It will be possible once I can hold the baby.	**12 (57.1)**	**17 (89.5)**
I don't know.	1 (4.8)	0

Table 7. Content analysis of the first (antepartum) structured interview. Key words or concepts that were used most are in bold.

EXPECTATIONS TOWARDS RECOVERY		
Expectations		
The first days will be the worst.	**6 (28.6)**	6 (31.6)
It will not be easy in general.	4 (19)	**6 (31.6)**
It will be fine with enough pain treatment.	**10 (47.6)**	5 (26.3)
I don't know what to expect.	1 (4.8)	2 (10.5)
Duration of recovery		
5 days	4 (19)	2 (10.5)
2 weeks	3 (14.3)	2 (10.5)
1 month	**9 (42.9)**	**7 (36.8)**
6 weeks	1 (4.8)	2 (10.5)
2 months	4 (19)	2 (10.5)
3-4 months	0	4 (21.1)

Table 7 ***(continuation).***

5.1.4. EXPECTATIONS TOWARDS DELIVERY

5.1.4.1. GENERAL EXPECTATIONS

Most women and partners expected the delivery to go smoothly and without any complications since it would be a routine planned cesarean section. They also emphasized they would like it to be over fast. Four women (19%) and two partners (10.5%) expected the delivery to be rather technical, and not at all as romantic as a 'normal' (vaginal) delivery. Multiparous women with previous negative experiences concerning delivery expected that the delivery and recovery would be easier to go through than last time, since this time it would be a planned cesarean section. Still, three women (14.3%) and one partner (5.3%) reported they would feel helpless, subjected or redundant.

5.1.4.2. EXPECTATIONS CONCERNING INVOLVEMENT IN CHILDBIRTH

The majority of women (71.4%) considered their involvement during childbirth would be minimal or less than during a vaginal birth. Several women reasoned this would be due to the screen blocking their view or because they would feel subjected. Arguments they used were:

- I just have to lie there, the surgeons do all the work for me. (mothers)
- It would be nice to see the baby come out, but this is not possible because of the screen. (mothers)
- I just have to be there, I will feel 'as the fifth wheel' until I can hold the baby. (partners)

Furthermore, six women (28.6%) and five partners (26.3%) mentioned they would feel reassured or more involved when they would be able to see, touch, or hold the baby during delivery. Most multiparous partners on the other hand reported that they estimated their involvement to be higher than with a vaginal birth or than the previous birth. They especially liked the fact that they would be able to support their wives more during the delivery.

5.1.4.3. EXPECTATIONS ON THE POSSIBILITY OF INTERACTION WITH THE PARTNER

Both the majority of mothers and partners had realistic views of the possibility of interaction during the cesarean section with the partner. They stated that the partner would sit next to the mother, and that they would be able to communicate during the procedure. Six partners (31.6%), however, did not know whether it would be possible to interact during surgery and one mother (4.8%) thought it would not be ideal to interact because she thought she would not be able to see her partner during delivery.

5.1.4.4. EXPECTATIONS ON WHO WILL HOLD THE BABY FIRST

Again, most mothers and partners had realistic views of what would happen immediately after delivery. They stated that it would be the partner who would get to hold the baby first for skin-to-skin contact and that partner and child could be in the operating theatre, next to the mother. On the other hand, four mothers (19%) were under the impression that the partner and the newborn would have to leave the operating theatre to reside in a warmer environment than the operating theatre. Four mothers (19%) specifically mentioned they felt sad they would not be able to hold the baby first and another four hoped the baby might come first to the mother during delivery. Of these four, eventually three had a (variant of the) gentle cesarean section.

5.1.4.5. EXPECTATIONS ON CREATING A BOND WITH THE BABY

Since they would not be able to hold the baby during delivery, and some were even not sure they would be able to see or touch the baby, most women (57.1%) thought the bonding process could only start when they could hold the baby, after completion of the surgery. In contrast, most partners (89.5%) knew they would get to hold the baby first during delivery and they thought the bonding process would start immediately.

5.1.5. EXPECTATIONS TOWARDS RECOVERY

When couples were asked what they expected of the postoperative recovery, most women (47.6%) presumed they would be able to handle it in combination with adequate pain treatment. Most partners (31.6%) stated that this recovery should not be underestimated and thought it would be a difficult period to go through, especially for those who already had children. With reference to the duration of recovery, opinions varied from five days up to four months. However, the majority indicated one month as the time point at which most women would be able to resume their daily activities.

5.2. POSTPARTUM INTERVIEW

Two couples were lost to follow-up, and two partners were not able to perform the last interview of the study. Thus, in the standard cesarean section group, there were 11 interviews of the partners and 13 interviews of the mothers in the PEECS study. All couples in the gentle cesarean group completed the questionnaires and the interviews. The main outcomes of the first interview are detailed in Table 8.

5.2.1. TO WHICH EXTENT EXPECTATIONS WERE MET

Among all groups, most participants considered their expectations were well met since they had been well informed in advance. Two couples in the standard group – especially the mothers – regretted the fact that the staff did not show the baby immediately after it was born. Two mothers (15.4%) and two partners (18.2%) in the standard group versus none in the gentle group, felt that the procedure was quite impersonal and overwhelming. In the gentle group, two mothers (33.3%) and two partners (33.3%) thought the delivery went better than expected.

5.2.1.1. INTERACTION AND HOLDING THE BABY

All participants felt that it was possible to interact with their partner, although some of them mentioned interaction was difficult when the partner had to sit behind the woman instead of immediately next to her. When couples were asked when they were able to hold the baby for the first time, most women (84.6%) in the standard group mentioned they could not hold or barely touch the baby because their hands were tied, which they regretted. Two women (15.4%), although they were asked if they wanted to breastfeed in the operating theatre, did not want to hold the baby because they did not feel ready and because they felt very tense. All partners in this group were able to hold the baby for the first time, while they sat next to their wife and they appreciated this very much. By contrast, in the gentle cesarean group, all women were able to hold the baby immediately during surgery and they thought this was a fantastic experience. However, for two women (33.3%) this soon became too uncomfortable and they had to hand the baby over to the partner. After a while, all partners in the gentle cesarean group took over the baby during surgery.

5.2.2. PAIN

Two women (15.4%) in the standard group were in pain during the cesarean section and one partner (9.1%) thought his wife was in pain during delivery. Most participants in the gentle and standard group reported (their wives) not to have had too much pain during delivery, they only felt a strange feeling of pushing and pulling. In the standard group, six women (46.2%) reported that the first days were extremely painful (more than was expected), or in the case of multiparous women, the first days were more painful than after their previous delivery. Another six women and the majority of partners (63.6%) in this group stated that the mothers indeed had experienced pain, but they felt it was bearable with the pain treatment that was provided. The majority of mothers (66.7%) and partners (83.3%) in the gentle group thought the first days after the cesarean were extremely painful, more so than was expected.

5.2.3. BREASTFEEDING AND CARE FOR THE NEWBORN

In both groups, breastfeeding and bottle-feeding went well. When participants were asked whether they thought that postoperative pain influenced the course of breastfeeding, the majority answered that was not the case. The same applies to the group that bottle-fed, except for two women (66.7%) in the standard group who felt it did have an influence during the first days; they felt less mobile and

more restricted in their abilities. The majority of all participants felt that postoperative pain did have an influence on the care for the newborn provided by the mother, they felt less mobile and were not able to perform basic care for the newborn at first (changing diapers, bathing, taking the baby out of its cot…). According to most participants, the experience of delivery had no influence on the course of breastfeeding or bottle-feeding. However, in the gentle cesarean group, the only woman who bottle-fed, said her experience had a positive influence on the course of feeding. One partner in the standard group thought the delivery experience had a negative influence on feeding because the baby was not given to the mother first in the operating theatre. Six weeks after delivery, breastfeeding went well in most cases, however, in the standard group, two couples (20%) had to give up breastfeeding because of severe mastitis or because the baby did not drink properly.

5.2.4. POSTOPERATIVE RECOVERY AND MOBILISATION

According to most participants, recovery had been as expected. In the standard group three women (23.1%) reported their recovery was slower than originally expected and another three women were still in pain, six weeks after delivery. Postoperative mobilization was extremely painful according to most women (76.9%) in the standard group. By contrast, the majority of women (66.7%) in the gentle group thought mobilization went well, or in the case of multiparous women, easier than the time before.

5.2.5. EXPERIENCES DURING DELIVERY

In the standard cesarean group most mothers (53.8%) and partners (54.5%) felt tense and rather overwhelmed during delivery, while 36.4% of partners felt the delivery was a nice experience. The majority of participants in the gentle cesarean group reported to have had a nice experience as well. However, equally as many women in the gentle group did feel tense or overwhelmed during delivery.

5.2.5.1. FEAR OR ANXIETY DURING DELIVERY

Half of the women and half of the partners in the gentle group were afraid or anxious during delivery, while the other half was not. They reported fear of the epidural and anxiety because they felt overwhelmed by the set-up of the operating theatre. The majority of this group felt reassured by the medical staff and for the mothers, especially the midwives and the anesthesiologist comforted them by explaining what the surgeon was doing step by step. The partners in this group felt most comforted by the surgeon and the midwives. Still, two partners and one mother in this group reported they could have been more reassured by the medical staff. In the standard group, the majority of mothers and partners were not afraid. Most participants in this group felt they were put at ease by members of the staff and it was the anesthesiologist who played the largest role in comforting them during delivery. Most participants had no fear for the baby's health.

5.2.6. INVOLVEMENT IN CHILDBIRTH

In the gentle group, most participants felt involved during delivery, while the majority in the standard group felt less involved. They mentioned the lack of control, the fact that they could not see the baby being born and feeling subjected.

5.2.6.1. BONDING WITH THE BABY

All women in the gentle cesarean group were able to hold the baby immediately after birth and most (66.7%) felt it was possible to establish a bond with the baby from then on. However, two women (33.3%) soon did not feel comfortable enough to hold the baby during surgery, so they had to pass the baby to their partners. They mentioned that the establishment of the bond between mother and child rather took place after surgery. Most women (61.5%) in the standard cesarean group were only able to start bonding with the baby after surgery was completed. Partners (72.7%) in the standard group were able to bond with the baby during surgery, since they got to hold the baby. Three partners (27.3%) and one mother (7.7%) mentioned it was difficult for them to establish the bond straightaway, because they were too tense. Most partners (66.7%) in the gentle cesarean group were able to start bonding during delivery because they were able to hold the baby after a while when the mother felt too uncomfortable to hold the baby. However, two partners (33.3%) thought bonding was only possible after completion of surgery.

5.2.7. DURATION OF HOSPITAL STAY

Across all groups, the majority of participants wanted to stay at the hospital as long as possible, they did not want to change anything about the duration of their stay. These participants stated they really needed the professional care during those days. Only one couple in the standard group and one in the gentle group left earlier because they felt they were ready to do so. Few participants in the standard group mentioned their stay was too long and they had been ready to leave earlier than they did.

5.2.8. FUTURE PREGNANCY

All couples were asked which mode of delivery they would prefer, medical indications left aside. The majority of women in the standard group preferred to deliver vaginally in the future. They reasoned:

- The recovery would be easier.
- The birth process would be more natural.
- I would like to experience a vaginal birth.
- There is a smaller chance of complications.
- I would be able to establish a bond more quickly.
- I would not need to undergo epidural anesthesia.

As far as the partners in this group are concerned, four (36.4%) preferred a cesarean section in the future because they thought it would be far more comfortable for the mother. Another four partners said they had no specific preference. All women in the gentle group wanted to have a vaginal birth in

the future, for the same reasons as mentioned for the standard group. The opinion of the partners in this group varied.

5.2.9. CONTENTMENT AND BIRTH EXPERIENCE

All in all, all participants were satisfied with the course of the delivery and most had a positive experience. Perioperative and postoperative support and care were the number one contributors to this positive outcome. One woman (7.7%) in the standard group was not content because she had been feeling extremely afraid throughout delivery. She reported to have had a rather negative birth experience. One woman (7.7%) in this group had a neutral birth experience. She reasoned the cesarean section was something she had to go through and it was not a wonderful experience, like a 'natural' birth would be, but there had been no complications either.

5.2.10. WHAT COULD HAVE BEEN DONE BETTER?

All couples were asked if there was anything they would have changed or done differently concerning delivery. Four women (30.8%) in the standard group again emphasized the importance of providing enough information during delivery and explaining every step. Two women (15.4%) thought the atmosphere in the operating theatre was rather stressful and cold. Another two women felt lonely during the procedure because the medical staff did not show the baby right away and both thought it was a pity their baby was weighed a few hours after delivery instead of immediately after. Other remarks were limited to the stay at the maternity ward. Partners in the standard group also would like to be informed more, especially when the final part of surgery (suturing) took longer than they expected. In the gentle group, one woman (16.7%) mentioned the hospital should promote gentle cesarean sections more since she had an entirely different (better) experience than she had after her first (standard) cesarean delivery. One woman and one partner would like a more private and relaxing atmosphere in the recovery room. One partner would like more straightforward information when it came to breastfeeding, he suggested setting up a central question platform.

	POSTPARTUM INTERVIEW			
	Standard cesarean group		**Gentle cesarean group**	
	Mothers (n,%) (n=13)	Partners (n,%) (n=11)	Mothers (n,%) (n=6)	Partners (n,%) (n=6)
TO WHICH EXTENT EXPECTATIONS WERE MET				
Well informed	**6 (46.2)**	**6 (54.5)**	**3 (50)**	**3 (50)**
Placement of the epidural was not as expected	2 (15.4)	0	1 (16.7)	1 (16.7)
It took longer than expected	2 (15.4)	3 (27.3)		
Better than expected		1 (9.1)	2 (33.3)	2 (33.3)
Didn't feel well	1 (7.7)			
Impersonal, overwhelming	2 (15.4)	2 (18.2)		
Too bad they didn't show the baby after delivery	2 (15.4)	2 (18.2)		
Interaction partner				
Possible	**13 (100)**	**11 (100)**	**6 (100)**	**6 (100)**

Table 8. Content analysis of the final (postpartum) structured interview. Key words or concepts that were used most are in bold.

Holding the baby				
Tied up, able to see baby	**11 (84.6)**			
Good, next to wife and baby with me		**11 (100)**		
Wasn't ready to take the baby during delivery	2 (15.4)			
Mother could take the baby, but uncomfortable			2 (33.3)	2 (33.3)
Mother could take the baby – fantastic			**4 (66.7)**	**4 (66.7)**
PAIN				
Pain during				
Yes	2 (15.4)	1 (9.1)		1 (16.7)
No, only weird feeling of pushing and pulling	**11 (84.6)**	**7 (63.6)**	**6 (100)**	**4 (66.7)**
Epidural – pain was worse than expected	2 (15.4)	4 (36.4)		1 (16.7)
Afterwards				
First days extremely painful/more than last time	**6 (46.2)**	3 (27.3)	**4 (66.7)**	**5 (83.3)**
Less than last time	1 (7.7)	1 (9.1)		
Yes, but pain treatment was adequate	**6 (46.2)**	**7 (63.6)**	2 (33.3)	1 (16.7)
FEEDINGS AND CARE FOR THE NEWBORN				
Breastfeeding	*n=10*	*n=10*	*n=5*	*n=5*
In general, good	**8 (61.5)**	**8 (80)**	**5 (100)**	**5 (100)**
Very difficult	2 (15.4)	2 (20)		
Bottle feedings	*n=3*	*n=1*	*n=1*	*n=1*
Immediately good	**2 (15.4)**	**1 (100)**	**1 (100)**	**1 (100)**
After a few tries	1 (7.7)			
Influence postoperative pain on feedings				
Breastfeeding/bottle-feeding	*n=10/n=3*	*n=10/n=1*	*n=5/n=1*	*n=5/n=1*
No	**7 (70)**/1 (33.3)	**6 (60)/1 (100)**	**4 (80)/1 (100)**	**5 (100)/1 (100)**
Yes	3 (30)/**2 (66.7)**	3 (30)	1 (20)	
Don't know		1 (10)		
Influence postoperative pain on care for the newborn				
Yes	**10 (76.9)**	**9 (81.8)**	**5 (83.3)**	**3 (50)**
No	3 (23.1)	2 (18.2)	1 (16.7)	3 (50)
Influence of birth experience				
Breastfeeding/Bottle-feeding	*n=10/n=3*	*n=10/n=1*	*n=5/n=1*	*n=5/n=1*
Positively	1 (10)	2 (20)	2 (40)/**1 (100)**	1 (20)
No	**7 (70)/3 (100)**	**7 (70)**	**3 (60)**	**4 (80)/1 (100)**
I don't know	2 (20)	1 (10)		
Negatively		**1 (100)**		
Feeding now				
Breastfeeding/Bottle-feeding	*n=10/n=3*	*n=10/n=1*	*n=5/n=1*	*n=5/n=1*
Good on average	2 (20)	**4 (36.4)**	1 (20)	1 (20)
Very good	**5 (50)/3 (100)**	**4 (36.4)/1 (100)**	**4 (80)/1 (100)**	**4 (80)/1 (100)**
Quitted breastfeeding	2 (20)	2 (18.2)		
Very difficult	1 (10)			
RECOVERY				
More difficult/slower than expected	3 (23.1)	1 (9.1)	2 (33.3)	1 (16.7)
As expected, OK	**7 (53.8)**	**8 (72.7)**	**4 (66.7)**	**5 (83.3)**
Good, but still in pain, 6 weeks after delivery	3 (23.1)	2 (18.2)		
MOBILIZATION				
Extremely painful	**10 (76.9)**	**6 (54.5)**	2 (33.3)	2 (33.3)
Good/Easier than last time	3 (23.1)	5 (45.5)	**4 (66.7)**	**4 (66.7)**

Table 8 ***(Continuation).***

EXPERIENCES DURING DELIVERY				
Good because of interaction with staff	1 (7.7)			
Subjected/synthetic	3 (23.1)	1 (9.1)		
Didn't expect to feel the pushing and pulling	3 (23.1)			
Nice experience	1 (7.7)	4 (36.4)	**3 (50)**	**4 (66.7)**
Tense/overwhelmed	**7 (53.8)**	**6 (54.5)**	**3 (50)**	2 (33.3)
Fear/anxiety				
Yes	4 (30.8)	4 (36.4)	**3 (50)**	**3 (50)**
No	**9 (69.2)**	**7 (63.6)**	**3 (50)**	**3 (50)**
Put at ease (by…)				
Yes	**11 (84.6)**	**9 (81.8)**	**5 (83.3)**	**4 (66.7)**
No	2 (15.4)	2 (18.2)	1 (16.7)	2 (33.3)
By				
Gynecologist (surgeon)	6 (46.2)	5 (45.5)	3 (50)	**4 (66.7)**
Midwife	7 (53.8)	6 (54.5)	**4 (66.7)**	**4 (66.7)**
Anesthesiologist	**9 (69.2)**	**8 (72.7)**	**4 (66.7)**	3 (50)
Fear for health newborn				
Yes	2 (15.4)	2 (18.2)	1 (16.7)	2 (33.3)
No	**11 (84.6)**	**9 (81.8)**	**5 (83.3)**	**4 (66.7)**
INVOLVEMENT				
Minimally	**7 (53.8)**	**6 (54.5)**	2 (33.3)	2 (33.3)
Yes	6 (46.2)	5 (45.5)	**4 (66.7)**	**4 (66.7)**
Bonding				
No, only after completion of surgery	**8 (61.5)**	0		2 (33.3)
Yes, because I got to see/hold (partner) the baby	4 (30.8)	**8 (72.7)**		**4 (66.7)**
Difficult	1 (7.7)	3 (27.3)		
Yes, mother could hold baby, but was uncomfortable			2 (33.3)	
Right away, mother could hold baby			**4 (66.7)**	
DURATION OF HOSPITAL STAY				
As long as is allowed	**11 (84.6)**	**9 (81.8)**	**4 (66.7)**	**4 (66.7)**
Too long	1 (7.7)	2 (18.2)		
Left earlier	1 (7.7)		2 (33.3)	
NEXT PREGNANCY				
Vaginal	**10 (76.9)**	3 (27.3)	**6 (100)**	**2 (33.3)**
Cesarean		**4 (36.4)**		**2 (33.3)**
Don't know – no specific preference	3 (23.1)	**4 (36.4)**		**2 (33.3)**
CONTENTMENT				
Yes	**12 (92.3)**	**11 (100)**	**6 (100)**	**6 (100)**
No	1 (7.7)			
Birth experience				
Positive	**11 (84.6)**	**11 (100)**	**6 (100)**	**6 (100)**
Negative	1 (7.7)			
Neutral	1 (7.7)			

Table 8 ***(continuation).***

5.3. QUESTIONNAIRES

One mother (6.7%) and three partners (20%) in the standard cesarean group were not able to fill out the first questionnaire. This was either because partners reported to be too busy or due to the fact that labor started earlier and cesarean delivery had to take place a few days earlier. One partner (6.7%) did not fill in the postoperative questionnaire Q2 and two couples (13.3%) were lost to follow-up, with an additional two partners (13.3%) not having filled in the postpartum questionnaire Q1-B.

Table 9 represents the first part of questionnaire Q1-A, which contains background information. In table 10, 11 and 13 individual median ordinal and total questionnaire scores are summarized. All reverse scores were transformed to fit the same scale.

Most women knew they would deliver by cesarean section more than three weeks in advance. When couples were asked whether they were well informed, the majority answered that they were well informed, although there were two partners and one woman who considered themselves not well informed. The physician had the greatest role in informing the couples and most couples were satisfied with this information (Table 9).

	Q1-A Background information			
	Standard cesarean group		**Gentle cesarean group**	
	Mothers (n=14)	Partners (n=12)	Mothers (n=6)	Partners (n=6)
How long have you known? N(%)				
<1 week	2 (14.3)		1 (16.7)	
1-3 weeks	5 (35.7)		1 (16.7)	
>3 weeks	7 (50)		4 (66.7)	
Do you think you are well informed?				
Median (IQR)	4 (0.25)	4 (0)	4 (1.25)	3.5 (2)
Who informed you?				
Doctor N(%)	13 (92.9)	10 (83.3)	6 (100)	5 (83.3)
Median (IQR)	5 (0.5)	4.5 (1)	4.5 (1)	5 (1.5)
Brochure N(%)	5 (35.7)	1 (8.3)	2 (33.3)	1 (16.7)
Median (IQR)	4 (1.5)	3 (0)	4 (0)	5 (0)
Internet N(%)	5 (35.7)	2 (16.7)	2 (33.3)	1 (16.7)
Median (IQR)	4 (1)	3 (0)	3 (2)	4 (0)
Family or friends N(%)	7 (50)	3 (25)	4 (66.7)	1 (16.7)
Median (IQR)	4 (1)	2 (3)	4 (1.5)	1 (0)
Literature N(%)	0	1 (8.3)	1 (16.7)	0
Median (IQR)		3 (0)	4 (0)	
Other N (%)	3 (21.4)	3 (25)	1 (16.7)	2 (33.3)

Table 9. Q1-A: background information on how well and by whom the couples were informed. Contentment with the information provided, was rated on a scale of 1 to 5: 1 (very dissatisfied) – 2 (dissatisfied) – 3 (no opinion) – 4 (moderately satisfied) – 5 (very satisfied), median scores were used. 'Other': prenatal courses, midwife, previous cesarean section.

Table 10 summarizes median ordinal and total questionnaire scores for the first questionnaire, Q1-A. There were no significant differences in total questionnaire scores and no group showed significant fear of childbirth (which would require a score of ≥41). However, there were two women and one partner in the standard cesarean group, who scored high on the first questionnaire, which indicates fear of childbirth. The same was seen for one woman and one partner in the gentle group. There were no statistically significant differences in individual scores between mothers in the standard and the gentle group. The same applies to the partners. When mothers and partners were compared in the standard cesarean group, partners expected they would be more tense than their wives during delivery. Also, mothers expected to feel less happy than their partners during delivery ($p<0.05$). Interestingly, women and partners expected to feel deserted, insecure and rather tense during delivery, as they all scored high on 'Deserted', 'Sure', 'Tense' and 'Relaxed'. The pain scores expected during and six weeks after delivery were similar across all groups. However, for the pain

expected five days after delivery, partners in the gentle group expected their wives to be in more pain by assigning them a higher pain score. This difference could also be seen when reported pain scores were compared between the partners in the gentle and the standard group: partners in the gentle group expected their wives to be in more pain than partners in the standard group did.

	Q1-A total questionnaire scores and individual ordinal scores							
	Standard cesarean group			**Gentle cesarean group**			**P S vs. G Mothers**	**P S vs. G Partners**
	Mothers (n=14)	Partners (n=12)	P Mothers – Partners	Mothers (n=6)	Partners (n=6)	P Mothers – Partners		
Total questionnaire scores (/80)								
Total score, (median, IQR)	32.5 (10.5)	28 (12.75)	NS	30 (9)	28 (15)	NS	NS	NS
Score ≥41 (n, %)	2 (14.3)	1 (8.3)		1 (16.7)	1 (16.7)			
Individual questionnaire scores (Median, IQR)								
Fantastic	2 (1)	2.5 (2)	NS	2 (2.25)	2 (1.5)	NS	NS	NS
Lonely	1 (2)	1 (1)	NS	1 (2.25)	1 (1.25)	NS	NS	NS
Sure	3 (1.625)	3 (1.75)	NS	3.5 (2)	3.5 (1.25)	NS	NS	NS
Afraid	2.75 (1.25)	1,5 (2.75)	NS	2.5 (1.5)	1.5 (1.75)	NS	NS	NS
Deserted	4 (1.5)	3 (1.75)	NS	3.5 (1.75)	4 (2)	NS	NS	NS
Safe	2 (1.25)	1 (2.5)	NS	1 (2.25)	1.5 (2.5)	NS	NS	NS
Tense	2.25 (1)	3 (1)	0.0278*	3 (0.5)	3.5 (1.5)	NS	NS	NS
Happy	3 (1)	1.5 (1)	0.0212*	2 (1.75)	2 (2.25)	NS	NS	NS
Abandoned	1 (1.25)	0 (1)	NS	1.5 (2.25)	1 (0.5)	NS	NS	NS
Relaxed	3 (1.625)	3 (1)	NS	3 (0.25)	3 (1.5)	NS	NS	NS
Panic	2 (2)	1 (2.75)	NS	2 (1.5)	1.5 (1.25)	NS	NS	NS
Hopelessness	1 (2)	1 (1.75)	NS	1.5 (1.5)	0.5 (1.25)	NS	NS	NS
Longing for the child	1 (1.5)	1 (1)	NS	0 (1)	0 (0.25)	NS	NS	NS
Trust	2 (1.25)	1 (1.75)	NS	1 (1.5)	1 (2.5)	NS	NS	NS
Death child	1 (3)	0 (1)	NS	0.5 (1)	1 (3.25)	NS	NS	NS
Injury child	0 (2.25)	0 (2)	NS	1 (1.25)	1 (0.5)	NS	NS	NS
Pain during	1.4 (3.175)	1.45 (5.325)	NS	1.1 (4.075)	1.6 (4.45)	NS	NS	NS
Pain 5d after	6.2 (3.175)	6.75 (2.975)	NS	5.7 (3.475)	7.8 (0.7)	0.0303*	NS	0.0113*
Pain after 6w	1.55 (2.525)	1.8 (3.45)	NS	2.85 (3.75)	3.25 (2.625)	NS	NS	NS

Table 10. Individual questionnaire scores were rated on a scale of 0 to 5. Pain scores were rated on a 10cm VAS scale. S: standard cesarean group; G: gentle cesarean group; $\alpha = 0.05$; NS: not significant; *: significant difference, $p<0.05$.

Total and individual scores for the postoperative questionnaire Q2 are presented in table 11. Again, there were no significant differences between groups concerning total questionnaire scores. All couples scored a total score of above 35 and thus were rather satisfied of their cesarean section. When mothers and partners were compared in the standard cesarean group, partners were more able to see the baby during delivery than mothers ($p<0.05$). This difference was not seen in the gentle cesarean group where mothers and partners scored maximally on this question. There was a marginally significant difference in the gentle cesarean group between mothers and partners

concerning feelings of control: mothers felt more in control than their partners during delivery. In fact, all subjects scored lowest on the item 'Feelings of control'. In reference to pain scores five days after surgery, partners in the gentle group considered their wives to have been in more pain than partners in the standard group.

	Q2 total questionnaire scores and individual ordinal scores							
	Standard cesarean group			**Gentle cesarean group**			**P S vs. G Mothers**	**P S vs. G Partners**
	Mothers (n=14)	Partners (n=14)	P Mothers – Partners	Mothers (n=6)	Partners (n=6)	P Mothers – Partners		
Total questionnaire scores (Median, IQR)								
Total scores (/50)	35.2 (9)	38.5 (6.2)	NS	39.4 (7.1)	40.1 (4.7)	NS	NS	NS
Individual scores (Median, IQR)								
Safe anesthetic mother	5.5 (2)	5 (1.25)	NS	5 (0.25)	5 (1.25)	NS	NS	NS
Safe anesthetic baby	5.5 (1.25)	5 (1.25)	NS	5 (1)	5 (1)	NS	NS	NS
Comfortable position	4 (3.25)			4.5 (1.75)			NS	
Feelings of control	2 (1.25)	2 (2)	NS	3 (0.75)	2 (1.5)	0.0476*	NS	NS
Communication staff	5 (2)	5 (2.25)	NS	6 (1)	5.5 (1)	NS	NS	NS
Able to see baby	4.5 (2.25)	6 (0.25)	0.0165*	6 (0)	6 (0.25)	NS	NS	NS
Cesarean took very long	3.5 (2.25)	4 (2)		4.5 (2.25)	5.5 (1.5)	NS	NS	NS
Knew what staff was doing	4 (2.5)	4.5 (2.25)	NS	4.5 (1.25)	5 (1.5)	NS	NS	NS
Nice atmosphere	4 (2.5)	4 (1)	NS	4.5 (2.25)	5 (0.25)	NS	NS	NS
Pain during	1 (3.825)	2.2 (1.5)	NS	0.25 (1.9)	1.9 (4.225)	NS	NS	NS
Pain 5d after	4.85 (3.25)	5.3 (3.9)	NS	6.7 (4.335)	6.9 (1.675)	NS	NS	0.0185*

Table 11. Individual scores were rated on a scale of 1 to 6. S: standard cesarean group; G: gentle cesarean group; $\alpha = 0.05$; NS: not significant; *: significant difference, $p<0.05$.

LATCH scores and pain scores that were registered in hospital are represented in Table 12. Interestingly, both groups reported higher five days pain scores in the second (postoperative) questionnaire than those registered during the mother's hospital stay. These differences were statistically significant ($p = 0.0002$ for the standard group and $p = 0.0313$ for the gentle group). There were no differences in registered pain and LATCH scores between the standard and the gentle group.

Table 13 shows the scores for the six weeks postpartum questionnaire, Q1-B. In general, median total scores for all groups are lower than those reported in Q1-A. However, interquartile ranges for these scores are large and there were no statistically significant differences between total scores of Q1-A and those of Q1-B. In the standard group, there were two women and one partner who still had clinically relevant fear of childbirth (score ≥41). One partner in the gentle group feared childbirth. Looking at individual ordinal scores, mothers in the gentle cesarean group were more afraid than their partners ($p<0.05$). All groups felt rather tense and deserted during delivery as they all scored high on 'Relaxed', 'Tense' and 'Deserted'. Partners in the gentle cesarean group thought their wives were in more pain during delivery than partners of the standard cesarean group.

	Registered scores during hospital stay		
	Standard cesarean	**Gentle cesarean**	P
Pain score 5 days hospital	2 (0)	1.75 (1)	NS
LATCH 5 days	8.5 (2.25)	8.5 (1)	NS

Table 12. Median pain and LATCH scores registered in hospital. (Median, IQR).

	Q1-B total questionnaire scores and individual ordinal scores							
	Standard cesarean group			**Gentle cesarean group**			**P S vs. G Mothers**	**P S vs. G Partners**
	Mothers (n=12)	Partners (n=11)	P Mothers – Partners	Mothers (n=6)	Partners (n=6)	P Mother – Partner		
Total scores (/80)								
Total scores (Median, IQR)	28 (20.25)	26 (6)	NS	22.3 (14.5)	21.5 (18.5)	NS	NS	NS
Score ≥41 (n, %)	2 (16.7)	1 (9.1)		0	1 (16.7)			
Individual scores (Median, IQR)								
Fantastic	2 (1)	2 (1)	NS	2 (1.25)	1.5 (2.25)	NS	NS	NS
Lonely	1.5 (2.875)	1 (1)	NS	0.5 (1)	0.5 (1.25)	NS	NS	NS
Sure	3 (1.75)	3 (1)	NS	2 (0.5)	2 (2.25)	NS	NS	NS
Afraid	2 (2)	1 (1)	NS	2.5 (3)	1 (0.5)	0.0152*	NS	NS
Deserted	3.5 (2.5)	3 (2)	NS	4 (2)	2.5 (2.5)	NS	NS	NS
Safe	1.25 (1.75)	2 (1)	NS	1.5 (1.25)	2 (3)	NS	NS	NS
Tense	2.5 (2.5)	3 (2)	NS	3 (1.25)	2.5 (1.25)	NS	NS	NS
Happy	2 (1.75)	2 (1)	NS	2 (2.25)	1.5 (4)	NS	NS	NS
Abandoned	1 (1.75)	1 (2)	NS	0.5 (1.25)	0.5 (1.5)	NS	NS	NS
Relaxed	3 (1.75)	3 (1)	NS	2.5 (3)	3 (1)	NS	NS	NS
Panic	1 (1.75)	1 (2)	NS	1 (2)	0.5 (1.25)	NS	NS	NS
Hopelessness	1(2)	1 (1)	NS	0.5 (1.25)	0.5 (1.25)	NS	NS	NS
Longing for the child	1 (2)	1 (1)	NS	1 (1.5)	0.5 (1)	NS	NS	NS
Trust	2 (1)	1 (1)	NS	1.5 (1.5)	1 (1.25)	NS	NS	NS
Child will die	0.5 (1)	0 (1)	NS	0 (1.25)	0.5 (2.25)	NS	NS	NS
Child will be injured	1 (2)	1 (2)	NS	1 (1)	1 (1.5)	NS	NS	NS
Pain during	1.55 (4.575)	2.3 (5)	NS	1.1 (2.375)	0.65 (2.675)	NS	NS	0.0493*
Pain 5d after	4.95 (4.075)	5.5 (3.4)	NS	5 (5.925)	6.2 (2.875)	NS	NS	NS
Pain after 6w	0 (0.375)	0.5 (1.1)	0.0308*	0.8 (3.575)	1.75 (3.9)	NS	NS	NS

Table 13. Individual questionnaire scores were rated on a scale of 0 to 5. Pain scores were rated on a 10cm VAS scale. S: standard cesarean group; G: gentle cesarean group; $\alpha = 0.05$; NS: not significant; *: significant difference, $p<0.05$.

In table 14 the correlations between total questionnaire, pain and breastfeeding scores were investigated. There were no statistical differences between the pain scores reported in questionnaire Q2 and those reported in questionnaire Q1-B, which means a comparison of expected (Q1-A) and experienced (Q1-B) pain scores is acceptable. In the gentle cesarean group mothers and partners scored significantly lower on the Q1-B questionnaire than on Q1-A: as such, they had less fear of

childbirth than they initially expected. These differences were not seen in the standard group. No correlation was found between total scores on Q1-A and those of Q1-B for mothers in the gentle group, but a positive correlation was seen among partners: the lower they rated their fear in Q1-A, the lower they would rate their fear in Q1-B. There were no significant differences between expected and experienced pain scores during the cesarean section. For mothers and partners in the standard group, a significant positive correlation was found between expected and experienced pain scores during surgery. Partners in the gentle group indicated lower pain scores for the five days postpartum. For mothers in the standard group, there was a significant correlation between expected and experienced five days pain scores. Concerning six weeks postoperative pain, mothers in the standard group experienced lower pain scores than expected. However, none of the groups showed a significant correlation between expected and experienced pain scores after six weeks. The correlation of expectations of bottle feedings versus the experiences was not performed since there was too much missing data due to a loss to follow-up. However, regarding the comparison of expected and experienced quality of breastfeeding, a significant positive correlation was found between the scores of mothers in the standard cesarean group. Expected and experienced breastfeeding scores did not differ between or within groups.

	Correlation			
	Standard cesarean group		**Gentle cesarean group**	
	Mothers	Partners	Mothers	Partners
Total questionnaire scores				
Q1-A	32.5 (10.5)	28 (12.75)	30 (9)	28 (15)
Q1-B	28 (20.25)	26 (6)	22.3 (14.5)	21.5 (18.5)
P (Q1-A vs. Q1-B)	NS	NS	0.0313*	0.0313*
Spearman	NS	NS	*0.9411*	*0.0051**
P				
Pain during cesarean				
Q1A (expected)	1.4 (3.175)	1.45 (5.325)	1.1 (4.075)	1.6 (4.45)
Q1B (experienced)	1.55 (4.575)	2.3 (5)	1.1 (2.375)	0.65 (2.675)
P (Q1-A vs. Q1-B)	NS	NS	NS	NS
Spearman	*0.6529*	*0.8368*	NS	NS
P	*0.0294**	*0.0049**		
Pain 5 days after cesarean				
Q1A (expected)	6.2 (3.175)	6.75 (2.975)	5.7 (3.475)	7.8 (0.7)
Q1B (experienced)	4.95 (4.075)	5.5 (3.4)	5 (5.925)	6.2 (2.875)
P (Q1-A vs. Q1-B)	NS	NS	NS	0.0469*
Spearman	*0.6241*	NS	NS	NS
P	*0.0401**			
Pain after 6 weeks				
Q1A (expected)	1.55 (2.525)	1.8 (3.45)	2.85 (3.75)	3.25 (2.625)
Q1B (experienced)	0 (0.375)	0.5 (1.1)	0.8 (3.575)	1.75 (3.9)
P (Q1-A vs. Q1-B)	0.0020*	NS	NS	NS
Spearman	NS	NS	NS	NS
P				
Bottle feedings:	N = 4, $N_{miss.}$ = 1	N = 4, N_{miss} = 3	N = 1	N = 1
Interview 1 (expected)	7 (1.275)	7.75 (2.625)	7 (0)	9 (0)
Interview 2 (experienced)	8.5 (1.5)	8.5 (0)	8 (0)	8 (0)
Breastfeedings:				
Interview 1 (expected)	7(2.5)	7 (1.75)	7.5 (2.25)	6.5 (2.5)
Interview 2 (experienced)	7.25 (5.25)	8 (2.25)	9 (2.5)	8.5 (1.75)
P	NS	NS	NS	NS
Spearman	0.7016	NS	NS	NS
P	*0.0238**			

Table 14. Correlation of expected and experienced total questionnaire, pain and breastfeeding scores. α = 0.05. *: significant difference, p<0.05.

6. DISCUSSION

We here investigated maternal fear, pain and satisfaction with cesarean delivery, as well as preferences towards future births. Earlier studies have provided evidence that cesarean section leads to less satisfied parents (8). As cesarean section rates keep rising, it has become more and more important to assess whether the procedure itself and the associated care can be improved to lead to higher parental satisfaction rates. The PEECS study can be seen as the first step in this process.

6.1. PARENTS' EXPECTATIONS AND EXPERIENCES

According to the results of the first structured interviews, 38.1% of women in this study felt disappointed they had to undergo a cesarean section instead of delivering vaginally. This rate is higher than the rate of 24% seen in the study performed by Dodd et al (61). Women were especially anxious when they thought of the epidural anesthesia, the uncertainties associated with cesarean section and the possibility of complications, the long recovery, and some dreaded their stay in hospital. Partners worried most about the possibility of complications. By contrast, we still achieved a high satisfaction rate of 92.3% and 100% for mothers in the standard group and the gentle group, respectively. These satisfaction rates are higher than those reported by Armbrust et al (74). This might be explained by the fact that participants in the PEECS study associated satisfaction especially with the care and reassurance that was provided by the hospital staff instead of with the course of the procedure itself. That is, most participants reported to be very happy with the way they were treated at the maternity ward and during delivery. In addition, most participants' expectations were met because they felt they were well informed in advance. These results, in combination with a lack of knowledge of the complications that might occur during and after the cesarean and a lack of knowledge concerning preoperative preparations, underscore the importance of preoperative counseling and preparation sessions performed by doctors or midwives. It became clear that the anesthesiologists and the midwives play the largest role in putting the couple at ease during surgery, as most participants liked their presence to explain what the surgeon was doing step by step. Again, this emphasizes the importance of the staff to create a more relaxed atmosphere in the operating theatre. This was in accordance with the results seen in the study performed by Dodd et al, in which the authors found that the aspects of birth that were liked most by mothers who delivered by cesarean section were 'those caring for them' and 'reassurance provided about health' (63).

Although the majority of participants were satisfied with the course of delivery, gentle or standard, the outcomes of the structured interviews suggest there is indeed room for improvement. Shortcomings reported by couples regarding the standard procedure concerned the technical nature of the procedure, a lack of involvement in childbirth, the overwhelming atmosphere of an operating theatre, and for mothers, the fact that they could not hold or touch the baby because their wrists were bound for monitoring – thereby moving the initiation of the bonding process to the postoperative period. These shortcomings were also reported in the meta-analysis performed by Puia (59).

Interestingly, it was mentioned by both groups that the set-up of the operating theatre was rather overwhelming (beeping machines, surgical instruments…) and cold or impersonal. The fact that this was mentioned by the participants in the gentle group as well, can be due to a few women in this group not having had the full 'gentle experience'. In some of them the gentle approach consisted out of handing the baby first to the mother, while in others this was combined with the lowering of the surgical drapes, dimmed lights, etc. In short, there was no standardization to the gentle procedure, which makes the comparison complex.

The above-mentioned shortcomings can be dealt with by adapting the (complete) gentle approach to cesarean delivery. For example, in a gentle delivery, it is essential to create a relaxing atmosphere to avoid that the couple is overwhelmed with the set-up of the operating theatre. Also, women are able to see the baby come out by the lowering of the surgical drapes blocking their view. The baby is then immediately given to the mother for skin-to-skin contact. The mother's wrists are not tied up when the baby is born, or at least one arm is freed from the monitors so that she can touch and hold the baby more comfortably (8). Indeed, this was supported by the second interview outcomes of the gentle group.

Towards a future pregnancy, partners' opinions varied. When they had a previous negative birth experience or there were previous cesarean deliveries, partners are more likely to prefer cesarean section. Since they considered it as the most natural type of delivery and the least demanding on their body, the majority of women in both groups preferred vaginal delivery for a future pregnancy. In mothers, the term 'natural' comes forward most, which indicates that if an elective cesarean section proves to be necessary, it would be beneficial for their experience to make this procedure as natural as possible. Of course safety and sterility requirements should always remain optimal (8). The same outcomes and reasons to prefer vaginal or cesarean delivery for both mothers and partners were seen in literature (58)(63)(64).

There is evidence that early skin-to-skin contact promotes the early initiation of successful breastfeeding (75). With this in mind, we assessed participant-reported breastfeeding scores (expected versus experienced scores) and registered LATCH scores. The above-mentioned differences between standard and gentle group were not reflected in patient-reported or LATCH scores. In the standard group, 80% of women still breastfed after six weeks, which is comparable to the rate of 73.8% described by Watt et al (78). All women in the gentle group who initiated breastfeeding, still breastfed after six weeks. However, conclusions should be drawn carefully in this case, due to the small sample size of the gentle group and due to the fact that there was no difference between expected, experienced or LATCH breastfeeding scores between both groups.

Regarding the questionnaires, the results provided by the interviews were partly supported by the fact that mothers in the standard group reported they were less able to see the baby during delivery and mothers in the gentle group felt more in control than their partners. The rate of women with clinically relevant fear of childbirth (16.7%) in this cohort study was higher than the rate described by Wiklund et al (9.6%) (66). However, in that study, only primiparae with a cesarean section due to malpresentation were taken into account. After cesarean section, the rates of clinically relevant fear remained the same

in this cohort except for the participants in the gentle group, which was consistent with their lower median scores on the Q1-B questionnaire compared to the scores of the Q1-A questionnaire. These results open up future perspectives, as the reduction in fear of childbirth was not seen in the participants in the standard group.

No differences were seen in total questionnaire scores between women and their partners, which is in accordance with the outcomes of the study performed by Bélanger-Lévesque et al (63). According to the total postoperative questionnaire scores and unlike in the study performed by Armbrust et al (74), participants in the gentle group did not have a significant better birth experience. Neither were differences found for fear of childbirth between or within groups. In the standard group, partners expected to be more tense but also happier during delivery than mothers, which overlaps the rather high proportion of women who felt disappointed they had to deliver by cesarean section. These differences were not found in the Q1-B questionnaire, which means mothers and partners in the standard group shared the same experiences on this area.

The high pain scores reported for the period of the first five days after delivery are in accordance with the outcomes of the interviews, stating that the first five days were the most difficult to overcome and adequate pain treatment was essential. Another interesting property that is difficult to explain, is the fact that registered pain scores during delivery were far lower than those indicated on the postoperative questionnaire, Q2. A possible explanation might be that throughout this study only median pain scores were used. In the hospital there is no standard for the number of times the pain score is measured, therefore it might be the case that a high pain score is registered in combination with a lot of lower pain scores, so that the median pain score is lower as well. In other cases, pain scores were only registered once a day, which minimizes the generalizability of these results. To compensate for this, only questionnaire scores were used to compare between groups.

6.2. STUDY LIMITATIONS

There were some limitations to this study. It is important to understand that this study was in fact a pilot study, as currently there are no Belgian data available on the subject. Also, the fact that we did not succeed at recruiting 12 nulliparous patients, with there being only three refusals from multiparous women, indicates that due to the strict eligibility criteria, the recruitment period was too short. Elective cesarean section in nulliparous patients with a singleton pregnancy and without any comorbidities is rarely performed. In this study, the only indication for cesarean section in nulliparous patients was malpresentation of the fetus. Also, restricting the sample to Dutch-speaking couples might have had an impact on patient recruitment. There was a high proportion of couples that did not fill out their questionnaires or were not able to perform the second interview (because of a lack of time). Another limitation to this study was the fact that six women did not get the standard cesarean section like it was originally planned, by which it was no longer possible to compare the multiparous versus the nulliparous group because these groups would be too small to compare. This could not have been foreseen, since it is not according to the standard protocol and because no couple knew in advance they would get a (variant of the) gentle cesarean section. Also, the gentle cesarean sections were not

performed according to a set protocol. On the other hand, it might be a strength of the study as well because, doing this, we were able to investigate parents' experiences after a gentle approach to cesarean section and compare these with the standard procedure. It is true that these comparisons should be interpreted carefully, since the gentle cesarean group consists out of only six couples and we initially anticipated a sample size of 12 couples to obtain data saturation. Another characteristic that should be taken into account, is the fact that all women in this study were of the Caucasian race, most had a steady job and they were all very healthy (no smoking, drinking or drugs), which might limit the generalizability of the outcomes of the PEECS study.

7. CONCLUSION

In this study we assessed patient and partner satisfaction with cesarean section. High satisfaction rates were obtained as couples associated satisfaction especially with the care that was provided. However, the outcomes of the structured interviews provide evidence that there is room for improvement concerning parental experiences, mainly in the field of involvement and being able to bond with the child. These results were only weakly supported by the questionnaires. Nevertheless, couples who had a gentle cesarean section showed significantly less fear of childbirth after delivery.

A more 'gentle' approach to cesarean section may improve satisfaction. The safety of gentle cesarean delivery however, has not yet been demonstrated, which is an important issue to consider. The next step in research would be a large randomized trial comparing gentle and standard cesarean section, with satisfaction and safety as an outcome. Given the difficulties in recruitment experienced in the PEECS study, a multicenter trial would be recommended.

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APPENDIX I: STRUCTURED INTERVIEW QUESTIONS

ANTEPARTUM INTERVIEW

GEVOELENS – ANGST

- Hoe voelt u zich bij de beslissing om te bevallen via een keizersnede?
- Voelt u zich angstig of onrustig wanneer u denkt aan de bevalling?
    - ⇨ Ja: waarvoor?
    - ⇨ Maakt u zich zorgen om iets?
    - ⇨ Bent u bang voor pijn? (tijdens en na de keizersnede)

POSTOPERATIEVE PIJN – VOEDINGEN

- Denkt u dat de postoperatieve pijn een invloed zal hebben op de borst- of flesvoeding?
    - ⇨ Ja: waarom?
- Denkt u dat de postoperatieve pijn een invloed zal hebben op de zorg voor de baby in het algemeen?
- Wat verwacht u van de eerste borstvoeding/flesvoeding?
- Op een schaal van 1 tot 10, hoe denkt u dat de borstvoeding/flesvoeding zal verlopen?

KENNIS OMTRENT DE PROCEDURE

- Wat weet u zoal over de keizersnede?
- Zou u kunnen beschrijven hoe de keizersnede zal verlopen, in stapjes: te beginnen vanaf de epidurale verdoving?
    - ⇨ Infuus en blaassonde: plaatsen in de tijd, hoe lang?
    - ⇨ Snede in de huid
    - ⇨ Duwen en trekken tijdens de keizersnede
    - ⇨ Baby aan kinderarts
    - ⇨ Baby bij papa
    - ⇨ Duur ingreep: hoe lang denkt u dat de hele ingreep gaat duren?
    - ⇨ Litteken: hoe denkt u dat het litteken eruit gaat zien?
    - ⇨ Risico’s: welke risico’s denkt u dat er aan dit soort operatie verbonden zijn?

ALGEMENE VERWACHTINGEN

- In het algemeen, wat verwacht u van de keizersnede?
- Wat verwacht u in verband met uw betrokkenheid bij de geboorte?
- Denkt u dat u zal kunnen interageren met uw partner? En hoe ziet u dat?
- Wat verwacht u in verband met het vasthouden van de baby?

Denkt u dat u tijdens de operatie een band kan opbouwen met de baby? En hoe ziet u dat?

VERWACHTINGEN OMTRENT HERSTEL

- Na de operatie, hoe denkt u dat u/uw partner gaat herstellen, hoe gaat dat verlopen?
- En hoe lang denkt u dat dit gaat duren?
    - ⇨ Een aantal dagen
    - ⇨ Een aantal weken
    - ⇨ Een aantal maanden…

OPMERKINGEN

VERWACHTINGEN

- Voldeed de keizersnede aan uw verwachtingen? Waarom?
  - ⇨ Hoe heeft u kunnen interageren met uw partner tijdens de bevalling?
  - ⇨ Hoe verliep het vasthouden van de baby na de geboorte?
- Heeft u/uw partner veel pijn gehad? Was dat zoals verwacht?

BORSTVOEDING/FLESVOEDING

- Hoe verliep de borstvoeding/flesvoeding?
  - ⇨ Op een schaal van 1-10?
- Hoe gingen de allereerste voedingen?
  - ⇨ Waarom?
- Denkt u dat de postoperatieve pijn een rol heeft gespeeld in het verloop van de voedingen?
- Heeft de ervaring bij de bevalling een rol gespeeld?
- Hoe gaat het voeden nu?
- Wat had het verloop van de borstvoeding/flesvoeding kunnen verbeteren?

ERVARINGEN TIJDENS DE KEIZERSNEDE

- Wat ervaarde u tijdens de keizersnede?
- Voelde u zich angstig of onrustig tijdens de ingreep? Waarom?
  - ⇨ Werd u hierbij gerustgesteld? Door wie?
- Tijdens de bevalling, had u angst voor de gezondheid van de baby?
- Voelde u zich betrokken bij de geboorte?
- Hoe ging het om na de bevalling een band op te bouwen met de baby?

MOBILISATIE EN HERSTEL

- Na de keizersnede, hoe ging de mobilisatie?
- Verliep het herstel zoals u dat verwachtte?
- Wat vond u van de duur van het verblijf op de materniteit?

TEVREDENHEID

- Over het algemeen, bent u tevreden over de bevalling en waarom?
- Vindt u dat u een positieve of eerder een negatieve geboorte-ervaring hebt gehad?
- Wat kon beter?

TOEKOMSTIGE ZWANGERSCHAP

- Als u zou kunnen kiezen bij een volgende zwangerschap tussen een vaginale bevalling en een keizersnede, waarvoor zou u dan kiezen?

OPMERKINGEN

PARENTS' EXPECTATIONS AND EXPERIENCES AROUND CESAREAN SECTION IN BELGIUM
VRAGENLIJST ANTEPARTUM MOEDER (Q1-A)

INSTRUCTIE

Deze vragenlijst gaat over gevoelens en gedachten die vrouwen kunnen hebben betreffende een komende keizersnede.

Het antwoord op elke vraag wordt gegeven op een schaal van 0 tot 5. De uitersten op de schaal (0 en 5) vertegenwoordigen de contrasten van een bepaald gevoel of een bepaalde gedachte.

U kunt antwoorden door een cirkel te plaatsen rond het cijfer dat het beste overeenkomt met **hoe u zich nu voorstelt**, dat uw bevalling zal verlopen.

Antwoord graag zo **zoals u zich voorstelt** dat uw keizersnede zal worden – *niet zoals u wenst dat de bevalling zal worden!*

Denkt u eraan, dat de antwoorden zo zijn geformuleerd dat 'veel' de ene keer iets erg positiefs kan betekenen en de andere keer iets erg negatiefs. Daarom is het nodig dat u er bij elke vraag even over nadenkt welk cijfer u zult omcirkelen.

Als u de vragenlijst hebt ingevuld, willen wij graag dat u controleert of u geen vraag hebt overgeslagen.

I. Hoe lang weet u al dat u een keizersnede zal ondergaan?

- ☐ Minder dan 1 week
- ☐ Sinds 1-3 weken
- ☐ Langer dan 3 weken

II. Vindt u dat u op dit ogenblik voldoende geïnformeerd bent rond hoe de keizersnede zal verlopen?

- ☐ Zeker niet
- ☐ Niet helemaal
- ☐ Neutraal
- ☐ Goed
- ☐ Zeker wel

III. Hoe ontving u informatie rond het verloop van de keizersnede (meerdere opties zijn mogelijk) en hoe tevreden bent u over de kwaliteit van die informatie?

- ☐ Van de arts

  Tevredenheid (enkel in te vullen wanneer u langs deze weg werd geïnformeerd):

  - ☐ Zeer ontevreden
  - ☐ Ontevreden
  - ☐ Geen mening
  - ☐ Matig tevreden
  - ☐ Zeer tevreden

- ☐ Via een brochure

  Tevredenheid (enkel in te vullen wanneer u langs deze weg werd geïnformeerd):

  - ☐ Zeer ontevreden
  - ☐ Ontevreden
  - ☐ Geen mening
  - ☐ Matig tevreden
  - ☐ Zeer tevreden

- ☐ Via het internet

  Tevredenheid (enkel in te vullen wanneer u langs deze weg werd geïnformeerd):

  - ☐ Zeer ontevreden
  - ☐ Ontevreden
  - ☐ Geen mening
  - ☐ Matig tevreden
  - ☐ Zeer tevreden

☐ Via familie, vrienden of vriendinnen

Tevredenheid (enkel in te vullen wanneer u langs deze weg werd geïnformeerd):

☐ Zeer ontevreden
☐ Ontevreden
☐ Geen mening
☐ Matig tevreden
☐ Zeer tevreden

☐ Via medische literatuur

Tevredenheid (enkel in te vullen wanneer u langs deze weg werd geïnformeerd):

☐ Zeer ontevreden
☐ Ontevreden
☐ Geen mening
☐ Matig tevreden
☐ Zeer tevreden

☐ Andere: ……

Tevredenheid (enkel in te vullen wanneer u langs deze weg werd geïnformeerd):

☐ Zeer ontevreden
☐ Ontevreden
☐ Geen mening
☐ Matig tevreden
☐ Zeer tevreden

IV. Hoe denkt u dat uw keizersnede, alles bij elkaar genomen, zal worden?

1. Heel erg fantastisch 0 1 2 3 4 5 Helemaal niet fantastisch

V. Hoe denkt u dat u zich zult voelen tijdens de keizersnede?

2.	Heel erg eenzaam	0 1 2 3 4 5	Helemaal **niet eenzaam**
3.	Heel erg zeker	0 1 2 3 4 5	Helemaal niet zeker
4.	Heel erg bang	0 1 2 3 4 5	Helemaal **niet bang**
5.	Heel erg overgeleverd	0 1 2 3 4 5	Helemaal **niet overgeleverd**
6.	Heel erg veilig	0 1 2 3 4 5	Helemaal niet veilig
7.	Heel erg gespannen	0 1 2 3 4 5	Helemaal **niet gespannen**
8.	Heel erg gelukkig	0 1 2 3 4 5	Helemaal niet gelukkig
9.	Heel erg in de steek gelaten	0 1 2 3 4 5	Helemaal **niet in de steek gelaten**
10.	Heel erg ontspannen	0 1 2 3 4 5	Helemaal niet ontspannen

VI. Wat denkt u dat u gaat voelen tijdens de keizersnede?

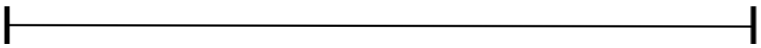
11.	Heel erge paniek	0	1	2	3	4	5	Helemaal **geen paniek**
12.	Heel erge hopeloosheid	0	1	2	3	4	5	Helemaal **geen hopeloosheid**
13.	Heel sterk verlangen naar het kind	0	1	2	3	4	5	Helemaal geen verlangen naar het kind
14.	Totaal vertrouwen	0	1	2	3	4	5	Helemaal geen vertrouwen

VII. Hebt u tijdens de laatste maand fantasieën gehad over de bevalling zoals bijvoorbeeld…

15. … fantasieën dat het zou kunnen gebeuren dat het kind sterft tijdens de bevalling?
Nooit 0 1 2 3 4 5 Heel vaak

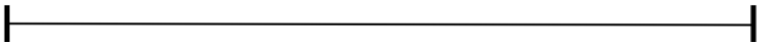
16. … fantasieën dat het zou kunnen gebeuren dat het kind letsel oploopt tijdens de bevalling?
Nooit 0 1 2 3 4 5 Heel vaak

VIII. Hoeveel pijn denkt u dat u zal ervaren tijdens de keizersnede?



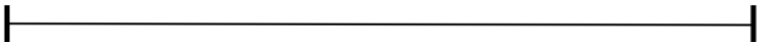
Geen pijn Extreme pijn

IX. Hoeveel pijn denkt u dat u zal ervaren in de dagen na de keizersnede?



Geen pijn Extreme pijn

X. Hoeveel pijn denkt u dat u zal ervaren 6 weken na de keizersnede?



Geen pijn Extreme pijn

Wilt u nu controleren dat u geen vraag heeft overgeslagen?

Andere opmerkingen:

PARENTS' EXPECTATIONS AND EXPERIENCES AROUND CESAREAN SECTION IN BELGIUM
VRAGENLIJST ANTEPARTUM PARTNER (Q1-A)

INSTRUCTIE

Deze vragenlijst gaat over gevoelens en gedachten die partners kunnen hebben betreffende een komende keizersnede.

Het antwoord op elke vraag wordt gegeven op een schaal van 0 tot 5. De uitersten op de schaal (0 en 5) vertegenwoordigen de contrasten van een bepaald gevoel of een bepaalde gedachte.

U kunt antwoorden door een cirkel te plaatsen rond het cijfer dat het beste overeenkomt met **hoe u zich nu voorstelt**, dat de bevalling zal verlopen.

Antwoord graag zo **zoals u zich voorstelt** dat de keizersnede wordt – *niet zoals u wenst dat de bevalling zal worden!*

Denkt u eraan, dat de antwoorden zo zijn geformuleerd dat 'veel' de ene keer iets erg positiefs kan betekenen en de andere keer iets erg negatiefs. Daarom is het nodig dat u er bij elke vraag even over nadenkt welk cijfer u zult omcirkelen.

Als u de vragenlijst hebt ingevuld, willen wij graag dat u controleert of u geen vraag hebt overgeslagen.

Als u de vragenlijst hebt ingevuld, willen wij graag dat u controleert of u geen vraag hebt overgeslagen.

I. Vindt u dat u op dit ogenblik voldoende geïnformeerd bent rond hoe de keizersnede zal verlopen?

- ☐ Zeker niet
- ☐ Niet helemaal
- ☐ Neutraal
- ☐ Goed
- ☐ Zeker wel

II. Hoe ontving u informatie rond het verloop van de keizersnede (meerdere opties zijn mogelijk)?
Hoe tevreden bent u over de kwaliteit van die informatie?

- ☐ Van de arts

  Tevredenheid (enkel in te vullen wanneer u langs deze weg werd geïnformeerd):

  - ☐ Zeer ontevreden
  - ☐ Ontevreden
  - ☐ Geen mening
  - ☐ Matig tevreden
  - ☐ Zeer tevreden

- ☐ Via een brochure

  Tevredenheid (enkel in te vullen wanneer u langs deze weg werd geïnformeerd):

  - ☐ Zeer ontevreden
  - ☐ Ontevreden
  - ☐ Geen mening
  - ☐ Matig tevreden
  - ☐ Zeer tevreden

- ☐ Via het internet

  Tevredenheid (enkel in te vullen wanneer u langs deze weg werd geïnformeerd):

  - ☐ Zeer ontevreden
  - ☐ Ontevreden
  - ☐ Geen mening
  - ☐ Matig tevreden
  - ☐ Zeer tevreden

☐ Via familie, vrienden of vriendinnen

Tevredenheid (enkel in te vullen wanneer u langs deze weg werd geïnformeerd):

☐ Zeer ontevreden
☐ Ontevreden
☐ Geen mening
☐ Matig tevreden
☐ Zeer tevreden

☐ Via medische literatuur

Tevredenheid (enkel in te vullen wanneer u langs deze weg werd geïnformeerd):

☐ Zeer ontevreden
☐ Ontevreden
☐ Geen mening
☐ Matig tevreden
☐ Zeer tevreden

☐ Andere: ……

Tevredenheid (enkel in te vullen wanneer u langs deze weg werd geïnformeerd):

☐ Zeer ontevreden
☐ Ontevreden
☐ Geen mening
☐ Matig tevreden
☐ Zeer tevreden

III. Hoe denkt u dat de keizersnede, alles bij elkaar genomen, zal worden?

1.	Heel erg fantastisch	0 1 2 3 4 5	Helemaal niet fantastisch

IV. Hoe denkt u dat u zich zult voelen tijdens de keizersnede?

2.	Heel erg eenzaam	0	1	2	3	4	5	Helemaal niet eenzaam
3.	Heel erg zeker	0	1	2	3	4	5	Helemaal niet zeker
4.	Heel erg bang	0	1	2	3	4	5	Helemaal niet bang
5.	Heel erg overgeleverd	0	1	2	3	4	5	Helemaal niet overgeleverd
6.	Heel erg veilig	0	1	2	3	4	5	Helemaal niet veilig
7.	Heel erg gespannen	0	1	2	3	4	5	Helemaal niet gespannen
8.	Heel erg gelukkig	0	1	2	3	4	5	Helemaal niet gelukkig
9.	Heel erg in de steek gelaten	0	1	2	3	4	5	Helemaal niet in de steek gelaten
10.	Heel erg ontspannen	0	1	2	3	4	5	Helemaal niet ontspannen

V. Wat denkt u dat u gaat voelen tijdens de keizersnede?

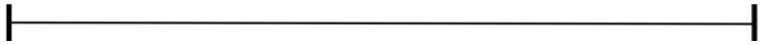
11.	Heel erge paniek	0	1	2	3	4	5	Helemaal geen paniek
12.	Heel erge hopeloosheid	0	1	2	3	4	5	Helemaal geen hopeloosheid
13.	Heel sterk verlangen naar het kind	0	1	2	3	4	5	Helemaal geen verlangen naar het kind
14.	Totaal vertrouwen	0	1	2	3	4	5	Helemaal geen vertrouwen

VI. Hebt u tijdens de laatste maand fantasieën gehad over de bevalling zoals bijvoorbeeld…

15. … fantasieën dat het zou kunnen gebeuren dat het kind sterft tijdens de bevalling?
Nooit 0 1 2 3 4 5 Heel vaak

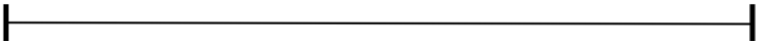
16. … fantasieën dat het zou kunnen gebeuren dat het kind letsel oploopt tijdens de bevalling?
Nooit 0 1 2 3 4 5 Heel vaak

VII. Hoeveel pijn denkt u dat uw partner zal ervaren <u>tijdens</u> de keizersnede?



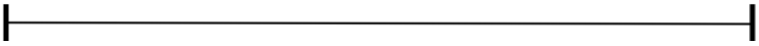
Geen pijn Extreme pijn

VIII. Hoeveel pijn denkt u dat uw partner zal ervaren <u>in de dagen na</u> de keizersnede?



Geen pijn Extreme pijn

IX. Hoeveel pijn denkt u dat uw partner zal ervaren <u>6 weken na</u> de keizersnede?



Geen pijn Extreme pijn

Wilt u nu controleren dat u geen vraag heeft overgeslagen?

Andere opmerkingen:

PARENTS' EXPECTATIONS AND EXPERIENCES AROUND CESAREAN SECTION IN BELGIUM
VRAGENLIJST 5 DAGEN POSTPARTUM MOEDER (Q2)

ANESTHESIE:

1. Ik vond dat het anestheticum dat ik kreeg veilig was voor mij.

Helemaal niet akkoord ☐ ☐ ☐ ☐ ☐ ☐ Helemaal akkoord

2. Ik vond dat het anestheticum dat ik kreeg veilig was voor mijn baby.

Helemaal niet akkoord ☐ ☐ ☐ ☐ ☐ ☐ Helemaal akkoord

3. Ik bevond me in een comfortabele positie wanneer de naald werd ingebracht.

Helemaal niet akkoord ☐ ☐ ☐ ☐ ☐ ☐ Helemaal akkoord

OMGEVING:

In de operatiezaal, tijdens de operatie, was ik in staat om:

4. Een gevoel van controle te hebben

Helemaal niet akkoord ☐ ☐ ☐ ☐ ☐ ☐ Helemaal akkoord

5. Te communiceren met het personeel

Helemaal niet akkoord ☐ ☐ ☐ ☐ ☐ ☐ Helemaal akkoord

6. De baby na de bevalling te zien

Helemaal niet akkoord ☐ ☐ ☐ ☐ ☐ ☐ Helemaal akkoord

7. Ik vond dat mijn keizersnede lang duurde

Helemaal niet akkoord ☐ ☐ ☐ ☐ ☐ ☐ Helemaal akkoord

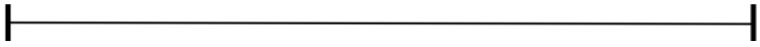
8. Ik wist waar het personeel mee bezig was tijdens de operatie

Helemaal niet akkoord ☐ ☐ ☐ ☐ ☐ ☐ Helemaal akkoord

9. Ik ervoer de sfeer in de operatiezaal als comfortabel

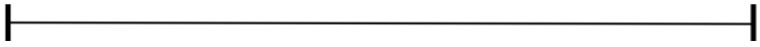
Helemaal niet akkoord ☐ ☐ ☐ ☐ ☐ ☐ Helemaal akkoord

10. Hoeveel pijn had u tijdens de keizersnede?



Geen pijn Extreme pijn

11. Kan u van de voorbije 5 dagen een globale pijnscore geven?



Geen pijn Extreme pijn

Wilt u nu kijken of u geen vraag heeft overgeslagen?

Andere opmerkingen:

PARENTS' EXPECTATIONS AND EXPERIENCES AROUND CESAREAN SECTION IN BELGIUM
VRAGENLIJST 5 DAGEN POSTPARTUM PARTNER

ANESTHESIE:

1. **Ik vond dat het anestheticum veilig was voor mijn partner.**

Helemaal niet akkoord ☐ ☐ ☐ ☐ ☐ ☐ Helemaal akkoord

2. **Ik vond dat het anestheticum veilig was voor mijn baby.**

Helemaal niet akkoord ☐ ☐ ☐ ☐ ☐ ☐ Helemaal akkoord

OMGEVING:

In de operatiezaal, tijdens de operatie, was ik in staat om:

3. **Een gevoel van controle te hebben**

Helemaal niet akkoord ☐ ☐ ☐ ☐ ☐ ☐ Helemaal akkoord

4. **Te communiceren met het personeel**

Helemaal niet akkoord ☐ ☐ ☐ ☐ ☐ ☐ Helemaal akkoord

5. **De baby na de bevalling te zien**

Helemaal niet akkoord ☐ ☐ ☐ ☐ ☐ ☐ Helemaal akkoord

6. **Ik vond dat de keizersnede lang duurde**

Helemaal niet akkoord ☐ ☐ ☐ ☐ ☐ ☐ Helemaal akkoord

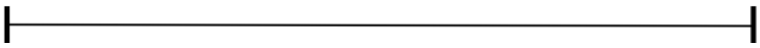
7. Ik wist waar het personeel mee bezig was tijdens de operatie

Helemaal niet akkoord ☐ ☐ ☐ ☐ ☐ ☐ Helemaal akkoord

8. Ik ervoer de sfeer in de operatiezaal als comfortabel

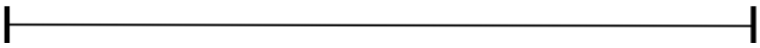
Helemaal niet akkoord ☐ ☐ ☐ ☐ ☐ ☐ Helemaal akkoord

9. Hoeveel pijn had uw partner tijdens de keizersnede?



Geen pijn Extreme pijn

10. Kan u van de voorbije 5 dagen een globale pijnscore geven voor uw partner?



Geen pijn Extreme pijn

Wilt u nu kijken of u geen vraag heeft overgeslagen?

Andere opmerkingen:

PARENTS' EXPECTATIONS AND EXPERIENCES AROUND CESAREAN SECTION IN BELGIUM
VRAGENLIJST 6 WEKEN POSTPARTUM MOEDER (Q1-B)

INSTRUCTIE

Deze vragenlijst gaat over gevoelens en gedachten die vrouwen kunnen hebben betreffende een komende keizersnede.

Het antwoord op elke vraag wordt gegeven op een schaal van 0 tot 5. De uitersten op de schaal (0 en 5) vertegenwoordigen de contrasten van een bepaald gevoel of een bepaalde gedachte.

U kunt antwoorden door een cirkel te plaatsen rond het cijfer dat het beste overeenkomt met **hoe u zich nu voorstelt**, dat uw bevalling zal verlopen.

Antwoord graag zo **zoals de** keizersnede verlopen is – *niet zoals u wenste dat de keizersnede zou verlopen!*

Denkt u eraan, dat de antwoorden zo zijn geformuleerd dat 'veel' de ene keer iets erg positiefs kan betekenen en de andere keer iets erg negatiefs. Daarom is het nodig dat u er bij elke vraag even over nadenkt welk cijfer u zult omcirkelen.

Als u de vragenlijst hebt ingevuld, willen wij graag dat u controleert of u geen vraag hebt overgeslagen.

I. Hoe beleefde u uw keizersnede, alles bij elkaar genomen?

1.	Heel erg fantastisch	0 1 2 3 4 5	Helemaal niet fantastisch

II. Hoe voelde u zich in het algemeen tijdens de keizersnede?

2.	Heel erg eenzaam	0 1 2 3 4 5	Helemaal niet eenzaam
3.	Heel erg zeker	0 1 2 3 4 5	Helemaal niet zeker
4.	Heel erg bang	0 1 2 3 4 5	Helemaal niet bang
5.	Heel erg overgeleverd	0 1 2 3 4 5	Helemaal niet overgeleverd
6.	Heel erg veilig	0 1 2 3 4 5	Helemaal niet veilig
7.	Heel erg gespannen	0 1 2 3 4 5	Helemaal niet gespannen
8.	Heel erg gelukkig	0 1 2 3 4 5	Helemaal niet gelukkig
9.	Heel erg in de steek gelaten	0 1 2 3 4 5	Helemaal niet in de steek gelaten
10.	Heel erg ontspannen	0 1 2 3 4 5	Helemaal niet ontspannen

III. Wat voelde u tijdens de keizersnede?

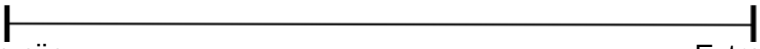
11.	Heel erge paniek	0 1 2 3 4 5	Helemaal geen paniek
12.	Heel erge hopeloosheid	0 1 2 3 4 5	Helemaal geen hopeloosheid
13.	Heel sterk verlangen naar het kind	0 1 2 3 4 5	Helemaal geen verlangen naar het kind
14.	Totaal vertrouwen	0 1 2 3 4 5	Helemaal geen vertrouwen

IV. Had u tijdens de keizersnede fantasieën zoals bijvoorbeeld…

15. … fantasieën dat het zou kunnen gebeuren dat het kind sterft tijdens de bevalling?
Nooit 0 1 2 3 4 5 Heel vaak

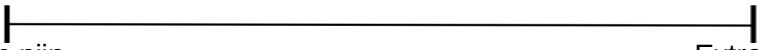
16. … fantasieën dat het zou kunnen gebeuren dat het kind letsel oploopt tijdens de bevalling?
Nooit 0 1 2 3 4 5 Heel vaak

V. Hoeveel pijn ervoer u <u>tijdens</u> de keizersnede?



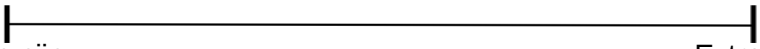
Geen pijn Extreme pijn

VI. Hoeveel pijn ervoer u <u>in de dagen na</u> de keizersnede?



Geen pijn Extreme pijn

VII. Hoeveel pijn ervaart u <u>nu</u>?



Geen pijn Extreme pijn

Wilt u nu controleren dat u geen vraag hebt overgeslagen?

Andere opmerkingen:

PARENTS' EXPECTATIONS AND EXPERIENCES AROUND CESAREAN SECTION IN BELGIUM
VRAGENLIJST 6 WEKEN POSTPARTUM PARTNER

INSTRUCTIE

Deze vragenlijst gaat over gevoelens en gedachten die partners kunnen hebben betreffende een komende keizersnede.

Het antwoord op elke vraag wordt gegeven op een schaal van 0 tot 5. De uitersten op de schaal (0 en 5) vertegenwoordigen de contrasten van een bepaald gevoel of een bepaalde gedachte.

U kunt antwoorden door een cirkel te plaatsen rond het cijfer dat het beste overeenkomt met **hoe u zich nu voorstelt**, dat de bevalling zal verlopen.

Antwoord graag zo **zoals de** keizersnede verlopen is – *niet zoals u wenste dat de keizersnede zou verlopen!*

Denkt u eraan, dat de antwoorden zo zijn geformuleerd dat 'veel' de ene keer iets erg positiefs kan betekenen en de andere keer iets erg negatiefs. Daarom is het nodig dat u er bij elke vraag even over nadenkt welk cijfer u zult omcirkelen.

Als u de vragenlijst hebt ingevuld, willen wij graag dat u controleert of u geen vraag hebt overgeslagen.

I. Hoe beleefde u de keizersnede, alles bij elkaar genomen?

1.	Heel erg fantastisch	0	1	2	3	4	5	Helemaal niet fantastisch

II. Hoe voelde u zich in het algemeen tijdens de keizersnede?

2.	Heel erg eenzaam	0	1	2	3	4	5	Helemaal niet eenzaam
3.	Heel erg zeker	0	1	2	3	4	5	Helemaal niet zeker
4.	Heel erg bang	0	1	2	3	4	5	Helemaal niet bang
5.	Heel erg overgeleverd	0	1	2	3	4	5	Helemaal niet overgeleverd
6.	Heel erg veilig	0	1	2	3	4	5	Helemaal niet veilig
7.	Heel erg gespannen	0	1	2	3	4	5	Helemaal niet gespannen
8.	Heel erg gelukkig	0	1	2	3	4	5	Helemaal niet gelukkig
9.	Heel erg in de steek gelaten	0	1	2	3	4	5	Helemaal niet in de steek gelaten
10.	Heel erg ontspannen	0	1	2	3	4	5	Helemaal niet ontspannen

III. Wat voelde u tijdens de keizersnede?

11.	Heel erge paniek	0	1	2	3	4	5	Helemaal geen paniek
12.	Heel erge hopeloosheid	0	1	2	3	4	5	Helemaal geen hopeloosheid
13.	Heel sterk verlangen naar het kind	0	1	2	3	4	5	Helemaal geen verlangen naar het kind
14.	Totaal vertrouwen	0	1	2	3	4	5	Helemaal geen vertrouwen

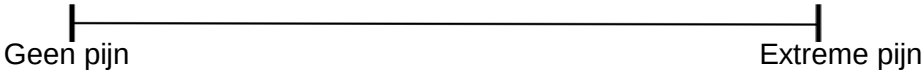
IV. Had u tijdens de keizersnede fantasieën zoals bijvoorbeeld…

15. … fantasieën dat het zou kunnen gebeuren dat het kind sterft tijdens de bevalling?

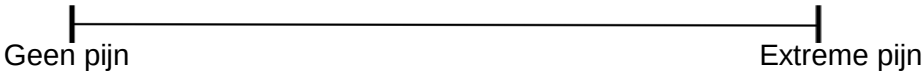
Nooit	0	1	2	3	4	5	Heel vaak

16. … fantasieën dat het zou kunnen gebeuren dat het kind letsel oploopt tijdens de bevalling?
Nooit 0 1 2 3 4 5 Heel vaak

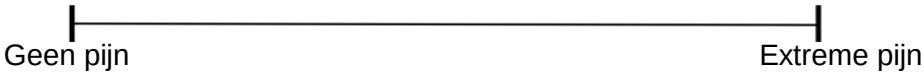
V. Hoeveel pijn ervoer uw partner <u>tijdens</u> de keizersnede?



VI. Hoeveel pijn ervoer uw partner <u>in de dagen na</u> de keizersnede?



VII. Hoeveel pijn ervaart uw partner <u>nu</u>?



Wilt u nu controleren dat u geen vraag hebt overgeslagen?

Andere opmerkingen: