

Fear of Childbirth among Young Canadians

by

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Abstract

In my secondary analysis of a large online survey data set (n = 3,680 university students), I used both quantitative and qualitative data analysis techniques to better understand factors contributing to students' fear of childbirth. Albert Bandura's social learning theory served as my conceptual framework to guide the development of a 6-item fear of birth scale and my selection of covariates that may be associated with fear of birth among Canadian students. I triangulated themes inductively derived from comments about labour and birth (n=1337) written by female respondents who scored in the high and low range on the fear of birth scale with the quantitative results to improve understanding of the phenomenon.

Fear of childbirth affected approximately 1 in 7 female students; very few male students exhibited fear of birth (< 4%). Concerns over physical changes during pregnancy and birth were strongly associated with Cesarean section (CS) preference among male and female students. Having learned about pregnancy and birth through the media was associated with higher fear scores, compared to other sources of information. When examining predictors of childbirth fear in a logistic regression model, I found two factors decreased fear of birth: increased confidence in students' knowledge of pregnancy and birth and having witnessed a birth first hand.

Qualitative themes extended my understanding of the fear of birth scores, by indicating that fear of pain is a dominant dimension of childbirth fear among female students. Obstetric interventions, such as elective CS, are favoured by students with high fear of birth, and seen as a way to circumvent the pain of childbirth. Women with high and low fear of birth supported the theme that mode of delivery is a woman's choice; however, students with low fear of birth were more likely to view birth as a natural and normal process and express concerns that obstetric interventions may carry unacceptable risks. Comments from students with high fear of birth supported the themes that pain of childbirth is unmanageable and birth is a painful and frightening ordeal. Findings from my study have important implications for education, practice and research.

Preface

This study was approved by the University of British Columbia Behavioural Research Ethics Board: #: H11-00221

Data for this dissertation were collected in 2006. Part of the survey findings were published in 2009 by the doctoral candidate (Kathrin Stoll), one PhD committee member (Elaine Carty) and several co-authors (see reference below). With the exception of descriptions of the development and administration of the online survey, the research presented in this dissertation is an original contribution by the doctoral candidate.

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Chapter 1: Introduction

In the introductory chapter, I describe the background, conceptual framework, purpose and significance of my dissertation research. At the end of the introduction, I provide a short overview of subsequent chapters.

1.1 Background

Medical anthropologist Davis-Floyd (2006) observed that childbearing women in North America super-value and uncritically accept obstetric technology, because not “using it looks like you are giving your baby substandard care” (as cited in Ponte, 2007, p. 62). This trend toward medicalized birth is exacerbated by media depictions of birth as inherently risky, unpredictable, and fraught with complications (Bak, 2004; Morris & McInerney, 2010; Sakala, Corry, & Applebaum, 2006; Zeldes & Norsigian, 2008) and medical labels that instil doubt like “trial of labour,” “failure to progress,” “failed induction,” “incompetent cervix,” and “inadequate pelvis” (Sakala, 2007). The cumulative effect of these negative images and labels is the perception that birth is worrisome or fear-inducing, epidural pain relief is necessary to cope with labour, and a medicalized, high-technology approach to birth is the safest way to deliver babies and the optimal standard of care (Zeldes & Norsigian, 2008).

Rates of epidural anaesthesia across Canada are surpassing 50% and Cesarean section (CS) rates are approaching 30% in most parts of the country (Canadian Institute for Health Information [CIHI], 2007), making CS the most common surgical procedure in Canada (Christilaw, 2006). British Columbia, where this study took place, had one of the highest primary CS rates in the country (22.3% in 2008/09). A number of interrelated factors are linked to increases in CS rates, such as maternal characteristics (e.g., advanced maternal age and high body mass index) that increase the risk of pregnancy complications (e.g., diabetes and hypertension), pregnancy protocols that recommend surgical delivery for the management of breech presentation and multiple gestations, obstetrical practices such as induction of labour, provider preferences for elective interventions, and maternal requests for CS without medical indications (British Columbia Perinatal Health Program [BCPHP], 2008).

Based on the largest representative survey of parturient Canadian women to date

(n=6,421), 86.6% of surveyed women experienced an obstetric intervention (defined as induction, augmentation, continuous electronic fetal monitoring, enema, shaving, pushing on the abdomen, episiotomy, forceps, or vacuum extraction) (Chalmers, Dzakpasu, Heaman & Kaczorowski, 2008). The progressive medicalization of birth among low risk women in Western Industrialized countries is an issue of concern (Johanson, Newburn, & Macfarlane, 2002), and has led Canadian maternity care organisations (Society of Obstetricians and Gynaecologists of Canada, Association of Women's Health, Obstetric and Neonatal Nurses of Canada, Canadian Association of Midwives, College of Family Physicians of Canada, and the Society of Rural Physicians of Canada) to publish a position statement that calls for a less interventionist approach to birth (Society of Obstetricians and Gynaecologists of Canada [SOGC], 2008). Other position statements have been issued that seek to protect birth as a normal event (WHO, 1997; Canadian Association of Midwives, 2010), with slight variations in the way normal birth is defined. In the SOGC statement (2008) a normal birth is defined as the spontaneous onset and progress of labour to a spontaneous delivery in the vertex position at 37–42+0 gestation with a normal third stage. It can include pharmacological (opioids/inhalation) and non-pharmacological analgesia and routine oxytocin for the third stage (SOGC). Notwithstanding care providers' willingness and desire to support spontaneous vaginal deliveries, maternity care consumers' requests for elective obstetric interventions may interfere with strategies to reduce birth interventions, especially as future generations of Canadians are being socialized into an increasingly medicalized birth culture.

No studies to date have examined how young Canadians contemplating pregnancy view birth. Do they construct it as a medical event that requires technological interventions? Do they normalize obstetric interventions, such as CS? Are they fearful of birth; and if so, will this affect their decision making around mode of delivery?

1.2 Conceptual Framework of the Study

My overarching assumption underlying my research is that negative attitudes towards birth are mediated by the culture of fear that surrounds birth and may translate into students' willingness to have obstetric interventions, including surgical delivery and epidural anaesthesia, in advance of pregnancy.

Albert Bandura's theory of self-efficacy, including conditions that maximize or inhibit it, is a fitting conceptual framework for the study of childbirth fear among young adults. Bandura's theory presents behaviour as motivated by observation of others and environmental influences; e.g., the childbirth experiences of family and friends and images about birth depicted in the media (Bandura, 1977). Bandura's theory postulates that social learning operates through perceived self-efficacy or personal judgments about how well one can manage certain situations (Bandura, 1982). Taking childbirth as an example, self-efficacy theory posits that a woman's appraisal of her ability to master labour and birth depends on her previous experience with childbirth, the behaviours of other women she may have observed during labour and birth, the messages she receives about birth through the media or via stories told by family members and friends, and her emotional/physical response to birth. Bandura derived these sources of personal efficacy by conducting experiments with phobic persons. He suggests self-efficacy is the mechanism that leads to behavioural change, i.e. diminished aversion to the feared stimulus. The similarities between the psychological states examined by Bandura (phobias) and the psychological state that some childbearing women experience (fear of labour, in severe cases tocophobia) are evident.

1.3 Purpose of the Study

My dissertation research is an analysis of a pre-existing online survey that seeks to identify proportions of university students (n=3680) with fear of childbirth and preferences for obstetric interventions. More specifically, my purpose is to assess the association between students' levels of fear and preference for epidural analgesia, preferred mode of delivery (vaginal versus delivery via CS), exposure to birth (actual versus media exposure), and knowledge about pregnancy and birth. My intent is also to explore relationships between fear of birth and attitudes, that may be particularly shaped by cultural forces, such as attitudes towards the role of technology in birth, risk perceptions, and students' concerns over body changes associated with pregnancy and birth. From Bandura's theory, I intend to identify predictors of childbirth fear, such as sources of information that shaped students' attitudes towards birth (school, family/friends, and media), and direct exposure to childbirth (vicarious experiences) and

examine their contributions to students' fear of birth, while controlling for gender.

Using inductive content analysis, my purpose is to derive themes from written comments about labour and birth (n=1337) for female respondents who scored in the high and low ranges of the childbirth fear scale. I plan to triangulate the themes with my quantitative results to extend and support my interpretation of the quantitative findings.

1.4 Significance of the Study

Research that illuminates factors associated with future maternity care consumers' preferences for elective obstetric interventions has important implications for maternal and newborn health and healthcare costs. While interventions that reduce maternal and neonatal mortality and morbidities are considered great achievements of modern obstetrics, recent evidence suggests that some interventions may be associated with an increase in surgical deliveries and, by extension, adverse outcomes. For example, a Cochrane review about interventions and outcomes associated with continuous electric fetal monitoring (CEFM) versus intermittent auscultation (Alfirevic, Devane & Gyte, 2007) determined that CEFM conferred no benefits in terms of lowered perinatal mortality rates, but increased the CS rate. Canadian mothers (n=6,421) who had an emergency CS were significantly more likely to have received CEFM and induction of labour, compared to women who delivered vaginally. They were also less likely to hold their infants immediately after the birth, have skin-to-skin contact with their newborns, and were significantly less likely to breastfeed at 3 and 6 months compared with mothers who had a vaginal delivery (Chalmers et al., 2010). Other obstetric interventions, such as epidural anesthesia, have been linked to a higher likelihood of CS and operative vaginal deliveries (Nguyen et al., 2010), a higher incidence of labour dystocia and subsequent CS (Selin, Wallin, & Berg, 2008) and problems with breastfeeding (Beilin et al., 2005).

CSs are associated with a number of adverse maternal and newborn outcomes. These include a two-fold increased risk of severe maternal morbidity among women undergoing a CS compared to a vaginal delivery (Villar et al., 2007). In a Canadian population-based study, women in the planned CS group (indication was breech presentation) were at increased postpartum risk for cardiac arrest, wound hematoma, hysterectomy, major puerperal infection, anaesthetic complications, venous

thromboembolism, and haemorrhage, compared to women who planned to deliver vaginally (Liu et al. , 2007). In another study, American women with a planned CS were over twice as likely to be re-hospitalized compared to women in the planned vaginal group, primarily due to increased rates of wound complications and infection (Declercq et al., 2007).

Consequences to the neonate associated with CS can include brain and other birth injuries, respiratory problems, lower APGAR scores, increased risk of illnesses later in life, e.g. asthma, and difficulties with breastfeeding (Sakala, 2006). There are also a number of reproductive consequences for mothers who have had a CS. These include placenta previa, placenta accreta, placental abruption, and uterine rupture; consequences for future pregnancies include stillbirth, miscarriage, ectopic pregnancy and other complications (Sakala).

A number of adverse psychological outcomes have been documented in association with CS, such as depression and trauma following the surgical delivery, and negative effects on mother-infant attachment (Mutryn, 1993). In a Swedish study, women with emergency CS and instrumental vaginal deliveries had the most negative appraisals of their births and scored significantly higher on measures of post-traumatic stress and mental distress than women who gave birth without interventions (Ryding. Wijma. & Wijma, 1998).

Elective obstetric interventions, such as epidural anesthesia and CS without medical indications increase health care costs directly and indirectly. Among low risk Australian women, epidural anaesthesia increased the cost of obstetric care by over 30% because it was followed by a number of other obstetric interventions (Tracy & Tracy, 2003). In the U.S., a planned CS costs \$4372, on average, compared to \$2487 for a planned vaginal delivery (Declercq et al., 2007). Additional costs are incurred due to the higher rate of hospital re-admissions among Canadian women who had a CS versus a spontaneous vaginal delivery (Liu et al., 2005). Canadian reports estimate that hospital costs for surgical deliveries are 60% higher than for vaginal deliveries. A 6% reduction in the national CS rate would translate into cost savings of \$1800 per woman, or total annual savings of \$36,640,000 for the Canadian health care system (CIHI, 2004; BCPHP, 2008). The preterm birth rate associated with elective CS and induction of labour is increasing (BCPHP, 2010). Preterm babies are more likely to die in the first year of life and suffer

morbidities throughout infancy and childhood. Because they are admitted to neonatal intensive care units at a higher rate and receive more medical procedures early in life compared to term babies, their hospital and physician costs are significantly higher (CIHI, 2004).

In a publicly funded healthcare system that operates under the premise of distributive justice (Joseph et al., 2006), the additional costs incurred by obstetric interventions without medical indications must be considered, (De Zulueta, 1999) in addition to women's right to self-determination and autonomous decision making (Nilstun, Habiba, Lingman, Saracci, Da Frè, & Cuttini, 2008). Fear of childbirth has increasingly been recognized as a determinant of women's choices related to childbirth and can range from mild worry to severe fear of childbirth; i.e., a clinical condition called tokophobia (Spice, Jones, Hadjistavropoulos, Kowalyk, & Stewart, 2009). Fear of birth has been studied among pregnant women in Scandinavia (Alehagen, Wijma, Lundgren, & Wijma, 2005; Alehagen, Wijma, & Wijma, 2001; Eriksson, Westman, & Hamberg, 2005; Karlström, Rådestad, Eriksson, Rubertsson, & Nystedt, 2010; Laursen, Hedegaard, & Johansen, 2008; Melender, 2002; Nieminen, Stephansson, & Ryding, 2009; Ryding, 1993; Ryding, Wijma, Wijma, & Rydhstrom, 1998; Saisto, Salmela-Aro, Nurmi, & Halmesmaki, 2001; Zar, Wijma & Wijma, 2001), Australia (Fenwick, Gamble, Nathan, Bayes, & Hauck, 2008), the UK (Johnson & Slade, 2002) and Canada (Hall et al., 2009), but very little is known about this phenomenon amongst the next generation of childbearing women and their partners.

Identifying factors associated with fear of childbirth and preferences for elective obstetric interventions that are amenable to manipulation or change has implications for the development of public health education, specifically school-based and prenatal childbirth education strategies that could reduce fear of vaginal birth. Lower fear of vaginal birth may increase women's willingness to consider a less medicalized approach to birth and lead to decreased rates of elective obstetric interventions and associated adverse outcomes.

In summary, Canadian parturient women are experiencing increasing rates of obstetric interventions that are not always necessary or evidence-based. Fear of childbirth has been linked to increased interventions, but risk factors for fear of childbirth have not yet been reported for the future generation of maternity care consumers. The current

study bridges this gap by examining fear of birth and associated factors among a large sample of Canadian university students. Findings may have implications for early interventions aimed at reducing fear of birth.

Chapter 2 outlines the theoretical framework that I used to hypothesize about students' fear of birth/self-efficacy for birth and related factors. Chapter 3 provides an overview of literature relevant to the study of childbirth fear among young adults. The literature review is organized around key study variables. Chapter 4 describes the methods I used to test my hypotheses and answer my research questions. Chapter 5 provides the results of my research, and chapter 6 includes the discussion of findings, implications of the findings, limitations of the study and a conclusion.

Chapter 2: Theoretical Approaches

In this chapter I discuss Albert Bandura's social learning theory and why it is an appropriate theoretical framework for the study of childbirth fear among young adults. I summarize self-efficacy theory, as conceptualized by Bandura, and applied by other researchers to the study of childbirth. A section on socio-cultural influences on childbirth fear concludes this chapter, with a focus on the medicalization of birth as a cultural force that shapes women's self-efficacy for birth.

2.1. Social Learning Theory

An examination of childbirth from a social learning perspective should begin with an analysis of the larger cultural context in which birth occurs. Some aspects of our changing culture have affected childbirth more than others. A popular audio documentary about birth notes that

The rise in technology has seeped itself into the most profound and intimate aspects of our lives: Our health, how we find a mate, even how we give birth. One hundred years ago, 99% of mothers gave birth at home. Today, 98% give birth in the hospital. (Ketenjian & Golden, 2008)

During a hospital birth in Canada labouring women are likely to receive pharmacological agents to start labour (45%) and reduce pain (57.3%) and are exposed to obstetric technology, such as continuous electronic fetal monitoring of their babies (62.9%) (Chalmers et al., 2008). Although interventionist births are becoming the norm, some communities have evaded this trend. For instance, low technology birth is the norm in Amish communities (Campanella, Korbin, & Acheson, 1993), in part because the Amish do not value technology, and have chosen not to participate in contemporary culture. The Canadian Inuit serve as another example of a cultural group that values traditional, family and community-centered birthing practices that are characterized by use of low levels of technology (Douglas, 2006). The primary CS rate in Nunavut and the rate of administration of epidural anaesthesia are the lowest in the country. The Amish and the Inuit are powerful reminders of how culture shapes birth (Jordan, 1983).

Albert Bandura, the founder of social learning theory, popularized the idea that

behaviour is motivated by observation of others and environmental influences. Bandura states that “most human behaviour is learned observationally through modeling: from observing others, one forms an idea of how new behaviors are performed, and on later occasions this coded information serves as a guide for action” (Bandura, 1977, p.22). For this reason, social learning theory is a good conceptual model from which to examine cultural/environmental influences on fear of birth.

2.2. Self-Efficacy Theory

One of the primary concepts of social learning theory and the mechanism through which it operates is perceived self-efficacy, i.e. personal judgments of how well one can manage certain situations (Bandura, 1982). Self-efficacy is a subjective perception of how well one may be able to cope with a situation or event and influences thought patterns, behaviour and emotional arousal. Self-efficacy theory, because it encompasses both personal and collective notions of efficacy, is a fitting theoretical framework for the exploration of personal and social influences on students' perceptions of birth.

Bandura's theory distinguishes between efficacy expectations and outcome expectations. An efficacy expectation refers to “the conviction that one can successfully execute the behaviour required to produce the outcome” (Bandura, 1982, p. 193) whereas an outcome expectation is “a person's estimate that a given behaviour will lead to a certain outcome” (p.193). Perceptions of self-efficacy act as mediators of actions. The higher a person's self-efficacy for a certain task or activity, the better he or she will perform on the task and the more likely the person will be to persevere until the task has been completed successfully. Having performed a given task successfully in the past is the strongest predictor of coping efficacy for future (similar) tasks. On the other hand, previous negative experiences (whether personal or vicarious) can lead to significant anxiety and defensive behaviour because of expectations of negative effects and poor outcomes (Bandura, 1977). For example, a parturient woman with a previous negative and painful vaginal birth experience may have serious doubts that she can manage labour pain. This lack of efficacy expectation regarding labour pain may lead her to request pain medications or to avoid the labour process altogether by requesting a surgical delivery. On the other hand, a woman with a strong sense of self-efficacy for labour is more likely to expect to manage the pain of

labour, without requesting pharmacological pain relief.

2.2.1 Sources of self-efficacy. Bandura proposes four major sources of efficacy information and describes how these sources are induced. The most important source of self-efficacy is performance accomplishments (i.e. previous positive experience with labour and birth). Bandura points out performance accomplishments can be generalized, i.e. if women have coped well with pain in other situations, they will likely feel more confident about coping with labour pain. The next source of self-efficacy, vicarious experience, falls into two categories: live modelling (e.g. observing the labour and birth of a friend or family member) and symbolic modelling (e.g. mass-mediated images and culturally circulated stories about labour and birth). Self-efficacy theory indicates an observer may experience a reduction in self-efficacy if he or she observes failure of a task by a person judged as equally or more competent than the observer. In general, the more competent the model, the more likely the observer is to learn ways of managing the situation. People with low self-efficacy generally avoid activities that exceed their perceived capabilities whereas people with high self-efficacy will try to master tasks even if presented with obstacles along the way. For example, a woman who is fearful of labour may avoid vaginal delivery and request a planned CS; a woman who feels confident in her ability to give birth may try several non-pharmacological methods of pain relief despite experiencing labour pain.

Another source of self-efficacy is verbal persuasion. Studies show that people who are given subordinate roles and inferior labels perform more poorly because these labels imply limited competence (Bandura, 1982). Similarly, negative messages about labour and birth, whether conveyed by care providers, family members, or the media, can have a negative effect on parturient women's self-efficacy or confidence. Several authors have described the nocebo effect (Benedetti, Lanotte, Lopiano, & Colloca, 2007; Schenk, 2008; Spiegel, 1997), defined as “clinical outcomes that are susceptible to expectation, suggestion, and conditioning” (Lang et al., 2005, p.307). Positive expectations about pain control have been shown to release endogenous opioids whereas negative or nocebo expectations stimulate hyperalgesic effects “through anticipatory anxiety and hyperactivity of the hypothalamic-pituitary-adrenal axis” (Benedetti et al., 2007, Sakala, 2007, p. 348). Such a stress response can potentially inhibit endogenous oxytocin and slow or stop labour (Sakala). Positive messages or affirmations by care providers, family members, or other

women that suggest it is possible to handle the pain of labour may enhance women's self-efficacy for birth.

The last source of self-efficacy is emotional arousal. Bandura, Reese, and Adams (1982) were able to demonstrate that bolstering self-efficacy for a behaviour significantly reduced fear arousal in a small sample of phobic men and women. The participants took part in an intervention aimed at inducing differential levels of self-efficacy for coping with an adverse stimulus. That experiment confirmed that perceptions of self-efficacy act as cognitive mediators of coping behaviour and fear arousal. Women who have physical anxiety responses when thinking about labour (anticipatory self-arousal) are likely more debilitated once they are actually in labour than women who do not feel this physical response. A strategy to overcome emotional arousal is progressive desensitization to the feared stimulus. Fear and stress responses to an aversive stimulus can be controlled cognitively or by taking actions to "forestall or modify aversive events" (Bandura, 1982, p.136). Planning a CS may be one strategy parturient women utilize to 'modify' an event that they perceive as unmanageable.

Bandura tested his theory by using a micro-analytic research strategy (Bandura, 1977). He exposed severe phobics to treatments "designed to create different levels of efficacy expectations" (p. 205). He then examined the association between self-efficacy and behavioural change (i.e. reduction in phobic responses). Treatments included participant modelling (i.e. direct mastery involving progressively more threatening interactions with the feared stimulus, e.g. a boa constrictor or large spider), modelling alone (subjects observed the therapist performing the same progressive tasks the subjects in group 1 performed) or no treatment. Before and after the treatment, participants were asked to rate how capable they felt to perform a list of 18 performance tasks (involving the feared stimulus) rank-ordered by their level of threat. Subjects were also asked how strong their perception of self-efficacy was and how capable they felt to cope with similar and dissimilar snakes or spiders, to assess whether their efficacy expectations could be generalized. Bandura measured subjects' behaviours prior and after treatment to determine whether phobic behaviours were reduced. He operationalized success as the number of tasks that were performed successfully as part of the self-efficacy assessment (e.g. touching the snake, holding the snake, tolerating the snake on one's lap).

Participants with direct mastery experiences had higher, stronger, and more generalized self-efficacy expectations than participants in the other two groups (control group and modelling alone). Self-efficacy expectations of subjects with vicarious experiences exceeded those with no treatment. Bandura also assessed the discrepancy between self-efficacy expectations (at the end of treatment) and actions on the 18 performance tasks. Self-efficacy expectations uniformly predicted actual performance accurately, whether self-efficacy was achieved via direct mastery (89% congruence) or vicarious experience (86% congruence). Bandura performed many additional experiments to test different hypotheses of self-efficacy theory. For example, he exposed participants in the modelling group (group 2) to different periods of observation of mastery skills and found longer exposure resulted in higher self-efficacy scores.

Findings from his experiments led Bandura (1977) to conclude that self-efficacy is an important mechanism in human agency. Although his theory was supported through his experiments, he conceded individual levels of motivation, skill, and incentives can contribute to variations in self-efficacy and performance accomplishments (Bandura). Bandura discussed various ways rewards or incentives might be used to promote self-efficacy for a given activity. Rewards are especially important in situations where success is difficult to evaluate based on performance alone. Gaining knowledge and skills that facilitate task mastery are excellent incentives that promote self-efficacy.

Applicable to all four sources of self-efficacy is the role of environmental influences. Expressions of personal self-efficacy depend on environmental responsiveness. The most positive outcomes occur when individuals with high self-efficacy find themselves in responsive environments. When highly self-efficacious people enter environments that are not responsive resentment, protest, and a desire for change usually ensue. For example, women with high efficacy for birth may be more likely to seek out a positive birth environment and supportive birth attendants and protest when such conditions are not met.

Bandura's work has been limited by use of small samples and subjective markers of arousal (Biglan, 1987). To address the use of subjective markers, Bandura et al. (1982) performed a small experiment that correlated increases in self-efficacy over the treatment period (difference between pre and post treatment self-efficacy scores) with significant

decreases in blood pressure and cardiac acceleration ($n=12$). In another experiment ($n=12$), Bandura and colleagues showed that the strength of subjects' perceived self-efficacy was a significant source of variance in epinephrine and nor-epinephrine levels among subjects (Bandura, Barr Taylor, Lloyd Williams, Mefford, & Barchas, 1985).

Bandura's theory has been applied widely and his experiments have often been replicated. Hundreds of studies have been conducted to test, expand and revise self-efficacy theory in different contexts, e.g. the role of self-efficacy in tobacco and chronic pain control (Bandura, 1997) and self-efficacy for birth as a predictor of pain control during labour (Lowe, 1989).

2.3 Childbirth Self-Efficacy

Nancy Lowe applied Bandura's self-efficacy theory to childbirth. Lowe (1991) noted self-efficacy theory is "congruent with the concept of confidence and provides theoretical specifications for its study in relationship to childbirth." In 1993, she introduced a scale to measure maternal confidence for labour: The Childbirth Self-Efficacy Inventory (CBSEI); she tested the psychometric properties of the scale with 351 healthy American women in their third trimester of pregnancy. The CBSEI is a self-report instrument that measures women's outcome expectancies and self-efficacy expectancies for coping with an upcoming childbirth experience (Lowe, 1993). Outcome expectancy is the belief that a specific behaviour may help a woman cope during labour. Self-efficacy expectancy measures a woman's confidence in her ability to use a behaviour to cope with childbirth. Lowe administered the CBSEI to study the association between childbirth self-efficacy, perceived pain during labour (Lowe, 1989), and childbirth fear (Lowe, 2000). Lowe (1989) invited 134 low risk American women to participate in a hospital-based study that involved measurement of self-efficacy and pain during active labour by a nurse via interview. Women's confidence in their ability to cope with labour was the most significant predictor of pain during active labour, controlling for age, parity, childbirth preparation, state anxiety, fear of pain, cervical dilatation and frequency of uterine contractions. Other researchers have also demonstrated a relationship between increased self-efficacy for birth and decreased pain and distress during labour for 230 primiparous women from New Zealand (Berentson- Shaw, Scott, & Jose, 2009). Fuller-Stockman and Altmaier (2001) also

studied the relationship between self-efficacy and reported labour pain in a sample of 43 pregnant American women at low risk for complications. The authors conceptualized childbirth self-efficacy as consisting of two components: a series of tasks that need to be completed successfully (e.g. doing breathing exercises, pushing as required) and a series of obstacles that women needed to overcome (e.g. a non-supportive partner). The authors defined the latter as barrier self-efficacy. Using multiple regression analyses, they found barrier self-efficacy was the strongest predictor of perceived labour pain ($R^2 = 0.15$, $p < 0.05$). In another study, Lowe (2000) elicited information from 280 low risk American women via postal survey during the third trimester of pregnancy about their self-efficacy for labour and childbirth fear. She found an association between low self-efficacy for birth and increased fear of birth, learned helplessness, and powerful others health locus of control. Using Lowe's CBSEI, Smart (2004) found pregnant women with high self-efficacy and high outcome expectancy were more likely to have strong vaginal birth intentions. When administering the CBSEI to a group of women with a previous caesarean delivery Dilks and Beal (1997) discovered those women who chose an elective repeat CS had significantly lower self-efficacy scores.

Larsen, O'Hara, Brewer, and Wenzel (2001) have used Bandura's self-efficacy theory to develop a measure of childbirth expectations (ECQ) that incorporates self-efficacy expectancies, outcomes, and a third construct: importance. The importance subscale measures the importance a childbearing woman assigns to performing certain behaviours during labour. Larsen and colleagues invited 37 nulliparous American women to rate their self-efficacy expectancies, importance, and outcome expectancies about techniques taught in prenatal education classes for three stages of labour (early, active, and transitional). Women's self-efficacy was assessed prenatally and they completed pain measures during labour with the assistance of their birth partners. Pain scores during each of the three stages were measured and related to the ECQ scores. Their study results indicated self-efficacy expectancies predicted women's mastery of pain during early ($R^2 = 0.23$, $p = 0.013$) and active labour ($R^2 = 0.19$, $p = 0.016$), but not during the transitional phase of labour. Although the sample size for this study was small its prospective design and repeated measures of self-efficacy and pain for all three stages of labour strengthen the conclusion that perceived self-efficacy during the prenatal period is a significant predictor of pain

mastery during labour.

2.4 Socio-Cultural Influences on Childbirth Self-Efficacy

Lowe (2000) observed that “the medicalization of birth often comes with a strong message that medical management is superior to the physiologic workings of the woman's own body and that those workings are, in fact, very suspect and potentially dangerous” (p. 223). There are other references to the medicalization of birth in the conceptual and theoretical literature, especially in discussions about the biomedical view of birth (Sobo & Loustaunau, 2010). There are also some studies of childbearing women and how they relate to and utilize obstetric technology (Fox & Worts, 1999; Kornelsen, 2005; Viisainen, 2001). No studies to date have been located that examine how fear of birth and self-efficacy for birth) might be affected by the progressive medicalization of birth. One reason for the absence of research is the difficulty in assessing the role of socio-cultural influences on personal feelings, attitudes and behaviours. Another obstacle is the need to study socio-cultural changes in birthing practices and how they relate to childbirth self-efficacy over long periods of time, an endeavour that would be costly and time consuming. There have been “natural experiments,” in which changes in birthing traditions have taken place. An interesting example of this phenomenon has been noted by Douglas (2006), who studied childbirth among the Inuit in the Canadian Arctic. A gradual change, from local birth to geographic relocation to urban hospitals, eroded Inuit birth traditions and community members’ confidence in local birth.

Because of the difficulties associated with longitudinal empirical studies, analyses of the interrelationships between culture and birth often come from cultural anthropology, feminist studies, and sociology. These analyses are mostly theoretical and conceptual in nature. For example, Reiger and Dempsey (2006) question the decline in cultural and individual confidence in women’s capacity to give birth in an era when women enjoy increased social power, health, and positive living conditions, at least in the Western world. These authors discuss the interaction of physiological processes and cultural context and describe ways cultural norms of anxiety and fear of birth are manifested in the body. The interaction between bodily process and culture can be related to Bandura's social learning theory and research about the nocebo effect. The question remains: how do cultural norms

undermine women's confidence in their own bodies?

According to Reiger and Dempsey (2006), childbearing women not only view birth as a physiological process but as a process that is intricately embedded in cultural meanings affecting physiological functioning. The example of cervical dilation is used to illustrate this point. Gaskin (2003, as cited in Reiger and Dempsey, p. 368) found dilatation of the cervix is “highly sensitive to emotion and environment ... rough handling by a caregiver can rudely disrupt this finely tuned physiological process.” Reiger and Dempsey claimed hegemonic medical discourse and the associated culture of risk deny women's agency in performing birth and construct the female body as pathological and in need of medical care.

In summary, self-efficacy for birth is associated with reduced pain during labour, reduced fear of birth, and vaginal birth intentions. Self-efficacy theory is highly relevant to issues surrounding contemporary childbirth, including fear of birth. Nancy Lowe applied self-efficacy theory to childbirth (Lowe, 1989, 1993, 2000), and other authors have studied concepts that are closely aligned with Bandura's self-efficacy theory. In terms of potential influences on self-efficacy, Reiger and Dempsey (2006) and Fahy (2002) referred to hegemonic medical discourse and its effects on women's confidence in birth and decision making, a similar concept to Bandura's proposition about verbal persuasion as a source of self-efficacy. Closely related to these concepts are findings from nocebo research that a single negative statement from a person who is considered an authority figure can have a powerful negative effect on confidence and clinical outcomes. Reiger and Dempsey (2006) have explained the intricate interrelationships between individual and cultural confidence in women's capacity to birth; these concepts are closely aligned with Bandura's (1982) personal and collective efficacy.

In the next chapter, I present a critical analysis of extant literature relevant to childbirth efficacy and fear. Whenever possible, I have chosen studies that are relevant to my target population, young students.

Chapter 3: Literature Review

In this section, I elaborate on key concepts from my introductory chapter, analyze and synthesize the literature relevant to fear of birth among Canadian students, and provide empirical support for the inclusion of my selected variables.

3.1 Childbirth in the Age of Technology

Ponte (2007) states that “birth always reflects the culture in which it happens” (p.51). Brigitte Jordan, a medical anthropologist who conducted intensive ethnographic fieldwork in Mexico, Sweden, Holland and the United States in the 1970s, tested this premise. Jordan (1983) used a biosocial perspective to present birth (a biological process) within different socio-cultural contexts. She was most interested in the “social production” of birth, i.e. the way participants are *doing* birth. She observed prenatal, intrapartum, and postpartum care practices in these countries, using participant observation and, in some cases, complete immersion (Mexico) in the birthing process. Although birth is a universal physiological event, it is expressed quite differently in different cultures, starting with the definition of birth (e.g. a medical versus a natural event). During her research, she found that North American births were usually defined as medical events, with a focus on potential complications and pathology. Although maternity care providers are regarded as authority figures in all countries, Jordan observed a distinctive doctor-patient relationship in North American obstetrical units. When speaking about the expected roles of doctor and patient she noted that “the physician role [...] requires the doctor to put his technical knowledge (of diseases and pain management) in the service of the patient’s problem while the patient, reciprocally, is expected to have confidence and trust in the physician” (Jordan, p.35).

Jordan (1983) documented significant cross-cultural variation in birthing systems and biomedical management of birth, even among developed countries that are similar in their overall attitudes towards technology. She observed strong adherence to the natural childbirth paradigm in Holland, where women were expected to give birth without pain relief. In Sweden, childbearing women were actively involved in decision-making processes around different options for pain relief and received such pain relief readily. Jordan concluded that differences in birthing systems are due to variations in local

understandings of the roles of maternity care providers and childbearing women, definitions of birth, choice of birth place, and cultural attitudes towards birth. In other words, the way we construct birth is shaped by cultural factors and social context.

Davis-Floyd (1994) is another anthropologist who studied cultural expressions of childbirth. Her research with American women and maternity care providers led her to coin the term “technocratic” childbirth. A technocracy is a modern industrialized society, such as Canada, that values science and technology over nature (Reynolds, 1991, as cited in Davis-Floyd). In a technocratic society, a highly functional natural process, like birth, is viewed as dysfunctional and in need of technological intervention. As such, the medicalization of birth is a cultural expression of the core values of technocracy and a “powerful agent of social control, which is shaping and channelling individual values, beliefs, and behaviour” (Davis- Floyd, p.1125). Davis- Floyd became interested in technocratic childbirth when she interviewed 100 women about their birth experiences in the 1980s. Seventy percent of women in her study felt comfortable with their highly technologized labours and deliveries; some women even felt empowered by obstetric interventions.

Between 1988 and 1991, Davis-Floyd conducted interviews with 32 professional women who gave birth in hospitals and 8 who gave birth at home. Davis-Floyd developed the basic tenets of her technocratic model of birth based on the responses of the 32 women who gave birth in hospital. These included perceptions that the body is an imperfect machine, life and one’s body are controllable, technology is better than nature, and medical knowledge is authoritative. Women who gave birth at home valued letting go of control and seemed in tune with their bodies whereas women who delivered in hospital viewed their bodies as a separate entity. Women in the hospital group perceived obstetric technology as a resource to control their birth experience and viewed medical interventions as a “liberation from the tyranny of biology” (Davis-Floyd, 1994, p.1137). Davis-Floyd argued that many women want to distance themselves from the physiological process of childbirth and are happy to utilize whatever technological resources may help them in this quest.

Feminist theorists have argued that medicalized birth promotes the subordination of women and regulates women’s childbirth experiences (Martin, 2003). Moreover, the

loss of pregnant women's autonomy can be blamed on larger social structures, such as capitalism, patriarchy, and technocratic society (Fox & Worts, 1999). Pregnant women are members of a technocratic society (Davis-Floyd, 1994) that values the technical skills of physicians because they may prevent complications, “guarantee” a “perfect baby,” and help ameliorate the pain of childbirth (Cherniak & Fisher, 2008). For these reasons, Cherniak and Fisher argued that women will continue to accept obstetric interventions that may not be medically necessary.

Very few studies examine childbearing women's attitudes towards obstetric technology empirically (Fox & Worts, 1999; Kornelsen, 2005; Viisainen, 2001). In one study, Fox and Worts used both conceptual and empirical findings to summarize critiques of medicalized birth. The authors examined medicalized birth from the standpoint of many disciplines and concluded that an overarching criticism is that medical professionals are trying to control a natural process. Obstetric interventions are based on the view that birth is hazardous and remove control from childbearing women, sometimes leading to alienation, dissatisfaction with birth, and even psychological problems postpartum (Mutryn, 1993). Medicalized birth is viewed as another way of socializing women into the main belief systems of a culture. As such, medical management of birth can be seen as a force of social control. An interesting macro-level analysis compared childbirth to industrial production under capitalism where women's bodies are constructed as 'more or less efficient machines' with women being characterized as the unskilled workers and doctors being characterized as the managers (Martin, as cited in Fox & Worts, 1999).

Regardless of how medicalized birth is constructed in the theoretical literature, empirical evidence suggests that many women across social classes have welcomed medical interventions and been satisfied with hospital deliveries. Fox and Worts (1999) were interested in further exploring how social support and personal autonomy relate to perceptions of childbirth and medical interventions in particular. They analyzed qualitative findings from in-depth interviews with 40 Canadian women who were interviewed 5 times: During pregnancy, 1-2 weeks after the birth, and 2, 6, and 12 months postpartum. Prenatally, women were asked what kind of birth they envisioned for themselves. Ten women had desired a natural birth with minimal interventions, which they defined as use of pharmaceuticals and technology, 2 women wanted a medically

managed birth to avoid pain, and the rest could be described as “flexible.” All women gave birth at the hospital. Overall, 22 women felt angry, upset or reported other negative emotions about their births, 16 felt positively about their births, and 2 were uncertain. A medically managed birth was neither consistently associated with a more negative birth experience nor was a normal birth always perceived positively. Some women were angry that interventions were not offered or did not work as desired, while others were upset that they had a medically managed birth. The main reason for a negative birth experience was pain. Nine of 40 women cited poor pain management by medical staff.

Fox and Worts (1999) argued that medical management of birth has replaced social and emotional support for the birthing mother and is overly focused on the delivery of a “healthy” baby. The relationship between maternal confidence in birth and technology is poorly understood but there is qualitative evidence suggesting the availability of medical technology can undermine women’s confidence in their ability to give birth naturally. Fox and Worts referred to a woman who described how discouraged she felt when the fetal monitor indicated a mild contraction in early labour that felt very strong to her. On the other hand, some women in their study felt reassured by the availability of obstetric technology and pharmaceutical pain relief; they felt in control of their birth experience when their pain was managed for them.

My dissertation research is based on data from the first large scale study to examine young adults’ attitudes towards obstetric technology and participants’ willingness to accept selected obstetric interventions. Such exploration is particularly important in a generation of young adults who grew up in an era of rapid technological advances and have been socialized into a birth culture that is becoming more medicalized. It is unclear whether exposure to medicalized birth cultures and technology translates into positive attitudes towards obstetric interventions and technology among students.

3.2 Perceptions of Risk

Perceptions of risk from the perspectives of care providers and pregnant women drive decision making during pregnancy and birth. For instance, a pregnant woman with a previous CS needs to consider her risk of uterine rupture, and poor outcomes for her infant against risks associated with CS surgery, when contemplating a trial of labour (Ecker &

Frigoletto, 2007). Obstetric risks are primarily defined by medical experts and are part of a larger cultural discourse that equates medicalized hospital births with the safest way to deliver babies (Snowden, Martin, Jomeen & Hollins Martin, 2011).

In an effort to deconstruct risk perception, Heaman, Gupton and Gregory (2004) analyzed open-ended comments about the risk perceptions of 103 pregnant women who experienced complications during pregnancy and 102 who did not. Women were asked to complete a quantitative risk assessment and were encouraged to describe factors they considered when completing the measure, including risks to themselves and their babies. The authors found that risk perception was influenced by a number of factors, including previous reproductive, health, and family history, confidence in maternity care providers, and fears of the unknown. Pregnancy and birth were constructed as uncontrollable events that might result in complications at any time, especially among women who had already experienced pregnancy complications. In a later study, Heaman and Gupton (2009) found a significant correlation between perceived risk during pregnancy and state anxiety in a sample of 199 pregnant women, regardless of their actual risk status. Based on these studies, it seems that risk perception during pregnancy is related to a number of demographic, experiential, and socio-cultural factors (Heaman et al., 2004).

According to Zinn (2008), theorizing about risk “is deeply embedded in specific sociocultural backgrounds” and risk discourse ought to include a discussion of “different values and lifestyles, power relations, and emotions” (p.2). Zinn (2008) reviewed the conceptual and empirical literature on risk perception and found that risks with low prevalence but high consequences (e.g. neonatal morbidity) are considered more threatening than risks with high prevalence but low perceived consequences (e.g. epidural anaesthesia). Zinn also noted that risk perception is closely linked to uncertainty and the perceived degree of control over an event. Many people are fundamentally uncomfortable with and fearful of events that cannot be controlled, e.g., it is not possible to predict how long a woman’s labour will last, when it will start, or how painful it is going to be. Obstetric technology offers the potential to “control” labour and birth (e. g., by deciding the date of birth via induction or planned CS); there is some evidence to suggest that university students view medical expertise and technology as mitigating perceived risks associated with childbirth (Fairbrother, Stoll, Carty & Schummers, in press).

Another important dimension of obstetric risk perception relates to iatrogenic risks associated with elective interventions. Perceptions of these risks are more common among women who actively oppose medicalized births and opt for a home delivery (Kornelsen, 2005). This construction of risk aligns with Zinn's (2008) description of the history of risk in industrialized countries. He asserts that pre-industrial societies focused on risks incurred by uncontrollable forces such as diseases and natural disasters whereas modern society has to contend with man-made risks that can be understood as a side effect of modernization. Zinn cites nuclear and ecological risks as examples but the medicalization of birth also fits with this conceptualization of risk. Maternal and neonatal mortality was high until the 20th century when advances in medicine and obstetrics led to fewer deaths and morbidities. While the safety of mothers and babies remains paramount, there is now increased awareness around maternal and neonatal morbidities or risks associated with the medicalization and 'modernization' of birth (Johanson et al., 2002).

It is important to assess students' attitudes towards and constructions of obstetric risk, to assess how common this perception is, and to determine if risk perception contributes to fear of birth and preferences for elective interventions.

3.3 Birth and Body Image

Young women contemplating motherhood are exposed to a wealth of information and images that may affect the way they view pregnancy and birth. Fox, Heffernan and Nicolson (2009) interviewed two generations of women about the way they experienced pregnancy to highlight the changing culture of childbirth in Britain. These authors found that "advances in media and technology have not only increased the flow of information regarding health and motherhood ideologies, but have also created new discourses surrounding pregnancy and body image" (p. 560). The authors refer to female celebrities who pose naked during pregnancy, lose their weight gained during pregnancy within weeks of giving birth, and have turned pregnant bellies and newborns into fashion accessories. Unlike the older generation of mothers who were interviewed for the study (i.e. women who were in their 60's and 70's at the time of data collection), women who experience pregnancy in the 21st century in the Western world may feel pressure to live up to "certain ideals of appearance and body size/shape" during pregnancy and the

postpartum period (Fox et al., 2009).

There is some evidence to suggest that cultural ideals of female beauty are related to rates of cosmetic surgery and elective CS. In countries like Brazil, where women with private health insurance can choose to have elective CSs without medical indications, CS rates of 80% and more have been reported (Hopkins, 2000). Elective CSs are seen as a status symbol, and are promoted for sexual-aesthetic reasons over vaginal deliveries (Diniz & Chacham, 2004). Acceptance of cosmetic surgery is high in Brazil, and medical procedures are often combined with elective surgeries (e.g. tubal ligation plus liposuction), obscuring the separation of medical and cosmetic interventions. This “medico-cosmetic management of the female body” is promoted in Brazilian culture and conforms to cultural notions of sexuality and beauty (Edmonds, 2009, p. 159).

The decision of young celebrities to have elective CSs without medical indications is another phenomenon that may influence the way young adults construct birth. This phenomenon is labelled ‘too posh too push’ and is so popular that it appears in various online dictionaries (Cheng, 2011; Cherryblossom, 2007). It is unclear what effect these mass mediated images have on young adults’ perceptions of pregnancy and birth but there is some evidence to suggest that exposure to images of the idealized female body portrayed through the mass media is associated with bodily dissatisfaction among women (Monro & Huon, 2005). I wanted to explore these issues by including items in the survey about students’ concerns about physical changes associated with pregnancy and birth and by asking students whether the media shaped their attitudes towards birth.

3.4 Birth in the Media

Over the last few decades, birth has become a hospital-based event that is attended by hospital staff, perhaps a woman’s partner, and occasionally immediate family members and friends. Most people will never witness a birth first hand, prior to their own or that of their partner, and rely on stories from family members and friends and media images to inform their attitudes about birth. Vicarious experiences of birth, in particular symbolic modeling, are particularly relevant to young adults who are unlikely to have ever observed an actual birth. The next generation of maternity care consumers is surrounded by a wealth of print and digital media outlets; however, childbirth educators have lamented the

way birth is depicted in the media (Lothian & Grauer, 2003). Bak (2004) made notes on 145 episodes of “A baby story” and found that 41.4% of women depicted had a CS and 71% had an epidural or other anaesthetic drug during labour (excluding women who had anaesthesia due to CS). Not only did the episodes normalize pharmacological agents and surgical delivery but they also depicted birth as something “that was performed on women, rather than something women performed” (p.45). Birthing knowledge was no longer within the realm of childbearing women; it was replaced by “specialist” knowledge held by the physicians who cared for them.

The most systematic and compelling content analysis of reality birth shows was recently published by Morris and McNerey (2010). The authors chose two mainstream birth shows to study “popular constructions of cultural expectations of birth” (p. 134). They noted that close to 70% of childbearing American women watch reality television programs on pregnancy and birth and one third of these women felt more worried about birth after watching these shows. Their content analysis of 123 births aired on reality television revealed media depictions of labour and birth that are more dramatic and perilous than typical birth experiences. The shows over-represented complications of pregnancy, in an attempt to increase the entertainment value of the episode, and showed doctors solving problems and saving mothers and babies. Labouring women were often depicted as helpless and childlike; they tended to be rewarded for complying with doctor’s suggestions (e.g. to have an induction or a CS), while the few women who had a natural physiologic birth were depicted as out of control and in intolerable pain. Overall, the authors concluded birth shows represent birth as potentially dangerous and glorify physicians and obstetric technology as the “saving grace for women’s imperfect bodies” (Morris & McNerey, p. 140).

It is reasonable to view such reality shows as having a pervasive effect on young adults’ constructions of birth, by inflating perceptions that birth is risky, glorifying obstetric technology, and trivializing adverse effects of surgical delivery and other interventions. In summary, the mass-mediated and internalized cultural norms about birth as unpredictable, risky, and in need of technological intervention have contributed to a climate of fear surrounding birth (Sakala, 2007).

3.5 Fear of Childbirth

There has been significant interest in fear of childbirth, particularly over the past 10 years. Severe fear of childbirth (SFOB) affects 6% to 10% of parturients and is characterized by nightmares, physical complaints, and difficulties concentrating on work or family activities (Saisto & Halmesmäki, 2003). Two studies that used the W-DEQ (Wijma Delivery Expectancy/Experience Questionnaire) cut-off score of 66 to define high fear found a prevalence of high fear of birth of about 25% among pregnant nulliparous and multiparous women (Zar et al., 2001, Hall et al., 2009). Using a new 29 item scale, Eriksson et al. (2005) detected intense fear of birth in 23% of women and 13% of men. Based on a review of 5 studies, the most prevalent fears among women with clinically significant fear of birth concerned health and safety of the child, intolerable pain, panic, and maternal incompetence during labour (Saisto & Halmesmäki, 2003). In one Swiss study with 8000 pregnant women, the most common fears reported were concerns over the safety of the infant (50%) and fear of pain (40%) (Geissbuehler & Eberhard, 2002).

Most women do not develop clinical fear of birth but many worry about birth. A literature review conducted by Maier (2010) revealed three major areas of childbirth worries: 1) the potential of death and abnormality of the newborn; 2) women's fear they may not have cared for themselves well enough in pregnancy which may negatively affect their children's health; and 3) fear of pain and how they will experience childbirth, including the care they will receive and potential for various interventions during labour and birth.

In a study of 329 Finnish women, 78% expressed fears associated with pregnancy, birth, or both. Childbirth was a cause of fear (in particular pain, prolonged labour, and panic during labour), as well as concerns over unsupportive hospital staff and the well-being of the baby. Negative psychological states and negative stories about birth and pregnancy contributed the most to women's fear, followed by alarming information from maternity care providers. Fears were manifested as stress symptoms (including sleeplessness), negative influences on everyday life, and a wish for a CS (Melender, 2002).

A review of the literature by Hanson, Hunter, Bormann and Sobo (2009) identified the following paternal fears: harm to the mother or newborn, partners' pain, feelings of helplessness, lack of knowledge, and concern about high-risk interventions. Fathers often

reported childbirth classes were not helpful and, in some cases, even increased their fears.

3.5.1. Fear of birth and perinatal outcomes. Empirical findings about the association between fear of birth and mode of delivery are mixed. Fear of birth has been linked to requests for elective CS (Karlström et al., 2010; Nieminen et al., 2009; Ryding, 1993). Serious fear of childbirth (a score of 84 or higher on the Wijma Delivery Expectance/Experience Questionnaire -W-DEQ) at 32 weeks gestation in a sample of 1981 Swedish women tripled the risk of emergency CS (95% CI: 1.4-6.6), adjusting for confounders (education, marital status, and height and weight before pregnancy), as well as obstetrical risk factors, such as serious complications of pregnancy, twin pregnancy, history of previous emergency CS, history of infertility lasting more than 2 years, and smoking during pregnancy (Ryding, Wijma, Wijma, & Rydhström, 1998). In a British study of 443 parturient women, fear of birth and anxiety were not associated with subsequent emergency CS (Johnson & Slade, 2002). Authors of a study of 401 pregnant Australian women reported an association between high fear of birth and emergency CS but this association disappeared when they controlled for nulliparity and fetal compromise (Fenwick et al., 2008).

It can be difficult to meaningfully compare studies of childbirth fear because of discrepancies in the cut-off values used to define high fear of birth. There are different cut-off values for high fear, clinically important fear, and extreme fear or tokophobia; some authors like Fenwick et al. (2008) use cut-off scores based on the distribution of WED-Q scores in their sample while others apply standardized cut off scores. Differences in study designs (cohort, case-control, survey), and statistical approaches (bivariate or multivariate analyses) further complicates the comparison of studies that link fear of birth to mode of delivery. This point is illustrated by Hall, Stoll, and Brown (2010), who studied the association between high fear (scores > 66 on the WED-Q), clinically significant fear (> 84) and emergency CS in a sample of 624 women from British Columbia. Only women who scored in the clinically significant fear range had an increased risk of emergency CS.

3.5.2 Fear of birth and pain. There is some evidence to suggest fear of birth predicts total amount of pain relief received during active labour (Alehagen et al., 2001) and increases the likelihood of having epidural anaesthesia during labour (Hall et al., 2010). Alehagen et al. (2005) administered hourly fear and pain scales to 147 women with

low risk singleton pregnancies and also measured catecholamine and cortisol levels via urinary and saliva samples. Women in their study who received epidural anaesthesia had more fear, but not more pain, prior to administration of the epidural anaesthesia (EA) compared to women who did not have EA. Interestingly, correlations between fear and pain were more pronounced than associations between stress hormones and fear, pain, and duration of labour.

3.5.3. Factors associated with fear of birth. Fear of childbirth affects both nulliparous and parous women and is exacerbated by previous psychological morbidity, a greater number of daily stressors, and a woman's personal characteristics and circumstances, such as general anxiety, low self-esteem, depression, dissatisfaction with her partner, and lack of support (Saisto & Halmesmäki. 2003).

Nulliparas consistently score higher on measures of childbirth fear (Alehagen et al., 2001; Hall et al., 2009; Johnson & Slade, 2002; Ryding, Wijma, Wijma, & Rydhström., 1998; Zar et al., 2001), although previous negative experiences during labour and birth can contribute significantly to fear of birth among multiparas who anticipate future pregnancies (Nilsson & Lundgren, 2009). In one study of 1400 Finnish women, multiparas who experienced a previous CS or vacuum extraction had significantly higher fear scores (Rouhe, Salmela-Aro, Halmesmaki, & Saisto, 2008).

The connection between fear of birth and anxiety is well-established (Hall et al., 2009; Johnson & Slade, 2002; Spice et al., 2009). In one Canadian study of 650 low-risk parturient women, the correlational coefficient between scores on the Spielberger state anxiety scale and the W-DEQ was high (0.54) and significant (Hall et al., 2009). The odds of fear of birth were 4.8 times higher in Danish women (n=30,480) with anxiety symptoms, controlling for various socio-demographic and lifestyle factors (Laurson et al., 2008).

Fear of childbirth is often more common among women with limited psychosocial resources. For example, neuroticism, vulnerability, depression, low self-esteem, and lack of social support were reported by Finnish pregnant women with pregnancy-related anxiety and fear of vaginal delivery (Saisto et al., 2001). Fear of birth has also been associated with low educational levels, lack of social support, younger age, unemployment, smoking and low self-rated health (Laurson et al., 2008). Women with high fear of birth have reported significantly less available help, more daily stressors, less weekly sleep, more anxiety and

more fatigue (Hall et al., 2009). In that large Canadian sample, anxiety was the strongest predictor of fear of birth, as well as nulliparity, higher income, and fatigue.

Several socio-demographic variables have been significantly associated with fear of birth. In the largest study to date (n=30, 480), healthy nulliparas under the age of 20 were nearly three times more likely to be fearful of birth compared to women aged 25-29 (Laursen et al., 2008). Women between the ages of 20-24 were 1.3 times more likely than the reference group to be fearful. On the other hand, in a study by Hall et al. (2009), age (continuous variable) was not a significant predictor of fear levels. The role of education in childbirth fear has been equally inconclusive. In some studies, authors report that lower education (less than 16 years of schooling versus 17 or more years) has been associated with increased odds of having fear of childbirth, especially if women had 12 or less years of education (Laursen et al.). Other studies have found no significant effects of education on fear of birth (Hall et al.; Ryding et al., 1998). It is difficult to conclude, from the disparities in the evidence, which factors place women most at risk for childbirth fear, although anxiety seems to play a major role.

3.5.4 Factors that enhance childbirth self-efficacy and reduce fear of birth.

In their review of the sociology of birth, Fox and Worts (1999) noted the amount and quality of support a woman receives during pregnancy, labour, and birth shapes her experience of childbirth. Positive and empowering language that is woman-centered is of particular importance in enhancing confidence in physiological processes associated with birth. The word “contraction” may be replaced with “surge” or “wave,” and contractions can be referred to as “powerful” rather than “painful.” Neurolinguistic science postulates that changes in terminology can have a powerful effect on the brain and nervous system, and, thus, the way a woman may manage labour (Hunter, 2006).

Similarly, a childbearing woman's positive relationship with her midwife and the support she receives from her informal network of family and friends can greatly ameliorate fear and anxiety about birth (Fisher, Hauck & Fenwick, 2006). A birth plan has also been an effective tool that can enhance confidence and create conditions for expectant women to feel empowered by increasing their knowledge of birth practices and helping them make informed decisions during pregnancy, labour, and birth (Moore & Hopper, 1995). Honouring birth plans shows maternity care providers' commitment to woman-

centered care and respect for diversity. Mutually respectful relationships between primary maternity care providers and obstetric colleagues translate into better care and more support for childbearing women, which in turn improves their confidence (Downe, 2007).

In 2010, several qualitative studies of fear of birth were published. These studies showed a clear link between women's prenatal care and their feelings about birth. In one study, women (n=27) who did not feel validated by their care providers during pregnancy reported exacerbated childbirth worries (Maier, 2010). In another study, pregnant women (n=10) overcame worries and fears associated with birth with the help of midwives who instilled in them a sense of confidence in their abilities to cope with labour pain (Leap, Sandall, Buckland, & Huber, 2010). The women's confidence was also facilitated by participating in prenatal groups and hearing other women's stories. Similarly, Lyberg and Severinsson (2010) found that pregnant women who were fearful of birth (n=13) valued the trusting and caring relationships they developed with their midwives, which encouraged them to overcome some of their fears.

A discussion of factors that have the potential to reduce fear of birth would not be complete without reference to the role of prenatal education. Prenatal education usually takes place in hospitals and other clinical settings and tends to socialize women about what to expect from a hospital birth (Chiaverini & Baker, 2000). In one large American survey, new mothers were asked to describe their experiences with prenatal classes (Declercq, Sakala, Corry, & Applebaum, 2006). When the women were asked why they attended classes 82% reported that they wanted to learn about labour and birth and 37% specifically indicated they were interested in achieving a natural labour and birth. In relation to the impact of their prenatal education classes, 88% of the women indicated they had become more aware of maternity care options after taking classes, 78% felt more confident in their ability to give birth, and 70% described better communication with their maternity care providers. The women also reported greater trust in their hospitals (60%) and care providers (54%) and less fear about medical interventions (58%) after attending childbirth education classes. Some women reported negative effects of prenatal education programs, such as increased fear of birth (14%). Although these findings support the positive impact of prenatal education programs, for some women, they raise questions about whether clinically-based prenatal education programs increase women's comfort

with routine hospital procedures, prepare them for medical interventions, and increase their fear about birth.

In a study of 140 pregnant women recruited from an obstetric clinic, higher self-efficacy for labour and birth was significantly associated with attendance at childbirth education classes but was unrelated to birth satisfaction and negative postpartum mood states (Bocchese, 1992). In a study of 8000 pregnant women, intense fear of birth was significantly higher among women with childbirth preparation compared to women without prenatal preparation (Geissbeuhler & Eberhard, 2002). In a Canadian study with 624 low risk women, fear of birth was not associated with participation in prenatal education classes (Stoll & Hall, in press). Cross-sectional study designs are not adequate to address the question of whether prenatal education exacerbates or ameliorates fear of birth. This would require a longitudinal study design with baseline and post-intervention fear measures.

A 2008 Cochrane review of three randomized controlled trials (n=1,451) that aimed to reduce caesarean births by encouraging women to attempt vaginal delivery (by reducing fear either through prenatal education and support or cognitive therapy) found neither intervention affected clinical or psychological outcomes (Horey, Weaver, & Russell, 2008). Specifically, the authors found no significant difference between the control and intervention groups for any of the outcomes measured: vaginal birth, elective/scheduled CS, and attempted vaginal delivery. They concluded further research on this topic is needed

3.6 Attitudes towards Birth and Maternity Care Decision Making

Results of studies of pregnant women emphasize the link between personal attitudes or beliefs about labour and birth and maternity care choices, including elective obstetric interventions. In one study of 100 pregnant women, personal attitudes about pain relief measures were significant predictors of intentions to request epidural anaesthesia and other methods of pharmacological pain relief in labour (Williams, Povey & White, 2008). Similarly, Heinze and Sleigh (2003) surveyed 46 women 6 months after their vaginal births and found use of epidural anaesthesia was more highly correlated with a woman's beliefs about childbirth prenatally than her physical situation during labour,

including perceived pain. Howell-White (1997) studied childbirth ideologies and maternity care choices among 200 pregnant women from New Jersey and found anticipated maternity care choices at the first prenatal visit were strongly correlated with actual choices, leading the author to conclude that women make maternity care decisions that are congruent with their core beliefs about birth, either prior to becoming pregnant or early in pregnancy. It is important to examine attitudes towards pregnancy and birth among the next generation of maternity care consumers to understand their concerns and preferences in anticipation of birth and to inform content for pregnancy and birth education that may enhance childbirth self-efficacy for this group.

3.6.1 Existing studies of student attitudes towards birth. Previous research has examined the attitudes of college students towards pregnancy and birth. Wallach and Matlin (1992) surveyed 103 American students and found a range of positive (excited, happy, and proud) and negative emotions (nervous, scared, and anxious) associated with birth. Labour pain was rated as the least enjoyable aspect of pregnancy and birth. Expected labour pain was, on average, rated as almost intolerable. Nearly a quarter of women expressed concerns over “getting fat” or “looking bloated” during pregnancy.

The Wallach and Matlin (1992) study is characterized by a small self-selected homogenous sample. Only female students were surveyed. Their mean age was 18.9 years. Respondents were primarily Caucasian undergraduate psychology students, which makes it difficult to generalize findings to other student populations. In addition, students who had previously given birth may have been included in the study, which may have biased responses to survey items.

In 1997, another study of American college students’ attitudes (n=102) towards birth was published (Lampman & Phelps, 1997). This study focused on general societal knowledge of the prevalence and risk factors associated with cesarean birth. Both male and female students were surveyed and expressed cynicism about the high CS rate in America. Nearly 40% of students felt that many unnecessary CSs were performed; however, 70% did not view CS as a potentially negative experience. Thirteen percent of students surveyed would opt for a CS to avoid the pain of labour. Although this study also had a small sample size, men were included (34%), the sample was more ethnically diverse (82% of respondents were Caucasian compared to more than 90% in other studies), the

sample was older (average age = 22 years) and the sample represented a wide range of disciplines, compared to the study conducted by Wallach and Matlin (1992).

One study reported students' responses to a childbirth video depicting births (Cleeton, 2001). In this study, 65 psychology students screened a birthing video that presented the transition of birth from home to hospital and showed examples of different types of deliveries. The video included narratives by obstetricians, nurse-midwives, doulas, and a labour and delivery nurse about the potential risks associated with hospital births and ways midwives can reduce these risks. Cleeton (2001) developed the video as an educational resource for students who are socialized into an increasingly medicalized birth culture. The most common response from students was they knew very little about prenatal care and obstetric practices prior to viewing the video, in particular, risks associated with hospital procedures. Students' primary reaction to birth was that it is beautiful and painful. The author concluded students' knowledge of birth prior to viewing the video reflected "uncritical consumer faith in and commitment to medical procedures as assuring the best birth outcomes" (p. 199). Cleeton recommended expanding high school health classes to include information about different birth settings, risks and benefits of different medical procedures, and reassurance that labour pain is endurable, so students are less fearful of birth and are aware of their options as future consumers of maternity care. Cleeton's small homogenous sample (sociology undergraduate students, 90% white) limits the generalizability of her study.

I only located one unpublished study (Marret, 1998) that applied self-efficacy theory to a student population. Originally, the author wanted to enrol pregnant women in their third trimesters. When this proved difficult, she focused her recruitment efforts on female university students. Marret assigned 60 non-pregnant female university students to one of two groups to study the effect of symbolic modeling through birth visualization on self-efficacy for birth. In group 1, students were asked to listen to a progressive relaxation exercise, followed by a detailed description of pregnancy, labour, and birth, narrated in the third person. Students were asked to distance themselves from the scenario and listen as objectively as possible. In group 2, the relaxation exercise was followed by the same description of pregnancy and birth, this time narrated in the second person. Students were asked to identify with the pregnant woman as much as possible. After the exercise,

students completed the childbirth self-efficacy inventory. The author found no significant differences in childbirth self-efficacy scores among the two groups; she attributed these results to a number of study limitations, such as problems with recruitment and single exposure to the visualization.

In my critical analysis of existing studies of students' attitudes towards birth, I identified several gaps in the literature. Existing studies are out-dated, characterized by small sample sizes, based on American student populations, and lack theoretical grounding. As described in my introductory chapter, rates of obstetric interventions have increased since these studies were conducted. Young men and women are growing up in an era of rapid technological advances. They are exposed to a birth culture that is more medicalized than the culture of 20 years ago. These developments may affect their attitudes towards birth. In addition, the three studies with college students I summarized have assessed attitudes towards birth using very homogenous student populations (82-91% Caucasian, American undergraduate students). None of the studies I analyzed excluded students who did not intend to have children in the future, which raises questions about the relevance of survey questions for this subgroup of students and the generalizability of study findings to the next generation of maternity care consumers. The studies failed to consistently exclude students with children. None of the studies measured fear of birth among the groups of college students and none explored potential sources of childbirth fear. A large scale study, with a more heterogeneous sample, can assess the proportion of young adults who are fearful of birth as well as correlates, and predictors of childbirth fear so that results can be generalizable to similar groups. Any large study should exclude students with children and those who do not intend to have children in the future to increase the likelihood that students' attitudes are not confounded by previous childbirth experiences or lack of engagement; the constructs being measured should have personal relevance to respondents. Including undergraduate and graduate students from various fields of study and differing geographical contexts (rural and urban campuses) would also increase the generalizability of the results.

3.7 Hypotheses

After critical analyses of relevant theoretical, conceptual and empirical literature, I propose the following hypotheses:

1. Students with favourable attitudes towards obstetric technology will be more likely to prefer interventions for birth, such as epidural anaesthesia and CS compared with students who are less favourable towards technology.
2. Students who perceive birth as risky (a) will be more likely to prefer interventions, such as CS, (b) and will report more fear of birth than students who perceive birth as less risky.
3. CS preferences will be higher among students who are not worried about CS, compared with students who are worried about the surgical procedure.
4. Students who are concerned about body changes during pregnancy and after birth will be more likely to prefer a CS compared with students who are unconcerned with body changes.
5. Students who express a preference for epidural anaesthesia (EA) will have significantly higher fear of birth scores compared with students who do not indicate a preference for EA.
6. Students who express a preference for CS will have significantly higher fear of birth scores compared with students who do not indicate a preference for CS.
7. Students with more confidence in their reproductive health knowledge will be less fearful of birth.

8. Students who indicate that their attitudes towards reproductive health were shaped through the media or school-based education will be more fearful of birth compared with students who learned about birth through family and friends.

9. Childbirth fear scores will be lower among students with direct exposure to birth (life modelling), compared with students who did not have first hand experience with birth. Students with direct exposure to home birth will be less fearful than students who observed a hospital birth.

10. Life modelling will be a significant predictor of reduced fear of birth, controlling for other sources of self-efficacy (symbolic modelling) and gender.

In addition, I have included one descriptive research question: How do students with low and high fear of birth construct labour and birth?

In this chapter I synthesized and analyzed both conceptual and empirical literature that informed the development of my hypotheses and research question. I summarized the international literature about fear of birth and associated increases in CS rates. I described how a universal biological process, like birth, is enacted differently in various cultural settings, thus highlighting cultural variations in birthing practices. Within the context of technocracy, and its focus on medical interventions, I discussed contemporary birth culture in industrialized countries. I presented other areas of research that underpinned my selection of key variables and may be related to fear of childbirth among young adults. These included society's preoccupation with risk and the overrepresentation of complicated pregnancies and deliveries in the media. At the end of the chapter, I summarized the literature on student attitudes towards birth, identified gaps in the literature and indicated how my research will address these gaps.

Chapter 4: Methods

In the methods chapter, I briefly describe my mixed-methods approach to analyzing data. I outline why a social survey is an appropriate method of data collection for my research. I describe my quantitative and qualitative data analysis approaches. In addition, I provide a description of how I developed and coded the fear of birth measure, and other attitude scales that I used in this study.

In this study, I used a mixed-methods approach to analyze data from a cross-sectional survey of students' attitudes and beliefs about childbirth. By mixed-methods, I mean I used both inductive and deductive research approaches (Stoll, 2010). A deductive framework guided the generation of hypotheses, aimed at testing correlates and predictors of childbirth fear. I used inductive content analysis to answer my research question about how students with low and high childbirth fear constructed birth. From my inductive analysis, I intended to generate new hypotheses about how young adults with high and low fear of birth conceptualize labour and birth.

I triangulated results from my quantitative and qualitative data analysis approaches to render a more comprehensive picture of childbirth fear among young Canadians, while minimizing biases inherent in the use of only one method (Kelle, 2001). Methodological triangulation is defined by Denzin (1989) as the combination of two or more methods in one study of a single phenomenon. Usually one method takes precedence and the other method is applied to supplement or complement the findings of the primary method, thus enhancing theory and knowledge development (Morse, 1991). In this dissertation I used what Morse (1991) describes as the QUAN + Qual approach to methodological triangulation. My research design was primarily quantitative (i.e. describing fear of birth among young Canadians and factors that may explain it) but I also incorporated qualitative data because there were aspects of fear of birth that could not be quantified (i.e. students' "rich description" of their feelings about labour and birth).

Data were collected in the fall of 2006, and findings from the original analysis were published in 2009 (Stoll et al., 2009). In the original analysis of data, we described students' preferred mode of delivery and performed a thematic analysis of reasons for their choices. Fear of pain emerged as a primary reason for CS among female students. My dissertation research builds on the original analysis by using the same dataset to examine

students' attitudes about birth, fear of birth, and how fear of birth relates to students' preferences for obstetric interventions. My research also explores predictors of childbirth fear. Secondary analysis of existing data is increasingly used by researchers because it is inexpensive and allows for in-depth analysis of issues not previously considered (Neuman, 2000).

4.1 Survey Development

A cross-sectional social survey is an appropriate research method, if the goal of the research is to collect a large amount of data from a large group of people in a short period of time (McNeill & Chapman, 2005). Strengths of a survey design include the relative ease of replicating the study by other researchers, which allows them to build on existing research, compare findings to other groups and verify previous findings. In addition, a large amount of quantitative data can be collected with a social survey (especially an electronic survey), which makes it more likely the survey will incorporate a sample that is representative of the wider society (McNeil et al., 2005). An online survey design permitted data to be collected from as many students as possible.

A major weakness of a survey is its inability to provide in-depth insight into the beliefs, motivations, and thought processes of participants who are forced to respond to items and options that were designed by the researcher (McNeill & Chapman, 2005). Recognizing this weakness, we added several open-ended questions to the survey that were intended to offer opportunities for participants to explain their answers or to elaborate on their feelings towards labour and birth. Although adding open-ended items to a survey does not replace the rich data gathered via in-depth interviews or focus groups (McNeill & Chapman, 2005), the open-ended questions we included offered an opportunity to better understand how young adults conceptualize birth. Sending an electronic invitation to participate in the study, along with a link to the online survey, was intended to invite the entire student body of the University of British Columbia to participate in the study.

The survey for the original study was co-developed in 2006 by Elaine Carty, me, and Natalie Taha, a research assistant in the Division of Midwifery at the University of British Columbia. The survey instrument consisted of four sections for a total of 70 questions (see

Appendix A for a copy of the study poster and Appendix B for copies of the cover letter and online survey). Section 1 of the survey included 9 questions about participants' demographic information and reproductive goals. In section 2 (7 questions), participants were asked to indicate what mode of delivery they would prefer, how they planned to cope with labour pain, whom they would choose as their maternity care provider, and where they would prefer to give birth. Section 3 (43 items) comprised items that assessed students' attitudes towards pregnancy, labour, birth, and the postpartum period. When we designed attitude items for the questionnaire we wanted to capture general attitudes of students towards birth; e.g., how they felt about obstetric technology, whether they regarded childbirth as inherently risky, and whether they had concerns about physical changes associated with pregnancy and birth. Due to the scarcity of existing literature on these topics, especially with respect to our target population, our selection of attitude items was mostly exploratory.

We also included several items about vaginal birth versus birth by CS to gauge students' perceptions about these two types of deliveries. In Section 4 (11 items), questions were directed to participants' preferences for their pregnancy and childbirth education, as well as their sources of information about reproductive health knowledge. Throughout the survey we provided students with the option to respond to open-ended questions on their views about labour and birth.

4.2 Procedures

4.2.1 Survey Administration. The Behavioural Research Ethics Board at the University of British Columbia approved my mixed-methods study following a review of the research questions, protocol for analysis and choice of the questionnaire items. For the original study, in September 2006, 1 week after the commencement of classes, a cover letter was sent on behalf of the researchers by enrolment services to all undergraduate and graduate students at the University of British Columbia (N = 42,583). Male students were invited to participate in the study because they may contribute significantly to maternity care decisions once their partners become pregnant. The cover letter indicated completion of the survey implied consent to participate in the study. The cover letter included: (a) a description of the purpose and overall content of the survey; (b) information about the

protection of the confidentiality of participants' responses; (c) the voluntary nature of participation; and (d) participants' right to withdraw at any time without jeopardy to their standing with the University of British Columbia (see Appendix B).

The primary campus of the University of British Columbia is located in a large urban center (population 545,671); a satellite campus is located in a smaller city in British Columbia (population 96,288). Students enrolled at both university sites completed the web surveys. Few surveys (n=42) were received 2 weeks from the initiation of data collection; the online survey was inactivated the after 3 weeks.

4.2.2 Defining and Measuring Self-Efficacy for Birth. Perceived self- efficacy is defined by Bandura (1982) as “judgements of how well one can execute courses of action required to deal with prospective situations (p. 122)”. Childbirth self-efficacy is defined by Lowe (1991) as a woman's confidence in her ability to cope with labor and birth. I concur with Lowe's (2009) assertion that self-efficacy and confidence for birth are two constructs that are closely related. Efficacy is one's ability to manage labour and birth and confidence refers to a belief in one's ability to cope with labour and birth. I argue these concepts represent a similar psychological state because they refer to cognitive appraisals of an upcoming event and one's ability to manage that event successfully (Bandura, 1977).

There is empirical support for efficacy for birth and fear of birth being concepts that are inversely related. Lowe (2000) sampled 280 pregnant women and found that childbirth self-efficacy expectancies (but not outcome expectancies) were significantly and inversely correlated with childbirth fear. Women with high fear of birth were more likely to exhibit low generalized self-efficacy. In addition, women with high fear of birth had significantly higher levels of learned helplessness (i.e. a psychological state where people feel powerless to change themselves or their situation), chance health locus of control (i.e. attributing health outcomes to chance rather than individual own behaviour), and powerful others health locus of control (i.e. the belief that others, like health professionals, are responsible for one's health). All of those psychological conditions are conceptually aligned with low self-efficacy. In this dissertation, I use the constructs, low self-efficacy for birth and fear of birth, interchangeably. It is a common approach in scale development to include reverse-scored items in a scale to measure the opposite construct. For example, items where higher scores indicate increased sadness would have to be reverse scored for

inclusion in a happiness scale (DeVellis, 2012). The same logic applies to the constructs of self-efficacy for birth and high fear of birth in the current study.

4.2.3 Development of fear of birth scale. I developed a 6-item scale to assess fear of birth among university students. The scale was applicable to both female and male students. I included the following items in the scale: (1) I am worried that labour pain will be very intense; (2) I am afraid that I might panic and not know what to do during labour; (3) I am fearful of the labour process; (4) I believe I (my partner) will have enough confidence to give birth vaginally; (5) I feel that my (my partner's) body is able to successfully birth a child; and (6) I think I (my partner) will be able to handle the pain of childbirth. Response options ranged from (1) strongly disagree to (6) strongly agree (scale range is 6-36). Three of the 6 items from the fear of birth scale capture worries and fears about labour and birth (items 1-3) while the remaining three items assess confidence in one's ability (or a partner's ability) to manage labour and birth. To ensure that items with higher scores consistently measure increased fear of birth (or lack of self-efficacy/confidence in birth) I reverse-scored the three items measuring self-efficacy for birth (efficacy expectancies) (items 4-6).

4.2.4 Psychometric properties of fear of birth scale. Because my research involved an analysis of an existing dataset, I could not use a priori content validation techniques, e.g. assessment of relevance and clarity of potential scale items by a panel of experts. Nonetheless, the scale items I selected from the questionnaire have significant conceptual overlap with existing fear of birth scales. For example, the most widely applied fear of birth scale is the Wijma Delivery Expectancy/Experience Questionnaire (WDEQ (Wijma, Wijma & Zar, 1998). The WDEQ uses 33 items to assess fear of birth and requires respondents to rate their expectations about birth, using a range of positive and negative adjectives. Among the 33 items are statements that use the words frightful, afraid, confident, panic and pain to assess fear of birth. I selected items containing similar wording for the fear of birth scale that I created.

Internal consistency reliability of my fear of birth scale was assessed and reported as Cronbach's alpha. The 6 item scale had an alpha of 0.75). Correlations among items ranged from 0.102-0.536 and item to total correlations (see Table 1) ranged from 0.392 – 0.604. Because my goal was to assess the construct validity of a new measure (rather than to

confirm a pattern of relationships based on previous analytic results), I chose an exploratory factor analysis (De Vellis, 2012). Specifically, I conducted a principal components factor analysis with varimax rotation, which identified a two factor solution. Factor 1 measured fear of birth ($\alpha = 0.73$) and factor 2 measured low self-efficacy for birth ($\alpha = 0.73$) (see Table 1). Pearson's correlational coefficient for the subscales was 0.322. It should be noted that factor 1 (fear of birth) explained 45% of the variance in the scale score and factor 2 (low efficacy for birth) explained 20%. Because factor 1 explained more variance I opted to define the measure as a fear of birth scale.

As described above, the constructs these two factors measure are part of the same phenomenon (fear of birth or low efficacy for birth). When I forced these items into a one factor solution, all items had factor loadings above 0.5, which provides support for my argument that the items measure one underlying construct (De Vellis, 2012). In this dissertation, the fear of birth scale was used as a full scale (both factors) in all analyses.

Table 1
Means, Factor Loadings and Item to Total Correlations of Fear of Birth Scale Items

| Component | Mean (SD) | Corrected item to total correlations | Factor 1 loadings | Factor 2 loadings |
|--|----------------|---|----------------------|----------------------|
| (1) I am worried that labour pain will be very intense* | 4.82 (1.09) | 0.471 | 0.800 | 0.069 |
| (2) I am afraid that I (my partner) might panic and not know what to do during labour* | 3.50 (1.40) | 0.499 | 0.724 | 0.196 |
| (3) I am fearful of the labour process* | 3.88 (1.45) | 0.604 | 0.842 | 0.203 |
| (4) I believe I (my partner) will have enough confidence to give birth vaginally | 1.98 (1.03) | 0.501 | 0.203 | 0.760 |
| (5) I feel that my (my partner's) body is able to successfully birth a child | 1.95 (0.87) | 0.392 | 0.031 | 0.809 |
| (6) I think I (my partner) will be able to handle the pain of childbirth | 2.54 (1.05) | 0.521 | 0.261 | 0.760 |

*reverse scored item

Of the 3680 students who participated in the survey and met study eligibility criteria, 2283 answered all of my 6 scale items. The number of missing values was large, in part, because students had the option of answering “I don’t know” for each item. Those responses had to be excluded. Missing items can be replaced at the case or item level to increase the number of cases available for analysis (Rueda, Gonza, Lez & Arcos, 2007). Of 3680 students, 2805 responded to at least 5 of the 6 items; however, a close examination of the 522 students who missed only 1 item revealed that the pattern of missing values was not random (see Table 2).

Table 2
Pattern of Missing Values among 522 Students Who Missed One Scale Item

| Item | Missing values |
|--|----------------|
| I feel that my (my partner's) body is able to successfully birth a child (RS). | 285 |
| I am fearful of the labour process | 19 |
| I am afraid that I might panic and not know what to do during labour. | 38 |
| I am worried that labour pain will be very intense. | 20 |
| I think I (my partner) will be able to handle the pain of childbirth (RS) | 123 |
| I believe I (my partner) will have enough confidence to give birth vaginally (RS). | 37 |

Students who missed 1 item on the fear of birth scale differed significantly from students who completed all 6 items on selected socio-demographic indicators. Specifically, students who missed items were significantly more likely to be male, less likely to be married or living common law and more likely to be younger compared to students who completed all scale items. Due to differences in the socio-demographic profile among these two groups of students and the non-random pattern of missing values, I only computed fear of birth scores for those students who completed all 6 items of the scale (n=2283).

4.3 Selection of Key Variables for Current Study

From the survey, I selected the key variables listed in Table 3 for inclusion in my analysis of childbirth fear among young adults. I summed 12 of the 43 attitude items from the original study to create three scales (fear of birth – 6 items; body image index – 4 items; attitudes towards obstetric technology – 2 items). I also extracted open-ended comments from students about their feelings towards labour and birth, for thematic analysis. I viewed these typed open-ended responses as qualitative data.

I found very few studies of birth perceptions among young adults who have never had children (Cleeton, 2001; Lampman & Phelps, 1997; Wallach & Matlin, 1992), hence my selection of key variables was guided by concepts derived from my theoretical framework, and key concepts that are commonly studied and discussed in the contemporary childbirth literature.

For example, I found several qualitative studies describing parturient women's perceptions about obstetric technology and how these informed their maternity care decisions (Fox & Worts, 1999; Kornelsen, 2005; Viisainen, 2001). In addition, the use and overuse of obstetric technology is often discussed in the conceptual literature or commentaries (Johanson et al., 2002), thus highlighting the importance of this issue in childbirth discourses. Similarly, risk discourse is common in obstetrics (Enkin, 1994; Kotaska, 2007), as are studies that examine risk perceptions among pregnant women (Searle, 1996; Heaman & Gupton, 2009; Searle, 2006).

I found no studies that specifically examined young adults' attitudes towards physical changes associated with pregnancy and birth and how these attitudes may relate to birthing preferences. Wallach et al. (1992) found that a quarter of college students surveyed expressed concerns about gaining too much weight during pregnancy. This preoccupation with gaining weight is most evident in the media and celebrity tabloids in particular. In the media, glamorous pregnant celebrities who look 'red carpet ready' within weeks of giving birth are usually praised for their looks (Shafer, 2012) whereas celebrities who look too large during or after pregnancy may be pitied or ridiculed (Cheng, 2012). These media depictions may create unrealistic expectations for what a pregnant or postpartum female body ought to look like (Fox et al., 2009).

The association between media exposure and fear of birth has not been examined empirically but I presented some evidence in my critical analysis of the literature that pregnancy and birth are depicted as dangerous, with an over-representation of obstetric complications and operative deliveries in many reality birth shows (Morris & McNerey, 2010). Such depictions of birth, especially in a cultural context that emphasizes risk (Zinn, 2008), may predispose young adults to fear birth. Media exposure to information about birth can be regarded from a theoretical perspective as a vicarious experience of childbirth (symbolic modeling), together with exposure to information through family, friends and the school system. I also assessed direct exposure (or live modeling) to birth by asking students whether they had ever witnessed a human birth. These variables as well as self-reported level of reproductive health knowledge were all grounded in self-efficacy theory (Bandura, 1977).

4.4 Measurement and Psychometric Properties of Attitude Items

The Likert scales for the attitude items were anchored from (1) strongly disagree to (6) strongly agree. Students were given the option of choosing “I don’t know” for each attitude item; however, this option was recoded as a missing value during data analysis.

4.4.1 Attitudes towards obstetric technology. To create a scale that measures attitudes toward obstetrical technology I summed two attitude items: (1) Technology is necessary to deliver a child; and (2) Childbirth requires a reliance on technology and medical interventions. Of 3680 students, 2732 (74.2%) answered both items. Items were summed (range of scores = 2-12) and recoded into favourable attitudes towards obstetric technology (scores of 8 or higher) and unfavourable attitudes (scores of ≤ 7). On a single item, a student would have to score 4 or above to fall into the “agreeable” range; therefore, to determine cut off scores for agreement on the scale, I multiplied the number of scale items by 4, which would indicate that a student scoring above the cut off score falls into the agreeable range on the scale. Inter-item correlations of scale items were acceptable, with a Cronbach’s alpha of 0.82.

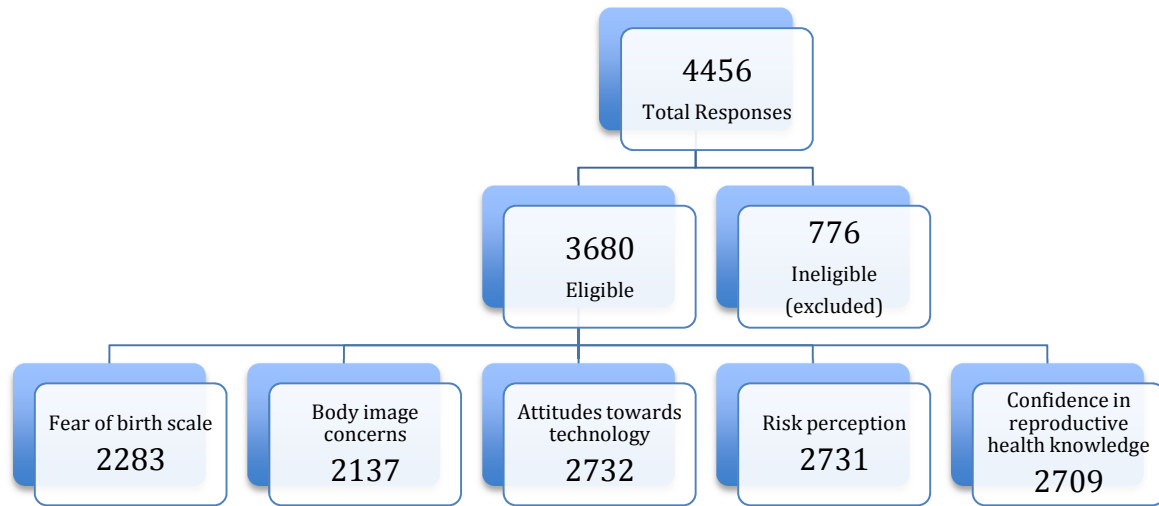
4.4.2 Risk perception. Initially, I decided to measure students’ perceptions towards obstetric risk with two items: (1) Childbirth is inherently risky, and (2) Complications in the delivery room are unavoidable. I regarded these items as relevant to

the construct of risk. When I assessed the reliability of these two items, the Cronbach's alpha for the two item scale was very low ($\alpha = 0.37$). I considered the reasons for the low alpha and decided that because students may not view complications as equivalent to risk, I should select only one item, 'Childbirth is inherently risky', to measure the construct. Of 3680 students, 2731 (74.2%) responded to that item. I categorized students who scored 4 or above on the item as perceiving birth as risky because scores of ≥ 4 indicated agreement with the statement.

4.4.3 Body image concerns. I summed the following items to develop a body image index: (1) I am worried about the physical changes that occur in a woman's body during pregnancy; (2) I am worried about the physical changes that occur in a woman's body after pregnancy; (3) I am afraid of what the labour and delivery process will do to my (my partner's) body; and (4) Changes that might occur to a woman's perineal (pelvic) floor after a vaginal birth are a concern for me. Of 3680 students, 2137 (58.1%) completed all 4 items comprising the body image index. The Cronbach's alpha for the 4-item scale was acceptable (0.85). The range of scores for the index was 4-24, with scores of 16 or higher indicating concerns over bodily changes following pregnancy and birth.

4.4.4 Confidence in knowledge. I assessed students' confidence in reproductive health knowledge with the following item: "I feel confident about my knowledge around reproductive health." In the survey cover letter, we presented attitudes towards pregnancy and birth as falling under the rubric of 'reproductive health'. Of the 3680 students, 73.6% (n=2709) responded to the item assessing confidence in reproductive health knowledge. Students who felt confident about their reproductive health knowledge scored between 4 and 6 on this item.

Figure 1 Breakdown of Sample



4.4.5 Exposure to birth. In the survey, students were asked to indicate whether they had ever witnessed a birth (419 students answered yes to the question) and, if so, they were encouraged to describe their impressions of the birth(s). Based on students' comments about their birth experiences, I categorized students into two groups: (1) those who witnessed an actual birth (vicarious social learning experience through live modeling) (n=206); and (2) students who have seen a birth on video, usually as part of sex education classes in high school or on TV/internet (vicarious social learning experience through symbolic modeling) (n=163). Some students did not say where they observed the birth. Also, I excluded students who witnessed animal births. I created one dichotomous variable that measured whether or not students had ever witnessed a human birth in person. This variable was used to test live modelling as a predictor of childbirth fear as outlined in hypothesis 10. To create this categorical variable, I coded the 206 students who had witnessed a birth first hand as 1 and all remaining students received the code 0. I examined the nuances of exposure by categorizing the 313 students who commented on where they witnessed the birth into 4 categories: (1) home; (2) hospital; (3) TV/video.

Sources of information about reproductive health were measured by asking

students to select one or more of the following 5 response options (media, school, family, friends and other). I coded this variable in two different ways. First, I identified students who chose one of the four response options, coded that option as a 1 and all others as a 0 (I did not develop a code for the “other” response). Then, I determined which students only cited one type of exposure, and recoded the item into single exposures, e.g., media or school exposure only. The second way of coding the variable allowed me to examine fear of birth scores among students who cited only one source of information, rather than citing multiple sources. The rationale for this coding approach was my interest in ‘isolating’ sources of exposure and to describe both fear of birth scores of students who had relatively narrow exposure to information (e.g. media only) and those who felt that their attitudes towards pregnancy and birth were shaped by various sources (e.g. media AND family and friends).

4.4.6 Attitudes about CS and EA. I measured CS preference by using a categorical variable. Students could either choose vaginal delivery or CS (CS) as their preferred mode of delivery. CS was defined as a surgical delivery of an infant through an incision in the mother’s abdomen. Vaginal birth was not defined. Students who scored between 4 and 6 on the item “The surgical procedure associated with CS does not worry me,” were categorized as students who agreed with the item.

I asked students to select epidural anaesthesia (EA) if they would consider using this method of pain relief during labour. Students who did not select EA represented the comparison group (see Table 3 for a summary of key variables and how they were coded).

Table 3
Summary of Key Variables

| Key variables | Questionnaire items | n | Response options | Cut off score and scale range |
|---------------------------------------|---|------|---|-------------------------------|
| Fear of birth | (1) I am worried that labour pain will be very intense (2) I am afraid that I might panic and not know what to do during labour (3) I am fearful of the labour process (4) I believe I (my partner) will have enough confidence to give birth vaginally (reverse scored) (5) I feel that my (my partner's) body is able to successfully birth a child (reverse scored) (6) I think I (my partner) will be able to handle the pain of childbirth (reverse scored) | 2283 | 1 (Strongly Disagree) to 6 (Strongly Agree) | 23,6-36 |
| Attitude towards obstetric technology | (1) Technology is necessary to deliver a child. (2) Childbirth requires a reliance on technology and medical interventions | 2732 | 0) Disagree 1) Agree | 8, 2-12 |
| Risk perception | Childbirth is inherently risky | 2731 | 0) Disagree 1) Agree | 4, 1-6 |

| Key variables | Questionnaire items | n | Response options | Cut off score and scale range |
|--|--|------|--|-------------------------------|
| Concerns over body changes | (1) I am worried about the physical changes that occur in a woman's body during pregnancy, (2) I am worried about the physical changes that occur in a woman's body after pregnancy (3) I am afraid of what the labour and delivery process will do to my (my partner's) body (4) Changes that might occur to a woman's perineal (pelvic) floor after a vaginal birth are a concern for me. | 2137 | 0) Disagree 1) Agree | 16, 4-24 |
| Vicarious birth experience (Live modeling) | Have you ever witnessed a human birth? | 3680 | 0) No 1) Yes | NA |
| Vicarious birth experience (Symbolic modeling) | My attitudes towards birth were shaped by: | 3680 | (1) Media (2) School (3) Family (4) Friends | NA |
| Knowledge of reproductive health | I feel confident about my knowledge around reproductive health | 2709 | 0) Disagree 1) Agree | 4, 1-6 |
| Epidural preference | I would opt for an epidural as a method of pain relief during labour | 3680 | 0) No 1) Yes | NA |
| CS preference | I would prefer a CS as opposed to vaginal delivery | 3203 | 0) No 1) Yes | NA |
| Trivialization of surgery | The surgical procedure associated with CS does not worry me | 2759 | 0) Disagree 1) Agree | 4, 1-6 |

4.5 Data Analyses

In my mixed-methods study, I used both quantitative and qualitative data analysis techniques. Quantitative analysis was used to test the 10 hypotheses. A p value of < 0.05 was accepted as significant. For continuous variables, I calculated the mean, range, and standard deviation and for categorical variables, I calculated frequencies. For bivariate analyses, I treated fear of birth as a continuous variable. I report bivariate results for the full sample and for male and female students separately. I performed a gender-based analysis because pregnancy and birth are gendered experiences; there is evidence that men and women construct these events differently (Stoll et al., 2009).

I used cut-off scores for high and low fear of birth to select open-ended responses to help elaborate ways female students with different levels of childbirth fear construct birth. To develop themes, I gathered the text for all of the open-ended comments of students who scored in the high and low fear of birth range (33 typed pages) and addressed the qualitative research question by using inductive content analysis of the text of students' responses. I provide further detail about my analytic techniques in the following sections.

4.6.1 Hypotheses testing. I tested hypotheses 1 through 4 using non-parametric statistical techniques (Chi-Square Test), with the exception of hypothesis 2b, which was tested using the student t-test for independent samples. I reported degrees of freedom, and p values in the results chapter. I tested hypotheses 5-8 with student t-tests. I reported mean differences in fear scores among groups as well as p values and effect sizes, in the results chapter. For hypothesis 9, I anticipated that students' responses to the fear of birth scale items were shaped by their vicarious experiences of childbirth. As a result, I assessed both live and symbolic modeling of childbirth. I compared fear scores by the kind of birth witnessed (live modeling versus symbolic modeling) and the location where the birth was witnessed using one way ANOVA (with post hoc test: Bonferroni).

For hypothesis 10, I selected predictors of fear of birth based on elements of Bandura's self-efficacy theory. These included: sources of childbirth education (family, friends, media), direct exposure to childbirth (live modeling), confidence in one's level of reproductive health knowledge, as well gender. I entered those into a logistic regression model (direct entry, all variables entered in one block) with high fear of birth (scores of 23 or above) as the outcome variable.

4.6 Triangulation of Quantitative and Qualitative Data

There is general consensus among researchers that statistical analysis of data (quantitative methods) is best applied when describing or explaining macro-processes and interpretative analysis of qualitative data (qualitative methods) when trying to understand micro-processes (Kelle, 2001). I used triangulation of quantitative and qualitative analytic techniques to enhance explanatory power of the phenomenon under investigation. I favour Sandelowski's (2000) conceptualization that the mixing of qualitative and quantitative approaches occurs at the technique (sampling, data collection, and data analysis), not at the paradigmatic level. According to this interpretation of mixed-methods research, I used triangulation techniques, such as criterion sampling, investigator triangulation and analytical triangulation of qualitative and quantitative results.

Sandelowski (2000) used the term criterion sampling to describe the process of using quantitative scores to guide data sampling. Criterion sampling is a purposeful manner of sampling used in qualitative research (as opposed to probability sampling). It can be used within a quantitative study to select cases that represent extreme scores on a measure (i.e. high and low fear of birth). A qualitative analysis of the open-ended responses provided by these cases helped me develop a more idiographic knowledge of the phenomenon, above and beyond what I could extrapolate from the quantitative measures. For the purpose of criterion sampling, I categorized students as exhibiting low fear of birth (or high self-efficacy for birth) when they scored between 6 and 14 (mean fear of birth score minus one standard deviation) and high fear of birth if they scored between 23 (mean fear of birth scores plus one standard deviation).

At various points during the data analysis process, my supervisor reviewed my themes and compared them against the data. She also aided in the refinement of themes, thus contributing to investigator triangulation of data. Finally, I used the qualitative data to extend my understanding of quantitative findings.

4.8 Qualitative Analysis

For the qualitative component of the analysis, I conducted a content analysis of students' perceptions about labour and birth. My content analysis enabled me to answer

the question: How do students with low and high fear construct labour and birth? Students' typed comments ranged in length from one word to several paragraphs. I included only students, whom I have classified as having high or low childbirth fear, in my analysis to enhance understanding of the quantitative findings about childbirth fear. Among female students, 353 of female students with high fear of birth and 363 female students with low fear of birth provided comments. Few male students responded to the invitation to make open-ended comments (53 men with low fear and 16 men with high fear). For this reason, I did not perform a thematic analysis of open-ended comments from male students.

My qualitative data analysis was guided by an approach outlined by Pope, Ziebland and Mays (2002). These authors provide guidelines for qualitative data analysis that can be applied to short response units (Hall & Hauck, 2007). I used inductive content analysis to identify common themes among students' responses. My explanations were developed from textual data, rather than using the data to test existing hypotheses.

Pope et al. (2002) proposed the following stages of inductive analysis: "(1) provisional classification; (2) identification of features of provisional cases; (3) scrutiny of deviant cases—include in (2) or modify (1) to accommodate deviant cases; (4) identification of shared features of cases; and (5) derivation of themes from the features common to cases" (Pope et al, 2002, p.116).

Using Pope et al.'s approach, I read the transcript of open-ended responses for women with low fear of birth (24 pages of transcript at 400 words per page). I developed provisional codes separately for students who commented on their feelings about labour and those who commented on feelings about birth. I then used my codes to extract 20 provisional themes about labour and 18 provisional themes about birth for students with low fear of birth. For women with high fear (9 pages of transcript), I developed codes by reading the transcript and then clustered the codes into 20 provisional themes for labour and 17 themes for birth. To gauge the relative importance of each theme, I summarized the counts of themes in a table. Each of the four sets of themes included an "other" category. I classified responses as other if the response only occurred once.

During my analysis, my supervisor and I collapsed comments about labour and birth into higher level themes because of significant overlap in the content of these themes.

Next, I reread the transcripts to better understand how the themes were interconnected. I wanted to generate a cogent narrative of how students construct birth, while taking into consideration the frequency of themes. Seale and Silverman (1997) advocated for counts of events or themes in qualitative research to enhance generalizations and to avoid a common concern in qualitative research, i.e. “that anecdotes supporting the writer’s argument have been selected, or that undue attention has been paid to rare events, at the expense of more common ones” (p. 112). Themes that were more prevalent are discussed prior to less prevalent themes.

After re-reading the transcripts and consulting the counts, I was able to identify 5 main themes each for women with high and low fear of birth. My supervisor and I tried to incorporate all of the themes into our overall narrative. For instance, only 2 students with high fear of birth felt that vaginal birth is embarrassing. One of the main themes among women with high fear of birth was “Childbirth is a frightening ordeal.” We viewed embarrassment about vaginal birth as part of that theme.

Because of the way qualitative data were collected (via a social survey) and the nature of the data (short responses from a large number of students), most criteria for rigour and validity in qualitative research (see Onwuegbuzie & Leech, 2007, for example) do not apply to this study. Nonetheless, I argue that I introduced an element of rigor by using analytic and investigator triangulation. Using this approach, I rendered a more comprehensive picture of childbirth fear among young adults while 'reducing the risk of systematic distortions inherent in the use of only one method' (Maxwell, as cited in Kelle, 2001). In addition, the large sample size enhanced the validity of the qualitative analysis because I have confidence, given the investigator triangulation, that I captured most themes of importance. Finally, I weighted the evidence by counting the themes and giving precedence to more common themes. This technique enhances the internal credibility of the qualitative analysis by reducing the chances of researcher bias during data analysis (a priori assumptions about the findings) and confirmation bias (tendency of data interpretation to conform with a priori hypotheses) (Onwuegbuzie & Leech). I examined negative cases carefully to improve validity by incorporating those perspectives in the thematic analysis. By doing so, I gained a better understanding about the phenomenon. Feredy and Muir-Cochrane (2006) offered additional solutions to enhancing rigour in

thematic analysis which I took into account. Specifically, I gave each code a clear label or name, definition and rich description.

Investigator triangulation enabled me to work with my supervisor to refine my themes. My supervisor, who did not develop the original codes and themes, reviewed the themes and the quotations that were selected to illustrate the themes for thematic fit. At the end of my qualitative analysis I felt confident that I had, in fact, interpreted students' comments in a way that "represent[s] understanding of the perspective of the group under study and the meanings attached to their words and actions" (Onwuegbuzie & Leech, 2007, p.238).

In summary, in this chapter, I described my mixed-methods exploratory cross-sectional survey-based design. I described the original survey items and provided detailed descriptions about the development of my childbirth fear and other scales I used in my research. I also presented my quantitative data analysis approaches to test 10 hypotheses, including bivariate (Chi-Square test, student t-test) and logistic regression modeling to test covariates of childbirth fear. I outlined the steps of my inductive content analysis of responses about students' feelings about labour and birth, selected based on their scores on the fear of birth measure and commented on the rigour of my chosen methods.

Chapter 5: Results

In this chapter I describe the characteristics of my sample, discuss results that arose from testing the 10 hypotheses, and present the inductive content analysis of qualitative data.

5.1 Sample Characteristics

A total of 4,456 students at the University of British Columbia, Canada participated in my mixed-methods, exploratory, cross-sectional, survey-based study. I excluded students who already had children or who indicated that they did not intend to have children in the future, resulting in a final sample size of 3680. Of those students, 2676 (72.8%) were female and 991 (27.0%) were male. Thirteen students preferred not to state their gender (0.2%). The majority of respondents were single or in casual dating relationships (76.5%). The average age of university students who participated in the study was 22 years ($SD=4.24$, Range: 17-47). Just about a third (32.7%) had completed a university degree; the remainder had either completed high school or some college/university courses. Sixty-seven percent were undergraduate students and 33% were graduate students. I asked students to report their self-identified ethnicity as part of the survey. Hundreds of different ethnicities were recoded into 3 broad groups: Caucasian (62.8%), Asian (22.8%), and other (14.4%). The other category included students who self-identified as Hispanic, Middle Eastern, Aboriginal, affiliated to various religious groups, or reported two or more ethnicities. Each of these 'other' categories comprised less than 2% of the full sample; the categories were therefore collapsed. The average fear of birth score among students was 18.37 ($SD= 4.61$; range: 6-36). See Table 4 for a breakdown of demographic characteristics.

Table 4
Demographic Characteristics of Sample (n=3680)

| Demographic variable | n (%) |
|--------------------------------|-------------|
| Age categories | |
| 17-20 | 1635 (44.8) |
| 21-25 | 1369 (37.5) |
| 26-30 | 472 (12.9) |
| 31-35 | 128 (3.5) |
| 36-40 | 34 (0.9) |
| 41-47 | 12 (0.3) |
| Education | |
| High school completed | 358 (9.7) |
| Some college or university | 2117 (57.5) |
| College or university degree | 846 (23.0) |
| Graduate degree | 358 (9.7) |
| Relationship Status | |
| Single | 1468 (39.9) |
| Married / Common-law | 347 (9.4) |
| Casual dating relationship | 1338 (36.4) |
| Committed dating relationship | 516 (14.0) |
| Separated, divorced or widowed | 11 (0.3) |

5.2 Gender Differences in Attitudes towards Birth

I report descriptive statistics for key variables in Table 5. Female students had higher fear of birth scores (18.60, $SD=4.66$, Range=6-36) compared to male students (17.20, $SD=4.02$, Range 6-36). About a third of students (32.7%) valued obstetric technology and medical interventions during childbirth (34.4% of men and 32.1% of women). Of 2137 students who completed all 4 items on the index measuring concerns over bodily changes associated with pregnancy and birth, 66.9% of female students and 38.9% of male students scored in the high range of the index. More male students than female students agreed that childbirth is inherently risky (76.7% versus 66.6%). Sixty eight

percent of students felt confident about their knowledge of reproductive health. More female students than male students felt confident.

Male students were less likely to worry about the effects of CS surgery (39.8%) for their partners when compared to female students (30.9%). Just over 40% of female students indicated they would choose an epidural if they were to become pregnant. In contrast, only 20% of men chose this option for their partners. Overall, 8.7% of students would prefer a CS for themselves or their partners over a vaginal delivery. There were no gender differences in CS preference (8.4% among men and 8.8% among women. Female students were more likely to have observed a birth first hand.

Table 5
Attitudes about Birth Reported for the Full Sample and by Gender

| Key variables | n | Full Sample % (n)* | Men % (n) | Women % (n) |
|--|------|-----------------------|--------------|----------------|
| High fear of birth | 2283 | 10.9 (401) | 3.5 (35) | 13.6 (363) |
| Favourable attitude towards obstetric technology | 2732 | 32.7 (892) | 34.4 (202) | 32.1 (685) |
| Risk perception | 2731 | 68.8 (1878) | 76.7 (455) | 66.6 (1418) |
| Concerns over body changes | 2137 | 62.0 (1324) | 38.9 (146) | 66.9 (1173) |
| Having witnessed a birth firsthand (Live modeling) | 3680 | 5.6 (206) | 1.8 (18) | 7.0 (186) |
| Confident in knowledge of reproductive health | 2709 | 68.0 (1841) | 54.6 (316) | 71.5 (1518) |
| Not worried about CS surgery | 2759 | 32.8 (904) | 39.8 (237) | 30.9 (667) |
| Epidural preference | 3680 | 35.5 (1305) | 20.5 (203) | 41.1 (1099) |
| CS preference | 3203 | 8.7 (279) | 8.4 (64) | 8.8 (213) |

Note* : includes the 13 students who preferred not to disclose their gender

5.3 Testing Hypotheses

Due to the wealth of data that was generated by this study, there were many attitudes towards birth that could not formally be incorporated into the hypotheses. In addition, many interesting associations were not proposed, due to the limited scope of this dissertation. At times, however, analyses of new items or associations among items significantly contributed to a more comprehensive understanding of students' childbirth attitudes. In these cases, I added a short post-hoc analysis section below the relevant hypothesis.

1) More students with favourable attitudes towards obstetric technology will prefer interventions, such as epidural anaesthesia and CS, compared with students who are less favourable towards technology.

When examining the association between students' attitudes towards technology and students' preference for epidural anaesthesia (EA) students who had favourable attitudes towards obstetric technology were significantly more likely to prefer EA (46.7%) compared to students with unfavourable attitudes towards technology (38.9%) ($\chi^2 = 15.41$, $df = 1$, $p < 0.001$). Male students, who expressed favourable attitudes towards technology (31.2%), did not demonstrate any significant difference in EA preference when compared with students with unfavourable attitudes towards obstetric technology (27.0%) ($\chi^2 = 1.14$, $df = 1$, $p = 0.29$). Of the female students who favoured technology, 51.4% expressed a desire for EA compared to 42.1% of those with an unfavourable attitude towards technology ($\chi^2 = 16.18$, $df = 1$, $p < 0.001$).

Significantly more students with favourable attitudes to obstetric technology expressed a preference for CS delivery (12.5%) compared to those without favourable attitudes to technology (6.0%) ($\chi^2 = 34.38$, $df = 1$, $p < 0.001$). Among male students, there was no significant association between preference for CS and attitudes towards obstetric technology ($\chi^2 = 1.50$, $df = 1$, $p = 0.220$). Female students with more favourable attitudes towards technology expressed a greater preference for caesarean delivery ($\chi^2 = 34.94$, $df = 1$, $p < 0.001$). Of those female students with favourable attitudes toward technology, 13.4% would choose a CS compared with 5.8% of students with unfavourable attitudes towards technology.

2) More students who perceive birth as risky will (a) prefer interventions, such as CS, and (b) report higher fear of birth scores.

Students who agreed childbirth is inherently risky had similar rates of CS preference (8.7%) compared with students who disagreed with the item (7.3%) ($\chi^2 = 1.54$, $df = 1$, $p = 0.22$). There were also no significant associations between risk perception and mode of delivery when analyzing outcomes for male and female students separately. However, students who indicated they agreed that childbirth is inherently risky had significantly higher fear of birth scores (18.81) compared with students who did not agree birth is risky (17.29) ($t = -7.39$, $p < 0.001$; Cohen's $d = 0.35$, 95% CI: 0.11-0.67). This association was significant for men and women. Men who agreed birth was risky had higher fear scores (17.72) compared with men who did not perceive birth as inherently risky (15.48) ($t = -4.69$, $p < 0.01$, Cohen's $d = 0.58$, 95% CI: 0.12-1.36). Women who agreed birth was risky had higher fear scores (19.05) compared with women who did not regard birth as risky (17.56) ($t = -6.61$, $p < 0.001$, Cohen's $d = 0.32$, 95% CI: 0.06-0.68).

3) CS preferences will be higher among students who are not worried about CS, compared with students who are worried about the surgical procedure.

Findings indicated significantly more students expressed a preference for CS if they were not worried about CS surgery (17.9%) compared to students who were worried about CS surgery (3.6%) ($\chi^2 = 160.34$, $df = 1$, $p < 0.001$). Significantly more male students who were not worried about surgical delivery opted for CS (16.5%) compared to male students who expressed worries about abdominal surgery (2.3%) ($\chi^2 = 38.44$, $df = 1$, $p < 0.001$). Female students showed the same pattern of association, with 18.4% of students who were not worried about CS surgery preferring this mode of delivery, compared with 3.9% of women who did express worries about CS ($\chi^2 = 124.65$, $df = 1$, $p < 0.001$).

Post-hoc analysis: When asked to indicate the level of agreement with the statement "A woman's body recovers faster after a vaginal birth compared with a CS," 11.2% of students disagreed with the statement, and 45.2% did not know how to respond to the statement. Students who were not worried about CS surgery were significantly less likely to agree that a woman's body recovers faster after a vaginal delivery compared with a CS

(27% versus 45.3%, $\chi^2 = 38.53$, $p < 0.001$).

4) More students who are concerned about body changes during pregnancy and after birth will prefer delivery via CS compared with students who are unconcerned with body changes.

Significantly more students who agreed the impact of pregnancy and birth on their own or their partner's bodies would raise concerns would opt for a CS (12.0%) compared with students who were not concerned about bodily changes following pregnancy and birth (3.4%) ($\chi^2 = 46.53$, $df = 1$, $p < 0.001$). Significantly more male students who were concerned about their partners' changing bodies opted for CS compared with men who were not worried about pregnancy and birth-related changes to their partners' bodies (18.2% versus 5.4%, $\chi^2 = 15.34$, $df = 1$, $p < 0.001$). Among female students, those who were worried about bodily changes were also more likely to prefer a CS (11.2% versus 2.6% of students who showed no concern for body changes following pregnancy and birth) ($\chi^2 = 37.20$, $df = 1$, $p < 0.001$).

Post hoc analysis: In the current study, 66.7% of female students were worried about the impact of pregnancy and birth on their sexual desire. Concern over sexual functioning was closely related to concerns over physical changes during pregnancy and the postpartum period. When correlating scores from the body image index with the item measuring concerns over sexual desire, the correlational coefficient was high (Pearson's $r = 0.50$, $p < 0.001$).

5) Students who express a preference for epidural anaesthesia (EA) will have significantly higher fear of birth scores compared with students who did not indicate a preference for EA.

This hypothesis was supported for the full sample and female students but not for male students. Students who expressed a preference for epidural anaesthesia had higher average fear scores (19.19) compared with students who felt they or their partners could manage without EA (17.78) ($t = -7.28$, $p < 0.001$, *Cohen's d* = 0.31, 95% CI: 0.02-0.55). Female students who expressed a desire for EA had significantly higher fear of birth scores (19.41) compared with students who did not report a preference for EA (17.95) ($t = 6.88$, p

< 0.001, Cohen's $d=0.32$, 95% CI: 0.00-0.59).

6) Students who express a preference for delivery via CS will have significantly higher fear of birth scores compared with students who did not indicate a preference for CS.

Findings indicated significantly higher fear of birth scores among students who preferred a CS (22.75) compared with those who preferred a vaginal delivery (17.98) ($t = -12.14, p < 0.001$, Cohen's $d=1.08$, 95% CI: 0.34-1.27). Both male and female students scored significantly higher on the fear of birth scale if they also expressed a preference for CS (19.26 and 23.42 respectively) compared with students who preferred a vaginal delivery (16.95 and 18.19 respectively). This difference was statistically significant for both women ($t = -12.45, p < 0.001$, Cohen's $d=1.18$, 95% CI: 0.38-1.38) and men ($t = -3.18, p < 0.002$, Cohen's $d=0.60$, 95% CI: -0.85-1.01).

7) Students with more confidence in reproductive health knowledge will report lower fear of birth scores.

Students, who felt confident about their reproductive health knowledge, had significantly lower fear of birth scores (17.74) compared with students who did not feel confident (19.74) ($t = 9.80, p < 0.001$, Cohen's $d = 0.44$, 95% CI: 0.11-0.66). Male students with confidence in reproductive health knowledge had significantly lower fear scores compared with their less confident counterparts (16.63 versus 17.99; $t = 3.310, p = 0.001$, Cohen's $d = 0.34$, 95% CI: -0.27-0.87). Female students, with more confidence in their knowledge around reproductive health, also had significantly lower fear scores compared with less confident female students (17.92 versus 20.19; $t = 9.96, p < 0.001$, Cohen's $d = 0.50$, 95% CI: 0.12-0.74).

Post hoc analysis: When asked whether students wanted to learn more about reproductive health and childbirth options 61.3% answered yes. See Table 6 for a list of topics students would be most interested in learning about.

Table 6
Rank Ordered Areas of Interest among Students (n=2526)

| Topic | % (n) |
|--|-------------|
| Promotion of a healthy pregnancy (nutrition, substance use, physical activity) | 82.3 (2078) |
| Health concerns during the postpartum period (breast feeding, postpartum depression, bodily changes) | 80.9 (2044) |
| Risks and benefits of common interventions and technologies used during pregnancy and labour | 72.4 (1830) |
| The process of labour and delivery | 71.7 (1812) |
| How to include both partners in the childbirth experience | 67.1 (1695) |
| What could go wrong during pregnancy and labour | 66.5 (1679) |
| Available reproductive health services (Obstetrician, family physician, midwife, doula) | 65.4 (1652) |
| The process of pregnancy | 60.3 (1522) |
| How the female body is equipped for childbirth | 52.7 (1330) |
| Effect of sexually transmitted diseases on my ability to have babies | 32.4 (819) |
| The anatomy and physiology of my reproductive system | 28.3 (716) |

8) Students who indicated that their attitudes towards reproductive health were shaped by the media or school-based education will report higher fear of birth scores compared with students who learned about birth through family and friends.

Students were asked to check all of the sources of information that had shaped their attitudes towards reproductive health. Of the 3680 students, 1417 (38.5%) indicated that

they were influenced by media depictions, 2083 (56.6%) by family members, 1478 (40.2%) by friends, and 1531 (41.6%) by school-based information (such as health education or biology videos about pregnancy and birth). See Table 7 for a description of sources of reproductive health information by gender.

Students who indicated that the media was a source that shaped their attitudes towards reproductive health had significantly higher fear scores compared with students who did not check “Media” (see Table 8). Students who were influenced by family and friends had significantly lower fear scores, although the differences were very small. Students who only reported media exposure as shaping their attitudes had the highest fear scores (20.03) and students who learned about reproductive health only from family members had the lowest fear scores (17.86).

Post Hoc Analyses: Using the Chi-square test, I explored the association between media exposure only and students’ attitudes towards technology, risk perception, views about CS surgery, and a preference for epidural anaesthesia and CS. The only significant association I found was between media exposure and preference for CS. Students who reported that their attitudes towards reproductive health were shaped by the media only were significantly more likely to opt for a CS (14.6%) compared to students who reported different sources of information (family, friends, school, media *and* other sources) (8.5%) ($\chi^2 = 4.29, p = 0.04$).

When undertaking the same analysis with students who reported *any* media exposure to information about reproductive health, pregnancy, and birth, I found that students with media exposure were significantly more likely to perceive birth as risky ($\chi^2 = 13.64, p = < 0.001$), were more likely to hold favourable attitudes towards technology ($\chi^2 = 4.33, p = 0.04$), had more concerns over bodily changes during pregnancy and birth ($\chi^2 = 54.43, p < 0.001$), and were more likely to express a preference for EA ($\chi^2 = 64.601, p < 0.001$). Media exposure was unrelated to concerns about CS surgery ($\chi^2 = 2.63, p = 0.105$) and preferred mode of delivery ($\chi^2 = 0.79, p = 0.37$).

Table 7
Exposure to Information about Reproductive Health, by Gender

| Source | Men % (n) | Women % (n) |
|---------|--------------|----------------|
| Media | 32.3 (320) | 40.8 (1091) |
| School | 34.7 (344) | 44.2 (1183) |
| Family | 43.4 (430) | 61.5 (1645) |
| Friends | 28.5 (282) | 44.2 (1189) |

Table 8
Fear of Birth Scores by Source of Information

| | n | FOB Scores | t | p | Effect size | 95% CI |
|--------------|------|------------|--------|---------|-------------|-------------|
| Media yes | 1098 | 19.02 | - 6.57 | < 0.001 | 0.27 | 0.01-0.54 |
| Media no | | 17.77 | | | | |
| Family yes | 2083 | 18.16 | 3.72 | < 0.001 | 0.17 | - 0.20-0.39 |
| Family no | | 18.96 | | | | |
| Friends yes | 1213 | 17.96 | 4.52 | < 0.001 | 0.19 | - 0.09-0.44 |
| Friends no | | 18.83 | | | | |
| School yes | 1222 | 18.43 | - 0.68 | 0.50 | 0.03 | - 0.23-0.31 |
| School no | | 18.30 | | | | |
| Media only | 75 | 20.03 | NA | NA | NA | NA |
| Family only | 183 | 17.86 | NA | NA | NA | NA |
| Friends only | 34 | 18.74 | NA | NA | NA | NA |
| School only | 97 | 18.05 | NA | NA | NA | NA |

9) Childbirth fear scores will be lower among students with direct exposure to birth, compared with scores of students who have never witnessed a birth first hand. 9b) Students with direct exposure to home birth will report lower fear scores than students who observed a hospital birth.

Of the 3680 students who participated in the survey and met the inclusion criteria, 206 (5.6%) had witnessed an actual birth. Most of the deliveries were witnessed at the hospital, either in a personal (e.g. supporting a mother, sister or friend) or professional capacity (e.g. as a doula, nursing, midwifery or medical student). Students' reactions to seeing the births directly were mostly positive, but several students witnessed

complications, including neonatal death.

The students who had witnessed a birth had significantly lower fear of birth scores (16.38) compared with students who had no direct experience with birth (18.54; $t = 6.11$, $p < 0.001$, *Cohen's d* = 0.47, 95% CI: 0.28-1.14).

Results from a one way ANOVA revealed that fear of birth scores varied significantly by the location of where the birth was observed (hospital, home or TV/video) ($F = 12.94$, $df=3$, $p < 0.001$). Fear scores were lowest among the 19 students who witnessed a home birth (13.79, Range: 7-19) and highest for the 128 students who saw the birth on TV or video (18.60, Range: 9-32). These differences were statistically significant. Students who witnessed hospital deliveries ($n=129$) had significantly higher fear scores (16.43) compared with students who observed the birth in a home setting ($p= 0.05$).

10) Life modelling will be a significant predictor of fear of birth, controlling for other sources of self-efficacy (symbolic modeling, such as learning about pregnancy and birth through the media or via family and friends) and gender.

In a logistic regression model, with high fear of birth (scores of 23 or higher) as the outcome variable, I entered gender (coded 1 for female and 0 for male), followed by the four sources of exposure to information about birth that were significantly associated with fear of birth in the bivariate analyses that I performed to test hypotheses 8 and 9, i.e., live modeling (coded 1 for yes and 0 for no), media, family and friends (coded 1 for 'yes, student chose the option' and 0 for 'no, student did not choose the option'). I also entered the categorical variable for confidence in one's knowledge of reproductive health.

Table 9
Predictors of Fear of Birth among Students (n=2171)

| Predictor | <i>B</i> | SE | OR | 95% CI | <i>p</i> |
|-----------------------------------|----------|------|------|-----------|----------|
| Gender | 1.03 | 0.20 | 2.79 | 1.90-4.11 | < 0.001 |
| Confidence in knowledge about RH* | - 0.68 | 0.12 | 0.51 | 0.40-0.64 | < 0.001 |
| Live modeling | - 0.56 | 0.27 | 0.57 | 0.34-0.98 | 0.042 |
| Media exposure | 0.40 | 0.12 | 1.48 | 1.18-1.87 | 0.001 |
| Friend exposure | - 0.41 | 0.12 | 0.66 | 0.52-0.84 | 0.001 |
| Family exposure | - 0.22 | 0.13 | 0.80 | 0.62-1.04 | 0.095 |

* RH=reproductive health

Several significant predictors of high fear of birth were identified. Female students were significantly more likely to report high fear of birth than male students. The odds of experiencing high fear of birth were reduced by nearly half for students who had witnessed an actual birth and those who felt confident about their knowledge of reproductive health. Students who indicated that their attitudes towards pregnancy and birth were influenced by the media had significantly increased odds of high fear of birth compared to students who did not report the media as shaping their attitudes towards birth. Learning about pregnancy and birth from friends was associated with significantly reduced odds of fear of childbirth. Family exposure to reproductive health information was not a significant predictor of fear of childbirth.

Post Hoc Analyses: When running a one-way ANOVA (post hoc test = Bonferroni), I found significant differences in fear scores among students who identified as Caucasian, Asian, and Other. Asian students had significantly higher fear scores (20.51), compared with Caucasian (17.73), and other students (18.36) ($F= 68.92, df=2, p < 0.001$). More Asian students (12.1%) and students in the 'other' category (10.5%) reported a preference for CS compared with Caucasian students (7.2%) ($\chi^2= 17.77, p < 0.001$).

5.4 How do Young Adults Construct Birth?

I divided students into two groups based on their scores on the fear of childbirth scale. Of the female students ($n=2627$), 353 (13.2%) scored in the low fear of birth range, and 363 (13.6%) scored in the high fear of birth range. These proportions are not surprising given that close to 70% of the sample scored within 1 standard deviation of the scale mean and were excluded via the criterion sampling approach described in the methods section.

Of the female students with low fear of birth 248 commented on their feelings about labour and birth. Among female students in the high fear group, 213 provided written comments. I thematically analyzed the responses of these students and report them here. Among male students ($n=991$), 93 (9.4%) were categorized as having low fear of birth based on the cut-off scores and 35 males (3.5%) were characterized as having high fear of birth. They did not provide adequate amounts of data to support a qualitative analysis.

5.4.1 Feelings about labour and birth among women with low fear of birth.

This section of the dissertation reports the themes that I developed inductively from the comments of women with high self-efficacy for birth.

Childbirth as a natural process. Many students with high self-efficacy for birth described labour and birth as natural processes that require interventions only when complications arise. A common view expressed by the women with high efficacy for birth was that “labour is a natural experience and pain is part of the process.” One student wrote: “I think that it is necessary to feel labour pains because it is a natural human experience.” Women in this group described birth as a natural process, “that has been experienced by countless women without the use of technology to aid in the process.” Many students expressed a desire to avoid interference in what they considered a natural process: “I think the birth process is a normal and natural process, and unless there are complications that may cause harm to come to the mother or child, the process should be kept as natural as possible.”

Vaginal birth was described as the preferred mode of delivery among women with high efficacy for birth, with the caveat that it could offer a safe mode of delivery for mother and baby: “Childbirth is a natural process. A natural, vaginal childbirth is a normal method for delivery and one I would consider to be the first choice for myself and my partner.”

Childbirth as a manageable and positive experience. Most comments about labour among women with high self-efficacy incorporated pain. Female students described labour pain as manageable but did not deny that it would be intense. Some women in the low fear group embraced the notion of bodily experience and following the directions provided by their bodies. For example, “The body is designed to manage labour and to decrease the sensation of pain [...]. Pain is an important part of feeling what to do with your body while in labour.”

Women with low fear of birth often expressed confidence arising from the positive birth experiences of their mothers: “If our mothers went through [it] why can’t we?” In some cases, because of their mothers’ easy deliveries, students did not anticipate any problems with their own labours and births. The students’ sense of confidence about

labour seemed to be enhanced by their emphasis on the vicarious experiences of their mothers: “My mother gave birth to three nine-pound babies with no medication and no problems. I don’t think it will be a problem for me.” “If my mother and all the women in my family before her have done it I know I can do it.”

In addition to reflections about their mothers’ deliveries, many of the students with high self-efficacy for birth referred to childbirth as an ancient process that women have experienced “since Eve.” Students viewed themselves as following a long line of women who had given birth “naturally.” This sentiment helped reinforce their view of labour and birth as manageable: “Since Eve, women have been giving birth, and for the majority of that time it has been painful. If that many women can do it, so can I!”

Women with low fear of birth often wrote about labour in a positive light; they described labour pains as “worth it” and “compensated [for] by the joy of having a child.”

I have experienced pain in my life and survived. What I always figure about labour is that at least at the end of the pain there is a beautiful gift of a child for you. Not every painful experience ends with the beauty of a new life. I will be nervous but it will be okay.

Some of the students with high self-efficacy for birth described childbirth as frightening and scary but they expected to go through the experience with the support from those close to them. They were able to focus on positive aspects of childbirth, specifically opportunities for learning and personal growth.

It is a frightening prospect, but a necessary one. Sacrificing your comfort to bring your baby into the world is a good thing [...] I think that I will find out a lot about how brave I am during labour and how supportive my loved ones are.

Students with low fear of birth acknowledged labour would be painful, but envisioned it as an exciting, transformative or empowering experience in an environment that would be conducive to coping with the pain: “I think it will be painful and possibly long but a life altering and empowering experience if done in a supportive and healthy environment.”

Critically evaluating obstetric interventions. Some students in the low fear group constructed labour and birth as “mental and physical challenges” for which one needs to prepare. Preparation could include the assembly of a support team and pain relief options. Although students commented on pain relief options, many in the low fear group had

reservations about obstetric interventions during labour and birth. They expressed specific concerns about potentially adverse effects of pain medications:

I think that pain is a natural part of the birthing process and, while painkillers are an option, I would not want to be heavily drugged. I would not want to try anything that might harm my baby in order to save myself some pain.

For some students, having pain medications stood in the way of fully experiencing the birth process. They indicated the full experience did not include numbing effects: “I want to have a natural birth without numbing myself to any part of the process, including the pain.” A number of students in the low fear group expressed strong opposition to obstetric interventions. They regarded such interventions as undermining women’s confidence about their bodies and their abilities to give birth. They also questioned interference with the natural birth process; e.g. choosing the time and date of a birth.

I strongly believe that women are capable of going through the birthing process. I believe that it is medical interventions and processes that often lead to women being unable to successfully give birth naturally and to believe before even starting that they can’t do it. I value medical advances that help save baby and women’s lives but feel that they are far overused.

I’m worried that today’s women are choosing a caesarean delivery for sheer convenience – like booking a coffee date. “This is the day and hour I’m going to give birth [....]”.

Other students pondered women’s relationships with their bodies. They linked women’s fear and lack of trust in their bodies to their abilities to give birth: “Yikes – I know an increasing number of women are scared of their bodies but the thought that caesareans may become the norm is more scary for me! I fear for the world if women can’t trust their bodies.”

Students’ critical stances towards obstetric interventions were often informed by their understanding of the negative effects of interventions. Some students were very clear that surgery would involve recovery time and possibly pain as a result of the incision.

I have observed a scheduled c-section so I know what is involved in the procedure; however, I still dread the idea of having one myself. Not only

because I would miss the experience of a vaginal birth, but also because I would have the pain and recovery time from surgery interfering with my enjoyment of my new baby.

Some students in the low fear category expressed open opposition to what they described as a medicalized birth culture and worried about hospital personnel showing lack of respect for their choices while in labour. They viewed themselves as potentially vulnerable to having interventions forced on them and both they and their partners being intimidated as the result of unequal power relationships with health care professionals.

I worry about having technology and medications forced upon me when I am in a compromised position. I do not know if my partner has the ability to enforce my wishes if I am not able to do so. He may become intimidated by the hospital staff and unable to obtain forthright communication from them.

Mode of delivery is a woman's choice. Despite the strong natural childbirth philosophies held by many women with low fear of birth they were careful not to disparage any form of childbirth. They made it clear that, ultimately, mode of birth is a personal choice by a woman. They linked women's choices to personal control over the birth process; nonetheless, they indicated they would expect professionals to discourage elective CS.

I believe that vaginal birth is a part of the experience and it is the natural way to do it. I would never say that c-sections are bad or that other women could not choose to have one for preference, it is just not my ideal way of give birth.

[....] if we allow women to abort babies then we should also allow them the choice to decide how and when they want their baby out, the same arguments would apply (women controlling their own bodies). I feel though [that] doctors should discourage elective c-sections when they can.

Another student wrote, "I think that C-sections to avoid pain or cosmetic complications would be wrong for me but I can't speak for other women."

Misinformation about childbirth. Some of the students with high self-efficacy for birth felt that women are deliberately misinformed about childbirth. One remarked, "I believe that women are being trained to have uninformed and incorrect beliefs about pregnancy and birthing." Some students specifically dismissed the notion that vaginal birth

could affect sexual functioning because they viewed such representations as placing women in the position of being there for other's pleasure as opposed to valuing themselves.

I think there is a lot of misinformation out there in our society about the effects of vaginal childbirth on a woman's body especially in regards to her sexual functioning. It is worrisome to me that women might be choosing to undergo unneeded surgery (c-section) because they are afraid that they won't be sexually desirable to their partners following a vaginal birth. To me this really demonstrates the extent to which women are valued (and encouraged to value themselves) as sexual beings, not for their own enjoyment but for the pleasure of others.

One student voiced frustration about the lack of education about childbirth for women; she linked the lack of knowledge to increases in women's fear and their rates of operative deliveries. She also commented about negative stories increasing women's fears about natural birth and the general reluctance of women to tell positive stories.

I think too many women choose caesarean births b/c they are not well-educated on the birthing process, and have a lot of fear. This is increased by the few women who have had bad experiences with natural childbirth and are very vocal about this -- this really frustrates me because it instills a sense of fear in young women who don't know a lot about childbirth. Women who have had good experiences are often less vocal about it.

5.4.2 Feelings about labour and birth among women with high fear of birth.

Women with high fear of birth primarily constructed childbirth as a painful and frightening ordeal. Although many students with high fear of birth scores viewed childbirth positively they also expected obstetric complications. Some expressed a desire for CS to avoid labour pains.

Childbirth as a painful and frightening ordeal. Most students in the high fear category described labour and birth as worrisome, scary, frightening, anxiety provoking and/or terrifying. They consistently used negative adjectives to describe labour and birth. Specifically, they reported being "very frightened" and "extremely anxious" when thinking of labour and were "terrified of excruciating pain." A large proportion of women in the high fear group explicitly stated that they were afraid of labour pain. They voiced concerns over being panicked and not knowing what to do during labour. Fundamentally, the

women with high fear of birth expressed doubt that they would be able to give birth to their babies successfully: "I think that it would be too painful, and I don't think that I can do it," or "I don't think I can survive through it."

Their reasons for characterizing birth as frightening or terrifying included general fear of labour and birth, fear of pain, worries over the baby's well-being, concerns over feeling exposed during labour, fear of the unknown, fear of death, fear of bodily changes, fear of losing control, and worries about how long labour may last. A small number of students expressed severe fear of bodily harm, including death: "Am I going to die? Will it tear apart my body?" Some students focused on other negative aspects of the experience, such as loss of bodily control and privacy: "Intense fear of the lack of control I would have in that situation." The students with high fear scores emphasized the lack of glamour in giving birth and a sense of humility. One student wrote:

I think that the whole labour process is pretty humbling. I mean, when it comes down to it, it's probably about the least glamorous thing you can ever do. Everything "private" about you is on display for anyone to see, you're in pain, sweating, body fluids are coming out of you, people are sticking their hands into you...If it weren't for the huge reward of a baby at the end, who would want to do all that?

Most of the women in the high fear group wrote about being terrified by the idea of pain and, for some, fear for the well-being of the baby. This was expressed as a dread of giving birth: "The pain of it terrifies me," and "I know that it's going to be very painful - but necessary - so I'm definitely dreading the day I have to give birth." Another student wrote described "the unthinkable excruciating pain and wondering if baby is safe and healthy." Despite being terrified by the process, some students in the high fear category felt they might be able to manage labour and birth. These students were much more tentative about their ability to cope with labour and birth than students with high self-efficacy. "It sounds utterly terrifying, but I suppose I could probably deal with it."

Desire for surgery to avoid labour. CS was viewed by some students with high fear of birth as a viable option to avoid the pain of childbirth. They viewed CS as reducing their exposure to pain and unpleasant changes to their bodies. One student wrote she was terrified of birth and wondered what "a person requires to opt for a caesarean." Another student with high fear of birth viewed CS as the lesser of two evils, hoping that it would

hurt less: "I hope caesarean delivery's not going to hurt as much as vaginal births."

Students not only viewed planning a CS as a solution to dealing with fear of labour pain but also as a way to deal with worries and fears about 'irreversible damage' inflicted by vaginal birth. They attributed their reaction to vaginal birth to negative birth stories shared by people in their lives: "I am very fearful, especially after hearing a lot of horrible stories about childbirth from friends, family, and coworkers. I am afraid of pain and the thought of changes to the vaginal area." They did not believe they could recover from the changes to their body associated with vaginal birth:

I am scared of both, the pain of labour and the damage and/or changes that happen after the birth. I don't want my body to be all torn and stretched and I believe it won't be the same ever again.

For some students, having a CS to avoid pain and bodily damage took precedence over the desire to have the 'life' experience of a vaginal birth.

I don't want to have a vaginal birth. I'm not embarrassed. I just think it is unnecessary pain and changes to your body. Why not avoid if I can? I think I might be missing out on a life experience but I'm okay with that.

Birth as a positive experience. A few students in the high fear group viewed birth as a natural process that should be interfered with only if complications arise. Many students described childbirth as a beautiful, joyful, and amazing experience. One student with high fear of birth wrote: "During nursing school I watched a vaginal delivery; it was an amazing experience." Some students in the high fear group, although terrified by the prospect, were able to focus on positive aspects of birth and felt that they could "deal with it."

Quite frankly, the thought of the labour process terrifies me. But at the same time, you know that in the end, every second is worth it. And it makes you appreciate it that much more, that your mother and millions of other women out there have done this before.

The students with high fear seemed more focused on the outcome of the birth, a healthy baby, than on the process of giving birth. Many did not regard the birth process as important: "Scary but incomparable to the joy of holding a healthy baby in your arms. Many times, it's the destination, not the journey that's more important." Some students, despite their misgivings, were able to view the birth process as a potentially liberating experience:

Although I can understand why some women would choose to have a c-section, I don't like the idea of it being for the sake of vanity or convenience. The process of birth makes me nervous, but I think it would be a very liberating experience and I would feel as though I was missing out on something if I didn't go through it.

Expectation of obstetric complications. Some students with high fear of birth reported family histories of complications during childbirth. Others constructed birth as an inherently risky process, without reference to family history. The students with high fear of birth described their anxiety about birth, particularly the students who had 'negative' family stories seemed to view the risks associated with birth as unavoidable: "My mom had a lot of complications during labour so maybe I will too." "I am scared of the pain and the potential complications due to my family history." The students in the high fear group also seemed to regard risks as uncontrollable and almost inevitable. "It sounds like an unpleasant but necessary process. The risks are also worrying, but I suppose there's not much that can be done about them. Even with the best medical care, something could still go horribly wrong."

Mode of delivery is women's choice. Similar to the students with low fear of birth, some students in the high fear group constructed mode of delivery within a reproductive rights framework: "Pro-choice, it should be a woman's right to choose the way she plans to deal with labour and birth."

Despite adhering to the belief that mode of delivery is a woman's choice, some students with high fear of birth expressed reservations about the implications of CS on maternal request.

I'm not sure about vaginal birth vs. CS. I guess it's everyone's individual choice to make, but I wonder if we become a little less human if we just have a CS because we don't want to go through the pain or trouble of having a vaginal birth.

One student with high fear of birth echoed the attitudes of women with high self-efficacy for birth, i.e. mode of delivery is women's choice but a vaginal birth is the preferred mode of birth. This student equated vaginal birth with female strength and bravery.

I think vaginal birth is a remarkable thing; that a woman has the ability to give birth to another life through this part of her body attests to her strength as a woman. I also think it a bit unfortunate that so many women today opt for a C-section when they are given a choice. It is their right to choose, I believe, but ultimately, I think vaginal births enrich the childbirth process that much more. I hope that when my time comes to have a baby, I will be brave enough to give birth vaginally.

In this chapter, I reported the results of the 10 hypotheses and the thematic analysis of students' comments about labour and birth. Fear of birth and body image concerns were significantly associated with a preference for CS. Having witnessed a birth first hand and feeling confident in one's knowledge of pregnancy and birth were linked to decreased fear of birth among students. Students with high and low fear of birth constructed birth differently, with the former group describing the event as a frightening and painful ordeal, and the latter group constructing it as a natural event that should not be interfered with if possible. Obstetric interventions were viewed by students with high fear of birth as a means to make labour and birth more manageable whereas students with low fear of birth viewed interventions more critically, e.g. they considered adverse effects of elective interventions. Students in both groups emphasized the importance of women's autonomy in making maternity care decisions. These findings will be discussed in-depth in the next chapter.

Chapter 6: Discussion

This chapter includes a discussion of main study findings, a section on implications for research, practice and education, the limitations of the study, and a conclusion. Although findings from the quantitative analysis are given precedence in my discussion chapter, findings from the thematic analysis of open-ended comments significantly enhanced my understanding of attitudinal nuances. For example, the quantitative results indicated that students were concerned with physical changes to the female body during pregnancy and birth; the qualitative results built on that finding by illuminating specific concerns such as vaginal stretching and ripping. Similarly, I developed themes related to the importance of pain in contributing to fear of birth from the qualitative data, which complemented findings from the quantitative analysis. The themes provided a logical link between fear of birth and preferences for obstetric interventions that may reduce pain, such as epidural anaesthesia and CS.

6.1. Summary of Major Study Results

Using self-efficacy theory as a conceptual framework, I explored fear of childbirth in a large sample of university students. Fear of childbirth affected approximately 1 in 7 female students; very few male students exhibited fear of birth (< 4%). Concerns over changes to the female body during pregnancy and birth and the belief that birth is inherently risky were common attitudes among students. My qualitative themes suggested that 'childbirth as a painful and frightening ordeal' is a dominant dimension of childbirth fear among young female students. Obstetric interventions, such as elective CS are favoured by students with high fear of birth and seen as a way to circumvent the pain of childbirth. Concerns over physical changes during pregnancy and birth were strongly associated with CS preference among male and female students. Students who reported that their attitudes towards pregnancy and birth were shaped by the media reported the highest fear scores, and had significantly increased odds of high fear of birth, controlling for confidence in reproductive health knowledge, other sources of information and gender. Three factors that enhanced self-efficacy for birth among students were increased confidence in their knowledge of pregnancy and birth, having witnessed a birth first hand

and reporting friends as a source of information that shaped students' attitudes towards pregnancy and birth. These findings are congruent with self-efficacy theory, i.e. they support the importance of vicarious experiences (life modeling and socially circulated stories) as important sources of self-efficacy (Bandura, 1982). Significant differences in fear scores and preferences for CS among Caucasian and Asian students highlight socio-cultural variations in attitudes towards birth.

Qualitative comments were only analyzed for female students due to the small number of male students in the high and low fear categories who commented on their feelings towards labour and birth. The themes I developed from female students' comments illuminated similarities and differences in constructions of birth between students with low and high fear. Women, in both groups, viewed pregnancy and birth within the framework of a woman's right to self-determination and regarded mode of delivery as a woman's choice. Students with low fear of birth supported the themes that birth is a natural and normal process and obstetric interventions may carry unacceptable risks. Students with high fear of birth supported the themes that birth would be characterized by obstetrical interventions and birth represented a painful and frightening ordeal. Students in both groups viewed birth as a painful, but rewarding experience because of the incredible end product: a baby.

6.2 Childbirth Attitudes among Young Adults

I begin this section with a discussion of quantitative findings. Findings are structured in order of statistical complexity, i.e. I discuss descriptive statistics first, followed by bivariate and multivariate findings. Qualitative findings are discussed after the quantitative findings. I triangulated my findings throughout the discussion, to generate a more detailed and complete narrative of students' attitudes towards birth.

6.2.1 Childbirth fear. Among female students, 13.6% exhibited high fear of birth and 13.2% were categorized as having low fear or high efficacy for birth. Among male students, 9.4% had low fear and 3.5% scored in the high fear range. It should be noted that this study only included students who reported a desire to have children in the future. As such, fear of birth may have been under-reported because some young women may avoid childbirth altogether because of severe fear of birth. It is not surprising that more female

students had high fear of birth, as the dominant fear associated with childbirth among female students was fear of pain; pain that will only be experienced by women.

A Canadian study of young adults reported results congruent with my research findings, specifically, that fear of birth was significantly higher among female students. A survey of 359 college students from Quebec (Palumbo, Hsu, Tomkinson & Klein, in press), measured fear of birth with one question “How would you rate your fear about giving birth/a birth experience?” on a rating scale from 1 (no fear) to 10 (much fear). Female students scored an average of 7.44 and male students had an average score of 6.15. When asked how students would rate their self-confidence about giving birth/a birth experience, women scored an average of 6.01 points on a scale from 1 (not confident) to 10 (extremely confident). The scale I created provides a more psychometrically robust measure of childbirth fear, because the fear scale used by Palumbo et al. (in press) was not validated.

A study with pregnant Canadian women (n=650) reported that one in four women (average age = 31.5) scored in the high fear of birth range using a standardized fear of birth measure (Wijma Delivery Expectance/Experience Questionnaire) (Hall et al., 2009). By comparison, only 13.6% of students (average age =22) reported high fear of birth scores in the current study.

It is difficult to compare fear scores across studies because of differences in measurement of fear of birth and the characteristics of the study populations (i.e. Quebec students were 4 years younger on average, and Hall’s survey was administered to pregnant women; both studies used different measures of fear of birth).

6.2.2 Preferences for epidural anaesthesia and CS. In my research, just over 40% of female students expressed a preference for epidural anaesthesia (EA). By contrast, among female college students from Quebec the rate was 30.2%. The actual rate of administration of EA among a representative sample of British Columbian women who laboured has been reported at approximately 36% (Public Health Agency Canada, 2009), which is close to the proportion of women indicating that preference in the current study. There is some evidence to suggest that prenatal preference for EA is strongly associated with receiving EA during labour. In one American study (n=303), 71% of epidurals that were administered during labour (assessed via chart review) were planned during pregnancy (assessed via prenatal survey). The rate of EA administration was significantly

higher among women who planned to have EA compared to women who had indicated a preference not to have EA (91% versus 57%) (Goldberg, Cohen, & Lieberman, 1999). In one randomized controlled trial, Swedish women who received natural childbirth preparation versus standard antenatal education had identical epidural rates (Bergström, Kieler & Waldenström, 2009). Those study results suggest that some women's attitudes towards EA may be formed early in pregnancy, or even prior to pregnancy; thus they are less likely to be influenced by prenatal education (Bergstrom et al., 2009; Stoll & Hall, in press) and clinical factors.

About 9% of female students in the current study indicated they would opt for a CS. The proportion of women who expressed a preference for CS as a mode of delivery in the current study is very similar to the rate reported by female students in Quebec (9.3%) and the rate of CS preference among pregnant women in other countries. Mazzoni et al. (2011) performed a systematic review and meta-analysis of 38 studies from North and Latin America, Europe, Asia, Africa and Australia to assess the prevalence of women's preferences for CS during pregnancy. Of the 6161 nulliparas that were included in the meta-analysis, 10.2% (95% CI 6.8–14.1) indicated CS was their preferred mode of delivery.

The similarities in preferences for EA and CS among non-pregnant students and pregnant women may indicate that these preferences are formed prior to pregnancy possibly because they are informed by women's perceptions of their pain tolerance. Bandura points out that self-efficacy or lack of self-efficacy for a task can become generalized (1977); in other words, difficulties coping with pain in a context other than labour and birth may lower students' perceptions of self-efficacy for coping with labour pain. In their qualitative comments, some students specifically linked their low pain tolerance with their worries about coping with the pain of labour and birth.

6.2.3 Attitudes towards obstetric technology and risk. About 2 out of 3 students described birth as inherently risky; 1 out of 3 students believed that birth requires reliance on medical intervention. These findings suggest that the majority of university students surveyed constructed birth as inherently risky, with fewer students subscribing to the view that technology is necessary to deliver a child. The proportion of students with favourable attitudes towards obstetric technology in my research was very similar to the proportion of low risk pregnant Canadian women from a convenience sample (n= 1318) who agreed

that childbirth usually requires medical technology (26.8%) (Klein et al., 2011). The similarities suggest that attitudes towards obstetric technology may be developed prior to pregnancy and remain stable during pregnancy.

My finding that many students perceived birth as inherently risky (68.8%) may be a reflection of a socio-cultural trend towards increasing levels of anxiety among young adults. Twenge (2000) demonstrated that college students' anxiety scores have increased over the past 30 years and "outscore psychiatric populations from the 1950's" (Twenge, 2000, p. 1018). Twenge was interested in determining whether non-specific anxiety had increased over time in the population; to achieve her goal, she explored the effects of birth cohort on anxiety. Birth cohort is a proxy for changes in the larger socio-cultural environment that inevitably colour our feelings, attitudes, and behaviours. Twenge conducted a meta-analysis of mean (trait) anxiety scores of 170 American college student samples ($n=40,192$) from 1952-1993. She transformed anxiety scores from different measures into z scores and studied changes in anxiety over time. Her findings indicated a clear linear rise in anxiety scores over time, of the magnitude of one standard deviation from 1952-1993 (in a normal distribution, this would signify a shift of the median score from the 50th percentile to the 84th percentile). It should be noted that female students scored about a quarter of a standard deviation higher than men but female scores did not increase at a higher rate than men's scores over time. Such heightened levels of anxiety may be generalized to all parts of life, including pregnancy and birth.

It is interesting that so many students in the current study felt that birth is inherently risky because pregnancy and birth in the 21st century are very safe, with very low rates of maternal and neonatal mortality (WHO, 2011). Why do young adults believe that birth is risky when the actual risks are very low? Qualitative themes from students with high childbirth fear revealed a preoccupation with risks to the baby and a desire to minimize these risks, using what they perceived as appropriate medical intervention. Possamai-Inesedy (2006) supported the centrality of perceived risk during pregnancy. Australian women in her study were described as "constantly engaging with their pregnancy and impending birth within a risk context" (p. 412), regardless of birth setting (home versus hospital).

There is evidence to suggest that women who perceive birth as risky are more likely

to choose obstetricians as their maternity care providers (Howell-White, 1997) because they see obstetricians as providers who are best equipped to deal with obstetric complications and emergencies (Fairbrother, Stoll, Carty, & Schummers, in press). Hence, the perception that birth is risky may lead low risk women to choose an obstetric specialist, and increase their risk of experiencing unnecessary interventions and iatrogenic morbidities (Janssen et al. , 2009).

6.3 Hypothesis Testing.

As indicated previously, *Hypothesis 1* was supported because a favourable attitude towards obstetric technology was associated with female students' preferences for EA and CS. These findings suggest that students who favoured obstetric technology subscribed to a biomedical view of birth, embraced pharmacological pain relief, and were not opposed to CS. In light of Davis-Floyd's (1994) work about birth technocracy, I argue these students seemed to ascribe to a medical or technocratic model of birth whereas the students who disagreed that obstetric technology is a necessary part of childbirth adhered to a more natural or holistic childbirth philosophy.

There is some evidence to suggest that positive attitudes toward obstetric technology are associated with increased odds of having epidural anesthesia and an operative delivery. Green and Baston (2007) conducted a large-scale longitudinal study and found that English parturient women in the year 2000 were significantly more willing to accept obstetrical interventions than those in 1987. Willingness to accept interventions was measured with 7 items (scores ranged from 7-42). Participants were asked to rate their willingness to accept an epidural, labour induction, labour augmentation, continuous fetal monitoring, CS, instrumental delivery and episiotomy under hypothetical clinical circumstances where the interventions were not medically indicated, but suggested by the care provider. Women's willingness to accept interventions at 35-36 weeks predicted epidural use, and having an operative or instrumental delivery, controlling for parity, age and education.

As indicated in the results chapter, there was only partial support for *Hypothesis 2*, in that male and female students' risk perceptions were not associated with a preference for CS but were associated with higher fear of birth scores. These findings suggest that

students do not view CS as mitigating obstetric risk. Risk perception and fear have been linked in previous studies. For example, Searle (1996) reported that Australian women who had delivered an infant at a hospital in Melbourne were fearful and felt at risk during their pregnancies. Women reported a tendency for family, friends, and the media to focus on negative outcomes that may occur during pregnancy or birth, which “heightened” women’s sense of individual risk (Searle). Similarly, I found that students whose attitudes towards pregnancy and birth were shaped by the media (among other sources of information) were significantly more likely to perceive birth as risky. This finding may be explained by the over-representation of pregnancy risks and complications on reality birthing shows (Morris et al., 2010).

Hypothesis 3 was supported for both male and female students. Students who were not worried about surgical delivery were more likely to prefer CS. This finding is not surprising, given that CS is often depicted as a routine procedure and simply an alternate way of giving birth (Mutryn, 1993). The term “section” further distances the procedure from the realm of major surgery and its adverse effects (Mutryn).

In a study with 359 college students from Quebec, 71.2% of female and 42.4% of male respondents agreed that CS is just another way of having a baby. About 20% of women and men agreed that CS empowers expecting parents by allowing them to be more in control of the birthing process. Many students also agreed that CS is less painful and more convenient than vaginal birth (Saroli-Palumbo et al., in press). These findings support the normalization of CS among young Canadian adults, and shed light on aspects of surgical delivery that are valued by the next generation of maternity care consumers. However, there is also evidence suggesting fear of surgery is a reason for preferring vaginal birth. In the original study (Stoll et al., 2009), some students preferred a vaginal delivery because they were fearful of the surgery and scarring associated with CS.

As outlined in *Hypothesis 4*, I found a strong association between worries about physical changes associated with pregnancy and birth and CS preference among female and male students. Male students who were concerned about the impact of pregnancy and birth on their partner’s bodies were nearly four times more likely to express a preference for a CS (12.0%) compared to students who were not concerned about bodily changes following pregnancy and birth (3.4%). This trend was even more pronounced among

women (11.2% versus 2.6%). The theme 'desire for surgery to avoid labour' from women with high fear of birth support women's concerns about damage to their perineum (stretching and ripping) which was linked by them to serious consideration of CS. Similarly, in a study of Canadian college students, 19.1% of women and 22.2% of men agreed that a CS prevents sexual problems compared with a vaginal birth (Saroli-Palumbo et al., in press).

In my research, concerns over sexual functioning were highly correlated with concerns over physical changes during pregnancy and the postpartum period. The young women wanted to become pregnant and give birth in the future but not at the expense of their sexual functioning and vaginal integrity. Male students shared concerns over the impact of pregnancy and birth on the female body.

The literature suggests students' worries about bodily damage are not based on evidence. In other words, previous research provides limited support for fears about sexual functioning following childbirth. A prospective study of postpartum sexual functioning for women who had a CS reported slightly higher scores on a sexual functioning scale and an increased desire for sex by 6 months postpartum compared to women who delivered vaginally, but these findings were not statistically significant (Pauls, Occhino, & Dryfhout, 2008). Other researchers have reported no association between sexual functioning and mode of delivery. Specifically, in a longitudinal study of 150 American nulliparas, mode of delivery (vaginal versus delivery via CS and spontaneous vaginal delivery versus assisted vaginal delivery) was not related to intercourse resumption, anorgasmia, or pain at 6 weeks postbirth (Connolly, Thorp, & Pahl, 2005). In a randomized controlled trial of planned CS versus planned vaginal delivery of breech babies, women reported no significant differences in sexual functioning due to mode of delivery at 2 years postpartum (Hannah et al., 2004). When 271 monozygotic twins (n= 542) were surveyed to determine the long term effects of childbirth on sexual functioning and the impact of mode of delivery no significant differences in sexual functioning were reported for twins who had a vaginal delivery versus a CS or twins who had a spontaneous versus an assisted vaginal delivery (Botros et al., 2006).

The literature suggests, regardless of mode of delivery, poor body image has been significantly correlated with decreased sexual functioning during pregnancy and the

postpartum period (Pauls et al., 2008). In addition, body image concerns during pregnancy may have consequences for postpartum mental health. In a study with 230 pregnant American women, body image dissatisfaction in early pregnancy was a main determinant of depression in late pregnancy and the postpartum period (Downs, DiNallo & Kirner, 2008). The literature raises questions about whether some of the young women in the current study may be at increased risk for developing postpartum depression and experience decreased sexual functioning following pregnancy and birth.

Hypothesis 5 was supported because this study demonstrated a link between fear of birth and a preference for epidural anaesthesia among female students. Triangulation of these findings with my qualitative theme, 'desire for surgery to avoid labour', strongly points to fear of labour pain as a reason for EA preference among students with high fear of birth. There is some support for this finding in the literature. In a Canadian study with 624 pregnant women, Hall et al. (2010) found that high fear of birth significantly increased the odds of having an epidural (OR = 2.02; 95% CI: 1.26-3.22), controlling for age, parity, and other potential confounders. Nancy Lowe (1989) supported a connection between women's confidence in handling labour pain at term and their perceptions of pain during active labour. The women who felt confident about pain management perceived less pain than women who felt less confident. These findings illustrate maternal confidence is an important predictor of pain perceptions. As such maternal confidence may reduce perceptions of pain and translate into fewer maternal requests for epidurals, as my research suggests.

Albert Bandura (1982) refers to research undertaken by Miller to explain how self-efficacy operates in situations where people perceive little control over an event (e.g. labour pain). Miller (1980) found that people with low self-efficacy were more likely to give up control to others when faced with an adverse stimulus, compared to people with high self-efficacy. The association between fear of birth or low self-efficacy for birth and preference for EA in the current study supports this premise. If young women feel that they may experience uncontrollable pain during labour, they may defer to the expertise of an anaesthesiologist and request an epidural.

When testing *Hypothesis 6*, I found a significant association with a large effect size (Cohen, 1977) between fear and CS preference for women and men in my sample. The

qualitative theme, 'desire for surgery to avoid labour', developed from data provided by female students in the high fear group supported that association. Students in the current study shared similar perspectives to women who gave birth in hospital in Davis-Floyd's (1994) study. Women in her study saw obstetric technology as a resource to control their birth experience. Davis Floyd has argued that many women want to distance themselves from the physiological process of childbirth and are happy to utilize whatever technological resources may help them in this quest. These women did not report feeling disempowered but were exercising their right to do with their bodies as they please. Although students with high and low fear of birth had different attitudes towards birth and their preferred mode of delivery, they all strongly supported the theme of mode of delivery as a woman's choice.

Other studies have demonstrated a link between fear of birth and requests for elective caesarean deliveries (Buyukbayrak et al., 2010; Karlström et al., 2010; Nieminen et al., 2009; Ryding, 1991) emergency CS (Ryding, Wijma, Wijma, & Rydhström, 1998), and patient initiated CS (Kornelsen & Hutton, in press). Findings from my research indicate that the link between childbirth fear and CS preference precedes pregnancy and that both EA and CS were seen as interventions that could permit women to avoid labour pain.

I found some cultural differences in fear of birth and CS preference. Asian students, who comprised close to a quarter of the sample, had significantly higher fear of birth scores and were significantly more likely to prefer CS when compared with Caucasian, Hispanic, and other students (all other ethnic groups were combined). These differences in attitudes may reflect socio-cultural acceptance of CS in Asian populations and particularly for Chinese people. In one study of over 1 million singleton births in Southeast China, CS rates of 56% were noted in the year 2006. In some areas of China, CS on maternal request accounted for half of all CS deliveries (Zhang et al., 2008).

As stated in *Hypothesis 7*, both male and female students who felt less confident about their reproductive health knowledge were more fearful of birth, a finding that is congruent with self-efficacy theory (Bandura, 1977). A post hoc analysis identified several areas about which students would like to learn more. Information that promotes healthy pregnancies was indicated most frequently, with 82.3% of students desiring information about this topic. The large number of students who chose this topic may reflect gaps in

traditional school curricula, conflicting media information about what is and is not healthy during pregnancy, and/or a desire to ensure the best outcome possible for pregnancy and birth. Many students expressed a need to learn more about postpartum health, including breastfeeding, postpartum depression, and bodily changes. Given that many students were worried about physical changes associated with pregnancy and birth, this finding is not surprising. There was significant interest among students to learn about the process of labour and delivery and the risks and benefits of common interventions and technologies used during pregnancy and labour. Many students desired information about how to include their partners in the birth process and what types of maternity care options are available. Over 60% of students wanted to learn more about what could go wrong during pregnancy and labour and half were interested to expand their knowledge about how the female body is equipped for birth. There was much less interest in the anatomy and physiology of the reproductive system and information about how sexually transmitted diseases might affect reproductive health; these are areas that are more likely covered by existing sexual health curricula in high school (Vancouver School Board, 2010).

Hypothesis 8 was partially supported. Students who learned about pregnancy and birth through the media alone had the highest fear scores, followed by students who learned about it through the media and one or more other sources. Lowest fear scores were reported among students who learned about birth only from their families. In addition, students who reported their attitudes towards reproductive health were shaped only by the media were nearly twice as likely to opt for a CS (14.6%) compared to students who reported a variety of sources of information (family, friends, school, media *and* other sources) (8.5%). Students with any media exposure were significantly more likely to perceive birth as risky, hold favourable attitudes towards technology, have more concerns over bodily changes during pregnancy and birth, and express a preference for EA. These findings are worrisome because “today’s media have [...] become the dominant means by which culture is created and shared” (Grossberg, Wartella, Whitney, & Wise, 2006, p. 22). This observation raises questions about whether the media are perpetuating the culture of fear that surrounds childbirth.

In support of my findings, one media analysis found that popular birthing shows have tended to over-represent the occurrence of obstetric complications and the need for

obstetric interventions (Morris & McInerney, 2010). It is not surprising, given these depictions of birth in the media, that students in the current study who learned about pregnancy and birth through the media alone had the highest fear scores. Descriptions of birth in the media do not provide conditions for empowering women, and may induce learned helplessness and an external locus of control. If birth is perceived as risky, uncontrollable, and requiring medical interventions, it is unsurprising that women want their deliveries managed by medical experts as opposed to regarding themselves as experts in birth.

Although the current study and other work support the negative effect of media consumption on body image and childbirth attitudes, the confluence of media depictions of birth and attitudes towards mode of birth are complex. In a sample of 17 primiparous women from British Columbia, descriptions and depictions of vaginal and caesarean birth in the media contributed to their decisions to have a CS without medical indication but that was only the case if the depictions confirmed the previous attitudes of participants (Munro, Kornelsen, & Hutton, 2009). For example, stories that highlighted negative aspects of vaginal birth were privileged and depictions of potentially adverse effects of CS were discounted.

The finding that some information about birth may be privileged raises an important point: Efficacy information is processed cognitively and transformed by the recipient (Bandura, 1977). A person with low self-efficacy for a task may observe a role model who is successful at the task, but attributes this success to factors out of his or her control. This condition is referred to as learned helplessness or external locus of control (Bandura). Low self-efficacy and the related conditions just described may be especially pronounced in situations where people are “cast in subordinate roles or assigned inferior labels, implying limited competence” (Bandura, 1982, p.142). Hierarchical doctor-patient relationships, in conjunction with a medicalized birth culture that privileges biomedical surveillance of the woman over patient centered care (Cherniak & Fisher, 2008), may reduce women’s and men’s self-efficacy for birth.

Students who learned about pregnancy and birth at home had the lowest fear scores. The theme, ‘childbirth as a manageable experience’, developed from comments by students with low fear of birth/high efficacy for birth incorporated the birth

experiences of their mothers, grandmothers and other women throughout their family histories, which enhanced their sense of confidence in their abilities to cope with labour and birth. My findings provide additional support for the importance of vicarious birth experiences on self-efficacy perceptions. Students with low fear of birth viewed birth as a universal, female experience that is manageable.

As I indicated previously, *Hypothesis 9* was supported. Students who had seen a birth first hand had significantly lower fear of birth compared with students without this experience. These findings suggest that being exposed to birth first hand reduces fear of birth, irrespective of the quality of the experience (which I did not assess). In other words, seeing another woman give birth increases the observer's self-efficacy for birth, as postulated by Bandura (1982). This was not the case in a study of pregnant women (n=159) (Farley, 1999). When comparing mean self-efficacy expectancy scores of pregnant women who experienced prior live modelling of birth to those of pregnant women without such an experience, there were no significant differences in self-efficacy scores among the two groups of women. It is unclear whether the author categorized the women's vicarious experiences into encounters with vaginal birth as opposed to birth by CS to determine whether the type of observed delivery affected women's self-efficacy for birth.

The location of the birth made a difference; students who had witnessed a home birth had lower fear scores compared with students who had witnessed a hospital birth. This is particularly noteworthy given the statistically significant difference despite the small sample of students who had witnessed a home birth. Women who opt for a homebirth tend to have strong childbirth philosophies that emphasize birth as a natural event (Kornelsen, 2005) . This attitude may have been adopted by students in the current study who typically recounted the planned home birth of a sibling.

Hypothesis 10: Predictors of childbirth fear were informed by self-efficacy theory. In the multivariate analysis, being female, increased knowledge about birth, witnessing a live birth (live modeling) and learning about pregnancy and birth via friends predicted higher self-efficacy for birth. Media exposure to information about pregnancy and birth was linked to increased odds of high fear of birth. These finding illustrates the importance of social learning and the differential impact on childbirth attitudes that is associated with different types of vicarious childbirth experiences (Bandura, 1982).

In this study, I only assessed whether students witnessed a birth, not whether the experience was positive or negative. Based on a cursory reading of students' comments about witnessing a birth, most had positive experiences, although some witnessed serious complications. Despite being exposed to a mix of positive and negative live birth experiences, learning about birth by seeing it first-hand enhanced young adults' self-efficacy for birth.

Students who reported that their attitudes towards pregnancy and birth were influenced by their friends had reduced odds of high fear of birth. According to self-efficacy theory, one might infer that students were exposed to information and stories about birth that enhanced their confidence in birth. Fisher et al. (2006) identified "horror stories" about birth as told by friends as a salient social dimension of childbirth fear among 22 women who self-identified as being fearful of birth. Less understood is the contribution of positive birth stories to the development of self-efficacy and confidence in birth. Future research ought to focus on the type of information about pregnancy and birth that is shared among students, and how it impacts their attitude development.

6.4 Constructions of Labour and Birth among Students with High and Low Fear of Birth

My qualitative findings highlighted women's attachment to maintaining birth as a natural event and planning for a vaginal delivery, especially among women with low fear of birth. These students often indicated that a natural birth was desired but not expected. They believed complications could occur at any moment that might require medical management and a re-evaluation of their preferred birth plan. Such "flexibility," especially when paired with limited knowledge can be detrimental. Kornelsen (2005) interviewed 50 women from British Columbia, within 18 months of giving birth, either at home or the hospital. A main theme among the women who gave birth in hospital was that they were flexible about birth. Although flexibility served some women well, in other cases, women reported more easily relinquishing control and responsibility to the medical practitioner, e.g. accepting an episiotomy without question.

Although women with high efficacy for birth described the event in very positive

terms they did not romanticize childbirth. These women were as concerned about labour pain as women with high fear of birth, but only students with high efficacy for birth supported the theme that 'labour and birth are manageable'. This finding is congruent with Bandura's (1977) concept of self-efficacy, i.e. belief in one's ability to manage an upcoming event. Students with higher scores on the self-efficacy measure more often constructed 'labour and birth as manageable events'. Women with high fear constructed birth as 'a painful and frightening ordeal' that could cause irreparable damage to their bodies and be circumvented by 'surgery to avoid labour'. These themes are supported by Fenwick, Staff, Gamble, Creedy, and Bayes (2010) who interviewed 14 women in Australia who chose to have a CS without medical indications for their first pregnancy. A prominent theme that emerged from their analysis was the notion of vaginal birth as a frightening, unpredictable and dangerous event that could result in physical damage, either to the women, their babies or both. In my research, fears about the safety of the baby were also common among women with high fear of birth and some women with low fear of birth. Despite their fears and concerns, even the women with high fear of birth saw 'birth as a positive experience', especially when focusing on the end product rather than the process. The qualitative themes also revealed that both women with high fear of birth and high self-efficacy for birth were concerned about obstetric complications. Women with high fear scores often expected complications but even women with high efficacy for birth repeatedly mentioned the chance of complications and how they might have to re-evaluate their desire for a natural birth if they were to develop complications. These findings support a phenomenon described by Cherniak and Fisher (2008) who lament that an emphasis on obstetric risk and risk scoring has moved care providers' and women's focus away from the normality of birth by contributing to an "atmosphere of expectant disaster" (Cherniak & Fisher). In the same vein, Kotaska (2007) argued that "obstetrics is becoming dominated by an imperative to avoid any definable risk, no matter how small" (p.177).

Among women with low fear scores, there was general concern about obstetric interventions (i.e. whether interventions are safe for the baby and necessary) and the way birth is managed in general. Concerns about adverse effects of pain medications were raised by many women with low fear of birth. A small number of students with low fear of birth felt that young women and men are not adequately informed about labour and birth

and that lack of information could lead to fear of birth and acceptance of elective obstetric interventions. Some women with high fear of birth shared a concern about adverse effects of pain medications but they also constructed pain-relief interventions as opportunities to have a more positive (e.g. pain free) birth experience.

The experiences of women's mothers featured in their descriptions of their feelings about labour and birth. For students with low scores on the fear of birth measure, views about the positive experiences of their mothers strengthened their confidence for giving birth whereas students with high fear of birth scores recounted negative birth stories, such as stories of their mothers experiencing obstetric complications and negative outcomes. These negative family stories resulted in 'expectations of obstetric complications' among female students with high fear of birth. These themes point to an intergenerational self-efficacy effect and support Bandura's (1977) assertion that negative personal and vicarious experiences can cause significant anxiety and fear because of the expectation of a poor outcome in the future.

The importance of birth stories for students' attitude development is also supported by Munro et al. (2009) who described the impact of socially and culturally circulated birth stories on the decision making of 17 primiparous women who had a CS on maternal request. During interviews, the women in their study recounted how negative stories about vaginal birth (i.e. pain, long labours) and positive experiences of CS (as told by friends) influenced their decisions to have a CS without medical indications.

Students' comments reflected tension between constructions of birth as fear-inducing and fraught with potential complications and the view that birth is a natural event that should not be "tampered with." Students with high fear of birth generally ascribed to the former view, while students with low fear of birth held the latter view.

The same polarization of attitudes towards birth is evident in studies with pregnant women. Kornelsen (2005) found that British Columbian women who planned a home birth were more comfortable with letting the natural birth process unfold whereas women who planned a hospital birth desired more control via medical management of their births. The perception that birth is fraught with uncertainties and a desire to control the unpredictable nature of birth also featured dominantly in the interviews of 17 nulliparous women from British Columbia who had a CS without medical indications (Kornelsen & Hutton, in press).

In my study, there also seemed to be different attitudes towards the pregnant female body among students with high and low fear of birth. Students with low fear felt that women's bodies are "designed" to give birth to babies thus expressing the view that 'childbirth is a natural process'; some even interpreted labour pain positively because they were able to view it as part of a natural and necessary physiological process. Women with high fear of birth seemed to want to escape this biological imperative, and welcomed any technology that may aid them in this endeavour. This attitude was captured by the theme 'desire for surgery to avoid labour'.

Comments from students with low fear of birth about potentially adverse effects of interventions are reminiscent of the concerns and reservations that were described by women who birthed at home in Kornelsen's (2005) study. These women saw the home as the safest place to deliver their babies, in part because they had more control over the process at home compared to the hospital, which they regarded as a highly medicalized environment. The critical stance towards obstetric interventions among students in the current study uncovers a broader construction of obstetric risk that includes iatrogenic risks associated with interventions.

One theme the women shared, irrespective of fear scores, was the belief that mode of delivery is a woman's choice. This view was also endorsed by close to 70% of college students from Quebec who agreed that it is a woman's right to choose a CS for herself even if there is no medical reason for it (Saroli-Palumbo et al., in press). These findings suggest that the next generation of childbearing women is interpreting birth from a women's rights perspective and expect women-centered-care, and a high degree of autonomy when making decisions about labour and birth. They view women's preferences as taking precedence over any evidence that undermines their preferences. Access to information and patient autonomy are cornerstones of women's reproductive rights (Christilaw, 2006). While students' qualitative themes echoed the view that autonomy in decision-making is paramount few students wrote about informed choice as an integral part of this process.

Both quantitative and qualitative findings indicate clearly that there is consumer demand for CS without medical indications, whether motivated by fear of vaginal birth or a desire for vaginal integrity. My findings raise important concerns around the accessibility

of elective health services in a publicly funded healthcare system, and the fair allocation of limited resources. Research from Brazil indicates that rates of elective CS are much higher in the private health care sector, a setting that is synonymous with increased choice (Béhague, Victora & Barros, 2002). It is possible that, in the future, a spontaneous vaginal delivery will become an unpopular choice because of labour pain and fear of vaginal damage; however, in a publicly funded healthcare system like Canada, women who desire to have a CS without medical indications can face significant difficulties in procuring the procedure and may invent medical indications to guarantee surgical delivery (Kornelsen & Hutton, in press). Women in Kornelsen's study who had a patient-initiated CS would have been happy to pay for the procedure, had the infrastructure to do so been in place.

Other countries, like England, are recognizing a woman's right to request a CS without medical indication and allow women to get elective CSs covered under England's public health service plan, despite existing options to pay for the surgery in the private health sector (Cheng, 2012). Reminiscent of the natural childbirth movement, British women have started consumer websites and campaigns promoting the rights of women to choose CS without medical indications (Hull, 2007).

6.5 Implications and Recommendations

6.5.1 Education. Pregnancy and birth are universal phenomena; however, young adults in industrialized countries have very limited exposure to birth. It has been noted that:

Birth has been removed from its place in the realm of natural female experiences, effectively denying generations of women the right to observe, participate in, and fully understand the birthing process before they themselves experience it. It is a natural characteristic of the human psyche to fear the unknown, and through scientific veiling, birth has become unknown for the majority of primiparas. (Bak, 2004, p.45)

Findings from the current study suggest that, to counteract this trend, young adults need to be exposed to real not mass-mediated birth experiences and to learn about pregnancy and birth throughout their development. When comparing the childbirth attitudes and preferences of non-pregnant students with attitudes of pregnant women reported in the literature, I found some significant congruencies in attitudes. Attitudes towards CS,

obstetric risk, and interventions may be formed prior to pregnancy. For this reason, it is important to begin childbirth education early in life. The high efficacy for birth among students who watched a home birth (as children) supports this view.

Findings from the current study suggest that increased exposure to birth reduces fear of birth and, by extension, preferences for elective interventions. For this reason, future work should evaluate the impact of introducing curricula on pregnancy and birth for primary and secondary students, similar to the Roots of Empathy program (2012). In that program, parents with young babies are invited into the elementary school classroom so that students can learn about infant development and improve their social and emotional competence. Formal opportunities for students to witness actual births need to be explored. There is also a need for evidence-based information during the developmental life course to counteract sensationalized information about pregnancy and birth. Providing evidence-based information would give young adults opportunities to discuss how birth is depicted in the media and how the media images may contribute to a culture of fear and an expectation for obstetric interventions.

Students' comments about secondary school curricula indicated that birth videos shown during class were frightening, and deterred some students from considering pregnancy and birth in the future. It is unclear what purpose these videos were meant to serve and what additional information about pregnancy and birth was presented along with the video, if any. Existing school curricula may have to be revised to reflect the concerns, worries and information needs of the next generation of childbearing women and their partners. For instance, instead of showing a birth video, a birth educator may describe how women's bodies are changing in preparation for birth (increases in blood volume and uterine size) and are working in tandem with the unborn fetus (rotation of the fetus through the pelvis during birth). Benefits of a normal vaginal birth may be presented (e.g. transfer of maternal bacteria to the baby that enhance intestinal health, faster recovery time after birth). This information may enhance students' confidence in the female body, and the birth process. Information on common obstetric interventions should also be presented as birth has become more medicalized. Older (post-secondary) students would benefit from information about different maternity care options, providers, and birth settings and in-depth discussion of the concept of informed choice. Students who are

informed about pregnancy and birth may share this information with friends and promote self-efficacy for birth within their social network.

6.5.2 Practice. It may be regarded as overstating effects of students' reports of attitudes about birth to include practice implications based on a study with non-pregnant students; however, practice implications are included here because findings from the current study shed light on the attitudes towards birth and maternity care preferences of the next generation of childbearing women and their partners, and in many instances these attitudes were congruent with attitudes of pregnant women (e.g. preferences for elective CS, attitudes towards technology, specific fears of childbirth etc.). All students who were included in the analysis indicated a desire to have children in the future and will most likely come in contact with one or more maternity care providers once they become pregnant.

Many students in the current study viewed birth as inherently risky, which was associated with increased fear of birth. My findings suggest that obstetric complications and ways they can be managed need to be discussed in a way that does not frighten women and allows them to make an informed decision about their care. Focusing on the likelihood of a good outcome rather than the probability of a bad outcome is important, as is providing women with evidence-based information that facilitates informed decision-making.

Previous studies have found the way clinical information is presented can affect risk perception and health care decision-making. Jasper, Goel, Einarson, and Gallo (2001) recruited 105 women who were pregnant or planning a pregnancy through the Motherisk program in Toronto. Approximately half were given negatively-framed information about the incidence of fetal malformations (1-3% chance of having a malformed child) and the other half received positively-framed information (97-99% chance of having a normal child). Women in the negatively-framed group had significantly higher perceptions of teratogenic risk (14.9%) compared to women in the group exposed to positive framing (8.3%) and were more likely to desire medications to mitigate this perceived risk. These results led the authors to conclude that care providers must be cautious about how they present information to women.

If maternity care providers reframed maternal and neonatal mortality and

morbidity statistics and focused on the prevalence of good versus bad outcomes, more women might feel reassured about the low likelihood of experiencing an adverse event, and in turn feel less fearful and anxious about birth. Unfortunately, a study by Hall, Tomkinson, and Klein (2012) suggested that reduction of potential risk to care providers takes precedence over women's integrity around birth. Interviews with 9 pregnant Canadian women and 56 maternity care providers (including physicians, midwives, doulas, obstetricians, and nurses) revealed that both women and care providers want to minimize risks during pregnancy and birth while maximizing integrity. Integrity was constructed by women as realizing their ideal birth according to their personal values. For care providers, integrity meant adhering to their principles and personal beliefs. Care providers varied in their attitudes towards medical management of birth and their comfort with letting go of control. Some providers expressed the view that being in control was part of their job and a way to avoid medico-legal issues. Other providers valued women's agency and shared decision making. Some care providers recounted how the evidence can easily be presented in a way that will maximize compliance with care providers' preferred course of action. Other care providers pointed out that women like to defer to medical authority even after the care provider has engaged in an informed choice discussion with the woman and expects her to make a decision (Hall et al., 2012). Findings from Hall et al.'s study indicate that there are many obstacles to changing the current focus on obstetric risk. Increased awareness of iatrogenic risks associated with routine and elective obstetric interventions is an important step in changing risk perceptions.

Evidenced-based information about the effect of vaginal birth on sexual functioning would dispel some of the body image concerns that were expressed by students in this study. The availability of pre and postnatal resources that stress the importance of nutrition and exercise may also mitigate some of their concerns.

Although almost 70% of students felt confident in their knowledge of reproductive health they indicated a general lack of knowledge regarding recovery time after CS, especially among students who were not worried about the surgical procedure. Based on these findings, students' propensity to view CS as simply another form of childbirth and their willingness to have a CS might be reduced if they received information about longer recovery times and the postpartum pain associated with the procedure (Declercq,

Cunningham, Johnson, & Sakala, 2008). It is likely that knowledge of the maternal and neonatal morbidities associated with planned CS (such as neonatal respiratory difficulties and an increased risk of abnormal placentation in future pregnancies, such as placenta praevia or accreta) (Lee & D'Alton, 2008) might reduce students' preference for CS in the absence of medical indications.

6.5.3 Research. The current study could be replicated with a student population at the same university every 5 years, to document fear of birth and CS preferences over time. In addition to studying fear of childbirth among young adults longitudinally, it is also important to administer the survey in different cultural settings to gain a better understanding of the confluence of socio-cultural factors and attitudes towards birth.

It would also be useful to test the concurrent validity of the 6 item fear of birth scale with standardized measures of childbirth fear, such as the WDEQ and to administer the 6 item scale along with a visual analog (VAS) fear of birth scale (see Palumbo, Hsu, Tomkinson & Klein, in press), to determine whether a simple VAS would be more or less effective for measuring fear of birth.

My research lacks information about students' views of specific complications or risks associated with pregnancy and birth. Future studies could explore, in more detail, young adults' perceptions of what constitutes an obstetric complication and their knowledge of the nature and prevalence of common complications. In addition, it would be valuable to determine whether students' heightened sense of risk is specific to the area of pregnancy and birth or is indicative of higher levels of anxiety in general. The link between women's risk perceptions and requests or potential requests for elective interventions is poorly understood and warrants further research.

Today we live in an era of rapid technological advances and a concomitant overload of mass-mediated images that shape the way we perceive the world. Young adults have access to more information and images about pregnancy and birth than any other generation but the content and quality of that information varies and is often not based on scientific evidence. Future studies could explore the type and quality of information that young adults receive about pregnancy and birth and how they process this information. Studies that explore the link between information about birth, cognitive appraisal of birth information, and healthcare decision making are needed. In this context, it would be

interesting to study in more depth the childbirth attitudes of young adults who viewed a home birth as opposed to a hospital birth, to determine how observing deliveries in different birth settings affects attitudes towards birth.

Finally, the impact of delivering curricula related to pregnancy and birth during the elementary and secondary school years has not been tested. Evaluating the efficacy of providing evidence-based information about pregnancy and birth and exposure to non-dramatized birth events in influencing fear of childbirth would be an important next step in understanding how to reduce fear of childbirth among young adults.

6.6 Limitations

This study was based on a secondary analysis of data from the largest study of students' attitudes towards pregnancy and birth to date. The sample was more diverse than student populations in previous studies of attitudes towards birth (Cleeton, 2001; Lampman & Phelps, 1997; Wallach & Matlin, 1992). Nearly a quarter of students self-identified as Asian; a finding that is not surprising given the setting of the study. Because I included both undergraduate and graduate students the average age of respondents was somewhat older in the current study (22 years), compared to previous studies. It could be argued that older students have formed stronger attitudes towards pregnancy and birth because these events may occur sooner in an older population. Nevertheless, findings from this study can only be generalized to students with similar socio-demographic characteristics and cannot be generalized to pregnant women and their partners.

The categorization of sources of information about pregnancy and birth was relatively crude (media, school, family, and friends). Nevertheless the categorization allowed me to infer social learning about birth via these sources and link these exposures to self-efficacy for birth. Qualitative approaches may be a better way to explore the intricacies of social factors and sources of self-efficacy that can contribute to maternity care decision making.

Some of the attitude items in the survey were expressed in very general terms. For example, students were asked to rank their favourability towards the use of obstetric technology. Because I did not define obstetric technology I cannot infer from students' responses the types of technology toward which they feel favourable. Future studies

should include a list of obstetric interventions, their definitions, and indications for use. In addition, the construct 'risk perception' was only measured with one item, despite evidence that it is a complex and potentially multidimensional construct (Heaman et al., 2004). If I were to replicate this study, I would include several items that assess students' risk perceptions and expose them to content validation. To establish concurrent validity of my scales with existing validated measures, I would include standardized scales in the survey, such as the visual analog risk perception scale developed by Heaman and Gupton (2009).

There are a number of psychosocial factors I did not measure that may predispose students towards fear of birth. These include anxiety, neuroticism, vulnerability, depression, low self-esteem, and lack of social support. These factors have been associated with pregnancy-related anxiety and fear of vaginal delivery in a previous study (Saisto et al., 2001). Future studies of childbirth fear among young adults should control for these potential confounders. A particularly important confounder that should be controlled for in future studies is anxiety. Anxiety is highly correlated with fear of birth in pregnant women (Hall et al., 2009) and with perceptions of pregnancy risk (Heaman et al., 2009).

Due to the nature of the study design (secondary analysis), a priori content validation techniques (e.g. content validation of items via expert review) could not be utilized in this study. This is a limitation of the scale development process. In addition, new measures are usually tested to ensure that they are reliable and valid before being administered to a larger population. In the current study, the same population was used to test the scale and to analyse covariates the scale scores.

The fear of birth scale that I developed for this study included items that assessed fear as well as self-efficacy for birth (see reverse scored items in Table 1). The psychometric analysis indicated that scale items had acceptable inter-item correlations and item to total correlations and factor loadings above 0.5 when forced into one factor. These findings support the use of the full fear of birth scale (rather than subscales); however, using the subscales in the analyses (rather than the full scale) would have allowed me to examine more specifically covariates of fear versus covariates of self-efficacy.

Given the large sample size, I could have undertaken more extensive recoding of the ethnicity variable, and reported fear of birth scores and preferences for elective

interventions for several ethnic subgroups. These findings may have enhanced my understanding of socio-cultural determinants of attitudes towards birth. If I were to replicate the study, I would ask respondents to check one of several ethnic categories rather than 'fill in the blank'. I would also ask a question about country of origin/birth and request students who were not born in Canada to report how many years they have lived in the country. Answers to these questions would allow me to study socio-cultural aspects of attitudes in more detail, by taking into account country of origin and time in Canada (a proxy for acculturation).

Although the sample size for this study was large, the response rate was relatively low (10.5% for all respondents and 8.6% for eligible respondents). A low response rate for online surveys is not uncommon, especially if the survey exceeds 4 pages, there is no financial remuneration for participants and no follow reminders are sent (Neuman, 2000). The length of the survey, lack of financial incentives, and our inability to send reminder e-mails likely contributed to the low response rate. In addition, respondents who volunteered to participate in the survey may have had more polarized views on pregnancy and birth compared to non-responders. Because the sample size for many of the analyses was reduced significantly by excluding respondents who answered 'I don't know' to any of the key attitude items and/or missed one or more of the items that comprised the scales the generalizability of study findings was reduced.

Finally, caution must be exercised when interpreting bivariate and multivariate findings from a cross-sectional survey. While an association between two or more variables can be demonstrated, causality should not be implied.

6.7 Contributions of Study

My research is the first to describe fear of childbirth among the next generation of maternity care consumers, using a fear of birth measure with adequate psychometric properties. Although I did not formally assess the convergent validity of the scale with other fear of birth measures, a thematic analysis of students' feelings about labour and birth provided some evidence for the construct validity of the scale. Students who scored in the high fear range on the scale consistently reported fears, anxieties and worries about birth, whereas students in the low fear range tended not to indicate those concerns. The applicability of the scale to pregnant women should be assessed because it has the

potential to provide an alternative to existing measures. The scale is short, easy to administer, and may be associated with higher rates of completion, compared to other measures, such as the 33-item Wijma Delivery Expectance/Experience Questionnaire (WDE-Q) (Wijma et al., 1998). This new fear of birth measure can also be administered to men because the items are applicable to both women and men who anticipate a birth experience.

This study is the first to link media exposure to information about pregnancy and birth to fear of birth, established a significant link between fear of birth and CS preference and highlights the role of body image concerns in contributing to CS preferences among female students. In addition, self-efficacy theory has not been applied to the study of childbirth fear among young adults, using a mixed-methods approach.

6.8 Conclusion

In this study, I theorized that measuring attitudes towards birth among young adults can serve as a proxy for assessing socio-cultural influences on birth perceptions. The students I surveyed had not given birth; therefore, they had to base their attitudes about birth on culturally circulated stories and images and vicarious experiences with birth rather than their own birth experiences. With the advent of reality television, there are more opportunities for young adults to watch birth processes on television; however, the most popular shows tend to dramatize pregnancy and birth and over-represent obstetric complications and the need for interventions.

Increased knowledge of pregnancy and birth and observing a birth first hand were associated with decreased fear and a desire for a vaginal delivery in the current study. These findings have important implications for the timing and the content of public health initiatives aimed at enhancing self-efficacy for birth among future generations of childbearing women and their partners.

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Appendix A: Study Poster



Baby on the Brain?



A Survey of University Students' Attitudes Towards Reproductive



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YOU:

- ◆ Are a **male or female** college or university student
- ◆ Are **over 17 years** of age
- ◆ Have **never had a child**, but thinking of having children someday

WE ARE:

- ◆ Conducting a survey about university students' attitudes towards pregnancy, child birth and reproductive health
- ◆ Principal Investigator: Elaine Carty, Professor and Director, Division of Midwifery, Department of Family Practice, Faculty of Medicine, University of British Columbia
- ◆ Co-Investigators: Kathrin Stoll, Research Coordinator, Division of Midwifery; Natalie Taha, Research Associate, Division of Midwifery

Log on to www... to take the survey.

⌚ **Time required: 20 minutes**

Contact Kathrin Stoll, Research Coordinator at (604) 827-3305 for more info.
www.midwifery.ubc.ca

Version: July 19th, 2006

Reproductive Health Survey www...

Reproductive Health Survey www...

Reproductive Health Survey www...

Reproductive Health Survey www...

Reproductive Health Survey www...

Reproductive Health Survey www...

Reproductive Health Survey www...

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Reproductive Health Survey www...

Appendix B: Study Questionnaire

1. Survey Information

Principal Investigator: Elaine Carty, Professor and Director, Division of Midwifery, University of British Columbia. Telephone: (604) 822-7178.

Co-Investigators: Kathrin Stoll, Research Coordinator, Division of Midwifery, Telephone (604) 827-3305; Natalie Taha, Research Associate, Division of Midwifery, Telephone (604) 827-3305.

Purpose: We are conducting a survey in order to assess university students' attitudes towards reproductive health, with a focus on pregnancy, childbirth, and the post-partum period (the period after childbirth). The questionnaire seeks to determine if and how university students envision their childbirth experience and what kind of information they would need to make informed choices about health care options during pregnancy and childbirth. You are invited to participate in this study because you fit the demographic profile of our target population. The survey is web based and should take no more than 20 minutes to complete if you are eligible to participate. Data from the survey will be used to plan a reproductive health care workshop on campus that will be delivered by a team of Health Sciences students (midwifery, medical and nursing students).

Confidentiality: Please note that your participation in this survey is voluntary and confidential. All documents will be identified only by code number. Data records will be kept on a password protected computer. Research participants will not be identified by name in any reports of the completed study. In some instances, open ended responses may be quoted verbatim in the study report. The research coordinator, research assistant and principal investigator will have access to the data without personal identifiers (e.g. surveys that are identified only by code).

If you have any questions or desire further information with respect to this evaluation you may contact Kathrin Stoll, Research Coordinator, Division of Midwifery at (604) 827-3305. If you have any concerns about your treatment or rights as a research subject, you may contact the Research Subject Information Line in the UBC Office of Research Services at 604-822-8598.

Benefits and Risks: Participation in this project may benefit you by knowing that you helped to provide information leading to the development of workshops to improve students' reproductive health. There are no anticipated risks from participating in this study.

Consent: Your participation in this study is voluntary and you may refuse to participate in the survey without jeopardy to your standing with the University of British Columbia. By completing this survey you give informed consent to participate in this study.



Baby on the Brain - A Survey of University Students' Attitudes Towards Pregnancy and Childbirth

1. Please state your age:

2. Are you:

- ☐ Male
- ☐ Female
- ☐ Prefer not to say

3. What ethno-cultural group do you identify with?

4. What is your highest level of education?

- ☐ High School completed
- ☐ Some college or university courses
- ☐ College or university degree
- ☐ Graduate degree

5. What is your field of study?

6. What is your relationship status?

- ☐ Single
- ☐ Casual dating relationship
- ☐ Committed dating relationship
- ☐ Married or common law
- ☐ Separated, divorced, or widowed

7. Do you have children?

(If you already have children, you will automatically be directed to the end of the survey).

- ☐ Yes
- ☐ No

8. Do you see yourself as having children at some point in the future?

(If you do not plan on having children at some point in the future, you will automatically be directed to the end of the survey)

- ☐ Yes
- ☐ No

9. If you answered 'Yes' to Question 8, please state the number of children you would like to have:

When you think about having children:

10. What type of care provider, if any, would you want to deliver your baby?
Please check all that apply.

(Women in BC can choose between family physicians, midwives, or upon referral, obstetricians for their pregnancy and birth care. All these services are covered under Health Insurance BC)

- ☐ Family physician (provides care to women with low-risk pregnancies throughout pregnancy, childbirth and the postnatal period in the community and hospital setting. Family physicians attend births in the hospital setting)
- ☐ Midwife (provides care to women with low-risk pregnancies and their newborn babies from early pregnancy, through labour and birth, and up to six weeks after delivery. Midwives can attend births either at the home or in the hospital setting)
- ☐ Obstetrician (doctor specializing in pregnancy, delivering babies, and the care of women after childbirth, with expertise in complex pregnancies and childbirth)
- ☐ I don't know
- ☐ None
- ☐ Other (please specify)

11. Please explain the reason for your choice of care provider in Question 10:

12. Where do you imagine the birth to take place?

- ☐ At a hospital
- ☐ At home
- ☐ At a birthing centre (facility staffed by midwives, doulas, and/or obstetricians which presents a more home-like environment than a hospital labour ward)
- ☐ Other (please specify)

13. Who would you like to provide labour support for you or your partner, if any, when your baby is delivered?
Please check all that apply.

- ☐ Doula (professional labour coach who provides information, and physical and emotional support to labouring women and their families, usually for a fee)
- ☐ Partner
- ☐ Your mother
- ☐ Other family members
- ☐ Friends
- ☐ Other (please specify)

13. Who would you like to provide labour support for you or your partner, if any, when your baby is delivered?

Please check all that apply.

- ☐ Doula (professional labour coach who provides information, and physical and emotional support to labouring women and their families, usually for a fee)
- ☐ Partner
- ☐ Your mother
- ☐ Other family members
- ☐ Friends
- ☐ Other (please specify)

14. If you could choose the delivery method of your child, would you prefer it to be a:

- ☐ Vaginal delivery
- ☐ Caesarean section (surgical delivery of an infant through an incision in the mother's abdomen and uterus)

15. Please explain the reason for your choice in Question 14:

16. What methods of pain relief or coping techniques would you consider for use when managing labour pain?

- ☐ Acupressure
- ☐ Massage
- ☐ Narcotic injections
- ☐ Self-hypnosis
- ☐ Breathing techniques
- ☐ Birth Ball
- ☐ Creative visualization
- ☐ Music
- ☐ Hydrotherapy (warm water in a tub or shower)
- ☐ Epidural anaesthesia (freezing from the waist down by injection of anaesthetic into the space around the spinal cord)
- ☐ Inhalation anaesthesia (nitrous oxide and oxygen self administered with a mask)
- ☐ Other (please specify)

The following items assess your attitudes and feelings towards pregnancy, labour, the birth process, and the period after the birth (post partum period). Please note that you do not need to currently be in a relationship to rate these statements.

Please rate how strongly you agree or disagree with each statement according to the scale provided. Both women planning a future pregnancy and those persons planning to support a pregnant woman are encouraged to rate the items according to their role (i.e. their role as a pregnant woman or their role as her partner).

Example: I think I (my partner) will feel beautiful when I am (she is) pregnant.

Pregnant women: I think I will feel beautiful when I am pregnant

Partners: I think my partner will feel beautiful when she is pregnant.

Please rate how strongly you agree or disagree with each statement.

17.

| | Strongly Disagree | Disagree | Somewhat Disagree | Somewhat Agree | Agree | Strongly Agree | Don't Know |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| I think I (my partner) will feel beautiful when I am (she is) pregnant. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Sex during pregnancy is safe for both the mother and the baby. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I am worried about the physical changes that occur in a woman's body during pregnancy. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| The quality of my sex life will decrease during pregnancy. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Mood swings during pregnancy are a concern for me. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

18. Please comment on any feelings you may have when you think about the pregnancy process:

Please rate how strongly you agree or disagree with each statement.

19.

| | Strongly Disagree | Disagree | Somewhat Disagree | Somewhat Agree | Agree | Strongly Agree | Don't Know |
|--|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| I believe I (my partner) will have enough confidence to give birth vaginally. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Childbirth is a good healthy pain. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Pain medication is widely available so there is no need to feel uncomfortable during labour. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I am worried that labour pain will be very intense. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Women should receive pain relief whenever they ask for it. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I think I (my partner) will be able to handle the pain of childbirth. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I am afraid that I might panic and not know what to do during labour. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I am fearful of the labour process. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I would prefer to avoid the pain of childbirth by having a Caesarean delivery. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Labour pain is a necessary part of the labour process. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

20. Please comment on any feelings you may have when you think about the labour process:

You have completed more than 50% of the survey.

Please rate how strongly you agree or disagree with each statement.

21.

| | Strongly Disagree | Disagree | Somewhat Disagree | Somewhat Agree | Agree | Strongly Agree | Don't Know |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Technology is necessary to deliver a child. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I believe it is a woman's right to choose to have a Caesarean section even if there are no medical indications. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Women who deliver a baby by Caesarean section miss out on an important life experience. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I feel that my (my partner's) body is able to successfully birth a child. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| The surgical procedure involved in a Caesarean section does not worry me. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I believe that the process of pregnancy and birth is a transforming experience for women. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I am afraid of what the labour and delivery process will do to my (my partner's) body. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I would consider a water birth (labour and birthing in a tub filled with warm water) for myself (my partner). | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Expert skills and knowledge by specialist staff are required for childbirth. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Complications in the delivery room are unavoidable. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Childbirth requires a reliance on technology and medical interventions. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Having babies by Caesarean delivery is less embarrassing than having them vaginally. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Childbirth is inherently risky. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| A Caesarean birth is better because it allows one to choose the day of the baby's birth. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| If a woman delivers a child by Caesarean section, all her subsequent deliveries should be carried out the same way. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I don't think I would be embarrassed by a vaginal birth. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Childbirth is a normal process. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Vaginal births are an outdated method for delivery of children. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

22. Please comment on any feelings you may have when you think about the birth process:

Please rate how strongly you agree or disagree with each statement.

23.

| | Strongly Disagree | Disagree | Somewhat Disagree | Somewhat Agree | Agree | Strongly Agree | Don't Know |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| I am worried about the impact of childbirth and new parenthood on my sexual desire. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| A woman's body recovers faster from a Caesarean birth compared with a vaginal birth. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| It is important for all babies to be fed breast milk if possible. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Maintaining sexual intimacy with a partner is easy after the birth has taken place. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| A woman's body recovers faster from a vaginal birth compared with a Caesarean birth. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Changes that might occur to a woman's perineal (pelvic) floor after a vaginal birth are a concern for me. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I am worried about the physical changes that occur in a woman's body after pregnancy. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Breastfeeding makes a woman's breasts look less attractive. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

24. Please comment on any feelings you may have when you think about the period after the birth:

Please rate how strongly you agree or disagree with each statement.

25.

| | Strongly Disagree | Disagree | Somewhat Disagree | Somewhat Agree | Agree | Strongly Agree |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Informed choice about health care options during pregnancy and labour is important. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I feel confident about my level of knowledge around reproductive health. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I find it easy to access reproductive health information. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

26. Please comment on any feelings you may have about information regarding pregnancy and birth:

27. Have you ever witnessed a birth?

- ☐ Yes
☐ No

28. If you answered 'Yes' to Question 27, please describe where you witnessed the birth(s), and any impressions of the experience that you may have:

29. Do you feel that your attitudes towards reproductive health issues are shaped by:

- ☐ Media
☐ The experience of friends
☐ The experience of family
☐ School-based education
☐ Other (please specify)

30. Would you like to learn more about reproductive health and childbirth options?

- ☐ Yes
- ☐ No
- ☐ Don't Know

31. Would you attend a workshop facilitated by UBC Health Sciences students about reproductive health and childbirth options?

- ☐ Yes
- ☐ No
- ☐ Don't Know
- ☐ Other (please specify)

32. What topics would you be most interested in learning about?

Please check all that apply.

- ☐ Effect of Sexually Transmitted Infections on my ability to have babies
- ☐ The process of pregnancy
- ☐ Promotion of a healthy pregnancy (nutrition, substance use, physical activity)
- ☐ The process of labour and delivery
- ☐ Available reproductive health services (obstetrician, family physician, midwife, doula)
- ☐ What could go wrong during pregnancy and labour
- ☐ How to include both partners in the childbirth experience
- ☐ The anatomy and physiology of my reproductive system
- ☐ Risks and benefits of common interventions and technologies used during pregnancy and labour
- ☐ Health concerns during the postpartum period (breastfeeding, post-partum depression, bodily changes)
- ☐ How the female body is equipped for childbirth

33. Is there any other topic that you think may be useful to include in a workshop on childbearing and reproductive health?