

ABSTRACT

Title of dissertation: THE DEVELOPMENT OF MATERNAL
CONFIDENCE FOR LABOR AMONG NULLIPAROUS
PREGNANT WOMEN

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Certain levels of fear and anxiety about childbirth are expected, especially among first-time mothers. However, problems arise when these feelings negatively impact a woman's decisions and perceptions about the birth process. Although millions of women give birth each year, there are limited data to document the development of maternal confidence for labor and fear of labor throughout the period of gestation.

Applying Bandura's theory of self-efficacy, current research on maternal confidence for labor suggests women with increased childbirth self-efficacy experience decreased levels of perceived pain and increased levels of satisfaction with birth. The purpose of this quasi-experimental, multi-time series research study was to examine the development of maternal confidence for labor among nulliparous pregnant women throughout gestation.

The following primary research question was addressed: Does maternal confidence for labor actually increase (i.e., fear decrease) as pregnancy progresses? Other research variables indicated in the literature to have an impact on maternal confidence were examined including prenatal care provider (physicians and midwives), attendance at a childbirth class, perceived childbirth knowledge, emotional support and importance of a medicine-free birth. A convenience sample of 46 nulliparous women completed three mail questionnaires (one at 8-12 weeks of gestation, 28 weeks, and 37 weeks) and a postpartum telephone interview. All three mail questionnaires were similar in content and contained two scales, the Maternal Confidence scale and the Fear of Childbirth scale. Data was collected from August, 2001 through June, 2003.

A significant inverse relationship between maternal confidence for labor and fear of childbirth was found throughout gestation. Other major findings of this study included: 1) a significant positive relationship between perceived knowledge and maternal confidence, and 2) increased fear among women who initially seek midwifery-based prenatal care at 8-12 weeks of pregnancy. The type of prenatal care a woman obtains (midwifery-care or physician-based care) did not significantly impact her confidence for delivery or fear of childbirth. It is recommended future studies examine the role of self-efficacy with regard to childbirth in greater depth for nulliparous women throughout gestation or prior to pregnancy.

THE DEVELOPMENT OF MATERNAL CONFIDENCE FOR LABOR
AMONG NULLIPAROUS PREGNANT WOMEN

by

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DEDICATION

I wish to dedicate this study to my parents, Robert and Teresa Kish, and my sisters, Erica, Jessica and Susie. Without them, the completion of this study would have not been possible. I would like to thank my parents for their years of involvement, support and direction throughout my education. I would also like to thank my sisters for contributing their feedback and sharing my enthusiasm as I approached each educational milestone. I am grateful to each one of them for their unique contributions.

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Chapter 1

INTRODUCTION

Pain is a complex phenomena impacted by an individual's culture, mindset and past experience with painful events (Roberts, 1983). In our American culture, the predominant mindset is that we should relentlessly fear childbirth because it equals unbearable pain and suffering (Monk, 1996). Strategies to relieve labor pain have been subject to investigation since the mid-nineteenth century (Cohen, 1997) and the search for the most effective strategy still continues today (Saisto & Halmesmaki, 2003; Seymour, 1997).

The primary goal of the research studies conducted to date has been to identify factors which play a role in reducing the amount of perceived intrapartum pain a woman experiences (Simpkin, 1995). Although there have been various trends in pain management throughout history, the focus of the medical research has remained mainly on alleviating the sources of physical labor pain through surgical and/or pharmacological interventions. Yet in recent years, our national return toward a more holistic approach to health has produced a growing body of literature and support for non-pharmacological methods of pain relief for laboring women. Despite the abundance of data on how women cope with the pain of labor at the time of delivery, pharmacological or not, few data exist addressing origin of the fear associated with the process of childbirth prior to the third trimester of pregnancy.

Certain levels of fear and anxiety about birth are justified, given that childbirth may be a woman's first and only experience with excessive pain (Brownridge, 1995). The fear of the unknown pain of delivery can be especially intense for women who have

not yet given birth to a viable infant (nullipara's). However, the relationship between childbirth fear and childbirth pain is not fully understood. Some researchers support a cyclic relationship (Ryding, Wijma, Wijma & Rydhstrom, 1998), while others promote a more complex relationship involving an additional variable; maternal confidence for labor (Lowe, 1996). Research has suggested that when a woman's confidence in her ability to cope with labor increases, her perceived pain decreases (Crowe & von Baeyer, 1989; Lowe, 1987, 1989, 1993; Manning & Wright, 1983; Sinclair & O'Boyle, 1999). The impact of maternal confidence on fear of childbirth will be examined in this study from a social cognitive perspective. Specifically, this study explores the development of childbirth attitudes and self-efficacy for labor among nulliparous pregnant women throughout the course of gestation.

Background of the Problem

The extent of a woman's role in childbirth varies greatly depending upon her choice of a birth attendant. There are several options from which a woman can choose, but for the purposes of this study, birth attendants will be limited to the two most popular types; physicians and certified nurse midwives (CNM's). Each of these providers advocate opposing philosophies toward the birth process, respectively referred to as the medical model and midwifery model of care. A pivotal difference between the two models is the degree of intrapartum technological intervention. The medical model views childbirth as a disease and thus regularly supports the use of pain management strategies involving drugs and invasive high technology procedures (Larimore & Cline, 2000). Contrarily, a basic tenet of the midwifery model is that

childbirth is a natural, normal process which does not, for most women, require technological management (Thorstenen, 2000).

Given the exorbitant number of American births being attended by physicians, the present majority of childbearing women deem childbirth as a dangerous process which is too challenging to attempt without technological and pharmacological assistance (Monk, 1997). This is reflected, in part, by the increased usage of labor anesthesia and cesarean section deliveries in recent decades. How did childbirth become a process necessitating the level of medical intervention administered today? Before one can fully answer that question, it is imperative to examine medicine from a broader historical context which is included in the review of literature in Chapter 2. However, this section addresses the unresolved issues and social concerns surrounding childbirth today.

The debate between the efficacy of the medical model (intervention) and the midwifery model (non-intervention) of childbirth remains on the forefront of the childbearing political arena (Larimore & Cline, 2000). Currently, it is argued that cesarean sections, epidural anesthesia, episiotomies, electronic fetal monitoring and other interventions “that may have benefit for a small number of at-risk women or fetuses, are being used increasingly on normal healthy women, without proportionate benefit; in fact, their risks may outweigh their benefits” (Simpkin, 1999; p. 2). The implications of unnecessarily utilizing these interventions are vast.

From a medical perspective, the bulk of these interventions, which have become the standard of maternity care in the United States, are just presently being subject to the scientific scrutiny of randomized controlled trials (Haire, 1997). Furthermore,

escalating medicolegal issues are preventing pharmaceutical companies from funding future research in the area of obstetrics (Cohen, 1997; Neergaard, 2000). Meanwhile more negative information is being uncovered regarding the most popular form of pain relief; epidural anesthesia.

While epidurals are widely embraced by laboring women, they have an array of adverse neurologic effects such as prolonged labor, increased use of instrument-assisted delivery, increased use of other drugs, fecal and urinary incontinence, loss of perineal sensation and sexual function, paralysis, meningitis and increased use of cesarean section (Haire, 1997). The attention these dangerous side effects receive is minimal compared to the much acclaimed pain relief benefits of epidurals (WHO, 1996). In addition, these side effects, especially cesarean section, support the phenomena referred to as ‘the cascade of intervention’ (Mander, 1992) implying an interdependence of one medical intervention on another. However, anesthesiologists refute the specific cause and effect relationship between epidurals and cesareans claiming labors necessitating epidurals and later cesareans are dysfunctional from the start (Chesnut, 1994). The differentiation of a functional or “normal” birth from a dysfunctional one is yet another facet of this complex issue.

According to the World Health Organization (WHO), a normal birth can be defined as, “spontaneous in onset, low-risk at the start of labour and remaining so throughout labour and delivery” (WHO, 1996, p. 4). It is important to note that the birth categorizing process (high-risk versus low-risk) should include an evaluation of both the risk status of the pregnancy prenatally and during the course of labor and delivery (WHO, 1996). The concept of a risk approach system is not without its flaws.

It is fallible because women prenatally labeled “high-risk” can proceed to have uncomplicated births and vice versa (Rooks, 1997). Furthermore, maternal risk assessment results in a greater percentage of women being labeled “at-risk” and consequently subjects them to a higher chance of medical intervention during labor (WHO, 1996). Despite what initially spurs the use of medical interventions during labor, they remain more costly than their non-pharmacological counterparts.

Unfortunately, as with other forms of healthcare, advances in intrapartum pain relief hinge upon the current economic and political environment (Cohen, 1997). The present outlook from an economic perspective is basically that “bad [birth] outcomes are no longer profitable...Because normal births without technological interventions tend to be relatively inexpensive, practices such as intermittent auscultation, avoidance of anesthesia, and a strong emphasis on labor support have a greater chance of acceptance” (Nesbitt, 1996, p. 161-165). It is impossible to discuss economics and health care without examining the role of managed care.

Discrepancies over maternal healthcare coverage further aggravate the economic situation. For example, the issue of insurance coverage for pain relief during labor remains controversial. Advocates of coverage raise the question of women’s rights during childbirth. They fear withholding coverage might segregate women into a two-tiered healthcare system based on socioeconomic class (Luppi, 1998). Yet, those who refute coverage tout the limited benefits of forms of anesthesia (Hansen, 1998), claiming they should not be employed without the presence of a medical indication, i.e., merely by request (American College of Obstetricians and Gynecologists [ACOG], 2000). Yet, denying requests for pain relief has ethical and legal ramifications. A

woman's right to choose her mode of delivery (cesarean versus vaginal birth) is currently a subject of debate in the literature (Saisto & Halmesmaki, 2003).

In 1995, a woman from Ontario, Canada filed a 2.4 million dollar lawsuit alleging she suffered excessive pain while giving birth (Lowry, 1995). "I wanted to be put out. I wanted a general anesthetic... You can bet this would not have happened in a private hospital in the U.S." (Lowry, 1995, p. 152). This first time mother claims she relayed to her obstetrician that she had an unreasonable fear of pain and dreaded her upcoming birth experience.

Other dangerous ethical situations resulting from the use of obstetric procedures have also been documented. These range from potential drug use (Nyberg, Buka & Lipsitt, 2000) and suicide (Jacobson & Bygdeman, 1998) among the adult offspring of women given drugs during labor to increased rates of mother-child bonding disorders, postnatal depression, and post-traumatic stress disorder among the women themselves (Hofberg & Brockington, 2000). Interestingly, the mere medical environment may indirectly lead to cesareans among women suffering from White Coat Hypertension (WCH) as found by Bellomo et al. (1999).

Additional potential indicators of childbirth pain include perceived childbirth knowledge (Rautava, Erkkola, & Sillanpaa, 1991), prenatal care, attendance at childbirth classes (MacDorman & Singh, 1997) and level of emotional support (Spiby, Henderson, Slade, Escott, & Fraser, 1999). Two other factors of interest in the area of pain management for labor are relaxation techniques (Ranzini, Allen, & Lai, 2001) and prior history of pain (Scott-Palmer & Skevington, 1981). However, all these variables

are complex and differ in scope and depth. As a result, they are discussed in more detail in the review of the literature, Chapter 2.

As previously mentioned, certain levels of fear and anxiety about labor are expected. The problem arises, however, when these feelings negatively impact a woman's decisions and perceptions about the birth process. Fear of childbirth pain has been found to be a factor in a woman's decision about her choice of delivery (Ryding, Wijma & Rydhstrom, 1998), the type of pain relief she seeks (Lowe, 2000) and even the level of satisfaction she has with her birth (Areskog, Uddenberg & Kjessler, 1981; Harman, 1988). In extreme cases, these fears have even been found to be the cause of voluntary termination of a pregnancy (Hofberg & Brockington, 2000).

Throughout gestation, a woman is confronted with numerous powerful external factors which may exert influence over her decisions regarding medical intervention: healthcare providers, insurance companies, childbirth educators, family, friends and the media. Yet, internal influences cannot be ignored. Positively, studies investigating maternal confidence for labor have found evidence supporting the idea that increased confidence for labor reduces a woman's perceived pain during delivery (Lowe, 1991; Sinclair & O'Boyle, 1999). It is unknown how and when these feelings of confidence develop, or fail to develop, during gestation. Thus, the unresolved issue of maternal self-confidence remains: How do we empower women to have the confidence to take control of their own birth and decrease their fear which may, in turn, decrease their need for pain relief and increase their satisfaction with labor?

Statement of the Problem

Although millions of nulliparous American women give birth each year, there are limited data to document the development of maternal confidence for labor and fear of labor throughout the period of gestation.

Statement of the Purpose

The purpose of this study was to examine the development of maternal confidence for labor and fear of labor among nulliparous pregnant women at 8-12 weeks of gestation, 28 weeks of gestation and 37 weeks of gestation.

Research Hypotheses

To explore the childbirth attitudes of nulliparous pregnant women throughout their pregnancy, the primary research question was addressed: Does maternal confidence for labor actually increase (i.e., fear decrease) as pregnancy progresses? To statistically test this overall research question, the following research hypotheses and subhypotheses were formulated:

1. Maternal confidence for labor (as measured by the Childbirth Self-Efficacy Inventory's Efficacy Second Stage sub scale [Efficacy-SS]) is likely to change as pregnancy progresses.
 - 1.1. Women who obtain prenatal care from nurse-midwives will demonstrate higher levels of maternal confidence at the second posttest than women receiving care from physicians.
 - 1.2. Women with higher levels of perceived knowledge will demonstrate higher levels of maternal confidence at second posttest than women who have lower levels of perceived knowledge.

- 1.3. Women who attend a childbirth preparation class will demonstrate higher levels of maternal confidence at the second posttest than women who do not attend a class.
 - 1.4. Women who practice relaxation techniques on a regular basis (at 8-12 weeks of pregnancy) will demonstrate higher levels of maternal confidence at the second posttest than women who do not.
 - 1.5. Women with a previous history of high levels of physical pain (at 8-12 weeks of pregnancy) will demonstrate a higher level of maternal confidence at the second posttest than those women who have no prior experience with high levels of physical pain.
 - 1.6. Women who report a higher level of importance for a medication-free birth will demonstrate higher levels of maternal confidence at the second posttest than women for whom a medication-free birth is not as important.
 - 1.7. Women with a higher level of emotional support from their birth partners will demonstrate higher levels of maternal confidence at the second posttest than women with lower levels of emotional support.
2. Fear of childbirth (as measured by the Childbirth Attitudes Questionnaire) is likely to change as pregnancy progresses.
 - 2.1. Women who obtain prenatal care from nurse-midwives will demonstrate lower levels of fear at the second posttest than women receiving care from physicians.

- 2.2. Women with higher levels of perceived knowledge will demonstrate lower levels of fear at second posttest than women who have lower levels of perceived knowledge.
 - 2.3. Women who attend a childbirth preparation class will demonstrate lower levels of fear at the second posttest than women who do not attend a class.
 - 2.4. Women who practice relaxation techniques on a regular basis (at 8-12 weeks of pregnancy) will demonstrate lower levels of fear at the second posttest than women who do not.
 - 2.5. Women with a previous history of high levels of physical pain (at 8-12 weeks of pregnancy) will demonstrate a lower level of fear at the second posttest than those women who have no prior experience with high levels of physical pain.
 - 2.6. Women who report a higher level of importance for a medication-free birth will demonstrate lower levels of fear at the second posttest than women for whom a medication-free birth is not as important.
 - 2.7. Women with a higher level of emotional support from their birth partners will demonstrate lower levels of fear at the second posttest than women with lower levels of emotional support.
3. Throughout gestation, women with higher levels of self-efficacy (i.e., maternal confidence) for childbirth will have lower levels of fear of childbirth.

Assumptions

The assumptions of this study were as follows:

- 1) The pretest questionnaires were administered within the healthcare facilities according to the study's protocol (e.g., the subjects were nulliparous women who were 8-12 weeks pregnant at the time the pretest was administered).
- 2) The questionnaires would accurately assess the subjects' self-efficacy and fears about labor and childbirth.
- 3) The subjects completed the questionnaires according to the instructions.
- 4) The subjects understood and truthfully responded in the self-report questionnaires.
- 5) The majority of the subjects would complete the survey in its entirety (pretest, posttest 1, and posttest 2).
- 6) The majority of the subjects would lack medical complications during pregnancy (i.e., low-risk pregnancies).
- 7) At the time of the pretest, there were no significant differences between subjects in the physician care group and the midwifery care group with respect to Maternal Confidence scores and Fear of Childbirth scores.
- 8) Differences would exist regarding the demographic characteristics between women in the two provider groups.

Theoretical Framework

Developed by Albert Bandura in 1977, the theory of self-efficacy provides the framework for this study. Self-efficacy can be defined as the confidence a person feels about performing a particular task; in this case, childbirth. According to this theory, confidence develops from four primary information sources which collectively

contribute to a person's expected level of efficacy. The four sources are: 1) performance accomplishments (personal mastery), 2) vicarious experience (modeling), 3) emotional arousal, and 4) verbal persuasion.

The concept of self-efficacy is behavior specific. It differentiates a person's belief that a behavior will lead to certain outcomes (outcome expectancy) from a person's belief that they themselves can perform the behavior (self-efficacy expectancies). Theoretically, self-efficacy determines whether an individual, when faced with an adverse situation, will utilize a coping behavior, and if so, to what extent and for how long. This results in efficacy expectations that may vary in strength, magnitude and generality. Bandura advocates "self-percepts of coping efficacy can reduce the level of arousal before, during and after a trying experience" (Bandura, 1982; p. 137). If one applies Bandura's theory to childbirth, then women with high efficacy expectations (i.e., high confidence for labor) would be more likely to be able to reduce their level of anxiety before, during and after the process of labor. Considering childbirth to meet the qualifications of a 'trying experience', Lowe (1991) developed the Childbirth Self-Efficacy Inventory (CBSEI) to measure self-efficacy and outcome expectancies for coping with the upcoming experience of labor and delivery. Recently, Lowe successfully teamed the concept of self-efficacy and fear of childbirth with the use of Harman's (1988) Childbirth Attitudes Questionnaire (CAQ) (Lowe, 2000). Similarly, the CAQ and a modified version of the CBSEI were utilized in this study along with additional questions exploring other possible information sources of childbirth efficacy. For a more detailed discussion of these instruments in this study, refer to Chapter 3, Methodology.

Significance of the Study

Current research on maternal confidence for labor suggests levels of self-efficacy during the third trimester play an important role in labor pain perception (Lowe, 1989, 1993; Manning & Wright, 1983; Sinclair & O'Boyle, 1999) and satisfaction with birth (Crowe & von Baeyer, 1989). Despite these findings, self-efficacy has not previously been examined throughout the full course of gestation. Furthermore, although childbirth self-efficacy has been studied among women receiving care from certified nurse-midwives and physicians, both separately and together, no comparison studies with respect to self-efficacy and fear of childbirth have been performed to date. Examining childbirth self-efficacy from the onset of prenatal care between these different groups of women will contribute significantly to our understanding of the development of their attitudes toward childbirth.

By investigating how and when maternal confidence for labor develops, we can obtain valuable insight on how to further assist low-risk nulliparous women in optimizing their birth experience while minimizing the use of unnecessary medical interventions. Additionally, this study will evaluate the impact of gestation and the following prenatal interventions on maternal confidence for labor: prenatal healthcare provider, perceived childbirth knowledge, prenatal childbirth education class, previous history of practicing relaxation techniques, previous history of personal physical pain, perceived emotional support from birth partners and importance of a medication free birth.

There remains a national need for risk assessment and education among pregnant women (United States Department of Health and Human Services [USDHHS],

2000). Researchers have proposed that the CBSEI can be prenatally used to identify and support women with low levels of maternal self-efficacy (Sinclair & O'Boyle, 1999). From an educational perspective, this study will assist in creating care provider guidelines for conducting maternal self-efficacy risk assessment, prenatal education and labor support for pregnant women throughout gestation. Finally, the overall health status of a nation can be measured by its infant mortality rate. Among industrialized nations, the United States is currently poorly ranked at 25th for infant mortality (National Center for Health Statistics [NCHS], 1999). From a broader perspective, assessing levels of maternal self-efficacy of nulliparous women may ultimately contribute to an overall decrease in the United States' infant and maternal morbidity and mortality rates, as well as healthcare costs.

Definition of Terms

Certified Nurse Midwife (CNM): An individual educated in the two disciplines of nursing and midwifery, who possesses evidence of certification according to the requirements of the American College of Nurse-Midwives (American College of Nurse-Midwives [ACNM], 1997).

Fear: An unpleasant often strong emotion caused by anticipation or awareness of danger (Mish et. al, 1985 [Webster's Dictionary]).

Gestation: The time of pregnancy, typically 40 weeks in duration.

Intrapartum period: A period extending from the onset of labor through the completion of delivery (USDHHS, 2000).

Knowledge: An awareness and understanding of facts.

Midwifery: The independent management of women's health care, focusing particularly on pregnancy, childbirth, the postpartum period, care of the newborn, and the family planning and gynecological needs of women (ACNM, 1997).

Nullipara: A woman who has never given birth to a viable infant (Rothenberg & Chapman, 1989 [Barron's Medical Guide]).

Pain: 1) Usually localized physical suffering associated with bodily disorder (as a disease or an injury) or 2) Acute mental or emotional distress or suffering (Mish et al., 1985 [Webster's Dictionary]).

Parturiphobia: Fear of childbirth.

Prenatal care: Pregnancy-related health care services provided to a woman between conception and delivery. According to ACOG recommendations, women should visit their prenatal care provider an average of 13 times during a normal 9-month pregnancy: one visit for each month for the first 28 weeks of pregnancy, one for every 2 weeks until 36 weeks, and then weekly until birth (USDHHS, 2000).

Preterm birth: Birth occurring before 37 weeks of pregnancy (USDHHS, 2000).

Outcome expectancy: A person's estimate that a given behavior will lead to certain outcomes (Bandura, 1977).

Self-efficacy: A dynamic cognitive process in which a person evaluates his/her capabilities to cope with different realities and execute required behaviors (Lowe, 2000).

(Self)-Efficacy expectancy: The conviction that one can successfully execute the behavior required producing the outcomes (Bandura, 1977).

Tokophobia: An unreasoning dread of childbirth (Hofberg & Brockington, 2000).

Delimitations

The study was delimited as follows:

- 1) Subjects in the study were restricted to nulliparous women who sought prenatal care from their healthcare provider at 8-12 weeks of gestation during the months of August, 2001 until June, 2003.
- 2) Only subjects who volunteered were included in the study.
- 3) The subjects were geographically located in the Metropolitan Washington, D.C. area and the outlying suburbs of Charleston, South Carolina.
- 4) Subjects were asked to complete three self-report pretest questionnaires at 8-12 weeks, 28 weeks and 37 weeks of gestation, and a brief telephone interview at two weeks postpartum.
- 5) The subjects were limited to those who agreed to complete the survey in its entirety.

Limitations

The study was limited as follows:

- 1) Small sample size and lack of random sample selection were limitations relative to this study.
- 2) The Efficacy-SS used was only one subscale in the four part CBSEI. The Efficacy-SS measures Self-Efficacy Expectancy during the second stage of labor. The other three subscales that were not included measure Outcome Expectancies during active labor, Self-Efficacy Expectancies during active labor, and Outcome Expectancies during second stage labor.
- 3) Results were not generalizable to other groups of pregnant women (e.g., multiparous women, women living in other geographical areas).

- 4) Social desirability served as a threat to the external validity of this study. This may result from loyalty to their healthcare provider, childbirth preparation class instructor or an attempt to please the researcher by providing a particular response.
- 5) The internal validity of this study was threatened by the effects of maturation, testing, and mortality over the course of the pretest, posttest 1 and posttest 2.

Summary

The current public perception of a woman giving birth is that of a damsel in distress who is saved by the doctor in the white coat (B. Lederer, personal communication, January 8, 2000). Both professional and popular literature document the increased use of medical interventions during childbirth in the latter half of the twentieth century. The severe medical and psychological consequences of an invasive birth, as well as the anxiety during the months prior to birth, can be reduced by providing primary prevention education to empower women early in gestation regarding their own children's' births. However, little data exist to document the development of maternal confidence for labor and fear of labor throughout the period of gestation. Thus, the purpose of this study was to examine the development of maternal confidence for labor and fear of labor among nulliparous pregnant women at 8-12 weeks of gestation, 28 weeks of gestation and 37 weeks of gestation.

In this chapter, the need for research in the area of maternal confidence for labor was introduced. Chapter 2 contains a review of the literature related to this topic. The methodology of the study is explained in detail in Chapter 3. The results of the study are analyzed and evaluated in Chapter 4. A discussion of the findings,

recommendations for further research, and conclusions of the study are presented in Chapter 5.

Chapter 2

REVIEW OF THE LITERATURE

The purpose of this study was to examine the development of maternal confidence for labor and fear of labor among nulliparous pregnant women at 8-12 weeks of gestation, 28 weeks of gestation and 37 weeks of gestation. This chapter integrates the related literature into the following sections: 1) Overview of the maternal morbidity and mortality in the United States, 2) The role of prenatal care, 3) Variables that influence the childbirth process, 4) Pain management, 5) Self-Efficacy within childbirth, and 6) Fears associated with childbirth.

Overview of the Maternal Morbidity and Mortality in the United States

The health of a nation is measured at the most basic level by its maternal and infant mortality rates (CDC, 1998). Despite the United States' major advances in obstetrical technology in the past 20 years, our maternal mortality rate has not decreased but remained stable since 1982 at a rate of 7.5 maternal deaths per 100,000 live births (CDC, 1998). These statistics are in accordance with the International Classification of Diseases Ninth Revision (ICD-9) codes 630-676. The ICD-9 defines maternal deaths as deaths that occurred during a pregnancy or within 42 days of pregnancy termination, regardless of pregnancy duration or site (e.g., uterus, fallopian tube). This does not include deaths due to accidental or incidental causes. The primary causes of pregnancy-related deaths in the United States include hemorrhage, embolism, pregnancy-induced hypertension, sepsis/infection, anesthesia complications and cardiomyopathy (Jones, 2000). Ironically in the Healthy People 2010 Goals and Objectives for the Nation (USDHHS, 2000), the CDC notes the majority of the pregnancy-related deaths in the

United States can be prevented through what appear to be seemingly simple means: improving health care access, improving quality of care and lifestyle changes. This presents a greater challenge for minorities and older women both for whom maternal mortality rates are substantially higher than the national average.

One of the largest racial differences in public health indicators is the discrepancy between African American women and Caucasian women with respect to maternal mortality. African American women are practically at a four times higher risk for pregnancy-related deaths than Caucasian women (CDC, 2000). Additionally, Hispanic women are at two times higher risk than their white counterparts. Reducing racial disparities serves as an important component of achieving the Healthy People 2010 target objective of decreasing maternal mortality to 3.3 maternal deaths per 100,000 live births (USDHHS, 2000).

Maternal deaths constitute only one facet of the overall problems surrounding childbirth. Of additional concern is the magnitude of major medical complications which occur before, during and after pregnancy. At least 30% of the four million women who give birth annually, suffer from some type of pregnancy-related medical complication including ectopic pregnancy, hemorrhage, infection, premature labor, diabetes, miscarriage, excessive vomiting, pregnancy-induced hypertension and a need for a surgical (cesarean) delivery (Jones, 2000). Increasing medical intervention during pregnancy and labor typically increases the need for subsequent medical care. Thus, perpetuating the cycle of intervention. For instance, Thompson, Roberts, Currie and Ellwood (2002) studied over 1,100 postpartum women in Australia and found women who had cesarean sections were more likely to be readmitted to a medical facility for

care due to complications associated with the mode of delivery. These complications, again the majority of which are preventable, pose serious physical, psychological, social and economic strains on individual mothers as well as the nation. The annual cost of hospitalization due to pregnancy-related complications before delivery alone is more than \$1 billion dollars (Jones, 2000). In the past, short-term measurable criteria such as prenatal illness and complications had been in the forefront of maternal health care. More recently, the focus shifted to place greater emphasis on preventative, long-term maternal wellness concepts.

The Role of Prenatal Care

The consistent message relayed by all health care providers is that early and adequate prenatal care is of vital importance to both mother and baby. Apparently, women across the nation are responding to this message. The number of women seeking prenatal care beginning in their first trimester rose 9.2 percentage points between 1987 and 1998. Continuous early prenatal care provides multiple opportunities for risk assessment, treatment for medical conditions or risk reduction, and education (USDHHS, 2000). As more women obtain prenatal care, its evaluation becomes of increasing importance.

Ultimately, prenatal care spans the forty weeks of gestation. The American College of Obstetrics and Gynecology (1965) advocates a total of 13 prenatal visits during pregnancy; one per month for the first 28 weeks and one every 2 weeks until 36 weeks and then weekly until birth. With the exception of certain racial minority groups (American Indians, Alaska Natives and Samoans), nearly three-quarters of women are currently receiving adequate prenatal care using this definition (USDHHS, 2000). A

contributing factor to this rising trend may be the mid-1980's expansion of Medicaid coverage to include prenatal care. However it is important to note, not a single state reached the 2000 national health objective which strived for 90% of women entering prenatal care during their first trimester (CDC, 2000b). Barriers to obtaining prenatal care as identified in the Pregnancy Risk Assessment Monitoring System (PRAMS) include lack of knowledge of pregnancy and lack of funds and/or insurance to cover prenatal visits (CDC, 2000). To ensure future success in the area of prenatal care, continuous efforts are still needed.

Effectiveness of Prenatal Care Paradigms

As mentioned earlier, there is a general consensus regarding the value of prenatal care and its impact on the mother and the growing fetus. However, the approach to prenatal care and childbirth varies depending upon the health care provider's philosophy of care. In a comparison of care philosophies of physicians and CNM's, Yankou, Petersen, Oakley, and Mayes (1993) examined the official statements of the professional organizations of each group (ACOG and ACNM). While the safety of the mother remains the ultimate goal of each of these organizations, ACOG also identifies the technical aspects of care whereas ACNM specifies self-determination, cultural diversity and the right to dignity as components of care. Physician-based care (medical model) categorizes childbirth as a disease and supports treatment in the form of medical intervention. On the opposite side of the spectrum, the midwifery model views childbirth as a natural process which for most women, does not require technological management. A debate, at both national and international levels, regarding the two types of care has existed for decades. European critics have even

referred to the Western, medicalized approach to childbirth as “dehumanizing” (Wagner, 2001). These core philosophical differences have been well documented in the literature.

Numerous studies have examined how these philosophies translate into practice by measuring birth outcomes (Aaronson, 1987; Hueston & Rudy, 1993; MacDorman & Singh, 1997; Oakley et al., 1995; Oakley et al., 1996; Rooks, 1997). A landmark study by MacDorman and Singh (1997) from the National Center for Health Statistics investigated the connection between care provider at birth and the risk of infant death. The authors linked the death certificates to the corresponding birth certificates of all the singleton, vaginal births at 35-43 weeks gestation for the year 1991. After controlling for social and medical confounding variables, the authors found that CNM’s provided prenatal care that was, at a minimum, equitable to physician-based care. CNM-attended births had a 33% lower risk of neonatal mortality, 19% lower risk of infant mortality and a 31% lower risk of low birth weight. Interestingly, these favorable outcomes occurred despite a greater number of CNM-attended births to high-risk groups (African Americans, American Indians, teenagers, unmarried women and women with less than a high school education).

The cross sectional nature of the data is the primary limitation of this study. As a result the data collection was restricted to only the attendant who actually delivered the baby, not the prenatal care provider. Typically, low-risk women receiving midwifery care who develop complications during labor or pregnancy are transferred to a physician. Additionally, this study did not account for the possibility of cross contamination of prenatal care among the providers (i.e., midwives working at

physicians' offices). The authors attempted to minimize the effects of these limitations by restricting the data set to singleton, vaginal deliveries at 35-43 weeks. The risk of transfers was also decreased by omitting cesareans, multiple births, preterm and past-term deliveries. Furthermore, the results of this study support similar results found by other studies which were able to trace birth outcomes to the prenatal care provider (Davis, Riedman, & Sapiro, 1994; Hueston & Rudy, 1993; Rooks, Weatherby, & Ernst, 1992).

In a systematic literature review of midwifery care research from 1984 to 1998, Raisler (2000) found twenty-three published studies comparing midwifery to physician care. In accordance with the ACMNs professional aims, Raisler noted the majority of the intervention studies concluded that CNM-attended births included decreased levels of procedures, technology and medication than the other provider groups as well as a higher incidence of spontaneous vaginal births (Raisler, 2000). Specifically, induction of labor, continuous fetal monitoring, intravenous fluids, anesthesia, episotomy, cesarean sections and instrument births were reduced. The success of this "low tech, high touch" (Raisler, 2000; p. 31) approach has contributed to the resurgence of midwife-attended births among women of higher socioeconomic status, even among the socially elite. For example, a highly publicized home birth with a midwife was supermodel Cindy Crawford's choice of delivery for her first child (Crawford, 2000).

An estimated 5.5% of all births in the United States are being delivered by nurse midwives (Clarke et al., 1997). This number is much lower than in Eastern nations where midwife attended births are the norm. Researchers have acknowledged that the range of birthing options available to women in the United States is currently limited

(Marmor & Krol, 2002). Yet, the overall number of midwife-attended births has been steadily increasing since 1975 (Clarke, Martin, & Taffel, 1997). As Doris Haire, the president of the American Foundation for Maternal and Child Health wrote, “the skills of the neonatologist [are appreciated] in saving very premature, ill and defective infants. However there is no doubt...that ultimately the midwife will be recognized as the health professional most capable of improving the outcome of pregnancy throughout the United States” (Haire, 1981, p. 8).

A limited number of studies in the literature have investigated issues surrounding the professional collaboration of care between midwives and physicians (Baldwin, Hutchinson, & Rosenblatt, 1992; Baldwin, 1999, Raisler, 2000; Bell & Mills, 1989). However, it is becoming increasingly evident for economic and social reasons that collaboration, if not mainly midwifery care, may be the future route of prenatal care. The budget-conscious, managed care approach to health care only strengthens the support for collaboration. Yet, this solution presents an entirely different set of hurdles for caregivers. How each group will fare with respect to upholding their values of care remains to be seen (Yankou et al., 1993). A study by Schuman and Marteau (1993) examined the different perceptions of pregnancy among obstetricians, midwives and pregnant women. They found obstetricians viewed pregnancy as a state of risk while midwives viewed it as a state of normalcy and pregnant women fell somewhere in between the two. Similarly, in an overview of birth trends in the United States, McCool (2002), acknowledged women are currently torn between the concepts of nature versus technology.

It is important to note that even within professions, a range of care philosophies can exist. In an exploratory study, Lane (2002) found that the knowledge levels and health care beliefs of midwives (N = 22) varied based on their age, experience, and work setting. These results lend themselves to the notion that an environment of collaboration may naturally evolve with time. Meanwhile, physicians often control the regulations that allow midwives to practice including hospital privileges for delivery (Baldwin, 1999).

It is difficult to address the future of prenatal care without examining the past. It is not the purpose of this literature review to provide an in-depth historical perspective of childbirth but rather to highlight developments pertinent to fear and maternal confidence for labor. For a comprehensive historical review, the author recommends a book by Judith Rooks (1997) entitled Midwifery and Childbirth in America.

Brief historical perspective of childbirth.

If the old adage “History repeats itself” is true, we will continue to see the resurrection of midwives as the primary care givers for women in labor. Originating in 1303, the word “midwife” breaks down to the literal meaning “with woman” (Rooks, 1997). Throughout history, the overall female support system, referred to the “women’s network”, had as one of its functions to serve women before, during and after pregnancy (Nolan, 1997). Comparatively, social norms banished males including male physicians from virtually the entire process of childbirth. This occurred mainly by choice because women’s healthcare in all forms was viewed as insignificant (Capitulo, 1998). By attending births, assisting in childrearing and listening to stories of other females, women prior to the nineteenth century gained competence (i.e., confidence)

regarding childbirth and baby care skills (Nolan, 1997). Although the strength of this network began a downward spiral with the invention of the Chamberlen forceps in the early 1600's, it was the Age of Industrialization that removed the childbirth process from the home to the hospital. This ultimately secured men's role in childbirth (Capitulo, 1998, Nolan, 1997). Additionally, this weakened the women's attachment to their community education and support network as well as their exposure to childbirth as a whole.

Over the next three centuries, midwives were displaced as medical technology, which was only accessible to males through unisex medical schools, grew to a high level of public acceptance, first among the upper class then the rest of the population (Cesarean section-A brief history, 1998; Rooks, 1997). Anesthetized, physician-attended, hospital births grew to become the predominant norm during the bulk of the twentieth century. However, in the 1930's the natural childbirth movement had its humble beginnings mainly fostered by a book written by Englishman Grantly Dick-Read (1944) entitled Childbirth without Fear. Based on the premise that childbirth is a normal process and women who were confident in their own health could undergo childbirth without fear, this book was ironically considered radical and controversial in England where it was first published (Rooks, 1997). After being released in the United States in 1944, the book became the cornerstone of successive childbirth philosophies such as the Bradley, Gamper, and Lamaze methods. As a backlash to the 1950's medicalized style of birth, these methods came to the forefront of the public arena during the women's movement of the 1960's and 70's. Meanwhile, a few years prior to the release of Dick-Read's book, the practices of midwifery and nursing were joined in

the United States by Mary Breckenridge through her development of the Frontier Nursing Service in Kentucky in 1925 (Capitulo, 1998). From this time on, nurse midwives primarily served a disadvantaged population of women but by the time the national certification program for nurse midwives was completed in 1971 this was no longer the case. Natural childbirth education and the use of midwives peaked in the late 1970's and remains a viable choice for women today.

Variables that Influence the Childbirth Process

Researchers have targeted certain characteristics for investigating childbirth behaviors and outcomes. These characteristics include perceived childbirth knowledge (Rautava, Erkkola, & Sillanpaa, 1991); prenatal care (Aaronson, 1987; Hueston & Rudy, 1993; MacDorman & Singh, 1997; Oakley et al., 1995; Oakley et al., 1996; Rooks, 1997); childbirth education classes (Doering & Entwisle, 1975; Lumley & Brown, 1993; Puerta, 1989; Spiby et al., 1999); and level of emotional support from the birth partner (Kroelinger & Oths, 2000). More recent studies have indicated the use of alternative pain management methods such as meditation, yoga, t'ai chi, mental healing and visual imagery are on the rise among pregnant women (Ranzini et al., 2001). Specifically, acupuncture (Ramnero, Hanson, & Kihlgren, 2002), hypnosis (Smith, Collins, Cyna & Crowther, 2003), and massage (Chang & Chen, 2002) have been documented as successful methods of reducing childbirth pain among women abroad.

Pain

To date the most extensively studied variable, but not necessarily the most predictive of behavior, is pain during childbirth. Dating back to biblical times, childbirth pain and punishment have been connected: "With sorrow [i.e., pain] shalt

thou bring forth” (Cohen, 1997). Even the etymology of the word “pain” is derived from the Latin word “poena” which means penalty (Brownridge, 1995). In previous centuries, pain was perceived as being from an external higher power (i.e., God’s arrow’s) not from an internal physiological reaction as it is often viewed today (Henderson, 2000). Although pain is a complex phenomena with a plethora of definitions, it is typically physiologically defined as having the two basic components: a primary phenomena of inward impulses from sensory receptors and a successive secondary phenomena of processing and reaction (Lowe, 1996). Using this definition, individual variability results from the secondary phenomena. For example, “Pain is one of the few experiences that every person will have, and yet it is intensely private” (Henderson, 2000; p. 117). As a result, despite the mechanisms which have been developed to analyze an individual’s pain response to certain stimuli, assessment of pain is a formidable task which requires analysis of not only physical mechanisms but the psychological and social factors as well (Unruh, 1996).

Gender.

A fundamental element of human social existence is gender roles. Relevant to this study, Unruh (1996) conducted a literature review on gender variations in clinical pain experience. Her review found women experienced pain at more severe levels for a longer period of time and at greater frequencies than men even when reproduction pains (menstruation, pregnancy and childbirth) were excluded (Unruh, 1996).

While the investigation of childbirth pain is not applicable to males per se, it is logical to consider male interpretations of a female labor pain given that sixty-four percent of the nation’s obstetricians and gynecologists are men (Reuters News Service,

2001). However, in a study of 153 women only 38% of women undergoing gynecologic surgery or having a baby, cited gender as an important issue regarding their choice of an obstetrician or gynecologist whereas 80% agreed responsiveness, professionalism, confidence and communication skills were very important (Reuters News Service, 2000).

Menstrual pain has been associated with increased childbirth pain (Fridth et al., 1981; Norvell, 1988; Scott-Palmer & Skevington, 1981). Melzack et al. (1981) found a past history with dysmenorrhea to be related to increased labor pain. Similar findings were reported by Fridth et al. (1988). It has been proposed that women who secrete more prostaglandins (hormone-like fatty acids present in uterus affecting muscle contraction) may have greater menstrual and childbirth pain (Melzack et al., 1981). From a behavioral perspective, Scott-Palmer (1981) found, in a study of 30 pregnant women and 30 controls, that women who scored higher on the locus of control scale experienced shorter labors and menstrual cycles respectively. The relationship between control of labor pain and maternal confidence is discussed later in this chapter.

Parity.

Gestation and childbirth are not stress-resistant time periods. For first-time mothers, the fear of the unknown (i.e., pain of delivery) can be especially intense yet, the literature on the relationship between labor pain and parity is inconclusive. Roberts (1983) proposes this disparity may be because often studies limit their examinations to observations of behaviors during labor which are not always an accurate measure of pain. Two studies measuring pain once during labor indicated primiparas experience greater pain than multiparas (Melzack et al., 1981; Niven & Gijbsbers, 1984). Yet,

measuring pain at one time interval during labor may not be sufficient as noted by Lowe (1989). In a study of low-risk women with normal singleton pregnancies, Lowe (1987) measured pain during different stages of labor using the McGill Pain questionnaire and found no significant differences for multiparas and primiparas during the active or transitional phases of labor. During early labor, primiparas did report significantly higher pain than multiparas however, during the second stage of labor they reported significantly lower pain (Lowe, 1987). Gaston-Johanson, Fridth and Turner-Norvell (1988) reported similar results with respect to parity using the visual analog scale (VAS). Sheiner, Sheiner, & Shoham-Vardi (1998) who collected prospective data from 447 participants prior to the administration of analgesia also reported lower VAS scores among multiparas, suggest parity either lessens the intensity of labor pain or it raises the pain threshold. To date, no overall conclusions can be made about parity and childbirth pain. Further complicating matters, multiparas with a history of a complicated childbirth may respond to childbirth pain differently than nulliparous women. For example, in a study of 329 pregnant Finnish women, Melender (2002a) found that a negative experience with a previous birth increased women's fears during subsequent pregnancies.

Psychological Implications

From a longitudinal perspective, a woman's quality of life is affected by a pregnancy, regardless of the outcome. Yet, a negative experience with pregnancy, childbirth and/or early motherhood may have strong, short and long term implications for a woman's overall well being. Suicide has even been documented in the literature as a leading cause of maternal deaths (Hofberg & Ward, 2003). Not surprisingly, the

majority of women do not seek professional care for mental health issues. Therefore, their health care provider becomes the central element for primary and secondary prevention (Morford & Barclay, 1984). Unfortunately, due to the magnitude of responsibilities healthcare providers must perform and their minimal training in counseling, symptoms of abuse, anxiety and depression may go undetected (e.g., physical and sexual abuse, fear of labor and delivery, maternal separation anxiety and phobic avoidance of the baby) (Martin, Mackie, Kupper, Buescher, & Moracco, 2001; Shear & Mammen, 1995).

Pregnancy, childbirth and the postpartum period are psychologically vulnerable times for women (Shear & Mammen, 1995). The onset of several psychological disorders have been associated with these time periods including obsessive-compulsive disorder (Shear & Mammen, 1995), post-traumatic stress syndrome (PTSD) (Gold-Beck-Wood, 1996; Reynolds, 1997), depression (Kennerley & Gath, 1989), anxiety and bonding disorders (Hofberg & Brockington, 2000). It has been proposed that overall anxiety during pregnancy, conscious or not, is mainstreamed into a rational socially acceptable fear of the upcoming delivery (Areskog, Uddenberg, & Kjessler; 1984). Yet, the actual delivery itself presents additional anxiety.

A contributing factor of these disorders may be incongruencies between expectations for delivery and actual delivery experience although the results are conflicting. Hofberg and Brockington (2000) found women (N = 26) suffering from tokophobia (unreasoning dread of childbirth) who were denied their choice of delivery had higher rates of psychological morbidity than those who delivered via the method of their choice. Although this sample size is small, it is the first study in the medical

literature to classify tokophobia. Hofberg and Brockington's (2000) categorized women into primary tokophobics (starting in adolescence) and secondary tokophobics (occurring after a traumatic delivery). This categorization may assist in tailoring future prevention and treatment efforts. Gold-Beck-Wood (1996) reported women suffering from PTSD as a result of a distressing delivery (i.e., secondary tokophobics) may experience flashbacks, depersonalization and hypervigilance. She also notes that as a result, the future reproductive health of some women may be impaired due to their inability to undergo annual gynecologic exams, cope with subsequent pregnancies or even maintain a healthy sexual relationship. Furthermore, there may be incongruencies between the health care providers and the mother's definition of normalcy and distress during birth (Gold-Beck-Wood, 1996). Thus, a question which is evident from the review of the literature is, "Which comes first: the anxiety and depression or the distressful pregnancy?".

Depression and anxiety.

In a prospective study of 211 women, Saisto, Salmela-Aro, Nurmi, & Halmesmaki (2001a) found depression early in pregnancy predicts disappointment with delivery and perhaps postpartum depression. Yet, in another prospective study of 151 women, Areskog, Uddenberg, Kjessler (1984) did not find a significant correlation between a negative delivery experience and postnatal emotional strain. These authors suggest women prone to anxiety in general may be more susceptible to atypical levels of postpartum depression. The need for further studies on how women with young children recover from postpartum relapses of mental illness has been acknowledged (Bosanac, Buist, & Burrows, 2003).

Compromised birth outcomes have been documented in women suffering from anxiety, depression and stress thus, demonstrating a possible psychosomatic connection. Poor outcomes associated with these psychological conditions include preterm labor (Mackey, Williams, & Tiller, 2000) preeclampsia (Kuri, Hiilesmaa, Raitasalo, Mattila, & Ylikorkala; 2000) and emergency cesarean section (Ryding et al; 1998). The origins of anxiety surrounding childbirth are complex, but Delzell (2000) makes the argument that one particular source of the anxiety, prenatal testing, should be approached by providers in a more sensitive manner. Delzell (2000) contends providers could do more to prepare women for false-positive test results when screening for Down's syndrome, neural tube defects and alpha fetal protein.

Another source of anxiety for pregnant and postpartum mothers which may be overlooked during pre-and postnatal care is domestic abuse. Alarming, abuse and homicide may play a larger part in pregnancy-related psychological disorders than previously indicated. One study of 247 pregnancy-related deaths in the state of Maryland proposed pregnant or recently pregnant women are more likely to die of homicide than any other cause (Horon & Cheng, 2001).

Regardless of origin, the potential of psychological imbalance in pregnant and postpartum women is a serious mental health condition necessitating acknowledgment from health care providers (USDHHS, 2000). Compounding the importance of this issue are the born and future unborn children of these women who are also subject to serious health implications as a result of their mothers' health behaviors.

Understanding the interdependence of these psychosocial life issues upon maternal

health outcomes is an essential step toward achieving the goal of safe motherhood for all women worldwide.

Culture

Trends in childbirth pain management have varied for centuries (Seymour, 1997) and throughout different cultures around the globe (Freedman & Ferguson, 1950). Within different research disciplines, culture has been identified as an integral part of the pain response (Weber, 1996). Opposing the claims of the natural childbirth movement, Freedman and Ferguson (1950) profess in their review of childbirth in primitive cultures that “there is hardly a group anywhere that does not have extensive and often ingenious procedures aimed at easing and hastening childbirth. [Our] observations do not substantiate the assumption that fear and pain of childbirth have arisen with the ‘advancement of our civilization’.” (p. 365) For example, previous methods to abate the pain of childbirth in other cultures have ranged from playing the flute to feeding the laboring women the meat of a weasel (Freedman & Ferguson, 1950).

In the multicultural environment of present day society, the importance of a woman’s ethnocultural background and how it influences her perceptions of childbirth pain should be taken into consideration by health care providers to ensure the most pertinent pain management. To date, a limited number of studies have examined the influence of culture specifically on childbirth pain in the United States. However, as part of a literature review, Fisher, Bowman, and Thomas (2003) conducted a search of articles focusing on childbirth issues for South Asian India immigrants. The researchers concluded health care providers lack of knowledge and understanding about Indian

cultural values surrounding childbirth. They propose this may result in patient dissatisfaction with care providers and the health care system and, ultimately, an underutilization of care and poor health outcomes for this population. Lee and Essoka (1998) explored pain perception among Korean-Americans (n = 57) and Euro-American (n = 67) obstetric patients and found statistically significant differences in their interpretation of the quality of pain but not intensity. Interestingly, Korean-Americans' cultural expectation to give birth to a male child may have added additional anxiety. Cultural differences in maternal confidence for labor may exist as documented in a study by Ip, Chein and Chan (2003) of 186 first-time pregnant Chinese women. The researchers found women had high expectations of support from their birth partner and care provider during labor but low expectations regarding their ability to cope with labor pain.

Throughout life, women learn the expectations of their culture and then they bring those expectations into the delivery room. Volume of vocal expression of pain during labor varies by culture and has different meanings. For instance, praying to Allah is common among Moslem women. In particular, they believe the louder the prayers and expression of pain, the more solicitous the husband will be during the postpartum period (Ahmad, 1994). For Chinese women, silence during childbirth is representative of honoring themselves and their families (Weber, 1996). Other cultural barriers (e.g., modesty, power, religion and taboos about bodily functions) may result in miscommunications and thus impede appropriate childbirth care. It is important for care givers to remember that stereotypical comfort measures, such as presence of

husband or eye contact, may be unwanted or cause additional stress for women of certain cultures.

Emotional Support

Within many cultures, including the United States, pregnancy is a social event. It requires guidance as well as learning and sharing from friends, professionals even strangers. Our society still remains fascinated by the miracle of life as demonstrated by the 'Good Morning America' recent broadcast of live births on national television from hospitals across the country (Reuters News Service, 2001). On average, social and emotional support are generally welcomed by the pregnant mother. For the majority of women, emotional support during labor, typically from a husband or close friend or relative, has been proven to be positive (Hodnett, 2002; Hodnett & Osborn, 1989; Hofmeyer, Marcos, & Butchart, 1991; Madi, Sandall, Bennett, & MacLeod, 1999; Melender & Lauri, 2002). Madi et al. (1999) studied the effect of having a female relative present during labor for 109 women in Botswana and concluded that their presence was a low-cost alternative intervention decreasing medical action and increasing self-esteem. Similarly, Hodnett (2002) found that among Canadian women (N = 5000) the presence of a support person reduced pharmacological and surgical childbirth intervention and, to some degree, decreased the length of labor. Melender and Lauri (2002) found fewer pregnancy-related complications among women who reported high levels of emotional support and a strong sense of security. However, some researchers argue that a partner's level of involvement with pain control techniques may be more relevant than their mere physical presence (Copstick, Taylor, & Hayes, 1986).

Knowledge

The role of knowledge in childbirth can be examined in three different ways: 1) literally, as the demographic variable “education”, 2) perceptually, as self-report knowledge levels of pregnancy, or 3) indirectly, through a separate measure such as participation in prenatal education classes. The latter has been extensively investigated with recent observations that classes may serve to alter group demands from women as a whole as opposed to improving individual women’s birth experiences (Nolan & Hicks, 1997).

While some researchers have reported a beneficial link between attendance at prenatal classes and satisfaction with birth (Spinelli, Baglio, Donati, Grandolfo, & Osborn, 2003), others fail to report a link between the two (Spiby et al., 1999). Class attendance has not been shown to correlate positively with attitudes about birth experiences (Butani & Hodnett, 1980) or pain scores (Reading & Cox, 1985), nor has a clear association between fear and prenatal class attendance been determined (Geissbuehler & Eberhard, 2002). Limited success of prenatal classes has been attributed to poor preparation, conflicting advice, lack of realistic depictions of parenthood, and misrepresentations of labor and delivery (Laryea, 1998). Short duration, close proximity of classes to actual birth and limited practice time for coping strategies may also be problematic to success, although this conflicts with the Healthy People 2010 (USDHHS, 2000) guidelines which advocate prenatal classes beginning at the 31st or 32nd week of pregnancy. An alternative rationale may be that health professionals and/or pregnant women themselves may hold negative attitudes regarding pregnant women’s ability to learn (Jackson, Schmierer, & Schneider; 1996).

Given the current criticism of prenatal classes, examining other factors such as education and perceived knowledge levels of pregnancy becomes increasingly important. Studies exclusively measuring perceived knowledge of pregnancy have not been documented in the literature to date. However, Drummond and Rickwood (1997) (N = 100) found knowledge to have a significant effect on childbirth self-efficacy. Rautava et al. (1991) (N = 1238) also report an association between knowledge and satisfaction for birth as well as improved birth outcomes among primiparous women with greater levels of self-confidence. It has been suggested that course content and instructor skill levels be evaluated as part of a larger comprehensive review of current prenatal classes (Schneider, 2002).

Pregnant women obtain knowledge from a variety of sources, particularly medical and traditional means (i.e., family, friends, community). An emerging knowledge resource in this age of technology is the Internet. Women are turning more to the Internet for answers regarding their childbirth questions. Female use of the Internet grew 41% from 1998 to 2000 (United States Department of Commerce, 2000) with 96% of women identifying the Internet as a great tool for finding the answers to their questions regarding their children and families (The Big Picture Demographics, 2001). Although in the professional literature, Sankar (2000) compiled a list of high quality pregnancy-related web sites, disseminating reliable information to the general public may prove to be difficult.

Pain Management

Strategies for labor pain relief can be divided into two primary categories: pharmacological and non-pharmacological. The use of obstetric anesthesia began in

1847 with diethyl ether. At this time, it was debated in social and religious circles, not scientific ones, whether or not pain relief for childbirth was acceptable. After Queen Victoria received chloroform during the birth of her son, the concept of pain management was well embraced by social and religious circles alike (Cohen, 1997). Over the course of the next century, as more was learned about the risks of inhaled anesthetics, anesthesia switched to injection agents such as opioids and barbiturates (a.k.a. Twilight Sleep). With the evolution of medical equipment, the use of regional spinal administration of analgesia began, a practice which is still in use today. A popular method of pain relief for women introduced within the past decade is an extremely dilute form of local anesthetic known as a “walking epidural”(Cohen, 1997). Scientists are presently working on producing an ultra-long acting local anesthetic, lasting up to six days.

Interestingly, although the use of epidurals is widespread, no medical consensus currently exists as to whether or not having an epidural improves the outcomes of high-risk deliveries such as breech births or eclampsia (Seymour, 1997). However, Kannan, Jamison and Datta (2001) examined differences in birth satisfaction among women who desired a medicine-free birth. The majority of women (88%) who eventually requested epidurals ($n = 24$) reported lower levels of birth satisfaction than women who achieved their goal of a medicine-free birth ($n = 23$). Based on these findings, the authors concluded that birth satisfaction is impacted by a variety of factors is not solely related to reduced pain during labor.

Rooted in the natural childbirth movement, support for non-pharmacological methods of pain relief has waxed and waned for centuries. Non-pharmacological

techniques of pain relief for childbirth include transcutaneous electrical nerve stimulation (TENS), massage, hydrotherapy, acupuncture/acupressure, breathing techniques and self-hypnosis (Chang & Chen, 2002; Ramnero et al., 2002; Seymour, 1997; Smith et al., 2003). Research has suggested the act of women's participation required by these methods may contribute to their efficacy (Leventhal, Leventhal, Shacham, & Easterling, 1989; Niven & Gijbbers, 1996). Contrarily, a women's role in the use of pharmacological methods is primarily passive. The interconnection between the two types of pain relief is particularly relevant for the issue of maternal confidence for labor.

The aim of techniques, such as Lamaze and visualization, is to foster a women's ability to cognitively cope with childbirth pain rather than eliminate the pain through medical means. It has been advised that the individual in pain be educated on several coping techniques (Meichenbaum, 1985) to allow her the flexibility to choose the most appropriate coping form (Weisenberg, 1997). This is contingent on a person's level of competence to perform these behaviors (i.e., self-efficacy expectancies) and on their belief that these behaviors reduce pain (outcome expectancies) (Weisenberg, 1997). Additional support for this notion is provided by a study conducted by Niven and Gijbbers (1996) which examined the use of childbirth coping mechanisms. These researchers found that women used a variety of pain relief strategies throughout different stages of labor. The mechanisms on which women relied included previously-used coping mechanisms as well as new ones obtained through both formal (e.g., childbirth classes) and informal means.

Self-Efficacy within Childbirth

As described in the introduction, self-efficacy can be defined as the confidence a person feels about performing a particular task. This health behavior theory is unique because it differentiates a person's belief that a behavior will lead to certain outcomes (outcome expectancy) from a person's belief that they themselves can perform the behavior (self-efficacy expectancies). Self-efficacy, a behavior-based theory, determines whether an individual, when faced with an aversive situation, will utilize a coping behavior, and if so, to what extent and for how long. In other words, it refers to the strength of a person's beliefs that when faced with a difficult task, they can persevere and overcome any barriers preventing them from performing the task at hand. Due to the predictive nature of this theory, the term "self-efficacy" is often interchanged with "perceived self-efficacy" (Lawrance & McLeroy, 1986).

Bandura attributes the development of self-efficacy to four primary information sources which collectively contribute to a person's expected level of efficacy. The four sources in descending order of influence are: (1) performance accomplishments (personal mastery), (2) vicarious experience (modeling), (3) verbal persuasion and (4) emotional arousal. Personal mastery in the context of pregnancy (i.e., parity) has previously been discussed in this chapter. Yet, it is important to note here that self-efficacy has been shown to play a role in multipara's birth choice of subsequent pregnancies. Dilks and Beal (1997) found women (N = 74) choosing a repeat cesarean delivery for subsequent pregnancies demonstrated significantly lower levels of self-efficacy than those women who attempted a vaginal birth after cesarean section.

In a study of eighty-eight women levels of autonomy and control were higher among women choosing midwives (n = 46) versus physicians (n = 46) as birth attendants (Galotti, Pierce, Reimer, & Luckner; 2000). Longworth, Ratcliffe, and Boulton, (2001) found that women who chose a home birth valued continuity of care and their ability to place an active part in medical decisions regarding their labor whereas women who chose hospital care valued the receipt of an epidural for pain relief.

The vicarious experiences of nullipara's for most women may be limited to media depictions of childbirth, birth stories from other women, childbirth education videos and presentations (Lowe, 2000). Many of these sources have been criticized for their unrealistic depictions of childbirth (Nolan, 1997). Interestingly, female obstetricians and the wives of male obstetricians, who may be exposed to more vicarious experiences, have been found to have higher fear of normal birth and greater incidence rates of cesarean section than the other populations, including at-risk groups (Dugowson & Holland, 1997). Also, mastery of cognitive methods of pain control could be categorized as either performance accomplishment or vicarious experience.

Verbal persuasion may be provided from numerous sources, such as health care providers, childbirth educators and significant others. One author raised the following interesting possibility regarding verbal persuasion, "I wonder if midwives' confidence comes into it-if they are confident, that confidence is passed on to the woman" (Mander as cited in Seymour, 1997, p. 56). The answer to this question may be moot to the woman giving birth yet it has important implications for health care providers, other women of childbearing age and their infants. Finally, the potentially threatening situation of pain and injury to both mother and baby during labor introduces high

emotional arousal (Lowe, 2000), but the level of arousal is still variable from woman to woman.

Bandura's theory of self-efficacy theory has been successfully applied to preventative behavior studies in the health education field including smoking cessation, eating problems and pain control (Lawrance & McLeroy, 1986). In the context of pain control, childbirth has been specifically examined. Applying this theory to the concept of childbirth, researchers believe women with high efficacy expectations (i.e., high confidence for labor) are able to utilize cognitive coping behaviors to deal with labor pain and, in turn, reduce the likelihood of medical intervention.

There is substantial evidence to support the role of maternal confidence in the utilization of cognitive coping mechanisms during childbirth (Drummond & Rickwood, 1997; Green, 1993; Lowe, 1989, 1991, 1993, 2000; Manning & Wright, 1984; Sinclair & O'Boyle, 1999). In a prospective study of over 700 women, Green (1993) found prior to labor that individuals who perceived breathing exercises would be beneficial in reducing pain were most successful using this coping mechanism. In this same study, women who reported a previous preference to avoid medication during labor were the least likely to use any labor drugs. Similar results with respect to medication were found by Manning and Wright (N = 52) (1984). These researchers reported a positive correlation ($r = .42, p < .01$) between self-efficacy expectancy prior to labor and the length of time in labor without pain medication. Additionally, Manning and Wright's (1984) study was the first empirical study to compare self-efficacy expectancies (SEE's) to outcome expectancies (OE's) with respect to pain control in childbirth. They

found SEE's predicted persistence in pain control better than OE's, but the two were closely correlated.

Lowe has also published prolifically in the area of self-efficacy and childbirth (1987, 1989, 1991, 1993, 2000). In these publications, she first builds a case for the use of self-efficacy as a potential framework in investigating childbirth pain (1987, 1989, 1991) and then demonstrates an inverse relationship between self-efficacy and childbirth pain using a measurement tool she developed (1993, 2000). Lowe (1993) developed the Childbirth Self-Efficacy Inventory which can be used to evaluate women's levels of maternal confidence for labor prior to birth. Since its development, two replication studies were conducted using the CBSEI. The first study examined Australian women (N = 100) and found that prior positive birth experiences and knowledge of childbirth were indicators of high maternal confidence for birth (Drummond & Rickwood, 1997). In addition, the authors found the CBSEI was able to differentiate between SEE's and OE's comparable to Lowe's 1993 findings (noted in Chapter 3). The second study, conducted in Northern Ireland (N = 126) also found the CBSEI was able to produce similar results in a different setting supporting its reliability and internal validity (Sinclair & O'Boyle, 1999). Additional information regarding the psychometrics of this measurement tool are discussed in Chapter 3.

Lowe's most recent publication on self-efficacy (2000) used the CBSEI to examine the interaction between self-efficacy and fear of childbirth. Consistent with Bandura's theory, women (N = 280) with higher levels of fear (n = 54) had lower levels of self-efficacy for childbirth ($p = .000$). In this study, Lowe (2000) acknowledges as a limitation, the non-generalizability her results to other cultures and socioeconomically

diverse populations. The researcher also identifies the need for further study on the development of maternal confidence of labor in nulliparous women.

Fears Associated with Childbirth

Anxiety and fear within childbirth have been discussed throughout this review, but the existing literature on the origins of these emotions deserves comment. Historically, women's fears were based on the likelihood that they or their babies would die during childbirth (Simkin, 1999). Although, morbidity rates are remarkably lower than a century ago, fear of childbirth is still predominant among women. In studies examining fears among pregnant women several common themes emerge including: fear of death of mother and/or infant, concern for the baby's well being, loss of control during labor, intolerable pain, fear of own incompetence and fear of actual delivery (Melender & Lauri, 1999; Sjogren, 1997). The latter is a predominant theme which may be a self-fulfilling prophecy as found by Monk et al. (2000). These researchers studied the effect of acute maternal stress response and anxiety on fetal heart rate and found women's stress levels during pregnancy can affect fetal heart rate (Monk et al., 2000).

The scope of the fear of childbirth indicates that prenatal education efforts focused solely on reducing pain during delivery may be naïve. As mentioned previously, a high satisfaction with birth is not merely indicative of low levels of pain (Kannan et al., 2001). Some researchers suggests that childbirth pain is not entirely a negative experience (Melender & Lauri, 1999; Waldenstrom, Bergman, & Vasell, 1996). Waldenstrom et al. (1996) studied pain in 278 Swedish women giving birth with midwives (the typical health care provider in Sweden). They found that 28% of

women, omitting women choosing elective cesareans, identified childbirth pain as more positive than negative thus, supporting the idea that coping with pain may be a rewarding experience. Whether similar results could be replicated in the United States remains to be seen. Although alleviating pain is only one component of decreasing fear and increasing confidence, it is a venue through which many interventions are channeled (Lowe, 1989).

Summary

“There is little doubt that the cognitive approach has become part of the standardized approach to treating pain” (Weisenberg, 1997, p. 54). Yet, this is not the case for the majority of women undergoing childbirth. Matched against the forceful medical and pharmacological paradigm, the cognitive approach has been slow to gain momentum for political and social reasons previously discussed. The Westernized approach to childbirth often fuels learned helplessness among pregnant women regarding labor (Lowe, 2000). Given the association between self-efficacy and decreased pain, better birth outcomes, even potential decreased risk of mother-child bonding after birth (Teti & Gelfand, 1991), it becomes clear that efforts to increase maternal confidence for childbirth would serve woman, child and nation alike.

The purpose of this study was to examine the development of maternal confidence for labor and fear of labor among nulliparous pregnant women at 8-12 weeks of gestation, 28 weeks of gestation and 37 weeks of gestation. This chapter illustrated the need for further study in the area of maternal confidence for labor. Overall, a current discrepancy exists between the clear acknowledgement in the medical

literature of high fear and low confidence among nulliparous pregnant women yet, there is a dearth of research on the gestational development of these conditions.

In Chapter 3 the research design, instrumentation, sampling procedure and data analysis will be discussed. The results of the study are presented in Chapter 4. Recommendations for future research, conclusions and a summary of the study are provided in Chapter 5.

Chapter 3

METHODOLOGY

The purpose of this study was to examine the development of maternal confidence for labor and fear of labor among nulliparous pregnant women throughout gestation. This chapter contains a detailed description of the research design, selection of research sites, participant recruitment, data collection instruments and methods. Operational definitions for statistical analyses and the procedures used to analyze the data collected will also be discussed. For purposes of clarity within this study, the scale titled “Childbirth Attitudes Questionnaire” will be hereafter referred to as the Fear of Childbirth Scale and the measure titled “Childbirth Self-Efficacy Second Stage subscale” will be referred to as the Maternal Confidence Scale.

Given the vulnerable nature of the participants for this study, a full university Institutional Review was required prior to conducting the study (Appendix A). Approval of the research design, survey questionnaires, and data collection techniques was granted by the university’s Institutional Review Board. Additional informed consent information is described in more detail in the Selection of Research Sites and Data Collection sections of this chapter.

Research Design

The present study was conducted using a quasi-experimental, multi-time series study design. In a quasi-experimental research study, the researcher does not randomly assign the groups. Instead, an analysis is conducted between an experimental group and a comparison group as opposed to a control group. This type of design was chosen for practical and ethical considerations given the sensitive nature surrounding the

participants, pregnant women. Additionally, the utilization of a pretest-posttest design allowed the researcher to study the relationships between the variables of interest over time.

Selection of Research Sites

A convenience sample of nulliparous women was recruited from a total of four sites: two private certified nurse-midwifery service centers and a large private physicians office in the Baltimore-Washington Metropolitan Area, and a comprehensive women's care center that offered both physician and midwifery care in a suburb of a large Southeastern city.

The selection of the physician site and the two midwifery sites involved compiling a list of private obstetric and gynecologic offices and birthing centers represented in the Maryland Suburban Bell Atlantic Yellow pages. Additional potential sites were identified through referrals and both local and Internet medical directories. Those offices that were beyond a 60-mile radius of College Park, Maryland were eliminated for commuting convenience. Letters were sent to each potential site explaining the study along with a return facsimile form to indicate interest in the study (Appendix B). Follow-up telephone calls were made one week later to repeat inquiry about participation to non-responders. A total of 65 offices and birthing centers were personally contacted. The sites that indicated interest via the return facsimile were contacted and provided with more information. For the three designated sites in Washington, D.C., previously mentioned, participation was confirmed and a contact person was established.

The Southeastern comprehensive women's health center was identified as a potential site due to the large volume of clientele it services and the availability of separate and combined care it provided with respect to midwives and physicians. Additionally, although the site is beyond a 60-mile commuting radius, the researcher had previously established a working relationship with a health care provider at this site who served as the study's site supervisor and the location's contact person. Approval to conduct the study was granted from the center's director upon request. In addition, approval was granted by the principal investigator's University Institutional Review Board as previously mentioned.

Recruitment of Participants

Prior to recruitment, permission to conduct the study was granted from each organization's internal review board. Due to time and personnel restrictions, the consent forms and pretest questionnaires at three of the four sites were distributed by the receptionists to women during check-in at the first prenatal visit. At the fourth site, the private physicians' practice, the consent form and 8-12 week pretest questionnaire (Appendix C) were distributed by a nurse practitioner during the prenatal in-take session. The consent form explained the study, requested subject participation and offered a gift incentive upon completion of each interval of the study (8-12 weeks, 28 weeks, and 37 weeks).

The estimated approximate sample size for the study was 150 women. This number was based on the information extracted from each site's annual reports and personal communication with each site contact person. The comprehensive health care clinic, in conjunction with its two other additional offices, served 790 births in 1999.

Sixty-seven percent of these births were attended by midwives and 33% were physician-attended. It is important to note that the care provider at delivery may not reflect the type of care a woman received throughout pregnancy. The comprehensive clinic offered women a choice of prenatal care options: exclusively based physician care, exclusively based midwifery care and a combination of the two. The type of care women at this site received throughout their pregnancy was tracked by self-report at each time interval.

Based on the data from 1991-1996, one of the two midwifery sites had an average of 68 births per year for first time mothers. At the time data collection began, these data were not available from the second midwifery clinic which opened in 1998. In 2002, the physician-based site delivered an average of 30 babies a month according to the site contact person. The number of these women who were first time mothers was unattainable.

An additional factor that must be addressed when discussing the proposed sample size is retention rate. At the distribution of the pretest, women were in their care providers' office (i.e., a captured audience). The posttests were distributed by mail which compounds the problem of attrition. However, to compensate for this disadvantage, reminder phone calls were made to non-responders one week after mailing each posttest.

All three questionnaires were similar in content and contained two scales (i.e., Maternal Confidence scale and Fear of Childbirth scale). The pretest also contained questions regarding several exploratory variables and demographic information. The

questionnaires are described in more detail in the Instrumentation section of this chapter.

Supplemental Recruitment Procedures

Due to unseen world events (i.e., September 11, 2001 terrorist attacks; the Anthrax outbreak at Washington Metropolitan postal facilities; Washington, D.C. sniper attacks; and the war on Iraq), heighten security alerts were issued for the Washington, D.C. area over the course of the Fall, 2001 through Spring 2003. As part of these alerts, residents were warned to be suspicious of the receipt of any unexpected packages or envelopes delivered by the United States Postal Service. Nationally and regionally, there was an increased fear of contamination of biological agents transmitted via the U.S. Mail. These events may have effected response rates to the mail questionnaire portion of this study. In response to the above mentioned events and low enrollment rates, supplemental recruitment procedures described below were employed.

Additional study participants from the suburban Washington, D.C. community were recruited based on two criteria, week of gestation and parity. Enrollment was not restricted to site locations or type of prenatal care provider as it was in previous initial recruitment efforts. A variety of procedures were used including word of mouth referrals, e-mail list-serves, participant snowball recruitment, and both grass roots and paid community advertising. Advertising flyers (Appendix D) containing a contact number were displayed in, and distributed to 47 local Metropolitan Washington, D.C. venues including the following: community centers, crisis pregnancy clinics, primary care clinics, churches, supermarkets, libraries, community bulletin boards, and women's and mother's clubs and organizations. A similar advertisement ran weekly in an urban

city newspaper for three months, five times in a university newspaper, and once in the health section of a major city paper.

Instrumentation

The two primary instruments used in this study were the Maternal Confidence scale and the Fear of Childbirth scale. These two instruments are described individually in the sections below. Based on a literature review, the researcher determined a need for additional related items on pregnancy as well as demographic information. Thus, the Maternal Confidence and the Fear of Childbirth scales were coupled with additional sections created by the researcher to comprise the three-part survey instrument for this study (Appendix C). Information regarding the reliability and validity of these sections is included in the Pilot Studies section of this chapter.

A five minute telephone questionnaire, designed to measure actual birth outcomes and perceptions of labor, was administered two weeks postpartum. A copy of the telephone questionnaire, which consisted of eleven questions primarily open-ended, can be found in Appendix E.

Maternal Confidence Scale

The Maternal Confidence scale is a sub-scale of the Childbirth Self-Efficacy Inventory (CBSEI). Based on Bandura's theory of self-efficacy, the CBSEI is a 62-item self-report instrument with four sub-scales and two total scores:

Sub-Scales

1. Outcome Expectancy Active Labor
2. Self-Expectancy Active Labor
3. Outcome Expectancy Second Stage
4. Self-Expectancy Second Stage (referred to as Maternal Confidence Scale within this study)

Total Scores

1. Childbirth Outcome Expectancy
2. Self-Efficacy Expectancy

Since its development in 1993, the CBSEI has been shown to be a valid and reliable measure of childbirth self-efficacy among pregnant American women (Lowe, 2000) as well as women in Northern Ireland (Sinclair & O'Boyle, 1999) and Australia (Drummond & Rickwood, 1997). As previously mentioned, this study only utilized the 16-item Maternal Confidence Scale of the CBSEI. This scale measures self-efficacy expectancies for coping with an approaching childbirth on a 10-point probability scale. The possible score range is 16-160 and higher scores represent higher self-efficacy.

The psychometrics of this sub-scale were derived from a study of 382 women attending community-based, childbirth classes in their third trimester of pregnancy. The reliability for this scale was found to be internally consistent with Cronbach's alpha coefficient measuring .95. The temporal reliability was also measured and found to have a significant correlation of .69 ($p < .01$) in a short-term (two week) test-retest of 69 subjects (Lowe, 1993). A factor analysis was conducted on all the sub-scales to test the construct validity of CBSEI. The results suggested the Inventory was unidimensional. Specifically for the Maternal Confidence Scale, it revealed that when one factor with the eigenvalue equal to 8.78 was extracted, 54.9% of the variance was explained (Lowe, 1993). Finally, when measured against the existing benchmark criteria of Generalized Self-Efficacy, Self-Esteem and Internal Health Locus of Control, the Maternal Confidence Scale's construct validity was positively correlated with all of the above ($r = .28, .22, .25$ respectively; $p \leq .002$) (Lowe, 1993).

Fear of Childbirth Scale

Harman (1988) adapted the Childbirth Attitudes Questionnaire (referred to as Fear of Childbirth Scale within the study) from Areskog and colleagues' (1982) instrument designed to measure fear of childbirth (Lowe, 2000). This Fear of Childbirth Scale is a 15-item questionnaire with a response scale of 1-4 with higher scores representing higher fear. The possible score range is 15-60. Reliability and validity estimates for the Fear of Childbirth Scale were not provided by Harman. However, Lowe (2000) found the Fear of Childbirth Scale to have an internal consistency reliability estimate of .83 in her study of 280 nulliparous women attending childbirth education classes after 28 weeks of gestation (Lowe, 2000). These results were attained after Lowe added a similarly formatted additional summary question to the scale ("Overall, I would rate my anxiety of childbirth as..."). This ultimately increased the possible score range to 16-64.

Pilot Studies

Conducting pilot studies evaluates the comprehension, personal relevance, sensitivity, and the strong and weak points of a questionnaire prior to the distribution on a larger scale (USDHHS, 1992). The researcher drafted a questionnaire that consisted of four sections: 1) a demographic section, 2) a section measuring efficacy expectations, 3) the 16-question Maternal Confidence scale, and 4) a 16-question scale measuring Fear of Childbirth. Each individual scale has been previously pretested.

To obtain feedback on the draft questionnaire, it was pretested first with three individual women who had given birth within the past year and then with attendees of three different prenatal classes (N=27); a Lamaze class (n=9), a hypnobirthing class

(n=6) and a prenatal yoga class (n=12). At each pilot session, the pretest questionnaire (the 8-12 gestation week questionnaire) was distributed to the class by the researcher along with a cover sheet containing an explanation of the purpose of the pilot test and multi-level questions designed to elicit feedback from the respondents about the pilot version of the questionnaire (Appendix F). Small gift incentives were provided to the participating women in each pilot session.

The pilot tests resulted in minor improvements to the pretest questionnaire's grammar, terminology and scope of the Likert scale items. No changes were made to the fear or maternal confidence portions of the questionnaire. Overall, the pilot tests showed the readability and clarity of the items to be satisfactory. The content of each posttest questionnaire was comparable to the pretest questionnaire. As a result, pilot tests were not performed on either posttest questionnaire.

The pretest questionnaire (8-12 weeks) consisted of: a demographic section; a section measuring factors influencing efficacy expectations (emotional support, relaxation techniques, attendance at a childbirth preparation class, perceived childbirth knowledge, importance of a medicine-free birth and past history of physical pain); inclusion criteria (presence of medical conditions associated with pregnancy), background variables (pregnancy history and prior birth experiences; expectancy of conception; type of birth attendant and reason for choice of birth attendant; and method of payment for prenatal care); the 16-question Maternal Confidence scale and a 16-question section measuring fear of childbirth.

In the first posttest questionnaire (28 weeks), the demographic and background sections were omitted with the exception of one question on marital status. The

rationale for repeatedly measuring marital status was based on the concept that changing marital status may impact, positively or negatively, a pregnant woman's emotional support network. Efficacy expectations of relaxation techniques and past history of physical pain were omitted from the posttests to reduce contamination of the data. An opening item was added to each posttest to identify whether or not the woman had miscarried or undergone early delivery since the completion of the last questionnaire. Two additional questions designed to measure changes in the type of prenatal care provider (e.g., midwife versus physician) were also included. Each posttest also contained three questions regarding childbirth preparation classes (e.g., type of class). The second posttest questionnaire (37 weeks) was identical to the first posttest with the exception of one supplemental question which was added to assess the continuity of visits to the health care provider. The women who miscarried after completing the pretest were omitted from the study. Women had to complete all three questionnaires to be deemed eligible.

Postpartum Analysis

To examine the final outcome of labor, delivery and birth, follow-up telephone interviews were conducted within two weeks of the women's estimated due date. The questionnaire was comprised of 11 open-ended and close-ended questions designed to capture participant's reactions to the final outcome of their own birth experiences. Birth statistics such as type of delivery, use of medication and alternative pain reduction techniques were also collected as well as qualitative self-descriptions of the experience. Specifically, women were asked to describe their birth experience in two words and to identify any aspects of the birth experience they would have liked to change if possible.

Data Collection

Most women tend to seek prenatal care during the first trimester of pregnancy (USDHHS, 2000). Women who expressed an interest in enrolling in the study either at their health care provider's office or by responding by telephone to the recruitment advertisements, were provided with a cover letter explaining the study, a consent form, the pretest survey and a list of mental health and pregnancy support resources. For the women recruited at their care providers' offices, the receptionist or nurse practitioner collected the materials after completion. Women responding to the recruitment advertisements via telephone were mailed the materials along with a self-addressed stamped return envelope.

Women meeting the standard medical classifications for a high-risk pregnancy were excluded from the study (e.g., multiple births, diabetes, etc.). The rationale for excluding these women was based on the concept that women with high-risk pregnancies have a greater chance for high-risk deliveries and, thus, may be more fearful and less confident regarding their deliveries than women without high-risk pregnancies. All women who completed the pretest, regardless of eligibility, were mailed additional posttest questionnaires containing a self-addressed stamped return envelope at both their 28th and 37th week of gestation. Data collected from ineligible participants were omitted from analyses but all women who completed questionnaires were entered into an incentive raffle. Follow-up telephone calls to non-responders were made one week after mailing each of these questionnaires. Additionally, in certain circumstances when low mail response rates were anticipated (i.e., holidays, after the

Anthrax outbreak) courtesy calls were placed to participants prior to mailing out questionnaires to alert them of the upcoming arrival of the questionnaires.

Data Analysis

Operational Definitions for Analysis

The independent variables for this study included demographic items, type of prenatal care, attendance at childbirth preparation class, perceived childbirth knowledge, history of using relaxation techniques, history of physical pain, importance of a medicine free birth and emotional support from partner. The scores on the Maternal Confidence scale and the Fear of Childbirth scale comprised the dependent variables. In this study, the inter-relationships among these variables were investigated over three intervals; 8-12 weeks of gestation, 28 weeks of gestation and 37 weeks of gestation.

Statistical Analyses

The computer software program Statistical Package for the Social Sciences (SPSS) was used to analyze the data from this study. Both descriptive and inferential statistics were employed to answer the questions posed by the researcher.

Descriptive statistics including frequency tables, mean, median, and mode calculations were used to characterize any differences between each provider group at the time of the pretest and among women who were unable to be followed (i.e., only completed a pretest). Frequency analyses were conducted to verify the completeness and accuracy of the data. In addition, frequencies and percentages were performed on demographic data. The inferential statistics used to test the research hypotheses and sub-hypotheses are described in detail in Chapter 4.

Summary

This chapter described the methodology utilized for the study. The overall research design was stated in the beginning of this chapter. Detailed accounts of the pilot studies, selection of research sites and the recruitment of subjects were provided. Finally, the psychometrics of the research instruments, techniques of data collection and data analysis were discussed.

In Chapter 4, the results of the study are reported. Chapter 5 provides a brief summary of the study, conclusions, implications for the field of health education and recommendations for future research studies.

Chapter 4

ANALYSIS

The purpose of this study was to examine the development of maternal confidence for labor and fear of labor among nulliparous pregnant women at 8-12 weeks of gestation, 28 weeks of gestation and 37 weeks of gestation. Quantitative and qualitative findings of this study are presented in this chapter. These include response and completion rates, a description of the sample, reliability, item analysis, baseline comparisons, analyses of research hypotheses, exploratory predictor variables and a postpartum analysis. All analytical tests were conducted at the .05 level of significance.

Response and Completion Rates

In an effort to increase sample size, three research strategies were utilized. First, the time frame for enrolling subjects was lengthened from an estimated 12 months to 22 months. The study utilized a rolling admission technique and data were collected from August, 2001 through June, 2003. Second, the exclusion criteria were modified. Women were not excluded from the sample for meeting the standard medical classifications for a high-risk pregnancy. However, women meeting this criteria were analyzed separately to examine the effect of medical condition on maternal confidence for labor and fear of childbirth. The results of this analysis are presented later in this chapter. The third strategy used to increase sample size was the utilization of supplemental recruiting procedures such as word of mouth referrals, list-serves, and local advertising.

The use of a two-tiered recruiting approach, which was described in greater detail in Chapter 3, impeded the calculation of a true response rate for this study.

Although, as part of the initial recruiting approach, each of the four recruitment sites was provided with 25 questionnaires, it was not feasible for site staff to monitor the distribution of the questionnaires because of time restrictions. As a result, women may have received an 8-12 week questionnaire at their care provider's office but not completed it. Additionally, the total number of women reached through the supplemental recruiting procedures such as the distribution of recruitment flyers and word of mouth cannot be accurately calculated. However, by tracking how participants who completed and returned the first questionnaire initially became aware of the study, the researcher was able to determine that approximately half of the women (55%) were recruited through the supplemental procedures. A total of 96 women received the 8-12 week questionnaire either by mail or at their care providers' office.

Similar to response rates, completion rates measure data quality and reflect participant motivation. Completion rates were separately calculated for each mail questionnaire (8-12 weeks, 28 weeks, and 37 weeks) in an effort to further investigate the quality of the data. Results are shown in Table 1. The completion rate for the first questionnaire was 90%, 86 of the 96 women who received the 8-12 week questionnaire completed and returned it in the mail. One woman miscarried before returning her completed 8-12 week questionnaire. Thirty two women did not complete all three questionnaires. Eight women, who completed all three questionnaires, were ineligible because they had already given birth to a viable infant. As a result, the sample size for this study was 46 nulliparous women, all of whom completed questionnaires at 8-12 weeks of gestation, 28 weeks of gestation and 37 weeks of gestation.

Table 1

Completion Rates for 8-12 Week, 28 Week and 37 Week Questionnaires (N = 86)

Questionnaires Completed	N	(%)
8-12 week only	9	(10.5)
28 week only	3	(3.5)
37 week only	1	(1.2)
8-12 week and 28 week	4	(4.7)
28 week and 37 week	11	(12.8)
8-12 week and 37 week	4	(4.7)
8-12 week, 28 week and 37 week	54	(62.8)

Note: Percentages may not add up to 100% due to rounding.

Description of the Sample

Table 2 presents the demographic data for the sample collected at 8-12 weeks. The majority of the respondents were white, college-educated, married women averaging 29 years of age with a combined household income of over \$60,000.

A baseline demographic comparison of the women who received prenatal care from physicians or nurse practitioners versus women who received care from nurse midwives revealed that the women in the study who received midwifery care were, on average, less ethnically diverse, better educated, younger women with less annual household income than women receiving prenatal care from physicians or nurse practitioners. The two groups were similar with respect to marital status. Table 3 presents the demographic data for the two health care provider groups.

Demographic characteristics for women who completed either one or two of the questionnaires were compared to those women who completed all three questionnaires. Women who completed all three questionnaires did not differ demographically from those women who completed only one or two of the questionnaires with the exception that they were slightly younger (26 years of age).

On each questionnaire, women were asked to report any medical condition which may be indicative of a high-risk labor and birth (e.g., gestational diabetes, pre-eclampsia). Although some responses did not meet the clinical category of “high risk birth” such as asthma, all self-reported conditions were categorized as a medical condition. This decision was based on the rationale that if a woman self-identified as having a “medical condition” that places her at risk, she may be psychologically at higher risk. Responses from the 8-12 week, 28 week and 37 week questionnaires were

Table 2

Demographic Characteristics of Respondents (N = 46)

Category	Respondents	
	N	(%)
Age (years) ¹		
18-20	4	(8.7)
21-25	6	(13.0)
26-30	19	(41.3)
31-35	12	(26.1)
36-40	3	(6.5)
41-45	2	(4.3)
Race		
African American/Black	9	(19.6)
Asian/Pacific Islander	1	(2.2)
Hispanic	3	(6.5)
White	33	(71.7)
Marital Status ²		
Married	32	(69.6)
Single, never married	10	(21.7)
Separated	1	(2.2)
Living with partner	3	(6.5)
Education		
Some high school	4	(8.7)
High school degree	2	(4.3)
Some college	6	(13.0)
College degree	9	(19.6)
Some graduate school	9	(19.6)
Graduate degree	16	(34.8)
Income ³		
Less than \$9,000	6	(13.0)
\$9,000-23,000	2	(4.3)
\$24,000-38,000	4	(8.7)
\$39,000-60,000	7	(15.2)
Greater than \$60,000	26	(56.5)

¹Percentages may not add up to 100% due to rounding.²Marital Status reported at 8-12 weeks.³Not all percents add up to 100% because of 1 missing case.

Table 3

Demographic Characteristics of Respondents by Health Care Provider (N = 46)

Category	(%) Respondents by Health Care Provider	
	Midwives N = 13	Physician or Nurse Practitioner N = 33
Age (years) ¹		
18-20	(23.1)	(3.0)
21-25	(7.7)	(15.2)
26-30	(61.6)	(33.4)
31-35	(7.7)	(33.4)
36-40	-	(9.0)
41-45	-	(6.0)
Race		
African American/Black	(15.4)	(21.2)
Asian/Pacific Islander	-	(3.0)
Hispanic	(7.7)	(6.1)
White	(76.9)	(69.7)
Marital Status ^{1,2}		
Married	(61.5)	(72.7)
Single, never married	(23.1)	(21.2)
Separated	-	(3.0)
Living with partner	(15.4)	(3.0)
Education ¹		
Some high school	(23.1)	(3.0)
High school degree	-	(6.1)
Some college	(15.4)	(12.1)
College degree	(15.4)	(21.2)
Some graduate school	-	(27.3)
Graduate degree	(46.2)	(30.3)
Income ^{1,3}		
Less than \$9,000	(23.1)	(9.1)
\$9,000-23,000	(7.7)	(3.0)
\$24,000-38,000	(7.7)	(9.1)
\$39,000-60,000	(15.4)	(15.2)
Greater than \$60,000	(46.2)	(60.6)

¹Percentages may not add up to 100% due to rounding.²Marital Status reported at 8-12 weeks.³Not all percents add up to 100% because of 1 missing case.

recoded into the categories “medical condition” and “no medical condition.” Six independent t-tests were conducted to compare the means for scale scores at each point of gestation. No significant differences in Maternal Confidence scores (Table 4) and Fear scores (Table 5) were detected based on self-reported standard medical conditions for a high risk pregnancy.

Reliability

The internal consistency reliability of the Maternal Confidence Scale and the Fear of Childbirth Scale was determined by Cronbach’s Alpha. Based on the raw scores for the 16 item Maternal Confidence Scale, Alpha was equal to .97 at 8-12 weeks, .95 at 28 weeks, and .94 at 37 weeks. For the Fear of Childbirth scale, Alpha equaled .87 at 8-12 weeks, .86 at 28 weeks and .83 at 37 weeks. Test-retest reliability was also determined by measuring reliability at 8-12 weeks, 28 weeks and 37 weeks. Tables 6 and 7 present the test-retest coefficients for each scale. It is important to note that the time lapse between test scores was greater than one month and thus, differences in correlation coefficients may reflect changes in true scores and not differences in test-retest reliability.

Item Analyses

Gross Maternal Confidence scores were achieved by tallying respondent scores on the 16-item scale at each time period, 8-12 weeks, 28 weeks and 37 weeks. Gross Fear of Childbirth scores were achieved using the same procedures. Three respondents had a total of four missing items (1 questionnaire item from Maternal Confidence scale and 3 questionnaire items from Fear scale). The missing item for each scale was

Table 4

Mean Scores on the Maternal Confidence Scale Throughout Gestation by Medical Condition

Description	Mean	SD	t	p
<u>8-12 weeks</u>				
No medical condition (N = 32)	92.3	31.6	-.437	.664
Medical condition (N = 14)	97.1	39.1		
<u>28 weeks</u>				
No medical condition (N = 32)	102.4	25.5	-1.23	.226
Medical condition (N = 14)	112.1	23.2		
<u>37 weeks</u>				
No medical condition (N = 32)	108.3	25.6	-.713	.480
Medical condition (N = 14)	114.1	25.2		

Table 5

Mean Scores on the Fear of Childbirth Scale Throughout Gestation by Medical Condition

Description	Mean	SD	t	p
<u>8-12 weeks</u>				
No medical condition (N = 32)	32.8	9.18	.652	.518
Medical condition (N = 14)	31.0	7.79		
<u>28 weeks</u>				
No medical condition (N = 32)	30.9	7.71	-.093	.927
Medical condition (N = 14)	31.1	7.53		
<u>37 weeks</u>				
No medical condition (N = 32)	30.0	7.08	-.025	.980
Medical condition (N = 14)	30.0	6.26		

Table 6

Test-retest Coefficients for Maternal Confidence Scores over Time

Maternal Confidence Scores	8-12 weeks	28 weeks	37 weeks
8-12 weeks	1.0		
28 weeks	.422	1.0	
37 weeks	.438	.730	1.0

Table 7

Test-retest Coefficients for Fear of Childbirth Scores over Time

Fear of Childbirth Scores	8-12 weeks	28 weeks	37 weeks
8-12 weeks	1.0		
28 weeks	.413	1.0	
37 weeks	.736	.639	1.0

imputed using average respondent scores for the item from the corresponding time period. In cases where respondents circled multiple responses for the questionnaire items (three respondents, a total of eight different questionnaire items), an average of the two response items was calculated and used to tally the respondents' total score. Several variables were ascertained at each time period (importance of a medicine free birth, emotional support from partner, perceived childbirth knowledge and marital status). For purposes of clarity, the respondents' response from the 37 week questionnaire was used for analysis unless otherwise indicated.

Baseline Comparisons

Prior to addressing the research hypotheses 1.1 and 2.1, two separate t-tests were performed to determine whether or not there were any differences at baseline with respect to women receiving care from physicians/nurse practitioners and women receiving care from nurse midwives. Table 8 showed there was no significant difference ($t = .222$, $p = .826$) in the Maternal Confidence scores at 8-12 weeks between women who would receive the majority of their care from physicians or nurse practitioners compared with women identifying nurse midwives as their primary caregivers. There was a significant difference in Fear of Childbirth scores between the two health care provider groups at baseline. Table 9 demonstrated that the Fear scores for the nurse midwife group were significantly higher at 8-12 weeks than the physician group ($t = -2.25$, $p = .030$).

Hypothesis 1

- 1) Maternal confidence for labor (as measured by the Maternal Confidence Scale) is likely to change as pregnancy progresses.

Table 8

Mean Scores on the Maternal Confidence Scale at 8-12 Weeks of Gestation

Description	Mean	SD
Women receiving prenatal care from physicians or nurse practitioners (N = 33)	94.5	32.9
Women receiving prenatal care from midwives (N = 13)	92.0	37.0

t = .222, p = .826

Table 9

Mean Scores on the Fear of Childbirth Scale at 8-12 Weeks of Gestation

Description	Mean	SD
Women receiving prenatal care from physicians or nurse practitioners (N = 33)	30.5	7.5
Women receiving prenatal care from midwives (N = 13)	36.7	10.3

t = -2.25, p = .030

Table 10 showed there was a statistically significant increase in Maternal Confidence scores (i.e., increase in confidence) from 8-12 weeks of gestation to 37 weeks ($t = -3.45, p = .001$). Hypothesis 1 was supported. One can see from Table 10 that the greatest increases in maternal confidence occurred from 8-12 weeks to 28 weeks. These changes were also statistically significant ($t = -2.43, p = .019$).

Hypothesis 1.1

1.1 Women who obtain prenatal care from nurse-midwives will demonstrate higher levels of maternal confidence at the second posttest than women receiving care from physicians.

Table 11 showed that mean maternal confidence scores at all three points of gestation for women receiving care from nurse-midwives were lower than the confidence scores for women in the physician and nurse practitioner provider group. However, none of these differences were statistically significant at the .05 level. Hypothesis 1.1 was not supported.

Hypothesis 2

2. Fear of childbirth (as measured by the Fear of Childbirth scale) is likely to change as pregnancy progresses.

Table 12 showed there was a statistically significant decrease in Fear of Childbirth scores (i.e., decrease in fear) from 8-12 weeks of gestation to 37 weeks ($t = 2.65, p = .011$). Hypothesis 2 was supported. Although Fear scores decreased from 8-12 weeks to 28 weeks, these changes were not statistically significant. Changes in Fear of Childbirth scores from 28 weeks to 37 weeks were negligible and not statistically significant.

Table 10

Mean Scores on the Maternal Confidence Scale Throughout Gestation

Paired Samples	Mean	SD	t	p
8-12 weeks	93.8	33.7	-2.43	.019**
28 weeks	105.3	25.0		
28 weeks	105.3	25.0	-1.74	.089
37 weeks	110.1	25.4		
8-12 weeks	93.8	33.7	-3.45	.001***
37 weeks	110.1	25.4		

** significant at the .01 level *** significant at the .001 level

Table 11

Mean Scores on the Maternal Confidence Scale Throughout Gestation by Health Care Provider

Description	Mean	SD	t	p
<u>8-12 weeks</u>				
Physician or Nurse Practitioner (N = 33)	94.5	32.9	.222	.826
Nurse Midwife (N = 13)	92.0	37.0		
<u>28 weeks</u>				
Physician or Nurse Practitioner (N = 33)	108.36	25.0	1.32	1.95
Nurse Midwife (N = 13)	97.7	24.0		
<u>37 weeks</u>				
Physician or Nurse Practitioner (N = 33)	112.6	24.8	1.09	.283
Nurse Midwife (N = 13)	103.6	26.8		

Table 12

Mean Scores on the Fear of Childbirth Scale Throughout Gestation

Paired Samples	Mean	SD	t	p
8-12 weeks 28 weeks	32.3 30.9	8.7 7.6	1.01	.316
28 weeks 37 weeks	30.9 30.0	7.6 6.8	1.09	.281
8-12 weeks 37 weeks	32.3 30.0	8.7 6.8	2.65	.011**

** significant at the .01 level

Hypothesis 2.1

2.1 Women who obtain prenatal care from nurse-midwives will demonstrate lower levels of fear at the second posttest than women receiving care from physicians.

Table 13 showed that Fear scores were lower among women seeking care from physicians or nurse practitioners compared to women seeking care from nurse-midwives at all three points of gestation. However, the differences were only statistically significant at 8-12 weeks ($t = -2.25, p = .030$). Thus, hypothesis 2.1 was not supported.

Hypotheses 1.2 -1.7

1.2 Women with higher levels of perceived knowledge will demonstrate higher levels of maternal confidence at second posttest than women who have lower levels of perceived knowledge.

1.3 Women who attend a childbirth preparation class will demonstrate higher levels of maternal confidence at the second posttest than women who do not attend a class.

1.4 Women who practice relaxation techniques on a regular basis (at 8-12 weeks of pregnancy) will demonstrate higher levels of maternal confidence at the second posttest than women who do not.

1.5 Women with a previous history of high levels of physical pain (at 8-12 weeks of pregnancy) will demonstrate a higher level of maternal confidence at the second posttest than those women who have no prior experience with high levels of physical pain.

1.6 Women who report a higher level of importance for a medication-free birth will demonstrate higher levels of maternal confidence at the second posttest than women for whom a medication-free birth is not as important.

Table 13

Mean Scores on the Fear of Childbirth Scale Throughout Gestation by Health Care Provider

Description	Mean	SD	t	p
<u>8-12 weeks</u>				
Physician or Nurse Practitioner (N = 33)	30.5	7.5	-2.25	.030*
Nurse Midwife (N = 13)	36.7	10.3		
<u>28 weeks</u>				
Physician or Nurse Practitioner (N = 33)	30.0	7.3	-1.36	.181
Nurse Midwife (N = 13)	33.3	8.0		
<u>37 weeks</u>				
Physician or Nurse Practitioner (N = 33)	29.3	6.2	-1.09	.282
Nurse Midwife (N = 13)	31.7	8.0		

* significant at the .05 level

1.7 Women with a higher level of emotional support from their birth partners will demonstrate higher levels of maternal confidence at the second posttest than women with lower levels of emotional support.

To analyze research questions 1.2 through 1.7, five separate correlations were performed. Table 14 shows the correlation matrix for these variables. Maternal Confidence scores were significantly correlated with knowledge at 37 weeks of gestation at the .01 level ($r = .394$, $p = .007$). Hypotheses 1.2 was supported. As expected, this relationship was positive, Maternal Confidence scores increased as knowledge scores increased. The independent variables, childbirth preparation class, relaxation techniques, history of pain, importance of medicine-free birth, and emotional support were not significantly correlated with Maternal Confidence scores. However, the correlation between attendance at a childbirth preparation class and maternal confidence approached significance ($r = .289$, $p = .054$). An independent t-t-test of these two variables was conducted to further examine this relationship and the results did not indicate a significant relationship at the .05 level ($t = 1.98$, $p = .054$). Thus, Hypotheses 1.3 through 1.7 were not supported.

Hypotheses 2.2 –2.7

2.2 Women with higher levels of perceived knowledge will demonstrate lower levels of fear at the second posttest than women who have lower levels of perceived knowledge.

2.3 Women who attend a childbirth preparation class will demonstrate lower levels of fear at the second posttest than women who do not attend a class.

Table 14

Correlation Matrix for Maternal Confidence Scores and Predictor Variables

Predictor Variable	Maternal Confidence Score (37 weeks)	Level of Childbirth Knowledge	Childbirth Preparation Class	Relaxation Techniques	History of Physical Pain	Importance of a Medication-Free Birth	Emotional Support
Maternal Confidence Score (37 weeks)	1.00						
Level of Childbirth Knowledge	.394**	1.00					
Childbirth Preparation Class	.289	.274	1.00				
Relaxation Techniques	.135	.050	.094	1.00			
History of Physical Pain	.077	-.184	-.107	.076	1.00		
Importance of a Medication-Free Birth	.132	.177	.073	.125	.177	1.00	
Emotional Support	.094	.326*	-.024	-.337*	-.020	.062	1.00

* significant at the .05 level

**significant at the .01 level

2.4 Women who practice relaxation techniques on a regular basis (at 8-12 weeks of pregnancy) will demonstrate lower levels of fear at the second posttest than women who do not.

2.5 Women with a previous history of high levels of physical pain (at 8-12 weeks of pregnancy) will demonstrate a lower level of fear at the second posttest than those women who have no prior experience with high levels of physical pain.

2.6 Women who report a higher level of importance for a medication-free birth will demonstrate lower levels of fear at the second posttest than women for whom a medication-free birth is not as important.

2.7 Women with a higher level of emotional support from their birth partners will demonstrate lower levels of fear at the second posttest than women with lower levels of emotional support.

To analyze research questions 2.2 through 2.7, five separate correlations were performed to measure the strength and direction of the relationships between the dependent variable (fear) and the six independent variables (level of childbirth knowledge, childbirth preparation class, relaxation techniques, history of physical pain, importance of a medication-free birth and emotional support). Table 15 showed the correlation matrix for these variables.

Fear scores were not significantly correlated with the six independent variables. Hypotheses 2.2 through 2.7 were not supported. Significant correlations between emotional support from a birth partner and the variables, knowledge at 37 weeks and relaxation techniques were detected at the .05 level. The relationship between

Table 15

Correlation Matrix for Fear of Childbirth Scores and Predictor Variables

Predictor Variable	Fear of Childbirth Score (37 weeks)	Level of Childbirth Knowledge	Childbirth Preparation Class	Relaxation Techniques	History of Physical Pain	Importance of a Medication-Free Birth	Emotional Support
Fear of Childbirth Score (37 weeks)	1.00						
Level of Childbirth Knowledge	.010	1.00					
Childbirth Preparation Class	.085	.274	1.00				
Relaxation Techniques	.013	.050	.094	1.00			
History of Physical Pain	-.004	-.184	-.107	.076	1.00		
Importance of a Medication-Free Birth	.085	.177	.073	.125	.177	1.00	
Emotional Support	.133	.326*	-.024	-.337*	-.020	.062	1.00

* significant at the .05 level

knowledge at 37 weeks and attending a childbirth preparation approached significance ($r = .274, p = .068$).

Hypothesis 3

3. Throughout gestation, women with higher levels of self-efficacy (i.e., maternal confidence) for childbirth will have lower levels of fear of childbirth. In analyzing this research question, a correlation procedure was performed to determine if a relationship between these two variables existed. By definition, the presence of a correlation may lead to the ability to estimate one variable by measuring another. Table 16 showed Maternal Confidence scores and Fear of Childbirth scores were significantly correlated ($p < .05$) at all three time intervals of gestation, 8-12 weeks, 28 weeks and 37 weeks. It is important to note that the correlations at 28 and 37 weeks were significant at the .01 level. As expected, the nature of the relationship between the two scale scores was inverse. Hypothesis 3. was supported.

Exploratory Predictor Variables

Responses for the following items were analyzed at face numerical value: perceived knowledge of childbirth, emotional support from birth partner and importance of a medication-free birth. The first two variables were measured on a Likert scale from 1-10 with one being the lowest level of knowledge or emotional support and 10 being the highest. For the medication-free variable, the response categories (strongly agree, agree, neither agree nor disagree, strongly disagree and disagree) were collapsed into the dichotomous variables, agree and disagree. Neutral responses (i.e., “Neither agree nor disagree”) responses were recoded into the disagree category. This decision was based on the rationale that women who definitively affirmed their choice of a

Table 16

Correlation of Maternal Confidence and Fear of Childbirth Scales over Time

Scale	Fear of Childbirth Scale (8-12 weeks)	Fear of Childbirth Scale (28 weeks)	Fear of Childbirth Scale (37 weeks)
Maternal Confidence Score (8-12 weeks)	-.373*		
Maternal Confidence Score (28 weeks)		-.596**	
Maternal Confidence Score (37 weeks)			-.413**

* significant at the .05 level **significant at the .01 level

medicine-free birth differed from those women who were ambivalent or did not place a high level of importance on a medicine-free birth.

Mean perceived knowledge scores and emotional support scores for each gestation interval are shown in Table 17. As expected, perceived knowledge scores increased over time. The overall increase from 8-12 weeks to 37 weeks was statistically significant at the .001 level ($t = -7.07$, $p = .000$) with each time interval (8-12 weeks to 28 weeks and 28 weeks to 37 weeks) reaching statistical significance at the .001. ($t = -4.60$, $p = .000$; $t = -4.19$, $p = .000$, respectively). The greatest score interval increase occurred between 8-12 weeks and 28 weeks (5.86 to 7.13 points). Similar to perceived knowledge, emotional support scores increased throughout gestation (8-12 weeks to 37 weeks) although the increases were of a lesser magnitude and not significant ($t = .162$, $p = .872$).

Throughout gestation the majority of women did not agree with the statement, “A medication-free birth is important to me.” However, the number of women who agreed with this statement increased over time from 15% women at 8-12 weeks of gestation to 26% of women at 37 weeks of gestation. This increase was not found to be statistically significant ($\chi^2 = 1.66$, $p = .200$) This pattern of increased importance of a medicine-free birth continued when women were analyzed by type of health care provider with one exception. The number of women who agreed with the statement and who received prenatal care from nurse midwives did not change from 28 weeks of gestation to 37 weeks of gestation.

Table 17

Mean Knowledge and Emotional Support Scores Throughout Gestation

Description	Mean	SD	t	p
<u>Knowledge Scores</u>				
8-12 weeks	5.86	1.84	-4.60	.000***
28 weeks	7.13			
28 weeks	7.13	1.46	-4.19	.000***
37 weeks	7.89			
8-12 weeks	5.86	1.22	-7.07	.000***
37 weeks	7.89			
<u>Emotional Support</u>				
8-12 weeks	9.13	1.14	.671	.506
28 weeks	9.11			
28 weeks	9.11	1.37	-.565	.575
37 weeks	9.20			
8-12 weeks	9.13	1.34	.162	.872
37 weeks	9.20			

***significant at the .001 level

Postpartum Analysis

A brief, primarily qualitative, telephone interview was conducted at two weeks postpartum to assess participants' final birth outcomes and labor experiences. A total of three attempts were made to contact each participant by telephone. Two participants' phone numbers were disconnected at the time of the telephone interview. A language barrier prevented the completion of the telephone interview for one subject. Four participants were unable to be reached after three attempts. A total of 39 women were interviewed.

During the interview, women were asked to rate their labor and delivery experience on a 10-point Likert scale as well as provide qualitative information about their personal birth experience. The average rating for the participants' labor and delivery experience was 6.18 on a scale of one to ten with one being much worse than expected and ten being much better than expected. The respondents scores ranged from one to ten. The postpartum ratings of the labor and delivery experience were not significantly correlated with Maternal Confidence scores or Fear of Childbirth scores at 37 weeks of gestation.

Table 18 presents the participants' postpartum verbatim descriptions of their labor and birth experiences. Responses were qualitatively coded into the following three categories: positive, negative, and mixed descriptions. The majority of the responses (n=17) were dichotomous in nature (e.g., painful but joyful). Positive descriptions (n=15) were more predominant than negative descriptions (n=7).

Table 18

Postpartum Descriptions of Birth Experiences (N = 39)

Positive (n = 15)

- Easy and fast.
- Very empowering...with respect to what I was able to do mentally and physically.
- Wonderful and beautiful.
- Biggest event of my life; magical and gigantic; no words to describe it.
- Quick and easy.
- Great experience.
- Very overrated; not as bad as I thought it would be; thought it would be the most excruciating pain in my life but it wasn't; Beautiful experience and I'm ready to do it again.
- Easy and very rewarding.
- Exhausting and wonderful; I was never so as happy as when his head popped out.
- Better than expected.
- Exciting and different.
- Wonderful; no matter what it was wonderful.
- Not bad; not as bad as I thought.
- Fast and complicated.
- A miracle.

Negative (n = 7)

- Very difficult.
- Stressful in the beginning.
- Hard.
- Sucky; Surprised and unaware.
- To hell and back; Challenging.
- Unexpected and disappointing...I wanted to try without an epidural; I was scared about the surgery.
- Most challenging; hardest thing I've ever done.

Mixed (n = 17)

- Painful but exciting.
- Unexpected and emotional.
- Exciting and tiring.
- Overwhelming and joyous; once I heard him cry it made the whole thing feel better.
- Painful and enjoying.
- A roller coaster; part of the human race; alive.
- Long; overwhelmingly emotional.
- Painful and rewarding.

(Table 18. Postpartum Descriptions of Birth Experiences Continued)

- Scary and exciting.
 - Challenging and rewarding.
 - Uncomfortable and bearable.
 - Rewarding but hard; I'm glad I went through it.
 - Painful and joyful.
 - Painful and joyful at the same time.
 - Exhausting and exhilarating.
 - Intense and miraculous.
 - Very joyous; Unexpected experience
-

Women who had positive descriptions of the birth experience had significantly higher Maternal Confidence scores at 37 weeks ($t = 2.36, p = .028$) than women who reported negative descriptions. No significant differences with respect to Fear scores were found based on birth description categories.

The majority of women (77%) delivered vaginally, eight delivered by emergency cesarean section and one by a planned cesarean section. Of women who delivered vaginally, 80% received medications during labor. Interestingly, two women who stated they did not receive medications responded affirmatively when specifically asked if they had an epidural. Additionally, one woman received a shot of Demerol but did not categorize it as pain medication. The six women who did not use medication during labor used non-pharmacological pain reduction techniques such as breathing, hydrotherapy (i.e., hot tub, Jacuzzi, shower), walking, massage, alternative birth positions, and relaxation. The same pain reduction techniques were also used by women who received medication during labor in addition to the following:

- Changing positions and use of a birthing ball
- Presence of a Doula (birth assistant)
- Music
- Prayer
- Talking with birth partner
- Visualization and Meditation

Of the 12 women who agreed it was important to them to experience a medicine-free birth, five women (delivering vaginally) received medication during birth. When asked, “How do you feel at this time about receiving pain medication during labor?”, the women responded:

- The epidural was wonderful. The Nubane didn't do anything for me.
- After six hours of [back] labor, I was crying for an epidural...in retrospect, it was good. At one time, I felt I had failed and I was afraid I had set myself up for an avalanche of intervention but now I don't think about it with regret.
- I wanted to do a natural birth but I couldn't stay on top of the contractions...they just kept coming and coming.
- I wouldn't [give birth] again right now but if all goes well, [next time] I'd grin and bear it instead. I have bad memories. I'd go completely natural and scream my head off.
- Better than I thought I would. I waited four or five hours. [During this time, my health care providers] tried to give me the epidural three times. My friends had negative experiences with epidurals. I thought I would feel better afterwards if I didn't have it.

Two women who did not specifically identify at 37 weeks that a medicine free birth was important to them delivered without pain medications. These women did not refer to the lack of medication in their postpartum interviews.

As part of the postpartum interview, this sample of first time mothers were asked, "Is there anything you would do differently regarding your labor and birth experience?" Four trends emerged from their responses:

1. A desire to increase their self-knowledge about medical procedures including the insertion of the epidural, the use of forceps, recovery, and cesarean sections ("I skipped over all that because I didn't think it would happen to me.");
2. Regrets they did not walk more during labor ("I would have asked to be more mobile" and "I should have tried walking");
3. Requests to extend the length of time at the birthing facility before returning home; and

4. A desire for more medical intervention (e.g., receipt of the epidural earlier, receiving an episiotomy, cesarean section).

The following are verbatim quotes regarding the latter:

- I'm not a frontier woman.
- I would not wait so long for epidural...with it I could focus myself, on getting some rest for pushing.
- I could have had more medical intervention. I had to ask for an episiotomy...my pelvis was bruised and swollen for weeks, we, the baby and I, would have been better off with a c-section.

One woman stated she would have preferred less medical intervention, "I didn't have a strong feeling about a natural birth...I didn't have much to prove but I wish I would have not gotten an epidural. It was scary to get the spinal and the medical things such as the [blood pressure] cuff and IV were the most annoying."

Other changes identified by the women included requesting a private room at the birthing facility, getting to the facility earlier, pushing harder ("given it my all to decrease labor time"), not gain as much weight during pregnancy, and focusing on mental preparation for labor as opposed to breathing techniques. Over half of the women (51%) responded that they would not change anything about their labor and delivery experience.

- I made the best decision for myself and I feel good about it.
- No, I wouldn't change a thing.
- No, I did everything the way I wanted to.
- No. Midwives are wonderful. I avoided an episiotomy because of her.
- No, everything went well.
- No changes. I wonder if I used up all my good luck.
- If I had any control over it, sure, but I did not have any control.

One woman, who was in labor for 36 hours, responded she would not make any changes, “My body was not ready to give birth. I was contracting but not dilating.”

Summary

The purpose of this chapter was to present the results of the data analysis regarding first time mothers’ maternal confidence for labor and fear of childbirth throughout gestation. In order to determine significant differences for each scale at different gestation intervals, descriptive statistics, t-tests and correlation procedures were performed. Significant differences were found at the .05, .01 and .001 levels for each of the scales.

In summary, the statistical analysis of these data revealed that Maternal Confidence scores and Fear scores are inversely related throughout gestation and they each significantly change as pregnancy progresses. There were no statistically significant differences throughout gestation for the scale scores with respect to type of health care provider. Perceived knowledge scores significantly increased throughout pregnancy and were significantly related to Maternal Confidence scores but not Fear scores. Other independent variables, including childbirth preparation class attendance, practicing relaxation techniques on a regular basis, previous history of physical pain and placing a higher importance on a medication-free birth were not significantly correlated with either Maternal Confidence scores or Fear scores. Overall, women typically had mixed emotions regarding their labor and birth experience but tended to rate it as much better than expected. Lastly, if they were able to change their labor and delivery experience, women would have increased their knowledge about medical procedures

used during delivery, walked more during labor, stayed at the birthing facility longer and requested more medical intervention.

Chapter 4 presented the research findings for the study. Chapter 5 will present the summary of the study, limitations, a discussion of findings in regard to research hypotheses and postpartum analyses, implications for public and community health professionals, and recommendations for future studies.

Chapter 5

DISCUSSION, RECOMMENDATIONS AND IMPLICATIONS

The purpose of this study was to examine the development of maternal confidence for labor and fear of labor among nulliparous pregnant women at 8-12 weeks of gestation, 28 weeks of gestation, and 37 weeks of gestation. This chapter presents a discussion of the findings, recommendations and implications for further research, a discussion of attainment of the sample size, and overall study conclusions.

This study was conducted using a quasi-experimental, multi-time series methodological design. A convenience sample of 46 nulliparous women was recruited from the Baltimore-Washington Metropolitan Area and a suburb of a large Southeastern City. Eligible participants were asked to complete three mail questionnaires and a postpartum telephone interview. All three mail questionnaires were similar in content and contained two scales, the Maternal Confidence scale and the Fear of Childbirth scale. The former measures self-efficacy expectancies for coping with an approaching childbirth and the latter, as its name implies, measures fears surrounding childbirth such as fear of Cesarean section, labor contractions, and excessive bleeding. Data was collected from August, 2001 through June, 2003. To determine significant differences for each scale at different gestation intervals, descriptive statistics, t-tests and correlation procedures were performed.

In accordance with the main purpose of this study and the research hypotheses, the remainder of this chapter will present a discussion of the findings related to the development of maternal confidence and fear of childbirth over time as well as the interaction of the two variables throughout pregnancy. As part of this discussion, an

interpretation of the data surrounding the role of health care providers and potential indicators of childbirth pain (e.g., exploratory variables) on maternal confidence and fear will be provided. Additional commentary on the results of the postpartum follow-up interviews will also be included.

Discussion of Findings

An important observational finding of this study was the particularly challenging nature of recruitment of this sample. The primary barrier to recruitment was the lack of existing working relationships with established prenatal care facilities. Additional obstacles associated with recruitment and retention were present. For instance, women may have been unaware they are pregnant throughout their entire first trimester of pregnancy. A detailed discussion on the barriers surrounding recruitment for this sample is presented in the Attainment of Sample Size section of this chapter.

Interaction of Maternal Confidence for Labor and Fear of Childbirth

A major finding of this study was the presence of a time effect for both Maternal Confidence scores and Fear of Childbirth scores. The nature of the relationship between these variables was inverse throughout gestation; women who were more confident about giving birth had decreased fear levels. Although previous studies have not been conducted examining the development of these variables throughout gestation, the results of this study support Lowe's (2000) findings of a relationship between maternal confidence and fear in her study sample of 280 nulliparous women in their third trimester of pregnancy. However, a cause/effect relationship cannot be assumed. Thus, it remains unknown whether increased Maternal Confidence decreases Fear of Childbirth or vice versa. It is possible the two variables together function as a larger,

single variable and exist along a continuum throughout pregnancy. Additional research is needed to verify the existence of such a continuum.

Although the variables may not be mutually exclusive, it is important to discuss the development of each variable throughout gestation. Furthermore, from an overall public health perspective, it would be prudent to further explore the relationship of these two variables to ultimately determine the focus of future educational paradigms: to increase childbirth maternal confidence or to decrease fear of labor.

Development of Maternal Confidence Throughout Gestation

It was expected that confidence would increase throughout gestation as women became more knowledgeable about the birth process. It is interesting to note that the greatest increase in Maternal Confidence scores occurred between 8-12 weeks of gestation and 28 weeks of gestation prior to the onset of most traditional external means of obtaining childbirth information such as childbirth classes and birthing facility orientations. In addition, the majority of the sample at 8-12 weeks had limited previous exposure to childbirth. Most women (78%) did not have a sibling who had given birth within the past year, nor did they report ever being a birth partner for another woman (80%). Thus, these first time mothers lacked two of the central principles of self-efficacy, mastery and modeling. These findings suggest that women are utilizing other mechanisms, either internal or external, to increase their confidence for labor. Additional findings from this study suggest that increases in Maternal Confidence scores throughout gestation are reflective of parallel increases in perceived knowledge.

Maternal confidence and perceived knowledge.

Perceived knowledge scores and Maternal Confidence scores were positively correlated at 37 weeks of gestation ($p = .007$). Significant increases ($p < .001$) in perceived childbirth knowledge scores were also detected at each interval of gestation. Similar to maternal confidence, the greatest increases in knowledge occurred from 8-12 weeks to 28 weeks of gestation. In light of these findings, the importance of the relationship between knowledge scores and self-efficacy for labor should be acknowledged. It is not unreasonable to suggest that women who are more knowledgeable about non-pharmacological coping mechanisms of labor may be more likely to utilize them. Although, prior knowledge of such techniques is not necessary for utilization (e.g., coping mechanisms may be used involuntarily by women during labor such as breathing techniques).

In addition to having limited personal exposure to childbirth at 8-12 weeks, 40% of the women in this sample reported their pregnancy occurred sooner than they expected. This may indicate these pregnancies were unplanned. It is very likely women of reproductive age do not actively seek knowledge about childbirth until they become pregnant and then become vigorous information seekers during the first few months of pregnancy. The previously mentioned significant increases in childbirth knowledge from 8-12 weeks to 28 weeks of pregnancy support this notion. Given that prior to their own child's birth, vicarious experiences for first time mothers may be limited to depictions in the media (Lowe, 2000) and other unreliable sources (Nolan, 1997), it would be interesting to examine childbirth knowledge among women of reproductive age who do not plan on becoming pregnant within the near future.

Another interesting finding of this study was that although women perceived themselves as being very knowledgeable about childbirth at 37 weeks, in the two week postpartum interviews they indicated a desire for more knowledge about certain aspects of childbirth such as the use of pharmacological medical procedures and the stages of recovery after childbirth. Knowledge can be assessed in three different ways: 1) directly, as in education, 2) by self-report, or 3) indirectly, through a separate measure such as participation in childbirth class. In this study, knowledge was examined through self report and participation in childbirth classes. In the future, examining knowledge through education (e.g., a true/false or multiple-choice test) may be useful to clarify the accuracy of a woman's self-perceived childbirth knowledge. For example, a woman may report a high knowledge level but her information may either be limited to one aspect of childbirth, or lack a base in medical fact. However, it has been proposed that women in the Washington Metropolitan Area may be the exception to the rule. A recent article on pregnancy in the *Washingtonian*, a local city magazine, inferred Washington women may have higher levels of childbirth knowledge than women in other areas of the country (Wildberger, 2003). "Washington isn't an environment that encourages laid-back mothers...In another town, you might be regaled with old wives' tales; here the odds are good that your 'advisors' have ammunition from three newspapers and a couple of professional journals" (Wildberger, 2003; p. 85). In summary, the role of knowledge regarding maternal confidence for labor may be especially important for nulliparous women who may not be as familiar with the process of childbirth, in particular options for non-pharmacological pain intervention.

Overall, with the exception of perceived knowledge, Maternal Confidence scores were not significantly correlated with exploratory factors in this study (i.e., childbirth class attendance, relaxation techniques, history of pain, importance of a medicine-free birth and emotional support). A rationale for these findings is presented in the Role of Exploratory Variables section of this chapter.

Development of Fear of Childbirth Throughout Gestation

Previous longitudinal studies have not been conducted examining the development of fear of childbirth throughout pregnancy. Data collection for studies examining fear to date have been restricted to one time intervals during either the prenatal or postpartum period. By examining the development of fear of childbirth throughout pregnancy, prenatal care education and support efforts can be directed toward women during optimal periods of gestation (i.e., escalated periods of fear).

It was expected that as pregnancy progressed and the reality of birth approached, fear of childbirth would have increased as a woman's concerns about her health and safety and the health and safety of her fetus increased. However, a major finding of this study was the significant decrease of Fear of Childbirth scores as pregnancy progressed. Heightened fears of childbirth at 8-12 weeks may be due to numerous factors. As previously mentioned, over 40% of the sample reported their pregnancy occurred sooner than they expected. Results of a positive pregnancy test may evoke varying levels of anxiety and fear among nulliparous women depending on their soci-economic situations, partner relationships and social support networks. Anxiety may be especially high in situations where the pregnancy was unplanned. Furthermore, this sample had limited exposure to pregnancy and childbirth prior to becoming pregnant. Thus, a

woman's uncertainty about what to expect during the first few weeks of pregnancy may explain her higher levels of fear at the pretest. It is important to mention that because the participants for this study were self-selected, it is possible women with very high or very low levels of fear at 8-12 weeks of pregnancy opted not to enroll.

The findings also indicated that the greatest decrease in Fear scores occurred during the earlier months of pregnancy from 8-12 weeks to 28 weeks. Although these decreases were not significant, they are worthy of discussion. During this time, some of the women's concerns about the health of the baby may be alleviated through the act of hearing the heartbeat and seeing an ultrasound picture of the fetus (Melender, 2002b). This study focused on exploring the fears women have related to the actual process of labor as opposed to other fears related to pregnancy such as the child's health. However, it is possible that women are unable to separate concerns about childbirth from overall concerns about the fetus. This is supported by a recent study by Geissbuehler and Eberhard (2002) examining the fears of childbirth among 8000 pregnant women in Switzerland. This study found that the most common fears among pregnant women are fear of pain during childbirth (40%) and fear for the child's health (50%).

Another possible explanation for decreasing Fear scores could be related to the increased physical discomfort a woman experiences in the final weeks of pregnancy. Such discomfort may mitigate feelings of fear of the impending delivery. For example, a woman's fear of childbirth may be lessened due to the fact that she is so physically uncomfortable in the weeks prior to birth that her fears about the childbirth process are

minimized due to her increasing desire to deliver the child and not be pregnant any longer. Future research is needed to verify these findings.

Decreased Fear scores may also be due to increased levels of social support a woman receives in the later months of pregnancy. As pregnancy progresses and the fetus develops, a woman's outward appearance changes and it become more obvious to others she is pregnant. Although this study did not examine social support networks, it is likely this change in appearance in the later months of pregnancy may instigate discussion and involuntary informal social support from others. Studies have found women who are able to discuss their fears with others may have lower levels of fear surrounding childbirth (Melender, 2002a; Saisto et al., 2001b).

Overall, decreases in Fear of Childbirth scores were significant from 8-12 weeks to 37 weeks. There were no significant differences in Fear scores from 8-12 weeks to 28 weeks, contrary to Maternal Confidence scores, nor were there significant differences in Fear of Childbirth scores from 28 weeks to 37 weeks. It is apparent from these findings that decreases in fear of childbirth occur on a continuum throughout pregnancy. Thus, health care providers efforts to decrease fear of childbirth should be provided throughout the 40 weeks of pregnancy while efforts to increase maternal confidence for labor should be concentrated in the earlier months of pregnancy to allow women to build their cognitive skill set of coping mechanisms for childbirth.

Implications for health care providers are discussed in greater detail later in this chapter.

Fear of childbirth and perceived knowledge.

In the literature, the act of acquiring childbirth knowledge was identified as a means of coping with fear (Melender, 2002b). Although, perceived knowledge and fear scores were not significantly related in this study, perceived knowledge significantly increased throughout gestation. Additionally, maternal confidence for childbirth and knowledge scores were significantly related at 37 weeks. Given that an inverse relationship between maternal confidence and fear was significantly correlated at all three points of gestation, it is possible increased knowledge may indirectly decrease fear levels. This concept has been supported in the literature (Cleeton, 2001). Cleeton (2001) found increased fear levels of childbirth were associated with lower levels of childbirth knowledge among 65 nulliparous college students.

It is important to mention Fear of Childbirth scores were not significantly correlated with other exploratory factors in this study (i.e., relaxation techniques, attendance at a childbirth preparation class, history of pain, importance of a medicine-free birth and emotional support). A rationale for these findings is presented in the Role of Exploratory Variables section of this chapter.

Role of Health Care Provider on Maternal Confidence and Fear of Labor

Women receiving care from nurse midwives did not significantly vary throughout gestation from women receiving care from physicians or nurse practitioners with respect to Maternal Confidence scores or Fear of Childbirth scores. However, women who initially sought midwifery-based care differed demographically and had significantly higher levels of fear of delivery at 8-12 weeks of pregnancy. Although not significant, another interesting finding of this study was that women seeking care from

midwives had lower levels of maternal confidence and higher levels of fear throughout pregnancy than women seeking care from physicians and/or nurse practitioners.

Perhaps, women with higher levels of fear of childbirth initially seek out a midwifery-based philosophy of care. For example, when asked in this study, “Why did you choose your particular care provider?”, responses from women who chose midwives included, “[I do] not like hospital environment” and “[I] wanted a holistic approach.” Midwives reputedly spend more time with their patients providing one-on-one prenatal education and involving women in their medical care than physicians. Women with high levels of fear may self-select this type of personalized care. Contrarily, childbirth fears among women who seek care from physicians may be assuaged by the availability of pharmacological pain relief and medical technology in the event of an emergency. As previously mentioned, it is possible women with very high or very low levels of fear opted not to enroll in the study.

Overall, women seeking care from midwives were younger, better educated, less ethnically diverse and had lower annual household incomes. These demographics, with the exception of age, are supported by Clarke et al. (1997), who conducted a study of trends and characteristics of birth attended by midwives from 1975 to 1994. In this comprehensive review of births in the United States, women who had non-hospital, midwife attended births were 30 years of age or older. It is possible the resurgence of midwifery care occurring in the late nineties (Raisler, 2000) may have had a “trickle down” effect to women of younger ages. Income data was not presented by Clarke et al. (1997).

The lack of significant differences between the two health care providers groups deserves comment. These findings may be a result of a variety of factors. Primarily, differences between the two groups may exist but the total sample size ($N = 46$) was too small to detect them. Additionally, the number of women in each group was unbalanced. The number of women in the study who received physician or nurse practitioner care ($n = 33$) was proportionately higher than the number of women who received midwifery care ($n = 13$). This under-representation of women in the midwifery group may contribute to a lack of significant findings between the two groups. Another explanation may be that as the two types of care givers begin to collaborate professionally, for instance midwives gaining birthing privileges at hospitals in recent years, the philosophy of care for each group may be slowly becoming more similar in nature (Yankou et al., 1993). Perhaps the type of care provider does not really impact a woman's level of maternal confidence or fear of childbirth. For instance, the recommended amount of time spent with a care provider over the course of pregnancy is 13 visits (USDHHS, 2000). Yet, the actual amount of time spent with a care provider is relative and varies by type of provider and for each particular woman. Thus, there may not be an adequate amount of time spent with a provider, either overall or at each visit, to impact a woman's confidence or fear through the self-efficacy principle of verbal persuasion. Furthermore, the type of information exchanged at each visit may not be relevant to childbirth per se (e.g., breastfeeding information, nutritional information).

It is important to note that while the category "physicians and nurse practitioners" was used to identify the type of prenatal care provider, nurses, either

LPN, MSN or BSN's, typically administer the majority of the care for women seeking care at a physician's office. It is possible that a nurse's philosophy of care differs from the physician or nurse practitioner for whom she or he works. However, this seems unlikely. Future studies with larger samples should be conducted to obtain more conclusive data on the impact of the type of care provider on maternal confidence for labor and fear of childbirth.

Role of Exploratory Variables

The following factors did not influence childbirth efficacy expectations: attendance at a childbirth preparation class, relaxation techniques, emotional support, history of physical pain and importance of a medicine-free birth. These factors were included as exploratory variables and in the interest of lowering the respondent burden, each factor was assessed through one to two items throughout the three questionnaires. Thus, it is possible the questions did not capture enough information to determine significance of the variable with respect to maternal confidence or fear of labor. For example, the question on relaxation techniques referred to techniques practiced on a regular basis of 30 minutes a day, five times a week. Some participants anecdotally noted in the margin of the questionnaires that they usually practiced relaxation techniques but were too fatigued to do so at 8-12 weeks of pregnancy or they did practice a technique which they referred to as relaxing but not for 30 minutes a day, five days a week. Furthermore, it would be important to distinguish the perceived value of relaxation techniques given that one respondent identified "shopping" as her relaxation technique.

Childbirth preparation class attendance and maternal confidence for labor at 37 weeks of gestation were not significantly related although the relationship approached significance ($t = 1.98, p = .054$). These findings are in accordance with the literature in recent years which debates the general utility of childbirth classes (Geissbuehler & Eberhard, 2002; Laryea, 1998; O'Meara, 1993; Schneider, 2002; Spiby et al., 1999; Spinelli et al., 2003). O'Meara (1993) found levels of health skills, confidence and emotional preparation for childbirth did not increase among women ($N = 207$) who attended childbirth classes. Similarly, Spiby et al. (1999) reported nulliparous women ($N = 121$) were dissatisfied with the amount of time provided during antenatal classes to practice coping strategies for birth. The qualitative findings of this study also suggest that childbirth preparation classes do not have an extensive impact on improving a woman's birth experience. As one woman anecdotally expressed in her postpartum interview, "I didn't get what I wanted out of the class. They taught [the class] at a first grade level and in a pedantic style. It was a waste of my time and I didn't go back." Additional research is need to verify the existence or lack of existence of a relationship between maternal confidence for labor and childbirth class attendance.

It is important to mention that because childbirth preparation class attendance functioned as an exploratory variable in this study and only information on level class attendance (i.e., attend yes/no and percentage of classes attended) and type of class was ascertained. The majority of the sample (65%) had attended a childbirth class by their 37th week of gestation and most of these women attended 100% of the classes for which they enrolled. Over half of the women who had taken a class (54%), chose to take a hospital-sponsored class. Although the content of childbirth classes the women

attended was not assessed, it is anticipated that the hospital-sponsored classes focused on more of the logistics surrounding birth such as the check-in procedures, type of birthing rooms available, and visitation policies as opposed to teaching skills to empower women to cope with labor pains. A portion of the women in the sample (20%) opted not to take a childbirth class at all and thirteen percent had not taken a class by the 37th week of pregnancy but had plans to take a class prior to birth.

Emotional support remained high throughout pregnancy (a mean of 9.0 on a scale of one to ten, with ten being extremely supportive). Yet, it was not associated with maternal confidence or fear of labor. This is not consistent with the literature on the role of social support on childbirth (Hodnett & Osborn, 1989; Hofmeyer et al., 1991; Madi et al., 1999; Saisto et al., 2001b). Again, despite the fact that emotional support was assessed at each time interval, it is possible self-perceptions of emotional support were not fully captured through the one close-ended question on emotional support: “Overall, on a scale of 1 to 10 (1 being not at all supportive and 10 being extremely supportive), I would rank the emotional support I have received from my birth partner (the primary individual who will be physically present at my delivery) regarding my pregnancy as a: [enter number].”

Another finding, albeit minor, was that emotional support was significantly correlated with relaxation techniques and childbirth knowledge at the .05 level. The reasons for these relationships are unknown. Perhaps, women with stronger emotional support networks are more likely to be exposed to a greater number of childbirth resources (e.g., a husband researching childbirth on the Internet) or they may

have more opportunities to perform certain types of relaxation techniques such as prayer, yoga and exercise (e.g., going to an exercise class with a friend).

A prior history of pain was not found to be a significant indicator of maternal confidence for labor or fear of childbirth. The research literature has suggested a positive relationship exists between menstrual pain and childbirth pain (Fridth et al., 1988; Melzack et al., 1981; Scott-Palmer & Skevington, 1981); women with higher levels of menstrual pain report higher levels of childbirth pain. Of the women in this study who reported having experienced a prior medical event which caused them a great deal of physical pain (28%), only three women had medical experiences which caused them pain to the reproductive organs. These experiences were laparoscopy, oophorectomy, ruptured ovarian cyst, and “ovarian surgery.” Details surrounding the latter were not specified by the respondent. Other pain experiences that were reported were primarily surgeries to other parts of the body including dental, breast, and bone surgery. The low number of women in the study who reported experiencing a prior history of pain, particularly reproductive-related pain, may contribute to the lack of a significant relationship, inverse or direct, between prior history of pain and self-efficacy for labor.

Presence of a medical condition was not intended to be an exploratory variable for this study yet, it is interesting to note that women who considered themselves to be at high-risk did not have significant increases in fear levels or decreases in confidence levels for labor. As mentioned in Chapter 4, women who reported a medical condition that did not meet the clinical definition of a high-risk pregnancy were still categorized as high-risk because of their increased self-perceptions of risk. In the future, it may be

important to explore the impact of perceived risk on women's confidence levels prior to delivery. A Likert scale item such as the following may be useful to assess perceptions of risk among women with a self-reported medical condition: "I believe my medical condition increases my chance of having a cesarean section."

Of the exploratory variables, importance of a medicine-free birth is perhaps the most worthy of future exploration. Although not significant, increases in the number of women who regarded a medicine-free birth as important throughout pregnancy were detected even when controlling for the type of health care provider. The severity of importance regarding a medicine-free birth among women receiving care from midwives did not change in the latter part of pregnancy (28 weeks to 37 weeks). It is reasonable to suggest women seeking care from midwives initially placed a higher level of importance on having a medicine-free birth and, thus, their attitudes did not change later in pregnancy. It is interesting that among the women who received physician-based care, the percentage of women who placed a high importance on a medicine-free birth doubled from 12% to 24% from pretest to second posttest. It could be argued that as women learn more about the childbirth process and the negative impact of associated pharmacological childbirth interventions, they begin to place greater importance on having a medicine-free birth. Based on these findings, it is recommended that attitudes of nulliparous women toward medicine-free births be examined in future research studies.

Postpartum qualitative data revealed that some women wanted more medical intervention during labor and they wanted to receive it in the earlier stages of labor. On the other hand, it was apparent women were not aware of the consequences of some

types of medical intervention used during labor. For example, women complained about the loss of freedom to physically walk around during labor due to the use of certain medical interventions. Therefore, examining the rationale behind a woman's desire for a medicine-free birth during pregnancy would be useful in understanding her postpartum expectations surrounding the birth.

Postpartum Assessment of Childbirth

Maternal Confidence and Fear of Labor scores at 37 weeks were not significantly related to postpartum birth ratings. It was anticipated based on the interpretation of the literature that there would be a relationship between maternal confidence and fear of labor with respect to women's postpartum ratings of their birth experiences; women with higher levels of maternal confidence for labor and lower levels of fear would utilize cognitive coping mechanisms to a greater degree which would reduce the likelihood of medical intervention and, in turn, result in a better birth experience than expected. This expectation was based on two assumptions.

The first assumption was that women who utilized cognitive interventions as opposed to pharmacological inventions would rate their birth experiences higher than those women who did not. On the contrary, qualitative antidotal evidence from the postpartum interviews suggested otherwise. Women who did not utilize pharmacological pain reduction techniques typically rated their birth experiences around the middle of the continuum, "about what they expected" (scores of 4, 5, or 6 on a scale of one to ten with one being much worse than expected and ten being much better than expected). However, women receiving epidurals typically rated their birth experience as an 8, 9, or 10 (better than expected). It is possible women who did not

receive medical interventions had a more realistic expectations of childbirth pain.

Another possible explanation is that women who received pharmacological intervention experienced greater levels of pain relief than expected from such interventions. The minimum pain thresholds may vary for each individual woman as well.

A second assumption surrounding the expectation of a relationship between these two variables is that women's birth experiences must exceed their expectations to have a higher birth rating. This assumption is inherent in the wording of the question on the telephone interview: "On a scale of 1 to 10 (1 being much worse than expected and 10 being much better than expected), how would you rate your labor and delivery experience?" Although the average woman in this study did rate her birth experience as higher than expected, the 13% of women who rated their birth experience as a "5" (their birth experience was as they expected) should not be discounted. Overall, it is interesting to note that even within this small sample of 39 women, self-ratings of birth experiences spanned the entire continuum. The role of medical intervention on expectations of birth experiences should be examined further in longitudinal studies with more extensive quantitative postpartum data analyses.

It is also important to note that there was qualitative evidence from the postpartum interviews to suggest that prenatal expectations about the mode of delivery may affect postpartum ratings regardless of confidence levels. Several women explained they were particularly disappointed and surprised because they had delivered by emergency cesarean section as opposed to vaginally.

- “I was disappointed because I had expected a normal vaginal birth and when I went to push [the baby’s cord was around his neck and] I ended up having a c-section. It was more stressful than I expected.”
- “I expected to go in, push, and be back home the next day. My water broke two weeks early...I had an emergency c-section and I [had] not read anything about it. It came as a real surprise.”

External factors surrounding the birth experience may have also impacted expectations but be unrelated to a woman’s level of self-efficacy for birth. For example, one woman who delivered during the Washington, D.C. sniper attacks stated her low birth rating was due to the extensive traffic and detours she experienced on the way to the hospital. Another woman explained that her low rating was due to her in-laws being present in the delivery room. Other external factors mentioned which negatively impacted women’s birth experiences included: staff employee shift changes during labor (resulting in a loss of rapport with a care giver) and lack of availability of a private hospital room (resulting in delivery in the triage area).

In general, women who scored at the lower end of the continuum attributed their ratings to labors that were longer than anticipated and emergency cesarean section deliveries. One woman who had a low birth rating commented the pain was greater than she anticipated, “They told me it was going to be painful. I didn’t believe them.” The postpartum questionnaire was designed to assess birth expectations. However, it may be beneficial to also specifically assess the level of pain during postpartum studies of a similar nature in the future.

The majority of women provided a dichotomous answer when asked to provide two words to describe their birth experience postpartum, indicating the reward of the baby was worth the pain of delivery (i.e., “Painful and rewarding”). These results are supported by Callister, Vehvilainen-Julkunen, and Lauri (2001) whose sample of 20 Finnish women two weeks postpartum identified birth as a “bittersweet paradox.” It is possible birth ratings would differ if the interview had been conducted closer to the time of delivery as opposed to two weeks postpartum. Perhaps, women who are still physically recovering rate their birth experience as more negative than women who have had two weeks of recovery time.

Women were asked during the postpartum questionnaire to identify two words to describe their birth experience. Common themes among those women whose postpartum descriptions of their labors were coded by the researcher as “positive” included feelings of empowerment and personal accomplishment; “Very empowering...with respect to what I was able to do mentally and physically.” Another pattern among this group of women was the sentiment that birth was “overrated” and a more positive experience than anticipated; “I feared the worst...the first two weeks of having a child was much harder [than delivery].” The majority of women whose descriptions were coded as “negative” identified birth as challenging in a derogatory context; “To hell and back. Challenging.”

Although the women in this study were only asked to provide a two word description of their birth, their descriptions provided valuable data regarding the role of maternal confidence for labor. The women who reported positive descriptions of the birth experiences had significantly higher Maternal Confidence scores ($t = 2.36, p =$

.028) at 37 weeks of gestation. The questions on the maternal confidence scale referred to a woman's ability to cope with labor. If a woman perceives she is able to confidently cope with labor in the few weeks before her child's birth, she may have lower levels of emotional arousal and higher levels of verbal persuasion during childbirth resulting in a more positive experience. This notion is consistent with the themes of empowerment and personal accomplishment evident among those women who reported a positive childbirth experience. These findings indicate a causal relationship may exist between maternal confidence for labor and self-perceptions of childbirth. However, the sample size for this study was too small to provide sufficient data to support this claim. More in-depth research is needed to further examine the relationship between these variables (e.g., not restricting women to a two word description of childbirth).

Overall, postpartum birth ratings were just above the median. On average women rated their birth experience as a 6 on a 10 point scale, with 10 being much better than expected. The majority of women would not change anything about their birth experience. These findings suggest the women in this sample were satisfied with their births and that their birth experiences were slightly better than they anticipated. However, these results should be interpreted with caution and it is important to acknowledge the women for whom their experiences were not what they had expected, positively or negatively. In summary, although no relationship existed between the fulfillment of birth expectations and maternal confidence for labor or fear of childbirth in this sample of women, it would be interesting to examine how a strong negative or positive primiparous birth experience may impact the maternal confidence scores and fear for subsequent deliveries using a longitudinal panel study design.

Additional data that were collected during the postpartum interviews deserve comment including the length of labor, ratings of emotional support from birth partner and health care provider, and type of pain management techniques utilized. For example, the length of “labor” was obtained but responses from participants varied depending upon a woman’s interpretation of the onset of labor. In the future, it is recommended that a specific, clinical description of labor be used in postpartum interviews of this nature to accurately determine the duration of labor.

The postpartum ratings for emotional support women received from their birth partners were consistently high, with all but one of the respondents rating their partners as “very supportive.” One woman rated her partner as somewhat supportive because he fell asleep during her labor. These findings are consistent with the high ratings of emotional support reported by women during the prenatal period. The average rating of emotional support from a birth partner during pregnancy was a 9 out of 10, with 10 being extremely supportive.

Ratings of support from health care providers postpartum were more variable than those rates for birth partners. Over eighty percent (82%) of women rated their care providers as very supportive and 18% rated their care providers as somewhat supportive. Reasons cited for the lower support ratings included the care giver was not as empathetic or caring as women wanted or they were not physically present during labor as much as the women wanted. One woman commented her care provider, a nurse midwife, was not as responsive to her requests for medical intervention as she would have liked. This woman did not specifically request a midwife for her delivery, but rather she was assigned a midwife based on the hospital on call schedule. As this

finding indicated, withholding medical intervention from women who request it may have negative implications surrounding their perceptions of birth. This is also reflected in the women's postpartum responses regarding what they would change if they could about their labor and delivery experience. Several women mentioned they would ask for medical intervention earlier in labor. Furthermore, given that twenty percent of the women delivered by emergency cesarean section, it is not surprising another common theme among women at the postpartum interviews was the desire for more knowledge about medical procedures prior to birth. This may be especially relevant for women who value a medicine-free birth because they may be, by choice, less likely to be knowledgeable about medical intervention, "I skipped over all [the medical intervention information] because I didn't think it would happen to me." As a result, it may be interesting to explore childbirth attitudes specifically among women who plan on, and strive for, a medicine-free birth but ultimately receive pharmacological intervention. The attitudes of nulliparous women surrounding the receipt of medical intervention during childbirth are discussed below.

During the postpartum interview, women were asked if they received any pain medications during labor and if so, how did they feel about receiving them. Several women who used pharmacological interventions during childbirth mentioned they attempted to delay or prevent the use of such techniques, partially due to fears of decreased mobility and altered states of mental and physical awareness:

- "I waited four or five hours [before having the epidural]. They tried to get me to take it three times before I gave in. My friends had negative

experiences [with epidurals] and I thought I would feel better afterward if I didn't have one."

- "I was unsure how incapacitated I would be [after the epidural.]
- "I was worried it would slow down labor."
- "I was uncomfortable with the meds because I could not feel what was going on."
- "I was so proud of myself. I was going to get through it [without pain medicine] but I was eight centimeters dilated for three hours and I thought I couldn't handle another three hours."

These findings suggest women have questions regarding the physical and cognitive impact of medical interventions. Thus, it is the responsibility of the health care providers to address these concerns prior to delivery for all women, regardless of their preference for a medicine-free birth. However, preliminary findings from this study indicate a woman's perception of what constitutes a pharmacological intervention may be in question. Two women responded they did not receive medical intervention, but they responded affirmatively when specifically asked if they received an epidural. A third woman stated she received Demerol during labor but did not consider it to be a type of pain medication. Similarly, when women were asked what pain reduction techniques they used other than medication, impromptu follow-up probes by the researcher regarding specific types of techniques (e.g., walking, massage, hydrotherapy) were successful in yielding additional information. Based on the findings related to the utilization of methods of pain management by nulliparous women, both pharmacological and non-pharmacological, it may be beneficial to include close-ended

response categories for questions designed to attain information about pain reduction techniques (e.g., Did you receive any of the following during labor: Demerol, Nubane, or an epidural? Did you use any of the following pain reduction techniques in addition to pain medicine: walking, massage, hydrotherapy, etc.). Finally, it is interesting to note that the non-pharmacological techniques utilized by women who did not receive any pain medications (e.g., hydrotherapy, walking and alternative birth positions) are typically restricted by traditional hospital policies and care practices. These findings are supported by a review of the research in the past 30 years conducted by Lothian (2001).

Recommendations for Further Research

Based on the results reported in Chapter 4, the following recommendations are offered for public health professionals:

1. In future studies of a similar nature, women receiving prenatal care from nurse midwives should be over-recruited. As evidenced in this study, this sample was more difficult to recruit than women receiving care from physicians. A smaller percentage of the overall births nationwide are attended by midwives than physicians (Clarke et al., 1997). Additionally, sample sizes may fluctuate because some women who initially opt for midwifery-based care may have to change to physician-based care due to the development of a high risk medical condition during pregnancy. Women, in general, may also switch health care providers throughout gestation regardless of medical condition.
2. The pretest questionnaire (8-12 weeks) should be expanded to explore changes in the role of nulliparous women's attitudes towards receiving medication during

the upcoming birth and their use of non-pharmacological interventions. A series of open-ended questions could explore the possible factors promoting the use and/or avoidance of medical intervention or the lack of medical intervention during birth.

3. Further exploration of what contributes to a woman's perception of "self-knowledge" would be beneficial. Women perceived their knowledge levels to be high (a mean of 7.89 on a scale of one to ten, with ten being extremely knowledgeable about childbirth). Yet when asked postpartum what they would change about their birth experience, increased self-knowledge was a common answer.
4. The role of emotional support with respect to level of childbirth knowledge and the practice of relaxation techniques should be examined. Significant relationships were found for each of these sets of variables. Thus, it would be interesting to pursue this area of inquiry. For example, does a woman's perceived knowledge of childbirth vary depending upon the type of relationship she has with her birth partner (e.g., spouse versus mother or friend)? In this study, the majority of women were married (70%) or did not practice a relaxation method regularly (52%). To further investigate the relationship between these variables in the future, study participants should be screened for specific eligibility criteria such as having a birth partner who is not a life partner or practicing relaxation techniques regularly (a minimum of 30 minutes a day for at least 5 days a week). A dyad study examining birth partners' attitudes

towards childbirth, in addition to their pregnant partners would provide valuable information about the role of emotional support throughout gestation.

5. Replication of this study using a larger sample of women across all socio-demographic and cultural backgrounds is recommended. The majority of participants in this study were white (72%), college educated (74%), women with an annual household income of over \$60,000 (57%).
6. A longitudinal study following the same cohort of women should be conducted to examine any changes in Maternal Confidence scores and Fear of Childbirth scores during subsequent pregnancies.
7. Exploring maternal confidence for childbirth and fear of labor from a locus of control perspective may be useful given that a few women mentioned they wouldn't change anything about their labor and birth experiences because the birth was either "out of [their] control" or the birth outcomes "would have probably ended up the same way no matter what [they] had done." One woman commented she wondered if she had "used up all of [her] luck" in the delivery of her first child.

Implications

This study has implications for three separate audiences: prenatal care providers, public health professionals, and nulliparous pregnant women. Implications directed at practitioners may potentially have the greatest impact due their frequency of interaction with nulliparous women early on during pregnancy. Based on the findings from this study, prenatal health care providers should obtain information from nulliparous women regarding their preference for a particular provider (doctor or midwife) and/or the type

of prenatal care at the first prenatal visit (birth philosophy and expectations). It is recommended an assessment of maternal confidence and fear of childbirth be incorporated into existing pregnancy care guidelines for the first trimester. Additionally, reliable and valid childbirth knowledge scales should be utilized throughout pregnancy to determine the scope of their patients' knowledge levels surrounding pregnancy and childbirth. Lastly, it is crucial for prenatal care providers to recognize the importance of in-depth communication with their patients about pain management techniques and the limitations of such techniques (e.g., certain types of fetal monitors will restrict movement during labor).

Public health professionals often serve as liaisons between health care consumers and health care providers, such as childbirth educators. Health professionals should foster communication between these two groups regarding the actual labor and delivery process as opposed to pregnancy, taking special care to address all possible outcomes of birth (e.g., medical intervention procedures, cesarean section). Public health professionals can assist in increasing maternal confidence for childbirth among nulliparous women by advocating the use of non-pharmacological techniques such as walking during labor. Results of this study suggest that in order for these efforts to be most effective, they should be targeted at women in the early stages of pregnancy (8-12 weeks – 28 weeks). From a more global perspective, health professionals may want to consider developing and implementing a preconception campaign geared to women of reproductive age or earlier to: 1) dispel myths surrounding the process of childbirth (i.e., correct current misperceptions in childbirth knowledge, 2) educate women about the types, availability, and effectiveness of non-

pharmacological coping techniques, and 3) increase general knowledge of midwifery care as a viable birth option. A campaign of this nature may ultimately increase maternal confidence for nulliparous women in future generations.

The implications for nulliparous women should not be overlooked. Before making a decision on a prenatal care provider, nulliparous pregnant women should investigate whether the birth philosophy of the provider is consistent with their own. Ideally, this will help enhance their birth experience and improve their birth outcomes. It also important for women to rely on reputable, well documented resources to obtain childbirth information. This may be especially important for new mothers who have limited knowledge about childbirth and are voraciously seeking information during the early months of pregnancy. Given that women rely heavily on social networks for childbirth knowledge, it would be advantageous for multiparous women who have successfully used non-pharmacological techniques to be especially vigilant about sharing their experiences with other women of reproductive age. Ultimately, this may increase the outcome expectancies for nulliparous women and increase their maternal confidence for labor through modeling and verbal persuasion. Finally, in case of unexpected situations such as an emergency cesarean sections or extensively long labors, women should be knowledgeable about all possible pregnancy outcomes regardless of their personal preference for a particular type of delivery or care.

Attainment of Sample Size

The number of individuals who enrolled in this study was less than anticipated. There were several potential barriers to recruitment for this study including world events, a recruitment methodology that required a high level of cooperation from site

staff, and the presence of physical and socioeconomic factors impacting the targeting audience at 8-12 weeks of pregnancy.

As previously mentioned in earlier chapters, the unforeseen world events of the September 11, 2001 terrorist attack and the Fall, 2003 Anthrax contamination at the Washington D.C., Brentwood United States Postal Service facility and the Washington, D.C. sniper attacks occurred during the study recruitment period. It is possible response rates were lower as a result of these events, especially given that the questionnaires were administered via the United States Postal Service.

Prior to the recruitment period for the study, the researcher sought information about the number of births to first time mothers at each health care provider site in an effort to estimate the sample size. However, detailed records of annual births were not available to the researcher. The contact person at each birthing facility provided a verbal estimate of the annual number of births each year for all patients. An accurate record of births specifically for first time mothers was either not recorded by or not readily available to the contact person at the physician-based and combined care sites. At these sites, parity records were obtained and recorded primarily by the hospital staff as part of the hospital records. In retrospect, it is anticipated that the contact persons' estimations of the facility births were higher than the actual numbers.

This study demanded a high level of cooperation from the staff at each recruitment site. At all of the four sites, multiple personnel were facilitating the study recruitment. Due to time restrictions of the site personnel, the contact person at each site staff was asked to train other site staff members on the recruitment process. It is evident by the high number of ineligible women who initially submitted 8-12 week

questionnaires (19%) that a miscommunication about the inclusion criteria (i.e., nulliparous women) had occurred despite training and clarification with each contact personnel one month into recruitment. To reduce this risk in the future, editorial changes should be made to the questionnaire to further clarify the recruitment criteria for both the recruiting personnel and potential participants (i.e., bolding, capitalizing, underlining, etc.). Time permitting, an in-person training of all site staff would have been beneficial in reducing recruitment errors as well. However, in retrospect, it was not reasonable to ask staff to conduct recruitment due to time restrictions and lack of a return investment. Furthermore, throughout the two year recruitment period, the original contact personnel at each of the four sites resigned from their positions and resumed work at a different health care facility. This loss of continuity made communication especially difficult. In sum, efforts to recruit this target audience through health care providers were not fruitful. Rather, supplemental recruitment efforts utilized in this study were more advantageous, albeit more costly from both a time and financial perspective. It is recommended recruitment efforts for future studies with the target audience incorporate recruitment advertisements via the following mediums: Internet (e.g., Web sites, listservs), newspaper and radio advertisements and corporate sponsors. The latter is suggested due to favorable responses from sponsors regarding study incentives.

Lastly, increased physical fatigue and/or lack of knowledge of pregnancy among women in their first trimester of pregnancy, as well as the increased transient nature of this target audience (e.g., many women move into a bigger home when they are expecting a child) are all additional potential barriers that may have impeded study

recruitment. Yet, it is important to note low enrollment may not be an accurate reflection of disinterest by study participants. On the contrary, 70% of the study participants indicated through a question on the pretest that they wanted to receive a copy of the study findings upon completion of the study. Furthermore, approximately 15 women expressed interest in enrolling in the study after the recruitment period had ended.

Conclusions

Although determining statistically significant differences within the sample was difficult due to the small sample size, a significant inverse relationship between maternal confidence for labor and fear of childbirth was found. Thus, it is recommended future studies utilize alternative recruitment techniques and examine the role of self-efficacy in greater depth for nulliparous women throughout gestation. It is hoped the recommendations mentioned in this chapter will aid prenatal care providers in strengthening self-efficacy for labor and reducing fear of childbirth among nulliparous women and, ultimately, play an effective role in decreasing medical intervention for low-risk births.

APPENDIX A
HUMAN SUBJECTS CLEARANCE LETTER



UNIVERSITY OF MARYLAND

INSTITUTIONAL REVIEW BOARD

2100 Lee Building
College Park, Maryland 20742-5121
301.405.4212 TEL 301.314.9305 FAX

Reference: IRB HSR Identification Number - 01h1th004

July 25, 2001

MEMORANDUM

Notice of Results of Final Review by IRB on HSR Application

TO:

Ms. Julia Kish Wulsch
Dr. Robin Sawyer
Community & Public Health

FROM:

Dr. Marc A. Rogers, Co-Chairperson
Dr. Joan A. Lieber, Co-Chairperson
Institutional Review Board

PROJECT ENTITLED:

"The Development of Maternal Confidence for Labor Among Nulliparous
Pregnant Women"

The Institutional Review Board (IRB) concurs with the departmental human subjects review board's preliminary review of the above referenced human subjects application. This application has IRB approval for this human subjects research and has been placed on file in the IRB office. We ask that any future communications with our office regarding this application reference the IRB HSR identification number indicated above.

Please note that, should there be any deviations from the approved protocol, you are required to submit the modifications to your departmental human subjects review committee. If you have any questions or concerns, please do not hesitate to contact either of us at irb@deans.umd.edu or at extension 54212. Thanks very much.

/rcf

enclosures, including stamped copies of informed consent forms included in application

copy of memorandum to Departmental HSRC Chairperson

APPENDIX B

RECRUITMENT LETTER TO HEALTH CARE PROVIDERS

«Title» «FirstName» «LastName»

April 13, 2000

«Company»

«Address1» «Address2»

«City», «State» «PostalCode»

«Title» «LastName»:

I am a health education doctoral candidate at the University of Maryland, College Park currently conducting research at [obstetric and gynecological offices/birthing centers] throughout the Washington D.C. metropolitan area. My research study examines women's knowledge, maternal confidence, and fear of childbirth throughout pregnancy from an educational, non-clinical perspective. Study participants are confined to primiparous women with low-risk pregnancies.

I am requesting your office's assistance with my data collection. Your participation would require only the distribution of a brief form to your patients at the beginning of their prenatal care to evaluate the educational traits I will be measuring. In return for your participation, you will receive a detailed evaluation of the study as it relates to your practice. Most healthcare providers recognize the value of evaluations but lack the time and resources to conduct them. This evaluation will be conducted in a brief, non-obtrusive manner for your patients and staff at no cost to either party and patient confidentiality will be upheld.

Thank you for taking the time to consider my proposal. I will be contacting you next week to confirm your interest or you can fax the enclosed form to xxx-xxx-xxxx. You can also reach me by e-mail (xxxxxx@xxxx.com) or phone (xxx-xxx-xxxx). I hope that you will take advantage of the opportunity to collaborate with me on this important area of health education research.

Sincerely,

Julia K. Wulsch, MS

enclosure

<i>Fax Cover Sheet</i>

Date: _____ Time: _____

To: Julia Kish Wulsch
 University of Maryland, Health Education Dept.
 PHONE #: 301-405-2463
 FAX #: 301-314-9167

Total # of pages including cover sheet: _____

From: _____

«Company»

«Address1»

«Address2»

«City», «State»

Telephone #: _____

Fax #: _____

Contact the following physicians and CNM's as potential research participants:

APPENDIX C
CONSENT FORM AND SURVEY INSTRUMENT

[Printed on University of Maryland, Department of Public and Community Health Letterhead]

Dear Mother-to-Be,

Hello and congratulations on your recent pregnancy! My name is Julia Kish Wulsch and I am a Public and Community Health doctoral student at the University of Maryland. I am interested in maternal and child health and currently I am conducting research on maternal attitudes toward childbirth. Specifically, I am **investigating pregnant women's common fears, anxieties and confidence levels** toward childbirth over the course of their pregnancy.

I am asking for your help with my graduate research. Your participation in the study will ultimately assist in improving the birth experience for other pregnant women, perhaps even your own child in the future! Participation will involve filling out a **brief questionnaire on three different occasions** (today, during your 28th week of pregnancy and during your 37th week of pregnancy) and a **five minute telephone interview** at 1-2 weeks postpartum. In return for your efforts, you and your baby will be automatically entered in a raffle to receive the following: **3 piece, \$60 skin care gift set from Mother2Be** upon completion of the questionnaire today, a **\$75 gift certificate from Toys R Us** at the completion of the second questionnaire at 28 weeks and a **\$100 gift certificate from Baby Gap** at the completion of the third and final questionnaire at 37 weeks!

Please complete the first questionnaire today (see attached), place it in the unmarked envelope provided and seal. Then return it in the enclosed self-addressed stamped envelope. The second and third questionnaires will be mailed to you along with additional pre-paid envelopes. Your responses are strictly confidential. Each questionnaire should take approximately **10 minutes to complete** and you may, of course, withdraw from the study at any time.

Thank you for your cooperation and I wish you all the best at this exciting time in your life!

Warmly,

Julia Kish Wulsch, M.S.

IMPORTANT!

Please provide an address where you would like the second and third questionnaires to be mailed and phone number to contact you regarding the telephone interview and the raffle.

(Please print clearly to ensure your prize if you win!)

Today's Date: _____

Your Estimated Due Date: _____

Name: _____

Current Week of Pregnancy: _____
(If you are unsure, ask your health care provider)

Telephone Number: _____

Address: _____

<p>___ Check here if you would like to be provided with a copy of the findings upon conclusion of the study.</p>
--

INFORMED CONSENT FORM

Identification of Project: The Development of Maternal Confidence for Labor Among Nulliparous Pregnant Women

Statement of Age of Subject: I state that I am over 18 years of age, in good physical health, and I wish to participate in a program of research being conducted by Julia Wulsch in the Department of Community and Public Health at the University of Maryland, College Park, Maryland 20742.

Purpose: The purpose of the research is to examine pregnant women's common fears, anxieties and confidence levels toward childbirth over the course of their pregnancy.

Procedures: The procedures will involve filling out a brief questionnaire on three different occasions: (today, during my 28th week of pregnancy and during my 37th week of pregnancy) and participating in a 5 minute telephone interview 1-2 weeks postpartum.

Confidentiality: All information collected in the study is confidential. Individuals other than the researcher and the individual distributing the questionnaire will not have access to the surveys. Upon completion, all questionnaires and signed informed consent forms will be placed in sealed unmarked envelopes and kept in a locked file cabinet. I understand I will initially be matched by name on the questionnaires for tracking purposes (to mail the two questionnaires and to conduct the telephone interview). However, once all the data have been collected, my name and other identifying information will be removed and the data will be coded. The data I provide will be grouped with data others provide for reporting and presentation.

Risks: I understand that there is minimal risk involved with my participation in this non-invasive, paper and pencil, self-report research study. The nature of the material in this survey is sensitive and may cause some individuals to be emotionally upset. In the event that this should occur, I can contact either my health care provider or the investigator. In addition, a list of resource organizations will be provided at the end of the first questionnaire.

Benefits, Freedom to Withdraw and to Ask Questions: I understand that this study is not designed to help me personally, but that the investigator hopes to learn more about attitudes toward childbirth. I understand that I am free to ask questions or to withdraw from the study at any time without penalty and that doing so will not compromise the prenatal care I receive in any manner.

Please Print Your Name:

Your Signature:

Today's Date: _____

Please feel free to contact me with any questions:

Julia Kish Wulsch, MS [Study Investigator]
 Department of Community and Public Health
 Health and Human Performance Building
 University of Maryland, College Park, MD 20742
 (301) 405-2463

Thank you for participating! This survey is designed to examine maternal attitudes toward childbirth. Please answer the following questions by checking the corresponding box to your response. Remember, all of your responses are confidential. Therefore, please answer each item as honestly as possible.

Information about you

- 1) My age: _____
- 2) My race/ethnicity is:
 - African American/Black
 - Asian/Pacific Islander
 - Hispanic
 - Native American/Alaskan Native
 - White
 - Other, please specify _____
- 3) I am currently:
 - Married
 - Single, never married
 - Separated
 - Divorced
 - Living with a partner
 - Widowed
- 4) The last level of formal education I completed was:
 - Grade school
 - Some high school
 - High school degree
 - Vocational school/other non-college secondary training
 - Some college
 - College degree
 - Some graduate school
 - Graduate degree
- 5) My estimated annual household income is:
 - Less than \$9,000
 - \$9,000-23,000
 - \$24,000-38,000
 - \$39,000-60,000
 - Greater than \$60,000

(8-12 week questionnaire continued on the next page)

6) Overall, on a scale of 1 to 10 (1 being not at all knowledgeable and 10 being extremely knowledgeable) I would rank my current knowledge of childbirth as a: (Circle your answer)

*Not at all
knowledgeable*

1 2 3 4 5 6 7 8 9 10

*Extremely
Knowledgeable*

7) My current pregnancy occurred:

- sooner than I expected
 about the time I expected
 later than I expected

8) My previous pregnancies have been: (check all that apply)

- I have not had any previous pregnancies. (If you checked this box, skip to #10).
 Miscarriages. How many? _____
 Abortions. How many? _____
 Vaginal births. How many? _____
 Cesarean births. How many? _____

9) Overall, on a scale of 1 to 5 (1 being extremely negative and 5 being extremely positive) I would rank my last birth experience as:

- 1 (Extremely negative)
 2 (Negative)
 3 (Neutral)
 4 (Positive)
 5 (Extremely positive)

10a) My prenatal care provider is a:

- Physician or nurse practitioner
 Nurse midwife
 Other

10b) The major reason I chose my particular health care provider is because:

11) The source of payment for my current prenatal care and delivery is:

- Managed care organizations (HMO/PPO)
 Private insurance
 Medicare/Medicaid
 Self-pay
 Other

12) I have previously been a birth partner for someone else (i.e., I have witnessed a live birth).

- No
 Yes, Please specify how long ago _____

13) One of my siblings has had a baby within the past year.

- No
 Yes

14) Overall, on a scale of 1 to 10 (1 being not at all supportive and 10 being extremely supportive) I would rank the emotional support I have received from my birth partner (the individual who will be physically present during my delivery) regarding my pregnancy as:
 (Circle your answer)

<i>Not at all supportive</i>											<i>Extremely Supportive</i>
	1	2	3	4	5	6	7	8	9	10	

15) I currently practice the following relaxation techniques on a regular basis (at least five times per week for 30 minutes):

- I do not practice any relaxation techniques.
 Exercise
 Meditation
 Prayer
 Yoga / Tai Chi
 Other _____

16) It is important to me to experience labor and childbirth without any pain medication.

- Strongly disagree
 Disagree
 Neither disagree or agree
 Agree
 Strongly agree

17) I have previously experienced a medical event (not including childbirth) which has caused me a great deal of physical pain.

- No
 Yes, please explain _____

18) I have been diagnosed with the following medical conditions that may cause concern during pregnancy (check all that apply):

- I have not been diagnosed with a medical complication concerning pregnancy
 Diabetes/ Gestational diabetes
 Hypertension/ Toxemia/ Pre-eclampsia/ Eclampsia
 Heart conditions
 Multiple fetuses
 Previous miscarriages
 Problems with amniotic fluid/ membranes or the placenta
 Obesity
 Over 35 years of age
 Other pregnancy complication. Please specify _____

MATERNAL CONFIDENCE QUESTIONNAIRE

Think about how you imagine labor will be and feel when you are pushing your baby out to give birth. For each behavior, indicate how certain you are of your ability to use the behavior to help you cope with this part of labor by circling a number between 1, not at all sure, and 10, completely sure.

I WILL BE ABLE TO:	Not at all sure										Completely sure
	1	2	3	4	5	6	7	8	9	10	
1) Relax my body.	1	2	3	4	5	6	7	8	9	10	
2) Get ready for each contraction.	1	2	3	4	5	6	7	8	9	10	
3) Use breathing during labor contractions.	1	2	3	4	5	6	7	8	9	10	
4) Keep myself in control.	1	2	3	4	5	6	7	8	9	10	
5) Think about relaxing.	1	2	3	4	5	6	7	8	9	10	
6) Concentrate on an object in the room to distract myself.	1	2	3	4	5	6	7	8	9	10	
7) Keep myself calm.	1	2	3	4	5	6	7	8	9	10	
8) Concentrate on thinking about the baby.	1	2	3	4	5	6	7	8	9	10	
9) Stay on top of each contraction.	1	2	3	4	5	6	7	8	9	10	
10) Think positively.	1	2	3	4	5	6	7	8	9	10	
11) Not think about the pain.	1	2	3	4	5	6	7	8	9	10	
12) Tell myself that I can do it.	1	2	3	4	5	6	7	8	9	10	
13) Think about others in my family.	1	2	3	4	5	6	7	8	9	10	
14) Concentrate on getting through one contraction at a time.	1	2	3	4	5	6	7	8	9	10	
15) Focus on the person helping me in labor.	1	2	3	4	5	6	7	8	9	10	
16) Listen to encouragement from the person helping me.	1	2	3	4	5	6	7	8	9	10	

(8-12 week questionnaire continued on the next page)

CHILDBIRTH ATTITUDES QUESTIONNAIRE

Following are some common fears that pregnant women have expressed in the past. No one is expected to have them all. Some women may have none of them. Please answer as honestly as you can without consulting anyone else. If you're not sure how to rate the intensity of the fear, do not worry about it, just make a quick judgment and mark what seems about right.

Rate each fear according to the following scale:

- 1 = No anxiety; never have had that fear.
- 2 = Low anxiety; not enough to really call it fear.
- 3 = Moderate anxiety; it bothers you quite a bit, but not enough to affect your feeling of well being.
- 4 = High anxiety; it worries you a lot and affects your feeling of well being.

	No anxiety	Low anxiety	Moderate anxiety	High anxiety
1. I have fear of losing control of myself at the delivery.	1	2	3	4
2. I am really afraid of giving birth.	1	2	3	4
3. I have nightmares about the delivery.	1	2	3	4
4. I have fear of bleeding too much during the delivery.	1	2	3	4
5. I have fear I will not be able to help during the delivery.	1	2	3	4
6. I have fear of something being wrong with the baby.	1	2	3	4
7. I have fear of painful injections.	1	2	3	4
8. I have fear of being left alone during labor.	1	2	3	4
9. I have fear of having to have a Cesarean section.	1	2	3	4
10. I have fear of being torn with the birth of the baby.	1	2	3	4
11. I have fear of the baby being injured during the delivery.	1	2	3	4
12. I have fear of painful labor contractions.	1	2	3	4
13. I have difficulty relaxing when thinking of the coming birth.	1	2	3	4
14. I have fear of the hospital environment.	1	2	3	4
15. I have fear of not getting the kind of care that I want.	1	2	3	4
16. Overall, I would rate my anxiety about childbirth as 1 (no anxiety), 2 (low anxiety), 3 (moderate anxiety), or 4 (high anxiety).	1	2	3	4

Thank you for your time! Please return your survey in the mail using the self-addressed stamped envelope provided. Your completion of this survey has automatically entered you in a raffle to win a 3 piece, \$60 gift set from Mother2Be Skin Care Products! Be sure and look for part two of the survey in the mail around your 28th week of pregnancy for your chance to win a \$75 gift certificate from Toys R Us!

Please contact your health care provider if you have any questions regarding your overall physical and mental well being during your pregnancy. In the event that you want more information about these issues, a list of resource organizations addressing various aspects of pregnancy and emotional health is provided below.

National Resources for Help and Information

PREGNANCY RESOURCES

American College of Nurse-Midwives
818 Connecticut Avenue NW
Suite 900
Washington, DC 20006
202-728-9860
<http://www.acnm.org>

The American College of Obstetricians
and Gynecologists (ACOG) Resource Center
409 12th Street SW
Washington, DC 20090-6920
<http://www.acog.org>
e-mail: resources@acog.org

Better Childbirth Council of America
6006 Park Heights Avenue
Baltimore, MD 21215
410-828-7327
e-mail: TheBCCA@aol.com

The National Healthy Mothers, Healthy Babies Coalition
121 N. Washington St.
Alexandria, VA 22314
800-424-8576; 703-836-6110
<http://www.hmhb.org>

International Childbirth Education Association
P.O. Box 20038
Minneapolis, MN 55420
612-854-8660

March of Dimes Resource Center
1275 Mamaroneck Avenue
White Plains, NY 10605
888-MODIMES (663-4637) <http://www.modimes.org>

MENTAL HEALTH RESOURCES

American Psychological Association
750 First Street, NE
Washington, DC 20002-4242
202-336-5500
<http://www.apa.org>

GENERAL INFORMATION RESOURCES

National Library of Medicine
8600 Rockville Pike
Bethesda, MD 20894
301-496-6308
ATTN: Health Hotlines
<http://www.nlm.nih.gov>

Planned Parenthood of Metropolitan Washington
Serving District of Columbia,
Northern Virginia,
Montgomery and Prince George's Counties,
Maryland
202-347-8500
<http://www.ppmw.org>



Hello, I hope all is progressing well with you and your pregnancy! This is the second part of a four part survey designed to examine maternal attitudes toward childbirth. I was pleased to receive the first part of the questionnaire you already filled out and I am looking forward to receiving this next part.

PLEASE NOTE: In the event of a:

- Miscarriage
- Early delivery
- Or other situation where this survey no longer applies to you, kindly check here and return in the envelope provided.

OTHERWISE, please answer the questions on the following pages by checking the corresponding box to your response. Remember, all your responses are confidential. Therefore, answer each item as honestly as possible.

When you are done, place your survey in the return envelope provided or send it to the address on the last page of this survey.

Thank you for participating!
By completing this portion of the study today
you will be entered in a drawing to win a
75\$ gift certificate from Toys R Us!

Participants name: _____

Date: _____

Has your address or phone changed?

- 1) Since my first prenatal visit I have changed my prenatal care provider (physician, nurse practitioner, midwife).
- No
 - Yes, I changed *prenatal providers* but I did **NOT** change the type of care I receive (for example, changed from one physician to another physician)
 - Yes, I changed the *type of prenatal care* I receive (for example, midwifery-based care to physician-based care due to medical complications).
 - Yes, I changed my prenatal care provider because of another reason.
(Please specify): _____

- 2) The majority of my prenatal care visits have been with:
- A physician or nurse practitioner
 - A nurse midwife
 - I am not sure
 - Other (Please specify): _____

- 3) Overall, on a scale of 1 to 10 (1 being not at all knowledgeable and 10 being extremely knowledgeable) I would rank my current knowledge of childbirth as a: (Circle your answer)

Not at all <i>knowledgeable</i>											Extremely <i>Knowledgeable</i>
	1	2	3	4	5	6	7	8	9	10	

- 4) It is important to me to experience labor and childbirth without any pain medication.
- Strongly disagree
 - Disagree
 - Neither disagree or agree
 - Agree
 - Strongly agree

- 5) I have been diagnosed with the following medical conditions that may cause concern during pregnancy (check all that apply):
- I have not been diagnosed with a medical complication concerning pregnancy
 - Diabetes/ Gestational diabetes
 - Hypertension/ Toxemia/ Pre-eclampsia/ Eclampsia
 - Heart conditions
 - Multiple fetuses
 - Previous miscarriages
 - Problems with amniotic fluid/ membranes or the placenta
 - Obesity
 - Other pregnancy complication. Please specify

- 6) For my current pregnancy, I am attending/have attended a childbirth preparation class:
- No, I have never attended a childbirth preparation class and I do not plan to attend a class
 - No, but I have attended a childbirth preparation class for previous pregnancies
 - No, but I plan to attend a preparation class before I give birth
 - Yes
- 7) If you answered "No" in any form to the above question, please skip to question #9.
The type of class I am attending is:
- Birthing center sponsored class
 - Bradley class
 - Dick-Read class
 - Gamper class
 - Hospital sponsored class
 - HMO/PPO sponsored class
 - Hypnobirthing class
 - Lamaze class
 - LeBoyer class
 - Other, please specify _____
- 8) Some childbirth classes meet several times over the course of weeks, while others may meet over the course of a weekend. Of the class I have chosen to participate in, I have attended:
- 25% of the childbirth classes
 - 50% of the childbirth classes
 - 75% of the childbirth classes
 - 100% of the childbirth classes
- 9) I am currently:
- Married
 - Single, never married
 - Separated
 - Divorced
 - Living with a partner
 - Widowed
- 10) Overall, on a scale of 1 to 10 (1 being not at all supportive and 10 being extremely supportive) I would rank the emotional support I have received from my birth partner (the primary individual who will be present at my delivery) regarding my pregnancy as: (Circle your answer)

*Not at all
supportive*

1

2

3

4

5

6

7

8

9

*Extremely
Supportive*

10

(28 week questionnaire continued on the next page)

MATERNAL CONFIDENCE QUESTIONNAIRE

Think about how you imagine labor will be and feel when you are pushing your baby out to give birth. For each behavior, indicate how certain you are of your ability to use the behavior to help you cope with this part of labor by circling a number between 1, not at all sure, and 10, completely sure. (Circle only one.)

I WILL BE ABLE TO:	Not at all sure										Completely sure
	1	2	3	4	5	6	7	8	9	10	
1. Relax my body.	1	2	3	4	5	6	7	8	9	10	
2. Get ready for each contraction.	1	2	3	4	5	6	7	8	9	10	
3. Use breathing during labor contractions.	1	2	3	4	5	6	7	8	9	10	
4. Keep myself in control.	1	2	3	4	5	6	7	8	9	10	
5. Think about relaxing.	1	2	3	4	5	6	7	8	9	10	
6. Concentrate on an object in the room to distract myself.	1	2	3	4	5	6	7	8	9	10	
7. Keep myself calm.	1	2	3	4	5	6	7	8	9	10	
8. Concentrate on thinking about the baby.	1	2	3	4	5	6	7	8	9	10	
9. Stay on top of each contraction.	1	2	3	4	5	6	7	8	9	10	
10. Think positively.	1	2	3	4	5	6	7	8	9	10	
11. Not think about the pain.	1	2	3	4	5	6	7	8	9	10	
12. Tell myself that I can do it.	1	2	3	4	5	6	7	8	9	10	
13. Think about others in my family.	1	2	3	4	5	6	7	8	9	10	
14. Concentrate on getting through one contraction at a time.	1	2	3	4	5	6	7	8	9	10	
15. Focus on the person helping me in labor.	1	2	3	4	5	6	7	8	9	10	
16. Listen to encouragement from the person helping me.	1	2	3	4	5	6	7	8	9	10	

(28 week questionnaire continued on the next page)

CHILDBIRTH ATTITUDES QUESTIONNAIRE

Following are some common fears that pregnant women have expressed in the past. No one is expected to have them all. Some women may have none of them. Please answer as honestly as you can without consulting anyone else. If you're not sure how to rate the intensity of the fear, do not worry about it, just make a quick judgment and mark what seems about right. (Circle only one.)

Rate each fear according to the following scale:

- 1 = No anxiety; never have had that fear.
- 2 = Low anxiety; not enough to really call it fear.
- 3 = Moderate anxiety; it bothers you quite a bit, but not enough to affect your feeling of well being.
- 4 = High anxiety; it worries you a lot and affects your feeling of well being.

	No anxiety	Low anxiety	Moderate anxiety	High anxiety
1. I have fear of losing control of myself at the delivery.	1	2	3	4
2. I am really afraid of giving birth.	1	2	3	4
3. I have nightmares about the delivery.	1	2	3	4
4. I have fear of bleeding too much during the delivery.	1	2	3	4
5. I have fear I will not be able to help during the delivery.	1	2	3	4
6. I have fear of something being wrong with the baby.	1	2	3	4
7. I have fear of painful injections.	1	2	3	4
8. I have fear of being left alone during labor.	1	2	3	4
9. I have fear of having to have a Cesarean section.	1	2	3	4
11. I have fear of being torn with the birth of the baby.	1	2	3	4
11. I have fear of the baby being injured during the delivery.	1	2	3	4
12. I have fear of painful labor contractions.	1	2	3	4
13. I have difficulty relaxing when thinking of the coming birth.	1	2	3	4
14. I have fear of the hospital environment.	1	2	3	4
15. I have fear of not getting the kind of care that I want.	1	2	3	4
16. Overall, I would rate my anxiety about childbirth as 1 (no anxiety), 2 (low anxiety), 3 (moderate anxiety), or 4 (high anxiety).	1	2	3	4

Thank you for your time!
Please place your survey in the
return envelope provided or send it to:
Attn: Julia Kish Wulsch
Childbirth Research Study
XXXXX XXXXXX XXXXXX
XXXXXXXX, MD, XXXXXX

* Your completion of this survey has automatically
entered you in a raffle to win a \$75 gift certificate
from Toys R Us!
* Be sure and look for the third part of the survey in the
mail around your 37th week of pregnancy for your
chance to win a \$100 gift certificate from Baby Gap!



Hello, I hope all is progressing well with you and your pregnancy! This is the third part of a four part survey designed to examine maternal attitudes toward childbirth. I am looking forward to receiving this final written part of the survey soon and then later talking with you after the birth of your baby.

PLEASE NOTE: In the event of a:

- Miscarriage
- Early delivery
- Or other situation where this survey no longer applies to you, kindly check here and return in the envelope provided.

OTHERWISE, please answer the questions on the following pages by checking the corresponding box to your response. Remember, all your responses are confidential. Therefore, answer each item as honestly as possible.

When you are done, place your survey in the return envelope provided or send it to the address on the last page of this survey.

Thank you for participating!
By completing this portion of the study today
you will be entered in a drawing to win a
100\$ gift certificate from Baby Gap!

Participants name: _____

Date: _____

Has your address or phone changed?

- 1) Since my first prenatal visit I have changed my prenatal care provider (physician, nurse practitioner, midwife).
- No
 - Yes, I changed *prenatal providers* but I did **NOT** change the type of care I receive (for example, changed from one physician to another physician)
 - Yes, I changed the *type of prenatal care* I receive (for example, midwifery-based care to physician-based care due to medical complications).
 - Yes, I changed my prenatal care provider because of another reason.
(Please specify): _____

- 2) The majority of my prenatal care visits have been with:
- A physician or nurse practitioner
 - A nurse midwife
 - I am not sure
 - Other (Please specify): _____

- 3) Overall, on a scale of 1 to 10 (1 being not at all knowledgeable and 10 being extremely knowledgeable) I would rank my current knowledge of childbirth as a: (Circle your answer)

<i>Not at all</i>										<i>Extremely</i>
<i>knowledgeable</i>										<i>Knowledgeable</i>
1	2	3	4	5	6	7	8	9	10	

- 4) It is important to me to experience labor and childbirth without any pain medication.
- Strongly disagree
 - Disagree
 - Neither disagree or agree
 - Agree
 - Strongly agree

- 5) I have been diagnosed with the following medical conditions that may cause concern during pregnancy (check all that apply):
- I have not been diagnosed with a medical complication concerning pregnancy
 - Diabetes/ Gestational diabetes
 - Hypertension/ Toxemia/ Pre-eclampsia/ Eclampsia
 - Heart conditions
 - Multiple fetuses
 - Previous miscarriages
 - Problems with amniotic fluid/ membranes or the placenta
 - Obesity
 - Other pregnancy complication.
(Please specify): _____

- 6) For my current pregnancy, I am attending/have attended a childbirth preparation class:
- No, I have never attended a childbirth preparation class and I do not plan to attend a class
 - No, but I have attended a childbirth preparation class for previous pregnancies
 - No, but I plan to attend a preparation class before I give birth
 - Yes
- 7) If you answered "No" in any form to the above question, please skip to question #9.
The type of class I am attending is:
- Birthing center sponsored class
 - Bradley class
 - Dick-Read class
 - Gamper class
 - Hospital sponsored class
 - HMO/PPO sponsored class
 - Hypnobirthing class
 - Lamaze class
 - LeBoyer class
 - Other, please specify _____
- 8) Some childbirth classes meet several times over the course of weeks, while others may meet over the course of a weekend. Of the class I have chosen to participate in, I have attended:
- 25% of the childbirth classes
 - 50% of the childbirth classes
 - 75% of the childbirth classes
 - 100% of the childbirth classes
- 9) I am currently:
- Married
 - Single, never married
 - Separated
 - Divorced
 - Living with a partner
 - Widowed

10) Overall, on a scale of 1 to 10 (1 being not at all supportive and 10 being extremely supportive) I would rank the emotional support I have received from my birth partner (the primary individual who will be present at my delivery) regarding my pregnancy as: (Circle your answer)

Not at all
supportive 1 2 3 4 5 6 7 8 9 10 *Extremely*
Supportive

11) Throughout my current pregnancy, I have missed approximately _____ appointments with my healthcare provider. (Missed appointments are defined as appointments which were not rescheduled or made-up. If you have not missed any appointments, please enter "0".)

(37 week questionnaire continued on the next page)

MATERNAL CONFIDENCE QUESTIONNAIRE

Think about how you imagine labor will be and feel when you are pushing your baby out to give birth. For each behavior, indicate how certain you are of your ability to use the behavior to help you cope with this part of labor by circling a number between 1, not at all sure, and 10, completely sure. (Circle only one.)

I WILL BE ABLE TO:	Not at all sure										Completely sure
	1	2	3	4	5	6	7	8	9	10	
1. Relax my body.	1	2	3	4	5	6	7	8	9	10	
2. Get ready for each contraction.	1	2	3	4	5	6	7	8	9	10	
3. Use breathing during labor contractions.	1	2	3	4	5	6	7	8	9	10	
4. Keep myself in control.	1	2	3	4	5	6	7	8	9	10	
5. Think about relaxing.	1	2	3	4	5	6	7	8	9	10	
6. Concentrate on an object in the room to distract myself.	1	2	3	4	5	6	7	8	9	10	
7. Keep myself calm.	1	2	3	4	5	6	7	8	9	10	
8. Concentrate on thinking about the baby.	1	2	3	4	5	6	7	8	9	10	
9. Stay on top of each contraction.	1	2	3	4	5	6	7	8	9	10	
10. Think positively.	1	2	3	4	5	6	7	8	9	10	
11. Not think about the pain.	1	2	3	4	5	6	7	8	9	10	
12. Tell myself that I can do it.	1	2	3	4	5	6	7	8	9	10	
13. Think about others in my family.	1	2	3	4	5	6	7	8	9	10	
14. Concentrate on getting through one contraction at a time.	1	2	3	4	5	6	7	8	9	10	
15. Focus on the person helping me in labor.	1	2	3	4	5	6	7	8	9	10	
16. Listen to encouragement from the person helping me.	1	2	3	4	5	6	7	8	9	10	

(37 week questionnaire continued on the next page)

CHILDBIRTH ATTITUDES QUESTIONNAIRE

Following are some common fears that pregnant women have expressed in the past. No one is expected to have them all. Some women may have none of them. Please answer as honestly as you can without consulting anyone else. If you're not sure how to rate the intensity of the fear, do not worry about it, just make a quick judgment and mark what seems about right. (Circle only one.)

Rate each fear according to the following scale:

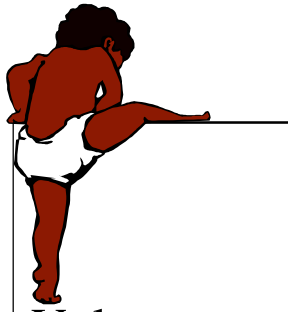
- 1 = No anxiety; never have had that fear.
- 2 = Low anxiety; not enough to really call it fear.
- 3 = Moderate anxiety; it bothers you quite a bit, but not enough to affect your feeling of well being.
- 4 = High anxiety; it worries you a lot and affects your feeling of well being.

	No anxiety	Low anxiety	Moderate anxiety	High anxiety
1. I have fear of losing control of myself at the delivery.	1	2	3	4
2. I am really afraid of giving birth.	1	2	3	4
3. I have nightmares about the delivery.	1	2	3	4
4. I have fear of bleeding too much during the delivery.	1	2	3	4
5. I have fear I will not be able to help during the delivery.	1	2	3	4
6. I have fear of something being wrong with the baby.	1	2	3	4
7. I have fear of painful injections.	1	2	3	4
8. I have fear of being left alone during labor.	1	2	3	4
9. I have fear of having to have a Cesarean section.	1	2	3	4
12. I have fear of being torn with the birth of the baby.	1	2	3	4
11. I have fear of the baby being injured during the delivery.	1	2	3	4
12. I have fear of painful labor contractions.	1	2	3	4
13. I have difficulty relaxing when thinking of the coming birth.	1	2	3	4
14. I have fear of the hospital environment.	1	2	3	4
15. I have fear of not getting the kind of care that I want.	1	2	3	4
16. Overall, I would rate my anxiety about childbirth as 1 (no anxiety), 2 (low anxiety), 3 (moderate anxiety), or 4 (high anxiety).	1	2	3	4

Thank you for your time!
Please place your survey in the
return envelope provided or send it to:
Attn: Julia Kish Wulsch
Childbirth Research Study
XXXXX XXXXXX XXXXXX
XXXXXXXX, MD, XXXXXX

* Your completion of this survey has automatically
entered you in a raffle to win a \$100 gift certificate
from Baby Gap!
* Soon you will be contacted by phone for the fourth
and final part of this survey!
* Best Wishes!

APPENDIX D
ADVERTISING FLYER



Childbirth Study of First-Time Mom's

- Volunteers wanted! Women in their first trimester (8-12 weeks of pregnancy)
- Win Prizes from Toys R Us® & Baby Gap®!
- Learn about your pregnancy & delivery!
- Only requires answering a brief questionnaire and telephone interview
- Call (xxx) xxx-xxxx!

*Sponsored by the University of Maryland, Department of Public and
Community Health*

APPENDIX E
TELEPHONE QUESTIONNAIRE

TELEPHONE INTERVIEW QUESTIONS

NAME: _____

DATE OF INTERVIEW: _____

DUE DATE: _____

DATE OF BIRTH: _____

Hello, my name is Julia Wulsch and I'm calling to conduct the final part of the University of Maryland research study on maternal attitudes toward childbirth. Congratulations on having your baby! I'd like to hear about your birth experience. Do you have some time now to answer a few brief questions?

Please remember, all your responses are confidential. Therefore, answer each item as honestly as possible.

- 1) On a scale of 1 to 10 (1 being much worse than you expected and 10 being much better than you expected), how would you rate your labor and delivery experience?
- 2) Approximately how many hours were you in labor?
- 3) Did you deliver vaginally _____ or by cesarean section _____?
If by c-section, was it previously scheduled or an emergency? _____
- 4) Did you receive any pain medications during labor and, if so, what type?
- 5) Did you receive an epidural?
- 6) How do you feel, at this time, about receiving pain medication during labor?
- 7) Did you use any pain reductions techniques, (other than medication) to deal with pain of labor? If so, what techniques did you use?
- 8) How would you rate the emotional support received during labor from your birth partner?
 - Very supportive
 - Somewhat supportive
 - Not at all supportive
- 9) How would you rate the emotional support you received from your care providers during labor and delivery?
 - Very supportive
 - Somewhat supportive
 - Not at all supportive
- 10) Overall, what two words would you use to describe your labor and birth experience?
- 11) Is there anything you would have done differently regarding your labor experience?

This completes your portion of the research study. Thank you for your time and best of luck in the future for you and your baby! I will inform you if you win any prizes.

APPENDIX F
PILOT QUESTIONNAIRE

Pilot Test Questionnaire

Thank you for agreeing to pilot test my research survey! The purpose of conducting a pilot test is to improve the way research information is collected. Improvements to the survey will be made based on your comments and suggestions. The questions below are designed to help guide you through this review process, but are not limited to the topics below. All comments and suggestions are welcome! You may also write your comments directly on the survey.

As you review the survey, please consider and comment on the following questions:

1. Please examine the cover letter of the survey (the front page):
 - a. Does it accurately reflect the contents of the survey?
 - b. Is the purpose of the study clearly stated?
 - c. Is the topic of participant confidentiality clearly stated?
2. Regarding the survey directions...
 - a. Are the directions easily understandable?
 - b. Are they concise?
 - c. Is the method for returning the mail portion of the questionnaire clear?
3. Regarding the survey questions...
 - a. Are there any words that are unfamiliar to you?
 - b. Are there any questions you feel should be included but are not?
 - c. Are there any questions you feel should be omitted or reworded?
4. Regarding the survey overall...
 - a. Is it pleasing to the eye or is it visually too busy?
 - b. Is it too long?
 - c. Does it flow well? (Should the order of any questions be changed?)
5. What “prize” would you most like to receive if you were asked to participate in this study?

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