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## Comparison of Maternal Perception of Birth: Labor Induced by Misoprostol vs Spontaneous Labor

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**COMPARISON OF MATERNAL PERCEPTION OF BIRTH:  
LABOR INDUCED BY MISOPROSTOL VS.  
SPONTANEOUS LABOR**

**By**

**Kristine E. Barber**

**A THESIS**

**Submitted to  
Grand Valley State University  
In partial fulfillment of the requirements for the  
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**ABSTRACT****COMPARISON OF MATERNAL PERCEPTION OF BIRTH:  
LABOR INDUCED BY MISOPROSTOL VS.  
SPONTANEOUS LABOR****By****Kristine E. Barber**

**This study was a comparison of the maternal perception of birth with spontaneous labor vs. labor induced by misoprostol. Perception of control, a primary factor linked with satisfaction in childbirth, was also evaluated.**

**Levine's Conservation Principles guided this study. Many studies have evaluated misoprostol's effectiveness and safety, but none have evaluated patients' perception of their birth experience when receiving the drug. An awareness of this aspect is essential to evaluate the drug's effect on the integrity of the whole individual.**

**A convenience sample of women who delivered at one regional hospital were given two questionnaires to complete before discharge. There were two groups: those who received misoprostol and those who had spontaneous labor and delivery.**

**This study found no difference in satisfaction with childbirth in general between the two groups. In addition, no difference was found in the two groups in satisfaction with labor or with delivery. There was also no difference in perceived control.**

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## CHAPTER 1

### INTRODUCTION

The birth of a child is a personally and socially significant event. It marks the beginning of a woman's motherhood role. It is a societal milestone for maturity and self-fulfillment. There are few, if any, women who cannot recount their memories of the birth of their child(ren). Many studies have identified women's subjective experiences of labor and delivery with psychosocial consequences. "Increasingly, women identify positive outcomes of pregnancy and birth with psychoemotional well-being and parental satisfaction rather than measures of mortality and morbidity"(Bramadat, 1990, p. 3).

#### Factors influencing satisfaction with childbirth

The woman's perception of her labor and birth experience and the many factors that affect it have been studied extensively. Individual factors such as culture, attitudes and emotions, maternal age, parity, education and childbirth education specifically have all been examined as to their effect on the mother's perception of her labor and delivery. Intrapartum factors such as induction versus expectant management for premature rupture of membranes, emotional support received from significant others and nursing personnel, physician vs. midwife management, use of pain control interventions, use of technological interventions, continuity of caregivers, and outcomes of labor (vaginal or cesarean section), have all been examined regarding their effect on the mother's perception of birth. Postpartum factors such as the effect of postpartum care and health of the infant at delivery have also been studied in regard to their effect on satisfaction with birth

experience. Results of studies have had a major influence on labor and delivery management in the twentieth century.

### Induction of labor

Although labor is a spontaneous and natural phenomenon, induction of labor has been an accepted practice for centuries. Induction is the stimulation of uterine contractions to produce delivery before the spontaneous onset of labor with or without rupture of membranes. (This should be distinguished from augmentation, which is the stimulation of uterine contractions when spontaneously occurring contractions are considered inadequate). A second century Roman physician, Soranus, provided the first written record of induction and augmentation (Simpson & Poole, 1998). He developed a protocol for treatment of women with small pelvic measurements. From the second to the seventeenth century, various mechanical means of induction were introduced to produce safer maternal and infant outcomes. Contemporary induction methods range from the more “natural” and noninvasive methods, such as nipple stimulation, to mechanical methods that cause cervical effacement and dilation and uterine contractility, and/or pharmacological agents to modify cervical form and stimulate uterine contractions to initiate labor.

The ideal method of labor induction has yet to be discovered. There remains a lack of knowledge of the physiological events that begin and sustain labor. There is also a wide variation in how patients respond to labor. Since the 1950s, synthetic intravenous oxytocin has been the pharmacological agent of choice for labor induction. It is the most widely used inducant. Oxytocin acts via membrane-bound receptors in the decidua and myometrium to stimulate uterine contractions. Oxytocin is less effective without initial cervical changes. “Cervical dilation is a better predictor of successful labor induction and vaginal delivery than either Bishop score or any other Bishop score component characteristic” (William, Krammer, & O’Brien, 1997, p. 784). The “Bishop score” refers

to a standardized method for evaluating patients most suitable for induction. Cervical dilation, effacement, and consistency, and fetal station and position are assessed and scored. Bishop (1964) predicted a successful and safe induction with a score of nine or more.

Medical and obstetrical reasons for induction include pregnancy induced hypertension, diabetes mellitus, and other maternal problems, postdate gestation, suspected fetal jeopardy such as intrauterine growth restriction, history of precipitous delivery in women residing long distances from the hospital, or fetal death. The most common reason for induction is postdate pregnancy, i.e. carrying the baby past the estimated date of delivery.

The rates of induction of labor in the United States have risen dramatically, almost one hundred percent, since 1989 (Simpson & Poole, 1998). There is some indication of a trend toward an increased number of elective inductions, those performed for personal preference rather than medical necessity. Two possible reasons for this increase are the benefits of elective induction related to busy and complicated schedules, and the increased efficacy of pharmacological agents in inducing labor. As methods of induction have become safer, convenience for the primary care provider has also become a factor. However, professional organizations still consider labor induction primarily as an intervention for the safety and health of mother and baby rather than for convenience.

#### Cervical ripening and prostaglandins

In the past 15 years, the concept of using either mechanical or pharmacological methods to ripen or prime the cervix before induction has become more prevalent. "Cervical ripening is a physiological process whereby the cervix becomes softer, shorter, and more pliable" (Summers, 1997, p. 71). Some agents used for cervical ripening eventually result in an onset of labor, therefore, they may also be considered inducants.

Indeed, "Cervical dilatation and effacement are reasonable predictors of the likelihood of vaginal delivery after labor induction"(Wing & Paul, 1999, March).

Typically prostaglandins are used for cervical ripening. Prostaglandins were first used intravenously to induce labor in the late 1960's (Summers, 1997). The adverse side effects caused a change in the route of administration from systemic to local application to the cervix. Kierse, (1993) in a meta-analysis of studies from 1971-1990, concluded that prostaglandins decreased the likelihood of failed induction with an unripe cervix, decreased the incidence of prolonged labor, and increased chances of a vaginal delivery. Prostaglandins are perceived by patients as being less invasive, since their administration requires no intravenous line.

Dinoprostone, PGE<sub>2</sub>, is the most commonly used of the prostaglandins. It is the only FDA approved preparation for cervical ripening and induction. Indeed, "PGE<sub>2</sub> is so effective, it has become something of a 'gold standard' against which new agents must be compared" (Carson, 1998, p. 86). Two disadvantages of PGE<sub>2</sub> are cost and ease of use. In 1999, the wholesale cost was "\$97.96 per 0.5 mg dose, or \$168.00 per 10 mg vaginal insert" (Wing & Paul, 1999, April, p. 47). Patients usually require multiple dosing. The product must be frozen until use, and thawed immediately before insertion. There is product instability without proper storage and use.

Since the early 1990s, another prostaglandin, misoprostol, (brand name Cytotec), has been used for cervical ripening and labor induction. The Federal Drug Administration (FDA) has approved this agent for the treatment and prevention of gastric ulcers resulting from chronic nonsteroidal and anti-inflammatory use (Wing & Paul, 1999, April). Cytotec does not have FDA approval for cervical ripening or induction, although it has several advantages. It is cheaper and easier to use than other prostaglandins. Wholesale cost is "\$00.52 for a 100 mcg tablet"(Wing & Paul, p. 46). It also appears to be more effective. One of the first studies of the use of misoprostol for labor induction was published in

1993 by Sanchez-Ramos, Kaunitz, Del Valle, Delke, Schroeder, and Briones. Since that time, multiple randomized clinical trials have been conducted comparing differing doses of misoprostol with oxytocin, misoprostol with dinoprostone, and misoprostol with itself in varying doses and administration frequencies. In a meta-analysis of randomized clinical trials Sanchez-Ramos & Kaunitz (2000) concluded that misoprostol was effective for induction of labor, and has been widely used for this purpose. They also found that misoprostol use resulted in a lower cesarean delivery rate than other induction regimens. From their review, vaginally administered Cytotec, (vs. orally administered), had more supportive evidence for safety. Sanchez-Ramos and Kaunitz recommended inpatient administration for induction. They considered both 25mcg and 50 mcg doses as appropriate, but noted that the lower dose was associated with less tachysystole, and the larger dose was more likely to effect delivery within 12 hours. They did not recommend induction with misoprostol in patients with a previous cesarean section until more large randomized clinical trials can support its safety.

The Cochrane Pregnancy and Childbirth Group conducted a meta-analysis of clinical trials to determine the effects of Cytotec administered vaginally for third trimester cervical ripening or induction of labor (Hofmeyr, 1998). They concluded that misoprostol was more effective than oxytocin for labor induction. Uterine hyperstimulation was more common with and without associated fetal heart rate changes. The results of individual trials with respect to cesarean section in their review were inconsistent. In comparing Cytotec with other prostaglandins, they concluded that oxytocin augmentation was needed less often. Again, uterine hyperstimulation was more common with and without fetal heart rate changes. The incidence of meconium stained amniotic fluid was increased with Cytotec as opposed to other agents. Overall, there was a reduction in instrumental deliveries and no statistically significant differences in perinatal or maternal outcomes with misoprostol. Hofmeyr concluded:

In dosages of 25 mcg three hourly or more, misoprostol is more effective than conventional methods of cervical ripening and labour induction. The increase in uterine hyperstimulation and fetal heart rate changes found in this review is a matter for concern. Although no differences in perinatal outcome were shown, the studies were not sufficiently large to exclude the possibility of uncommon serious adverse effects. Thus, though misoprostol shows promise as a highly effective, inexpensive and convenient agent for labour induction, it cannot be recommended for routine use at this stage (p. 2).

Despite its success in clinical trials, the manufacturer does not plan to pursue approval of misoprostol for labor induction (Bauer, Brown, & Chai, 1997). In fact, G.D. Searle & Co. has sent a general letter to obstetricians requesting that it not be used for this purpose (personal communication, August 23, 2000). In response to this letter the American College of Obstetricians and Gynecologists Committee on Obstetric Practice issued a news release. Their release strongly endorsed their previous conclusions, that misoprostol was safe for cervical ripening and labor induction. Clinical practice recommendations from ACOG include: 25 ug for the initial dose, administered not more frequently than every 3-6 hours, oxytocin not administered less than four hours after the last misoprostol dose, and misoprostol not be used in patients with previous uterine surgery (ACOG, 1999).

In a survey of the literature since misoprostol was first used for labor induction, no study to date has considered the woman's perception of her birth experience when receiving the drug. All of the outcomes have focused on efficacy of vaginal delivery within 24 hours and minimizing maternal and fetal physical complications related to induction and labor.

### **Implications for nursing**

Traditionally, nurses have placed emphasis on caring and on the psychosocial outcomes of health care (Bramadat, 1990). Nursing has been concerned with the patient as a whole, not limited to the physical process. While the physical safety of the mother and baby are important, and the goal of a vaginal delivery is also important, the psychological/emotional response to the birth process should also be considered. Perhaps Lomas, Dore, Enkin, & Mitchell (1987) put it best:

The medical profession has focused on the absence of mortality and morbidity during childbirth. It is this focus that has justified induction, electronic fetal monitoring, increased cesarean section rates, and other “lifesaving” technologies. Nursing, while obviously contributing to the increased safety of modern childbirth, has placed its focus and strength more on caring than on curing. Therefore, assessments of childbirth that omit consideration of less easily measured soft outcomes will fail to assess nursing’s most significant contribution (p. 125).

As we assess individuals holistically, it is important to know how an intervention affects them both physically and psychologically. This knowledge has implications for childbirth educators prenatally as they inform parents of their labor choices. This knowledge has implications for obstetric nurses in giving information and support during labor and delivery. This knowledge may assist obstetrics nurses in understanding the patient dynamics during the labor and delivery process, and in providing postpartum care.

The woman’s perception of her birth experience has implications for the health care industry as well. Hospitals as a business are aware of the importance of a positive psychological and emotional experience. “Increased competition in the United States has led to increased interest in women’s perceptions of their obstetric experience. Rising health care costs, increased competition for market share, and consumer movements in the

United States have stimulated a resurgence of attention to customer-perceived quality” (Hunter & Larrabee, 1998, p. 21). Many hospitals market their maternity care with the philosophy that if parents have a positive experience at the birth of their child(ren), they will choose that hospital for other health needs.

**Statement of purpose**

Certainly in an era where the public is expected to be more involved in their own health care, their perception of and reaction to an intervention should be considered in the evaluation of its efficacy. The purpose of this study, then, is to compare the maternal perception of control and satisfaction with the birth experience between women who have spontaneous vaginal deliveries and those who receive misoprostol for induction. In evaluating the mother’s perception of her labor and delivery, this study will contribute to a broader understanding of Cytotec as an agent for cervical ripening and induction.



## CHAPTER 2

### LITERATURE AND CONCEPTUAL FRAMEWORK

#### Conceptual framework

The conceptual framework for this study was based upon Myra E. Levine's Conservation Principles (1967). Levine most recently reiterated those principles in an article in *Nursing Science Quarterly* (1995). They are based on the assumption of adaptation, which Levine defined as the way individuals "fit" in the environments in which they live. She said, "The internal environment and the external environment are joined through adaptive patterns, and the individual wholeness is a function of their harmonious interaction" (1995, p. 38). According to Levine, adaptation was specific to the situation and also to the individual. Negative feedback was the process for effective adaptation. Once the adaptation was effective, further expenditure of energy was no longer needed.

Levine viewed the individual as holistic, or as a whole. The whole included biological, psychological, social and spiritual aspects. She quoted Erikson's definition of holism, "Wholeness emphasizes a sound, organic, progressive, mutuality between diversified functions and parts within an entirety, the boundaries of which are open and fluid" (1995, p. 39). Levine used the word "integrity" to encompass the wholeness of the individual. In Levine's framework the goal of nursing was to promote wholeness, or integrity (Fawcett, 1995). Levine stated that "Conserving the integrity of the individual is the hallmark of nursing intervention" (1995, p. 40).

Nursing should be based on the four Conservation Principles, according to Levine. Those four Conservation Principles are The Conservation of Energy, the Conservation of Structural Integrity, the Conservation of Personal Integrity, and the Conservation of

**Social Integrity.** A brief discussion of these will be presented, although this study was only concerned with the latter two principles.

The Conservation of Energy is a balance of energy output and energy input to avoid excessive fatigue (Leonard, 1990). Since her original description of the Conservation Principles in the 1960's, Levine believes the Conservation of Energy has been "firmly established, and is increased daily in research and clinical findings" (Levine, 1995, p. 40). Nurses use the Conservation of Energy to plan procedures that minimize the amount of energy the patient expends and move the patient to renewed well-being.

The Conservation of Structural Integrity focuses on the maintenance or restoration of bodily structure (Leonard, 1990, p.183). Conservation of Structural Integrity "recognizes the ability of the organism to sustain its wholeness as well as to overcome insult and injury, to restore its structure and function, and to heal" (Levine, 1995, p. 40). Healing is the protection of wholeness. The emphasis of structural integrity is on an individual's physical body.

Conservation of Personal Integrity is described as the maintenance or restoration of the patient sense of identity and self worth (Leonard, 1990). It includes psychological, emotional and spiritual well-being. Personal Integrity is the recognition of self. Levine says that we "define ourselves to ourselves" (1995, p. 40). This definition of ourselves may not necessarily be the public persona that we present. Levine adds that with all encounters we bring our past life experiences. "Everyone creates a defensive mode that insures the safety of a private self" (p. 40). Levine believes that as a person becomes a patient, they lose independence, privacy, and their personal integrity is threatened. She believes that everyone is entitled to make decisions that affect them. "The Conservation of Personal Integrity includes recognition of the holiness of each person" (p. 40).

The Conservation of Social Integrity acknowledges the patient as a social being (Leonard, 1990, p. 183). Social integrity is constructed by personal choices of social interactions. It is “created by family and friends, workplace and school, religion and cultural and ethnic heritage” (Levine, 1995, p. 40). The health care system, the community, the family, the religion, and the ethnic group an individual belongs to have their own standards and accepted behaviors which influence a patient’s expectations, choices and conduct. Nurses need to recognize the human interactions that occur, particularly with the patient’s significant others.

Levine’s theory was an important basis for this study. Comparisons between women having labor induced and those having spontaneous deliveries, and comparisons between different induction agents have been made in other studies, but only assessing a physical response. Using a holistic perspective, an individual is not limited only to a biological response. Previous studies have established that misoprostol as an inducant shortens the length of labor, thereby conserving energy. Levine would contend that Conservation of Energy is only one component of the individual. Other key variables previous studies have focused on directly relate to the Principle of Structural Integrity. These Cytotec studies’ outcomes include maternal complications such as cesarean section delivery, vaginal or cervical tears, and loss of perineal integrity. The incidence of uterine hyperstimulation and fetal complications such as fetal distress, difficulties resulting in Neonatal Intensive Care admission, and meconium stained amniotic fluid have also been examined. Again, these relate to a physical response to labor and/or induction, but do not encompass the whole individual. Absent is an evaluation of the responses related to self based on the principles of the Conservation of Personal and Social Integrity.

Of particular interest in this study was maternal perception of the birth experience which related to the Conservation of Personal Integrity. The tools which were used rely on the woman’s evaluation of herself and her experience. Self- assessment has been found

to be reliable in other studies. The Conservation Principle of Social Integrity related to the woman's perception of herself as a member of the obstetric team, (her relation to medical and nursing personnel), perception of her partner's support during and after labor, and her perception of her initial interaction with her baby. Previous studies of Cytotec have addressed variables related to energy conservation and structural integrity. The addition of the patient's perception of labor and birth induced by misoprostol provided a more holistic view of the effects of the drug on the integrity of the whole individual.

### Literature Review

#### Satisfaction with labor and childbirth

Studies of women's satisfaction with labor and childbirth have generally reflected positive results. That is, overall, women have been satisfied with their labor and childbirth experience. However, in looking at individual factors related to labor and childbirth, women's responses vary.

Variables that influence the meaning of childbirth were identified by Nichols (1996) from a review of the literature. She categorized these variables as: 1) those that are relatively constant, 2) those practitioners can influence, and 3) those that may perhaps be influenced depending on the situation. According to Nichols,

Relatively constant variables are: culture/ethnicity, hardiness, maternal age, parity, personal history, and religious faith/spiritual beliefs. Practitioners have some influence over: anesthesia/analgesia use, birthing environment, confidence, expectations, feelings of control, feelings of mastery, knowledge, labor support from companion, labor support from professionals, and self-esteem. Practitioners might have some influence over obstetrical risk factors and type of delivery (p. 72).

Some of the variables Nichols identified have yet to be investigated in regard to their effect on women's satisfaction with labor and childbirth. Nichols' list might also be grouped under the more general headings of antepartum factors and intrapartum factors.

This literature review examines studies which focused on antepartum factors, intrapartum factors, and those factors which health care professionals have some control. Both national and international studies are included.

### Antepartum factors

In an attempt to identify predictors of childbirth pain and maternal satisfaction, Dannenbring, Stevens and House (1997) explored the relationship of selected variables to childbirth pain and maternal satisfaction with childbirth. Fifty-two primiparae and eighteen multiparae were recruited from twenty-six childbirth education classes at three hospitals in two central Illinois cities. Women included in the study had experienced vaginal and cesarean deliveries. The multivariate design included the use of several published instruments to measure maternal satisfaction, pain, and control. Data from primiparae and multiparae were analyzed together and separately. The subjects completed a series of questionnaires during the week after the last prenatal class, early in labor, and several days following delivery.

Linking childbirth pain and maternal satisfaction with childbirth, Dannenbring et al.(1997) found that some demographic, medical, and psychological variables were predictive. Increased pain was associated with induced labor and unwanted pregnancy. It was also associated with unsupportive coaches, long labors, those who were depressed after childbirth education, those who expected medication free deliveries after receiving childbirth education, and those women who were induced because of anticipated complications and committed to a medication-free delivery. Differences between multiparae and primiparae regarding childbirth pain and satisfaction were discovered. “Psychological factors were linked to pain and satisfaction for primiparae and not multiparae”( p. 140). Primiparas who expected childbirth education to promote medication-free childbirth experienced more affective pain and decreased satisfaction. Correspondingly, primiparae with less education and low expectations that childbirth

education would assure medication-free delivery were more satisfied. Non-white multiparas also experienced greater satisfaction, although this result was limited by sample size.

The two major limitations the authors identified were the homogeneity of sample and the use of one open-ended, true-false, or Likert-type items to measure each variable. Also, the authors did not define “education”, but it appeared from the discussion of their study they meant childbirth education. Troublesome is the pairing of pain and childbirth satisfaction. The authors linked pain and satisfaction throughout their discussion as if they were synonymous. Other weaknesses may be the sheer number of questions the participants were required to answer and the timing of the administration of the questionnaires. Furthermore, the participants were informed that the nurse would be evaluating their labor and stress, which may have introduced a “performance factor”. The researchers suggested their results need to be confirmed by other studies. They recommended study of multiparae and primiparae separately.

To determine the influence of culture on women experiencing a cesarean section, a cross-cultural study was conducted by Fawcett & Weiss (1993). Previous studies had indicated women who deliver by cesarean have less positive perceptions of their childbearing experiences than women who deliver vaginally. The authors identified four variables: primarily culture, then anesthesia, presence of a support person, and preparation for cesarean birth. The target population consisted of three different ethnic groups, with fifteen women in each group, from the postpartum unit of a large metropolitan hospital on the west coast. The researchers used the Perception of Birth Scale and an open ended questionnaire.

The study concluded there were no substantial differences in adaptation to cesarean birth for the three cultural groups in their sample (Fawcett and Weiss, 1993) . The women reported moderately positive birth experiences. The women said increased

information about cesarean birth, increased support from health care professionals, and a more rapid delivery could have improved their birth experience.

The small sample size in the Fawcett and Weiss study (1993) was adequate for an exploratory study, but they suggest the study be replicated with a larger sample size and with additional cultural groups. Language was a potential influencing factor. The Hispanic women spoke Spanish, and received questionnaires translated into that language. Their responses were then translated into English for data analysis. The researchers also discovered the need for instruments that are not biased towards elements of the birth experience important only to White Caucasians.

To investigate whether lower income women utilize different resources for preparing and coping with childbirth than higher income women, how those resources affect pain perception, perceived control and satisfaction with labor and delivery, and whether the two economic groups differ, Johnston-Robledo (1998) conducted a study. Forty-five women from the northeastern United States who delivered vaginally participated. Women were almost equally divided between higher (49%) and lower (51%) income. Three tools were designed specifically for the study. Two assessed the amount of information women learned about childbirth, and a third included general questions about labor and delivery. In addition, a shortened, ten item version of the Labor Agency Scale (Hodnett & Simmons-Tropea, 1987), and the Labor/Delivery Evaluation Scale by Humenick & Bugen (as cited in Johnston-Robledo, 1998) were used. The surveys were distributed prenatally, and returned two days to four months postpartum.

In Johnston-Robledo's study neither formal nor informal education was associated with childbirth outcomes (1998). Overall level of preparation was related to a positive childbirth experience. Both lower and higher income groups had similar childbirth outcomes, except that lower income women reported more pain. Perceived control (positive) and pain (negative) were strongly correlated with labor and delivery evaluation,

and indicated that these variables may be important predictors of childbirth satisfaction for women of diverse socioeconomic backgrounds.

The Johnston-Robledo study (1998) was limited by its small sample size and use of some tools not previously tested for validity and reliability. The distribution of the questionnaires to participants before labor and delivery may have influenced their childbirth experience and subsequent perception of their experience. Additionally, the amount of time difference in the return of questionnaires could have affected the results.

Individual attitudes and emotions have been demonstrated to have an effect on overall satisfaction with the birth experience. 825 women in southeastern England were evaluated to determine their expectations of childbirth (Green, Coupland & Kitzinger, 1990). Believing that outcomes might influence retrospective reports, the authors' study was prospective in design. Literature previous to that time suggested that "control, often used in the sense of control over what was being done to one, is associated with a more positive birth experience, increased satisfaction, and less depression" (p. 16). The researchers looked at a multidimensional picture of the woman's psychological state and interrelationships between four psychological outcome measures, which included satisfaction with birth. Measurement was made using a series of three questionnaires, the first mailed at 28 to 30 weeks of pregnancy, the second at 36 weeks, and the third at approximately six weeks postpartum.

Most women in the study expressed satisfaction with their birth experience. Overall satisfaction was strongly related to parity, with multiparas more positive than primiparas. Negative expectations were generally associated with poor psychological outcomes, whereas positive expectations were associated with positive outcomes and satisfaction. Obstetric interventions were strongly negatively related to overall satisfaction, feelings of fulfillment, and feelings of not being in control. The use of pain medications was also related to decreased satisfaction. These findings were independent



of parity. Two factors, information and feeling in control, were identified as important to the women's birth experience and emotional well-being.

Limitations of the Green et al. (1990) study focus mainly on the tools used. It would be helpful to demonstrate their reliability for assessing the variables they were intended to measure. Although the sample size was large, it was homogeneous. Nevertheless, the large sample size and the design of the study make this a hallmark inquiry in assessing maternal satisfaction with childbirth.

In a qualitative study using a phenomenological approach, women's expectations during pregnancy and their subsequent experiences in childbirth were evaluated (Gibbins & Thomson, 2001). Data was collected from eight primiparas in northern England using unstructured, tape-recorded interviews in late pregnancy, and again at two weeks postpartum. The women all expected to take an active part in their labor, and being "in control" was their main desire. Limitations of this study are the necessarily small sample size and limited diversity of the population, and evaluation of the interviews by the interviewers themselves. A tool to evaluate satisfaction along with the postpartum interviews would have given this study more credibility.

Knapp (1996) hypothesized that there was a positive relationship between perceived control and childbirth satisfaction, and internality would enhance a positive relationship of perceived control to childbirth satisfaction. Eighty primigravidas from a suburban area who had vaginal deliveries were evaluated. Subjects were recruited from childbirth preparation classes. The Labor Agency Scale (Hodnett & Simmons-Tropea, 1987), and two other reliable tools were used. Data was collected in their third trimester to measure internality, and at two weeks postpartum to evaluate the labor and delivery experience. Perceived control had a significant positive correlation with childbirth satisfaction, but internality did not. Obstetric procedures such as medications, monitoring and anesthesia had only a secondary influence. Cervical dilation, education, anesthesia,

and medication explained 29% of the variance in perceived control. Knapp also found that location of delivery was second after perceived control in affecting childbirth satisfaction. Her findings confirmed those of other researchers regarding control and satisfaction.

The strengths of this study were the tools which have been used in other studies and have proved to be consistently reliable and valid. Knapp (1995) limited the study to women who were primiparas and delivered vaginally to reduce the effects of those differences on the results, which also limits the ability to generalize the findings to other populations. All women in this study attended childbirth education classes, which may have affected expectations, control, and ultimately satisfaction.

To describe women's perceptions of childbirth and childbirth education before and after education and birth, Hallgren, Kihlgren, Norberg, and Forslin (1995) conducted a qualitative study. Eleven women were interviewed. Women and their partners were selected from antenatal classes led by midwives. Participants came from a middle sized Swedish town. The 30 to 120 minute tape-recorded interviews were performed in the couples' home or at the antenatal clinic before and after childbirth education, at about 27 and 36 weeks gestation, and again one to three weeks postpartum. The participants were asked to talk about their perceptions of childbirth education and childbirth. Each interview was transcribed verbatim, and read and discussed by three authors. The first author then continued the analysis. She identified four perceptions of childbirth: 1) a threatening event, 2) a joyful but a frightening event, 3) a normal process and a challenge, and 4) a trustworthy life event. Lack of information or inconsistent information led to a more negative perception of childbirth than expected, while increased information and information validated by their experience led to a more positive perception of childbirth.

Hallgren and colleagues' (1995) study is limited by the extent in which participants felt free to express themselves during the interviews, and by the subjectivity of the researchers in analyzing the results. The sample was fairly homogeneous. The study's

major contribution is the description of women's childbirth experience postpartum that is not limited to a questionnaire or a Likhert scale.

Slaninka, Galbraith, Strzelecki, & Cockroft (1996) conducted a similar study focused on measuring the effectiveness of birth preparation classes in a community hospital setting. In addition, they also computed correlations to determine if a relationship existed between selected coping strategies and overall childbirth satisfaction. The researchers had a convenience sample of 127 pregnant women who attended the childbirth preparation classes. Within a week of delivery, a birth congratulatory note and two survey instruments were mailed to each participant. The two instruments, developed by Koehn (1992) have been used in several studies.

Slaninka and colleagues (1996) found that 85% of respondents were satisfied with the overall childbirth experience. There was a significant relationship found among the variables related to information and overall childbirth satisfaction. Of the twelve who reported a lack of satisfaction, all said they did not receive enough information.

Slaninka and colleagues identified a lack of definition of "overall childbirth satisfaction" (1996). Of the twelve who expressed dissatisfaction, six did not experience their original birth plan and five had cesarean births. They were uncertain whether the participants were satisfied with the type of delivery, the health of the baby, their own performance, or some other factor. The very homogeneous sample prevents generalization of this study's findings.

#### **Intrapartum factors**

Factors influencing the childbirth experience were studied by Waldenstrom, Borg, Olsson, Skold, & Wall (1996). Waldenstrom and colleagues sought to describe the birth experience and the women's comprehensive assessment of it in a sample of 295 Swedish women representing a large city area. The study also sought to identify factors that could explain variations in the total birth experience. The questionnaires specifically designed

for the study included close-ended questions using a Likert scale and an open-ended question asking women to list factors they believed affected their birth experience.

Most women in Waldenstrom and colleagues' (1996) study reported experiencing pain, had different levels of anxiety, and had panicked for a short time or part of their labor. Most felt greatly involved in the birth process, were satisfied with their own achievement, and thought they had coped better than expected. There was no statistical difference between primiparas and multiparas in this study. In a regression analysis of 38 variables, six factors contributed to overall experience. Support from the midwives, positive expectations for birth, involvement and participation in the birth process, and feeling in control increased satisfaction. Long labor pain and surgical procedures, (cesarean section, vacuum extraction, forceps, episiotomy, etc.), decreased satisfaction. The researchers concluded that negative and positive feelings can coexist. The researchers proposed that women's evaluations of their childbirth experience were influenced by physical and psychosocial factors.

The time of data collection, on average 45 hours after birth, was a limitation of their study identified by the authors. Relief that labor and delivery was over, and care women received from staff might have influenced patients' assessments of their birth experience. Other limitations were the tool and the sample. The reliability of the questionnaire used had not been established. This study needs to be replicated with other populations to determine its universal validity.

In the last phase of a longitudinal study of women's views of childbirth, Mackey (1998), attempted to identify how women described and evaluated their labor and delivery experience and what factors were related to that evaluation. Mackey described her study as an exploratory field study. She conducted tape-recorded, detailed interviews, asking two open-ended questions, during the early postpartum period in the hospital or in the participant's homes. Tapes were transcribed verbatim, and qualitative data analysis

done. Participants were a convenience sample of 60 married, low-risk multigravidae who, with their husbands, had attended a series of Lamaze classes .

Descriptions of childbirth performance in Mackey's study fell into three categories: Managing well, having difficulty, or managing poorly. The majority of respondents (87%) responded to question one with positive statements. The participant's positive or negative evaluation of the labor and delivery experience was related to their reports of how well they performed during the childbirth experience. Those who managed well tended to describe childbirth in positive terms, those who had difficulty and those who managed poorly used positive and negative terms.

Limitations of the study included homogeneity of sample, and questionable subjectivity of interview evaluations. Mackey suggested that more data is needed to identify predictors of performance during labor and delivery, since performance seemed to be the key variable to satisfaction with the participants in her study.

Priorities women have regarding their labor and delivery, and whether midwives and obstetricians had those same priorities was the subject of a study by Drew, Salmon and Webb (1989). The researchers interviewed 15 women postpartum to identify their preferences in respect to objective features of labor and postpartum care. These objective features were then rated postpartum by a sample of 224 women. Obstetricians and midwives were given the same questionnaire to determine the accuracy with which they perceived their patients' views.

In the Drew et al. (1989) study women identified explanations of procedures and involvement in decisions, support from the presence of a partner and qualified hospital staff, and physical comfort of the postnatal ward as the most important factors in childbirth satisfaction. Midwife and obstetrician rankings correlated highly with those of the mothers.

There are some essential problems with the design of this study by Drew et al. (1989). It is not certain that the factors the original 15 women identified would necessarily be the ones the 224 women would have chosen if they been given an open ended question. The authors' purpose was to correlate items patients felt were important to their satisfaction with their childbirth experience with those midwives and physicians felt were important. However, some of the physicians who participated in the study were from other hospitals, and possibly served a different population than those patients who completed questionnaires. There was a lack of adequate description of recruitment of subjects, criteria for participation, and collection of data. Because some of the population were patients of some of the midwives and physicians, their responses could have been affected by the fear of consequence for their answers.

To explore the lived experience of giving birth, as perceived by women who had given birth, Halldorsdottir and Karlsdottir (1996) conducted a phenomenological study. Interactive interviews were conducted with a purposeful sample of 14 mothers who had given birth in hospitals in Iceland. Interviews were recorded and transcribed by the authors and two students. Halldorsdottir and Karlsdottir concluded that a woman's circumstances, such as parity, age, life-experience, marital status, and presence of a support person influenced her perception of her birth experience. The authors also noted that a woman's expectations can also influence her perception of the birth experience. The results of the study suggested that a woman's sense of control is threatened from three sources: labor pain's severity, medications used to control pain, and a labor attendant that is perceived as uncaring.

This study was limited culturally and socially to women in Iceland. The authors attempted to reduce bias with several methods. Nevertheless, this study would have more credibility if the interviews were analyzed by someone other than the interviewers themselves. Also, multiple researchers increased the chance of investigator bias.

What is the long-term impact of women's first childbirth experience, and what factors, if any, are associated with long-term satisfaction or dissatisfaction? Simkin (1991) conducted a study of twenty women from the Seattle area to try and answer these questions. Women who attended a childbirth education class, taught by the author, were given a labor and birth questionnaire a few days to weeks after their first childbirth. She gave the same sample a similar questionnaire to complete 15 to 20 years later. The author also conducted, transcribed, coded and evaluated a 1 1/2 hour interview with the participants following the second questionnaire.

Women in Simkins'(1991) study who had the highest overall satisfaction ratings tended to describe the birth in terms of feelings of personal or couple accomplishment. The issue of control seemed to be important to all women. Many of the satisfied women thought that the experience increased their self-esteem or self-confidence. Some of the less satisfied women thought that the experience made them more assertive than previously and increased their self-esteem. Other less satisfied women thought their self-esteem was lowered by their experience, especially if they felt they did not cope well. Every participant remembered specific things about staff. The women with positive feelings remembered being well cared for and supported by the doctors and nurses. All less satisfied women had complaints about their doctor's and nurse's actions. Simkin concluded that patients' sense of control over what was happening to them and the decisions about their care were important factors in satisfaction, and that childbirth experiences had potential for long-term positive or negative impact.

Simkins'(1991) study was important because of the timespan (up to 20 years) it covered. A larger sample size, less homogeneous sample, use of tested tools, and administration and evaluation of tools by persons other than the researcher would lend more validity to the findings. Familiarity with the researcher could have had either a

positive or negative effect on the participants' willingness to share their perceptions. Familiarity could also have influenced what information they shared.

Allen (1999) conducted a study of 61 postnatal women to evaluate psychological outcomes, including an index of satisfaction with childbirth. The women were randomly selected from two wards in a Maternity Unit of a District General Hospital in England. The women were given a group of questionnaires to complete between 48 hours and five days postnatally, and a second set of questionnaires mailed to be completed as near to four weeks postpartum as possible. The Perception of Birth Scale by Marut and Mercer (Cranley, Hedahl, & Pegg, 1983) was among six questionnaires used. The results of Allen's research which apply to this study relate to the Marut and Mercer Perception of Birth Scale. Allen found that the method of delivery did not appear to be associated with the score for satisfaction with the birth. Primiparae in Allen's study had significantly higher satisfaction with birth scores than women of higher parity.

The homogeneity of the population studied and the short data collection period of 25 days were limitations to this study. Allen (1999) omitted discussion of specific results of the Perception of Birth Scale, but included discussion of results of other tools used. The questionnaires developed by the researcher have not been tested for reliability or validity. Allen's conclusions regarding factors that affect satisfaction with childbirth do not confirm previous studies, and require further investigation.

#### Factors over which health professionals have some control

Women's perceptions of the birth experience have been evaluated comparing expectant management with induction of labor. In a randomized, controlled trial of induction vs. expectant management with premature rupture of membranes at term, women from 72 hospitals in six countries evaluated the method of labor management they received (Hodnett et al., 1997). The primary outcome was the rate of serious neonatal infection, and the secondary outcome was the cesarean delivery rate. Also evaluated were



the women's evaluations of their birth experiences. Data was collected at the participating hospitals on 5041 women who met study criteria from January 1, 1992 to May 31, 1995 . The women were randomly assigned to four different groups: immediate induction with intravenous oxytocin; immediate induction with vaginal PGE2 gel followed by intravenous oxytocin if necessary; expectant management followed by intravenous oxytocin if necessary; or expectant management followed by induction with PGE2 gel if necessary. Participants were asked to complete evaluation questionnaires within a few days postpartum, preferably before leaving the hospital. The three measures of satisfaction included in the questionnaire were evaluations of the treatment received, perceived control during childbirth, and evaluations of the experience of participation in the study. Questions regarding treatment received and participation in the study were developed by the researchers. Perceived control was measured by the Labor Agency Scale (Hodnett & Simmons-Tropea, 1987). Completed questionnaires were received from 4129 women.

All the statistically significant differences between the two groups favored induction of labor over expectant management. In multiple logistic regression analyses of many variables, more difficult labors and those which ended in cesarean section delivery were associated with less positive evaluations of the childbirth experience. Method of induction had no significant effect on the women's evaluations. "What happened must be best" reflected the feelings of women postpartally in evaluating their experiences, according to Hodnett and colleagues (1997, p.220).

Support for this study was a random allocation to each group, large sample size, high response rate, and the inclusion of participants from six countries. One measure of satisfaction was evaluated using a previously tested tool, however, two other measures of satisfaction were assessed using questionnaires developed by the researchers. There was an increased chance of error with multiple researchers.

Hodnett & Simmons-Tropea (1987) conducted a series of studies regarding women's evaluations of their childbirth experiences. They used Oliver's Labor Scale (as cited in Hodnett & Simmons-Tropea) as a basic tool. Their revisions resulted in the development of the Labor Agency Scale. The Labor Agency Scale was designed to measure expectancies and experiences of personal control during childbirth. A subsequent study by the researchers suggested that the Labor Agency Scale scores remained stable over at least three months postpartum. "Factor analysis suggested that it is a unifactorial scale, with factor loadings between 0.36 and 0.85" (Hodnett & Simmons-Tropea, p. 301).

A prospective investigation to determine the effects of induction on women's experiences during labor and on early mother-infant interaction was conducted by Out, Vierhout, Verhage, Duivenvoorden, & Wallenburg (1985). The study included 271 women who attended an antenatal clinic in Rotterdam and delivered in the same hospital. Elective induction was chosen by 72 women, and 199 women had spontaneous labor. In the 36th week of pregnancy, the women completed a questionnaire. In the 38th week, women were asked to choose between elective induction and spontaneous onset of labor after receiving written information about induction the previous week. A subsample of 33 mothers from both groups was videotaped with their infants during the first ten minutes of contact. These tapes were judged in regard to attachment behaviors and emotional involvement. 209 women were interviewed on the fourth or fifth day after delivery about their experiences of labor, delivery and motherhood. Six months after delivery, 249 subjects completed and returned a second questionnaire to express their opinions of their labor, their state of health, their baby's health, and about nursing the infant

Out, et al. (1985) found an absence of differences between women in the two groups. The only significant difference discovered by this study was a greater fatigue by women in the spontaneous labor group, which was explained by the longer duration of labor of that group. No differences were apparent in perception of pain and anxiety,

drowsiness and in the evaluation of labor as a whole. In a separate report about their study, the authors concluded that differences between women who choose induction and those who choose spontaneous labor could not be explained completely by the mode of delivery. "Pre-existing differences in personal circumstances and characteristics may be the major source of variance in women's experience of labor and delivery"(Out et al., 1986, p. 380).

Out et al. (1985) developed their own tools for this study, which was a limitation. There was no description provided regarding the written information about induction the patients received prenatally. That information could have influenced the outcomes of the subsequent interview and questionnaire. Due to small numbers in the observed groups, control for pre-existing differences in personal characteristics was impossible.

Bramadat (1990) measured maternal expectations, perception of childbirth and satisfaction in a convenience sample of 91 primiparas. Of the sample recruited through prenatal classes at two tertiary care hospitals, 25 of the participants had labor induced, 40 were augmented with pitocin, and the remaining 36 had spontaneous labors and deliveries. The questionnaire completed by subjects during the third trimester included a Sociodemographic Data Form and three scales: the Childbirth Expectations Questionnaire by Beaton & Gupton (as cited by Bramadat), an antepartum form of the Labor Agency Scale by Hodnett & Simmons-Tropea (1987), and an antepartum questionnaire developed by Bramadat. Postpartum forms of these instruments, and a Satisfaction with Childbirth Questionnaire designed by the investigator, were administered to participants at 24 to 48 hours after delivery and again at four to six weeks postpartum.

Overall, women in this study expressed a positive perception of the birth experience. This positive expression was not completely reflected in the responses to specific aspects of their birth experiences, although individual items remained on the positive end of the scale. Women who had induced or augmented labor perceived the

birth experience less positively than women who experienced spontaneous labor, both at 24–48 hours after delivery and four to six weeks postpartum. Most women had less positive perceptions of their childbirth than they had anticipated. Women who had a better experience than they expected were more satisfied than those who had a worse experience than they had expected. “Perception of the birth experience emerged as a stronger predictor of satisfaction with childbirth than the discrepancy between expectations and perception of the event” (Bramadat, 1990, p. 234). Perception of control emerged from multiple regression analysis as the strongest predictor of satisfaction with childbirth.

Limitations of the Bramadat (1990) study included the use of tools developed by the researcher for this study. Her study only included primiparous women who attended childbirth education classes, and therefore cannot be generalized to other populations. Completing questionnaires before labor may have affected the women’s expectations, the labor experience itself, and postpartum outcomes.

In a randomized controlled trial of primiparous women at a hospital in New Zealand, 482 women returned questionnaires delivered by mail at six weeks postpartum, evaluating their labor experience (Sadler, Davison, & McCowan, 2001). Women were divided into two groups, those who received unspecified routine care and those who received active labor management. Active management was defined by early amniotomy, vaginal exams every two hours, and early use of high dose pitocin for slow progress. The researchers found a correlation between satisfaction and adequate pain relief, one-to-one midwifery care, adequate information and explanations from staff, validated expectations regarding the length of labor, avoidance of postpartum hemorrhage, and less than three vaginal exams. However, in a comparison of the two groups, the results demonstrated that active management did not have a negative effect on women’s satisfaction with labor and delivery care.

In the Sadler, Davison, & McCowan study, only primiparous women were included. It would be helpful to have delineated what “routine care” is. Routine care may differ from institution to institution and from physician to physician.

There have been several studies comparing mothers’ perceptions of their birth experience, vaginal versus cesarean. A hallmark of these was a study by Marut and Mercer (1979), who interviewed a convenience sample of 20 primiparous mothers who had cesarean births and 30 primiparous mothers who had vaginal deliveries. The researchers followed the interview with the Perception of Birth Scale. Those events which were related to the greatest differences between the two groups were “control of the situation, fear during delivery, worry about baby’s condition during labor, and the time of mother-infant contact following delivery” (p. 262). Overall, a more positive birth experience was expressed by those who delivered vaginally than those who had emergency cesarean births. Marut and Mercer also concluded that those who had regional anesthesia for their cesarean delivery viewed their experience more positively than those who had general anesthesia. The presence of a support person was also a significant factor related to satisfaction with the birth experience.

A possible limitation might have been the proximity to the experience when the interview/questionnaire was administered, i.e. the cesarean group may have perceived their experience less negatively over time. The researchers thought postoperative pain might be related to the lower scores in the cesarean group, and certainly pain relief methods have improved since the study was conducted. Larger sample sizes would increase validity.

Women’s perceptions of cesarean and vaginal deliveries were re-examined in a follow-up study by Fawcett, Pollio, and Tully (1992). The national cesarean birth rate was 24.4% during the data collection for their study, which is approximately where it has remained to this present time. The researchers compared three groups, 254 with vaginal deliveries, 113 with planned cesarean deliveries, and 106 with unplanned cesarean

deliveries. Two forms of the Perception of Birth Scale were used to measure perception of the birth experience, along with a one-item Pain Intensity Scale, a one-item Distress Scale, and a Background Data Sheet for demographic information.

In the Fawcett, et al. (1992) study, all of the women reported moderately positive birth experiences. The range of scores implied that the unplanned cesarean delivery group had more negative perceptions than those with planned cesareans or vaginal deliveries. There did not seem to be a relationship between length of labor and perception of the birth experience in either group. Cesarean delivered women who had regional anesthesia had a more positive perception of the birth experience than those who received general anesthesia. There was no evidence of difference in scores among the vaginally delivered women who had none, local or pudendal anesthesia, or regional anesthesia. No evidence was found of a difference in perception of the birth experience whether the father was present or absent. Pain intensity and physical distress were both inversely related to perception of the birth experience.

The study results were limited to self-reported data, (although women are usually accurate reporters of their labor and delivery experiences). The findings were not possible to generalize beyond the predominantly white middle class population of childbearing women which characterized the subjects. The large sample size and the reliability of the instruments used were strengths of this study.

A factor analysis was explored by Fawcett and Knauth (1996) to determine the reliability of a subscale structure of the Perception of Birth Scale. Their sample consisted of 320 women from one suburban and one urban teaching hospital in a mid-Atlantic state. These women had experienced a vaginal delivery or an unplanned cesarean section. They completed the Perception of Birth Scale one to two days following delivery and before discharge from the hospital.

Fawcett and Knauth (1996) eliminated four of the original 29 items on the Perception of Birth Scale because they did not meet statistical criteria in their factor analysis. The remaining 25 questions were grouped into subscales titled "Delivery Experience, Labor Experience, Delivery Outcome, Partner Participation, and Awareness"(p. 84). The authors found the Delivery Experience subscale and the Labor Experience subscale to be reliable for research purposes. The Delivery Outcome, Partner Participation, and Awareness subscales had the lowest reliability coefficients, which they had expected because of the small number of questions related to these subjects. Fawcett and Knauth recommended, "Prior to documentation of adequate reliability for all subscales, the Perception of Birth Scale should be used only as a total scale"(p. 85).

A comprehensive literature review with meta-analysis to compare the differences between vaginal and cesarean delivery on 23 psychosocial outcomes of childbirth, including immediate and long-term satisfaction, was conducted by DiMatteo et al. (1996). Their examination did not explore causality, but merely the existence of relationships. The literature reviewed was published from 1979 through 1993. Two of the authors read and abstracted 358 articles, 43 of which were included in the meta-analysis. Ten of the studies directly related to maternal satisfaction with the birth experience immediately postpartum. Those studies suggested that although their babies were healthy, mothers who delivered by cesarean were more dissatisfied with their birth experience. Three studies addressed women's satisfaction with childbirth six weeks to 12 months postpartum, and showed cesarean mothers were significantly less satisfied with their delivery experiences. Decreased satisfaction was noted to be greater for unplanned cesarean deliveries than planned.

The results of the analysis by DiMatteo et.al (1996) depended on the tools used in each individual study. Time of data collection could have affected results. (In 1979, the cesarean rate was 15%, and by 1993 it was 23.5%). There was also little control for other

variables which affect outcomes between vaginal and cesarean birth mothers. The authors suggested the need for conceptual models and multivariate and longitudinal studies to further determine the association between method of delivery and psychosocial outcomes.

### Summary

In general, assessment of satisfaction with labor and childbirth is considered a “soft outcome” and has some inherent difficulties. A survey in-hospital may be most accurate regarding proximity to the experience and provides a large and easily accessible population sample. However, a woman may fear retribution or neglect for herself or her baby if she is too critical. She may be anxious to please her caregivers. She also may be tired. In addition, “Childbirth experiences which do not meet parents’ expectations lead to a grieving response in which the first stage is denial” (Lumley, 1985, p.142). Negative feelings are less apparent the first six months, and after one year, than at seven to twelve months (p. 142). Madeline Shearer (1983) reported that childbirth educators have noticed a mother’s loyalty to her own birth experience, a belief in the correctness of the management of her delivery. The women in the studies reviewed reflected this generally positive response.

Most of the studies reviewed used some type of questionnaire(s). Questionnaires are useful for assessing large numbers of participants. They are easy to administer, relatively objective, and easy to code and analyze. Tested instruments are more reliable and valid. However, respondents tend to give more positive answers with a fixed item questionnaire than during an open-ended interview.

The definition of satisfaction itself can pose a difficulty. Are researchers asking if the woman is satisfied with her performance, her satisfaction with her partner’s support, satisfaction with the outcome, satisfaction with the care she received, or satisfaction with some other aspect? Satisfaction with the labor and delivery experience may be



measured differently by different women according to what is most important to them (Bramadat, 1994).

It is important to keep these cautions in mind. However, a review of the previous studies reveals some consistent themes. The factor which has the most effect on satisfaction is involvement/ participation/ control. Involvement, participation, and control seem to be closely linked to another factor identified by researchers, that is information and/or preparation. It appears that the more informed women are about what is happening to them and their babies during childbirth, the more they feel included and an active participant. To some extent this makes them feel in control of what is happening. Closely linked to this idea is staff support from doctors, midwives and nurses, which is another factor which appears to be important to patient satisfaction with childbirth. Support from another person, friend or family of the laboring woman is connected to satisfaction also.

Positive expectations are suggested to be associated with increased satisfaction, although in some studies expectations higher than what actually occurred caused decreased satisfaction. There are mixed results on whether primiparas are more or less satisfied than multiparas with their birth experience. This is somewhat perplexing, as one would expect the multiparas to have more realistic expectations and have more knowledge about their labor and delivery. A sense of accomplishment and a sense of having coped well with childbirth are linked with increased satisfaction in several studies. Three studies suggest the delivery setting is important to childbirth satisfaction.

Factors associated with decreased satisfaction with childbirth are predictably the opposite of factors which increase satisfaction. A sense of lack of involvement and participation, feeling out of control, a lack of information, absence of support from caregivers and significant other(s), and perceived poor coping are all linked with decreased satisfaction. Pain itself is associated with decreased satisfaction. In addition,

the use of pain medications and obstetric interventions may decrease mothers' satisfaction, although the information about this is conflicting. Cesarean section delivery, in particular, is associated with less satisfaction than vaginal delivery, and unplanned cesarean section is even more strongly related to decreased satisfaction. Women who have general anesthesia are less satisfied than those who receive regional anesthesia.

Results of studies comparing induction vs. spontaneous labor and delivery are inconsistent, although they lean towards increased satisfaction with induction. Perhaps control is related to this. The degree which demographic factors influence women's satisfaction with labor and childbirth is uncertain.

#### Implications for study

Nursing is involved with labor and delivery in a variety of ways. Many childbirth educators are nurses. Office nurses are a primary source of information for expectant women who seek prenatal care. Labor nurses interact with laboring women giving information, providing support, and assisting them with coping with their labor and delivery. Nurses provide immediate postpartum care and support until discharge from the hospital, and public health nurses and home care nurses provide follow up with patients in their homes. Nursing focuses on the whole individual. Increased knowledge of patients' satisfaction, or dissatisfaction with induction with misoprostol will provide useful information for these nurses in their roles of providing information and support.

From the literature review, control was identified as the single most important factor in patient satisfaction with labor and childbirth. Because induction using Cytotec involves the woman making a decision in conjunction with her midwife or physician and often with her significant other, perhaps women induced with misoprostol have an increased sense of control, and an increased sense of involvement and participation. Discussion regarding induction with Cytotec occurs between the patient and her primary provider. This discussion may meet another critical factor in women's satisfaction with

labor and delivery, that of receipt of information. Women who are induced have made the decision either at the suggestion of or at least the approval of their midwife or physician. Typically women who undergo induction are admitted to the hospital early in the morning, and deliver later in the day, (rarely during the night). These conditions may affect the degree which the patient feels caregiver support and a positive relationship with the staff, another factor identified to be important in patient satisfaction.

It has been indicated that women who deliver by unplanned cesarean are less satisfied than those who have planned cesarean deliveries and those who deliver vaginally. Inconclusive is whether women who are induced are more satisfied with their labor and delivery than those who have spontaneous labors. Specifically, there is no information which indicates if women induced with misoprostol are more satisfied with their labor and delivery than those who have spontaneous labors. This suggests several questions for study.

#### **Research questions**

- 1) Do women whose labor is induced with misoprostol perceive a greater sense of satisfaction in general than those who experience spontaneous labor and delivery?
- 2) Do women whose labor is induced with misoprostol perceive a greater sense of satisfaction with delivery than those who experience spontaneous labor and delivery?
- 3) Do women whose labor is induced with misoprostol perceive a greater sense of satisfaction with labor than those who experience spontaneous labor and delivery?
- 4) Do women whose labor is induced with misoprostol perceive a greater sense of control than those who experience spontaneous labor and delivery?

**Definition of terms**

**Induction-** The stimulation of uterine contractions to produce delivery before the spontaneous onset of labor, with or without rupture of membranes.

**Control-** “The perception of personal ability to shape or influence a particularly stressful person-environment relationship” (Knapp, 1996, p. 8), as measured by the Labor Agency Scale (Hodnett & Simmons-Tropea, 1987).

**Spontaneous labor-** The onset of regular contractions resulting in cervical change without the use of mechanical or pharmacological interventions.

**Satisfaction-** A positive attitude or affective response to labor and delivery, as measured by the Perception of Birth Scale (Marut & Mercer, 1979).

## CHAPTER 3

### METHODS

#### Design

This was a retrospective study to examine selected aspects of a woman's perception of the birth experience between two comparison groups: women who experienced a spontaneous labor and delivery, and women who had labor induced with misoprostol. Quantitative data was collected after delivery and/or before discharge from the hospital.

#### Population and Sample

A convenience sample of women who were at least 37 weeks gestation and delivered at an upper midwest regional hospital in spring/summer, 2002, were eligible for the study. Participants were of necessity literate in English to complete the questionnaires. Women who had a stillbirth or a baby admitted to neonatal intensive care were excluded. Those who had a planned cesarean delivery were also excluded.

#### Setting

At the time of the study, the hospital averaged 67 births per month, with an approximately 23 percent cesarean section rate. Approximately 50 percent of those cesarean sections were elective. Not all women who delivered were eligible or agreed to participate. Group composition was determined by the antepartum use or nonuse of misoprostol. Group and sample size were not anticipated pre-study, however, the goal was a minimum of thirty in each group. The population served by the hospital was mostly Caucasian. The hospital was a 243-bed regional referral center, which served patients in

23 county service area. A full 60 percent of the hospital's population traveled over 25 miles to come for care. This distance may have affected patient's choice of induction vs. spontaneous labor. At the time of the study, there were eight obstetricians, two family practice physicians, and three midwives who shared seven individual practices and admitted patients to the hospital maternity unit. Generally the labor and delivery nurses were very experienced. Average time of employment for registered nurses in the obstetric unit was eleven years. The experienced nurses and the midwives have had a great influence on patient care in labor and delivery, favoring a more supportive rather than invasive approach to labor management. Both physicians and midwives used misoprostol for labor induction. Information and consent for induction was obtained verbally by the individual midwife or physician, and was not consistent among caregivers. Cytotec dosage protocol was either 25 or 50 mcg every four hours (see Appendix A). Individual dosages were determined and administered only by midwives or physicians.

### Limitations

Many factors, including personal variables such as expectations, emotional support, continuity of caregivers, pain control used, and number of technological interventions during labor were assumed to be distributed fairly evenly amongst the two groups. Therefore, those were not evaluated in this study. This study was limited to patients in one geographic area at one hospital. Another limitation was the timing of questionnaire administration, which was early postpartum. Results might have been a consequence of the "halo" effect other studies have mentioned. That is, perceptions of labor and birth might have been most positive early postpartum. Those positive perceptions might not have been sustained after a time of adjustment and reflection. There was a possible Hawthorne effect. Caregivers were aware of the study. This might have changed their behavior towards patients, influencing the results. Because this study was conducted over a period of time, there was no control over extraneous factors, such as

staffing levels, that changed from one day to the next. Self-reports of satisfaction might have been reflective of a desire to please rather than a true report of feelings. Close-ended questions also tend to reflect more positive than negative responses.

The above limitations applied to participants in both groups. Since this study was a two group comparison, it was assumed that both groups were equally affected by the limitations, and therefore those limitations did not affect the data significantly. A difference between the two groups was the caregivers' attitude towards induction with misoprostol, which could not be controlled. Especially with elective inductions for non-medical reasons, the nursing staff may have reflected a negative attitude towards the procedure.

### **Instruments**

A letter of introduction was given to almost all women who delivered during the study time. (See Appendix B). Women who consented to participate in the study signed a consent form. (See Appendix C). A basic sociodemographic data form was completed by the researcher, which included gravity, parity, number of living children, gestation at time of delivery, presence/absence of medical problems during the pregnancy, type of delivery, type of labor, reason for induction if induced, and medication used for induction. (See Appendix D). Women who agreed to participate in the study were given another demographic form to complete. (See Appendix E). Two tools were used: the Perception of Birth Scale (Marut and Mercer, 1979) and the Labor Agency Scale (Hodnett and Simmons-Tropea, 1987). (See Appendices F and G). These scales were provided for the participants to complete postpartum and before discharge from the hospital. The Perception of Birth Scale has been used in multiple studies. It was developed from a 15 item scale by Samko and Schoenfeld (as cited by Marut & Mercer, 1979). The Perception of Birth Scale has 29 items rated on a scale ranging from

one (not at all), to five (extremely). Nine items relate to control, two to being part of the team, four with receiving information. “Eleven of the items refer to labor, twelve to delivery, two to both labor and delivery, and three to the first contact with the newborn after delivery” (Beck, 1998, p. 255). The scale is designed to measure a woman’s feelings of confidence, control and satisfaction with her labor and delivery and initial contact with her newborn. There is an alpha reliability coefficient of .83 for the total Perception of Birth Scale (Beck, p. 255). Its content validity has been established by the literature. Fawcett and Weiss reported an internal consistency reliability coefficient of .77 for a cross-cultural sample (1993). In addition, Fawcett and Knauth reported a Cronbach’s alpha reliability of .85 in a sample of 320 women, where 245 delivered vaginally and 100 had unplanned cesarean sections (1996). Reliability for the present study, using Cronbach’s alpha coefficient, yielded .84. Permission to use the scale was given by Ramona Mercer in March, 1999. (See Appendix H).

It was tempting to divide the Perception of Birth Scale into subscales that would specifically indicate selected aspects which contributed or deterred a woman’s satisfaction with her childbirth experience. Fawcett and Knauth’s (1996) analysis of the factor structure of the Perception of Birth Scale determined that only the larger subscales of Delivery Experience (7 items), and Labor Experience (7 items) were satisfactory for research purposes. Delivery Experience had a Cronbach’s alpha reliability of .87, and Labor Experience had a Cronbach’s alpha reliability of .79 in their factor analysis. The present study found similar reliability coefficients, .82 with the Delivery subscale and .84 with the Labor subscale. While Fawcett and Knauth suggested only using the Perception of Birth Scale as a whole until further research was done on reliability for all the subscales, this study looked at the two subscales individually, and also the results of the whole.

The Labor Agency Scale also has been used in multiple studies. The developers, Hodnett and Simmons-Tropea, based it on a questionnaire by Oliver (as cited by Hodnett



& Simmons-Tropea, 1987). They reported its use on 680 occasions by 1987 ( p. 309). Its present shortened form, (which has been determined to be equally reliable and valid as the longer version), consists of ten items. Each item has a seven step Likert scale ranging from “almost always” to “rarely”. The Labor Agency Scale was designed to measure expectancies and experiences of personal control during childbirth. Hodnett and Simmons-Tropea (1987) report “inter-item correlations were significant at the .0001 level or higher ... All item-total correlation coefficients were significant at the .001 level or better... Reliability coefficients ranged from .94 to .95” (p. 304). Results of the present study yielded similar reliability, with a Cronbach’s alpha coefficient of .82. Permission to use the Labor Agency Scale was given by Dr. Ellen Hodnett via e-mail on December 10, 2001. (See Appendix H). She provided the ten item version and suggested its use for this study.

### **Procedures**

Human subjects approval was obtained from the Research Review Committee of Grand Valley State University. Permission was also obtained from the supervisor of research at the hospital, and the manager of the Women, Infant Care Center. Once the study was launched, women were approached by the researcher after their delivery and given information about the study. They were assured of confidentiality, and given a permission form to sign indicating their willingness to participate. They were assured that there would be no negative consequences for them if they declined. Those who agreed to participate were given a questionnaire to complete. The completed questionnaire was put in a sealed envelope by the participant, and collected by the unit clerk before discharge. Questionnaires were not evaluated until after the completion of the study in an effort to keep early results from influencing later results. This study did not introduce any variable that would not otherwise occur, therefore there was no risk to the subjects who participated.

## CHAPTER 4

### RESULTS/DATA ANALYSIS

The purpose of this study was to compare the maternal perception of control and satisfaction with the birth experience between women who had spontaneous vaginal deliveries and those who received misoprostol (Cytotec) for induction. Findings related to women's perception of satisfaction with childbirth in general. Satisfaction with labor and satisfaction with delivery as separate components were examined. Sense of control during childbirth, which has been closely linked with satisfaction, was also evaluated.

Data were collected from a convenience sample of women who delivered at an upper midwest regional medical center during the spring and summer of 2002. Of the 94 persons who agreed to participate, 72 completed and returned the questionnaires. Four persons were found to be ineligible after a review of their medical records. Data were analyzed using Statistical Package for the Social Sciences (SPSS).

#### Data collection

After obtaining informed consent, demographic data was obtained by the researcher from the patient's chart, and other demographic data was supplied by the respondents. Participants completed two questionnaires. The first was the Perception of Birth Study, (POBS), a 29 item questionnaire found to be reliable to measure control and satisfaction with labor and delivery (Marut and Mercer, 1979). The second tool was the Labor Agency Scale, (LAS), a 10 item questionnaire which reliably measures control during childbirth (Hodnett and Simmons-Tropea, 1987). The questionnaires were completed after the subjects' delivery and before their discharge from the hospital. Subjects were divided into two groups. Group 1, the Cytotec group, received Cytotec to induce their labor. Group 2, the non-Cytotec group, experienced spontaneous labor and

delivery and did not receive Cytotec. There were 33 women in the Cytotec group, and 35 women in the non-Cytotec group.

In reviewing the demographic information which follows in Tables 1 and 2, there were some significant differences in the two groups. Eight women (24.2%) who received Cytotec delivered by cesarean section, as opposed to two women (5.7%) in the spontaneous labor group. It might be argued that this difference was related more to the reason the women were induced, such as post-dates or fetal macrosomia, rather than the use of Cytotec itself. Further study would be necessary to determine the probable cause for this difference in rate of cesarean deliveries. It is interesting that there was no difference in satisfaction between the two groups, when cesarean births are usually associated with decreased levels of satisfaction (DiMatteo, et al., 1996).

The level of education also differed between Group 1 and Group 2. 14 (42.4%), of the women who received Cytotec had a high school education or less, as opposed to five (14.3%) women who experienced spontaneous labor. The level of income somewhat followed this difference. Six women (18.2%) in the Cytotec group reported an income of less than \$20,000 annually and only one woman (2.9%) in the non-Cytotec group reported an income of less than \$20,000. However, income in all other education levels was fairly equal between the two groups.

Additionally, there was a total of three (9.1%) women in the Cytotec group who were separated or divorced, as opposed to none in either category in the non-Cytotec group. Sample size would need to be much larger to determine if this was a general trend.

**Table 1****Health Record**

	<b>Cytotec, n=33</b>	<b>Non-Cytotec, n=35</b>
<b>Average gravidity</b>	2.76 (S.D. 1.94)	2.03 (S.D. 1.12)
Primiparous	9 (27.3%)	13 (37.1%)
Gravida 2	10 (30.3%)	14 (40%)
Gravida 3 or greater	14 (42.4%)	8 (22.8%)
<b>Average parity</b>	1.18 (S.D. 1.24)	.69 (S.D. .72)
Primiparous	12 (36.4%)	16 (45.7%)
One live birth	11 (33.3%)	14 (40%)
Two or more births	10 (30.3%)	5 (14.3%)
<b>Average gestational age</b>	39.27 (S.D. 1.01)	39.29 (S.D. 1.07)
<b>Medical problems</b>	8 (24.2%)	6 (17.1%)*
<b>Vaginal birth</b>	25 (75.8%)	33 (94.3%)
<b>Cesarean birth</b>	8 (24.2%)	2 (5.7%)
<b>Reasons for induction</b>		
Post-date	8 (24.2%)	N/A
Social	4 (12.1%)	N/A
Fetal well-being	4 (12.1%)	N/A
SROM	4 (12.1%)	N/A
Macrosomia	3 (9.1%)	N/A
Maternal medical pb.	1 (3%)	N/A
Distance from hospital	1 (3%)	N/A
No reason given	5 (15.2%)	N/A
<b>Cytotec dosage used</b>		
25 mcg x 1	14 (42.4%)	N/A
25 mcg x 2	7 (21.2%)	N/A
50 mcg x 1	6 (18.2%)	N/A
50 mcg x 2	2 (6.1%)	N/A
50 mcg, 25 mcg	4 (12.1%)	N/A
<b>Received Pitocin</b>	8 (24.2%)	8 (22.9%)

\*Data missing for two subjects

**Table 2****Demographic data**

	<b>Cytotec, n=33</b>	<b>Non-Cytotec, n=35</b>
<b>Age</b>		
Range	20-41	20-40
Average (Mean)	28.8 (S.D. 5.86)	28.91 (S.D. 4.6)
<b>Ethnicity</b>		
Caucasian	30 (90.9%)	31 (88.6%)
Native American	3 (9.1%)	3 (8.6%)
Asian	0	1 (2.9%)
<b>Education</b>		
High school or less	14 (42.4%)	5 (14.3%)
Secondary	19 (57.6%)	30 (85.7%)
<b>Income*</b>		
<\$20,000	6 (18.2%)	1 (2.9%)
\$20-39,000	6 (18.2%)	8 (22.9%)
\$40-59,000	7 (21.2%)	5 (14.3%)
\$60-79,000	6 (18.2%)	8 (22.9%)
\$80-99,000	5 (15.2%)	7 (20%)
>100,000	2 (6.1%)	2 (5.7%)
<b>Marital Status</b>		
Single	3 (9.1%)	2 (5.7%)
Married	26 (78.8%)	33 (94.3%)
Separated	1 (3%)	0
Divorced	2 (6.1%)	0
<b>Prenatal Classes</b>		
Average	2.73 (S.D. 2.95)	3.29 (S.D. 3.26)
None	11 (33.3%)	11 (31.4%)
All eight	4 (12.1%)	6 (17.1%)

\*Data missing for one subject in the Cytotec group and four subjects in the Non-Cytotec group

### **Research questions**

**Question 1:** 1) Do women whose labor is induced with misoprostol perceive a greater sense of satisfaction in general than those who experience spontaneous labor and delivery?

General sense of satisfaction with labor and delivery was measured by the Perception of Birth Scale (Marut & Mercer, 1979). Total possible scores on the Perception of Birth Scale ranged from 29 to 145. The results in the Cytotec group ranged from 78 to 135. The mean score in the Cytotec group was 102.48, (S.D. 16.28). For the non-Cytotec group, the range was 83 to 124, with a mean of 106.63, (S.D. 10.78). In an independent t-test,  $t = -1.122$ , with 44.35 df, level of significance .268. Overall, these scores indicated a similar sense of satisfaction with labor and delivery for both groups, and no statistically significant difference between the two groups.

**Question 2:** Do women whose labor is induced with misoprostol perceive a greater sense of satisfaction with delivery than those who experience spontaneous labor and delivery?

Isolating the seven questions from the Perception of Birth Scale related to satisfaction with delivery as suggested by Fawcett and Knauth (1996), the possible range of scores was 7 to 35. In the Cytotec group, the range was 8 to 32, and the mean was 20.33, (S.D. 6.53). For the non-Cytotec group, the range was 10 to 35, and the mean was 22.56 (S.D. 4.07). In an independent t-test,  $t = -.378$ , with 61 df, level of significance .707. Satisfaction with delivery in particular was generally lower than with childbirth in general. There was little difference between the Cytotec group and the non-Cytotec group in satisfaction with delivery itself.

**Question 3:** Do women whose labor is induced with misoprostol perceive a greater sense of satisfaction with labor than those who experience spontaneous labor and delivery?

Seven other questions from the Perception of Birth Scale, related to labor, and suggested by Fawcett and Knauth (1996), were isolated to examine satisfaction with labor. Possible scores ranged from 7 to 35. The Cytotec group had a range of 11 to 33, with a mean score of 21.36 (S.D. 6.76). The non-Cytotec group had a range of 14 to 31, with a mean score of 22.56 (S.D. 4.07). In an independent t-test,  $t = -.860$ , 48.32 df, level of significance .394. Satisfaction with labor in particular in both groups was also lower than with childbirth in general. There was no significant difference between the two groups with labor itself.

**Question 4:** Do women whose labor is induced with misoprostol perceive a greater sense of control than those who experience spontaneous labor and delivery?

Sense of control was measured by the Labor Agency Scale (Hodnett & Simmons-Tropea, 1987). Possible scores were 10 to 70. The Cytotec group had a range of 29 to 69, with a mean of 49.06 (S.D. 10.11). The non-Cytotec group had a range of 27 to 64, with a mean of 50 (S.D. 8.77). In an independent t-test,  $t = -.407$ , df 65, level of significance .686. Sense of control was in the mid-range of scores, indicating a moderate sense of control. In sense of control, there was no significant difference between the two groups.

In summary, demographic data suggested an obvious difference in cesarean section rate and level of education between the spontaneous labor group and the group induced with misoprostol. Despite these differences, there was a similar sense of satisfaction with labor and delivery for both groups. Satisfaction with delivery and satisfaction with labor as separate components also revealed no significant differences in levels of satisfaction.

**Both the spontaneous delivery group and the Cytotec group evidenced a moderate sense of control, with no statistical difference between groups.**



## CHAPTER 5

### DISCUSSION AND IMPLICATIONS

The purpose of this study was to compare the maternal perception of control and satisfaction with the birth experience between women who had spontaneous vaginal deliveries and those who received misoprostol (Cytotec) for induction. A reliable tool, the Perception of Birth Scale (Marut & Mercer, 1979), was used to measure satisfaction with childbirth in general. In addition, subscales of the Perception of Birth Scale, as suggested by Fawcett and Knauth (1996) were used to look at satisfaction with labor and satisfaction with delivery as separate components. Because control has been closely linked with satisfaction in childbirth, a reliable tool to measure control, the Labor Agency Scale (Hodnett & Simmons-Tropea, 1987), was also used. These questionnaires were administered to a convenience sample that was divided into two groups: those who received Cytotec for induction of labor and those who had a spontaneous onset of labor.

#### Discussion of findings

For each question, satisfaction with childbirth in general, satisfaction with delivery, satisfaction with labor, and sense of control during childbirth, there was no statistical difference between the two groups. There was a similar sense of satisfaction with childbirth in general in both groups, with an average score of 102.48 in the Cytotec group and 106.63 in the non-Cytotec group, with a possible range of 29 to 145. Satisfaction with delivery itself was somewhat lower, with an average score of 20.33 in the Cytotec group and 20.94 in the non-Cytotec group, from a possible range of 5 to 35. Still, there was no statistical difference in satisfaction with delivery between the two groups.

Satisfaction with labor was also somewhat less satisfying, with an average score of 21.36 in the Cytotec group and 22.56 in the non-Cytotec group. Again, there was no statistical difference between the two groups. Both groups reported on the high end of a sense of control, with an average of 49.06 in the Cytotec group and an average of 50 in the non-Cytotec group, (possible score 7-70). There was no statistical difference between the groups in sense of control.

There was a statistically higher incidence of cesarean delivery in the Cytotec group (24.2%) as opposed to the non-Cytotec group (5.7%). In a meta-analysis of 44 trials, Sanchez-Ramos & Kaunitz (2000) found a lower cesarean delivery rate in the misoprostol group than in control groups. Other results of individual misoprostol trials with respect to cesarean delivery rates have been inconsistent (Hofmeyr, 1998). This result suggests further investigation.

Also in the literature, unplanned cesarean delivery is accompanied by decreased satisfaction. "When interviewed in the hospital and at home up to twelve months later, cesarean mothers were significantly less satisfied with their birthing experiences." (DiMatteo, et al., 1996, p. 310). Since there was no difference in satisfaction in the two groups, this is intriguing. These results may be related to small sample size, and not predictive of the general population. It is possible that the rate of satisfaction in the group which received misoprostol and delivered vaginally was actually higher than the rate of satisfaction in the spontaneous labor group, and their high rate of satisfaction offset a lower satisfaction of those who had cesarean births. The sample size for these subgroups was not adequate to determine if that was the case.

In previous studies researchers have not considered the woman's perception of her birth experience when receiving misoprostol. All of the outcomes have focused on efficacy of vaginal delivery within 24 hours and minimizing maternal and fetal physical complications related to induction and labor. There has been an estimated 100% increase

of labor induction since 1989 (Simpson & Poole, 1998). In addition, the more than 40 randomized clinical trials published in an eight year period demonstrate an increased use of Cytotec for cervical ripening and labor induction (Sanchez-Ramos & Kaunitz, 2000). This prevalent use calls for investigation of patient satisfaction with the medication. While Cytotec's efficiency and safety as an inducant has increased its usage by physicians, the nursing focus is on the patient as a whole. Nurses are interested in positive psychological and emotional outcomes as well as achieving results in a safe and efficient manner. Information regarding a new medication used in inducing labor is useful for childbirth educators, labor nurses, and obstetric nurses involved in postpartum care. The information is also useful to the health care industry in general, as it promotes positive birth experiences to enhance public relations.

A variety of factors have been identified which influence satisfaction with labor and delivery. Generally, women give positive responses regarding their labor and childbirth, expressing a "loyalty" to their own childbirth experience (Shearer, 1983). Women also tend to evaluate individual items related to labor and delivery with less positive responses. (Bramadat, 1990). The present study's results were consistent with previous results. Women were satisfied with childbirth in general, but rated delivery less positively and labor less positively than childbirth in general.

In a review of the literature, control was the single most important factor linked with childbirth satisfaction. Women in the present study reported a sense of satisfaction with childbirth in general, and a moderate sense of control. Previous studies closely related involvement and participation with control. Information and preparation were also found to be important to a positive birth experience. These factors were not evaluated specifically in the present study, but the receipt of information by patients regarding their induction with Cytotec may have contributed to their sense of satisfaction.

Staff support and the support of another person contributes to childbirth satisfaction, according to the literature. One item on the Labor Agency Scale (Hodnett & Simmons-Tropea, 1987) reads “I felt I was with people who care about me”. Every respondent in the present study rated that item a “1”, or “always”. Staff and friend or family support for both groups were consistently high.

The literature suggested positive expectations led to positive experiences, although in some studies high expectations which were unfulfilled led to decreased satisfaction (Green, Coupland, & Kitzinger, 1990). A repeated measures design would be required to evaluate expectations and perception of experience, which was beyond this study.

A sense of accomplishment, and a perception of coping well also contributed to satisfaction in previous studies. Many items on both questionnaires used in the present study related to accomplishment and coping, and therefore supported this factor as being important to satisfaction.

Factors which decreased satisfaction were predictably the opposite of those which increased it. Pain was linked with decreased satisfaction (Dannenbring, et al., 1997). The use of pain medications and obstetrical interventions also decreased satisfaction. These items were assumed to be consistent in both groups, and were not evaluated in this study.

According to the literature, cesarean deliveries were associated with less satisfaction than vaginal deliveries. Fawcett, Pollio and Tully found that women who had unplanned cesarean deliveries had less positive perceptions of childbirth than those with vaginal deliveries (1992). The present study did not support those findings. Although there was an obviously greater unplanned cesarean delivery rate in the Cytotec group, the satisfaction rate was similar to the non-Cytotec group.

A large study by Out, Vierhout, Verhage, Duivenvoorden, and Wallenburg, (1985), and another by Hodnett and colleagues (1997) suggested an increased satisfaction with induction of labor versus spontaneous delivery. Bramadat (1990) found a decreased

satisfaction with childbirth when comparing an induction group with a spontaneous delivery group. The group which was induced in the present study had a similar satisfaction rate to the group which experienced spontaneous labor. Perhaps a difference between groups would be discovered if those who had unplanned cesarean deliveries were omitted. The sample size of this study was not adequate to conduct such an evaluation.

#### **Findings related to theoretical framework**

The conceptual framework of this study, Myra E. Levine's Conservation Principles (1967), emphasizes the wholeness of the individual. In Levine's theory, the goal of nursing is to promote wholeness (Fawcett, 1995). The Conservation of Energy and the Conservation of Structural Integrity are principles which mainly apply to the physical existence of the individual. Psychological, emotional and spiritual well-being are encompassed in the Conservation of Personal Integrity. In a discussion of the Conservation of Personal Integrity, Levine stated that she believes that everyone is entitled to make decisions that affect them. Certainly this is related to individual control. Several items refer to control on the Perception of Birth Scale, (Marut and Mercer, 1979). The Labor Agency Scale is designed specifically to measure control (Hodnett and Simmons-Tropea, 1986). Satisfaction also relates to Conservation of Personal Integrity, as it reflects psychological and emotional contentment.

The fourth Conservation Principle, the Conservation of Social Integrity, was also important to this study. Family, friends, workplace, school, religion, cultural and ethnic heritage all are part of the person's social environment, and affect the patient's expectations, choices and conduct. Specifically in this study, questions related to the obstetric team, the woman's partner, and support from others contributed to evaluation of childbirth satisfaction. Satisfaction with labor and childbirth doesn't occur in a vacuum, but rather in the context of a social environment.

As mentioned, previous studies have evaluated misoprostol, but only assessing a physical response. Using a holistic perspective, an individual is not limited to only a physical response. Misoprostol has been shown to decrease the amount of time in labor, conserving energy (Kolderup, McLean, Grullon, Safford, & Kilpatrick, 1999). But Conservation of Energy is only one aspect of the individual. Misoprostol has not been linked to increased cesarean section rates, increased maternal side effects, an increase in lower Apgar scores, or increased admissions to neonatal intensive care units (Hofmeyr, 1998). This demonstrates conservation of structural integrity. But Conservation of Structural Integrity is only one aspect of the individual. An addition of a patient's evaluation of her own satisfaction with her birth experience when induced with misoprostol contributes to a holistic evaluation of its use. Conservation of Personal Integrity and Conservation of Social Integrity can be evaluated using the tools mentioned.

Significant, then, is the positive response to their experience of women in both groups. Generally, women had a positive sense of control and satisfaction with their labor and childbirth. Although the Cytotec group had a higher rate of cesarean births, thereby a loss of Structural Integrity, they evaluated their experiences positively.

Therefore, with the knowledge that misoprostol is effective in accomplishing delivery, is safe in relation to maternal and neonatal outcomes, and women who receive it have a similar perception of satisfaction as those who experience spontaneous labor, we are able to recommend it as an agent for induction. The integrity of the individual as a whole will not be threatened by its use.

### Limitations

This study was limited by several factors. The sample was a convenience sample, in one geographic area, with a fairly homogenous population. The sample size was small. The use of questionnaires for evaluation only allowed for a limited response, so that the subject was required to make a forced choice. On the demographic portion the subjects

completed, the item “level of education” was not constructed in a way that could easily be coded for statistical evaluation. A difference between the Cytotec group and the non-Cytotec group regarding level of education was apparent in the analysis, so a clearer evaluation of that item would have been helpful. Instructions for completing the Perception of Birth Scale should have been more clearly stated.

The time of administration of the questionnaire was of necessity soon after birth. A more valid response regarding the patients’ perceptions might have been obtained at a later date.

Several factors known to influence childbirth satisfaction were not evaluated or controlled for. Patient expectations, the use of pain control medication, and the number of technological interventions were assumed to be similar in both groups, although there was no valuation of these items.

Several factors involving staff were beyond the control of this study. Caregivers were aware of the study, which may have influenced their actions towards the patients. There was no control over staffing levels, and no way of knowing their effect on patient satisfaction. Continuity of caregivers was not controlled. Some nurses, with a more natural approach to childbirth, may have had a negative attitude toward induction of labor in general. Given the controversy surrounding its use as an inducant, they may have had negative opinions about misoprostol specifically. Physicians and midwives obtained verbal consent for the use of misoprostol, and there was a wide variety in the amount and content of the information they gave their patients regarding the drug. Physicians and midwives also used a variety of dosages in inducing their patients. This was accounted for in the data, but sample size was too small to determine if dosage had any effect on satisfaction.

#### Implications for Nursing

The effect induction with Cytotec has on childbirth satisfaction has implications for several types of nurses. Childbirth educators, in their discussion about induction of labor,

can include Cytotec as an option that many patients regard positively. Labor nurses can monitor and support patients who receive Cytotec, knowing that generally they don't need to anticipate negative feelings about the process. Postpartum nurses, also, can anticipate positive responses to the childbirth experience from women who have been induced. These nurses need to remember, however, that this was a small sample size of a homogenous population in only one hospital. Nevertheless, this is the only information to date about patient satisfaction when induced with misoprostol.

Physicians and midwives can be reassured that misoprostol is not only an effective and safe medication for induction, but that generally their patients will not have a more or less satisfactory childbirth experience because of it. They can offer this information when they are discussing options for induction with their patients.

Hospitals, sensitive to patient satisfaction, will find this information useful as they look at policies regarding labor induction. Since misoprostol has not been approved for use as an inducant by the manufacturer or the Food and Drug Administration, some institutions would be hesitant to support its use within their facility. However, the knowledge that patients who receive Cytotec have no different evaluations of their satisfaction with labor and delivery than those who deliver spontaneously should be reassuring. This knowledge, coupled with the results of its efficacy and safety from previous studies, (Sanchez-Ramos & Kaunitz, 2000), lend support to the use of misoprostol.

### Recommendations for Research

The results of this study could be strengthened by using the same study design, but distributing the questionnaires to patients in several hospitals with a greater variation in population. An increased sample size would lend more validity to the results. The level of education portion of the demographic sheet should be reconstructed so that the results are easily coded for evaluation. An ideal study would include an evaluation of



patient expectations prior to labor and delivery, and include this information when evaluating results. Another variable which would be helpful to include would be the use of pain medications, including epidurals. The number and type of medical interventions, such as internal uterine and fetal monitoring, and use of forceps or vacuum extraction, is another variable which may have some effect on patient satisfaction. A repeated measures design would contribute to validity. Administration of the questionnaires (the Perception of Birth Scale and Labor Agency Scale), after birth and before discharge, and at some time a few weeks postpartum, would establish whether women's evaluation of childbirth satisfaction is stable over time.

Because questionnaires in themselves limit the information that can be obtained, a qualitative study could be conducted. Patients in two groups, those who received Cytotec and those who had spontaneous deliveries, could be interviewed about their childbirth experiences. The results of such a study would either corroborate or contradict the results obtained with the questionnaires.

### Conclusions

This study contributes to the knowledge we have about the use of misoprostol as an inducant, and women's evaluations of their labor and delivery. The perception of childbirth is a complex event affected by many variables, too many to be controlled in a small study. In general, women who were induced with Cytotec, in varying dosages, were as satisfied with their childbirth as women who experienced spontaneous labor and delivery.

The validity and reliability of the tools used in this study contributed to the strength of the findings. Similar repeated studies in different settings and more diverse populations would be necessary to generalize these results. The greater cesarean delivery rate in the Cytotec group has not been seen consistently in previous studies evaluating the efficacy and safety of Cytotec as an inducant, and this warrants further investigation.

## **APPENDICES**

## Appendix A

### Prostaglandin Induction Protocol

Prostaglandins are inserted vaginally by a physician or midwife for cervical ripening and the induction of labor.

#### CONTRAINDICATIONS

- 1) Abnormal NST
- 2) Prior classical c-section incision
- 3) Active genital HSV
- 4) Placenta previa
- 5) Undiagnosed vaginal bleeding
- 6) Abnormal fetal lie
- 7) Known hypersensitivity

#### EQUIPMENT:

Fetal Monitor, Sterile Glove, KY Jelly, Prostaglandin

#### PROCEDURE:

1. Review Physician's order
2. Assess patient's understanding of induction intent and procedure. Provide appropriate education and reassurance.
3. Complete OB admission record.
4. Obtain baseline maternal vital signs.

**Appendix A (cont.)**

5. Obtain 20 to 30 minute baseline reactive NST prior to insertion.
6. Assist Physician/CNM with insertion of prostaglandin.
7. Following insertion patient should remain in a comfortable position ensuring that the uterus is displaced off of the vena cava and aorta.
8. Maintain continuous external fetal monitoring for 2 hours after insertion of Prostaglandin, EFM may be discontinued with reassuring tracing and the absence of regular contractions. If the patient is in labor refer to the procedures for management of labor patient #423300 Care of Labor Patient and/or 423400 Care during Labor, Second Stage.
9. PGE2 should be removed 12 hours after insertion, when active labor begins or to stop prostaglandin release. Monitor for at least 15 min. after removal.
10. Assess and document, on labor record, maternal vital signs every 30 min. x 2 then per labor procedures.
11. Should uterine hypersensitivity or fetal distress occur notify Physician/CNM immediately.

**Documentation**

12. Complete labor record with:
  - a) Date and time of procedures
  - b) Patient's tolerance to procedures
  - c) Observations of labor progress
  - d) Assessment of fetal status
  - e) Vital signs and pertinent observations

## Appendix B

### Letter of Introduction

My name is Kristine Barber. I am a graduate nursing student at Grand Valley State University. I would like to invite you to participate in a study of women's perceptions of their birth experience. The study is being conducted by me as part of the requirements for a master's degree in nursing education. Dr. Linda Bond is chair of the committee which is supervising this study.

English speaking women who deliver at term, (37 weeks gestation or more), at Northern Michigan Hospital are being invited to participate in this study. If you agree to participate in the study, you will need to complete a questionnaire which will take about 15 minutes. This questionnaire will ask questions about what your childbirth was like for you. There are no right or wrong answers, I would just like to know your opinions. Once you have completed the questionnaire, you will insert it in an envelope, seal it, and a health unit coordinator will collect it from you. I will also be collecting some information from your chart.

Your name will not appear on the questionnaire, and your individual answers will not be shared. Results will be based on analysis of all the questionnaires, not your individual one. The researcher is the only one who will have access to the information, and after the study is completed, the questionnaires will be destroyed. The study results as a whole will be included in my master's thesis. If you decide to participate, you will be contributing to knowledge about women's perceptions of their birth experience.

**Appendix B (cont.)**

**The decision to participate is totally up to you. If you decide not to participate, it will not affect the care you receive. You may withdraw from the study at any time. If you have any questions, you may contact me at (231)347-7316, my thesis chair, Dr. Linda Bond at (616)336-7163, or the chairperson of the Grand Valley State University Human Research Review Committee, Paul Huizenga at (616)895-2472.**

**Thank you very much for your consideration.**

## Appendix C

### Consent Form

**I understand that this is a study of women's perception of childbirth. English speaking women who deliver at term at Northern Michigan Hospital are being invited to participate in this study.**

**I also understand that:**

- 1. participation in this study will involve completing a questionnaire, which will take 15-20 minutes of my time.**
- 2. it is not anticipated that this study will cause physical or emotional risk to myself or my infant, and it may be helpful to me to evaluate my childbirth experience.**
- 3. the information I provide will be kept strictly confidential and the data will be coded so that my personal responses will not be traced to me.**
- 4. a summary of results will be made available to me upon my request.**

**I acknowledge that:**

**"I have been given an opportunity to ask questions regarding this research study, and that these questions have been answered to my satisfaction."**

**"In giving my consent, I understand that my participation in this study is voluntary and that I may withdraw at any time, without affecting the care I receive from my physician or the staff of Northern Michigan Hospital."**

**Appendix C (cont.)**

**“The investigator, Kristine Barber, has my permission to review the record of my labor and delivery.”**

**“I hereby authorize the investigator to release information obtained in this study to scientific literature. I understand that I will not be identified by name.”**

**“I have been given the phone numbers of Kristine Barber and , the chairperson of the Grand Valley State University Human Research Review Committee. I may contact them at any time if I have questions.”**

**I acknowledge that I have read and understand the above information, and that I agree to participate in this study.**

---

**Witness**

---

**Participant’s signature**

---

**Date**

---

**Date**

**\_\_\_\_\_ I am interested in receiving a summary of the study results**



**Appendix D**

**Health Record**

To be completed by the researcher:

Gravity \_\_\_\_\_ Parity \_\_\_\_\_ Number of living children \_\_\_\_\_

Gestation at delivery \_\_\_\_\_

Medical problems during the pregnancy      Yes                  No

Type of delivery      Vaginal                  Cesarean section

Spontaneous labor \_\_\_\_\_ Induced labor \_\_\_\_\_ Reason given \_\_\_\_\_

Medication used for induction \_\_\_\_\_

## Appendix E

To be completed by the subject

Age (in years) \_\_\_\_\_

Ethnic origin: Caucasian      Native American      Asian      African-American  
                          Hispanic      Other (please indicate) \_\_\_\_\_

Level of education completed: (Please circle the appropriate number at each level)

Grade school/ High school:    1   2   3   4   5   6   7   8   9   10   11   12

Trade/ Vocational/ Community College:    1   2   3   4

University:    1   2   3   4

Post-graduate education:      Master's degree      Doctorate

Approximate annual family income:

Less than \$20,000      \$20,000-\$39,000      \$40,000- \$59,000

\$60,000-\$79,000      \$80,000-\$99,000      Above \$100,000

Marital status: Single      Married      Separated      Divorced

Number of Prenatal classes attended: 0   1   2   3   4   5   6   7   8



## Appendix F (cont.)

5. How relaxed were you during the delivery?

Not at all                      Moderately                      Extremely

---

1                      2                      3                      4                      5

6. How pleasant or satisfying was the feeling state you experienced during delivery?

Not at all                      Moderately                      Extremely

---

1                      2                      3                      4                      5

7. How well in control were you during labor?

Not at all                      Moderately                      Extremely

---

1                      2                      3                      4                      5

8. How well in control were you during delivery?

Not at all                      Moderately                      Extremely

---

1                      2                      3                      4                      5

9. To what extent did your experience of having a baby go along with the expectation you had before labor began?

Not at all                      Moderately                      Extremely

---

1                      2                      3                      4                      5

10. To what extent do you consider yourself to have been a useful and cooperative member of the obstetric team?

Not at all                      Moderately                      Extremely

---

1                      2                      3                      4                      5

11. How useful was your partner in helping you through your labor?

Not at all                      Moderately                      Extremely

---

1                      2                      3                      4                      5

12. How useful was your partner in helping you through delivery?

Not at all                      Moderately                      Extremely

---

1                      2                      3                      4                      5

## Appendix F (cont.)

13. To what degree were you aware of events during labor?

Not at all                      Moderately                      Extremely

---

1                      2                      3                      4                      5

14. To what degree were you aware of events during delivery?

Not at all                      Moderately                      Extremely

---

1                      2                      3                      4                      5

15. How unpleasant was the feeling state you experienced during delivery?

Not at all                      Moderately                      Extremely

---

5                      4                      3                      2                      1

16. Do you remember your labor as painful?

Not at all                      Moderately                      Extremely

---

5                      4                      3                      2                      1

17. Do you remember your delivery as painful?

Not at all                      Moderately                      Extremely

---

5                      4                      3                      2                      1

18. How scared were you during delivery?

Not at all                      Moderately                      Extremely

---

5                      4                      3                      2                      1

19. Did you worry about your baby's condition during labor?

Not at all                      Moderately                      Extremely

---

5                      4                      3                      2                      1

20. Did you worry about your baby's condition during delivery?

Not at all                      Moderately                      Extremely

---

5                      4                      3                      2                      1

## Appendix F(cont.)

21. Did the equipment used during labor bother you?

Not at all                      Moderately                      Extremely

---

5                      4                      3                      2                      1

22. Was the delivery experience realistic as opposed to dream-like?

Not at all                      Moderately                      Extremely

---

1                      2                      3                      4                      5

23. Did you have choices about interventions, i.e., examinations or treatments during labor?

Not at all                      Moderately                      Extremely

---

1                      2                      3                      4                      5

24. Did your partner (or other person) review your labor experience with you?

Not at all                      Moderately                      Extremely

---

1                      2                      3                      4                      5

25. Did you feel better after reviewing the labor and delivery experience?

Not at all                      Moderately                      Extremely

---

1                      2                      3                      4                      5

26. Were you pleased with how your delivery turned out?

Not at all                      Moderately                      Extremely

---

1                      2                      3                      4                      5

27. How soon after delivery did you touch your baby?

Immediately                      2 hours                      8 hours or longer

---

5                      4                      3                      2                      1

28. How soon after delivery did you hold your baby?

Immediately                      2 hours                      8 hours or longer

---

5                      4                      3                      2                      1

## Appendix F (cont.)

29. Were you able to enjoy holding your baby the first time?

Not at all

Moderately

Extremely

---

1

2

3

4

5

Questionnaire adapted from 15-item questionnaire developed by Michael R. Samko, M.S., and Lawrence S. Schoenfeld, Ph.D., and reported in their study, "Hypnotic Susceptibility and the Lamaze Childbirth Experience," *American Journal of Obstetrics and Gynecology*, 121(5):632, 1975. Adaptation based on pilot study of mothers having a Cesarean birth by Joanne S. Marut, R.N., M.S., reported in, "The Special Needs of Cesarean Mothers," *MCN The American Journal Maternal-Child Nursing*, 3(4):202, 1978.

## Appendix G

### Labor Agency Scale

Ellen D. Hodnett and Daryl A. Simmons-Tropea

Please circle the number on each scale that is closest to your feelings about your childbirth experience.

1. I felt tense	Almost always	Rarely
	1      2      3      4      5      6      7	
2. I felt important	Almost always	Rarely
	1      2      3      4      5      6      7	
3. I felt confident	Almost always	Rarely
	1      2      3      4      5      6      7	
4. I felt in control	Almost always	Rarely
	1      2      3      4      5      6      7	
5. I felt fearful	Almost always	Rarely
	1      2      3      4      5      6      7	
6. I felt relaxed	Almost always	Rarely
	1      2      3      4      5      6      7	
7. I felt good about my behavior	Almost always	Rarely
	1      2      3      4      5      6      7	
8. I felt helpless (powerless)	Almost always	Rarely
	1      2      3      4      5      6      7	



## Appendix G (cont.)

9. I felt I was with people who care about me	<b>Almost always</b>						<b>Rarely</b>
	1	2	3	4	5	6	7
10. I felt like a failure	<b>Almost always</b>						<b>Rarely</b>
	1	2	3	4	5	6	7

## Appendix H



University of California, San Francisco . . . A Health Sciences Campus

School of Nursing  
Department of Family Health  
Care Nursing  
Room N411-Y, Box 0606  
San Francisco, CA 94143-0606  
TEL: (415) 476-4868  
FAX: (415) 753-2181

March 9, 1999

To: Kristine Barber  
3253 East Mitchell  
Petoskey, MI 49770

Enclosed is a copy of the Questionnaire Measuring Attitudes About Labor and Delivery Experience. You have permission to use the measure in your research as you described. Please send me an abstract of your findings if you use the measure. Other references that might be of use are:

Mercer, R. T., Hackley, K. C., & Bostrom, A. G. (1983). Relationship of Psychosocial and Perinatal Variables to Perception of Childbirth. Nursing Research, 32, 202-207.

Mercer, R. T., & Stainton, M. C. (1984). Perceptions of the Birth Experience: A Cross-Cultural Comparison. Health Care for Women International, 5, 29-47.


Mercer, R. T. (1985). Relationship of the Birth Experience to Later Mothering Behaviors. Journal of Nurse-Midwifery, 30, 204-211.

Cranley, M. S., Hedahl, K. J., & Pegg, S. H. (1983). Women's Perceptions of Vaginal and Cesarean Deliveries. Nursing Research, 32, 10-15.

Fawcett, J., et al. (1993). Effects of Information on Adaptation to Cesarean Birth. Nursing Research, 42, 49-53.

Fawcett, J., & Knauth, D. (1996). The factor structure of the perception of birth scale. Nursing Research, 45, 83-86.

Reliabilities are reported in the above publications with different samples. To score the instrument, sum the circled numbers for each of the 29 items, resulting in a possible score ranging from 29 to 145. Higher scores indicate a more positive perception of the childbirth experience.

  
Ramona T. Mercer, RN, PhD, FAAN, Professor Emerita  
1809 Ashton Avenue  
Burlingame, CA 94010

Appendix H (cont.)

Hotmail Folder: Inbox

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Hotmail Home | Inbox | Compose | Address Book | Options | Help

kebarber@hotmail.com

Save Address(es) | Block

Previous | Next | Close

From : Ellen Hodnett <ellen.hodnett@utoronto.ca>

To : "Kris Barber" <kebarber@hotmail.com>

Subject : Re: Labour Agency Scale

Date : Mon, 10 Dec 2001 08:03:58 -0500

Reply | Reply All | Forward | Delete | Put in Folder...

Printer Friendly Version

Of course you may use the LAS. My apologies if I received your email and did not respond to it. It has been a very hectic few months. The LAS is published in Barbara Redman's book, but you cannot access it and you need a copy, let me know.

\*\*\*\*\*
Ellen Hodnett, RN, PhD
Professor & Reisman Chair in Perinatal Nursing Research
Maternal, Infant, & Reproductive Health Research Unit
790 Bay St., Rm 715
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