

1996

## Maternal confidence for labor and epidural anesthesia for pain management

Dana L. Stern  
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**MATERNAL CONFIDENCE FOR LABOR  
AND EPIDURAL ANESTHESIA FOR PAIN MANAGEMENT**

**A Thesis**

**Presented to**

**The Faculty of the Division of Health Professions**

**San Jose State University**

**In Partial Fulfillment**

**of the Requirements for the Degree**

**Master of Public Health**

**by**

**Dana L. Stern**

**August, 1996**

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## **ABSTRACT**

### **MATERNAL CONFIDENCE FOR LABOR AND EPIDURAL ANESTHESIA FOR PAIN MANAGEMENT**

by Dana L. Stern

This thesis explores perceived self-efficacy and coping abilities of pregnant women preparing for their first childbirth and the strengths and outcomes of their pre-labor decisions regarding epidural anesthesia for pain management. Data was collected with written self-report questionnaires from Northern California Kaiser Permanente Medical Center. Fifty-nine women completed the Childbirth Self-Efficacy Inventory questionnaire before labor. Forty-three women completed questionnaires both before labor and after childbirth, 16 of whom reported using epidural anesthesia for managing labor pain.

Respondents in this study scored confident (on a scale between 1 and 10, ten being very confident) in the belief that certain behaviors, such as breathing or relaxing, would enhance coping with active labor (7.9) and birth (7.5). Self-efficacy expectancy scores, which is the belief that they can successfully perform certain behaviors, were also confident, but slightly lower (active labor 7.2, birth 6.9).

Although no statistical significance was found between the predictor (maternal confidence) and outcome (epidural use) variables, among the findings that women reported before labor were that they were informed about the effects of epidural anesthesia not from their prenatal care providers, but from their child birth class or from a friend who had given birth.



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## **DEDICATION**

I would like to dedicate this thesis to Gert Pokorny, M.D., my obstetrician who unknowingly inspired this research. I know how much his patients appreciated his compassionate and supportive patient care approach. My pregnancy and childbirth experiences were truly joyous, not so much because of what occurred during labor, but how I was encouraged to be a participant. Thank you and happy retirement!

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## Chapter 1

### **INTRODUCTION**

#### Purpose

The purpose of this study was to investigate, from the woman's perspective, the relationship between maternal confidence for labor and the use of epidural anesthesia for pain management during labor in nulliparous women. Specifically, this research explored perceived self-efficacy and coping abilities of pregnant women preparing for their first childbirth and the strengths and outcomes of their pre-labor decisions regarding epidural anesthesia.

#### Statement of the Problem

In recent years, the use of epidural anesthesia has become increasingly common for managing labor pain, particularly with nulliparous women (Hueston, McClafin, Mansfield, & Rudy, 1994), and has become recognized as one of the most effective methods of providing pain relief during labor (Lurie & Priscu, 1993). The use of epidural anesthesia can be advantageous to the patient who is experiencing extreme pain in labor. A patient with an epidural block can be prepared for emergency surgery, avoiding the risks of general anesthesia to the mother or infant.

Epidural anesthesia has replaced other methods of analgesia such as general anesthesia, inhalation analgesia, paracervical block, and spinal block. The development of continuous infusion epidural analgesia has improved the quality and safety of lumbar anesthesia by increasing patient satisfaction, providing continuous pain relief,

decreasing overall drug usage, and reducing the risks of repeated bolus injections (Cheek & Gutsche, 1987). A description of how epidural anesthesia is administered is described in Appendix A. However, this method of pain relief results in complications for some patients, and its effects on labor and delivery, and on the fetus, remain controversial.

Particular attention has been called to the apparent overuse of epidural anesthesia in routine labor. The most controversial complications are the association of epidural anesthesia with the use of forceps, vacuum extraction, and cesarean section deliveries (Cammu, Verlaenen, & Amy, 1994; Curran, 1990; Farabow, Roberson, Maxey, & Spray, 1993; Harris & Michitsch, 1992; Hawkins, Hess, Kubicek, Joyce, & Morrow, 1995; Howell & Chalmers, 1992; Lurie & Priscu, 1993; Thorp et al., 1993). In addition, other consequences such as increased use of oxytocin augmentation, longer second stage labor, and possible effects on the fetus are of concern to many women. Complications which may arise from the routine use of epidural anesthesia for labor pain need to be thoroughly discussed by the patient and health care provider before the onset of labor. In this manner, the patient can make an informed decision if the need for pain relief arises. Full disclosure helps the patient understand how the choice of anesthesia may affect the process and outcome of her labor. Advance planning is also important in order to minimize feelings of personal failure or regret at not being able to deliver her baby naturally.

The cesarean rate in the United States has been reported in some areas to be as



high as 24% of all births (Morton, Williams, Keeler, Gambone, & Kahn, 1994). Among nulliparous women, Thorp et al. (1993) found a significant increase in cesarean delivery associated with the use of epidural anesthesia. This increase was primarily related to dystocia, which is a prolongation of labor beyond a given "norm." Epidural anesthesia was associated with long first and second stages of labor, slower rates of cervical dilation, and more frequent malpositions of the fetal head. These findings are consistent with previous studies which maintain that epidural anesthesia may contribute to an increase in the cesarean rate (Morton et al., 1994).

Because epidural anesthesia may reduce sensation in the legs and perineum, women receiving epidurals are frequently confined to bed and may need bladder catheterization. Continuous electronic fetal heart rate monitoring is necessary to assess fetal distress, a potential consequence of maternal hypotension following epidural and spinal regional anesthetics. Insertion of an epidural catheter can lead to accidental dural puncture resulting in severe headaches lasting for weeks or months. There is also potential risk of masking the pain of a ruptured uterus (Curran, 1990).

A woman's ability to manage pain is one of the primary areas of the labor experience which can positively or negatively influence her perception of childbirth. Maternal confidence has been identified as an important component in coping with the pain of labor (Lowe, 1989). A woman's expectation of a natural birth can lead to a sense of personal failure if she eventually accepts anesthesia for pain. Simpkin (1991) reports that the impact of a woman's birth experience, even 15 to 20 years later, is

often vivid and powerful. Positive or negative birth experiences can have lasting effects in a woman's memory, and caregivers during labor and delivery can profoundly influence her experience.

One theoretical perspective through which to study maternal confidence is self-efficacy, a component of social learning theory (Bandura, 1977). Self-efficacy is described as an individual's confidence in his or her ability to do something. However, self-efficacy for labor is more than just a woman's self-confidence. It is based upon her assessment of her coping abilities in the past and her perception that she will be able to cope in the coming situation. Self-efficacy for labor means that a woman needs to believe she will be able to successfully cope with a painful labor experience, not simply possess the skills required to do this.

Research findings have suggested an association between increased maternal confidence and the experience of less pain during labor and delivery. In a study by Crowe and von Baeyer (1989), women who expressed greater confidence in their ability to cope with labor pain reported having less pain during labor. However, no research has explored the relationship between maternal confidence, self-efficacy, and specific labor pain management decisions.

Childbirth preparation classes provide a forum in which pain management strategies can be explored. However, pain is not the only variable in a satisfying birth experience (Humenick, 1981). Adopting an emphasis on mastery of labor and its attendant decisions, rather than a pain management focus, can enhance a woman's

perception of control during childbirth.

An examination of the relationship between maternal confidence and pre-labor decisions about epidural anesthesia for pain relief may provide useful information towards reducing the routine use of epidural anesthesia to manage labor pain, avoiding its accompanying risk of complications, and further empowering women towards mastery of their childbirth experiences. If health care practitioners better understand and apply the concepts of self-efficacy in preparing women for pain management in labor, particularly those women who have not previously experienced labor, the use of epidural anesthesia may be less routine, and women may be better able to participate in childbirth options, decisions, and outcomes.

#### Research Questions and Objectives

This study was designed to answer the following research questions:

1. Is there a relationship between a woman's perceptions of her childbirth coping abilities, as measured by the Childbirth Self-Efficacy Inventory (CBSEI) (see Appendix B) and her pre-labor decisions about use of epidural anesthesia?
2. Is there a relationship between a woman's self-efficacy score (as measured by the CBSEI) and her actual decisions regarding pain relief during labor?

The research objectives for this study are to:

1. Explore the relationship between a woman's perceptions of her

childbirth coping abilities and her pre-labor decisions about use of epidural anesthesia.

2. Include consideration of childbirth preparation from the woman's perspective.
3. Further explore the application of self-efficacy theory as an important component of the childbirth experience for women.
4. Provide data to health educators and childbirth educators about the relationship between maternal confidence and epidural anesthesia use.
5. Expand the research literature on maternal confidence for labor.

### Definitions

The following conceptual definitions were used in this study. Operational definitions are covered in Chapter 3.

Epidural Anesthesia: Anesthesia produced by injection of a local anesthetic agent into the peridural space of the spinal cord, for purposes of controlling pain during labor.

Nulliparous: A woman who has not previously given birth.

Self-Efficacy: People's judgements of their capabilities to organize and execute courses of action required to attain designated types of performance. It is not concerned with the skills one has, but with judgements or beliefs of what one can do with whatever skills one possesses (Bandura, 1977).

Maternal Confidence: A woman's confidence in her ability to cope with labor

(Lowe, 1991).

### Research Design

This descriptive study utilized Bandura's self-efficacy construct (1977) as the theoretical framework for exploring the relationship between maternal confidence and use of epidural anesthesia for pain management during labor.

A convenience sample of women approaching their first childbirth experience was recruited by the investigator from the preparation for childbirth classes held at Kaiser Permanente Medical Center, Santa Clara and Santa Teresa. Women who volunteered for this study were given a packet containing instructions, Questionnaires 1 and 2, self-addressed stamped envelopes, and a postcard to request study results.

### Analysis

Data were collected from the women in the preparation for childbirth classes using the Childbirth Self-Efficacy Inventory (CBSEI) and Questionnaire 1 (see Appendices B and C), and two weeks after delivery using Questionnaire 2 (see Appendix D). The data were entered into the investigator's personal computer using the Epi Info Statistical Program. Relationships between maternal confidence, pre-labor decisions, and the use of epidural anesthesia were measured. Qualitative data from Questionnaires 1 and 2 were used to illuminate the quantitative findings. Technical reports were prepared for the childbirth class instructors; Northern California Kaiser Regional Research Committee and Institutional Review Board; obstetricians at Kaiser Permanente Medical Center, Santa Clara; and Nancy K. Lowe, R.N., Ph.D., author

of the CBSEI.

### Limitations

This study had limitations in its sample, methods, and scope. These limitations were identified in advance and considered throughout data analysis and interpretation.

Differences in the confidence levels of women approaching childbirth can possibly be found within different childbirth preparation approaches. Specifically, hospital-based childbirth preparation classes tend to present very general information about childbirth and labor. In contrast, other approaches to childbirth education may emphasize specific methods of pain management during labor and delivery. The instructors for these classes share a general orientation to natural childbirth, however variations in teaching style will undoubtedly exist. Differences within and between classes were not explored in this research.

Another limitation is caused by the convenience sample for this study. Women register for particular childbirth preparation classes either voluntarily or upon the advice of their obstetrician's office, both of which present a sample bias. Due to the constraints on time and resources, neither a random sample of childbirth classes nor a control group of women choosing not to participate in childbirth preparation classes was attempted.

Additional limitations, anticipated before data collection, include (a) the untested validity of original Questionnaires 1 and 2, (b) the potential for low return rates on Questionnaire 2 due to the busy schedule of a new mother, (c) the

investigator's inability to follow-up with non-respondents, and (d) the bias of subjective, self-administered post-childbirth data collection, which may be subject to memory changes or recall inaccuracies. Despite these limitations, the investigator believed that this study design would yield important findings and contribute to the understanding of maternal confidence and decisions to use epidural anesthesia for pain in labor.

### Significance

The significance of this study lies in its emphasis on the importance of maternal confidence and its possible effect on decisions regarding the use of epidural anesthesia for first-time mothers. It was suspected that increased maternal confidence would lead to a decrease in the use of epidural anesthesia, and more desirable outcomes for the woman, her partner, and family.

Further research may include designing and implementing a self-efficacy component for labor into these childbirth classes and studying the impact it has on pain perception and the use of epidural anesthesia. Other studies could investigate differences in didactic and experiential learning among the different approaches to childbirth education and preparation, and the use of epidural anesthesia.

## Chapter 2

### **LITERATURE REVIEW**

A review of the literature revealed recent studies concerning maternal confidence and expectancy outcomes in coping with labor, and a wealth of studies on the effects of epidural anesthesia for labor. However, a possible relationship between maternal confidence for labor and the use of epidural anesthesia has not yet been investigated. This chapter covers current issues in the use of epidural anesthesia for labor, research on pain relating to childbirth, the conceptual framework upon which this research is based, and maternal confidence as an important component of a woman's childbirth experience.

#### Epidural Anesthesia

Since 1985, the use of epidural anesthesia in labor has become almost routine for managing pain in childbirth in the United States. Gibbs, Krischer, Peckhan, Sharp and Kirschbaum (1986) report a national average of 16%, increasing to 22% in larger medical centers. However, Farabow et al., (1993) report in their twenty-year retrospective analysis that by 1985, 60% of the deliveries in one study they analyzed were done using epidural anesthesia, a statistic which they maintain is similar to estimates in the literature. This increased use of epidural anesthesia has led to controversies concerning the consequences of its use relating to labor outcomes. Although epidural anesthesia provides the best pain relief in labor without affecting the



woman's level of consciousness, it is not without adverse effects.

In recent years, numerous retrospective analyses, studies, and review articles have attempted to evaluate the effects, including adverse effects, of epidural anesthesia. The results identify important points of controversy, particularly regarding labor outcomes.

The introduction of the continuous infusion method has improved the quality and safety of lumbar epidural anesthesia. Specifically, this innovation has been shown to increase patient satisfaction with continuous pain relief, thereby decreasing overall drug usage, and reducing the risks of repeated bolus injection (Cheek & Gutsche, 1987). In the case of an emergency, a patient who already has in place a continuous epidural can be prepared for surgery quickly, avoiding the risks of general anesthesia to the mother and infant.

Use of epidural anesthesia has been positively associated with nulliparous women, higher socioeconomic status, women who are privately insured, and patients under the care of a private physician, all of whom also have higher rates of cesarean section (Hueston et al., 1994). For example, one study (Walker, Farine, Rolbin, & Ritchie, 1991) reported 77% of the primiparous patients, as compared to 54% of the multiparous patients, received epidural anesthesia in a total sample of 8,994 patients.

Epidural anesthesia has been associated with a longer second stage of labor as well as an increase in instrumental delivery in nulliparous women (Chestnut, Vandewalker, Owen, Bates, & Choi, 1987; Poore & Foster, 1985, and Thorp et al.,

1993). The increased length of second stage labor in women who receive epidural anesthesia is usually attributed to a lack of sensory stimulation which results in less effective pushing. One study found a significant decrease of uterine activity 60 minutes after the administration of epidural anesthesia in the first stage of labor. This decline was attributed to a reduction in the release of prostaglandin F<sub>2α</sub> caused by the epidural anesthetic (Behrens, Goeschen, Luck, & Fuchs, 1993). Prostaglandin hormones are produced in most organs in the body, notably by the endometrium in women. They affect smooth muscle contractility, therefore, a reduction of the release in prostaglandin can affect uterine contractions. Less effective labor may cause an increase in the diagnosis of dystocia in women with epidural anesthesia resulting in more frequent cesarean delivery (Thorp et al., 1991, 1993).

Epidural anesthesia in second stage labor can reduce a woman's urge to bear down; and Lurie & Priscu (1993) also suggest that as the levator ani muscle and the perineal muscle tone relaxes, the result can be malposition of the infant. Thorp et al., (1993) also reported a statistically significant association between epidural anesthesia and the increase in infant malposition. When epidural anesthesia is administered late in labor (after 5 cm), the occurrence of malpositioning of the fetal head is less likely because optimal positioning most likely has occurred already.

When a woman's labor is actively managed (membranes ruptured by the obstetrician and/or oxytocin initiated to increase uterine activity), epidural anesthesia is often requested by the patient to manage pain. Oxytocin causes uterine contractions to

be more intense and painful. Epidural anesthesia relieves the pain, but it may also indirectly contribute to a prolonged labor.

A 1994 meta-analysis reported an association between the use of oxytocin and the use of epidural (Morton et al., 1994). Of women who received oxytocin to augment labor, 64% received an epidural to manage pain; of those who did not receive oxytocin, 23% received an epidural. Likewise, of women who were given an epidural for pain, 70% received oxytocin to augment labor versus 28% oxytocin use of those who were not given an epidural. Farabow et al. (1993) confirm similar statistics: 80% of women whose labors were augmented with oxytocin received epidural anesthesia. Cammu et al., (1994) also found that oxytocin used in the active management of labor resulted in increased use of epidural anesthesia.

Epidural anesthesia has also been strongly associated with instrumental vaginal deliveries. Several reviews confirm this finding (Curran, 1990; Farabow et al., 1993; Harris & Michitsch, 1992; Hawkins et al., 1995; Howell & Chalmers, 1992; and Lurie & Priscu, 1993). Physiological effects of epidural anesthesia which may contribute to the use of forceps include relaxation of the pelvic floor muscles and decreased ability to bear down. This in turn can delay the rotation of the fetal head. The block of Ferguson's reflex (parasympathetic nerves) which causes an oxytocin surge, and fluid loading which depresses an antidiuretic hormone and oxytocin release (Poore & Foster, 1985) also contribute to the use of forceps and vacuum extraction.

A retrospective analysis which reviewed the medical records of 14,804 patients

who had vaginal deliveries, as well as a case-controlled investigation of 609 patients who underwent instrumental deliveries, confirmed an association between instrumental delivery and epidural anesthesia (Hawkins et al., 1995). The investigation was conducted during a time in which opioids were not added to the epidural solution. Opioids (synthetic narcotics) are mixed with the local anesthetic used with epidural anesthesia to lessen the amount of motor block, enabling the woman to push more effectively, and produce faster onset of pain relief. The authors identified five factors found to increase incidence of instrumental delivery: (a) a gestation age greater than 41 weeks, (b) a second stage labor greater than two hours, (c) fetal malposition, (d) a previous cesarean delivery, and (e) epidural anesthesia, especially for multiparous mothers.

Another retrospective review study (Howell & Chalmers, 1992) analyzed studies which used random sampling and controlled comparisons. The authors concluded that if an epidural is continued through the second stage of labor, it can result in higher incidence of instrumental delivery. In addition, they recommended larger, better designed, randomized controlled studies to study the short-term and long-term effects of epidural anesthesia.

Use of epidural anesthesia has also had an effect on the rate of cesarean sections. The cesarean section rate nationally has been reported as high as 24% (Curran, 1990; Morton et al., 1994). Some of the literature discussing the rise in cesarean deliveries attributes this event to the widespread use of epidural anesthesia in

obstetrical practice (Cammu et al., 1994; Hawkins et al., 1995; and Thorp et al., 1993). Nulliparous women are especially at risk for cesarean delivery after receiving epidural anesthesia. Thorp et al., (1991) documented this risk in a retrospective study which included a medical record review of 500 patients comparing cesarean deliveries for dystocia in patients, with and without receiving an epidural. This study found a 15.6% incidence of cesarean delivery in nulliparous women who received an epidural, compared to 2.4% in patients who did not receive an epidural. The greatest incidence of cesareans was observed in those who dilated at slower rates (less than one centimeter per hour) and in patients in which epidural anesthesia was administered at 5 centimeters or less of cervical dilatation.

Another retrospective study (Macer, Macer, & Chan, 1992) also found an increased incidence of cesarean delivery in nulliparous women who received epidural anesthesia. Patients who had spontaneous labor had a greater chance of spontaneous vaginal delivery.

Physician practice style has been noted as the single most important factor that influences whether a patient delivers a baby vaginally or by cesarean section (Peaceman, Lopez-Zeno, Minogue, & Socol, 1993). Costs associated with the use of epidural anesthesia include increased nursing care during labor, and increased likelihood of instrumental delivery and operative delivery. Authors of studies of the costs related to epidural anesthesia recommend further research of its associated effects, financial costs, and the post partum health of women. Additionally,

investigation into the expanding routine use of epidural anesthesia could provide better protocols for its use, and further document its impact on a woman's physiological and psychological health during childbirth.

### Pain

Childbirth is commonly described by women as a painful experience. Studies have investigated variations in childbirth pain from the perspective of nulliparous and primiparous woman. Studies by Lowe (1987a, 1987b, 1992) suggest that both physiological and psychological variables may be critical in explaining individual differences in pain during early and active labor. Lowe (1987a) utilized the McGill Pain Questionnaire, which provides a Pain Rating Index (PRI) to measure pain, and the Self-Evaluation in Labor Questionnaire (SELQ) to measure anxiety, coping, safety, and fear of pain. Lowe found that a woman's confidence in her ability to cope with labor, expressed during labor, was associated with significant variations in labor pain reported by different women. Lowe emphasizes that caregivers need to recognize the impact of the woman's confidence in her ability to handle labor on her perception of labor pain. Caregivers should be encouraged to utilize interventions designed to enhance confidence during labor along with other strategies to decrease pain.

Pain during labor has been physiologically associated with increasing cervical dilation and frequency of uterine contractions (Lowe, 1987b, 1992). Lowe (1992) also found that nulliparous women expressed higher levels of pain during active and transitional labor than multiparous women.

The prevailing norm in obstetric practice is that the elimination of pain is the primary factor in providing a positive childbirth experience. However, effective pain relief does not ensure a satisfactory birth experience for women. In one study, mothers reported that attention, sympathy, reassurance, and support were superior to epidural anesthesia for a rewarding outcome (Lurie & Priscu, 1993). In another survey (Poore & Foster, 1985) of women's birth experiences, 47% of the women who had an epidural reported that their friends or family members had an epidural. Women who did not have an epidural did not seem to attach significance to what family and friends had selected for pain relief, and appeared to accept a self-mastery approach to labor. Those who had epidural anesthesia accepted a pain management approach to a satisfactory childbirth.

Understanding the pain perceptions of the laboring woman, as well as her pre-labor perceptions, can help the health practitioner adequately prepare the patient for childbirth. In the Mastery Model (Humenick, 1981), pain is one of many potential stressors during the last trimester of pregnancy and in childbirth. Fear, fatigue, sense of helplessness, loss of dignity, and concern for the safety of the mother and infant can also influence a woman's self-esteem and perceptions about the birth experience. Mastery of the birth experience can be enhanced by potential supports such as knowledge of the birth process, skills for active coping, influence in decisions, and support from others.

### Conceptual Framework

The theoretical framework for this study is based on self-efficacy, which is a primary concept in social learning theory (Bandura, 1977). Self-efficacy is described most simply as an individual's confidence in his or her ability to do something. It is concerned not with actual skills, but with *judgements and perceptions* of what the individual can do with the skills he or she possesses (Bandura, 1977; Lorig, 1992).

Self-efficacy theory has been applied in various research settings. In a study about the effectiveness of parent training for promoting positive parent-child relationships (Gross, Fogg, & Tucker, 1995), parental self-efficacy was assessed in managing tasks and situations relevant to raising a one-to-three-year-old child. They concluded that the parent training program led to significant increases in parenting self-efficacy, decreases in parenting stress, and improvements in the quality of parent-child interactions. Another study examined a relationship between self-efficacy beliefs and pain with patients afflicted with osteoarthritis of the knee (Rejeski, Craven, Ettinger, McFarlane, & Shumaker, 1996). Patient's self-efficacy beliefs in coping with physical tasks influenced perceptions of physical ability.

### Self-Efficacy and Maternal Confidence

Self-efficacy has been discussed and applied in much of the research on maternal confidence and childbirth outcomes. Research has associated increased maternal confidence with an experience of less pain during labor and delivery. For example, in one study (Crowe & von Baeyer, 1989), women who expressed greater



confidence in their ability to cope with labor pain reported having less pain during labor.

Manning and Wright (1983) conducted a field study which measured pain-control training and pain-control practice by assessing childbirth classes containing didactic training only, with classes combining didactic and experiential training in breathing techniques for pain control. Their findings revealed that the woman's mastery of the childbirth experience was more related to self-efficacy expectancies than other cognitive variables. They concluded that self-efficacy theory is an important theoretical perspective for understanding pain control in childbirth.

Lowe (1993) used the self-efficacy model to distinguish between two types of expectancies for labor: self-efficacy expectancies and outcome expectancies. Self-efficacy expectancy is the woman's assessment of her ability to perform a given behavior (i.e., I will be able to relax during labor). Outcome expectancy is her assessment that this behavior will lead to a certain outcome (i.e., relaxing during labor will produce less pain). A woman's belief in an outcome behavior does not necessarily cause her to perform the behavior unless she believes she can successfully execute the required activities. *Knowing* that relaxing during labor will produce less pain will not help her unless she *believes she can relax* when she is in labor. Data from a study by Wuitchik, Hesson, and Bakal (1990) found that confidence in the ability to relax was the strongest predictor of pain during early labor.

Pain during childbirth does not necessarily mean that a woman does not

experience enjoyment or satisfaction with the birth. Health care providers tend to focus on reducing pain as the most significant strategy for increasing satisfaction with the birth experience. Although pain and enjoyment are related in the dynamics of giving birth, one study found a significant number of women reported experiencing both high enjoyment and high pain (Byrne-Lynch, 1991). A positive relationship was found between the use of personal coping strategies and feelings of control in labor. In addition, this study found the use of epidural anesthesia to be associated with feelings of lack of control, a finding consistent with the Poore & Foster study (1985).

Support during labor in controlled studies has shown positive outcomes for the mother and baby. The support of a doula, a labor companion who usually is not the male partner, has been shown to be beneficial to the laboring woman (Kennell, Klaus, McGrath, Robertson, & Hinkley, 1991). On average doulas touched the laboring women over 95% of the time (compared to 20% of the time with male partners) when the women were experiencing discomfort. Doulas may decrease a woman's anxiety by her interactions with her during labor with constant presence, physical touch, reassurance, explanations, and anticipatory guidance. This kind of support may make the woman feel safer and calmer, requiring less obstetric intervention for labor.

Factors that contribute to a positive perception of the birth experience were studied by Crowe and von Baeyer (1989). Components of labor preparation classes which contributed to a positive birth experience included knowledge about childbirth and confidence in the ability to control pain. This supports the hypothesis that a

woman's confidence level for labor may positively influence her perception of her birth experience.

Women can recall detailed and vivid memories of their childbirth experience, even fifteen to twenty years later. During interviews about their birth experiences (Simpkin, 1991), women remembered such details as what they used for focal points, what they were doing when their membranes ruptured, and interactions with hospital staff. Control and decision-making were important factors in long-term satisfaction. Women who reported positive feelings about their birth experience recalled being well cared for and supported by their health care providers. These findings underscore the profound influence that caregivers have on the birth experience during this extremely vulnerable period in a woman's life.

### Summary

The controversies around apparent overuse of epidural anesthesia in routine labor are well documented. Effects and complications from the use of epidural anesthesia may include (a) prolonged second stage labor, (b) bed confinement during labor, (c) the need for continuous electronic fetal heart rate monitoring, (d) oxytocin to augment labor, (e) maternal hypotension, (f) accidental dural puncture resulting in headache, (g) an increase in instrumental and surgical deliveries ), and (h) the woman's perceived loss of control of the labor and delivery process (Lowe, 1991).

This study examined the important role that maternal confidence plays in labor and birth outcomes, particularly regarding decisions about pain relief. Recent studies

have revealed the link between maternal confidence and less pain. A woman who can avoid the use of epidural anesthesia, or avoid its administration in early labor, may subsequently circumvent the understandable consequences associated with its use. Given the seriousness of these consequences, the use of epidural anesthesia should not be used without considering other ways to cope with pain in labor.

Previous studies reporting pain and satisfaction suggest that pain management alone does not explain all the variations in childbirth satisfaction (Humenick, 1981). This researcher proposes that a sense of mastery is a key factor in influencing a woman's perception of her birth experience. Childbirth classes can assist the woman and her partner to become informed, set realistic goals, learn coping strategies for pain management, prepare for decision-making, and develop an adequate support system of significant others and health care providers. Hetherington's findings (1990) suggest that one benefit of childbirth classes is that women and their newborns received less systemic medication and the labor and delivery process was more spontaneous. Childbirth classes also may enable women to cope with the discomforts of labor more effectively as well as empowering them and their support persons to achieve a more positive birth experience.

The effects of any anesthesia or analgesia need to be completely understood by the woman, before the onset of labor, in order for her to make an informed choice about pain medication and alternatives.

Childbirth preparation courses may not be able to completely prepare the first

time mother for coping with labor pain. However, the importance of creating a childbirth curriculum which can more realistically prepare a woman with coping with pain and incorporating maternal confidence strategies cannot be over emphasized.

Utilizing the mastery model in childbirth education may help women participate more actively in decisions related to their birth experience and to increase her confidence to use a variety of non-pharmacological strategies which may reduce pain, therefore creating a more satisfactory birth experience.

More research is needed in the area of maternal confidence and medication use, specifically as maternal confidence relates to use of epidural anesthesia for pain management. The experience of pain does not necessarily alter a woman's perception of a joyful birth; however, the experience of greater self-efficacy may enhance her coping ability and reduce the need for medical interventions.

## Chapter 3

### **METHODOLOGY**

#### Purpose

The purpose of this study was to investigate the relationship between maternal confidence for labor and the later use of epidural anesthesia for labor pain. The study, conducted with a sample of nulliparous women, was designed to explore this relationship from the woman's perspective. Specifically, this descriptive research assessed the perceived self-efficacy and coping abilities of pregnant women preparing for their first childbirth, their pre-labor decisions regarding pain management, and the strength of those decisions during labor.

#### Research Questions and Objectives

This study was designed to answer the following research questions:

1. Is there a relationship between a woman's perceptions of her childbirth coping abilities, as measured by the Childbirth Self-Efficacy Inventory (CBSEI) (see Appendix B) and her pre-labor decisions about use of epidural anesthesia?
2. Is there a relationship between a woman's self-efficacy score (as measured by the CBSEI) and her actual decisions regarding pain relief during labor?

The research objectives for this study were to:

1. Explore the relationship between a woman's perceptions of her childbirth coping abilities and her pre-labor decisions about the use of

epidural anesthesia.

2. Include consideration of childbirth preparation from the woman's perspective.
3. Further explore the application of self-efficacy theory as an important component of the childbirth experience for women.
4. Generate data of interest to health educators and childbirth educators about the relationship between maternal confidence and epidural anesthesia use.
5. Expand the research literature on maternal confidence for labor.

#### Definitions

The following conceptual definitions were used in this study.

Epidural Anesthesia: Anesthesia produced by injection of a local anesthetic agent into the peridural space of the spinal cord, for purposes of controlling pain (i.e., during labor).

Nulliparous woman: A woman who has not previously given birth.

Self-Efficacy: People's judgements of their capabilities to organize and execute courses of action required to attain designated types of performance. Self-efficacy is not concerned with the skills one has, but with judgements or beliefs of what one can do with whatever skills one possesses (Bandura, 1977).

Self-Efficacy Expectancy: The individual's assessment of her ability to perform a given behavior (Bandura, 1977).

Outcome Expectancy: The individual's assessment that a given behavior will lead to a given outcome (Bandura, 1977).

Maternal Confidence: A woman's confidence in her ability to cope with labor (Lowe, 1991).

Pain Management: Application of various techniques or medication to control pain during labor and delivery.

The following operational definitions were used in this study.

Epidural Anesthesia Use: Use of epidural anesthesia during labor as measured by question five on Questionnaire 2 (see Appendix D).

Nulliparous woman: A woman who has not previously given birth as indicated by question one on Questionnaire 1 (see Appendix C).

Maternal Confidence For Labor: A woman's confidence in her ability to cope with labor, measured by the Childbirth Self-Efficacy Inventory (Lowe, 1993) (see Appendix B).

Self-Efficacy Expectancy: A woman's confidence in her ability to use specific coping behaviors during labor (Lowe, 1993), measured by the CBSEI items 16 - 30 (see Appendix B).

Outcome Expectancy: A woman's belief that specific behaviors could enhance coping with the experience of labor and birth (Lowe, 1993), measured by the CBSEI items 1 - 15 (see Appendix B).



### Research Design

This descriptive study utilized Bandura's self-efficacy construct (1977) as the theoretical framework for exploring the relationship between maternal confidence and use of epidural anesthesia for pain management during labor. Lowe's (1987a, 1987b, 1989, 1991, 1992, 1993) research in this area served as a base in defining and exploring this relationship. Additional variables were added by this investigator, including knowledge about benefits and problems of using epidural anesthesia and outcome follow-up. Specifically, this study investigated the relationship between confidence for labor in nulliparous women and the subsequent use of epidural anesthesia for pain relief during labor.

### Assumptions

The following were assumed by the investigator in the design and implementation of this study:

1. Participants would be able to understand and adequately complete the questionnaires.
2. The investigator would be able to secure a minimum sample of 54 nulliparous women, with a response rate of 100% for Questionnaire 1 and a 70% response rate for Questionnaire 2.
3. Questionnaires 1 and 2 would produce valid and reliable data.

### Subjects and Sampling

The sample was limited to nulliparous women who participated in Kaiser

Permanente's preparation for childbirth classes, held at Kaiser Permanente Medical Center in Santa Clara and in Santa Teresa. Pregnant women voluntarily enroll in these classes to enhance their knowledge about labor and delivery. The instructors for the preparation for childbirth classes are contracted through Mission College. A curriculum guide, developed by the Mission College childbirth instructors, attempts to ensure that each class covers the same key areas of instruction. However, each instructor has her own style of teaching the concepts being presented.

A mathematical formula (Fink & Kosecoff, 1985) was used to calculate statistical power using the following figures for Kaiser Permanente Medical Center, Santa Clara: (a) approximately 5,000 births per year, or 416 per month, (b) seven childbirth classes in a typical four week period, (c) average size of ten couples per class (personal communication, Mission College). A total of 70 participants in a given month would represent 17% of the births per month at that facility. Using these figures, it was determined that a sample of 54 women would be necessary to ensure statistical power for this study.

Approval was secured from San Jose State University Human Subjects-Institutional Review Board and Kaiser Northern California Region Central Research and Institutional Review Board (IRB) Committees. The Kaiser IRB Committee provided the investigator with a standard consent form for use in this study. This form was revised to include specifics of this research, as well as information about the rights of medical research participants (see Appendices E and F).

### Data Collection Methods and Instruments

The tools for data collection used in this study were written self-report instruments: the Childbirth Self-Efficacy Inventory (CBSEI) (see Appendix B), Questionnaire 1 (see Appendix C), and Questionnaire 2 (see Appendix D). The CBSEI was developed by Nancy K. Lowe, R.N., Ph.D. (1993), and contains 62 Likert-type scale questions in two parts (labor and birth) measuring self-efficacy for childbirth in women (maternal confidence) approaching the birth event. Permission to use the CBSEI was granted by the author for use in this research (see Appendix G).

Questionnaire 1 was developed by the investigator and contains ten semi-structured questions measuring additional variables such as knowledge about the effects of using epidural anesthesia for labor pain, confidence about experiencing upcoming labor, and background information such as age and marital status. The CBSEI and Questionnaire 1 were attached together and distributed at the same time.

Questionnaire 2, also developed by the investigator, contains 11 questions measuring selected labor outcomes including decisions concerning and use of epidural anesthesia. In addition, it provided an opportunity for women to comment on their own methods of controlling pain during labor.

The investigator presented this proposal to the Mission College childbirth instructors in order to obtain their consent to approach women in their childbirth classes. An information sheet was distributed to the Kaiser Permanente Medical Center Department of Obstetrics and Gynecology to inform prenatal health providers about

the study.

The investigator, or an assistant, made presentations to the preparation for childbirth classes held at Kaiser Santa Clara to recruit volunteers in December 1995. Approximately one half of the women from each class volunteered for the study. Sampling was extended to the classes ending in February and March 1996. In order to secure an adequate sample, volunteers were also recruited from Kaiser Santa Teresa childbirth classes. Kaiser Foundation Research Institute did not require the investigator to re-apply for approval to conduct the study at the Santa Teresa. However, the investigator was required to secure a sponsor from that facility and forward a copy of the approved proposal with an additional signature page for appropriate signatures.

Over a three month period, presentations were given by the investigator and/or a research assistant to the fifth or sixth week session, or second day of weekend classes, of the Preparation for Childbirth classes at Kaiser Permanente Santa Clara and Santa Teresa. The presentation included a brief description of the study, the principles of informed consent, and instructions for completing the questionnaires. Interested women signed a consent form and were given a packet. The investigator recorded the name, phone number, due date, childbirth class dates, and expected return date for Questionnaire 2. Packets included simple instructions for filling out and returning the questionnaires, CBSEI/Questionnaires 1 and 2, two self-addressed stamped envelopes, a copy of the consent form, and a return postcard for study results. Additionally, the investigator included a small gift in the packet for participating in the study.

Women were asked to complete CBSEI/Questionnaire 1 at home and mail it immediately back to the investigator using an envelope provided in the packet. They were asked to complete Questionnaire 2 as soon as possible after their birth and return it by mail using the second provided envelope. They were informed that they may receive a phone call if either questionnaire was not returned when expected. The record of names was used for follow-up purposes and only used by the investigator.

### Analysis

All data from Questionnaires 1 and 2 were analyzed using Epi-Info, Version 6, statistical program for epidemiology on microcomputers (Dean et al., 1994). The quantitative analysis was centered on the relationship between two key variables: maternal confidence and use of epidural anesthesia. The independent, or predictor, variable for this study was maternal confidence, measured by the Childbirth Self-Efficacy Inventory (CBSEI). Degrees of maternal confidence were used to compare epidural use, the dependent, or outcome variable, as well as social demographic data (age, marital status, race, education, and income).

Frequency analysis was used to determine a comparison of means (i.e., how confident women felt about being in labor without drugs, CBSEI scores). Results of the CBSEI were used in analysis of variance and to study correlations between key variables.

Both Questionnaires 1 and 2 allowed participants to comment on various issues about labor and delivery. Each comment was carefully reviewed by the investigator

and analyzed for themes. The qualitative data were used to provide insight into respondents' knowledge regarding epidural anesthesia, labor and delivery, and birth outcomes.

### Reliability and Validity

The reliability and validity of this study were enhanced by using a previously validated instrument, the CBSEI (Lowe, 1992) for measuring maternal confidence. The investigator reviewed the two original surveys, Questionnaires 1 and 2, with a statistician for appropriate language, adequate measurement of the independent and dependent variables, and other general data collection concerns. Two committees within Kaiser Permanente, the Northern California Region Central Research and the regional IRB Committee, thoroughly reviewed the proposal for this study. Their rigorous review required the investigator to substantiate the study's purpose and the validity and reliability of methods.

## Chapter 4

### RESULTS

#### Sample

Couples taking preparation for childbirth classes held at Kaiser Santa Clara and Santa Teresa in December 1995 and February and March 1996 received presentations about this study and were invited to participate. Women who volunteered to participate signed a consent form and received a study packet with instructions to complete Questionnaire 1 before labor and Questionnaire 2 after delivery. The questionnaires were then to be sent back to the investigator in stamped envelopes provided in the packets. Eighty-one women initially volunteered for the study and took packets. Fifty-nine returned Questionnaire 1 (72% response rate). Follow-up calls were made to those women who did not return the questionnaire within two weeks of receiving Questionnaire 1, or three weeks after their due date.

Forty-six of the 59 women who had returned Questionnaire 1 returned Questionnaire 2 (78% response rate). Three questionnaires were excluded from the study because the women reported complications (cesarean section, forceps) or did not have a matching Questionnaire 1. As a result, 43 women who returned Questionnaires 1 and 2 were included in the final convenience sample.

#### Sample Characteristics

Background data collected in Questionnaire 1 included race, marital status, income, and education. In the final sample of Questionnaire 1 ( $N = 59$ ), race

distributions were as follows: 69% Caucasian, 14% Latina, 10% Asian, 3% Pacific Islander, and 3% African American (percentages are rounded and may not total 100%). Ages ranged from 17 to 38, with a mean age of 28 ( $SD = 4.78$ ). Most of the sample (88%) were married, and 70% reported an annual income over \$40,000 per year. The sample finished an average of 14.75 years of schooling ( $N = 56$ ,  $SD = 2.53$ ).

#### Preparation for Childbirth

Questionnaire 1 explored respondents' preparation for childbirth, particularly pain management. Specific questions were asked regarding how women were informed about the use of epidural anesthesia for labor, the benefits and problems of epidural anesthesia, and their confidence about experiencing labor without medication. In response to the question "Has anyone talked with you about the effects of using epidural anesthesia for labor pain?," 56 women (95%) responded that they were informed about epidural anesthesia during childbirth class and 24 (40%) responded that they received information from a friend who had given birth (see Table 1). Only four women responded that they had been informed about the effects of epidural anesthesia by their doctor. Some women selected more than one answer for this question.

Women indicated that they were very comfortable talking about pregnancy and birth with their physicians ( $M = 8.94$ ,  $SD = 1.81$ ) (see Figure 1). Most women (49) stated that their childbirth coach/support person would be their spouse or significant other. Other women reported that their childbirth coach/support person would be their



mother, sister, or sister-in-law. When asked how confident they felt about being in labor without drugs, the mean response was 6.46 ( $SD = 1.72$ ) on a scale from one to ten, where 1 indicated they were not very confident, and 10 indicated they were very confident (see Figure 2).

Table 1

Has anyone talked with you about the effects of using epidural anesthesia for labor pain?

Variable	Response before birth		Response after birth	
	( $n = 59$ )	%	( $n = 43$ )	%
My doctor	4	(6%)	13	(30%)
During childbirth class	56	(94%)	40	(93%)
A friend who has given birth	24	(40%)	24	(55%)
At the hospital during my labor	--		29	(67%)
Not discussed with me	1	(1%)	0	

Note: Questionnaire 1 did not include the variable "at the hospital during my labor."

Figure 1

Level of comfort in discussing pregnancy and birth with doctor

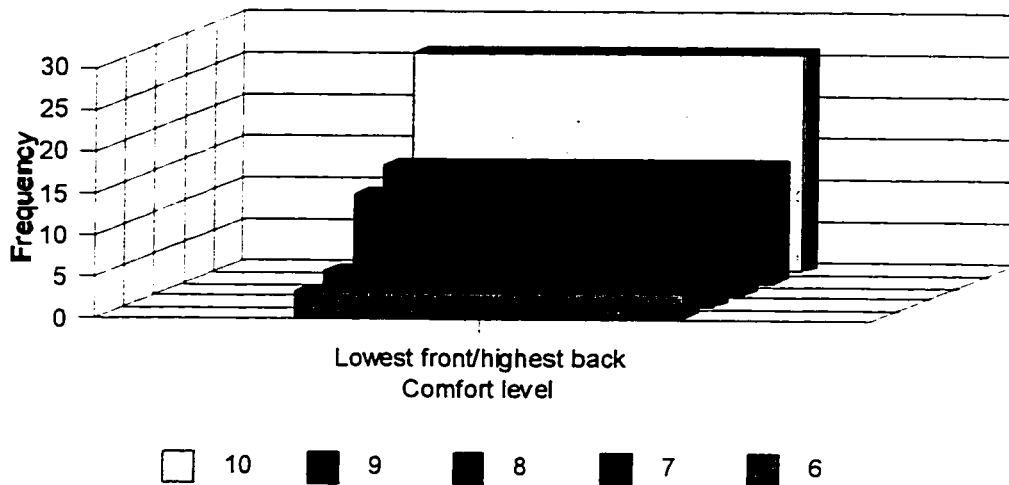
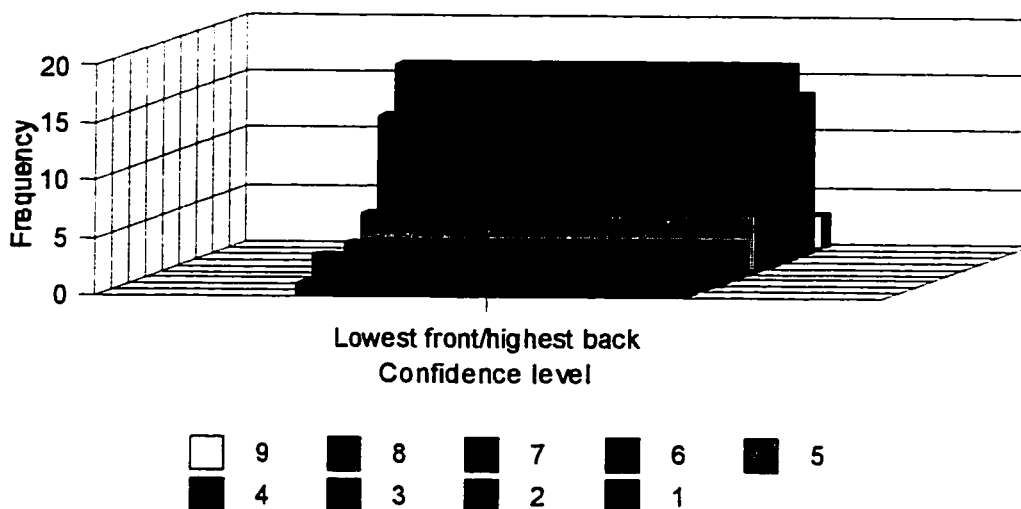


Figure 2

Level of confidence about having/being in labor without drugs



### Qualitative Responses from Questionnaire 1

Women were asked to respond to the following questions regarding their knowledge about epidural anesthesia: "What do you know about the benefits of using epidural anesthesia for labor pain?," "What do you know about the problems of using epidural anesthesia for labor pain?," "What concerns you the most about your upcoming labor and delivery?," and "When you check into the hospital, are you planning to ask for any specific drugs or procedures?".

When asked about the benefits of using epidural anesthesia for labor, many respondents noted that it reduces pain and helps with relaxation and rest during labor. Other comments included "few side effects, safe for baby," "numbs you from the waist down but can still push," "blocks pain until point of pushing," "doesn't cross placenta to baby," and "you don't feel pain, doesn't hurt you or the baby."

Respondent comments regarding problems with epidural anesthesia included that there can be problems with its administration, that it slows labor, its effectiveness is uneven, the inability to walk or move during labor, loss of urge to push, possible forceps and cesarean delivery, and effects on the baby of being exposed to the drug.

Concerns about upcoming labor centered on pain, health of baby, and possible complications. A few respondents were concerned about leaving the hospital within 24 hours. Twenty-eight percent stated they intended to ask for an epidural or other medication. One woman commented that she was going to ask for "a big shot of something in the perineum" (see Appendix H).

### Childbirth Self-Efficacy Inventory (CBSEI) Scores

The CBSEI section of Questionnaire 1 asked women to indicate how helpful they thought certain behaviors (such as relaxing or thinking positively) could be in helping to cope with active labor (contractions 5 minutes apart or less) and birth. Responses were recorded on a Likert-type scale for labor and birth separately. Behaviors were scored from 1 (not at all helpful) to 10 (very helpful).

CBSEI scores were computed by summing item responses in four areas: Outcome Expectancy Active Labor (Outcome-AL), Self-Efficacy Expectancy Active Labor (Efficacy-AL), Outcome Expectancy Second Stage (Outcome-SS), and Self-Efficacy Second Stage (Efficacy-SS). A total Childbirth Outcome Expectancy Score (Outcome-Total) was computed by summing the Outcome-AL and Outcome-SS scale scores. Likewise, a total Self-Efficacy Expectancy Score (Efficacy-Total) was computed by summing the Efficacy-AL and Efficacy-SS scale scores. Frequencies for CBSEI scores are shown in Appendix I.

Table 2 shows the aggregated CBSEI scores for outcome and self-efficacy. The sample ( $N = 59$ ) scored higher on outcome and lower on self-efficacy. Slightly higher scores were found in coping with second stage labor (birth). When CBSEI scores were compared with social demographic data (age, marital status, race, education, and income) using ANOVA, no significant relationships were found with age or education ( $p > .10$ ).

Table 2

Aggregated CBSEI Scores

Scoring Area	Mean (SD)	Range (min - max)
Outcome-AL	119.2 (20.7)	19 - 150
Efficacy-AL	109.2 (22.4)	15 - 147
Outcome-SS	120.1 (22.0)	16 - 160
Efficacy-SS	111.1 (24.9)	16 - 160
Outcome-Total	239.2 (40.1)	35 - 310
Efficacy-Total	220.3 (44.9)	31 - 301

Relationships between Confidence and Social Demographics

Several relationships were found between CBSEI scores and the descriptive data. A marginally significant relationship was found when comparing self-efficacy expectancy for active labor ( $p = .068$ ) and marital status. A significant relationship was found between self-efficacy expectancy for birth and income ( $p = .008$ ), as well as for the total self-efficacy expectancy score ( $p = .036$ ). Therefore, in this sample, there is an association between maternal confidence and being married or having a higher income.

## Questionnaire 2

Questionnaire 2, completed after childbirth, asked about the use of epidural anesthesia for labor. In addition, this questionnaire asked about other labor and delivery outcomes, including who delivered the baby and, if epidural anesthesia was avoided, the reason. A total of 16 women (37%) had epidural anesthesia for their labor and delivery. Eighty-three percent felt very comfortable talking about their pregnancy and birth with their physician. Most women (38) delivered while attended by an on-call physician and four were attended by a midwife.

Question number two asked "Who discussed the effects of using epidural anesthesia for labor with you" which was the same as question four on Questionnaire 1. In comparing pre- and post-delivery responses, most still stated they received information from the childbirth classes (40) or from a friend who has given birth (24). Twenty-nine stated they received information at the hospital, and 13 responded that they received information from their doctor.

What participants knew about the benefits and problems of using epidural anesthesia for labor pain *before labor* was asked on question 3 (see Table 3). Approximately one-half responded that side effects were discussed with them before labor. Twenty reported they had been informed that they could have less control during labor and delivery. Only ten stated that the increased chance of having a cesarean or forceps delivery was discussed. Twenty-four (55%) stated that they believed using epidural anesthesia during labor would give them a painless labor and birth.

Epidural anesthesia was administered to the 16 women when their cervix had dilated to approximately four and one-half centimeters ( $\underline{M} = 4.68$ ,  $\underline{SD} = 1.078$ ). One responded that she was not sure when epidural anesthesia was given, three responded that it was given 10 - 15 hours into labor, and one responded that it was given 35 hours into labor. When asked who made the decision to use epidural anesthesia for their labor, six stated they made the decision alone and eight stated that they made the decision together with their partner (see Table 4). The reasons for choosing epidural anesthesia for labor were to feel as little pain as possible (5) and to get relief for uncontrollable pain when other methods did not help (11).

Table 3

Did anyone talk with you about the following regarding epidural anesthesia before labor?

Variable	n	%
It will give me a painless labor and birth.	24	55
It will confine me to my hospital bed during labor.	28	65
It may make my labor longer.	24	55
I may be able to sleep and rest while in labor.	27	62
The baby may need continuous fetal monitoring.	25	58
The chance of having a cesarean or forceps delivery will be higher.	10	23
I may feel that I have less control during labor and delivery.	20	46

Note: Variables are rounded percentages and may not equal 100%.



Table 4

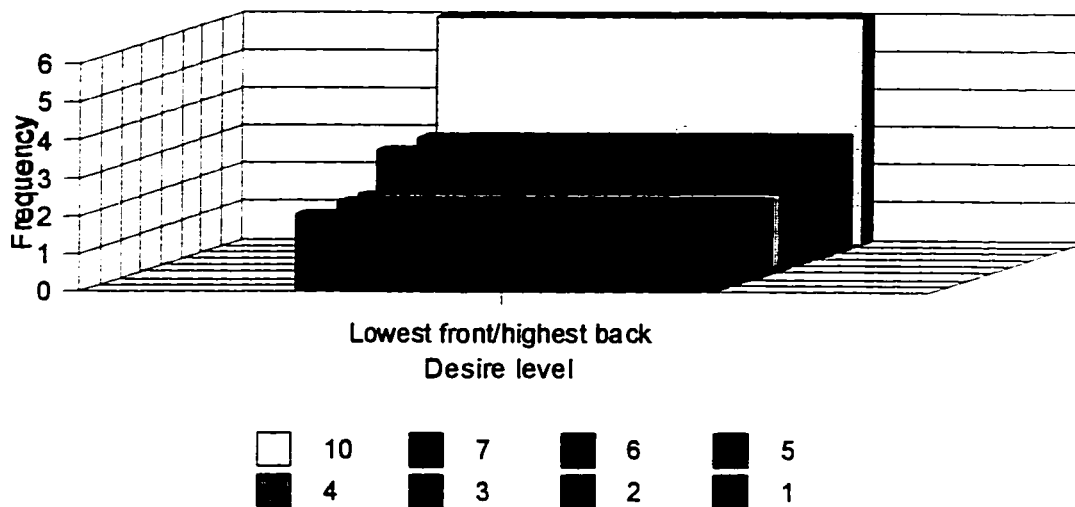
Who decided to use epidural anesthesia for your pain?

Variable	$n$
I made the decision alone.	6
My partner urged me to.	0
My partner and I decided together.	9
My doctor/nurse decided and I agreed.	0
I was not asked.	0

Note:  $n = 16$

Respondents in this sample rated the degree to which they wanted epidural anesthesia for their labor on a scale from 1 to 10. Of the 20 who responded to this question, the mean score was 6 ( $SD = 3.16$ ). Six of the 20 respondents marked number ten, indicating the strongest desire for epidural anesthesia for labor. Those who avoided using epidural anesthesia responded that labor went too fast and there wasn't time (10), that other drugs/methods worked to control pain (8), and that their spouse/coach/nurse was very supportive and it helped (11) (see Figure 3).

Figure 3  
Level of desire for epidural during labor



### Qualitative Responses from Questionnaire 2

Participants were asked for qualitative responses in two areas of Questionnaire 2. Question number 10 asked "What advice would you give to other women about controlling pain during labor and delivery" (see Appendix J). The most frequent comment was to use breathing and relaxation. Other comments included to have a support team and use a focal point. There were also several comments regarding the use of epidural anesthesia or other medications. Eleven women said that their advice would be to absolutely use epidural anesthesia or other medications. One woman discouraged using epidural anesthesia because she found the lack of control in her lower body unpleasant. Another comment was to wait as long as possible to ask for

epidural anesthesia. One woman even advised "do not trust the nurses to watch the baby's level of stress."

Question number 11 asked for comments associated with "I avoided using epidural anesthesia because..." These comments included "I was told the anesthesiologist was not available when I wanted an epidural," "too late to have an epidural," and "used breathing techniques."

### CBSEI and Outcome

When comparing CBSEI scores with use of epidural anesthesia ( $N = 43$ ),  $p$ -values for outcome expectancy and self-efficacy expectancy were insignificant ( $p > .10$ ). This was also true when comparing epidural anesthesia use with the social demographics (age, marital status, race, education, and income), and when comparing CBSEI scores with the social demographics. Possible reasons for these results will be discussed in Chapter 5.

### Summary

The analysis for this study was based on data from questionnaires completed before labor and after birth. Fifty-nine women completed the CBSEI and Questionnaire 1. The sample scored fairly confident on the Childbirth Self-Efficacy Instrument. The study also revealed that the women did not receive information about the benefits and problems of epidural anesthesia from their prenatal care providers, but from childbirth classes or from a friend who had given birth. The women in this sample were only slightly confident about being in labor without drugs. Among the

social demographics, marital status and income were the only variables linked with higher confidence scores on the CBSEI.

Many women in this study reported that they had made the decision before labor to ask for an epidural for labor pain once they were at the hospital, and most stated that they were attended by an on-call obstetrician. All of the women in this study made the decision to use epidural anesthesia either alone or with their partner, as opposed to the decision being made by their health care provider. Those who avoided using epidural anesthesia noted that other methods of pain relief were effective or that their support team was very helpful.

## Chapter 5

### **DISCUSSION**

#### Introduction

The purpose of this study was to investigate the possible relationship between confidence for labor and use of epidural anesthesia for pain management. Although a statistically significant relationship between confidence and epidural use was not found among this sample, other interesting information and unanticipated findings did emerge. For example, women in this study reported that they received information about epidural benefits and problems not from their physicians, but from childbirth classes or their friends. In addition, CBSEI scores indicated that this group of women was fairly confident for labor and birth. The implications of these and other results are discussed in this chapter.

The study had limitations, both anticipated and unanticipated, which are addressed in this chapter. The complexities of conducting studies in a large health care organization such as Kaiser Permanente were challenging, however, the setting provided unique research opportunities. Kaiser Permanente is also an excellent setting for further research and for implementing new practices in patient education.

#### Limitations of the Study

Anticipated limitations of the study, as discussed in Chapter 1, include possible differences in the confidence levels of women found within different childbirth preparation approaches. In addition, the teaching style of the instructors for these

classes may vary, as well as the emphasis on specific methods of pain management during labor and delivery. Finally, it was anticipated that the convenience sampling method used for this study might introduce a sample bias.

Additional limitations of the study were discovered during data collection. These limitations, each discussed below, include unanticipated delays in institutional approval and the need to add an additional data collection site.

A significant and unexpected delay occurred just as data collection was about to begin. Kaiser Permanente Northern California Region Research Institute requires all studies taking place at Kaiser facilities to be approved by the Institutional Review Board (IRB). Since the preparation for childbirth classes are taught by Mission College staff, the investigator was unaware that IRB approval was required for this study. The IRB approval process includes securing a sponsor for the research at the study site, submitting a research grant application with required signatures from the medical center location, approval from the Local Research Committee, approval from the Central Research Committee which meets monthly, and final approval from the Institutional Review Board.

In the months prior to the anticipated sampling date, approval for the research had been obtained from the Kaiser Permanente Medical Center perinatal coordinator at Kaiser Santa Clara, as well as from Mission College, which contracts with Kaiser Santa Clara to provide childbirth instruction. The health education department at Kaiser Santa Clara suggested that this study may need the new approval from the

Institutional Review Board (IRB). Approval was eventually acquired which resulted in a 5 month delay in beginning the data collection.

In addition to the delay in initial data collection, only about one half of the women in each class agreed to participate in the study, a sample surprisingly lower than anticipated. In order to meet the thesis sampling goals and deadlines, additional participants needed to be recruited for the study from another source. Additional participants were recruited from Kaiser Santa Teresa, but permission needed to be granted from East Side Adult Education, the organization that contracts with Kaiser Santa Teresa to provide childbirth education. Fortunately, Kaiser Research Institute did not require a new application for research at the Santa Teresa facility, however a co-investigator at the Santa Teresa facility as well as appropriate signatures from administration needed to be secured.

As mentioned earlier, only one half of the participants in each childbirth class were willing to participate in the study. Of those who signed a consent form and received a packet, 59 (72%) returned Questionnaire 1 and 46 (78% from Questionnaire 1) returned Questionnaire 2. A larger sample was expected, however, this is a time in a woman's life when many other priorities can arise. Women who agreed to participate in this study seemed to be interested, and although the response rate was lower than expected, the response was still favorable (72% for Questionnaire 1 and 78% for Questionnaire 2). A larger overall sample might have increased the size of the epidural use sample, allowing further statistical analysis and generalizability.

### Other Limitations

In this study, the sample was selected from a health maintenance organization (HMO). Kaiser Permanente Medical Center was selected for the sample due to its large member clientele as well as the volume of childbirth preparation classes offered. A sample could be collected within a reasonable period of time.

Kaiser is an health maintenance organization (HMO) which may present a sampling bias. According to Kaiser Northern California Region Department of Research 1993 Member Health Survey of members ages 20 and over, the majority of female members are Caucasian (63.9%), have some college (47.8%) or are a college graduate (34%), and have household incomes between \$35,000 - \$50,000. Percentages of other female racial groups included Asian/Pacific Islander (14.6%), Hispanic/Latina (12.3%), and African-American (7.4%). Seventy-five percent are employed either full or part-time, with only 10.7% of whom are homemakers. The sample for the study was taken from this population and CBSEI questionnaire scores were fairly confident.

In addition to the socio-demographic characteristics of this population, a sample bias may exist because Kaiser is not a fee for service organization. Although women are not refused any procedure for cost containment purposes (P. Miller, M.D., personal communication, December 5, 1995) it may be possible that the incidence of epidural anesthesia may be lower at Kaiser than other hospitals for this reason. Of the study sample, 16 of the 43 women reported that they used epidural anesthesia during labor (37%).



Sample bias may also be a factor in the self-selection process of women volunteering for this study. Although this may be of concern regarding sampling, subjects who volunteer willingly share personal information rather than being coerced, which may lead to more reliable data. In addition, the validity of the information reported on the outcome survey (Questionnaire 2) may vary due to the difficulty of recalling events, the lack of interaction or prompts by an interviewer, and personal interpretations of events during labor and delivery.

#### Other Issues

Conducting research in this setting can be challenging. The IRB approval process can be lengthy and tedious, however, the organization has an interest in avoiding litigation or other problems which may result from poor quality studies. In order to compensate for these time delays, the investigator employed a health science undergraduate student from San Jose State University as a research assistant. The research assistant assisted with initial presentations to childbirth classes, conducted follow-up calls for late questionnaires, and entered questionnaire data. This proved to be an enormous benefit to the study, making up for the time constraints of the investigator.

#### Discussion

The purpose of this study was to investigate a relationship between maternal confidence for labor and decisions to use epidural anesthesia for pain management. Respondents in this sample scored confident (on a scale between 1 and 10, ten being

very confident) in the belief that certain behaviors, such as breathing or relaxing, would enhance coping with active labor (7.9) and birth (7.5). A self-efficacy expectancy score, which is the belief that they can successfully perform certain behaviors, was also confident, but slightly lower (active labor, 7.2, birth 6.9). The distinction between outcome and self-efficacy is important because although a woman may believe that certain behaviors could help cope with labor, she may not feel as certain that she will be able to perform those behaviors during her own labor.

An important and unanticipated finding was the importance of social support on avoiding epidural anesthesia as well as satisfaction of the childbirth experience. Confidence for labor, as measured by the CBSEI questionnaire, may not be as important as social support during labor, or confidence in one's social support network. In fact, women reported avoiding epidural anesthesia because alternate methods of pain relief and social support worked. When asked what advice they would give to other women about controlling pain during labor, responses included "having supportive people with you" and "pay attention to your coach" (see Appendix J).

Many women who give birth in a hospital setting are attended by their partner. Eighty-three percent of the sample in this study responded that their spouse/significant other would be their childbirth coach/support person. A study about continuous support during labor (Kennell et al., 1991), revealed that although women rated their partners' presence during labor and delivery as extremely important and helpful, their partners chose to be present for less time with the laboring women than when a

woman is attended by a supportive companion (doula). Studies have shown that under some circumstances, the presence of a spouse during labor reduces the pain medication given to the laboring woman. Doulas touched (rubbed, stroked, clutched, and held) the laboring woman 95% of the time compared to 20% by a male partner, who is less experienced with labor. This difference may be important in childbirth outcomes as well as the self-efficacy of the woman during labor, particularly with medication use.

None of the respondents in this study indicated that they were going to be assisted during labor by more than one support person. Kennell et al. (1991) found that labor support plays an extremely important role for the laboring woman. Continuous labor support has been shown to shorten labor and reduce the need for cesarean and other interventions. In her book, Birth in Four Cultures, Brigitte Jordan describes how women are supported during labor in Yucatan, Mexico. When a woman needed encouragement during labor or to renew her strength, assistants responded with "birth talk." When a contraction begins, casual conversation in the room stopped and the assistants rhythmically chanted words of encouragement which matched the intensity of the contraction. Words and phrases were repeated to encourage the laboring woman through each intense contraction. Women in this community received social support for their labor beyond their husband attending the birth. Information regarding the benefits of social support and its effects on pain perception should also be an important component in childbirth education.

It is interesting that no statistical significance was found between the predictor

(maternal confidence) and outcome (epidural use) variables. This may be due to several factors. First, of the 46 women who returned Questionnaire 2, only 16 used epidural anesthesia for their labor. This may not be a large enough sample to achieve statistical significance. Had this study not been a student thesis with deadline restrictions, the study could have been continued until a larger epidural use sample was obtained. Second, it is possible that the CBSEI questionnaire may not be the best measurement when looking for medication use outcomes.

Many other useful and important findings resulted from this study. Women in this study reported that before their labor, they were informed about the effects of epidural anesthesia for labor not from their prenatal care providers, but from their childbirth class or from a friend who had given birth. This implies that women may not be being adequately informed about important issues, such as medication use, during visits with their prenatal care providers. Women who do not attend childbirth classes risk the possibility of being misinformed about choices for pain relief during labor and delivery. In addition, women may be insufficiently informed when educated only by their friends, who present information about pain, pain relief, and other factors about labor and birth from their own limited experience and knowledge.

Women in this study were not very confident about being in labor without medication ( $M = 6.45$ , on a scale from 1 to 10, 10 being most confident). Childbirth often is the most painful event in a woman's lifetime, and many women request pharmacological pain relief during labor. Women's attitudes regarding pain relief are

greatly influenced by cultural factors, pressure from friends and family, and personal aspirations about labor and delivery.

In a review of treatment options for pain relief during childbirth, Brownridge (1991) recognized the important function of childbirth education to provide factual and unbiased information about pain relief for labor and delivery. In addition, this review points out that pharmacological as well as non-pharmacological forms of pain relief can be compatible. The mother should make the decision about the method of pain relief, and patient satisfaction is enhanced when she is able to maintain some personal control during the birth event. In this study, all of the women who used epidural anesthesia for their labor made the decision either alone or together with their partner.

Crowe and von Baeyer (1989) found that the woman who is most likely to have a positive childbirth experience is anxious and fearful about labor but competent in her knowledge of the process of birth and confident in her ability to control the pain associated with childbirth. At Kaiser Santa Clara, childbirth classes are provided by Mission Community College, which conducts the classes at the Kaiser facility. There has been little interaction between Kaiser obstetrical staff and Mission Community College regarding class design or content (P. Miller, M.D., personal communication, December 5, 1995). The obstetricians know little about what is actually taught in the classes and don't feel it is necessary to become involved unless complaints or problems arise.

Answers were equally divided in response to the question "Did you want to use

epidural anesthesia for your labor?" (on a scale between 1 and 10, 10 indicating they definitely wanted it) on Questionnaire 2. Half of the women responded below 5 and half responded over 5. This could indicate ambivalence or uncertainty regarding benefits and problems of using epidural anesthesia for labor, or for some, a definite need for avoiding pain during labor. When asked if they planned to ask for specific drugs or procedures when in labor, many women indicated that they intended to request an epidural or other medication (see Appendix H).

The significance of women's birth experience is demonstrated in Simpkin's (1991) study. Women can recall specific memories of their labor years later with surprising detail, and those who felt most satisfaction attributed it to feelings of personal accomplishment. In addition, many of the satisfied women felt that the birth experience had increased their self-esteem. The women with positive feelings about their birth remembered having positive interactions with the labor and delivery staff. In contrast, those women who had negative memories about their birth remembered negative interactions with the staff. Although this was not explored in this study, the impact of a woman's interactions with the professional staff assisting with the birth of her baby cannot be understated.

As stated previously, positive interactions between the patient and the labor and delivery staff is very important. Often, the patient/provider relationship is established during prenatal visits. Only one respondent stated that her baby was delivered by her own doctor. Most others (88%) stated that their baby was delivered by an on-call

physician. When a patient goes to the labor and delivery unit at a Kaiser facility, she is attended by the obstetrician on-call for that shift, who may not necessarily have been her health care provider during prenatal visits. Although women in this study did not state how they felt about this policy, it could potentially effect how prenatal care is perceived by the patient. The study did not ask if the respondents had met the obstetrician who delivered their baby on a previous prenatal visit.

Humenick's (1981) review regarding what constitutes a satisfactory childbirth experience cites a study which reported that a woman's perception of control during birth was the major factor associated with a positive birth experience. Humenick & Bugen (1981) conducted a study which also reported that mastery or control during childbirth is an important component to a satisfactory childbirth experience. The feeling of mastering the experience of childbirth leads to confidence and self-esteem in other aspects of a woman's life. Again, this was not explored in this research but may contribute to undocumented factors influencing the results.

Research on birth experiences indicate that women who attend childbirth preparation classes and receive instruction about anatomy and physiology, the process of labor and delivery, and accurate factual information about pharmacological and non-pharmacological methods of pain relief, are more likely to feel confident about experiencing labor. Including women in decision making regarding pain relief choices also can result in a more positive birth experience.

### Recommendations for Childbirth Education

Many implications for the practice of childbirth education are evident in the findings of this and other studies. The following recommendations are based upon the findings of this study:

1. Incorporate and strengthen self-efficacy theory in childbirth education curriculum. Confidence has been defined as an important component in coping with labor pain. Empowering women to believe that they can successfully utilize coping strategies for labor pain, such as breathing techniques, may increase confidence for labor.
2. Disseminate accurate information regarding options for pain relief for labor and delivery. In addition to being discussed in the childbirth classes, discussion about choices and alternatives to medications and interventions should take place during prenatal visits. This will contribute to the patient's accurate understanding of these options as well as to build trust with her patient care providers.
3. Discuss and encourage social support for childbirth. Enlisting a doula for labor support in addition to their partners can help women cope more effectively, possibly decreasing the incidence of interventions.
4. Develop a set of coping skills and strategies for labor. Knowledge of breathing patterns, the effects of changing positions on labor progress, and when to use medication may increase women's confidence for labor. Practicing these techniques in childbirth classes may also enhance her ability to perform them in labor.



5. Encourage women to be active participants in their childbirth. Assisting women with the understanding about ways they can remain active in the decision making process during labor may lead to more positive feelings about their childbirth, regardless of medical outcomes.

#### Recommendations for Health Care

Health care organizations can establish policies and procedures to enhance women's birth experiences

1. Childbirth classes should be encouraged for all pregnant women. This will contribute to women's increased confidence and education for labor and delivery.

2. Find out what constitutes a positive birth experience from the woman's perspective. Eliminating pain may not be the only factor in creating a positive birth experience. Indeed, pain reduction or pain management may be easier with attention to other aspects of childbirth.

3. Staff training. Train staff to effectively and sensitively interact with patients in order to foster positive patient/provider relationships and to assist women to remain in the decision-making process during labor and delivery.

4. Effectively measure patient satisfaction. Create and implement an effective patient satisfaction instrument whose results can benefit both prenatal care providers and childbirth educators desiring to create the best possible experience for the obstetric patient.

### Recommendations for Research

Further research is needed into the current model of pain management for labor and its effectiveness on patient satisfaction and positive birth outcomes. Specifically, research would be promising to the following areas:

1. Social support during labor. Although some research has been conducted regarding the impact of social support during childbirth, more studies are needed to continue to document its positive effects.

2. Childbirth practices in other cultures. Learning how women apply coping strategies in other cultures may broaden the range of skills and strategies that may be adopted in this culture.

3. Women's birth experiences. More documentation is needed about what constitutes a positive birth experience from the women's perspective.

4. Self-efficacy theory in childbirth. Researching ways to enhance women's perceptions of coping abilities for labor will assist health care providers and childbirth educators with preparing women for the childbirth experience.

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**APPENDIX A**  
**ADMINISTRATION OF EPIDURAL ANESTHESIA**

## Administration of Epidural Anesthesia

66

Reference: Irving, P. (1994). Epidural anesthesia: the nurse's role. Nurseweek, second April issue.

Epidural catheters are usually inserted into the space between vertebrae L3 and L4, but can be inserted anywhere along the length of the spinal column. To widen the spaces between the vertebrae, the anesthesiologist may have the patient sit up and lean forward or lie in a fetal position. After the surrounding skin has been numbed with a local anesthetic, a needle is passed into the epidural space. The catheter is then threaded through the needle and inserted several centimeters to the desired location. The needle then withdrawn, and the catheter is secured with a sterile dressing and tape to the patients back.

Epidural medication can be administered either as a continuous infusion or a bolus (intermittent) injection.



**APPENDIX B**  
**CHILDBIRTH SELF-EFFICACY INVENTORY (CBSEI)**

**Childbirth Self-Efficacy Inventory  
(CBSEI)  
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**Subject ID** \_\_\_\_\_ **Date** \_\_\_\_\_

CBSEI: Part I (Labor)

Think about how you imagine labor will be and feel when you are having contractions 5 minutes apart or less. For each of the following behaviors, indicate how helpful you feel the behavior could be in helping you cope with this part of labor by circling a number between 1, not at all helpful, and 10, very helpful.

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



CBSEI: Part II (Birth)

Think about how you imagine labor will be and feel when you are pushing your baby out to give birth. For each of the following behaviors, indicate how helpful you feel the behavior could be in helping you cope with this part of labor by circling a number between 1, not at all helpful, and 10, very helpful.

	<u>Not at all helpful</u>										<u>Very helpful</u>									
	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10
31. Relax my body.	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10
32. Get ready for each contraction.	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10
33. Use breathing during labor contractions.	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10
34. Keep myself in control.	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10
35. Think about relaxing.	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10
36. Concentrate on an object in the room to distract myself.	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10
37. Keep myself calm.	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10
38. Concentrate on thinking about the baby.	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10
39. Stay on top of each contraction.	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10
40. Think positively.	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10
41. Not think about the pain.	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10
42. Tell myself that I can do it.	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10
43. Think about others in my family.	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10
44. Concentrate on getting through one contraction at a time.	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10
45. Focus on the person helping me in labor.	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10
46. Listen to encouragement from the person helping me.	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10

Part II Continued

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

	<u>Not at all</u>					<u>Completely</u>				
	<u>sure</u>									
	1	2	3	4	5	6	7	8	9	10
47. Relax my body.	1	2	3	4	5	6	7	8	9	10
48. Get ready for each contraction.	1	2	3	4	5	6	7	8	9	10
49. Use breathing during labor contractions.	1	2	3	4	5	6	7	8	9	10
50. Keep myself in control.	1	2	3	4	5	6	7	8	9	10
51. Think about relaxing.	1	2	3	4	5	6	7	8	9	10
52. Concentrate on an object in the room to distract myself.	1	2	3	4	5	6	7	8	9	10
53. Keep myself calm.	1	2	3	4	5	6	7	8	9	10
54. Concentrate on thinking about the baby.	1	2	3	4	5	6	7	8	9	10
55. Stay on top of each contraction.	1	2	3	4	5	6	7	8	9	10
56. Think positively.	1	2	3	4	5	6	7	8	9	10
57. Not think about the pain.	1	2	3	4	5	6	7	8	9	10
58. Tell myself that I can do it.	1	2	3	4	5	6	7	8	9	10
59. Think about others in my family.	1	2	3	4	5	6	7	8	9	10
60. Concentrate on getting through one contraction at a time.	1	2	3	4	5	6	7	8	9	10
61. Focus on the person helping me in labor.	1	2	3	4	5	6	7	8	9	10
62. Listen to encouragement from the person helping me.	1	2	3	4	5	6	7	8	9	10

**APPENDIX C**  
**QUESTIONNAIRE 1**







**APPENDIX D**  
**QUESTIONNAIRE 2**





**APPENDIX E**  
**CONSENT FORM**

KAISER FOUNDATION HOSPITALS  
THE PERMANENTE MEDICAL GROUP, INC.

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CONSENT TO PARTICIPATE IN A MEDICAL RESEARCH STUDY

FORMAL TITLE: MATERNAL CONFIDENCE FOR LABOR AND ITS RELATIONSHIP  
WITH THE USE OF EPIDURAL ANESTHESIA FOR PAIN  
MANAGEMENT

STUDY PURPOSE

You are being invited to participate in a research study that is being conducted by researchers from the Kaiser Permanente Medical Care Program. The purpose of this study is to learn more about the relationship, if any, between the confidence of women experiencing their first labor and the use of medication for childbirth labor pain.

STUDY PROCEDURES

If you agree to participate in this study, you will be asked to complete two confidential questionnaires. The first questionnaire will take approximately 25 minutes to complete and you will be asked to return the completed questionnaire to the principal investigator, Dana L. Stern, immediately. The second questionnaire will take approximately 15 minutes to complete and you will be asked to return this questionnaire by mail within two weeks after your delivery.

RISKS

There are no significant risks related to participation in this study. You may feel inconvenienced by the time it takes to complete the questionnaires.

POSSIBLE BENEFITS

There may be no direct benefit to you from participating in this study. We cannot and do not promise that you will receive any personal benefit from participating in this study. It is hoped that the information gained from this study will help us understand more about advice to women about medication choices for childbirth labor pain.

VOLUNTARY PARTICIPATION

Participation in the study is completely voluntary. There will be no penalty or negative effect of any kind on anyone who chooses not to be in the study, nor anyone who chooses to withdraw after having begun participation in the study. Neither your medical care nor your eligibility for membership in Kaiser Foundation Health Plan (KFHP) will be affected by the choice you make.

COSTS/PAYMENTS

There will be no cost to you as a result of taking part in this study. You will not be paid for participating in this study.

CONFIDENTIALITY

Information about you obtained for this study will be kept confidential and will not be released without your written permission unless compelled by law. If you decide to participate in this study, you will also be giving consent for the medical research investigator or his/her assistants to review your medical records as may be necessary for this study. Your identity will not be revealed in any publication or release of results.

QUESTIONS

Any study-related questions or problems should be directed to the principal investigator for the study within Kaiser Permanente in Northern California, Dana L. Stern, at (408) 253-2240 or you may call Serena Stanford, Ph.D., Associate Academic Vice President for Graduate Studies and Research, San Jose State University at (408) 924-2480.

Questions, comments or complaints about the study also may be presented to the Institutional Review Board for the Protection of Human Subjects, Kaiser Foundation Research Institute, 1800 Harrison Street, Oakland, CA 94612-3433, telephone (510) 987-3236.

\*\*\*\*

I have read the above and am satisfied with my understanding of the study, its possible benefits, risks, and alternatives. My questions about the study have been answered. I hereby voluntarily consent to participate in the medical research study as described. I have been offered copies of this two-page consent form and of the "Experimental Subject's Bill of Rights."

\_\_\_\_\_  
Signature of Participant

\_\_\_\_\_  
Date

\_\_\_\_\_  
Name of Participant, printed

\_\_\_\_\_  
Witness (not a physician)

**APPENDIX F**  
**RIGHTS OF MEDICAL RESEARCH PARTICIPANTS**



**KAISER FOUNDATION HOSPITALS  
THE PERMANENTE MEDICAL GROUP, INC.**

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INFORMATION ABOUT RIGHTS OF MEDICAL RESEARCH PARTICIPANTS

California law\* requires that a potential participant in a medical research study or investigation be presented with an "experimental subject's bill of rights." The following list of rights and privileges is intended to satisfy the statutory requirement.

Persons who participate in medical research, investigation, or experimentation are entitled to certain rights, which include (but are not necessarily limited to) the right to be:

1. Informed of the nature and purpose of the study, investigation, or experiment.
2. Given an explanation of the procedures to be followed in the medical study, investigation or experiment, and a description of any drug or device to be used.
3. Informed of any related discomforts and risks reasonably to be expected from participation in the study.
4. Told of any benefits to the participant, reasonably to be expected, if any.
5. Advised of any appropriate alternative procedures, drugs, or devices that might be advantageous to the participant, and the relative risks and benefits of these alternatives.
6. Informed of the availability of medical treatment, if any, to the participant, after the experiment, should complications arise.
7. Given an opportunity to ask any questions concerning the study, investigation or experiment, or about the procedures involved.
8. Instructed that consent to participate may be withdrawn at any time and that the participation in the medical study, investigation or experiment may be discontinued without prejudice.
9. Given a copy of the written consent to participation as a research participant, as signed and dated.
10. Allowed to decide to consent or not to consent to participate in a medical study, investigation or experiment, without the intervention of any element of force, fraud, deceit, duress, coercion, or undue influence upon the participant's decision.

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\* Health and Safety Code Sections 24170-24178

**APPENDIX G**  
**PERMISSION TO USE THE CBSEI**



College of Nursing  
Department of Community,  
Parent-Child and Psychiatric Nursing

1585 Neil Avenue  
Columbus, OH 43210-1289

Phone 614-292-4800  
Fax 614-292-4948

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July 15, 1994

Dana Stern  
MPH Candidate, San Jose State University  
10418 Palo Vista Rd.  
Cupertino, CA 95014

Dear Ms. Stern:

Thank you for your letter of July 11 regarding your master's thesis. I am pleased to send you a copy of my instrument, the Childbirth Self-Efficacy Inventory (CBSEI), for potential use in your work. There is no charge for the use of the CBSEI, however, I do ask you to abide by the following stipulations:

1. If you decide to use the CBSEI for your research, you will inform me in writing prior to beginning data collection.
2. The original instrument will not be altered in any way and will be duplicated from the original.
3. Psychometric data will be sent to me on the instrument including reliability estimates, any relevant validity information, and results of a factor analysis, if done.
4. An abstract of the study will be sent to me on completion which contains a detailed description of sample characteristics, methodology and findings.
5. You will not give a copy of the instrument to anyone else, but rather refer them to me for a copy of the instrument.

I am enclosing several of my related papers, including the one describing the development of the CBSEI for your use. Since the CBSEI is a relatively new instrument there are as yet no published studies in which it has been used. Thank you for your interest in my work and I will look forward to hearing from you. Please do not hesitate to call if you have additional questions (614-292-8479).

Sincerely,

Nancy K. Lowe, RN, PhD  
Associate Professor

**APPENDIX H**

**QUALITATIVE RESPONSES FROM QUESTIONNAIRE 1**

**"When you check into the hospital, are you planning to ask  
for any specific drugs or procedures?"**

*Nubain if necessary. No epidural or episiotomy unless necessary.  
I am going to do my best with out them if I can tolerate it.  
I plan to hold off as long as possible, then get an epidural.  
I do not plan on requesting any specific drugs or procedures.  
Epidural.  
Epidural probably.  
I want an epidural.  
Later an epidural and episiotomy if needed.  
Epidural only if I really need it.  
It depends on how bad I feel. If bad, I will ask for an epidural.  
When necessary I want drugs to help me relax. Local anesthetic.  
Epidural.  
I am going to ask not to have an episiotomy.  
If and when needed.  
Don't really know yet.  
Hold off on drugs unless necessary - epidural.  
Epidural.  
We hope to have the baby naturally.  
Need antibiotic for heart condition.  
I'll do the best I can before using the drugs.  
A big shot of something in the perineum.  
Play it by ear, if medication needed, then epidural.  
Prefer perineal massage, no episiotomy.  
Epidural if pain os too great and timing is right.  
Not decided yet.  
I want a narcotic medication to take the edge off.  
To use TENS unit.  
Epidural.*

**APPENDIX I**  
**CBSEI FREQUENCY SCORES**

Outcome Expectancy for Active Labor

OUTCOME_AL	Freq	Percent	Cum.
19	1	1.7%	1.7%
86	1	1.7%	3.4%
93	2	3.4%	6.8%
94	1	1.7%	8.5%
99	1	1.7%	10.2%
100	2	3.4%	13.6%
104	4	6.8%	20.3%
107	1	1.7%	22.0%
109	4	6.8%	28.8%
110	2	3.4%	32.2%
111	2	3.4%	35.6%
113	1	1.7%	37.3%
114	1	1.7%	39.0%
115	4	6.8%	45.8%
116	1	1.7%	47.5%
118	1	1.7%	49.2%
119	2	3.4%	52.5%
124	2	3.4%	55.9%
127	1	1.7%	57.6%
128	2	3.4%	61.0%
129	2	3.4%	64.4%
131	2	3.4%	67.8%
132	1	1.7%	69.5%
133	3	5.1%	74.6%
134	1	1.7%	76.3%
135	2	3.4%	79.7%
136	3	5.1%	84.7%
137	1	1.7%	86.4%
139	2	3.4%	89.8%
141	1	1.7%	91.5%
144	1	1.7%	93.2%
146	1	1.7%	94.9%
147	1	1.7%	96.6%
149	1	1.7%	98.3%
150	1	1.7%	100.0%
Total	59	100.0%	

Total	Sum	Mean	Variance	Std Dev	Std Err
59	7030	119.153	427.373	20.673	2.691

**Self-Efficay Expectancy for Active Labor**

EFFICACY_AL	Freq	Percent	Cum.
15	1	1.7%	1.7%
68	1	1.7%	3.4%
73	1	1.7%	5.1%
75	2	3.4%	8.5%
79	1	1.7%	10.2%
82	1	1.7%	11.9%
86	1	1.7%	13.6%
87	1	1.7%	15.3%
92	1	1.7%	16.9%
95	1	1.7%	18.6%
96	3	5.1%	23.7%
98	3	5.1%	28.8%
99	1	1.7%	30.5%
100	1	1.7%	32.2%
101	3	5.1%	37.3%
103	1	1.7%	39.0%
104	1	1.7%	40.7%
106	2	3.4%	44.1%
110	1	1.7%	45.8%
111	1	1.7%	47.5%
114	1	1.7%	49.2%
116	1	1.7%	50.8%
117	1	1.7%	52.5%
118	2	3.4%	55.9%
120	6	10.2%	66.1%
121	4	6.8%	72.9%
122	2	3.4%	76.3%
123	1	1.7%	78.0%
126	1	1.7%	79.7%
127	1	1.7%	81.4%
128	1	1.7%	83.1%
129	1	1.7%	84.7%
131	2	3.4%	88.1%
132	1	1.7%	89.8%
133	1	1.7%	91.5%
136	2	3.4%	94.9%
139	1	1.7%	96.6%
141	1	1.7%	98.3%
147	1	1.7%	100.0%
Total	59	100.0%	

Total	Sum	Mean	Variance	Std Dev	Std Err
59	6441	109.169	499.764	22.355	2.910



Outcome Expectancy for Second Stage (Birth)

OUTCOME_SS	Freq	Percent	Cum.
16	1	1.7%	1.7%
88	1	1.7%	3.4%
90	1	1.7%	5.1%
93	1	1.7%	6.8%
97	1	1.7%	8.5%
98	2	3.4%	11.9%
100	2	3.4%	15.3%
101	1	1.7%	16.9%
103	1	1.7%	18.6%
105	2	3.4%	22.0%
111	1	1.7%	23.7%
112	3	5.1%	28.8%
114	1	1.7%	30.5%
115	1	1.7%	32.2%
116	2	3.4%	35.6%
118	4	6.8%	42.4%
119	1	1.7%	44.1%
120	3	5.1%	49.2%
121	1	1.7%	50.8%
122	1	1.7%	52.5%
123	1	1.7%	54.2%
124	6	10.2%	64.4%
126	3	5.1%	69.5%
127	1	1.7%	71.2%
128	1	1.7%	72.9%
129	2	3.4%	76.3%
130	1	1.7%	78.0%
132	2	3.4%	81.4%
133	1	1.7%	83.1%
136	1	1.7%	84.7%
141	1	1.7%	86.4%
142	1	1.7%	88.1%
148	1	1.7%	89.8%
152	1	1.7%	91.5%
154	1	1.7%	93.2%
156	2	3.4%	96.6%
158	1	1.7%	98.3%
160	1	1.7%	100.0%
Total	59	100.0%	

Total	Sum	Mean	Variance	Std Dev	Std Err
59	7084	120.068	484.133	22.003	2.865

Self-Efficacy Expectancy for Second Stage (Birth)

EFFICACY_SS	Freq	Percent	Cum.
16	1	1.7%	1.7%
58	1	1.7%	3.4%
66	1	1.7%	5.1%
68	1	1.7%	6.8%
72	1	1.7%	8.5%
87	2	3.4%	11.9%
90	1	1.7%	13.6%
91	2	3.4%	16.9%
92	2	3.4%	20.3%
93	1	1.7%	22.0%
99	2	3.4%	25.4%
100	1	1.7%	27.1%
101	1	1.7%	28.8%
102	1	1.7%	30.5%
103	1	1.7%	32.2%
104	1	1.7%	33.9%
106	2	3.4%	37.3%
107	1	1.7%	39.0%
111	1	1.7%	40.7%
112	3	5.1%	45.8%
113	2	3.4%	49.2%
114	4	6.8%	55.9%
115	1	1.7%	57.6%
116	1	1.7%	59.3%
117	1	1.7%	61.0%
118	2	3.4%	64.4%
119	2	3.4%	67.8%
122	1	1.7%	69.5%
123	2	3.4%	72.9%
124	1	1.7%	74.6%
125	2	3.4%	78.0%
126	1	1.7%	79.7%
128	1	1.7%	81.4%
132	1	1.7%	83.1%
133	1	1.7%	84.7%
134	1	1.7%	86.4%
137	1	1.7%	88.1%
138	1	1.7%	89.8%
139	1	1.7%	91.5%
142	1	1.7%	93.2%
152	1	1.7%	94.9%
154	1	1.7%	96.6%
156	1	1.7%	98.3%
160	1	1.7%	100.0%
Total	59	100.0%	

Total	Sum	Mean	Variance	Std Dev	Std Err
59	6554	111.085	617.769	24.855	3.236

Total Outcome Expectancy for Labor and Birth

OUTCOME_TOT	Freq	Percent	Cum.
35	1	1.7%	1.7%
182	1	1.7%	3.4%
186	1	1.7%	5.1%
190	1	1.7%	6.8%
194	1	1.7%	8.5%
197	1	1.7%	10.2%
202	1	1.7%	11.9%
207	1	1.7%	13.6%
208	1	1.7%	15.3%
211	2	3.4%	18.6%
212	1	1.7%	20.3%
218	1	1.7%	22.0%
220	1	1.7%	23.7%
221	1	1.7%	25.4%
222	1	1.7%	27.1%
223	1	1.7%	28.8%
224	1	1.7%	30.5%
227	1	1.7%	32.2%
228	1	1.7%	33.9%
229	1	1.7%	35.6%
233	2	3.4%	39.0%
236	1	1.7%	40.7%
238	1	1.7%	42.4%
239	2	3.4%	45.8%
240	1	1.7%	47.5%
243	2	3.4%	50.8%
244	2	3.4%	54.2%
248	3	5.1%	59.3%
250	1	1.7%	61.0%
252	1	1.7%	62.7%
253	1	1.7%	64.4%
255	2	3.4%	67.8%
256	1	1.7%	69.5%
257	1	1.7%	71.2%
258	2	3.4%	74.6%
262	2	3.4%	78.0%
263	2	3.4%	81.4%
266	1	1.7%	83.1%
268	1	1.7%	84.7%
271	1	1.7%	86.4%
275	1	1.7%	88.1%
282	1	1.7%	89.8%
284	1	1.7%	91.5%
291	1	1.7%	93.2%
297	1	1.7%	94.9%
301	1	1.7%	96.6%
302	1	1.7%	98.3%
310	1	1.7%	100.0%
Total	59	100.0%	

Total	Sum	Mean	Variance	Std Dev	Std Err
59	14114	239.220	1610.520	40.131	5.225

**Total Self-Efficacy for Labor and Birth**

EFFICACY_TOT	Freq	Percent	Cum.
31	1	1.7%	1.7%
126	1	1.7%	3.4%
145	1	1.7%	5.1%
155	1	1.7%	6.8%
165	1	1.7%	8.5%
173	1	1.7%	10.2%
175	1	1.7%	11.9%
183	1	1.7%	13.6%
187	1	1.7%	15.3%
188	2	3.4%	18.6%
189	1	1.7%	20.3%
190	1	1.7%	22.0%
194	1	1.7%	23.7%
195	1	1.7%	25.4%
198	2	3.4%	28.8%
202	1	1.7%	30.5%
203	1	1.7%	32.2%
206	1	1.7%	33.9%
208	1	1.7%	35.6%
212	3	5.1%	40.7%
213	2	3.4%	44.1%
215	1	1.7%	45.8%
219	1	1.7%	47.5%
220	1	1.7%	49.2%
226	2	3.4%	52.5%
228	1	1.7%	54.2%
230	1	1.7%	55.9%
233	1	1.7%	57.6%
234	1	1.7%	59.3%
235	1	1.7%	61.0%
238	2	3.4%	64.4%
239	1	1.7%	66.1%
243	1	1.7%	67.8%
244	1	1.7%	69.5%
246	4	6.8%	76.3%
247	1	1.7%	78.0%
248	1	1.7%	79.7%
253	1	1.7%	81.4%
258	1	1.7%	83.1%
259	1	1.7%	84.7%
261	1	1.7%	86.4%
262	1	1.7%	88.1%
266	1	1.7%	89.8%
274	2	3.4%	93.2%
287	1	1.7%	94.9%
291	1	1.7%	96.6%
301	2	3.4%	100.0%
Total	59	100.0%	

Total	Sum	Mean	Variance	Std Dev	Std Err
59	12995	220.254	2014.193	44.880	5.843

**APPENDIX J**

**QUALITATIVE RESPONSES FROM QUESTIONNAIRE 2**

**"What advice would you give to other women about controlling  
pain during labor and delivery?"**

*Make sure the staff respects your requests.  
Fentanyl is a wonderful drug!  
Have something to focus your mind on, wait on the epidural.  
Epidural.  
If pain is unbearable I recommend epidural, breathing techniques  
Do not trust the nurses to watch the baby's level of stress.  
Breathe and try to relax. Used music.  
Concentrate on breathing and counting. Don't lose control.  
Breath, relax, have someone you're close to with you.  
Change positions often so you don't tighten up or be in pain.  
Breathing exercises through contractions got me to 8 before going to hospital.  
Get the epidural. No reason to be in so much pain.  
Try to rest or sleep between contractions.  
Childbirth classes are very helpful. Breathing and relaxing is key.  
Have mild pain shot and do breathing.  
Ask for an epidural as soon as you feel you need something.  
Be strong and pay attention to your coach.  
Don't tense up with a contraction, use breathing techniques.  
Relax, depend on partner, don't let RNs speak for you  
Try to relax and use epidural if pain is too much.  
If the pain is bad, drugs are the only way to go.  
Use whatever it takes to relieve the pain.  
Do what you want, don't let anyone talk you out of it.  
Try to use the breathing and relaxation techniques.  
Get an epidural ASAP.  
Concentrate on breathing and don't fight contractions.  
Use focus point and support team, take one contraction at a time.  
When you can't bear the pain, ask for something to relieve it.  
Try to concentrate as much as possible.  
Don't be afraid to ask for medication if you feel you need it.  
Breathe, have support team there.  
Take epidural.  
Breathing exercises most useful for fighting pain.  
Discourage epidural, not controlling lower body was unpleasant.  
Keep doing your breathing, have a good support team in delivery room.  
Breathing and focusing is very important.  
Relaxation and prayers.  
Breathe slowly, relax, don't be afraid of using the drugs they offer.  
Trust your own body and judgement.  
Supportive people with you, have as much education before  
Kegel exercised, try to relax and breathe  
Don't make any "set in stone" decisions about drug use.*

**APPENDIX K**  
**SJSU HUMAN SUBJECTS-INSTITUTIONAL REVIEW BOARD**  
**ACCEPTANCE LETTER**

TO: Dana L. Stern  
10418 Palo Vista Rd.  
Cupertino, CA 95014

FROM: Serena W. Stanford   
AAVP, Graduate Studies & Research

DATE: June 13, 1995

The Human Subjects-Institutional Review Board has approved your request to use human subjects in the study entitled:

"Maternal Confidence for Labor and its Relationship  
with the use of Epidural Anesthesia for Pain Management"

This approval is contingent upon the subjects participating in your research project being appropriately protected from risk. This includes the protection of the anonymity of the subjects' identity when they participate in your research project, and with regard to any and all data that may be collected from the subjects. The Board's approval includes continued monitoring of your research by the Board to assure that the subjects are being adequately and properly protected from such risks. If at any time a subject becomes injured or complains of injury, you must notify Serena Stanford, Ph.D., immediately. Injury includes but is not limited to bodily harm, psychological trauma and release of potentially damaging personal information.

Please also be advised that each subject needs to be fully informed and aware that their participation in your research project is voluntary, and that he or she may withdraw from the project at any time. Further, a subject's participation, refusal to participate, or withdrawal will not affect any services the subject is receiving or will receive at the institution in which the research is being conducted.

If you have any questions, please contact me at (408) 924-2480.



**APPENDIX L**  
**KAISER FOUNDATION RESEARCH INSTITUTE'S**  
**INSTITUTIONAL REVIEW BOARD LETTER OF**  
**APPROVAL OF RESEARCH STUDY**

INTER-OFFICE MEMORANDUM

TO: D. Stern, R.N.  
P. Miller, M.D.  
OB/GYN - Santa Clara

DATE: October 31, 1995

FROM: Glenda R. Marlow

*Glenda R. Marlow*

COPY TO: J. D'Amico, M.D.  
W. Likosky, M.D.  
C. Chow, M.D.

AT: KFRI Administration  
1800 Harrison Street  
Sixteenth Floor  
Oakland

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SUBJECT: Institutional Review and Approval of Research Study  
Entitled: "Maternal Confidence for Labor and Its  
Relationship With the Use of Epidural Anesthesia for  
Pain Management"

On October 24, 1995, the Institutional Review Board (IRB) for the protection of human subjects reviewed the above-subject research study. The study was approved as presented, including the questionnaires, subject to revision of the consent form by Staff Counsel and receipt/approval of script to be used to explain the consent form to participants.

Enclosed is a statement entitled "Information About Rights of Medical Research Participants." A copy of this statement must be given to each prospective participant in order to satisfy statutory requirements.

All continuing projects and activities must be reviewed and reapproved at least annually by the Board. Board approval of any project is for a maximum period of one year. It is the responsibility of the investigator to resubmit the project for periodic review as determined by the Board. You will be reminded of the scheduled follow-up review date for your project.

If this proposal is used in conjunction with any other human experimentation or if it is modified in any way, it must be reapproved for these special circumstances. In addition, the Board must be promptly notified of unanticipated problems involving risks to human subjects or any complications which may occur during any experimental procedure.

If you have any questions, please call me at (510) 987-3236.

GRM/vgj  
Enc.