2009

Relationship Among Stress of Labor, Support, and Childbirth Experience in Postpartum Mothers

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RELATIONSHIPS AMONG STRESS OF LABOR, SUPPORT,

AND

EXPERIENCE OF CHILDBIRTH IN POSTPARTUM MOTHERS

by

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Acknowledgement

This dissertation would not have been possible without support of several people. I would like to express deepest gratitude to my dissertation chair, Dr. Jacqueline M. McGrath, who provided not only academic guidance, but also emotional support during the trying time when I got lost with my dissertation. She was very kind and patient with me throughout the dissertation process. She always kept me updated about new literature related to my dissertation. Without her help and encouragement, I certainly would not have completed this project.

I also would like to extend my deepest appreciation to the other members of my dissertation committee for their encouragement, support, and critiques of drafts of my manuscript. First, to Dr. Judith A. Lewis, who provided in-depth knowledge and expertise in the field of maternal and child nursing and directed me to the right path for finishing the doctoral study. Second, to Dr. Martha W. Moon, who gave advice for a good research study I could do within a limited time frame and showed her understanding as well as helped editing my English language. Third, to Dr. Dianne F. Simons, who shared her expertise in how to formulate a good survey questionnaire and assisted me to create the questionnaire that was used to collect data. Without their help and support, I positively would not have finished this dissertation.

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Abstract

Background: Due to the profound and life-changing aspects of giving birth and to each woman's individualized birthing experience, it is important to understand the myriad of factors that contribute to a positive childbirth experience. The aims of this study were to: (1) identify factors related to a positive childbirth experience; (2) to examine relationships among women's perceptions and personal evaluations of their childbirth experience, stress associated with labor pain, support from the nursing staff, initial contact with the baby following birth, support from partners, education, age, and obstetric history; and (3) to identify predictors of a positive childbirth experience. **Method:** A cross-sectional correlational study was conducted using a sample of 122 new mothers recruited over a 3-month period. Data were collected using self-report questionnaires. The three questionnaires used in this study consisted of: (a) the Questionnaire Measuring Attitude About Labor and Delivery Experience (QMAALD 29 items); (b) the Questionnaire Measuring Stress Associated with Labor Pain [SLPS (version 2)]; and (c) Personal Information Questionnaire (Demographic data). The Cronbach's alpha coefficient for the 29 item QMAALD in this study was .82 and the Cronbach's alpha coefficient of the SLPS (version 2) in this study was .89. The SPSS statistical software version 16.0 for Windows was used for data analysis. **Results:** Participants reported a low degree of stress associated with labor pain and a moderate amount of support received from the nursing staff. They reported holding and touching their baby immediately after birth. A positive childbirth experience was inversely related to stress associated with labor pain. The reduction of stress due to support received from the nursing staff was found to be positively related to a positive childbirth. Education was related to a positive childbirth experience; but not a

significant predictor of a positive childbirth experience. Maternal age, initial contact with the baby following birth, number of labor and delivery experiences, duration of labor, interventions during labor, attendance at prenatal classes, and support from a partner did not relate to a positive childbirth experience. The regression analysis results indicated that the stress associated with labor pain, the reduction of stress due to the support received from the nursing staff, and attendance at prenatal classes were significant predictors of a positive childbirth experience. **Conclusion:** Stress associated with labor pain and the reduction of stress due to support received from the nursing staff were key factors contributing to a positive childbirth experience. Further research is needed to better understand the factors influencing women's positive perceptions of the childbirth experience.

CHAPTER 1

STATEMENT OF THE PROBLEM

Background and Significance

In general, pregnancy, childbirth, and early parenting are normal transition periods, but they are also potentially times of great stress for women and their partners. The couples' roles and activities of daily living need to be adjusted to fulfill changes in their family relationships. Thus, the process of birth can often be defined as a critical turning point. Particularly, the onset of labor can produce anxiety, especially for unprepared women. They may experience increased anxiety related to the birthing process, pain associated with labor, and the sense of loss of control (Bechelmayr, 1995; Tarkka & Paunonen, 1996). The labor and delivery experience can be defined as a stressful event for a woman. In addition, maternal anxiety is known to be associated with a less positive childbirth experience. Causes of stress and anxiety during the childbirth experience included pain or discomfort associated with the onset and the progression of labor; loss of control, the adoption of a passive role in the management of labor pain; unfamiliarity with the hospital environment and healthcare providers; and problems of communication with healthcare providers (Cheung, Wan-Yim, & Chan, 2007; Essex & Pickett, 2008).

Beebe and Humphreys (2006) also noted that the women in their study had difficulty in decision making about whether or not they were actually in labor and should go to the hospital. In addition, many women in the study indicated that early labor was not as they had anticipated in terms of what it would be like and how it would be managed. These women were aware of what

had happened during labor, but they did not fully comprehend the situation. They may also try to re-evaluate the situation in an attempt to make appropriate responses and remain in control. Over time, these women may identify several choices related to their labor experiences. However, the course of each choice remains unknown and cannot be anticipated. They may not have enough information or the ability to weigh the odds or to understand the alternatives, thus resulting in a state of anxiety and the sense of loss control. Personal control can be related to a positive or a negative childbirth experience. Women often evaluated their childbirth experience according to the perception of the ability to maintain or loss control. Women who managed well viewed their childbirth experiences as positive; while those who had difficulty or managed poorly viewed their childbirth experience as negative (Goodman, Mackey, & Tavakoli, 2004).

The pain of normal childbirth has specific characteristics that are different from other painful experiences. Labor pain is not pathologic, but rather is part of a normal physiological process in which the birth of an infant is evidence of accomplishing a desired outcome (Lowe, 1996; Schuiling & Sampselle, 1999). Management of the pain often is a priority during labor. The onset of labor pain normally is of short duration with a long resting period. The intensity of the contractions usually is mild and irregular, building gradually in intensity and duration of pain, as perceived by the laboring woman. As labor progresses, the pain associated with childbirth gradually increases in both intensity and duration of uterine contractions, which also allows the woman time to identify and adopt coping mechanisms to relieve the pain she is experiencing (Lowe, 2002). The woman's emotional status can affect the progress of labor particular decreasing frequency and intensity of the uterine contractions. Those emotional factors included excessive fear, anxiety, stress, and pain (Romano & Lothian, 2008).

The experience of childbirth is highly individualized and reflects a different combination of pain stimuli uniquely received and interpreted through a woman's emotional, motivational,

cognitive, social, and cultural circumstances (Alehagen, Wijma, Lundberg, & Wijma, 2005; Lowe, 1996; Lundgren & Dahlberg, 1998; Niven & Gijsbers, 1996). The primary sources of labor pain originate from uterine contractions; pressure in the uterine cavity; pressure of the fetal presenting part on the cervix; pressure on the urethra, bladder, and rectum; traction on the fallopian tubes, ovaries, and peritoneum; perineal distension; and pelvic-floor muscles distension. Modifying factors affecting a woman's childbirth pain experience include environmental conditions, coping strategies, fear, anxiety, expectations about the childbirth experience, a sense of self-efficacy, a sense of maintaining control, and confidence in the ability to cope with labor pain (Lowe, 2002; Romano & Lothian, 2008). In addition, the woman's life history, past experiences, and relationship with the support person play an important role in shaping the perception of labor pain and in discovering strategies to better manage the pain (Adams & Bianchi, 2008; Gilliland, 2002; Goodman et al., 2004; MacKinnon, McIntyre, & Quance, 2005). Therefore, a standardized approach to labor pain management may not meet the needs of all women because of the complexity and subjectivity of the pain associated with labor (Caton et al., 2002).

In the labor setting, physicians and nurses may have different opinions and philosophies regarding how to best support and manage the pain associated with labor. For example, physicians may be more likely to offer epidural anesthesia. Conversely, nurses, nurse-midwives, and nurse practitioners may be more likely to emphasize multiple comfort measures instead of relying only on pain medications (Block, 2007; Schuiling & Sampselle, 1999). Despite the variety of opinions and techniques, it is understood that comfort and comfort measures play critical roles in assisting the woman to better manage labor pain (Adams & Bianchi, 2008; Hardin & Buckner, 2004; Romano & Lothian, 2008). Interventions that increase comfort during the childbirth experience can enhance the woman's role to be an active participant in the labor process and allow her to continue connecting to her body, emotions, and the overall childbirth experience, thus leading to an increase

in ability to maintain control, promote self-esteem, and enhance personal strength (Cheung et al., 2007; Goodman et al., 2004). Recently, the contemporary approach for the management of labor pain allows women to express their preferences for the childbirth experience, which are often focused on having supportive caregivers and a sense of control (Gennaro, Mayberry, & Kafulafula, 2007). Women who receive continuous support during labor and delivery are more likely to be satisfied with the childbirth experience, have spontaneous vaginal delivery, and are less likely to have maternal anxiety, intrapartum analgesia or epidural anesthesia (Hodnett, Gates, Hofmeyr, & Sakala, 2007; Melender, 2006; Romano & Lothian, 2008; Sauls, 2002).

Childbirth education classes represent another form of support by providing an educational intervention to help the pregnant woman and her partner increase their confidence and learn strategies to reduce stress and anxiety during the childbirth event (Bradley & Schira, 1995; Cheung et al., 2007; Lothian, 1998; Woolley & Roberts, 1995). Childbirth education classes are typically designed to prepare the woman as she pass through all the perinatal transitional periods, from pregnancy through the postpartum period. The main objectives of childbirth classes are to (a) offer information about the process of and choices for labor; (b) provide an opportunity for the woman to form a supportive network with others; (c) help the woman learn skills to cope with labor pain, emotional distress, and anxiety; (d) assist the woman to identify comfort measures that can be used to relieve pain and to remain in control; and (e) help the woman develop individualized birth plans that provide a road map for keeping birth as normal as possible even if complications occur (Romano & Lothian, 2008; Lothian, 2004; Spiby, Henderson, Slade, Escort, & Fraser, 1999; Spiby, Slade, Escort, Henderson, & Fraser, 2003). Despite a variety of childbirth education classes, most of today's classes share some similarities. They provide information about the process and procedures associated with labor; coping skills related to labor pain; support from a labor partner

and family, and the further development of a support system (Koehn, 1992; Lothian, 1999; Romano & Lothian, 2008).

The most common coping strategies taught in childbirth education classes include breathing techniques, postural changes, music therapy, and relaxation techniques (Cheung et al., 2007; Spiby et al., 2003). Yet, even with these classes, researchers found that breathing and relaxation techniques were used less than expected and were less effective than anticipated (Ballard, Stanley, & Brockington, 1995; Brown, Douglas, & Flood, 2001). Likewise, women in another study did not use coping strategies in their labor, and use declined with advancing labor (Olson, Shu, Ross, Pendergrass, & Robison, 1997). The complexity and individuality of the labor pain experience suggests that, despite preliminary education, a woman and her caregivers may have limited ability to anticipate the labor pain experience (Caton et al., 2002; Lowe, 2002). Thus, although attending childbirth class has been associated with women's increased knowledge and confidence about coping with the pain, increased ability to tolerate the pain, and less use of pain-relief agents in labor (Ballard et al., 1995; Hildingsson, Radestad, Rubertsson, & Waldenstrom, 2002), the successful translation of coping strategies from childbirth training into practice cannot always be assumed (Cheung et al., 2007; Spiby et al., 1999).

Furthermore, due to the individualized nature of the childbirth experience, each woman may require different strategies and resources to help her cope with and manage the pain associated with labor. For example, Brown, Douglas, and Flood (2001) conducted a study using a retrospective descriptive survey design to examine the non-pharmacological pain-relief methods that laboring women choose most often to manage childbirth and which methods they found to be most effective. Findings indicated that the subjects rated breathing, relaxation, and acupressure to be the most effective pain-relief strategies. More importantly, the authors stated that childbirth is a subjective, multidimensional experience, and that no single specific technique or a combination of

interventions can help all women or even the same women throughout the entire labor experience. Accordingly, childbirth has its specific characteristics such that a single pain-relief strategy might not work for the same woman as the labor progresses. Consequently, choices among a variety of pain-relief methods and individualized pain-related care need to be promoted (Caton et al., 2002).

Clearly, the phenomenon of labor pain and its management is complex, and no single pain-relief method can soothe the woman throughout her entire labor. The woman's experience of labor pain and her responses are highly individualized and subjective. When considering the variety of pain-relief methods available in the labor setting, the issues of decision-making and selecting among choices are inevitable. The childbirth event also involves many participants in addition to the pregnant woman—such as her partner and family members, physicians, and nurse-midwives— who can affect choices related to the labor pain management. Understanding women's experiences during the childbirth event is also critical to the care of women. Few empirical studies in the literature examine women's perceptions and their personal evaluation of the childbirth experience, particularly how women feel about their involvement in decision making, attitudes, and how each is influenced by the caregivers' behaviors. Instead, much of the existing literature focuses on women's childbirth experiences in terms of the effectiveness of pain-relief methods. Reliance on these findings has resulted in a lack of research related to understanding women's childbirth experiences in terms of stress associated with labor pain and their need for participating in decision making and receiving support from the nursing staff (Hannah, 1999; Hodnett, 2002; Sadler, Davison, & McCowan, 2001). Better understanding of women's childbirth experiences will allow healthcare professionals to provide improved support and appropriate interventions.

Statement of Purpose

Due to the profound and life-changing aspects of giving birth and to each woman's individualized childbirth experience, it is important to understand the myriad of factors that

contribute to a positive childbirth experience. Most of the current research literature related to women's perceptions of a satisfying childbirth experience focuses only on pain-relief methods during labor. However, a number of other important factors can also affect women's perceptions of a positive birthing experience: for example, women's choices in managing stress associated with labor pain; their participation in decision making; their continuous support from a partner and from the nursing staff; and their particular biological, psychological, and socio-cultural factors. Therefore, this cross-sectional, correlational study was designed to explore some of the additional contributing factors that may serve as predictors of a positive childbirth experience. It was the belief that the study's findings, based on new mothers' self-reported survey responses regarding their recent birth experiences, would help healthcare providers understand the needs of laboring women and, in turn, improve care, support, and appropriate interventions for expectant and laboring mothers. Therefore, the purpose of this study was to describe women's perceptions and their personal evaluation of the childbirth experience. The questions addressed in this study were:

1. What are the factors that related to a positive childbirth experience?

2. What are the relationships among women's perception and personal evaluation of their childbirth experience and stress associated with labor pain, support from the nursing staff, initial contact with the baby following birth, support from partners (choice of a support person and presence of a support person during birth), education, age, attendance at prenatal classes, and obstetric history (number of labor and delivery experiences, duration of labor, and interventions during labor)?

The specific aims in answering these questions were to: (1) identify factors related to a positive childbirth experience; (2) to examine relationships among women's perceptions and personal evaluations of their childbirth experience, stress associated with labor pain, support from the nursing staff, initial contact with the baby following birth, support from partners (choice of a

support person and presence of a support person during birth), education, age, and obstetric history (number of labor and delivery experiences, attendance at prenatal classes, duration of labor, and interventions during labor); and (3) to identify predictors of a positive childbirth experience.

Conceptual Theoretical Empirical Framework

The conceptual theoretical empirical framework of this study is based on the Health Promotion Model (Pender, Murdaugh, & Parson, 2006) and it was modified to be consistent within the context of the childbirth experience. According to Pender et al. (2006), individual characteristics and experiences and personal cognitive and affective dimensions are unique to each person and have an effect on a person's commitment to action and evaluation of the health situation. These particular characteristics provide a baseline experience from which an individual chooses to engage in healthy behaviors.

Individual characteristics and experiences consist of personal, psychological, and socio-cultural factor. Personal factors are not easily changed and include the biological conditions of age and gender. Psychological factors include self-esteem, self-motivation, and personal competence. Socio-cultural factors include ethnicity, education, and socioeconomic status. Due to the variety of individual characteristics, factors to be included in any study should be limited to those that are theoretically relevant to the explanation or prediction of a target behavior (Pender et al., 2006).

In examining the woman's perception and her personal evaluation of the childbirth experience, variables that possibly could be included in individual characteristics and experiences consist of the following: (a) demographic profiles (age, education, ethnic background, and obstetric history); and (b) psychological factors (attendance at prenatal classes and support from a partner). Demographic variables might also have an effect on the woman's perception and her personal evaluation of the childbirth experience. For example, greater maternal age have been found to be related to a positive childbirth experience (Borjesson, Peperin, & Lindell, 2004;

Waldenstrom, Hildingsson, Rubertsson, & Radestad, 2004). Attendance at prenatal classes has also been found to reduce the risk of a negative perception of the childbirth experience (Goodman et al., 2004).

Personal cognitive and affective dimensions consist of the interpretation of labor pain, perceived benefits or barriers to pain relief, perceived being in control, hopeless, or helpless, participation in decision-making, initial contact with the baby following birth, and support received from the nursing staff. The pain of labor is a multidimensional, complex experience, thus the interpretation of labor pain can be best defined as quantity, intensity, onset, duration and frequency of the pain. The laboring woman usually experiences various degrees of pain and anxiety during the childbirth experience. She probably has difficulty identifying the onset and the progression of labor and making a decision about hospital admission. The woman may also have trouble managing physical and emotional responses to her labor, thus leading to a state of anxiety and the sense of loss control. The severity of the pain associated with labor possibly influences the woman's perception of benefits or barriers to a variety of pain management methods applied during the childbirth experience (Beebe & Humphreys, 2006; Lowe, 2002).

Perceived benefits or barriers to the pain relief strategies can increase or constrain the likelihood of commitment to action and behavior. If the woman experiences comfort and pain relief during the childbirth event, she may feel confident, believe in her effort, and enhance the sense of being in control of the painful situation, which possibly may result in a positive childbirth experience. The woman may sometimes experience ineffective pain relief, depending on the severity of the pain and the progression of her labor. If she perceives the pain as uncontrollable and unrelieved, she may seek ways to control the pain or discomfort experience. If the woman's needs for pain relief are not met, she may feel hopeless and helpless, thereby increasing her emotional distress, impairing her ability to function, increasing a negative impact on her coping techniques,

and resulting in a negative birth experience. Several research studies have shown that stress and anxiety associated with labor pain is related to a negative childbirth experience, lack of satisfaction with the childbirth experience, and poor emotional well-being during the postnatal period (Cheung et al., 2007; Goodman et al., 2004; Hardin & Buckner, 2004). In addition, factors contributing to the low level of pain associated with labor include the relationship between women and their caregivers, coping strategies, and attendance at antenatal classes (Lundgren & Dahlberg, 1998; Waldenstrom, Borg, & Osllon, 1996; Waldenstrom et al., 2004).

Many decisions must be made during the onset and the progression of labor. The nursing staff in the labor and delivery settings is in a unique position to offer information, provide education, and provide both physical and emotional support for the woman, her partner, and her family regarding these decisions. If the nursing staff understand and recognize the dynamic of decision making process, they will be better able to help the woman deciding about choices that are made during the childbirth experience (Tillett, 2009).

VandeVusee (1999) examined women's birth stories and patterns of decision making during the childbirth experience. She found four patterns of decision making: (a) unilateral but contested, through refusal or through adaptation; (b) unilateral and uncontested, through agreement; (c) suspended or waiting, by making no active decision; and (d) share or joint, either through explanations or through requests. Based on these four patterns, unilateral decisions were correlated with women's negative emotions regarding their childbirth experiences. In contrast, shared decision-making led to more positive emotional expressions of the childbirth experience. The women in the study wanted to be active participants in their care, but they did not want to make all of the decisions. The most positive childbirth experiences were reported in those women who experienced a partnership between themselves and the nursing staff. These findings

are consistent with several studies (Gibbins & Thomson, 2001; Fenwick, Hauck, Downie, & Butt, 2005; Hodnett, 2002; Hodnett et al., 2007). The findings from these studies revealed that (a) prenatal expectations, (b) involvement and participation in decision-making, (c) the nursing staff support, and (d) quality of the nursing staff support were the four important determinants of a satisfaction with and a positive perception of the childbirth experience.

Sauls (2004) defined labor support as the intentional human interaction between the laboring woman and the healthcare provider particularly the intrapartum nurse that assists the woman to cope in a positive manner during the process of giving birth. Support received from the nursing staff during labor and delivery are believed to be key factors to promoting a positive childbirth experience, reducing the length of labor, and leading to fewer interventions (Hodnett et al., 2007; Melender, 2006, Sauls, 2002). Types of labor support include physical, emotional, instructional and informational support, and advocacy (Adams & Bianchi, 2008; Adams et al., 2006; Bianchi & Adams, 2004; Bowers, 2002; Hottenstein, 2005). Physical comfort during labor and delivery can be promoted through environmental control of the room temperature, the lighting, and the use of music; touch; and the application of various positions during the progress of labor (Adams & Bianchi, 2008; Cheng & Chen, 2004; Gilder, Mayberry, Gennaro, & Clemmens, 2002; Phumdoung & Good; 2003; Soong & Barnes, 2005).

Emotional comfort during labor and delivery can be enhanced through the nurse being present with the laboring woman rather than performing tasks (Adams & Bianchi, 2008). The essential components of the nurse presence include the physical and the emotional presence of the nurse as well as the development of a trusting relationship between the nurse and the laboring woman (MacKinnon et al., 2005). Instruction and information on all aspects of labor and delivery provide the laboring woman with an opportunity to be a part of the decision-making process that

promotes a positive childbirth experience. Effective verbal and non-verbal communications are considered to be essential elements when delivering instructional and informational support to the laboring woman (Adams & Bianchi, 2008).

Advocacy includes protecting the laboring woman, attending to her needs, and assisting her in making choices related to the process of labor and delivery. Advocacy may require the nurse to be the laboring woman's voice when she is vulnerable or unable to speak for herself; ensure privacy and protect modesty; and acknowledge the woman's personal expectations (Adams & Bianchi, 2008; Foley, Minick, & Kee, 2002). Previous research studies indicated that women wanted to take an active role in their labor and delivery and the feeling of being in control was achieved through support from midwife's positive attitude, information given during pregnancy and labor, and the ability to make and be included in decision-making during labor (Gibbins & Thomson, 2001; Fenwick et al., 2005; Hodnett et al., 2007).

Evaluation of the childbirth experience as positive or negative including satisfaction with the childbirth experience has been found to be closely related to individual characteristics and experiences and personal cognitive and affective dimensions as discussed previously. Several research studies have shown that a positive childbirth experience is associated with maternal age, attendance at prenatal classes, fewer interventions during labor, decreased maternal stress and anxiety, increased maternal perception of control, maternal expectations being met, involvement and participation in decision making, and support received from the nursing staff (Adams & Bianchi, 2008; Beebe & Humphreys, 2006; Borjesson et al., 2004; Cheung et al., 2007; Fenwick et al., 2005; Gibbins & Thomson, 2001; Goodman et al., 2004; Hardin & Buckner, 2004; Hodnett, 2002; Hodnett et al., 2007; Melender, 2006; VandeVusee, 1999).

Thus, the conceptual theoretical empirical framework of the present study focused on the relationship among individual characteristics and experiences, personal cognitive and affective

dimensions, and evaluation of the childbirth experience. Individual characteristics and experiences consist of biological factors (age and past obstetric history); psychological factors (attendance at prenatal classes and having a support person present during labor); and socio-cultural factors (education) and is measured by a demographic questionnaire. These factors may account for differences in the perception and evaluation of the childbirth experience. Personal cognitive and affective dimensions include the interpretation of labor pain (onset, duration, frequency, intensity, and quantity of the pain); perceived benefits or barriers to pain relief methods; perceived sense of control, helplessness, or hopelessness; participation in decision making; and support received from the nursing staff and is measured by the Stress of Labor Pain Scale (SLPS version 2). The interaction among individual characteristics and experiences, as well as personal cognitive and affective dimensions, may ultimately affect a woman's perception and evaluation of the childbirth experience, as illustrated in Figure 1.

Conceptual Model Concepts	Individual Characteristics and Experiences	→	Personal Cognitive and Affective Dimensions	→	Evalution of the Childbirth Experiences

Theoretical Relationship

▪ Biological
 - Age
 - Obstetric history
▪ Psychological
 - Attendance at prenatal classes
 - Support from a partner
▪ Socio-cultural
 - Education

▪ Interpretation of labor pain
 - Onset, duration, frequency intensity, and quantity
▪ Perceived benefits/barriers to pain relief
▪ Perceived being in control, hopeless, or helpless
▪ Participation in decision making
▪ Support from the nursing staff

▪ Positive or Negative evaluation of the childbirth experience

Empirical Indicators

▪ Demographic Questionnaire

▪ Stress of Labor Pain Scale (SLPS version 2)

▪ Questionnaire measuring attitudes about labor and delivery experience (QMAALD)

Figure 1.1   Conceptual Theoretical Empirical Framework

Definition of terms

The following definitions will be used in this study:

1. Support is the perception of being helped or receiving encouragement and sympathy from the nursing staff. Support includes the following components:

- Physical comforting refers to touch and massage, assistance with positioning, and self-help comfort measures provided by the nursing staff.

- Emotional support refers to continuous presence, reassurance, and encouragement received from the nursing staff.

- Information refers to non-medical advice, anticipatory guidance, explanations of procedures received from the nursing staff.

- Facilitation of communication between the laboring woman and the nursing staff to assist the woman in making informed choice.

2. In control refers to feeling confident, calm, or absence of feeling of panic as well as acquiring decision-making responsibility of the childbirth event.

3. Pharmacological interventions are defined as the use of different pain relief agents administered by several techniques as the following:

- Analgesia refers to the use of medication to decrease or alter the normal sensation of pain.

- Anesthesia refers to the use of medication to provide partial or complete loss of pain sensation with or without loss of consciousness.

- Patient-Controlled Analgesia (PCA) refers to the technique that allows the laboring woman to self-administer a dose of opioid analgesic with or without a background infusion of the same medication.

- Patient-Controlled Epidural Analgesia (PCEA) refers to the technique that allows the laboring woman to self-administer a dose of epidural analgesic with or without a background infusion of the same medication.

4. Non-pharmacological interventions are defined as the use of non-medical strategies that help to decrease pain associated with labor. The techniques include massage, touch, positioning, breathing, and relaxation.

Summary

The purpose of this study was to describe women's perceptions and personal evaluation of their childbirth experiences in terms of stress associated with labor pain, their participation in decision making, support from partner, and support from the nursing staff. This chapter presents the background and significant information on factors affecting the childbirth experiences. Better understanding of women's childbirth experiences will provide heath care professionals opportunities to provide support and intervene appropriately in the future.

CHAPTER 2

CONCEPTUAL FRAMEWORK AND REVIEW OF LITERATURE

The purpose of this study is to describe women's perceptions and personal evaluations of their childbirth experiences in terms of pain associated with childbirth, their participations in decision making, support from partners, and support from the nursing staff. The purpose of this chapter is to further describe the conceptual framework and provide a critical review of research on factors affecting the childbirth experiences. Thus, this chapter will begin with a discussion of conceptual framework for the study. Then, a historical overview of the birth and labor process and a review of the literature on variables in the empirical model will be presented and critically evaluated.

The Conceptual Framework

The conceptual framework provides a theoretical base in examining women's perceptions and their evaluation of the childbirth experience and it is derived from the conceptual theoretical empirical framework discussed in chapter one. The model proposes that personal factors represent individual characteristics and experiences. The interpretation of labor pain, perceived benefits or barriers to pain management strategies, perceived being in control, feeling hopeless or helpless, participation in decision making, initial contact with the baby following birth, and support received from the nursing staff represent personal cognitive and affective dimensions. These proposed factors may affect women's perceptions and their evaluation of the childbirth experience.

Personal factors are unique to each woman and have an effect on her behaviors and actions during the childbirth experience. These personal factors are not easily changed and consist of three aspects: (a) the biological conditions of age and gender; (b) the psychological factors of self-esteem, self-motivation, and personal competence; and (c) socio-cultural factors of ethnicity, education, and socio-economic status. Since many personal factors exist, those factors to be included in any study should be limited to those that are theoretically relevant to the explanation or prediction of a target behavior (Pender et al., 2006). As a result, relevant personal factors in this study consist of: (a) demographic data [age, education, ethnicity, and obstetric history (number of pregnancies, number of labor and delivery experiences, duration of labor, and interventions during labor)]; and (b) psychological factors [attendance at prenatal classes and support from partners (choice of a support person and having a support person present during labor)].

Demographic variables might influence the woman's perception and her evaluation of the childbirth experience. Borjesson et al. (2004) found that mothers between ages 26-30 years reported significantly more negative feelings about the childbirth experience than those mothers between the ages of 31-36. Primiparous mothers also experienced more negative feelings about their childbirth events than those multiparous mothers. A study conducted by Waldenstrom et al. (2004) also revealed similar results. They found that a negative childbirth experience was more common in mothers who were young, single, unemployed, or had a negative previous childbirth experience (i.e., history of cesarean birth or prolonged labor). They also found that risk factors contributing to a negative childbirth experience included unexpected medical interventions (i.e., an emergency cesarean birth or an augmentation of labor); lack of support from partners; and lack of control during labor and delivery. There were no statistically significant differences between level of educational attainment, ethnicity, and religious background. Moreover, Nystedt, Hogberg, and Lundman (2005) examined the effect of prolonged labor and women's perceptions of the childbirth

experience. They found that women with prolonged labor had a negative childbirth experience more often than did women who had a normal labor.

Childbirth education classes represent another form of psychological support by providing an educational intervention and normally are designed to prepare the pregnant woman and her partner to increase their confidence and learn strategies to cope with anxiety and pain during labor (Bradley & Schira, 1995; Cheung et al., 2007; Lothian, 1998; Spiby et al., 2003). As a result, attendance at prenatal classes was considered to be an associated factor that prepares and helps the woman to cope with the onset and the progression of labor, thereby possibly decreasing the risk of having a negative childbirth experience (Goodman et al., 2004). However, two previous studies revealed non-significant results (Hodnett, 2002; Waldenstrom et al., 2004). Their findings indicated four factors contributing to a positive childbirth experience: (a) women's personal expectations; (b) the amount of support received from the nursing staff; (c) the quality of the relationships between women and the nursing staff; and (d) involvement and participation in decision-making. These four factors seemed to be so important that they override the influence of age, socio-cultural factors, ethnicity, attendance at prenatal classes, medical interventions during labor, and the birth environment when the woman evaluated her childbirth experience as positive or negative.

The interpretation of labor pain can be described in terms of quantity, intensity, onset, duration and frequency of the pain and closely relates to the woman's emotional state throughout her entire labor (Alehagen et al., 2005; Romano & Lothian, 2008). The woman usually experiences various degrees of pain and anxiety during the different phrases of labor. The severity of the pain associated with labor is possibly correlated with the woman's perception and her evaluation of the childbirth experience as positive, negative, or satisfactory. Waldenstrom et al. (2004) indicated that factors related to the woman's feelings during labor (i.e., pain, lack of control, and administration

of obstetric analgesia) were associated with a negative childbirth experience. Goodman et al. (2004) also examined the level of labor pain and women's perceptions of the childbirth experience. Their results indicated that women with a low level of labor pain had a higher level of childbirth satisfaction and a higher satisfaction with self than those women with a high level of labor pain. Moreover, factors contributing to a low level of labor pain included the relationship between laboring women and the nursing staff, coping strategies, and attendance at antenatal classes (Borjesson et al., 2004; Hodnett, 2002; Lundgren & Dahlerg, 1998; Waldenstrom et al., 1996).

Perceived benefits or barriers to pain management strategies can increase or constrain the likelihood of commitment to action for pain management methods (Beebe & Humphreys, 2006; Lowe, 2002; Melzack, 1993). When the woman experiences labor pain, she may choose to use either non-pharmacological or pharmacological interventions aimed at obtaining relief from pain. If she experiences comfort and pain relief, she may feel confident, believe in her effort, and develop the sense of being in control in the painful situation. The woman sometimes experiences ineffective pain relief depending on the severity of the pain and the progression of her labor. If she perceives the pain as uncontrollable or unrelieved, she may consider the pain situations as unmanageable and seek ways to control the pain. If the need for pain relief is not met, she may feel hopeless and helpless, thereby increasing the emotional distress, impairing the ability to function, increasing a negative impact on coping techniques, which leads to a negative childbirth experience. In contrast, the woman who perceives the failure to achieve pain relief as an opportunity will identify causes and effects of unrelieved pain, recognize her buffer systems, and try to apply new interventions with a hope to achieve the ultimate goal of pain relief and a sense of being in control. Therefore, factors contributing to a positive childbirth experience consisted of having personal control, having expectations for labor and delivery met, and having successfully managed pain associated with labor (Goodman et al., 2004; Hardin & Buckner, 2004; Lavender et al., 1999).

Observable indicators of comfort from the pain associated with labor are verbal and nonverbal communication. Verbal communication of comfort or discomfort can often be identified through complaining, the description of pain and/or discomfort, use of language to describe intensity, quantity, pattern of onset, duration, and frequency of the pain experiences. The woman may describe her comfort status as having a sense of inner peace, a pleasant experience, relief from pain symptoms, decreased suffering, absence of discomfort, feeling relaxed, or gaining control. Non-verbal messages can be observed through the woman's behaviors and expressions such as grimacing, moaning, stiffening, restlessness, crying, and decreased daily activities. Positive expressions may range from smiling, laughing, no guarding, performance of normal daily functions, and feeling happy (Goodman et al., 2004; Kolcaba, 1991, 2001, 2003).

Participation in decision-making can be defined as one of many significant factors contributing to a positive childbirth experience. Recent research studies indicated that participation in decision-making in the healthcare situations ranged from a healthcare provider-based, shared decision-making between the patient and the nursing staff, and patient-centered. Patients were comfortable with a variety of situations on this continuum. In addition, younger and more educated patients preferred more assertive roles and valued more participation in decision-making regarding their healthcare situations (Rodrigues-Osorio & Domingues-Cherit, 2008; Trachtenberg, Dugan, & Hall, 2005; Wittmann-Price & Bhattacharya, 2008). These recent findings were consistent with the previous findings from VandeVusee (1999). She noted that shared decision-making led to a more positive perception of the childbirth experience; while unilateral decisions were correlated with a negative perception of the childbirth experience. The women in her study wanted to be active participants in their care, but they did not want to make all of the decisions. The three most important aspects of decision-making in which women wanted to participate included (a) choice of a support person present during labor and delivery, (b) choice of pain relief methods they should

have, and (c) choice of positions they should adopt during labor and delivery (Goodman et al., 2004; Hardin & Buckner, 2004; Lavender et al., 1999; Romano & Lothian, 2008).

Initial contact with the baby following birth is considered to be one of many factors that associated with women's perception of the childbirth experience. Finigan and Davies (2004) found that the women described their experiences of initial contact with the baby following birth as immediate feeling of bonding with the baby, getting to know the baby, and not wanting to let go of the baby. The women also stated that they would have appreciated a longer period of uninterrupted initial contact with the baby immediately after birth. In addition, Fenwick et al. (2003) indicated that the women described the childbirth experience as distressing because they were separated from their babies. The women described feeling of disconnected and uninterested in their babies as a result of not being able to properly hold, touch, and breastfeed their newborn immediately after birth. Moreover, Bryanton et al. (2008) found that whether women had a vaginal or cesarean birth, perception of the childbirth experience is strongly predicted by whether they were able to be with their babies immediately after birth.

Support received from the nursing staff during labor and delivery is believed to be a key factor to a positive childbirth experience, reducing the length of labor, and leading to fewer interventions. Hottenstein (2005) suggested that the support provided by the nursing staff during labor consisted of encouragement and one-to-one caring with information sharing and physical, non-medical comfort measures. Providing a caring relationship reflects a spiritual and loving aspect that encourages both the patients and the nursing staff to engage in care, interact, understand and expand each person's life experience. Support during labor and delivery includes touch, music, and the quiet use of voice. Touch that is intentional and involving physical contact can provide comfort and a sense of security. Music reduces stress and pain and helps a laboring woman to relax and release tension. Quiet use of the voice can convey calm, and relax action. In addition, Adams

and Bianchi (2008) stated that intrapartum nurses are at present approximately 99% of births in the Unites States. Thus, the nursing staff has a unique opportunity to provide labor support for the laboring woman to ensure a positive childbirth experience.

Positive or negative evaluation of the childbirth experience have been found to correlate with several aspects of personal factors: (a) maternal age and education [representing biological and socio-cultural variables]; (b) a shorter labor and fewer interventions during labor [representing obstetric history]; and (c) attendance at prenatal classes and support from partners (choice of a support person and presence of a support person during labor) [representing psychological variables]. The woman's evaluation of the childbirth experience also has been found to be associated with (a) maternal stress and anxiety during the onset and the progression of labor pain (representing the interpretation of labor pain); (b) maternal perception of control and the expectations being met (representing perceived benefits or barriers to pain management strategies and perceiving of being in control, hopeless, or helpless); (c) involvement and participation in decision-making (representing participation in decision-making); (d) initial contact with the baby following birth; and (e) support received from the nursing staff (Adams & Bianchi; 2008; Alehagen et al., 2005; Beebe & Humphreys, 2006; Borjesson et al., 2004; Goodman et al., 2004; Hardin & Buckner, 2004; Hottenstein, 2005; Nystedt et al., 2005; VandeVusee, 1999).

Thus, the conceptual framework of the present study focused on the relationship among personal factors, the interpretation of labor pain, perceived benefits or barriers to pain management strategies, perceived being in control, feeling hopeless or helpless, participation in decision-making, initial contact with the baby following birth; support received from the nursing staff, and positive or negative evaluation of the childbirth experience. Personal factors consist of (a) demographic data (age, education, ethnicity); (b) obstetric history; (c) attendance at prenatal classes; and (d) support from partners (choice of a support person and presence of a support person

during labor). The interpretation of labor pain (onset, duration, frequency, intensity, and quantity of the pain); perceived benefits or barriers to pain relief methods; perceived being in control, helplessness, or hopelessness; participation in decision making; and initial contact with the baby following birth represent the woman's stress associated with labor pain. Support received from the nursing staff represents labor support received from the intrapartum nurses at the labor and delivery units. These factors may account for differences in the woman's perception and her evaluation of the childbirth experience, as illustrated in Figure 2.1. A more holistic approach of the issues faced by the laboring women can be best understood by examining the historical development of childbirth in the United States, gate control theory, and the nature of labor pain.

Historical Development of Childbirth in the United States

A classical social and historical study of contemporary birth in the United States written by Wertz and Wertz in 1989 provides rich information for the basis of discussion in this section. The authors titled the book "Lying-In" rather than Childbirth to emphasize that birth is more than biology but lies with its social, cultural, and medical aspects. In addition, lying-in was the name early Americans gave to the event of birth and the postpartum period. This section will also describe the practices of childbirth in the United States from the colonial period to the present. The primary aim in this section is to provide a general picture of how birth has been practiced, how it has changed and shaped by the society and medical profession. No matter when the birth takes place, the event of childbirth is always the product of a complex and changing social construction as well as medical preferences.

According to Wertz and Wertz (1989), the practices of childbirth in the Colonial America were similar to those in England since the English immigrants brought the traditional English

**Individual Characteristics
and Experiences**

**Personal Cognitive and
Affective Dimensions**

**Evaluation of the Childbirth
Experiences**
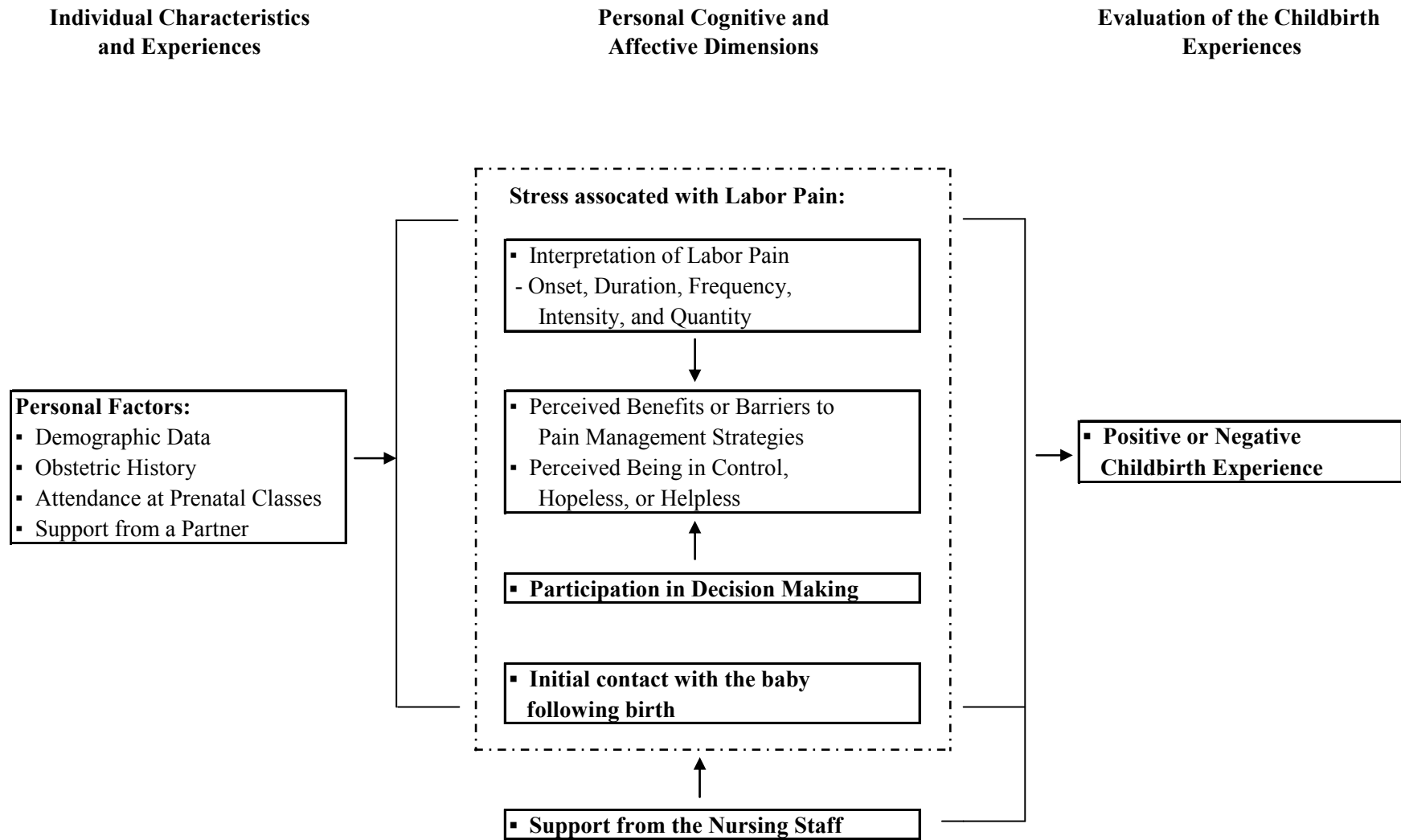
Figure 2.1 Conceptual Framework

customs to the new settlement. Birth in the colonial period and early eighteenth century depended upon nature. Midwives rarely employed medical instruments to assist birth, but rather applied traditional medicines and their intuition to manage a difficult birth. Magical practices, prayers, and ancient superstitions played important roles in assisting birth. Knowledge about diseases, medical science, and technologies remained undiscovered.

The event of birth was the exclusive territory of women. Women attended, assisted, and comforted each other during birth and during the several weeks of postpartum. They sought to inspire the expectant mother, to share their own knowledge and experiences of birth, and to prepare themselves for their own future labors. Women also were aware of how childbearing and childrearing exhausted their energy and made performing household chores immediately before birth and after birth almost impossible. Managing a household with children during the last trimester of pregnancy, delivery, and postpartum could literally kill a woman if she had to continue her chores without help. So, women who were relatives and friends took over the household chores to permit the mother to lie-in, to keep her in bed for three or four weeks, sometimes longer. Thus, the mother was able to rest, to regain her strength, and to initiate nursing and care for the new baby without interruption. Many women, who were not family members and who were not paid to attend, acted on the basis of reciprocity, in the expectation that others would take care of them in their turn (Wertz & Wertz, 1989).

A network of women and midwives provided the social event of birth. The family usually prepared for the birth by purchasing childbed linens, if they could afford it. Birth often took place at home in the birthing room, a small room which was partitioned off from the living areas and shielded from drafts, or the master bedroom. The mother and child also stayed in the birthing room during the lying-in period. Women gave birth in the position and place that were most comfortable for them. They were able to move around and assume a variety of positions to help their labors

progress along. The most common place to give birth included a woman's bed or a birth stool, a chair designed to support the laboring woman's back while encouraging the force of gravity to expedite birth. In some situations, female attendants acted as substitutes for the birth stool, by supporting the mother's back and legs during labor (Wertz & Wertz, 1989).

In the late eighteenth and nineteenth centuries, the childbirth practices in America gradually changed from female midwives to male doctors. Factors affecting the practices of birth included the discovery of new medical knowledge and technologies and changes in social structure. The French had proposed a new logical explanation of birth by defining it as a natural process that followed its own laws like a machine with shapes and movements of its own. In addition, the English had invented a tool to assist difficult birth which they called forceps. The advantage of this instrument was that it could free the fetal head from the birth canal without killing it. The use of forceps became widely accepted since it could safe lives. Therefore, this midwifery art became a new science since it offered a better understanding of the birth process and techniques to assist birth (Wertz & Wertz, 1989).

By the 1920s, American doctors considered every birth as varying from the normal and as potentially pathogenic or disease causing. They then suggested routine interventions to be performed during every labor and delivery to prevent trouble. The examples of standard routine interventions included the use of prophylactic forceps and anesthesia to control pain. The procedure involved sedating the laboring woman to make the cervix dilate, giving ether when the fetus entered the birth canal, making a cut of several inches through the skin and muscles of perineum, applying forceps to lift the fetus head over the perineum while monitoring the fetal heart rate via stethoscope, using ergot or one of its derivatives to contract the uterus, then extracting the expelled placenta, and finally stitching up the perineum. Thus, birth became one condition among many that doctors treated. Patients also expected doctors to do something for them. Neither doctors

nor patients were inclined to allow the natural processes of birth to suffice, thereby resulting in more reliance on interventions (Wertz & Wertz, 1989).

By the mid nineteenth century, the American Medical Association and maternity hospitals were well established. This new midwifery art became a specialty that only doctors could practice. The hospital became a place where doctors could provide care, relate to their patients, use new skills to make birth safer and more comfortable, and to cure disease if necessary. Although women and doctors had different expectations about a hospital birth, both agreed that it was safer than home births. Most births occurred in the hospital as a result of guaranteed safety and the promise of a painless delivery. Seeking the best medical care from doctors was fashionable and became a choice confronting women. Women in the middle and upper classes preferred doctors to attend their deliveries since the new practice offered more safety. Thus, the practice of midwives lost out to doctors as a result of changing tastes among women and the medical ideology claiming the event of birth as a situation needed to be managed via skills of the new midwifery art (Wertz & Wertz, 1989).

By the 1950s and 1960s, a pursuit of safety and comfort for the best birth became unpleasant and an alienating experience for many women. Hospital births led to isolation from the family and friends, from the community, and from life itself. The safe efficiency of birth had become an industrial production moving from the comforts of social childbirth and the sympathies of patient-doctor relationship. Routinely, a woman was isolated during birth from family and friends, and from other women having the same experiences. Such a standard practice made a woman feel powerless and was unable to find the meaning of birth since her participation and consciousness of birth were minimal. She had to think of herself as a body machine being manipulated by others for her ultimate welfare. She also played a social role of passive dependence and obedience. However, the fear of death related to childbirth had declined as a result of medical

advances. Fewer women and children died in birth since medicine could anticipate abnormality. Thus, technical routines took precedence over the natural processes of birth. Birth no longer posed the danger that it once did; but this safe birth method seemed to stand in the way of joyfulness, fulfillment and meaningful birth experiences for women (Wertz & Wertz, 1989).

In addition, the birth control movement allowed women to limit their fertility to safeguard their health and to protect each child from damage in its beginning. The feminist movement and the women's liberation movement also began to explore the behavior of the medical profession and the workings of medical institutions in the treatment of women. The reemphasis on motherhood encouraged educated, middle-class women to desire for greater autonomy, more control over their bodies, and enhanced birth experiences. They valued the natural processes of birth and wondered if medical treatment was really necessary and safe. They began critically questioning the need for extensive manipulations, the safety of the procedures, and demanding birth to be an experience that allowed them a sense of self-fulfillment. Natural childbirth was proposed as a way to promote a woman's sense of dignity to face the fact of birth consciously, joyfully and with less unnecessary medical interventions (Wertz & Wertz, 1989).

Expectant mothers' interest in natural childbirth spread steadily from the 1960s through the 1970s and early 1980s; resulting in medical support for the natural childbirth process (Simkin, 1996). The two most popular natural childbirth methods in America included Dick-Read's and Lamaze methods. Dick-Read (1984) proposed the concept of childbirth without fear (eliminating tensions caused by fear). He believed that preparation for birth as a natural event could remove a woman's fear of childbirth, thus she would be able to relax and would not suffer pain. The solution to pain based on his concept included re-educating women about their bodies and the natural processes of birth as well as teaching them to exercise to strengthen the muscles used in bearing down and to learn deep breathing to maintain sufficient oxygen in the body during uterine

contractions. Dick-Read also stated that it was sometimes impossible to control all fears in a modern society and that anesthesia or analgesia should never be withheld from a woman who wanted or needed medication. He regarded the routine use of forceps and episiotomy as unnecessary. Even though Dick-Read's method was widely accepted by women, it did not gain popularity by American obstetricians because women still needed medication to control pain. The explanation for this situation was that American women delivered in hospitals-not an environment to promote relaxation; whereas Dick-Read's English births took place in homes. In addition, American obstetricians never gave up routine episiotomy, which required local anesthesia.

Lamaze proposed the concept of childbirth without pain (Karmel, 1959; Vellay, 1960). He viewed birth as a performance for a woman to rehearse or a competition that a woman was going to win. He also informed women about the natural processes of birth and emphasized that women should be able to manage the pain with confidence. Thus, the Lamaze method became a series of challenges to be met with courage and skills. The method also taught a woman to prepare strategies to lessen her pain through relaxation, deep breathings, distraction, or massage by a supportive coach. The method took a neutral position toward pain medication and encouraged women to make an informed decision about what was right for them. The method shifted the emphasis from the doctor to the woman, who was to control her own labor. Autonomy was the key term; a woman did not need to be passive. Most hospitals now provided some form of childbirth preparation which sometimes became opportunities for socializing patients to submit to hospital routines. Painless birth and general anesthesia became less popular as more women desired consciousness and as obstetricians and hospitals came to accept and were willing to meet patients' requests. Thus, natural childbirth came to have many meanings, adjusted to consumer demand, individual preference, and doctor's convenience.

Birth after 1980 to the present would be shaped by two dominant values: the desire for the perfect child and the belief in unlimited freedom of choice. The desire for perfection and the belief in choice meant that less and less was left to chance or nature. Changes in social roles of both children and women as well as changes in social structures were keys for explanation. Medicines had developed many new services and technical means to support and extend choice. Examples included differences new treatments for infertility, genetic counseling clinics, a series of prenatal diagnostic tests, the use of ultrasound, and fetal heart monitors (Wertz & Wertz, 1989).

In the age of choice, women had come to agree with the medical opinion that the route to perfection relied on the use of more technology in pregnancy and birth. A woman would seek prenatal care as soon as she suspected that she was pregnant and avail herself of all relevant prenatal tests. She might even request preconception care to ensure that she and her husband were healthy and free of genetic disorders. She would follow a healthy diet, exercises, and avoid tobacco and alcohol. She and her husband also would attend the childbirth classes to prepare and make plans for an unforgettable moment of birth. In this aspect, she took an active role in her pregnancy, believing that a healthy life-style and adequate knowledge about birth and its processes would ensure a healthy birth and a healthy baby (Wertz & Wertz, 1989).

Approximately 99% of births in the United States today occur in a hospital as a result of the declaration that the safest setting for labor and delivery is in the hospital or a birthing center within a hospital complex or free standing birth center that meets specific professional organization standards aimed at a live baby and live mother (Beebe & Humphreys, 2006; Young, 2008). In addition, approximately 30% of all births in the United States are by cesarean due to an increasing number of women who choose epidurals for management of the pain during labor and have elective induction of labor (Martin, Hamilton, Ventura, Menacker, & Park, 2002; Notzon, 2008). Regardless of the presence of a birth plan (i.e. the wishes of a woman on choice of a support

person and the presence of a support person), routine active management of labor (i.e. the supine position, electronic monitoring of fetal heart rates, routine episiotomy, epidural anesthesia, and cesarean birth) seems to be the norm for a woman's childbirth experience in the United States (Block, 2007). Since the childbirth experience and pain associated with labor can not be separated, a brief review of the gate control theory provides description of pain and mechanisms to diminish the pain sensation.

Gate Control Theory

This section will discuss the classical explanation of pain theory, known as the Gate Control theory developed by Melzack in 1973. Gate control states that the pain stimuli can be modified as they travel along small nerve fibers through the spinal cord. Large nerve fibers transmit pain information more quickly than do small fibers. The gating mechanism can be activated by large fibers traveling through the ascending pathway (motor strategies), the descending pathway (cognitive strategies), or both (psychomotor strategies). Thus, the gate control has been used to explain the effectiveness of pain relief strategies. Effective pain relief methods included massage, pressure, and heat and cold application. Pressure and non damaging heat and cold mostly travel along large nerve fibers. In contrast, pain; light touch; and extreme heat or cold travel mostly along small nerve fibers. Firm massage is used to deal with painful uterine contractions. However, these strategies provide temporary pain relief since large nerve fibers habituate more easily than small nerve fibers. Habituation of pain often occurs in approximately 15-20 minutes. Thus, the individual can reactivate the gate by changing the site or type of large nerve fibers stimulation used thereby continuing the pain relief while allowing the habituated nerve fiber to rest until they reactivate. It is important to note that light touch travels along the same pathway with pain, and therefore may actually increase pain perception or at the least not decrease it. This may explain why so many women massage themselves harder as labor progresses even

though they have been instructed to maintain a light touch (Melzack, 1973). The gate control theory offers an explanation of pain and mechanisms to ease the pain sensation in more general terms. A more comprehensive explanation of pain associated with labor will be reviewed and discussed.

Pain Associated with Labor

Labor pain is considered as one of visceral pain occurring at the organ level. It may be sharp or dull, is less localized than other types of abdominal pain, and may be tonic or episodic. The onset of labor pain is normally of short duration with a long resting period between episodes of the uterine contractions. The intensity of the contraction is usually mild and irregular, building gradually in intensity and duration of the pain as perceived by the laboring woman. As labor progresses, the pain associated with labor gradually increases in both intensity and duration of uterine contractions. This gradual progression of the uterine contractions enables women to identify and adapt coping mechanisms to relieve the pain they are experiencing in labor (Alehagen et al., 2005; Lowe, 1996; Lowe, 2002; Romano & Lothian, 2008; Schuiling & Sampselle, 1999).

There are two main causes of pain during labor: physiological and psychological. The physiological causes of labor pain are caused by uterine hypoxia. During contractions, the blood flow to the uterine muscles is greatly decreased. If the uterine muscles do not relax adequately between contractions, the blood flow may be further compromised, thereby increasing pain. Other physiological causes of labor pain include cervical stretching, the pressure on the nerve ganglia of the cervix, traction on the fallopian tubes, ovaries, uterine ligament, peritoneum, pressure on the urethra, bladder, rectum and distention of the muscle of pelvic floor and perineum. In addition, several factors may influence the degree and character of labor pain. These factors include intensity and duration of contractions, degree of cervical dilatations, perineal distention, maternal

age, condition, and parity, as well as fetal size and position (Alehagen et al., 2005; Lowe, 1996; Lowe 2002).

Psychological aspects of labor pain include adaptation, fear, anxiety, and emotional arousal. Adaptation can be identified as the process of voluntary and involuntary attempts to regain homeostasis within body, mind, and spirit. Acute pain normally increases the pulse, blood pressure, respirations, and levels of stress hormones. As the woman adapts to her pain, her vital signs eventually return to normal rates and her pain behavior such as grimacing, moaning, or thrashing about in attempts to find comfortable positions will decrease. After a while, the person who has been experiencing pain may lie quiet and still, fall asleep, or show little or no evidence of pain even though the pain is still severe. The fact that adaptation has occurred does not mean that the person's body, mind, and spirit have already returned to her normal state; but rather, she has found the way to tolerate the pain for a while. Adaptation occurs more quickly and completely when the pain intensity and duration remain constant or decrease. The birth process usually involves hours of episodic pain that increases in both intensity and duration, thereby making it more difficult for the individual to adapt (Chapman & Nakamura; 1999; Cheung et al., 2007; Lowe, 2002).

Modifying factors affecting the labor pain experience include environmental conditions, coping strategies, expectations about the labor experience, women's sense of self-efficacy, and confidence in their ability to cope with pain. Pain during labor manifests itself as cramping in the abdomen, groin, back, as well as a tired, achy feeling. Some women may experience pain in their sides or thighs. Although pain associated with labor is often thought as one of the most painful events in human experience, it varies widely from woman to woman and even from pregnancy to pregnancy. For some women, labor pain resembles menstrual cramps or severe pressure; while others may describe it as extremely strong waves that feel like diarrheal cramps. In addition, first-

time mothers are more likely to give their pain a higher rating than women who have had babies before. The complexity and subjectivity of labor pain indicate that a standardized approach to labor pain management may not meet the needs of all women. The experience of labor pain is highly individualized and reflects a different combination of pain stimuli uniquely received and interpreted through a woman's emotional, motivational, cognitive, social, and cultural conditions (Alehagen et al., 2005; Lowe, 1996; Lowe, 2002; Schuiling & Sampselle, 1999). Labor pain and its response are subjective experience and highly individualized in nature. In addition, labor pain and its management involve many participants such as the woman, her partner and family members, physicians, and nurse-midwives. A brief review of labor pain management strategies provides information about choices and options available for a woman to choose to lessen the pain associated with labor.

<div align="center">Labor Pain Management Strategies</div>

The determining factor that drives women to seek pain management is not always the intensity of labor pain, but rather the repetitive nature and length of time the pain persists with each contraction. Fear, the unknown, and lack of education can actually cause and intensify pain with labor. Childbirth education classes offer non-pharmacological strategies to manage pain during labor. Although non-pharmacological strategies to pain management do not eliminate the pain completely, it enables women to have a working knowledge of what is going on and how to deal with the pain.

The two most common childbirth education methods in the United States include the Lamaze technique and the Bradley method. The Lamaze technique is the most widely used method in the United States. The Lamaze philosophy states that birth is a normal, natural, and healthy process and that women should be empowered to manage the pain with confidence (Lothian, 2004). Lamaze classes inform women to prepare strategies to decrease their pain perception

through relaxation techniques, breathing exercises, distraction, or massage by a supportive coach (Ewy, 1976). The Lamaze method takes a neutral position toward pain medication and encourages women to make an informed decision about what is right for them. The Bradley method focuses on a natural approach to birth, with the active participation of the baby's father as a birth coach. The major goal of this method is to avoid using the pain medications unless absolutely necessary. The Bradley method also emphasizes good nutrition and exercise during pregnancy with the focus of relaxation and deep-breathing techniques as a main strategy to cope with labor pain. Although the Bradley method advocates a medication-free birth experience, the classes do prepare parents for unexpected complications or situations such as emergency cesarean births (Bradley, 1996).

Pharmacological pain management involves the use of different agents administered by several techniques. Analgesics refer to the use of medication to decrease or alter the pain sensation. Anesthesia refers to the use of medication to provide partial or complete loss of pain sensation with or without loss of consciousness. Regional analgesia/anesthesia refers to the use of local anesthetic agents, with or without added opioids to affect the spinal cord and nerve roots. These techniques include epidural and spinal analgesia/anesthesia. Obstetric regional analgesia frequently refers to a partial or complete loss of pain sensation below the Thoracic 8 to Thoracic 10 level (Leeman, Fontaine, King, Klein, & Ratcliffe, 2003; Poole, 2003).

The most commonly prescribed analgesic provided during labor is Demerol. It can be given intravenously or muscularly, and re-administered as needed. Demerol usually does not slow down labor or interfere with uterine contractions. The possible side effects of Demerol include nausea, vomiting, drowsiness, and neonatal depression. Some women find that these side effects make them less able to deal with the uterine contractions. Sedatives also may be used during the latent phrase or the early labor to induce sleep or reduce anxiety; however they do not relieve the pain. Thus, sedatives are used in conjunction with analgesics to help the woman relax better. The

woman's reactions to these drugs may vary. Some women feel a loss of control that is unnerving, whereas others do not. The risks to mother and baby are usually minimal (Leeman et al., 2003; Poole, 2003).

Regional anesthesia such as epidural or spinal block diminishes the pain sensation by providing continuous pain relief medication to the entire body below the belly and the vaginal walls during the entire process of labor. The amount of medication can be regulated according to a woman's needs. Some medication does have an effect on the baby, but the amount is much less than what the baby would get intravenously or under general anesthesia. Epidurals are usually given to a woman who is in active labor. Epidurals do have some disadvantages. For example, they may make the woman have difficulty pushing the baby out and can decrease the woman's blood pressure. The risks to the baby include possible distress caused by lowered blood pressure of the mother (Leeman et al., 2003; Poole, 2003).

In the labor setting, nurse-midwives and physicians are likely to have different opinions and philosophies regarding how to best support and manage pain during labor. For example, physicians are more likely to offer epidural anesthesia. On the contrary, nurse-midwives are more likely to emphasize multiple comfort measures instead of using pain medications. This difference implies that the biomedical model considers labor pain as an undesirable condition that creates discomfort and suffering. It is a negative preconception that pain associated with labor must be controlled. As a result, the gold standard for the management of labor pain emphasizes the eliminating of the pain sensation (Block, 2007; Mayberry & Gennaro, 2001; Schuiling & Sampselle, 1999; Simpson, 2003).

A holistic health approach serves as the core concept of a nurse-midwife model for the management of labor pain. This model values the uniqueness of an individual, who is comprised of mind, body, and spirit. A person's life history, past experience, nurturance, and relationships play

an important role in shaping the individual's pain-comfort experience and perception, and in discovering how to manage them. This model holds that comfort can co-exist with pain. The absence of pain is neither necessary nor sufficient for an individual to experience comfort. Nurses can provide comfort in the presence of pain, where pain does not have to be eradicated for a woman to be comforted, or where comforting can decrease pain. Thus, comfort means more than the absence of pain. Enhancing comfort may enable the woman to find her own way to work with nature during labor. Interventions that increase comfort during labor enhance a woman's ability to be an active participant in the birth process, and allow her to continue connecting to her body, emotions, and the overall childbirth experience, thus resulting in an increase in ability to maintain personal control and enhance personal strength (Borjesson et al., 2004; Cheung et al., 2007; Goodman et al., 2004; Schuiling & Sampselle, 1999; Waldenstrom et al., 2004).

If the focus of care during labor would shift to promote comfort, non-pharmacological pain management strategies emerge as alternative choices to enhance comfort and to increase coping abilities. Brown, Douglas, and Flood (2001) examined the effectiveness of non-pharmacological pain relief methods that laboring women choose most often to manage the pain associated with labor. The women in the study rated breathing, relaxation, and acupressure to be the most effective pain relief strategies. The authors also concluded that labor pain is a subjective experience and no single specific technique or a combination of interventions helps all women or even the same women throughout their entire labor experiences. Accordingly, the labor pain experience has its specific characteristics such that no single pain relief strategy would work for the same woman as the labor progresses. The woman may require different strategies and resources to help her cope with and manage her labor pain. As a result, choices among a variety of pain relief methods, and individualized pain-related care need to be promoted (Caton et al., 2002).

Perception of the Childbirth Experience

Giving birth is an important life experience for women. The laboring woman faces one of the most profound life changes she will ever experience and there is always the possibility of psychological benefits or damage (Bryanton et al., 2008; Simkin, 1996; Waldenstrom et al., 2004). The woman is not only physically affected by the process of birth, but she also experiences psychological and emotional stresses (Essex & Pickett, 2008; Marut & Mercer, 1979). Physical stresses during childbirth include uterine contraction, pain, exertion, and fatigue (Alehagen et al., 2005; Lowe, 2002). Some women accept the pain of childbirth as normal, harmless, and necessary for the fetal descent. They trust the natural process of birth, yield to the pain, focus inward, and allow their body to take over. Others might use constructive mental and physical activities such as pattern breathing, visualization, releasing tension, and moving to help them control their responses to the contractions and pain (Hardin & Buckner, 2004; Romano & Lothian, 2008). Many women rely on partners, doulas, or nurses, and midwives for encouragement and guidance through the contractions (Gililand, 2002; Goodman et al., 2004; Hottenstein, 2005). Some women find the pain of childbirth and its process as frightening, painful, unmanageable, and too demanding; thus leading them to seek medications to gain control over the painful experience (Martin et al., 2002; Simkin, 1996; Waldenstrom et al., 2004).

Psychological and emotional distresses are often related to fear, anxiety, vulnerability, and loss of control over the labor processes, bodily function and treatment (Essex & Pickett, 2008; Marut & Mercer, 1979; Waldenstrom et al., 2004). Some women view psychological and emotional distresses of the childbirth process as challenges and report gaining a sense of personal control, strength, mastery, competency, and accomplishment from successful coping efforts (Cheung et al., 2007; Goodman et al., 2004). Others might find this event upsetting, frightening, or unmanageable. They might describe themselves as failures and express feelings of anger, guilt,

loss of control, and disappointment that their goals and expectations of the childbirth experience were not met (Bryanton et al., 2008; Callister, 2003). Women who are able to maintain control and successfully manage labor pain, have their expectations for labor met, have involved and participated in their care, have received both physical and emotional supports, and have the opportunity to hold and touch their babies immediately after birth, are more likely to perceive and evaluate their childbirth experiences as positive (Bryanton et al., 2008; Calister, 2003; Cheung et al., 2007; Goodman et al., 2004; Hardin & Buchner, 2004; Hottenstein, 2005; Nystedt et al., 2005; Waldenstrom et al., 2004).

Support

Support during the childbirth event can be provided by a variety of individuals involved in caring for laboring women. Several research studies investigated support during the childbirth event in terms of the presence of a support person, such as a woman's partner, female relative, doula, nurse, or nurse-midwife (Bryanton et al., 2008; Goodman et al., 2004; Hardin & Buchner, 2004; Lavender et al., 1999; Manogin, Bechtel, & Rami, 2000; Melender, 2006; Waldenstrom et al., 2004). The results of those studies indicated that the presence of the woman's partner is important to establish the bonding of the new family unit. The presence of the woman's partner also is beneficial in helping her cope with the labor pain, ability to maintain control over a personal birth experience, physical and emotional comfort.

Although the presence of a partner and his/her support frequently are regarded as crucial to the childbirth experience, not all women view their partners' presence alone as sufficient to meet all of their needs while they are in labor. Support and companionship by a female relative also have shown to be important to women in labor. Many research studies reported that in some cultures, physical and emotional support provided by female relatives resulted in better birth outcomes, such as more spontaneous vaginal deliveries, less use of intrapartum analgesia, fewer

interventions during labor (i.e. oxytocin augmentation), fewer vacuum assisted deliveries, and fewer caesarean births (Madi, Sandall, Bennett, & MacLeod, 1999; Price, Noseworthy, & Thornton, 2007; Semenic, Callister, & Feldman, 2004).

A study by Raines & Morgan (2000) revealed that African-Americans and Caucasians hold different perspectives about support during the childbirth event, even though both state that the father of the baby or the partner should be present. African-Americans value the presence of family members as a source of comfort by just being there, holding their hands, and talking to them. They did not expect their family members to take a role as a coach to encourage and help them through the childbirth experience. They wanted the presence of their family members in addition to the presence of the partner. In contrast, Caucasian participants identify the presence of family members as a substitute for the father of the baby or partner who is unable or unwilling to be presented. Caucasian women also expected their partners or family members to coach them through the childbirth process.

In addition to family support, support from doulas and or the nursing staff (i.e., nurses and nurse-midwives) has shown to be an important factor to a positive perception of the childbirth experience (Goodman et al., 2004; Hardin & Buckner, 2004; Melender, 2006; Price et al., 2007). Reported benefits of support from doulas and the nursing staff include a greater sense of control, better self-perception, less analgesia and anesthesia use, less cesarean births, shorter labors, higher Apgar scores, and more satisfaction of the childbirth experience (Hodnett, Gates, & Hofmeyr, 2003; Hunter, 2002; Sauls, 2002).

Nurses currently provide care for laboring women in North America. Women often consider the presence of a nurse as necessary for the safe birth of their babies (MacKinnon et al., 2005). Women report that nurses provide emotional support, physical comfort, information and valuable advice, professional and technical skills, and advocacy during the childbirth experience.

Although the presence of the nursing staff, particularly nurses, serve in a much needed role, a few studies highlighted the fact that nursing care often is not consistent and the presence of additional support persons such as the father of the baby and/or family members is needed within the labor setting (Chen, Wang, & Chang, 2001; Gale, Fothergill-Bourbonnais, & Chamberlain, 2001; Miltner, 2002; Sauls, 2002).

Summary

The proposed conceptual framework provided a structure for examining the relationship between stress of labor pain, support received from the nursing staff and a positive perception of the childbirth experience. A review of the literature clearly indicates that the phenomenon of labor pain and its management is quite complex since no single pain relief method can soothe each woman throughout her entire labor. When considering choices among a variety of pain relief methods available in the labor setting, the issues of decision-making and selecting among choices are inevitable. Laboring women, especially those who are primigravida, may have a deep need for concrete support, companionship, and empathy. Family members and friends may help laboring woman to meet their needs that the nurse may not be able to address thus can enhance a positive childbirth experience for the woman and her family members. Better understanding of women's childbirth experiences will allow healthcare processionals to provide improved support and appropriate interventions. In chapter 3 the method used to examine the research questions addressed by this study will be presented.

CHAPTER 3

METHODOLOGY

The purpose of this study was to describe women's perceptions and personal evaluation of their childbirth experiences. The specific aims of this study were to (1) identify factors related to positive childbirth experience; (2) to examine relationships among women's perceptions and personal evaluations of their childbirth experience, stress associated with labor pain, support from the nursing staff, initial contact with the baby following birth, support from partners (choice of a support person and presence of a support person during birth), education, age, and obstetric history (number of labor and delivery experiences, attendance at prenatal classes, duration of labor, and interventions during labor); and (3) to identify predictors of positive childbirth experience. This chapter provides a detailed description of the design, sample selection, setting, measurement instruments, data collection plan, and data analysis plan.

Research Design

A cross-sectional correlational design using only self-completed questionnaires for data collection was the methodology for this study to observe and describe the relationships among women's perception and personal evaluation of their childbirth experience and variables of interest as they occurred at one point in time.

Sample and Setting

The sample in this study included new mothers who recently gave birth at the Medical College of Virginia Hospital, Virginia Commonwealth University Health System (VCUHS) and

who met the study's inclusion criteria. Inclusion criteria for participation in the study included new mothers who (1) were 18 years of age or older; (2) had a term labor (pregnancy $\geq$ 37 weeks); (3) experienced labor pain; (4) had a vaginal delivery; (5) were willing to participate in the study; and (6) were able to speak, read, and write in English. The study's exclusion criteria included new mothers who (1) had their newborn admitted in NICU, (2) experienced a stillbirth, and/or (3) had an emergency or planned cesarean birth due to potential negative feelings secondary to unexpected or traumatic experiences (Sadler et al., 2001; Soet, Brack, & Dilorio, 2003; Waldenstrom, 1998; Waldenstrom et al., 2004). The study was approved by the VCU IRB. The study was conducted on the postpartum unit VCUHS.

Sample Selection and Recruitment

Adhering to Tabachnick and Fidell's (2007) recommendations for determining the sample size (N) for multiple regression studies and to Dillman's (2006) formula for predicting a 70% survey response rate, the present study included a convenience sample of 174 new mothers who were recruited over a 3-month period. Tabachnick and Fidell's recommendations for sample size include two rules: (a) $N \geq 50 + 8m$, in which m equals the number of independent variables for testing the multiple correlations; and (b) $N \geq 104 + m$ for testing individual predictors. These rules assume a medium size relationship between the independent and dependent variables at $\alpha = 0.05$ and $\beta = 0.20$. For the present study, this formula yielded a required sample size of 122 for multiple correlation and 113 for individual predictors with 9 independent variables: biological (age and obstetric history); psychological (attendance at prenatal classes, presence of a support person during the birth); stress associated with labor pain; participation in decision making; support from partners; support from the nursing staff; and initial contact with the baby following birth. According to Tabachnick and Fidell, when both overall correlation and individual predictors are

desired, the larger N is selected—in this case, $N = 122$. Thus, because this study used questionnaires as the method of data collection and because Dillman predicts a 70% survey response rate for questionnaires, calculations yielded a required sample size of $N = 174$ for distribution of the questionnaires.

Recruitment of potential study participants was initiated after receiving approval from the IRB and research site. The investigator began by assembling the questionnaire packages that were to be distributed to participants. Each package was assigned a number in accordance to the number of the sample size required for the study. However, no identifying number was assigned to the individual questionnaires, and no identifying information or names of any participants were collected. The recruitment process entailed the following steps:

(1) Potential participants who met the study's inclusion criteria were selected from new mothers who recently gave birth at VCUHS. The investigator met with the nursing team at the VCUHS postpartum unit to gain access to conduct the study and recruit participants. She provided study information to the staff at the research site, including the investigation's topic, purpose, data-collection techniques, and data-collection period, as well as the investigator's contact information.

(2) Over a 3-month period (November, 2008 to January, 2009), the investigator visited the research site on Mondays, Wednesdays, and Fridays to collect data. The postpartum unit's resource nurse reviewed a list of potential study participants, which the investigator finalized, based on inclusion criteria.

(3) The investigator was the only person who contacted participants regarding their participation in the study. First, the investigator visited each potential participant on a regular basis to introduce herself and to provide information about the research topic and the study's purpose. Next, the survey package was given to the potential participant. The package was left with the new mother approximately 2–3 hours so she could complete the questionnaires at her convenience. No

participant completed more than one questionnaire. Whether or not the participants decided to complete the questionnaires, they were asked to return the sealed survey package to the investigator.

A total of 178 questionnaires were distributed to postpartum mothers. Out of this total number, 16 mothers refused to participate in this study and 32 mothers did not complete all of these questionnaires at all. In addition, 8 survey questionnaires had large portions of missing data. The incomplete questionnaires were excluded from the analysis. Therefore, the final sample consisted of 122 postpartum mothers.

Instruments and Measures

The instruments used in this study consisted of the Questionnaire Measuring Attitudes About Labor and Delivery (QMAALD), the Stress of Labor Pain Scale (SLPS version 2), and a demographic questionnaire. The QMAALD was used to measure women's perceptions and personal evaluation of the childbirth experience. The SLPS was used to measure stress associated with labor pain. Demographic data provided overall characteristics of the sample including age, education, past obstetric history, attendance at prenatal classes, presence of a support person, participation in decision making, and support from the nursing staff. The questionnaire used in this study also consisted of three sections: (1) the QMAALD; (2) the SLPS (version 2); and (3) personal information (demographic data). This questionnaire was tested prior to collecting data with 10 new mothers who were in the population to be sampled. There were no adjustments made to any of the questionnaires.

The Questionnaire Measuring Attitudes About Labor and Delivery (QMAALD). The 29-item, self-report QMAALD questionnaire (see Appendix A) was used to collect data on each woman's perception and personal evaluation of her childbirth experience. Study participants were asked to rate their childbirth experience on a 5-point Likert scale, ranging from a score of 1 ("not

at all") to 5 ("extremely"). For items 15–21, the total score was calculated using reverse scoring method; for items 1–14 and 22–29, the total score was calculated based on the actual responses. The possible total score ranges from 29 to 145. Higher scores reflected more positive feelings about the childbirth experience. The Cronbach's alpha reliability coefficient for the QMAALD ranges from .76 to .87 (Cranley, Hedahl, & Pegg, 1983; Fawcett & Knauth, 1996; Fawcett, Pollio, & Tully, 1992; Fawcett et al., 1993; Marut & Mercer, 1979; Mercer, Hackley, & Bostrom, 1983).

In this study, the investigator used the original 29-item QMAALD to collect data on each woman's perception and personal evaluation of her childbirth experiences. The QMAALD was divided into two parts based on the context of questions for the analyses: part I included item 1-27 and measured women's perceptions and personal evaluations of their childbirth experiences; and part II consisted of item 28-29 and measured initial contact with the baby following birth. The responses ranged from a score of 1 ("not at all") to 5 ("extremely"). Items 15–21 were reverse scored; for items 1–14 and 22–29, the total score was calculated based on the actual responses. The possible total score ranges from 29 to 145. Higher scores reflected more positive feelings about the childbirth experience.

The reliability for the QMAALD was calculated using SPSS Version 16.0 for Windows. The QMAALD in this study was completed by 122 new mothers at the postpartum unit, VCUHS. Of this total number, 26 mothers did not complete every item in the scale, thus resulting in missing data. The assessment for missing data revealed no particular pattern. As a result, missing data were excluded from the analysis. Cronbach's alpha coefficient of the QMAALD in this study was .82 and reliability statistics for the scale are shown in Appendix E.

The assessment of corrected item-total correlation values of the QMAALD revealed three items (item 15, 21, and 27) containing values less than 0.3. The corrected item-total correlation values are normally used to determine a degree of correlation between each item and the total

score. Low values (less than 0.3) indicate that the item is measuring something different from the scale as a whole. If the whole Cronbach's alpha coefficient is less than 0.7, removal of items with low values should be considered (Pallant, 2007). The removal of item 15, 21, and 27 was conducted and the Cronbach's alpha coefficient of the adjusted QMAALD is .83, which is very similar to.82. Thus, the total 29 item QMAALD was used in all the analyses.

Although the QMAALD has most frequently been treated as a uni-dimensional instrument, Cranley et al. (1983) divided the original 29-item questionnaire into four subscales: Labor, Delivery, Labor and Delivery, and Baby based on a content analysis of the items. They, however, did not give information about which items were placed in which subscale. Fawcett et al. (1993), used the original 29-item QMAALD within the context of the Roy Adaptation Model of Nursing (Roy & Andrews, 1991). The objective was to link the QMAALD items to the four response modes of the Roy model: physiological, self-concept, role function, and interdependence. However, they offered no empirical evidence to support the implied linkage of the QMAALD items to the four response modes, nor did they identify which items represented which response mode.

Fawcett and Knauth (1996) conducted a factor analysis for the 29 items QMAALD using a principal components method with varimax orthogonal rotation since this approach yielded a more parsimonious and conceptually clearer solution than oblique rotation (DeVellis, 2003; Nunnally, 1978). Four of the original 29-item QMAALD (item 19, 20, 21, and 23) were dropped as a result of this factor analysis. The results of the factor analysis and the subscale correlations indicated that perception of the childbirth experience as measured by 25-item QMAALD was composed of five factor-based subscales: delivery experience (item 3, 5, 6, 8, 15, 17, and 18); labor experience (item 1, 2, 4, 7, 9, 10, and 16); delivery outcomes (item 26, 27, 28, and 29); partner participation (item 11, 12, 24, and 25); and awareness (item 13, 14, and 22). Those subscales clearly represented

distinguishable dimensions of women's perception of their childbirth experience. The Cronbach's alpha reliability coefficient of the total scale was .85 for a sample of 345 women.

The QMAALD has been used often as uni-dimensional tool; however Fawcett et al. (1996) clearly stated that this tool consisted of five factor-based subscales that actually denoted different aspects of the woman's perception of her childbirth experience. The investigator performed principal components analysis (PCA) to identify a small set of factors that represents the underlying relationships among a set of items in this questionnaire. The ideal sample size for factor analysis should be more than or equal to 150 (Pallant, 2007; Tabachnick & Fidell, 2007). This study did not intend to examine specific hypotheses or theories concerning the structure underlying a set of items in the scale, thus a sample of 122 postpartum mothers should be sufficient to perform factor analysis.

The 29 item QMAALD were subjected to PCA using SPSS Version 16.0. The suitability of data for factor analysis was assessed via inspection of the correlation matrix, which revealed the presence of many coefficients of .3 and above. The Kaiser-Meyer-Oklin value was .67, exceeding the recommended value of .6 (Kaiser 1970, 1974) and Bartlett's Test of Sphericity (Bartlett, 1954) reached statistical significance. The results of PCA revealed the presence of 9 components with eigen values exceeding 1, explaining 20.5%, 10.6%, 7.7%, 6.6%, 6.1%, 5.3%, 4.6%, 4.2%, and 3.8% of the variance respectively (see Appendix E). An inspection of the scree plot did not reveal a clear break among the components (see Appendix E). Thus, parallel analysis was performed to help identify the number of factors to be extracted. The decision to retain 6 factors was based on the comparison between eigen values from PCA and criterion values from Parallel Analysis (see Appendix E), showing 6 components' eigen values exceeding the corresponding criterion values for a randomly generated data matrix of the same size (29 variables x 122 participants). The

inspection of pattern matrix, component matrix, and structure matrix also supported the decision (see Appendix E)

The 6-component solution explained a total of 56.90% of the variance. However, the percentage for contribution of the 6 components did not change from the previous factor analysis using criterion of eigen values exceeding 1 (see Appendix E). In addition, the communalities values revealed that only one item contained the lowest values of .292 (see Appendix E). The communalities values less than 0.3 indicate that the item does not fit well with the other items in its component. Thus, the decision was made to use the 29 item QMAALD as a uni-dimensional questionnaire to measure a positive perception of the childbirth experience.

The Stress of Labor Pain Scale (SLPS version 2). This 21-item self-report questionnaire developed by the investigator was used to measure each woman's stress response and/or perception on the pain associated with labor. The SLPS (version 2) was modified from the SLPS (version 1) that derived from The Stress Scale, one of the four subscales in The Mastery of Stress version 4.1 developed by Younger (1990). The SLPS (version 1) was tested in March 2004 by the investigator using a sample of 106 non-pregnant women who had previously experienced labor and delivery. The Cronbach's alpha reliability coefficient of the SLPS (version 1) was .95.

The SLPS (version 2) contained 21 items (see Appendix B). The responses to each item ranged from 1 ("strongly agree") to 5 ("strongly disagree"). The total score was calculated using a reverse scoring for items 4–21 and was calculated based on the actual responses for items 1–3. The possible total score of the SLPS (version 2) ranged from 18 to 105. A high score indicates higher stress; a low score indicates lower stress level. In addition, item 19-21 were constructed to measure support from the nursing staff and the sum score of these three items were to be used as one of the independent variable. The SLPS (version 2) was divided into two parts based on the context of questions when they were constructed: part I consisted of item 1-18 and measured stress associated

with labor pain; and part II consisted of item 19-21 and measured the amount of support from the nursing staff. The SLPS (version 2) has recently been refined and has not yet been tested for reliability.

The reliability for the SLPS (version 2) was calculated using SPSS Version 16.0 for Windows. The SLPS (version 2) in this study was completed by 122 new mothers at the postpartum unit, VCUHS. Of this total number, 12 mothers did not complete every item in the scale, thus resulted in missing data. An inspection for missing data pattern revealed no particulate pattern, suggesting missing data occurred randomly. Thus, missing data were excluded from the analysis. Cronbach's alpha coefficient of SLPS (version 2) was .89 and reliability statistics for the scale are shown in Appendix F.

An inspection of corrected item-total correlation values revealed three items (item 1, 19, and 21) containing values less than 0.3. Low values (less than 0.3) indicated that these three items might measure something different from the scale as a whole. If the whole Cronbach's alpha coefficient is less than 0 .7, removal of items with low values should be considered (Pallant, 2007). Since the Cronbach's alpha coefficient of this instrument was very high (.89); the removal of item 1, 19, and 21 was not conducted. Thus, the total 21 item SLPS was used in all the analyses.

Demographic Questionnaire. A 13-item, self-report demographic questionnaire developed by the investigator was used to collect data that described the study's sample. Demographic data included age, race, educational level, obstetric history, attendance at prenatal classes, and presence of a support person (see Appendix C).

Data Collection

Data were collected over a 3-month period from participants' responses to a set of self-reported questionnaires distributed in envelopes to potential participants who met the study's criteria. The questionnaire package included information about the study project and three parts of

survey questionnaires (see Appendices A, B, and C). Each questionnaire package was assigned a number. However, no identifying information or names of any participants were collected. Steps of data collection included: (1) the investigator visited each potential participant in the morning on a regular basis, after she had rested from her labor; (2) the investigator introduced herself, and provided information on the research topic, the study's purpose, the instruction for completing the questionnaires; (3) the questionnaire package was given to potential participants and was left with them for approximately 2–3 hours so they could respond at their convenience; (4) the investigator collected the returned sealed survey package whether or not participants completed the questionnaires.

Research Subject Protection

The only information being sought in the study were the responses to the individual questionnaires completed by the participants. Data were only obtained for research purposes. Thus, there was minimal to no potential risk to participate in this study.

Throughout the data-collection process at the research setting, the investigator was the only person who contacted each participant regarding her participation in the study. She maintained and secured all research data in locked file cabinets located in the Virginia Commonwealth University, School of Nursing. Although each questionnaire package was assigned a number, no identifying number or participant's name appeared on the individual questionnaires. It was not possible to identify any participant from the individual questionnaires. Any publications that may result from this study will also only report aggregate date.

Participation in the study was completely voluntary. No penalty was imposed for not completing the questionnaires. Each individual questionnaire remained in the survey package at all times, except when participants completed the individual questionnaires. After completing the

questionnaires, the participants immediately sealed their survey package, which the investigator collected later that day.

Data Analysis

Data from the study questionnaires were recorded and coded into SPSS 16.0 for Windows. The data analysis was done using SPSS 16.0 for Windows to compute the instruments' reliability, explore the sample's characteristics, examine the relationship among variables of interest, and identify predictors contributing to positive childbirth experiences.

Significant Criterion. The significant criterion often uses as a guide to make a rational decision for the existence of the phenomenon under study. It is required that the investigator sets an appropriate probability standard criterion for statistical testing of research results. The standard significant criterion normally sets at alpha level of .05 (Cohen, 1988; Lipsey, 1990; Tabachnick & Fidell, 2007). This study set the significant criterion (significant level) for statistical testing of the study's variables at alpha level of $\leq$ .05. Statistical testing of the study's variables included t-test, analysis of variance, correlation, and multiple regression analysis.

Instruments' Reliability. Both of QMAALD and SLPS (version 2) were evaluated for reliability using Cronbach's alpha coefficients. Each instrument was evaluated for factors that decrease the overall reliability, including means that were at the extreme of a scale, responses that varied minimally, inter-item correlations that were negative and/or low, and item-to-total-scale correlations that were low (DeVellis, 2003).

Childbirth Experience and Demographic Data. Descriptive statistics were used to describe women's childbirth experience and the sample's characteristics. The sum scores of each of the following variables were used to describe the women's childbirth experiences: the QMAALD, the SLPS (version 2), support from the nursing staff, and initial contact with the baby following birth.

Frequency and percentage were used to describe categorical variables, including: (a) demographic data [age, educational level, and ethnicity]; (b) obstetric history [number of pregnancies, number of labor and delivery experiences, duration of labor, and interventions during labor]; (c) attendance at prenatal classes; (d) support from partner [choice of a support person and presence of a support person during labor]. Mean, standard deviation, median, and range were used to describe continuous variables, including women's perceptions of the childbirth experience (the sum score of QMAALD part I); and age; stress associated with labor pain (the sum score of SLPS part I); support from the nursing staff (the sum score of SLPS part II); initial contact with the baby following birth (the sum score of QMAALD part II).

Correlation among the Model Variables. Pearson product-moment correlations were used to examine the relationships among the women's childbirth experience, stress associated with labor pain, support from partner (presence of a support person during labor), support from the nursing staff, age, education, obstetric history (number of labor and delivery experiences), attendance at prenatal classes, and initial contact with the baby following birth. In addition, the strength and direction of the linear relationship among each of the sum scores of the following variables were assessed using Pearson product-moment correlations: the QMAALD, the SLPS (version 2), support from partner, support from the nursing staff, age, education, obstetric history (number of labor and delivery experiences), attendance at prenatal classes, and initial contact with the baby following birth. Histograms and scatter plots were also used to determine normality of each variable, gaps in distribution of data, multiple peaks, and outliers. Variables that were not normally distributed were transformed for use in further analysis.

Predictors of a Positive Childbirth Experience. Multiple regression modeling was used to examine the relationship among the women's childbirth experience, stress associated with labor pain, support from the nursing staff, support from partners, age, education, past obstetric history

(attendance at prenatal classes and number of labor and delivery experiences), initial contact with the baby following birth; and attendance at prenatal classes. The sum score of QMAALD part I (perception of childbirth experience) was treated as a dependent variable in this model. The effect of demographic data on women's childbirth experiences was also examined. Thus, independent variables in this model included demographic data of age and education; the sum score of SLPS part I (stress associated with labor pain); the sum score of SLPS part II (support from the nursing staff); the sum score of QMAALD part II (initial contact with the baby following birth); choice of a support person, presence of a support person, number of labor and delivery experiences, and attendance at prenatal classes. Each variable was analyzed for normality, linearity, homogeneity, outliers, multicollinearity, and residual analysis using histograms of standardized residuals, partial residual plots, and normal probability plots. Scatter plots between variables were analyzed to assess relationships among these variables. Then, hierarchical multiple regression was used to generate a regression equation to determine the best predictors of women's childbirth experiences. Entry of independent variables was determined theoretically, and the regression equation was as follows:

Childbirth experience = constant + b1*age + b2*number of labor and delivery experiences + b3*education + b4* choosing a support person + b5*support from the nursing staff + b6*presence of a support person* + b7* stress associated with labor pain + b8* attendance at prenatal classes + b9*initial contact with the baby following birth.

Summary

The purpose of this study was to describe the women's perceptions and personal evaluation of their birth experiences aimed at: (1) identifying factors related to positive childbirth experience; (2) examining the relationships among women's childbirth experience, stress associated with labor pain, support from the nursing staff, support from partners (choice of a support person and

presence of a support person during labor), age, education, obstetric history (number of labor and delivery experiences, duration of labor, and interventions during labor), attendance at prenatal classes, initial contact with the baby following birth; and (3) identifying the best predictors of a positive perception of the childbirth experience. A cross-sectional correlational design was used to conduct this study. A total sample of 122 women participated in the study. The questionnaire used in this study consisted of the QMAALD, the SLPS (version 2), and personal information (demographic data). The Cronbach's alpha coefficient for the 29 item QMAALD in this study was .82 and the Cronbach's alpha coefficient of the SLPS (version 2) in this study was .89. Data were collected from November, 2008 to January, 2009. The SPSS statistical software version 16.0 for Windows was used for data analysis. Chapter 4 presents the results of the study.

CHAPTER 4

FINDINGS

The purpose of this study was to describe women' perceptions and personal evaluation of their childbirth experiences with specific aims: (1) to identify factors related to positive childbirth experiences; (2) to examine relationships among women's perceptions and personal evaluations of their childbirth experiences and stress associated with labor pain, support from the nursing staff, initial contact with the baby following birth, support from partners (choice of a support person and presence of a support person during birth), education, age, obstetric history (number of labor and delivery experiences, duration of labor, and interventions during labor), attendance at prenatal classes; and (3) to identify predictors of a positive childbirth experience.

The dependent variable included women's perception and personal evaluation of their childbirth experiences as measured by the Questionnaire Measuring Attitude About Labor and Delivery Experience (QMAALD). The QMAALD in this study was divided into two parts based on the context of questions for the analyses: part I included items 1-27 which measured women's perception and personal evaluation of their childbirth experiences; and part II consisted of items 28-29 which measured initial contact with the baby following birth (one of independent variables).

The independent variables consisted of stress associated with labor pain as measured by Stress of Labor Pain Scale version 2 (SLPS items 1-18 or part I), the amount of support received from the nursing staff as measured by SLPS version 2 (items 19-21 or part II), initial contact with the baby following birth as measured by QMAALD part II, support from partners (choice of a support person and presence of a support person during birth), education, age, attendance at

prenatal classes, obstetric history (number of labor and delivery experiences, duration of labor, and interventions during labor).

This chapter provides the findings of the study and is divided into three sections. The first section describes demographic characteristics of the sample. The second section describes descriptive statistics of the model variables including identifying factors related to positive perception of childbirth experience (answers specific aim 1). The third section includes the results of correlation and hierarchical regression analyses (answers specific aim 2 and 3).

Demographic Characteristics of the Sample

Demographic characteristics of the sample are presented in Table 4.1. The mean age (in years) of mothers was 26.33, (SD 5.95); range 18-40 years; 30% ($n = 37$) were in the 26 to 30 age group; 25% ($n = 30$) were in the 21-25 age group; 19% ($n = 23$) were in the 16-20 age group; and 17% ($n = 21$) were in the 31-35 age group. More than half (57%) of the sample were African-American; 26% were Caucasian; and 4.2% reported more than one ethnicity. Almost two thirds (61%) of the mothers reported a high school education; 25% reported a college education; and 4% reported less than a high school education.

Obstetric history of the sample is presented in Table 4.2. Approximately 27% of mothers reported having only one pregnancy; 25% reported having two pregnancies; and 13% reported having more than 5 pregnancies. About 30% of mothers reported this being their first childbirth experiences; 29% reported this being their second childbirth experiences; 22% reported this being their third childbirth experience; and 5% reported having more than 5 childbirth experiences. More than half (53%) of mothers reported seeing a physician during the antenatal period; 39% reported seeing a nurse practitioner or a nurse-midwife; and 4% reported seeing both types of providers.

Table 4.1 *Demographic Characteristics*

Variable	Frequency (n)	Percent (%)	Mean (SD)
Age			26.33 (SD 5.95
Age group			
16-20	23	18.9	
21-25	30	24.6	
26-30	37	30.3	
31-35	21	17.2	
36-40	10	8.2	
Education			
Less than high school	5	4.1	
High school	74	60.7	
College	31	25.4	
Graduate	10	8.2	
Ethnicity			
Caucasian	32	26.2	
African-American/Black	70	57.4	
Hispanic/Latino	7	5.7	
Asian	6	4.9	
American Indian/Alaska native	1	0.8	
Native Hawaiian/Other Pacific Islanders	1	0.8	
More than 1 race	5	4.2	

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Table 4.2 *Obstetric History*

Variable	Frequency (n)	Percent (%)
Number of pregnancies		
1	33	27
2	30	24.6
3	22	18.0
4	21	17.2
≥ 5	16	13.2
Number of labor and delivery experiences		
1	37	30.3
2	35	28.7
3	27	22.21
4	16	13.1
≥ 5	6	4.9
Healthcare Provider seen during pregnancy		
A Physician	64	52.5
A Nurse Practitioner or a Nurse-Midwife	47	38.5
Both Providers	5	4.1
Attendance at prenatal classes		
Yes	28	23.0
No	94	77.0
Number of prenatal classes attended		
None	94	77.0
1	9	7.4
2	1	0.8
3	3	2.5
≥ 4	14	11.4
Duration of labor		
Less than 4 hours	24	19.7
5-8 hours	36	29.5
9-11 hours	16	13.1
12-14hours	13	10.7
15-17 hours	14	11.5
More than 18 hours	18	14.8

Most of the mothers reported not attending prenatal education classes (77%). Of the number of mothers who attending prenatal classes, only 11% of the mothers reported that they attended four prenatal classes or more and 7% reported that they attended only one prenatal class. Duration of labor of the final sample is presented in Table 4.2. Approximately 30% of mothers reported the length of labor to be 5 to 8 hours; 20% reported the length of labor to be less than 4 hours; and 15% reported the length of labor to be more than 18 hours.

Interventions received during the birth experience of the sample are presented in Table 4.3. Most of the mothers in the study reported receiving epidural anesthesia (70%). One third of the mother reported undergoing artificial rupture of membranes (32%). Nearly one fourth of the mothers reported receiving pain medications (23%). 16% reported receiving oxytocin augmentation; 7% underwent forceps/vacuum assisted delivery; and 18% reported not receiving any intervention at all.

A support person being presence during the birth experience of the final sample is presented in Table 4.4. Most of the mothers in the study reported that they were able to choose a support person to be with them during the birth experience (88%). Most of the mother also reported they had more than one support person present during the childbirth experience. The mothers in this study reported that a chosen support person was able to be with them (80%) during the birth experience. Two third of the mothers reported that the support persons present during the birth experience were the fathers of the babies and 11% of the mothers reported not having anyone with them during the birth experiences.

Specific Aim 1: Factors Related to a Positive Childbirth Experience

Assessment of Normal Distribution of the Model Variables

To assess normality, all of the continuous variables were examined for skewness and kurtosis. An inspection of the histograms of the QMAALD part I and the SLPS (version 2) part I

Table 4.3 *Interventions during Labor*

Variable	Frequency (n)	Percent (%)
Intervention during Labor		
Pain medication	28	23.0
Epidural anesthesia	88	72.1
Artificial Rupture of Membranes	39	32.0
Oxytocin augmentation	20	16.4
Episiotomy	1	0.8
Forceps/Vacuum Assisted	9	7.4
None	22	18.0

Table 4.4 *Support Person during Birth*

Variable	Frequency (n)	Percent (%)
Choose a support person to be with you		
Yes	107	87.7
No	14	11.5
A support person was able to be with you		
Yes	97	79.5
No	22	18.0
Who was the support person		
Father of the baby	84	68.9
Others	77	63.2
No one	14	11.5

as well as the normal Q-Q plot of the QMAALD part I and the SLPS (version 2) part I showed approximately normal distribution for both variables (Figure 4.1, 4.2, 4.3, and 4.4).

An inspection of the histograms of both QMAALD part II and SLPS (version 2) part II showed deviation from normal distribution (see Figure 4.5 and 4.6). Pallant (2007) recommended checking for potential outliers using the 5% trimmed mean as an indicator for an outlying problem. If the 5% trimmed mean and mean values of a suspicious variable are very similar; the problem of outlying is less likely to be. If there is an obvious difference between these two means, then a further investigation of data points should be considered. If a problem of outliers is present, then data transformation or score alteration should be conducted (Tabachnick & Fidell 2007). A comparison of the 5% trimmed mean and mean values of both QMAALD part II and SLPS (version 2) part II were not very different. Thus, the problem of potential outliers was minimal.

An inspection of the histogram for each item of the QMAALD showed deviation from normal distribution. Checking for potential outliers using the 5% trimmed mean was initiated. A comparison of 5% trimmed mean and mean values of each item was very similar. Thus, the problem of potential outliers was considered minimal (see Table 4.5).

An inspection of the histogram for each item of SLPS (version 2) showed deviation from normal distribution. Checking for potential outliers using the 5% trimmed mean was performed. A comparison of 5% trimmed mean and mean values of each item was very similar. Thus, the problem of potential outliers might be minimal (see Table 4.6).

An inspection of the histogram of categorical variables: (1) education; (2) ethnicity; (3) number of pregnancies; (4) number of labor and delivery experiences; (5) attendance at prenatal classes; (6) healthcare provider seen during pregnancy; (7) choosing a support person; and (8) presence of a support person showed deviation from normal distribution. Checking for potential outliers using the 5% trimmed mean was evaluated. A comparison of 5% trimmed mean and mean

Figure 4.1 *Histogram of Attitude about Labor and Delivery Experience (QMAALD Part I)*
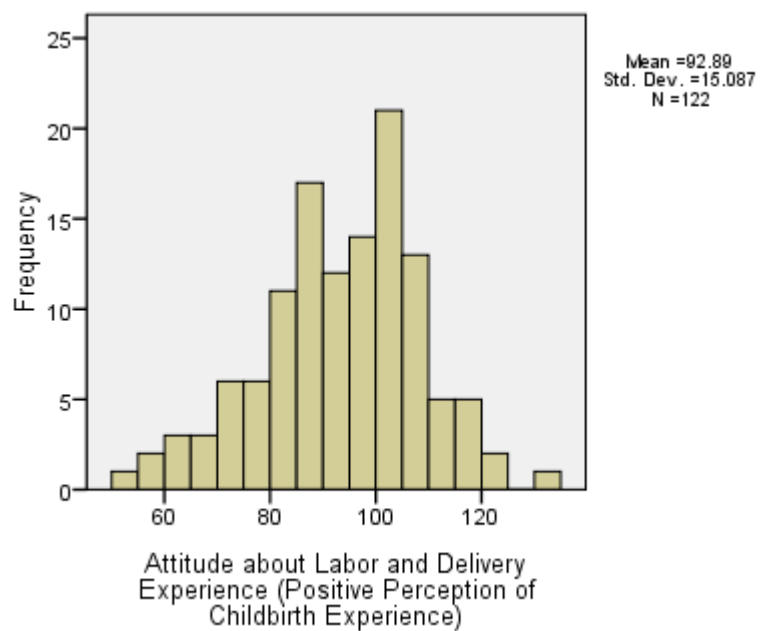
Figure 4.2 *Normal Q-Q Plot of Attitude about Labor and Delivery Experience (QMAALD Part I)*
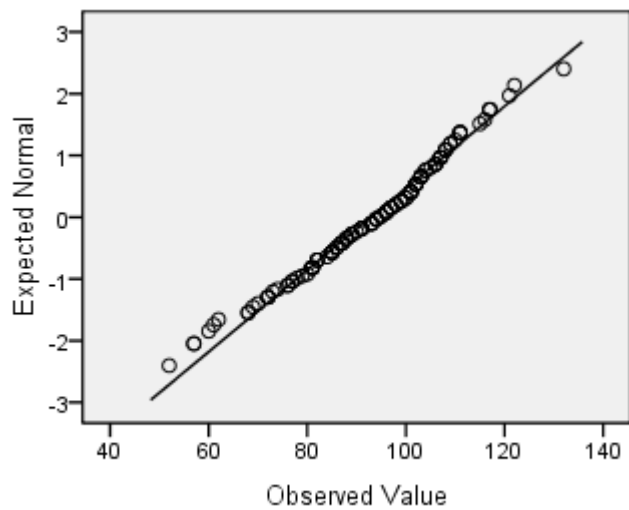
Figure 4.3 *Histogram of Stress Associated with Labor Pain (SLPS version 2 Part I)*
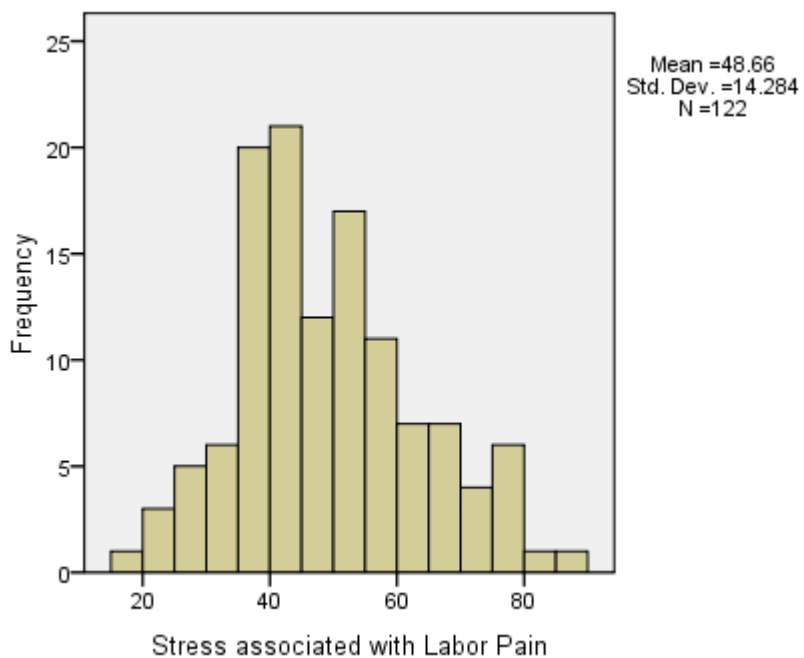
Figure 4.4 *Normal Q-Q Plot of Stress Associated with Labor Pain (SLPS version 2Part I)*
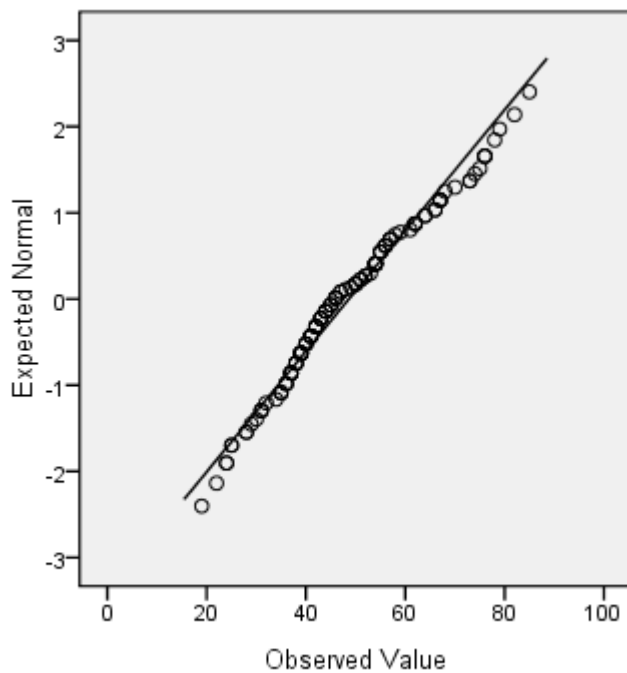
Figure 4.5 *Histogram of Initial Contact with the Baby following Birth (QMAALD Part II)*
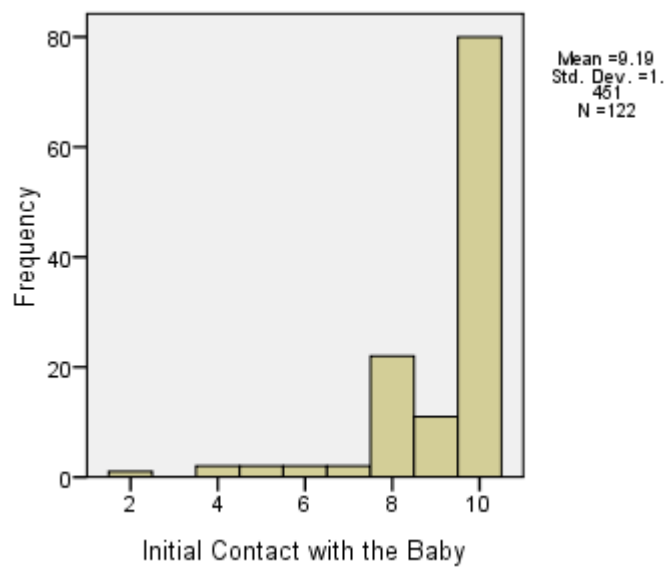
Figure 4.6 *Histogram of Support from the Nursing Staff during Birth (SLPS version 2Part I1)*
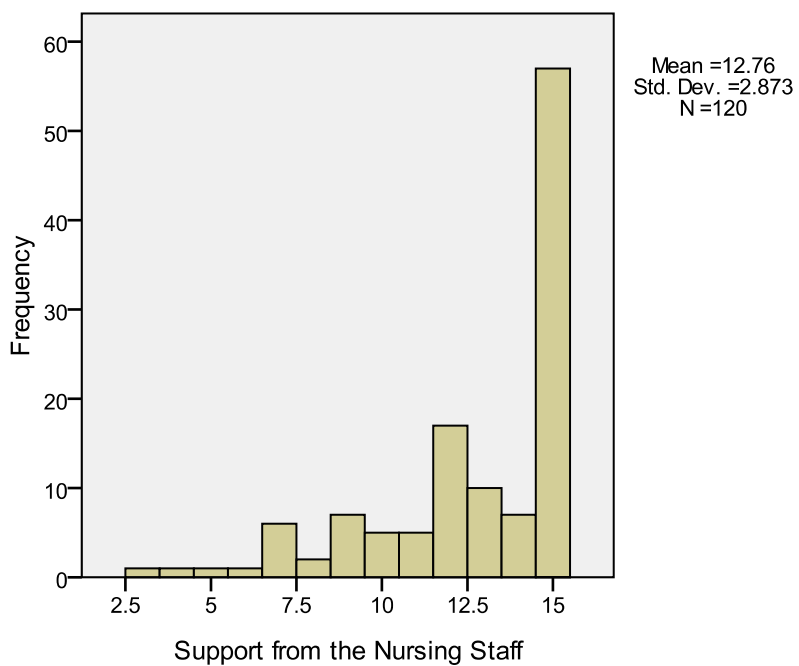
Table 4.5 *Compared 5% Trimmed Mean and Mean Values for Each Item of QMAALD*

QMAALD	5% Trimmed Mean	Mean Values
1. How successful were you in using the breathing or relaxation methods to help with contractions?	3.06	3.06
2. How confident were you during labor?	3.67	3.48
3. How confident were you during delivery?	3.56	3.50
4. How relaxed were you during labor?	2.92	2.93
5. How relaxed were you during delivery?	3.02	3.02
6. How peasant or satisfying was the feeling state you experienced during delivery?	3.40	3.36
7. How well in control were you during labor?	2.96	2.97
8. How well in control were you during delivery?	3.19	3.17
9. To what extent did your experience of having a baby go along with the expectation you had before labor began?	3.10	3.09
10. To what extent do you consider yourself to have been a useful and co-operative member of the obstetric team?	3.79	3.71
11. How useful was your partner in helping you through your labor?	3.85	3.76
12. How useful was your partner in helping you through your delivery?	3.85	3.76
13. To what degree were you aware of events during labor?	4.33	4.23
14. To what degree were you aware of events during delivery?	4.19	4.08
15. How unpleasant was the feeling state you experienced during delivery?	3.30	3.27
16. Do you remember your labor as painful?	2.47	2.52
17. Do you remember your delivery as painful?	3.08	3.07
18. How scared were you during delivery?	3.51	3.46
19. Did you worry about your baby's condition during labor?	3.13	3.11
20. Did you worry about your baby's condition during delivery?	3.34	3.31
21. Did the equipment used during labor bother you?	4.32	4.18
22. Was the delivery experience realistic as opposed to dream-like?	3.23	3.20
23. Did you have choices about interventions, i.e., examinations or treatments during labor?	3.32	3.29
24. Did your partner (or other person) review your labor experience with you?	4.04	3.93
25. Did you feel better after reviewing the labor and delivery experience?	4.15	4.06
26. Were you pleased with how your delivery turned out?	4.51	4.39
27. Were you able to enjoy holding your baby for the first time?	4.65	4.50
28. How soon after delivery did you touch your baby?	4.78	4.68
Immediately Within 1 hour Within 2 hours Within 4 hours Within 8 hours or longer		
29. How soon after delivery did you hold your baby?	4.65	4.51
Immediately Within 1 hour Within 2 hours Within 4 hours Within 8 hours or longer		

Table 4.6 *Compared 5% Trimmed Mean and Mean Values for Each Item of SLPS (version 2)*

SLPS	5% Trimmed Mean	Mean Values
1. My view of labor pain was realistic	1.97	2.07
2. I prepared for labor pain as much as possible	2.55	2.60
3. My actions in the pain situation were effective	2.49	2.55
4. The pain of childbirth was unexpected	2.60	2.64
5. I felt panic during labor pain	2.61	2.65
6. I felt fearful when I was in pain	2.56	2.60
7. The pain situation was out of control	2.83	2.84
8. I felt alone in the pain situation	2.22	2.30
9. I could not relax when I was in pain	3.65	3.61
10. I felt helpless when I was in pain	3.12	3.11
11. I became angry when I could not tolerate the pain	2.82	2.83
12. I felt threatened when I was in pain	2.20	2.28
13. I could not concentrate on pain relief strategies	2.93	2.93
14. I was preoccupied with labor pain	3.06	3.06
15. I could not decide what to do to make myself feel better	2.98	2.98
16. I had a sense of despair when I could not manage the pain effectively	2.89	2.90
17. My thinking was disorganized when I could not tolerate the pain	2.82	2.84
18. I lost my sense of personal dignity when I could not manage the pain	2.23	2.31
19. The nursing staff kept me updated about my labor progress	4.35	4.22
20. The nursing staff helped me feel good about my childbirth experience	4.42	4.28
21. I was satisfied with the choices that were made during my childbirth experience	4.40	4.26

Table 4.7 *Compared 5% Trimmed Mean and Mean Values of Categorical Variables*

Variables	5% Trimmed Mean	Mean Values
Education	3.56	3.60
Ethnicity	1.96	2.65
Number of pregnancies	2.65	2.81
Number of labor and delivery experiences	2.26	2.37
Attendance prenatal classes	1.80	1.77
Healthcare providers seen during pregnancy	1.44	1.88
Choosing support person	1.07	1.12
Presence of support person	1.15	1.18

values of those variables (except for ethnicity) was fairly similar (see Table 4.7). Thus, the problem of potential outliers seems to be minimal.

Descriptive Statistics for the Model Variables

Descriptive statistics calculated for the sum score of both the QMAALD and the SLPS (version 2) are presented in Table 4.8. The participants reported they had a positive feelings about their childbirth experience (Mean = 102.08, SD = 15.28) suggesting that they perceived and evaluated their childbirth experience as positive. They reported having a low degree of stress associated with labor pain (Mean = 48.66, SD = 14.28). They also reported holding and touching their baby immediately after delivery (Mean = 9.19, SD = 1.45) and receiving a moderate amount of support from the nursing staff during the childbirth experience (Mean = 5.19, SD = 2.89).

Factors related to a Positive Perception of the Childbirth Experience

The effect of categorical independent variables on a positive perception of the childbirth experiences measured by QMAALD part I (the dependent variable) was examined using T-test and analysis of variance (ANOVA). T-test was used to examine the differences in a positive perception of the childbirth experience by attendance at prenatal classes, choosing a support person, and presence of a support person during birth. The responses of these three variables were divided into dichotomous responses of yes or no. The results are presented in Table 4.9. There were no statistically significant differences in a positive perception of the childbirth experience based on attendance at prenatal classes, choosing a support person or presence of a support person during birth.

Analysis of variance was used to examine the differences in a positive perception of the childbirth by age, level of educational attainment, ethnicity, number of labor and delivery experiences, number of pregnancies, interventions during birth, and duration of labor. The results are shown in Table 4.10 and 4.11. There was a statistically significant difference at the $p < .05$

Table 4.8 *Summary Statistics for the Sum Score QMAALD and SLPS (version 2)*

Variable	N	Range	Mean (SD)
Attitude about labor and delivery (Positive perception of childbirth experience measured by QMAALD Part I)	122	52-132	92.89 (15.09)
Stress associated with labor pain (SLPS version 2 Part I)	122	19-85	48.66 (14.28)
Support from the nursing staff during the birth (SLPS version 2 Part II)	122	0-15	12.76 (2.83)
Initial contact with the baby after birth (QMAALD Part II)	122	2-10	9.19 (1.45)

Table 4.9 *T-test Analysis between the Independent Variables of Attendance at Prenatal Classes,*

Choosing a Support Person, and Presence of a Support Person and a Positive Perception of the

Childbirth Experience

Variables	Responses	N	Mean	SD	*t*-Value	*P* (2-tailed)
Attendance at prenatal classes	Yes	28	96.11	14.55	1.32	.19
	No	94	91.94	15.19		
Choosing a support person	Yes	107	93.85	13.85	1.37	.19
	No	14	85.57	22.11		
Presence of a support person during birth	Yes	97	94.66	12.82	1.83	.08
	No	22	85.77	21.92		

level in a positive perception of the childbirth experience based on the level of educational attainment (F = 5.009, p = .003). Post-hoc Tukey Honestly Significant Difference (HSD) revealed that participants who had less than a high school education or had graduate degrees reported higher levels of positive perception of childbirth experience than participants who had a high school education. There were no statistically significant differences in a positive perception of the childbirth experience based on age (F = 1.479, p = .213) or ethnicity (F = .931, p = .448). There were no significant differences in a positive perception of the childbirth experience based on the number of pregnancies (F = 1.221, p = .306) and the number of labor and delivery experiences (F = .727, p = .575).There were no significant differences in a positive perception of the childbirth experience based on the duration of labor (F = .236, p = .946) and interventions during labor (F = 1.344, p = .244).

Specific Aim 2: Correlational Analysis

The model's variables consisted of the dependent variable (a positive perception of the childbirth experience measured by QMAALD part I) and nine independent variables: (1) stress associated with labor pain measured by SLPS (version 2) part I; (2) support from the nursing staff measured by SLPS (version 2) part II; (3) initial contact with the baby following birth measured by QMAALD part II; support from partner (4) choice of a support person and (5) presence of a support person); (6) age; (7) number of labor and delivery experiences; (8) attendance at prenatal classes; and (9) level of educational attainment. The relationships between the model variables were examined using the Pearson product-moment correlation coefficient. Preliminary analyses were conducted to ensure there were no violations of normality, linearity, and homoscedascity. Figure 4.7 shows a reasonably straight diagonal line from bottom left to top right suggesting that there were no major deviations from normality. Table 4.12 also presents the inter-correlations (r) among the model variables, which ranged from .01 to -.51. The low to moderate correlations

Table 4.10 *Analysis of Variance between the Independent Variables of Education, Age, and*

Ethnicity and a Positive Perception of the Childbirth Experience

Variable	Mean	SD	F ratio (df)	P	Tukey HSD
Education			5.009 (3,116)	.003	N/A
Less than high school	106.60	9.02			
High school	89.03	15.62			
College	96.94	13.01			
Graduate	100.50	10.15			
Age group			1.479 (4,116)	.213	N/A
16-20	60.22	15.06			
21-25	92.10	13.70			
26-30	92.57	15.12			
31-35	92.52	16.15			
36-40	103.60	16.06			
Ethnicity			.931 (4,117)	.448	N/A
Caucasian	96.91	11.47			
African American	90.99	16.31			
Hispanic/Latino	90.57	21.76			
Asian	95.33	13.16			
Others	93.86	9.56			

Table 4.11 *Analysis of Variance between the Independent Variables of Number of Pregnancies,*

Number of Labor and Delivery Experiences, Duration of Labor, and Interventions during Labor

and a Positive Perception of the Childbirth Experience

Variable	Mean	SD	F ratio (df)	P	Tukey HSD
Number of pregnancies			1.221 (4,117)	.306	N/A
1	93.73	11.84			
2	89.67	15.33			
3	97.77	12.27			
4	89.81	14.89			
≥ 5	94.56	22.41			
Number of labor and			.727 (4,116)	.575	N/A
delivery experiences	93.30	11.76			
1	91.49	15.49			
2	93.48	17.01			
3	96.81	13.51			
4	85.33	26.35			
≥ 5					
Duration of labor			.236 (5,115)	.946	N/A
Less than 4 hours	91.08	21.54			
5-8 hours	92.75	15.55			
9-11 hours	95.00	6.98			
12-14hours	90.46	17.30			
15-17 hours	93.57	12.28			
More than 18 hours	94.5	10.22			
Interventions during labor			1.344 (5,115)	.244	N/A
Pain medication	90.54	14.41			
Epidural anesthesia	94.19	12.72			
AROM	96.15	10.49			
Oxytocin augmentation	96.65	11.94			
Forceps/Vacuum	85.86	8.82			
None	87.82	22.09			
Combined interventions	94.23	12.38			

Figure 4.7 *Normal P-P Plot of Regression Standardized Residual*
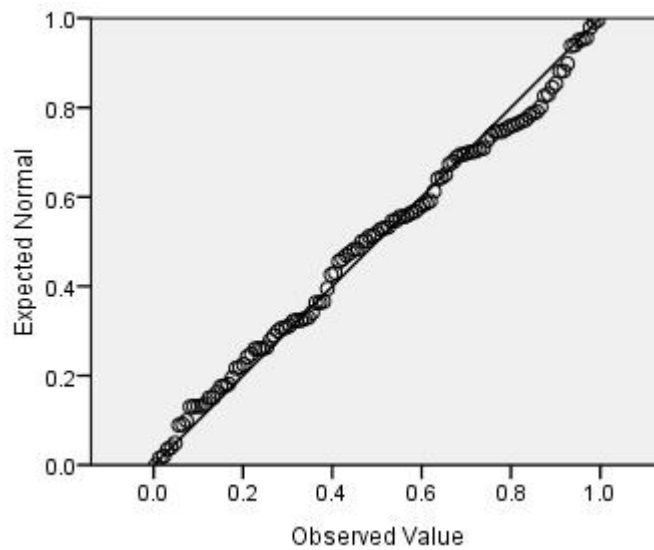
Table 4.12 *Pearson Product-Moment Correlations between the Model Variables (N =122)*

Variables	1	2	3	4	5	6	7	8	9	10
1. Attitude about labor and delivery (Positive perception of childbirth experience)	-	-.511**	.314**	.152	.170	.162	-.117	-.176	-.127	-.004
2. Stress associated with labor pain		-	.207*	-.142	-.215*	-.339**	-.073	.138	.241**	-.165
3. Reduction of stress associated with support from the nursing staff			-	.044	.047	.082	.024	-.049	-.023	-.013
4. Initial contact with the baby following birth				-	-.116	-.059	.032	-.084	.010	-.019
5. Education					-	.335**	-.290**	-.053	-.079	-.160
6. Age						-	-.198*	.062	-.125	.447**
7. Attended at prenatal classes							-	.076	.008	.120
8. Choosing a support person								-	.112	.029
9. Presence of a support person									-	-.137
10. Number of labor and delivery experiences										-

** p < .001 (2-tailed)

 * p < .05 (2-tailed)

among independent variables were not redundant, thus multicollinearity was not a problem.

Relationship between the Dependent Variable and Independent Variables

A strong significant negative relationship was found between a positive perception of the childbirth experience and the stress associated with labor pain (r = -.51, p < .001); suggesting that high levels of stress are associated with low levels of positive perceptions of the childbirth experience. There was also a weak-moderate significant positive relationship between a positive perception of the childbirth experience and the reduction of stress associated with support received from the nursing staff (r = .31, p < .001); suggesting that support received from the nursing staff was associated with a positive perception of the childbirth experience. There were no statistically significant results at the p < .05 level for the other independent variables.

Relationship among Independent Variables

A significant positive relationship was found between the stress associated with labor pain and the reduction of stress resulting from support received from the nursing staff (r = .20, p < .05). There was also a significant positive relationship between the stress associated with labor pain and the presence of a support person during the birth experience (r = .24, p < .001). The negative relationships were found between the stress associated with labor pain and the level of educational attainment (r = -.22, p < .05); and age (r = -.34, p < .001). There were no statistically significant results at the p < .05 level for the other independent variables.

A significant positive relationship was found between the level of educational attainment and age (r = .34, p < .05). As educational level and age increase the stress associated with labor pain decrease. The negative relationship was also found between the level of educational attainment and attendance at prenatal classes (r = -.29, p < .05). A significant positive relationship was found between age and number of labor and delivery experiences (r = .47, p < .001). A negative relationship was also found between age and attendance at prenatal classes (r = -.20, p <

.05). There were no statistically significant results at the $p < .05$ level for the other independent variables.

Specific Aim3: Hierarchical Regression Analysis

Multiple regression analyses were conducted to determine the predictors of a positive perception of the childbirth experience. The nine independent variables were entered in a full, hierarchical model: SLPS (version 2) part I (stress associated with labor pain); SLPS (version 2) part II (support from the nursing staff); initial contact with the baby following birth (QMAALD part II); age; education; choosing a support person; presence of a support person during birth; attendance at prenatal classes; and number of labor and delivery experiences. The variables of ethnicity, number of pregnancies, duration of labor, and interventions during labor were not entered into the regression model.

Using a stepwise model building approach proposed by Hosmer and Lemeshow (2000), a series of regression analyses were conducted. Non-significant variables were systematically deleted until only the significant variables remained in the model. Results of the full model for a positive perception of the childbirth experience are presented in Table 4.13.

In the full regression model, the standardized regression weights for initial contact with the baby following birth (QMAALD part II); age; education; choosing a support person; presence of a support person during birth; attendance at prenatal classes; and number of labor and delivery experiences made non-significant contributions to the variance in a positive perception of the childbirth experience. The Pearson product-moment correlations revealed a significant negative relationship between a positive perception of the childbirth experience and the stress associated with labor pain, and a significant positive relationship between a positive perception of the childbirth experience and the reduction of stress resulting from support received from the nursing staff. However, the variable of stress associated with labor pain ($b = -.46$, $p < .001$) and the

reduction of stress resulting from support from the nursing staff ($b = .21$, $p = .01$) accounted for significant contributions to the explained variance of a positive perception of the childbirth experience ($R^2 = .35$, $F = 7.26$, $p < .001$).

Table 4.14 presents the trimmed multiple regression model for a positive perception of the childbirth experience. Again, the Pearson product-moment correlations revealed a significant negative relationship between a positive perception of the childbirth experience and the stress associated with labor pain, and a significant positive relationship between a positive perception of the childbirth experience and the amount of support received from the nursing staff. Besides, the Pearson product-moment correlations revealed a non-significant negative relationship between a positive perception of the childbirth experience and attendance at prenatal classes. However, this trimmed model revealed that the variable of stress associated with labor pain ($b = -.48$, $p < .001$), the reduction of stress resulting from support received from the nursing staff ($b = .22$, $p = .01$), and attendance at prenatal classes ($b = -.16$, $p = .04$) were the most salient predictors ($R^2 = .33$, $F = 19.11$, $p < .001$) and accounted for significant contributions to the explained variance of a positive perception of the childbirth experience.

Table 4.13 *Full Multiple Regression Model for a Positive Perception of the Childbirth Experience*

(N = 122)

Variable	Beta	F	P	R^2
Stress associated with labor pain	-.46			
Reduction of stress associated with support from the nursing staff	.21			
Initial contact with the baby following birth	.08			
Education	.02			
Age	-.02			
Attendance at prenatal classes	-.14			
Choosing a support person	-.08			
Presence of a support person	-.00			
Number of labor and delivery experiences	-.05			
Model		7.26	<.001	0.35

Table 4.14 *Trimmed Multiple Regression Model for a Positive Perception of the Childbirth*

Experience (N = 122)

Variable	Beta	F	P	R^2
Stress associated with labor pain	-.48			
Reduction of stress associated with support from the nursing staff	.22			
Attendance at prenatal classes	-.16			
Model		19.11	<.001	0.33

Summary

The sample included 122 mothers. Of the demographic characteristics, only education was significantly related to a positive perception of the childbirth experience. Mothers who had less than a high school education or who had a graduate education were more likely to perceive and evaluate their childbirth experience as positive compared to those mothers who had high school education. However, mothers with a high school education made up the largest portion of the sample. There were no significant differences in a positive perception of the childbirth experience based on age and ethnicity. Based on the obstetric history, there were no significant differences in a positive perception of the childbirth experience based on number of pregnancies, number of labor and delivery experiences, attendance at prenatal classes, choice of a support person, presence of a support person during birth, duration of labor, and interventions during labor.

Correlational analysis results for the sample found a significant negative relationship between a positive perception of the childbirth experience and stress associated with labor pain. Mothers with high levels of stress associated with labor pain were less likely to perceive and evaluate their childbirth experiences as positive. In addition, there was a significant positive relationship between a positive perception of the childbirth experience and the reduction of stress associated with support received from the nursing staff. Mothers who received a high amount of support from the nursing staff were more likely to perceive and evaluate their childbirth experiences as positive. There were no statistically significant relationships found between a positive perception of the childbirth experience and other independent variables (initial contact with the baby following birth, age, education, number of labor and delivery experiences, attendance at prenatal classes, choice of a support person, and presence of a support person during birth).

The Pearson product-moment correlations revealed a significant negative relationship between a positive perception of the childbirth experience and the stress associated with labor pain, and a significant positive relationship between a positive perception of the childbirth experience and the reduction of stress associated with support received from the nursing staff. In addition, the Pearson product-moment correlations revealed a non-significant negative relationship between a positive perception of the childbirth experience and attendance at prenatal classes. However, multiple regression analyses results found that stress associated with labor pain, the amount of support from the nursing staff, and attendance at prenatal classes were the most significant predictors of a positive perception of the childbirth experience, but still only explaining 33 % of the variance. This finding suggests that other variables not measured in this study may help explain a positive perception of the childbirth experience in mothers. Chapter 5 presents the discussion of the findings, limitations, and implications for nursing practice and research.

CHAPTER 5

DISCUSSION

The purpose of this study was to describe women' perceptions and evaluation of their childbirth experiences with specific aims: (1) to identify factors related to a positive childbirth experience; (2) to examine relationships between women's perceptions and evaluations of their childbirth experiences (dependent variable) and independent variables [stress associated with labor pain, support from the nursing staff, initial contact with the baby following birth, support from partners (choice of a support person and presence of a support person during birth), education, age, and obstetric history (number of labor, duration of labor, and interventions during labor), and attendance at prenatal classes)] ; and (3) to identify predictors of positive childbirth experience.

This chapter will be divided into four sections. The first section discusses the representativeness of the sample. The second section discusses factors which contributed to a positive childbirth experience. The third section discusses predictors of a positive childbirth experience. Finally, limitations of the study and the implications of the findings for research and practice will be addressed.

Representative of the Sample

Age and level of educational attainment were re-classified [(age: 16 to 19; 20 to 24; 25 to 29; 30 to 34; 35 to 39; and more than 40 years); (education: less than high school; high school level or higher; and Bachelor or higher)] in order to compare with data from the National Vital Statistics Reports. Although the percentages of both variables slightly change from the analyses

presented in chapter four, they were typical of the general population presented in the National Vital Statistics Reports (Martin et al., 2007). In addition, the percentages of age and education were very similar to the population in the postpartum unit, VCUHS (K. Gee, personal communication, March, 9, 2009). Age and educational attainment of the sample is representative of the general population for this study.

Ethnicity is not re-grouped due to the classification of ethnicity for this study and the data from the National Vital Statistics Reports are very similar. The numbers of Hispanic participants in this study were fairly low compared to the actual Hispanic population who gave birth at the postpartum unit, VCUHS (K. Gee, personal communication, March, 9, 2009) and the National Vital Statistics Reports (Martin et al., 2007). This may result from the inclusion criteria for sample recruitment of this study that required competency in English communication for answering the questionnaires. The relatively low percentage of Caucasians and the high percentage of African-Americans in the sample were different from the general population in the National Vital Statistics Reports (Martin et al., 2007); but was not different from the population in the postpartum unit, VCUHS (K. Gee, personal communication, March, 9, 2009). While ethnicity of the sample in this study is not representative of the general population, it does represent the English speaking population of the postpartum unit, at VCUHS.

Data of the following variables: (1) length of labor; (2) interventions during labor; (3) choice of a support person; (4) presence of a support person during labor; and (5) attendance at prenatal classes in this study are compared to the population at the postpartum unit, VCUHS. Despite the difference in ethnicity between the sample of this study and the population at the postpartum unit, VCUHS, the comparison indicated that the high percentage of labor length between 5 to 8 hours of the sample in this study is very similar to the population at the postpartum unit, VCUHS. A high number of epidural anesthesia cases and a fairly low number of episiotomy

cases also are alike between the sample in this study and the population at the postpartum unit, VCUHS. The high number of participants who reported they were able to choose a support person to be with them during the childbirth event and reported that the father of the baby was the support person present during the childbirth event are comparable to the population at the postpartum unit, VCUHS (K. Gee, personal communication, March, 9, 2009). The low number of participants who attended prenatal classes is a surprising result. This may result from the questionnaire itself that did not ask about group prenatal education, a free prenatal education class (only one class) offered as a part of the regular prenatal visit at VCUHS (K. Gee, personal communication, March, 9, 2009). In addition, more than two thirds (73%) of the mothers reported that this was not their first pregnancy, thus possibly contributed to a fairly low number of attending at prenatal classes.

Another possible explanation for a very low number of participants who attended prenatal education in this study is possibly related to ethnicity. More than half (57%) of the mothers in this study were African Americans and several previous research studies have found that African American pregnant women were more than twice as likely as Caucasian pregnant women to receive prenatal care in the first trimester and receive late or not receive prenatal care (Alexander, Kogan & Nabukera, 2002; Gardner, Cliver, McNeal & Goldenberg, 1996; Kogan, Martin, Alexander, Ventura, & Frigoletto, 1998; Martin et al., 2007; Vonderheid, Montgomery & Norr, 2003). In addition, many research studies indicated that personal barriers to prenatal care included attitudes about prenatal care and limited understanding of the value of prenatal care (Curry, 1990; Ivanov & Flynn, 1999; Maloni, Cheng, Liebl & Maier, 1996; Mikhial, 2000). Moreover, several previous studies indicated that factors contributing to inadequate prenatal care utilization among African American women included transportation difficulties, long waiting times at the prenatal clinic, unemployment and lack of money to pay for prenatal care services, lack of motivation, lack of support and help from women in the family, having morning sickness, waking up in the

morning, and did not want to see a doctor (Johnson et al., 2003; Mikhail & Curry, 1999; Mikhial, 2000; Savage, Anthony, Lee, Kappesser & Rose, 2007).

<div align="center">*Factors Contributing to a Positive Childbirth Experience*</div>

The findings of this study revealed that the participants reported positive attitudes about their labor and delivery experiences. These findings are supported by previous research studies (Cranley et al., 1983; Fawcett et al., 1992; Hardin & Buckner, 2004; Hodnett, Downe, Edwards, & Walsh, 2005; Marut & Mercer, 1979; Nystedt et al., 2005). Their results indicated that women who delivered vaginally reported a more positive perception about their childbirth experiences than those mothers who delivered by cesarean birth. Women with prolonged labor reported having more negative childbirth experiences than those women who had shorter labor. Fewer interventions during labor and delivery (e.g., episiotomy, and oxytocin augmentation) contributed to a positive perception of the childbirth experience. Appropriate pain management approaches (i.e., use of pain medications and non-pharmacological pain relieve methods) are key factors in determining a positive childbirth experience. These findings suggest that the type of labor, complications during labor, fewer interventions during labor, and appropriate pain management techniques are related to a positive perception of the childbirth experience. The difference between this study and the previous studies is participant recruitment. This study enrolled only those women who had vaginal delivery; where as the previous studies recruited participants who had both vaginal and cesarean experiences. The similarity between this study and previous studies includes the research method of using a set of survey questionnaires as the major data collection technique. However, a study conducted by Hardin and Buckner (2004) employed a qualitative methodology using interviews as the major data gathering technique. Despite similarities and differences between this study and the previous studies, the findings are very similar. Factors

which contributed to a positive childbirth experience include vaginal delivery, shorter length of labor, fewer interventions, and appropriate use of pain management strategies.

The findings from this study demonstrated that a low degree of stress associated with labor pain was related to a positive perception of the childbirth experience. These findings are supported by many previous studies (Bryanton et al., 2008; Fenwick, Gamble, & Mawson, 2003; Goodman et al., 2004; Hardin & Buckner, 2004; Hodnett, 1996; Lavender et al., 1999; Nystedt et al., 2005; Waldenstrom, 1999; Waldenstrom et al., 2004; Waldenstrom, Hildingsson, & Ryding 2006). The results of those studies indicated that the level of stress during labor and delivery was a significant factor contributing to a positive perception of the childbirth experience. Despite the similarity of findings, the aspects of stress associated with labor in this study and the other research studies are different. This study measured stress associated with labor pain in terms of labor pain, the ability to control and effectively manage the pain. The other studies measured stress during labor in terms of personal control (perceived control and ability to maintain control over one's personal birth experience), involvement and participation in the decision-making during the birth process, whether expectations for labor were met, physical and emotional comfort (via support either from a partner or the nursing staff or both), and labor pain. Regarding different aspects of measurement of stress associated with labor, the meaning of control has varied across the studies and possibly perceived as internal or external control. Some women pride themselves in the ability to maintain control over their behaviors and body, thus are more likely to evaluate the childbirth experience as positive if they are satisfied with their own performance (Goodman et al., 2004; Waldenstrom et al., 2004). Other women might view control as being able to influence the environment in which they labor and giving birth (Green & Baston, 2003; Hardin & Buckner, 2004).

The findings of a relationship between support received from the nursing staff and a positive childbirth experience in this study are also supported by the previous research studies

(Bowers, 2002; Bryanton et al., 2008; Bryanton, Fraser-Davey, & Sullivan, 1993; Hardin & Buckner, 2004; MacKinnon et al., 2005; Manogin et al., 2000; Price et al., 2007). Women in those studies were satisfied with physical and emotional support from their nursing staff and felt it contributed to a positive childbirth experience. Despite the different data collection technique, ethnicity of the participants, and the measurement of support received from the nursing staff; findings from this study and other studies are very similar. This study used only a self-reported survey questionnaire to collect support received from the nursing staff. Contrarily, most of the other previous studies used two data collection techniques: a self-reported questionnaire and an interview with participants. Their findings revealed several key important aspects of support received from the nursing staff. Those attributes include demonstration of professional competence, monitoring on their conditions, promoting physical and emotional comfort, and empowerment via teaching, answering questions, correcting misconceptions, explaining the events, exploring feelings, and keeping updated with patients' information regarding the progression of labor.

African-Americans were the majority of the participants in this study; where as Caucasians were the main participants in prior studies. A study conducted by Raines and Morgan (2000) indicated that African-Americans and Caucasians hold different perspectives about support received from the nursing staff even though both participants needed the nursing staff to listen and make them feel comfortable. African-American women wanted more emotional support from the nursing staff as evidenced by the fact that African-American women stated that they wanted the nurses to be there, to coach them, and not leave them alone. Caucasian women wanted more informational support from the nurses. They wanted the nurses to provide medical interventions and explain the reason for what was done and why it was done.

Moreover, the measurement of support received from the nursing staff in this study is focused on information concerning the progression of labor, ability to participate in choices that were made during the childbirth experience, and physical comfort. Thus, they may not adequately be sensitive enough to measure support in these particular participants. Despite the possible limitation in findings; support received from the nursing staff plays an important role to the contribution of a positive childbirth experience.

This study found a non-significant result of a positive perception of the childbirth experience based on maternal age. This finding contradicted findings from a previous study (Borjesson et al., 2004). The results of their study revealed that mothers between the ages of 26-30 reported more negative childbirth experiences than those mothers between ages 31-36 years. In addition, Waldenstrom et al. (2004) found that a negative childbirth experience was more common in women who were young, single, and unemployed. The differences in these findings may result from ethnicity of the participants. Caucasians were the majority of the participants in those two previous studies; where as African-Americans were the main participants in this study. In addition, this study did not capture the very young mothers as the inclusion criteria were limited to women 18 years and older

This study found that the level of educational attainment was related to a positive childbirth experience. Mother who had less than a high school education reported a higher level of a positive childbirth experience. This finding was supported by a previous study (Borjesson et al., 2004). Their results revealed that mothers with a lower educational attainment reported feeling better during pregnancy than those mothers with a higher educational level. The possible explanation was that women with a higher educational attainment made greater demands and expectations on themselves as mothers, which increased the stress level that affected the perceptions and evaluations of their childbirth experiences (Borjesson et al., 2004). This explanation was

contradicted with the result of this study since this study also found that mothers who had a graduate degree reported a higher level of a positive childbirth experience. This finding was congruent with a previous study (Goodman et al., 2004). Their results indicated that participants who had a higher level of education reported more satisfaction with the childbirth experience. The possible explanation was that a higher education may relate to a sense of personal control. Women with a higher educational level possibly believed in their ability to maintain control (both self-control and control of what was being done to them) and to manage their performance effectively, thus they perceived and evaluated their childbirth experience as positive (Goodman et al., 2004).

Initial contact with the baby following birth, number of labor and delivery experiences, duration of labor, interventions during labor, attendance at prenatal classes, and support from a partner (choice of a support person, and presence of a support person during birth) in this study did not relate to a positive perception of childbirth experience. These non-significant findings were not supported by other research studies. Several studies have found that attendance at prenatal classes, a shorter labor, fewer interventions (oxytocin augmentation, forceps or vacuum assisted, episiotomy), support from partners, and initial contact with the baby after birth were related to positive perceptions of childbirth experience (Creedy, Shochet, & Horsfall, 2000; Goodman et al., 2004; Lavender et al., 1999; Price et al., 2007; Nystedt et al., 2005; Waldenstrom et al., 2004). The differences in these findings may relate to the demographic characteristics of the participants. The majority of the participants in this study were African Americans, while the other studies were Caucasians. Different ethnicity reflects different beliefs, values, needs, and feelings that might affect responses to the questionnaire.

The non-significant finding between attendance at prenatal classes and a positive perception of the childbirth experience was supported by a few studies (Goodman et al., 2004; Hodnett, 2002; Waldenstrom et al., 2004). Their results revealed that attendance at prenatal classes

seemed to be a less important factor compared to the stress associated with labor and support received from the nursing staff.

Predictors of a Positive Perception of the Childbirth Experience

The findings of the multiple regression analyses revealed that in the trimmed model for a positive perception of the childbirth experience, stress associated with labor pain, the amount of support received from the nursing staff, and attendance at prenatal classes were the prominent significant predictors, explaining 33% of the variance. Stress associated with labor pain is the strongest predictor of a positive childbirth experience. This finding was not reported in the literature; however stress associated with labor pain possibly may have been represented in other studies by other variables such as degree of awareness of events during labor and birth, degree of control or decision making. It is seemingly that women having a vaginal birth were aware of the childbirth event, experienced numerous emotions, and evaluated the childbirth experience in relation to a various degree of stress associated with the labor pain. Beebe and Humphreys (2006) demonstrated three emotional classifications related to the labor process described by the laboring women: (a) anxiety was described in terms of worried, scared, stressed, and uncertain; (b) positive affect referred to happy, excited, calm, relaxed, in control, and relief; (c) negative affect was defined as terrible, miserable, frustrated, and irritable.

Stress associated with the labor pain as a predictor of a positive childbirth experience was supported by a previous study conducted by Melender (2006). She examined women's perception of a good childbirth experience. She found five themes contributing to the course of a good childbirth experience: (a) unhurried atmosphere; (b) normality; (c) reasonable duration; (d) security; and (e) control. Unhurried atmosphere referred to the childbirth experience without unnecessary haste and bustle and characterized by harmony and peacefulness. Normality was defined as an uncomplicated childbirth proceeding as naturally as possible. Reasonable duration of

labor was assumed to be approximately two-four hours. Security was defined in terms of physical security and/or the mother's sense of security. Control consisted of five categories: (a) staying calm; (b) being aware of what is happening; (c) being able to cooperate with the midwife; (d) being able to contribute to the progress of labor; and (e) being able to control pain. Staying calm was related to fear or panic feelings during the childbirth process. Being aware of what is happening initiated the woman to participate in decision making as much as possible. Being able to cooperate referred to the woman's ability to listen to the midwife and do what is the best in the situation. Being able to contribute to the progress of labor involved having the woman move actively around or in various positions to facilitate birth.

The second strongest predictor of a positive childbirth experience is the reduction of stress associated with support from the nursing staff. This finding was supported be many previous research studies (Bryanton et al., 2008; Crowe, & Baeyer, 1989; Hodnett, 2002; Lundgren, 2005; Soet et al., 2003). Support received from the nursing staff in this study focus only on the information regarding the progression of labor, physical comfort, and ability to participate in choices that were made during the childbirth event. However, Melender (2006) presented a border scope of women's perception of the nursing staff' roles in a good childbirth experience: (a) the nursing staff's personal characteristics; (b) the nursing staff attitudes towards the laboring women; and (c) the way of action of the nursing staff. The nursing staff's personal characteristics referred to the women's wishes that the nursing staff should be skilled, trustworthy, kind, empathetic, and protective. The nursing staff attitudes consisted of three categories. The first categories referred to welcoming the mothers in which reflected the women's wishes that the nursing staff would make the laboring woman feel that she is welcome and that she is not bothering the nursing staff. The second category was defined as acceptance of the laboring woman as she is. This meant that the nursing staff would not make the laboring woman feel guilty about her requests or actions and that

she could be herself, a parturient in her own way, and as helpless as she feels. The third category was client-oriented approach, which meant that the nursing staff listen to the laboring woman, take seriously what she says, take her individual needs into consideration, and pays attention to her companion and/or a support person. Finally, way of action of the nursing staff consisted of four categories: (a) optimal nursing staff presence; (b) informing of the situation meant that the nursing staff explain what is happening and answer the laboring woman's questions; (c) competence in caring meant that the nursing staff would do the right things by using their previous experience without mistakes; and (d) support referred to encouragement and positive feedback given to the laboring woman.

The least strong predictor is attendance at prenatal classes. This finding was consistent with previous research studies (Hodnett, 2002; Waldenstrom et al., 2004). The reason that attendance at prenatal classes was one of the salient predictors of a positive childbirth experience is unclear since this study found a non-significant relationship between a positive perception of the childbirth experience and attendance at prenatal classes. The possible explanation for this finding might related to a group prenatal education, a free prenatal education class (only one class) offered to an expectant mother as a part of the regular prenatal visit at VCUHS. Even though the majority of the participants (77%) in this study did not attend prenatal education classes, a one-free prenatal education class offered to the mother at the VCUHS to prepare the mother and her partner through out the labor process probably would be better than none.

The moderate R^2 suggested that a positive perception of childbirth experience was a complex phenomenon that was only partly explained in this study. Ethnicity and interventions during labor did not enter into the regression analysis due to the vey low numbers of participants in the various subgroups of both variables that made these variables statistically unfeasible. While their importance to positive perception about childbirth experience were substantiated in previous

research studies, the lack of predictive significance of initial contact with the baby following birth, level of educational attainment, age, choices of a support person, presence of a support person during birth, and number of labor and delivery experiences may be related to the homogeneity of the sample and measurement issues.

Limitations

Several limitations of this study should be addressed. First, a cross-sectional survey design was used to examine relationships among variables influencing positive perception of childbirth experience at one point in time. Second, the sample was predominantly African Americans, between 20-29 years of age, who had completed a high school education. The convenience sample of 122 participants used in the descriptive and correlational analyses may not be representative of the national population; however the sample was representative of postpartum mothers who were English speaking, had vaginal deliveries, and did not have their babies admitted to the NICU, at the postpartum unit of VCUHS. Third, the small sample size ($N = 122$) for the multiple regression analyses may not have been large enough to have adequate power to detect important differences between and among groups. In addition, the small sample size of $N = 122$ for factor analysis may not have been sufficient to yield reliable results compared to a larger sample size. Fourth, some of the questions (attendance at prenatal classes and how many classes attended) may not have been relevant or stated clearly in the questionnaire. VCUHS offered a free group-prenatal education as a part of a prenatal visit and participants may not have known how to answer this question. The fifth limitation involved the use of a self-report questionnaire for the model variables. Subjective data derived from these self-report questionnaires were not validated with objective data from the participant's charts and records. The final limitation of this study is related to the problem of respondent burden particularly concerning underreporting or failing to report accurately. This may have resulted from the participants' low to moderate level of educational attainment, technical

terms in some questionnaire items, lack of interest, or insufficient time to complete the questionnaire.

Implications for Research

Contemporary maternity care providers strive to create a safe, positive, and satisfying childbirth experience for women and families, thus there is still a need to study factors influencing their childbirth experiences. The findings of this study revealed that the level of education and the stress associated with labor pain and the reduction of stress associated with support received from the nursing staff were significantly related to a positive perception of the childbirth experience. Age, ethnicity, number of pregnancies, number of labor and delivery experiences, attendance at prenatal classes, duration of labor, interventions during labor, and support from a partner (choices of a support person and presence of a support person) were not related to a positive perception of the childbirth experience.

Nevertheless, there were other findings of relationship. Stress associated with labor pain was related to the amount of support from the nursing staff, presence of a support person, age, and education. As expected, the number of labor and delivery experiences was associated with age. Stress associated with labor pain had a negative relationship with a positive childbirth experience. Likewise, the reduction of stress as a result of support received from the nursing staff contributed to a positive childbirth experience. Predictors of a positive perception of childbirth experience included stress associated with labor pain, the amount of support received from the nursing staff, and attendance at prenatal classes.

The findings also have several research implications: (1) replicating this study using a larger sample size and more diverse group based on race and ethnicity that are representative of a national sample; (2) using a more rigorous sampling method such as quota or random sampling, (3) incorporating qualitative data gathering techniques and methodologies to explore in-depth the

factors influencing women's childbirth experience; and (4) further research testing the psychometric properties of the SLPS (version 2) and QMAALD.

Implications for Practice

Although the findings of this preliminary study need confirmation, there are implications for nursing practice suggested by this study. Nurses are in a position to help enhance a positive and satisfying childbirth experience by providing physical, emotional, and psychological support. In this study, the relationship between a positive childbirth experience and the reduction of stress associated with support received from the nursing staff may have resulted from the non-diverse race and ethnicity of the sample: African-American participants need personalized care and the emphasis of a human connection via listening, being there, providing comfort, and giving valuable advice. Several previous studies revealed contradictory results and indicated that support received form the nursing staff is one of the key important factors contributing to a positive childbirth experience. As a result, nurses can educate partners about the significance of their role as support persons and how they can be most supportive during and after childbirth. Nurses can allow women to make choices using their existing skills to cope with pain, facilitate women's achievement of control, and keep them updated about the progression of labor.

Summary

In summary, this descriptive corrrelational study was conducted to examine the relationships among stress associated with labor pain, support from the nursing staff, support from partners (choosing a support person and presence of a support person during birth), individual characteristics (age, education, and ethnicity), past obstetric history (attendance at prenatal classes, number of pregnancies, number of labor and delivery experiences, duration of labor, and interventions during labor), and initial contact with the baby following birth.

A convenience sample of 122 new mothers participated in this study and was used for descriptive, correlational analysis, and multiple regression analysis. Participants reported that they had positive perceptions about labor and delivery experience, which was negatively related to stress associated with labor pain. The reduction of stress due to support received from the nursing staff was found to be positively related to a positive childbirth expereince. In addition, participants also reported a low degree of stress associated with labor pain and a moderate amount of support received from the nursing staff. They reported holding and touching their baby immediately after birth.

Factors related to a positive perception of the childbirth experience included level of education. However, maternal age, initial contact with the baby following birth, number of labor and delivery experiences, duration of labor, interventions during labor, attendance at prenatal classes, and support from a partner (choice of a support person and presence of a support person during birth) did not relate to a positive perception of the childbirth experience. The significant predictors for a positive perception of the childbirth experience included the stress associated with labor pain, the reduction of stress associated with support received from the nursing staff, and attendance at prenatal classes, explaining 33% of the variance. It is clear that further research is needed to better understand the factors influencing women's positive perceptions of the childbirth experience.

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APPENDICES

Appendix A: Questionnaire Measuring Attitude About Labor And Delivery Experience

Please <u>circle</u> the number in the column that best describe your feelings referred to in each question

		Not at all	Somewhat	Moderately	Very	Extremely
	Example: How relax were you during labor?	1	2	◯	4	5
	(This answer would indicate that you were very relaxed though not extremely relaxed)					
1	How successful were you in using the breathing or relaxation methods to help with contractions?	1	2	3	4	5
2	How confident were you during labor?	1	2	3	4	5
3	How confident were you during delivery?	1	2	3	4	5
4	How relaxed were you during labor?	1	2	3	4	5
5	How relaxed were you during delivery?	1	2	3	4	5
6	How pleasant or satisfying were the feelings you experienced during delivery?	1	2	3	4	5
7	Did you feel in control during labor?	1	2	3	4	5
8	Did you feel in control during delivery?	1	2	3	4	5
9	To what extent did your experience of having a baby go along with the expectation you had before labor began?	1	2	3	4	5
10	To what extent do you consider yourself to have been a useful and co-operative member of the obstetric team?	1	2	3	4	5
11	How useful was your partner in helping you through your labor?	1	2	3	4	5
12	How useful was your partner in helping you through your delivery?	1	2	3	4	5
13	To what degree were you aware of events during labor?	1	2	3	4	5
14	To what degree were you aware of events during delivery?	1	2	3	4	5
15	How unpleasant were the feelings you experienced during delivery?	1	2	3	4	5
16	Do you remember your labor as painful?	1	2	3	4	5
17	Do you remember your delivery as painful?	1	2	3	4	5
18	How scared were you during delivery?	1	2	3	4	5
19	Did you worry about your baby's condition during labor?	1	2	3	4	5
20	Did you worry about your baby's condition during delivery?	1	2	3	4	5
21	Did the equipment used during labor bother you?	1	2	3	4	5
22	Was the delivery experience realistic as opposed to dream-like?	1	2	3	4	5
23	Did you have choices about interventions, i.e., examinations or treatments during labor?	1	2	3	4	5
24	Were you able to share and talk about your labor experience with your partner (or other person) ?	1	2	3	4	5
25	Did you feel better after reviewing the labor and delivery experience?	1	2	3	4	5
26	Were you pleased with how your delivery turned out?	1	2	3	4	5
27	Were you able to enjoy holding your baby for the first time?	1	2	3	4	5

28   How soon after delivery did you touch your baby?

5	4	3	2	1
Immediately	Within 1 hour	Within 2 hours	Within 4 hours	Within 8 hours or longer

29   How soon after delivery did you hold your baby?

5	4	3	2	1
Immediately	Within 1 hour	Within 2 hours	Within 4 hours	Within 8 hours or longer

Appendix B: Questionnaire Measuring Stress Associated with Labor Pain

Please <u>circle</u> the number in the column that best describe your feelings to each question	Strongly Agree	Agree	Somewhat	Disagree	Strongly Disagree
Example: I could not relax when I was in pain	1	2	◯	4	5
(This answer would indicate that you could relaxed though not completely relaxed)					
1 My view of labor pain was realistic	1	2	3	4	5
2 I was well prepared for how labor pain would feel	1	2	3	4	5
3 My actions for reducing the labor pain were effective	1	2	3	4	5
4 The pain of childbirth was unexpected	1	2	3	4	5
5 I felt panic during labor pain	1	2	3	4	5
6 I felt fearful when I was in pain	1	2	3	4	5
7 The pain during my labor was out of control	1	2	3	4	5
8 I felt alone in managing the pain of labor	1	2	3	4	5
9 I could not relax when I was in pain	1	2	3	4	5
10 During labor, I felt helpless when I was in pain	1	2	3	4	5
11 During labor, I became angry when I could not tolerate the pain	1	2	3	4	5
12 During labor, I felt threatened when I was in pain	1	2	3	4	5
13 During labor, I could not concentrate on pain relief strategies	1	2	3	4	5
14 During labor, I was preoccupied with labor pain	1	2	3	4	5
15 During labor, I could not decide what to do to make myself feel better	1	2	3	4	5
16 I had a sense of despair when I could not manage the pain effectively	1	2	3	4	5
17 My thinking was disorganized when I could not tolerate the pain	1	2	3	4	5
18 I lost my sense of personal dignity when I could not manage the pain	1	2	3	4	5
19 The nursing staff kept me updated about my labor progress	1	2	3	4	5
20 The nursing staff helped me feel good about my childbirth experience	1	2	3	4	5
21 I was satisfied with the choices that were made during my childbirth experience	1	2	3	4	5

Appendix C: Personal Information

1   How many pregnancies have you had?   _____

2   How many labors have you had?   _____

3   Who did you see most often for your healthcare during this pregnancy?

    ☐ A physician   ☐ A nurse practitioner or a nurse-midwife

4   Did you attend prenatal classes?

    ☐ Yes   ☐ No

5   How many prenatal classes did you attend?   _____ Classes

6   Did you choose to have someone to be with you during your childbirth experience?

    ☐ Yes   ☐ No

7   Was that person able to be with you?

    ☐ Yes   ☐ No

8   Who was with you during your childbirth experience? *(Mark all that apply)*

    ☐ The father of the baby   ☐ A male relative

    ☐ Your mother   ☐ A friend

    ☐ A female relative   ☐ A doula

9   How long was your labor?

    ☐ Less than 4 hours   ☐ 12-14 hours

    ☐ 5-8 hours   ☐ 15-17 hours

    ☐ 9-11 hours   ☐ More than 18 hours

10   Did you have any pain treatment and/or intervention with your labor? *(Mark all that apply)*

    ☐ Pain drugs   ☐ Episiotomy

    ☐ Epidural anesthesia   ☐ Forceps Assisted

    ☐ Artificial Rupture of Membranes   ☐ Vacuum Assisted

    ☐ Oxytocin Augmentation

11   How old are you?   _____ Years

12   What is your educational level? *(Mark the highest level that you completed)*

    ☐ Elementary school   ☐ 2 Years college

    ☐ Middle school   ☐ 4 Years college

    ☐ High school   ☐ Graduate school

13   What is your race and/or ethnic background? *(Mark all that apply)*

    ☐ Caucasian   ☐ Asian

    ☐ African American/Black   ☐ American Indian/Alaska native

    ☐ Hispanic/Latino   ☐ Native Hawaiian/Other Pacific Islanders

Appendix D: IRB Approval Sheet

Congratulations on the birth of your new baby!

Giving birth is an important event for a woman. The new mother is physically affected by the birth, and she has many emotions. Understanding how women feel during childbirth is vital to the care of women.

My name is Sasamon Sristhisak. I am a doctoral student at the School of Nursing, Virginia Commonwealth University. My advisor is Dr. Jacqueline McGrath, an associate professor at the School of Nursing. I am interested in what contributes to a good birth experience. To better understand this, I am asking new mothers about the recent birth of their baby. Their information will help healthcare providers understand the needs of laboring women and provide improved care in the future.

This survey asks you to comment on the recent birth of your baby. Your participation is completely voluntary. Also, your survey will be completely anonymous, and your responses will only be used in combination with answers from other respondents' surveys. Your participation will greatly help us better understand how mothers feel about birth so that we can provide improved care for others in the future.

This survey package consists of 3 parts:
    (1) Survey about your labor and the birth of your baby
    (2) Survey about your labor pain
    (3) Survey about you and your past births

If you decide to participate, please complete all three parts. I will return to pick up this survey package in <u>approximately 2–3 hours</u>.

You may decide to answer these questions or you may choose not to participate. If you do participate, all information will be kept strictly confidential, and you may choose not to answer any question that makes you feel uncomfortable. Again, your decision regarding study participation is totally voluntary. Whether you participate or not, the care you receive at the MCV and/or the relationship you have with your healthcare providers will not be affected in any way. The decision to participate in a research study is your decision.

Whether you respond to the surveys or not, <u>**please place the surveys back in the envelope, seal the envelope, and return the survey package to me**</u>.

Again, I will keep your responses confidential. You are not asked to give your name, and no identifying numbers and/or code number will link you and your responses.

<div align="center">

This survey will likely take <u>**15–20 minutes**</u> to complete.
Thank you for your time.

</div>

APPROVED

10/20/08 GP / D6

Appendix E: Psychometric Properties of the Questionnaire Measuring Attitudes About Labor and

Delivery

Reliability Statistics for the QMAALD

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.817	.825	29

Summary Item Statistics for the QMAALD

	Mean	Min	Max	Range	Max / Min	Variance	N of Items
Inter-Item Correlations	.140	-.278	.862	1.140	-3.097	.030	29

Scale *Statistics for the QMAALD*

Mean	Variance	Std. Deviation	N of Items
104.32	214.221	14.636	29

Item Statistics for the QMAALD (N = 96)

	Mean	Std. Deviation
QMAALD1	3.16	1.217
QMAALD2	3.46	1.055
QMAALD3	3.53	1.133
QMAALD4	3.03	1.235
QMAALD5	3.08	1.303
QMAALD6	3.44	1.263
QMAALD7	2.97	1.277
QMAALD8	3.26	1.250
QMAALD9	3.16	1.136
QMAALD10	3.75	1.281
QMAALD11	3.81	1.424
QMAALD12	3.83	1.484
QMAALD13	4.30	.953
QMAALD14	4.16	1.079
QMAALD15	3.26	1.423
QMAALD16	2.56	1.336
QMAALD17	3.10	1.490
QMAALD18	3.41	1.455
QMAALD19	3.03	1.552
QMAALD20	3.17	1.506
QMAALD21	4.18	1.322
QMAALD22	3.20	1.477
QMAALD23	3.30	1.370
QMAALD24	3.94	1.238
QMAALD25	4.14	.958
QMAALD26	4.45	.905
QMAALD27	4.57	.960
QMAALD28	4.62	.729
QMAALD29	4.46	.905

Item-Total Statistics for the QMAALD

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
QMAALD1	101.17	195.740	.499	.582	.805
QMAALD2	100.86	197.318	.532	.704	.805
QMAALD3	100.79	193.956	.602	.721	.802
QMAALD4	101.29	195.682	.492	.729	.805
QMAALD5	101.24	194.226	.504	.690	.804
QMAALD6	100.89	196.334	.460	.455	.806
QMAALD7	101.35	195.452	.480	.574	.805
QMAALD8	101.06	192.291	.587	.698	.801
QMAALD9	101.17	199.930	.405	.483	.809
QMAALD10	100.57	190.563	.622	.620	.799
QMAALD11	100.51	198.505	.341	.843	.811
QMAALD12	100.49	201.768	.243	.815	.816
QMAALD13	100.02	205.915	.271	.630	.813
QMAALD14	100.17	201.404	.380	.601	.810
QMAALD15	101.06	209.743	.059	.461	.823
QMAALD16	101.76	202.289	.267	.571	.814
QMAALD17	101.22	199.773	.290	.626	.813
QMAALD18	100.92	197.046	.369	.553	.810
QMAALD19	101.29	202.104	.220	.742	.817
QMAALD20	101.16	203.586	.195	.678	.818
QMAALD21	100.15	211.263	.032	.457	.823
QMAALD22	101.13	204.447	.180	.422	.818
QMAALD23	101.02	200.273	.311	.464	.812
QMAALD24	100.39	202.008	.303	.656	.812
QMAALD25	100.19	204.449	.323	.584	.812
QMAALD26	99.88	206.111	.281	.336	.813
QMAALD27	99.75	210.842	.088	.450	.819
QMAALD28	99.70	207.729	.284	.755	.814
QMAALD29	99.86	208.518	.187	.787	.816

Scree Plot for the QMAALD
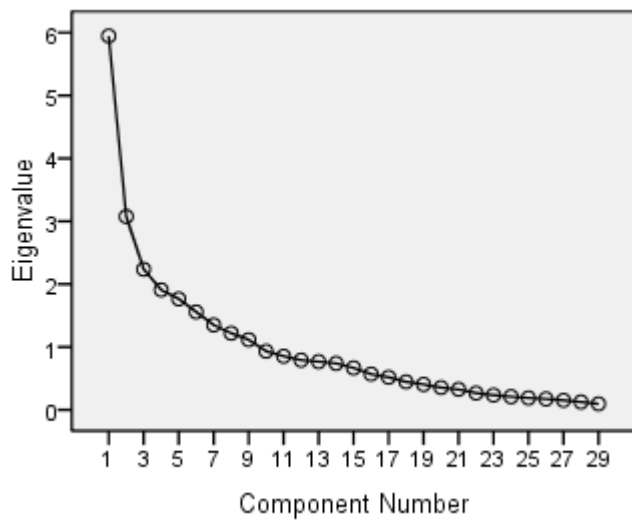
Total Variance Explained for the QMAALD

Component	Initial Eigen Values			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings[a]
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	5.946	20.504	20.504	5.946	20.504	20.504	4.255
2	3.075	10.604	31.108	3.075	10.604	31.108	3.234
3	2.236	7.709	38.817	2.236	7.709	38.817	2.385
4	1.909	6.581	45.399	1.909	6.581	45.399	2.211
5	1.766	6.090	51.488	1.766	6.090	51.488	2.379
6	1.558	5.371	56.860	1.558	5.371	56.860	2.617
7	1.350	4.657	61.516	1.350	4.657	61.516	1.738
8	1.220	4.207	65.723	1.220	4.207	65.723	3.374
9	1.116	3.849	69.573	1.116	3.849	69.573	1.283
10	.933	3.216	72.789				
11	.854	2.945	75.734				
12	.791	2.727	78.461				
13	.768	2.648	81.109				
14	.739	2.549	83.658				
15	.668	2.303	85.961				
16	.569	1.962	87.923				
17	.519	1.789	89.712				
18	.446	1.539	91.251				
19	.405	1.397	92.648				
20	.354	1.222	93.870				
21	.326	1.124	94.994				
22	.267	.921	95.915				
23	.235	.810	96.726				
24	.210	.726	97.451				
25	.190	.654	98.105				
26	.174	.599	98.704				
27	.153	.528	99.232				
28	.126	.434	99.666				
29	.097	.334	100.000				

Extraction Method: PCA.

a. When components are correlated, sums of squared loadings cannot be added to obtain a total variance.

Comparison of Eigen Value and Criterion Value for the QMAALD

Component Number	Eigen Value from PCA	Criterion Value from Parallel Analysis	Decision
1	5.946	2.033	accept
2	3.075	1.879	accept
3	2.236	1.763	accept
4	1.909	1.655	accept
5	1.766	1.563	accept
6	1.558	1.484	accept
7	1.350	1.408	reject
8	1.220	1.337	reject
9	1.116	1.266	reject

Pattern Matrix[a] for the QMAALD

	Component								
	1	2	3	4	5	6	7	8	9
QMAALD4	.792								
QMAALD2	.729								
QMAALD1	.591								-.302
QMAALD10	.526				.337	-.320			
QMAALD3	.485							.377	
QMAALD16	.463					.345			.432
QMAALD9	.459						-.369		
QMAALD7	.447								
QMAALD11		-.862							
QMAALD12		-.849							
QMAALD24		-.690			.373		.321		
QMAALD23		-.488			.365				
QMAALD29			-.956						
QMAALD28			-.899						
QMAALD19				.921					
QMAALD20				.916					
QMAALD25					.762				
QMAALD26					.650				
QMAALD27			-.427		.598				
QMAALD13						-.790			
QMAALD14						-.735			
QMAALD21							.837		
QMAALD17								.755	
QMAALD5	.339							.693	
QMAALD6								.639	
QMAALD15							.411	.521	
QMAALD8						-.322		.508	
QMAALD22						-.323			.730
QMAALD18				.365			.416		-.430

Extraction Method: Principal Component Analysis.
 Rotation Method: Oblimin with Kaiser Normalization.

a. Rotation converged in 18 iterations.

Component Matrix^a for the QMAALD

	Component								
	1	2	3	4	5	6	7	8	9
QMAALD3	.736								
QMAALD8	.717							.310	
QMAALD2	.693								
QMAALD10	.685							-.378	
QMAALD7	.630								
QMAALD5	.614	.392							
QMAALD4	.598	.308			-.317			-.311	
QMAALD1	.594								
QMAALD14	.572					-.449	.313		
QMAALD9	.563								
QMAALD6	.533							.371	
QMAALD23	.371					.310	-.369		
QMAALD11	.465	-.613				.317			
QMAALD12	.389	-.607				.327			
QMAALD17	.305	.549	.408						
QMAALD16		.527							.427
QMAALD24		-.484			.461	.352			
QMAALD15		.464	.388				.338		
QMAALD29			-.803						.331
QMAALD28			-.743						
QMAALD19				.826					
QMAALD20				.753			-.351		
QMAALD27			-.455	-.326	.497				
QMAALD25	.356				.471			-.330	
QMAALD26	.323				.429				
QMAALD18	.344	.356			.393				-.352
QMAALD13	.463	-.365				-.585			
QMAALD21							.571		
QMAALD22		-.380				-.306			.606

Extraction Method: Principal Component Analysis.

a. 9 components extracted.

Structure Matrix for the QMAALD

	Component								
	1	2	3	4	5	6	7	8	9
QMAALD4	.794							.390	
QMAALD2	.779								
QMAALD3	.650							.526	
QMAALD1	.639								-.300
QMAALD10	.602	-.344			.430	-.454			
QMAALD7	.587	-.300							
QMAALD9	.553			.305		-.356	-.384		
QMAALD11		-.885							
QMAALD12		-.851							
QMAALD24		-.685			.470				
QMAALD23		-.515			.455				
QMAALD29			-.923						
QMAALD28			-.891						
QMAALD19				.911					
QMAALD20				.890					
QMAALD25					.769				
QMAALD26					.671				
QMAALD27			-.474		.590				
QMAALD13						-.813			
QMAALD14						-.774		.335	
QMAALD21							.816		
QMAALD15		.319					.490	.490	
QMAALD18				.427			.459	.388	-.410
QMAALD17								.776	
QMAALD5	.529							.760	
QMAALD6								.656	
QMAALD8	.453		-.307			-.438		.577	
QMAALD22		-.340				-.365			.723
QMAALD16	.425					.318		.398	.446

Extraction Method: Principal Component Analysis.
Rotation Method: Oblimin with Kaiser Normalization.

Total Variance Explained for the QMAALD (6 Factors Extraction)

Component	Initial Eigen Values			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings[a]
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	5.946	20.504	20.504	5.946	20.504	20.504	5.200
2	3.075	10.604	31.108	3.075	10.604	31.108	2.922
3	2.236	7.709	38.817	2.236	7.709	38.817	2.309
4	1.909	6.581	45.399	1.909	6.581	45.399	2.254
5	1.766	6.090	51.488	1.766	6.090	51.488	2.762
6	1.558	5.371	56.860	1.558	5.371	56.860	2.625
7	1.350	4.657	61.516				
8	1.220	4.207	65.723				
9	1.116	3.849	69.573				
10	.933	3.216	72.789				
11	.854	2.945	75.734				
12	.791	2.727	78.461				
13	.768	2.648	81.109				
14	.739	2.549	83.658				
15	.668	2.303	85.961				
16	.569	1.962	87.923				
17	.519	1.789	89.712				
18	.446	1.539	91.251				
19	.405	1.397	92.648				
20	.354	1.222	93.870				
21	.326	1.124	94.994				
22	.267	.921	95.915				
23	.235	.810	96.726				
24	.210	.726	97.451				
25	.190	.654	98.105				
26	.174	.599	98.704				
27	.153	.528	99.232				
28	.126	.434	99.666				
29	.097	.334	100.000				

Extraction Method: Principal Component Analysis.

a. When components are correlated, sums of squared loadings cannot be added to obtain a total variance.

Communalities for the QMAALD (6 Factors Extraction)

	Initial	Extraction
QMAALD1	1.000	.434
QMAALD2	1.000	.572
QMAALD3	1.000	.618
QMAALD4	1.000	.590
QMAALD5	1.000	.642
QMAALD6	1.000	.386
QMAALD7	1.000	.500
QMAALD8	1.000	.545
QMAALD9	1.000	.465
QMAALD10	1.000	.531
QMAALD11	1.000	.781
QMAALD12	1.000	.736
QMAALD13	1.000	.699
QMAALD14	1.000	.577
QMAALD15	1.000	.491
QMAALD16	1.000	.425
QMAALD17	1.000	.649
QMAALD18	1.000	.569
QMAALD19	1.000	.852
QMAALD20	1.000	.676
QMAALD21	1.000	.292
QMAALD22	1.000	.377
QMAALD23	1.000	.391
QMAALD24	1.000	.726
QMAALD25	1.000	.510
QMAALD26	1.000	.395
QMAALD27	1.000	.603
QMAALD28	1.000	.715
QMAALD29	1.000	.741

Extraction Method: Principal Component
Analysis.

Appendix F: Psychometric Properties of the Stress of Labor Pain Scale(version 2)

Reliability Statistics for the SLPS (version 2)

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.898	.894	21

Summary Item Statistics for the SLPS (version 2)

	Mean	Min	Max	Range	Max / Min	Variance	N of Items
Inter-Item Correlations	.286	-.115	.754	.869	-6.531	.034	21

Scale Statistics for the SLPS (version 2)

Mean	Variance	Std. Deviation	N of Items
54.29	235.566	15.348	21

Item Statistics for the SLPS (version 2) (N =110)

	Mean	Std. Deviation
SLPS1	2.10	1.125
SLPS2	2.56	1.331
SLPS3	2.57	1.129
SLPS4	2.68	1.433
SLPS5	2.67	1.307
SLPS6	2.56	1.275
SLPS7	2.82	1.272
SLPS8	2.31	1.305
SLPS9	3.62	1.271
SLPS10	3.14	1.430
SLPS11	2.80	1.476
SLPS12	2.25	1.302
SLPS13	2.89	1.288
SLPS14	3.05	1.270
SLPS15	2.95	1.302
SLPS16	2.94	1.287
SLPS17	2.82	1.286
SLPS18	2.29	1.309
SLPS19	1.80	1.107
SLPS20	1.71	1.095
SLPS21	1.75	1.104

Item-Total Statistics for the SLPS (version 2)

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
SLPS1	52.19	230.413	.114	.352	.902
SLPS2	51.73	218.714	.383	.451	.897
SLPS3	51.72	221.709	.374	.348	.896
SLPS4	51.61	215.029	.440	.526	.895
SLPS5	51.62	207.394	.703	.675	.888
SLPS6	51.73	213.466	.550	.562	.892
SLPS7	51.47	210.050	.648	.642	.889
SLPS8	51.98	216.440	.454	.477	.895
SLPS9	50.67	211.947	.595	.592	.891
SLPS10	51.15	203.123	.746	.685	.886
SLPS11	51.49	206.197	.641	.598	.889
SLPS12	52.04	210.604	.616	.591	.890
SLPS13	51.40	211.472	.599	.575	.891
SLPS14	51.24	211.925	.596	.649	.891
SLPS15	51.34	209.143	.657	.614	.889
SLPS16	51.35	210.011	.641	.578	.890
SLPS17	51.47	211.169	.608	.589	.890
SLPS18	52.00	214.881	.494	.428	.894
SLPS19	52.49	226.711	.229	.644	.900
SLPS20	52.58	223.842	.321	.773	.898
SLPS21	52.55	225.700	.261	.641	.899

VITA

Sasamon Srisuthisak was born on February 20, 1964, in Sawankhalok, Thailand. She graduated high school from Somtawin Ratchadamrhe in Bangkok, Thailand, in 1982. She received a Bachelor of Science in Nursing and Midwifery from Mahidol University, Bangkok, Thailand, in 1986, a Certification in Clinical Teaching in Nursing from Boromrajajonnani College of Nursing Nakhonratchasima, Thailand, in 1992, and a Master of Art in Health Social Sciences from Mahidol University, Bangkok, Thailand, in 1999. She was employed as a full-time registered nurse at Siriraj Hospital, Mahidol University between 1986 and 1991. In 1992, she transferred to Boromrajajonnani College of Nursing Uttaradit, the Ministry of Public Health and has served as a full-time academic nursing faculty at the Department of Maternal and Child Nursing since then. She received a full scholarship from the Ministry of Public Health, Thailand to study for the family nurse practitioner program and the doctoral degree at the School of Nursing, Virginia Commonwealth University, USA between 2001 and 2009.