THE NURSES' ATTITUDES AND BELIEFS QUESTIONNAIRE: A PSYCHOMETRIC ANALYSIS

by

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ABSTRACT

The diverging attitudes among maternity care providers (MCP) are increasingly evident. Caring for women in labour requires collaboration among MCPs. An individual MCP brings a distinct field of expertise and philosophy to his or her practice, which creates the potential for environments with parallel and conflicting attitudes towards birth among MCPs. There is a lack of literature that investigates MCPs' attitudes. Therefore, a legitimate rationale exists to explore MCPs' attitudes towards birth. This thesis provides a description of the psychometric testing of a new questionnaire, the Nurses' Attitudes and Beliefs Questionnaire (NABQ).

A cross-sectional design was used to quantitatively investigate the NABQ by (a) assessing internal consistency and inter-item reliability and (b) conducting hypothesis testing and exploratory factor analysis. A convenience sample of nurses from a tertiary care hospital returned 72 NABQs. The internal consistency and inter-item reliability were poor. Of 13 hypotheses, only four were supported. The factor analysis resulted in seven factors with low Cronbach's alphas. A subset of the sample (six nurses) participated in a focus group to comment on the structure and wording of the NABQ. An inductive content analysis of the data resulted in seven relevant themes and concepts. These themes were: (a) Institutional Constraints and Practice Setting Impede Attitudes; (b) Research Serves as a Weak Reflection of Attitudes; (c) Relevance of the Questions; (d) The NABQ Lacks Context to Identify Attitudes; (e) The NABQ Requires Improvements; (f) Positive and Negative Impression of the NABQ and (g) The NABQ Demonstrates a Biased Attitude Towards Normal Birth.

The thesis concludes with a discussion of the quantitative and focus group findings as well as the implications for nursing practice, education and research.
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CHAPTER ONE: INTRODUCTION

Background

Labour and birth are universal human experiences. However, perceptions of labour and birth differ from society to society. Western societies tend to view and manage labour and birth technically, with a focus on pain and potential dangers (Canadian Institute for Health Information [CIHI], 2004a, b). By contrast, many other societies view labour and birth as a natural process (Starn, 1991). Differing societal approaches to labour and birth influence and shape maternity care providers’ (MCP) attitudes towards labour and birth.

Differences in attitudes about labour and birth occur not only between societies but also within and between health care cultures. These differences among family practitioners, obstetricians, midwives, nurses, medical students, doulas and labouring women are evident (Klein, 2004; Reime et al., 2004). Caring for women in labour requires collaboration among MCPs. Each MCP brings a distinct field of expertise and distinct philosophies. Areas of agreement, disagreement and ambiguity in terms of MCPs’ attitudes not only affect interdisciplinary coordination but also have the potential to affect women’s birth outcomes.

In Canada, vaginal deliveries are attended by family physicians (60%), obstetricians (40%) and midwives (5%) (CIHI, 2006). With the exception of home births, all Canadian deliveries, vaginal or otherwise, are assisted by nurses. The MCPs attending deliveries all possess unique attitudes towards labour and birth. Exploring similarities and differences in attitudes of MCPs can provide information that could reduce misunderstandings among them and improve co-operation and the quality of care for labouring women (Reime et al., 2004). Labour and birth outcomes, such as cesarean
sections, epidurals, inductions, episiotomies and forceps are all of great interest to MCPs and the general population. By investigating MCPs' attitudes towards labour and birth, a greater understanding of these labour outcomes can also be achieved.

Cesarean sections are a labour outcome that receives a great deal of attention from the general population, the media and MCPs. The World Health Organization (WHO) has recommended that cesarean sections occur in no more that 5% to 15% of all births (CIHI, 2004c). Currently, Canada does not meet the WHO recommendation. Cesarean sections account for more than one in five births in Canada, and British Columbia has one of the highest provincial cesarean section rates – approximately 28% (CIHI, 2004c).

Although general interest in MCPs’ attitudes towards labour and birth is a good reason for investigating those attitudes, the costs associated with different labour outcomes provide a pragmatic motive. An uncomplicated vaginal delivery may or may not achieve the ideal maternal outcomes, but it certainly is the most economical form of birth (CIHI, 2006). An uncomplicated vaginal delivery costs a hospital an average of $2,800, while a cesarean section costs roughly $5,500 (CIHI, 2006). In addition, cesarean sections are believed to be associated with a greater risk of morbidity (Thompson, Roberts, Currie, & Ellwood, 2002). This morbidity increases hospital costs to about $7,700 (CIHI, 2006). Cesarean sections have also been demonstrated to pose an increased risk of infection, blood loss, anesthetic problems and fetal complications (Thompson et al., 2002). The health and financial costs associated with cesarean sections make decreasing the cesarean section rate in Canada a highly desirable endeavour. A first step in achieving this goal, and gaining insight into the overwhelming trend towards
medicalizing childbirth, is understanding MCPs’ attitudes (Blais et al., 1994; CIHI, 2004b).

Ajzen and Fishbein’s (1980) theory that a person’s attitude influences his or her behaviours is strongly supported by the social science community. People’s attitudes inform their intentions; most of the time, people will behave in ways consistent with their attitudes (Ajzen & Fishbein, 1980). This prevents cognitive dissonance. Ajzen and Fishbein’s (1980) theory can be applied to MCPs’ attitudes towards birth and their resulting behaviour, which behaviour has the potential to influence labour and birth outcomes. Presently, MCPs’ attitudes towards birth are not receiving appropriate attention. Exploring the subject of MCPs’ attitudes towards birth, their behaviour and resulting birth outcomes would be a large and time consuming project. The overwhelming nature of such a project can be addressed by first investigating MCPs’ attitudes towards labour and birth. Analyzing the specific attitudes among and within groups of MCPs establishes an understanding of the variations in expertise and philosophy that exist for these groups.

In 1999, an investigation exploring MCPs’ attitudes towards birth began (Reime et al., 2004). This research, which will be described in great detail in the next chapter, started with the development of a questionnaire. “The most direct approach to the measurement of attitudes is to ask people, in one manner or another, what their attitudes are” (Nunnally, 1978, p. 591). Questionnaires are the most valid method of measuring attitudes (Nunnally, 1978). A questionnaire provides a cost-effective and relatively quick method of comprehensively examining MCPs’ attitudes towards birth. For these reasons,
the investigators decided that MCPs' attitudes towards birth were to be measured using profession-specific questionnaires.

The researchers first investigated the attitudes of family physicians, obstetricians and midwives (Reime, 2004). They then recognized that a prominent group of MCPs, that being nurses, was missing from the investigation. "Nurses are the single largest professional group within the health care system today" (Miltner, 2002, p. 753). Of the MCPs, intrapartum nurses spend the most time with labouring women (Simkin, 2000). Extensive investigation of intrapartum nursing care has revealed that such care greatly influences women's labour experiences and birth outcomes (Davies & Hodnett, 2002; Hodnett, 1996; Hodnett et al., 2002; Miltner, 2002; Radin, Harmon, & Hanson, 1993). Supportive nursing care of labouring woman was associated with a decrease in adverse perinatal outcomes, including medical complications, psychosocial problems, lengthy labour and instrument-assisted or surgical deliveries (Hodnett, Gates, Hofmeyr, & Sakala, 2003).

Measuring nurses' attitudes may be difficult but the potential information to be acquired will provide valuable insight reflecting nurses' individual and group attitudes towards the intricacies of labour and birth. With a view to including nurses in the investigation, the original family physician questionnaire was modified by rewording and refocusing the questions to centre on nursing. The resulting Nurses' Attitudes and Beliefs Questionnaire (NABQ) attempts to examine nurses' attitudes towards the management of labour and birth and to translate those attitudes into ordinal data that can be analyzed and compared (see Appendix A). This thesis aims to provide an initial assessment of the reliability and validity of the NABQ through psychometric testing. The
results obtained from the NABQ are meaningless until such an assessment has taken place (Nunnally, 1978). The construction and assessment of a questionnaire is critical to the general success of any study using that questionnaire, the implementation of the questionnaire and the interpretation of the study’s results (DeVellis, 2003).

The subsequent sections will illustrate the fundamental aspects of the proposed psychometric analysis and conclude by acknowledging the significance of such an analysis.

**Problem Statement**

Nurses are important MCPs that affect women’s labour and birth outcomes. As suggested by Ajzen and Fishbein (1980), their attitudes affect their behaviours during care provision. A questionnaire that assesses nurses’ attitudes and beliefs (the NABQ) requires refinement and psychometric testing to develop reliability and validity for the nursing population. The NABQ has not undergone previous reliability and validity testing.

**Purpose**

The purpose of this thesis is to evaluate the reliability and validity of the NABQ through psychometric testing. This will provide useful information for future adaptations of the NABQ and other MCP questionnaires.

**Research Questions**

The research questions are:

1. What is the internal consistency of the Nurses’ Attitudes and Beliefs Questionnaire?
2. What is the inter-item reliability of the Nurses' Attitudes and Beliefs Questionnaire?

3. What is the construct validity of the Nurses' Attitudes and Beliefs Questionnaire?

4. What is the content validity of the Nurses' Attitudes and Beliefs Questionnaire?

Definition of Terms

1. Attitudes: Attitudes are “individual mental processes that determine a person’s actual and potential responses” (Ajzen & Fishbein, 1980, p. 13).

2. Beliefs: Beliefs are the acceptance of objects, actions and events as truth without immediate personal knowledge by way of observation, blind acceptance or self-generated acceptance through a process of inference (Ajzen & Fishbein, 1980).

3. Internal consistency: Internal consistency assesses the reliability and homogeneity of an instrument. It is the extent to which the instrument’s “subparts are measuring the same characteristic” (Polit & Hungler, 1999, p. 414).

4. Inter-item reliability: Inter-item reliability is the degree to which the responses to the items that comprise a scale are correlated. This “consists of obtaining an estimate of how well each item ‘hangs together’ with the other test items” (Fishman & Galguera, 2003, p. 60).

5. Construct validity: Construct validity is “the degree to which an instrument measures the construct under investigation” (Polit & Hungler, 1991, p. 698).

6. Content validity: Content validity “reflects how representative the items in a tool are of the behavioural domain” (LoBiondo-Wood & Haber, 1986, p. 186).
Significance

The psychometric assessment of a quantitative instrument is essential to support research findings because “researchers can place little confidence in their findings if their data collection instruments and procedures yield data that are of poor quality” (Polit & Hungler, 1999, p. 431). A psychometric analysis of the NABQ will determine its ability to contribute to practical knowledge and substantiate researchers’ confidence in using it (Polit & Hungler, 1999). If the reliability and validity of the NABQ is supported, the nurses’ responses to the questionnaire can be assessed independently to gain insight into nurses’ attitudes towards the management of labour and birth. Also, the nurses’ responses can be compared to the responses given by other MCP groups to similar questions. This will enrich MCPs’ understanding of the practices of both their colleagues and themselves, and add to the current literature that describes MCPs’ attitudes.

The preliminary testing proposed in this study is a fundamental step in evaluating the validity and reliability of the NABQ. This analysis has a significant impact on the evolution of the NABQ and future studies looking at nurses’ attitudes towards birth. The rationale for this study is the necessity for instrument development, future research and professional enrichment.

Chapter Summary

Labour and delivery settings are experiencing shifts in maternity care provision and outcomes. This is partly the result of changing attitudes and expectations of birth on the part of both MCPs’ and labouring women. MCPs’ attitudes towards birth have attracted some attention in efforts to understand the culture and behaviour of MCPs. Information about nurses’ attitudes towards labour and birth or questionnaires used to
measure nurses’ attitudes towards labour and birth have not been located. One
questionnaire has been developed to address nurses’ attitudes, but it has not been
sufficiently tested to support its reliability and validity.

The next chapter will provide a thorough discussion and critical appraisal of the
existing literature related to nurses’ attitudes towards birth. It will include an explanation
of the research process undertaken by the investigators studying MCPs’ attitudes.
Chapter three includes a detailed account of the methods employed to evaluate the
psychometrics of the NABQ. Quantitative and qualitative methods were used to explore
the reliability and validity of the NABQ. These methods will provide some guidance for
future psychometric testing of the NABQ and the other MCP questionnaires.

Chapter four reveals the findings from the psychometric testing. Chapter five
presents a detailed discussion of the research process, findings and implications for
nursing and future research. The consent letter and NABQ are included as appendices.
CHAPTER TWO: REVIEW OF THE LITERATURE

Introduction

Nursing is a relation-based profession with practices comprising technical skills and non-technical attitudes directed at providing care to promote the well-being of fellow humans (Gastmans, 1999). "Even though many cognitive and technical skills are required for the adequate functioning of nursing practice, nursing can in no way be reduced to such skills" (Gastmans, 1999, p. 215). Nursing involves a caring relationship between a nurse and patient who become engaged in a partnership of dialogue and listening (Shattell, 2004). The unique relationship dynamics between a nurse and patient influence the care the patient receives and his or her perception of the care provided (Shattell, 2004). Nurses' attitudes play a significant role in shaping the dynamics that evolve within the nurse-patient relationship. Consequently, these attitudes affect patient care and outcomes.

Nurses' attitudes towards a particular situation or issue can negatively or positively influence patient relationships, care and outcomes (Cassata & Dallas, 2005; Cross, 2005; Katsuki, Goto, & Someya, 2005; Sauls, 2004). Labour and delivery nurses' attitudes are of considerable importance because labour patients are extremely diverse and labour outcomes can vary depending on the variables involved (Corbett & Callister, 2000; Hodnett, Gates, Hofmeyr, & Sakala, 2003; Radin, Harmon, & Hanson, 1993). A failure to achieve a positive nurse-patient relationship due to a nurse's attitudes can lead to unsatisfactory care and poor outcomes (Cassata & Dallas, 2005; Cross, 2005). Since labour and delivery nurses' attitudes have significant consequences, it is important to assess their attitudes. A convenient method of evaluating attitudes is with a questionnaire but questionnaires must be reliable and valid. In order to understand the phenomenon of
nurses' attitudes towards maternity care and the complexity of generating attitudinal questionnaires, the review of the literature will examine the following: the definition of attitudes, the measurement of attitudes, the measurement of nurses' attitudes, psychometric analysis of attitudinal questionnaires, the Maternity Care Providers' Attitudes and Beliefs (MCPAB) study and the Nurses' Attitudes and Beliefs Questionnaire (NABQ). The terms used to retrieve literature for review from databases (Cumulated Index to Nursing and Allied Health Literature, EBSCO and MEDLINE) included “attitudes”, “psychometrics”, “instrumentation”, “questionnaire”, “survey”, “nursing” and “research.”

Attitudes

Definition of Attitudes

Attitudes reflect a learned tendency to react in a favourable or unfavourable way towards a stimulus object (Fishbein & Ajzen, 1975). Individual attitudes are the most distinctive and essential influence on behaviour (Aiken, 2002). There are three essential aspects of attitudes that influence an individual’s social views and perceptions of people and situations: cognition (thoughts, opinions, beliefs and facts), affect (feelings and emotions) and behaviour (explicit actions; Baker, Richards & Campbell, 2005; Fishbein & Ajzen, 1975). Attitudes are developed subjectively in response to a person’s beliefs and thoughts about an object, reflect a person’s feelings towards an object and are formed by a person’s experience with an object (Aiken, 2002). Since attitudes are shaped through experiences and knowledge, they can persist over time, be forgotten or change (Fishbein & Ajzen, 1975). Some attitudes remain fairly stable over time and others will exhibit recurrent shifts (Fishbein & Ajzen, 1975).
Fishbein and Ajzen (1975) explain that “a person’s attitude toward an object may be viewed as determined by his [or her] salient set of beliefs about the object” (p. 218). Fishbein and Ajzen (1975) specify that a person may have a large number of beliefs about an object but only a few of these beliefs determine his or her current attitudes towards a stimulus object. Researchers have found that a person’s attitude towards an object is established by no more than five to nine beliefs about the object; “these are the beliefs that are salient at a give point in time” (Fishbein & Ajzen, 1975, p. 218). Salient beliefs serve as a person’s immediate response but can and often do change over time. An attitude questionnaire is created from belief statements about the characteristics, qualities and attributes of an object or the consequences of performing a behaviour. A person’s responses to an attitude questionnaire are elicited by his or her salient beliefs (Fishbein & Ajzen, 1975). As attitudes spontaneously develop in response to repeated exposure to an object, they become evaluative beliefs from which judgments are made (Ajzen & Fishbein, 1980). Unlike salient beliefs which act as an immediate reference to assess an attitude, evaluative beliefs develop after a period of time and experience. An evaluative belief ascertains an object’s favourableness or unfavourableness, which influences a person’s attitude towards an object (Ajzen & Fishbein, 1980).

Measurement of Attitudes

Even though attitudes are difficult to measure, it is important to attempt attitude assessments to attain a greater understanding of people’s convictions (Cross, 2005). There are two problems with attitude measurements. First, attitudes cannot be observed or measured directly. “Their existence must be inferred from their consequences” (Mueller, 1986, p. 2). This can be further complicated by the wording or presentation of
an instrument meant to measure attitudes, and by a respondent’s ability to answer questions honestly, without making assumptions or conforming to what they think others believe (Krebs & Schmidt, 1993). Second, and as previously stated, attitudes are not constant (Fishbein & Ajzen, 1975). They are continually affected by a person’s experiences, thoughts and feelings. Also, attitudes are dependent on the various circumstances in which they are expressed. Therefore, the more precisely an attitudinal object is detailed, the more successful the measurement outcome will be (Mueller, 1986).

“In order for the attitude scales scores to be meaningful, it is essential for the researcher who uses the scale scores to have precisely the same object in mind as do the respondents to the scale” (Mueller, 1986, p. 8).

Fishbein and Ajzen (1975) have indicated that a Likert scale is an excellent measurement approach to eliciting salient beliefs and to determining a person’s attitudes. Mueller (1986) emphasizes that “each Likert item should be clearly positive or negative with regard to the attitudinal object” (p. 10). In addition to avoiding neutral items, an accurate attitude measure should exclude (a) items about which there would be a consensus among respondents (same/obvious answer); (b) factual items; and (c) strongly worded items using the terms “never” or “always”, because these types of items do not spread out or discriminate respondents’ scores (Mueller, 1986). The measurement of attitudes of care providers who influence patient outcomes is important and using a Likert scale is a good method of investigating attitudes.

The Effects of Nurses’ Attitudes

Nurses’ attitudes are based on personal, educational and professional experiences and their political and cultural views (Cassata & Dallas, 2005; Fishbein & Ajzen, 1975).
“Recent studies have found that provider attitudes may be as critical in explaining health disparities as the patient’s demographics and characteristics” (Cassata & Dallas, 2005, p. 71). With the exception of doulas, labour and delivery nurses have more contact with patients than any other class of maternity care provider (Cassata & Dallas, 2005; Davies & Hodnett, 2002; Miltner, 2002).

In most maternity care hospitals, physicians are not present on the unit unless they are called about a patient or to attend a birth (James, Simpson, & Knox, 2003). “The labor nurse determines many important aspects of how care will proceed based on an established set of routine orders or unit protocols” (James et al., 2003, p. 815). Nurses encourage ambulation, hydrotherapy and using the birthing ball; recommend method and timing of pain medication; support second stage and contact the physician at the appropriate time (Simpson, 2000). In the event of a physician order for induction or augmentation, it is a nurse that administers the oxytocin infusion based on the progress of labour and maternal-fetal response (Simpson, 2000). “The nurse assumes a potentially pivotal role in the outcome” (James et al., 2003, p. 815). The nurse’s role in labour support has received significant attention from researchers in the past few decades. The findings from these investigations have contributed significantly to a general understanding of nurses’ perceptions of supportive care during childbirth and maternal and fetal outcomes (Sauls, 2002).

Researchers have found that labour support has considerable effects on maternal and newborn outcomes, such as: (a) a decrease in the length of labours, maternal fevers, epidural analgesia, episiotomies, cesarean sections, operative vaginal deliveries and stirrup use; (b) an improvement in mothers’ perceptions of their childbirth experience and
an increase in the likelihood of exclusive breastfeeding four to six weeks after delivery (Gagnon, Waghorn, & Covell, 1997; Hodnett et al., 2003; Kennell, Klaus, McGrath, Robertson, & Hinkley, 1991; Radin et al., 1993). Therefore, it is important to recognize that labour and delivery nurses play an active role in labour management and support and that their attitudes towards various aspects of maternity care can significantly affect patient outcomes.

There is, however, a significant gap in scientific literature regarding nurses' attitudes towards general maternity care. Studies have examined nurses' attitudes towards intermittent fetal monitoring (Walker, Shunkwiler, Supanich, Williamsen, & Yensch, 2001), support of breastfeeding mothers (Bernaix, 2000), perinatal bereavement support (Chan, Chan, & Day, 2004), research and research development within nursing (Björkström & Hamrin, 2001), pregnancy termination (Marek, 2004), extension and expansion of nurses' clinical role (Magennis, Slevin, & Cunningham, 1999), nursing (Coverston, Harmon, Keller & Malner, 2004), childbearing adolescents (Cassata & Dallas, 2005) and health promotion (Cross, 2005), but none have examined nurses' attitudes towards general maternity care.

**Measurements of Nurses' Attitudes**

In reviewing the literature, many studies were found that developed and used Likert scale questionnaires to measure nurses' attitudes.

A trend in the accumulated literature was that nurses with higher levels of education had more positive attitudes towards the issue being investigated (Bernaix, 2000; Chan et al., 2004; Courtney, Tong, & Walsh, 2000; Walker et al., 2001). Courtney et al. (2000) conducted a literature review of acute-care nurses' attitudes towards older
patients and found that “nurses with a higher level of professional education had more positive attitudes towards older people” (p. 65). Walker et al.’s (2001) “data show that the higher the education level, the more likely a nurse was to support the use of intermittent fetal monitoring” (p. 379). Bernaix (2000) examined nurses’ attitudes towards breastfeeding mothers and found a “direct relationship between knowledge [education] and attitudes and actual behaviour” (p. 208). The following section examines a selection of rigorous studies focusing on nurses’ attitudes and their measurement.

Walker et al. (2001) identified a lack of literature related to labour and delivery nurses’ attitudes toward intermittent fetal monitoring (IFM). The preferred method of fetal surveillance for low-risk women is IFM; there is insufficient evidence to justify the use of continuous external fetal monitoring (EFM; The Society of Obstetrics and Gynecologists of Canada [SOGC], 2002). Continuous EFM is routinely used by nurses and the reasons for this are unclear (Walker et al., 2001). It has been suggested that ambiguous hospital policies, unsafe nurse-patient ratios and a lack of knowledge regarding current evidence contributes to the overuse of continuous EFM (Banta & Thacker, 2001; Walker et al., 2001).

Walker et al. (2001) developed a 17-item Likert scale questionnaire to measure nurses’ attitudes towards IFM. She had a panel of doctorally prepared nursing faculty, nurse-midwives and a women’s health nurse practitioner respond to the items. This panel recommended minor changes which were implemented in the final questionnaire. A convenience sample of 145 labour and delivery nurses completed the questionnaire (Walker et al., 2001). The study found that the nurses sampled had a positive attitude towards IFM with 72% stating that IFM should be the standard and 87% expressing a
willingness to use IFM in their practice. The investigators discovered that nurses’ levels of education were key determinants of their attitudes towards and support for IFM. Respondents with less than a Bachelor of Science degree were significantly less supportive of IFM than those with such a degree (or greater). Unfortunately, further validity and reliability testing of the questionnaire is required because content validity was the only psychometric characteristic assessed. The geographic restrictions for the sample minimized the finding’s generalizability. The researcher concluded that the findings are significant to nursing because the “awareness of factors such as education levels, which influences the care given, may provide impetus to develop intensive education programs to ensure that evidence-based care is provided” (Walker et al., 2001).

Bernaix (2000) recognized a discrepancy in perinatal nursing practice between research evidence for breastfeeding benefits and nurses’ knowledge and ability to support breastfeeding mothers. Bernaix (2000) used an 8-item, 7-point Likert scale questionnaire with satisfactory internal consistency (Cronbach’s alpha of .75) to measure 48 nurses’ attitudes towards providing breastfeeding support. The researchers acquired their convenience sample from two Midwestern teaching hospitals (2,000 births per year). The nature of the work context offered a particular form of sampling bias, because at a teaching hospital the nurses are provided with current theoretical knowledge about breastfeeding. The small homogenous sample limits the confidence placed in the study results and generalizability. A panel of experts composed of lactation consultants, nurse researchers and statisticians assessed the questionnaire for content validity. They concluded that the questionnaire demonstrated good content validity. The questionnaire was piloted to confirm the clarity of the items and ease of administration. Chi-square and
A test analysis of the demographic data did not suggest any differences between the two hospital samples.

The investigators found that nurses "through their personal life experiences, education, and relationships with significant others, formulated specific attitudes and normative beliefs regarding the importance of providing support to breastfeeding mothers, and their intents to provide that support were thereby created" (Bernaix, 2000, p. 207). The study determined that nurses' knowledge and education were the most influential factors in determining nurses' attitudes towards supporting breastfeeding mothers. However, it is understandable that other elements, such as personal experience and relationships would influence nurses' attitudes towards breastfeeding. Aiken (2002) explained that attitudes were influenced by personal experience. Nurses with more knowledge about breastfeeding and positive attitudes towards breastfeeding were effective at supporting and teaching breastfeeding mothers.

Chan et al. (2004) developed a 21-item, 5-point Likert scale to measure nurses' attitudes towards perinatal bereavement support. A panel of experts positively evaluated the content validity of the questionnaire. A convenience sample from the obstetrics department at a large hospital in Hong Kong provided 110 completed questionnaires (88% response rate). The internal consistency for the instrument was high (Cronbach's alpha of .92). A two-step cluster analysis was used to categorize nurses. Nurses with higher education (Bachelor of Science = 63.3%) and/or midwifery training (98%) had more positive attitudes towards bereavement support than those who were younger, had less experience, and achieved a lower education level (diploma = 86.9%). Three factors were found to account for 57.8% of the variance. This study was adequate for a pilot but
the sample size was too small and homogeneous to generalize the findings (Chan et al., 2004).

Several studies have shown that nurses “do not use research findings because they are not aware of their existence, do not understand them, do not believe them, do not know how to apply them and are not allowed to use them” (Björkström & Hamrin, 2001). Björkström and Hamrin (2001) examined Swedish nurses’ attitudes towards research development in nursing. The researchers developed a 34-item Likert scale questionnaire. A sample of 407 nurses responded to the questionnaire. The scale had high internal consistency (Cronbach’s alpha of .94). The factor analysis produced seven factors with a total variance of 58%; each factor had acceptable internal consistency with a Cronbach’s alpha ranging from .60 to .84 (Nunnally, 1978; Polit & Hungler, 1999). Nurses’ attitudes towards research were influenced by their education and age. Nurses with degrees and younger nurses were more interested in nursing research and reading scientific nursing journals.

Nurses are taught to be objective and nonjudgmental about abortion, but “abortion is one area in which many nurses struggle with the conflict between their personal convictions and their professional duty” (Marek, 2004). Marek (2004) examined nurses’ attitudes toward pregnancy termination in the labour and delivery setting to identify the frequency of nurses’ refusals to care for patients terminating a pregnancy. A convenience sample of 75 labour and delivery nurses was recruited from six hospitals. The researcher conducted a focus group to generate data to develop a survey instrument. The final instrument consisted of eight items and used a visual analog scale. The internal reliability was high (Cronbach’s alpha of .94). Nurses’ responses were varied but 95% of
the nurses indicated they would agree to care for a fetal demise termination and 77% of nurses agreed to care for a patient terminating a pregnancy for fetal anomalies incompatible with life. There was less consensus regarding terminations for nonlethal anomalies, sex selection, selective reduction and personal reasons (Marek, 2004). Future research should explore the relationships between nurses’ attitudes towards abortion and their education level, religion, experience, age and family situation.

Magennis et al. (1999) studied nurses’ attitudes about expanding and extending their traditional clinical roles. The researchers developed a 31-item Likert scale questionnaire which was confirmed to have face validity by a panel of experts. The questionnaire was piloted with six nurses from different hospitals which resulted in some minor changes in the wording of items. Magennis et al. (1999) recruited a random sample of 32 nurses from one hospital. The items produced a Cronbach’s alpha of .76 for the role expansion items and .80 for the role extension items. Nurses with higher levels of education and those undertaking further education had significantly more favourable attitudes towards role extension and expansion. The researchers speculated that more educated nurses were more confident about expanding and extending their roles and less fearful of litigation or physician exploitation (Magennis et al., 1999).

Two studies explored nurses’ attitudes using qualitative approaches. Coverston et al. (2004) conducted a qualitative study with five American nurses and a separate study with five Guatemalan nurses to determine their attitudes towards nursing. The field notes recorded by the researchers were reviewed with the participants for accuracy and analyzed using content analysis. The major reasons why the nurses entered the profession were (a) the desire to help and serve others, (b) the desire to study health and
medicine and (c) the need to associate with people (Coverston et al., 2000). The most difficult aspects of nursing were other nurses' attitudes, dealing with emotions and the high rate of burnout. The researchers discovered that the nurses’ attitudes towards nursing were similar and that the nurses shared a strong dedication to their profession. Both groups had negative attitudes about institutional constraints, such as dissatisfaction with high patient loads, inadequate resources and nursing shortages (Coverston et al., 2000). Although the data obtained was insightful, the findings would have been strengthened with a larger, more diverse sample of nurses and a specific focus on nurses’ attitudes towards nursing.

Cassata and Dallas (2005) acknowledged that, although nurses have the most contact with childbearing adolescents in the hospital, there is limited knowledge about nurses’ attitudes towards childbearing adolescents. Childbearing adolescent are often unwed and identified as racial minorities (e.g., African-Americans or Hispanics; Cassata & Dallas, 2005). The nurses who care for these women are mostly Caucasian (Cassata & Dallas, 2005). Differences in race, ethnicity and culture have the potential to be difficult for nurses and patients. The researchers used a convenience sample of 24 perinatal nurses and divided them into groups of six to eight for focus group discussions regarding childbearing adolescents. The focus groups were taped and transcribed. The transcripts were coded based on the initial focus group questions about nursing challenges, barriers and opportunities. Cassata and Dallas (2005) found that the perinatal nurses were passionate and committed to the care of childbearing adolescents, but aware of a gap in their cultural knowledge that could be improved with “race/ethnicity training in nursing curriculum and practice” (Cassata & Dallas, 2005, p. 75). The focus groups failed to
obtain a thorough examination of nurses’ attitudes towards childbearing adolescents; instead, the sessions centered on cultural challenges and the nurses’ hope for change (Cassata & Dallas, 2005).

Both qualitative and qualitative studies have provided important insights concerning nurses’ attitudes. Assessment of nurses’ attitudes is crucial to understanding the ways that nurses contribute to health outcomes and reduce health inequalities. Nurses’ education has a significant impact on their attitudes towards various areas of practice. Since attitudes can change, newly acquired knowledge can influence a belief, which will alter an attitude (Ajzen & Fishbein, 1980).

All the questionnaires examined in the literature review lacked psychometric analysis. Most of the studies only examined questionnaires’ content validity and internal consistency (Cronbach’s alpha) and had small, homogeneous sample sizes. Further investigation is required with larger samples to support findings and expand psychometric testing. The use of focus groups and interviews allowed the researchers to gain a broad understanding of nurses’ feelings and certain attitudes. The studies described in this section have demonstrated the importance of conducting a thorough psychometric analysis for questionnaire development.

**Psychometric Analysis of Attitude Questionnaires**

The primary reason for undertaking a psychometric analysis of a questionnaire is to determine if it is consistently measuring what it purports to measure (Polit & Hungler, 1999). Supporting the reliability and validity of a questionnaire is an essential step in the research process for current and future studies. A questionnaire that has acceptable reliability and validity can be used by researchers to report findings with a high degree of
confidence. The process of psychometric analysis facilitates the evolution of a questionnaire into a highly dependable instrument (Waltz, Strickland, & Lenz, 1991). It is important to provide confirmation that a questionnaire is reliable and valid because research consumers require this evidence to increase confidence in the research results (Hartshorn, 1987). The researcher must clearly describe the process and tests undertaken to support a questionnaire's reliability and validity.

Measures of reliability indicate whether the items on a questionnaire produce results that reputable and consistent (Ferketich, 1990). Cronbach's alpha is a popular measure of internal consistency because "the subject is not burdened with the completion of an alternate form, does not need to retake an instrument a second time with all the attendant problems, nor is the researcher required to deal with the arbitrariness of split-half procedures" (Ferketich, 1990). Questionnaires require an evaluation with each study because reliability is not a property and the questionnaire will be used with different populations under different circumstances (Hartshorn, 1987).

Once a questionnaire's reliability is supported, its validity can be examined. Validity testing provides evidence that a questionnaire is measuring the concepts it purports to measure (Polit & Hungler, 1999). Content and construct validity are types of validity testing (Polit & Hungler, 1999). Content validity supports items as appropriate indicators of the construct under investigation (Polit & Hungler, 1999). This is an important step in assessing a new questionnaire. Construct validity examines if the concept under investigation is being adequately measured (Polit & Hungler, 1999). Factor analysis is a popular method used to support construct validity. This statistical
procedure reduces a large set of variables into a smaller set of variables, known as factors, with common characteristics (Pett, Lackey, & Sullivan, 2003).

The use of a reliable and valid questionnaire provides the foundation for a meaningful study, and is crucial in larger studies examining different populations with similar questionnaires. The MCPAB study provided the foundation for the development of the NABQ and is presented in the following section.

**Introduction to the Maternity Care Providers’ Attitudes and Beliefs Study**

A large, cross-sectional study was initiated in 1999 to investigate various maternity care providers’ (MCP) attitudes and beliefs towards labour and birth (Klein, 2005). The MCPAB study consists of several individual studies that focus on a specific group of MCPs. The time line is as follows (Klein, 2005):

1. In 1999, a questionnaire for family physicians was drafted, piloted, revised, tested and analyzed. That questionnaire became the basis for the other MCPs’ questionnaires
2. In 2001, a questionnaire for obstetricians was developed, tested and analyzed.
3. In 2002, a questionnaire for midwives was developed, tested and analyzed.
4. In 2003, the data set from the family physicians’, obstetricians’ and midwives’ questionnaires was analyzed and clustered.
5. In 2004, a questionnaire for nurses was developed, piloted and clustered.
6. In 2005, the nurses’ attitude questionnaire was used at a tertiary hospital.
7. In 2005, a questionnaire for nulliparous pregnant women was developed, analyzed and clustered.
The diagram depicted in Figure 1 provides a visual description of the MCPAB study, which will be explained in the following sections.
Figure 1. Stages of the Maternity Care Providers' Attitudes and Beliefs Study

MCPAB STUDY
Principal Investigator: Dr. M. Klein
Co-Investigators: W. Hall, RN, PhD.; Dr. R. Liston; J. Kornelsen, PhD.; L. Saxell, RM; J. Berkowitz, PhD.; J. Kaczorowski, PhD.; Dr. P. Hall; A. Kelly, Research Associate; D. Aparicio, RN, MSN Student.

Phases:

PHASE 1: A Summary of MCPAB Study
- 1999 Family Physicians' Questionnaire & Study
- 2001 Obstetricians' Questionnaire & Study
- 2002 Midwives' Questionnaire & Study
- 2003-2005 Nurses' Questionnaire & Study (NABQ)

PHASE 2: A Psychometric Analysis of the Nurses' Attitudes and Beliefs Questionnaire (NABQ)
- Pilot Study
- Nurses Study
- Psychometric Analysis of NABQ & Focus Group

2005 Nulliparous Women's Questionnaire & Study

Figure 1. This is a diagram depiction of the stages of the Maternity Care Providers' Attitudes and Beliefs (MCPAB) Study.
An extensive literature review failed to locate an instrument that would measure MCPs' attitudes and beliefs towards the management of labour and birth. To adequately study MCPs' attitudes and beliefs, a number of attitude and belief questionnaires were developed. These questionnaires were designed specifically for different professions but included shared items that allowed for the comparison of attitudes among professional group. A measure that was developed to assess nurses' attitudes was the NABQ. The NABQ was pilot tested; however, no psychometric analysis of the properties of the NABQ had been undertaken. Therefore, that is the purpose of this thesis.

**Phase 1: A Summary of the Maternity Care Providers' Attitudes and Beliefs Study**

The members of the MCPAB research team worked together to develop instruments to measure the attitudes and beliefs held by members of the various maternal health care disciplines. Maternity care involves intimate collaboration among the family physicians, obstetricians, midwives and nurses caring for the same patient, which can lead to conflict or co-operation, depending on the culture of the working environment (Reime et al., 2004). The members of the MCPAB research team acknowledged that each discipline has a unique body of knowledge, expertise and philosophy. They believed that identifying areas of agreement, disagreement or uncertainty in the attitudes of MCPs would help reduce misunderstanding, improve co-operation and potentially improve the quality of care for patients (Reime et al., 2004). The MCPAB research team developed four objectives (Reime et al., 2004):

1. Design a tool to measure attitudes, beliefs and self-reported practices pertaining to key aspects of maternity care for specific groups of MCPs.
2. Determine whether there are similar attitudes, beliefs and self-reported practices within specific groups of MCPs.

3. Compare the attitudes, beliefs and self-reported practices among various groups of MCPs to see if each group has a distinct approach to childbirth.

4. Compare the degree to which the various groups of MCPs share a consensus concerning some common clinical approaches.

The following sections provide an overview of the specific stages of and findings from the MCPAB study.

**Family Physicians, Obstetricians and Midwives: Instrument Development, Data Collection and Psychometric Analysis**

The first objective of the MCPAB research team was partially met through the development of an instrument for family physicians. The questionnaire consisted of items to measure methods of managing maternity care. These questions were developed based on informed opinions, professional association guidelines, hospital policies and procedure manuals. Ethical approval for the project was obtained from the University of British Columbia. The draft questionnaire was sent to 54 British Columbian family physicians at two hospitals (Klein, 2005). An attached cover letter invited the family physicians to remove or add any questions from the questionnaire. Twenty-three questionnaires suitable for analysis were returned and revisions made based on the family physicians’ comments and suggestions. Those revised questionnaires were sent to seven family practice leaders across Canada who returned the questionnaires with suggestions for improvement. The final questionnaire consisted of demographic items and 76...
maternity care practice-related questions which required a response on a 7-point scale (very strongly agree to very strongly disagree).

From the questionnaire that was developed for family physicians, obstetricians' and midwives' questionnaires were created (Klein, 2005). Those questionnaires contained 23 questions identical to those in the family physicians' questionnaire, with the balance of the questions modified slightly for obstetricians and midwives. Also, the agreement scale was changed from the 7-point scale used in the family physicians' questionnaire to a 5-point Likert scale (strongly disagree to strongly agree).

The care provider-specific questionnaires were sent out to all the obstetricians (88.5% response rate) with privileges at British Columbia Women's Hospital and/or St. Paul's Hospital and to all the midwives (90.9% response rate) registered with the College of Midwives of British Columbia (Reime et al, 2004).

The psychometric properties of the original family physicians', obstetricians' and midwives' questionnaires were assessed. Reime et al. (2004) reported that a reliability analysis of the 23 items common to the three care provider questionnaires revealed a satisfactory reliability (Cronbach's alpha of .76). The reliability was improved to a Cronbach's alpha of .83 after the deletion of three items. The Cronbach's alpha of the 23 items does not adequately support the internal consistency of any individual MCP questionnaire because the items have been reworded and the cluster samples consist of different professionals. The construct validity of the remaining 20, 5-point Likert scale items (n = 181) that are shared on all three questionnaires was analyzed using a principal factor analysis (rotation = varimax) (Reime et al., 2004). The factor-eigenvalues showed one strong and three minor factors. The item loading was greater than .40 for every item.
There is no description of the common themes for items and how they are associated. Reime et al. (2004) stated that the results from the analysis conducted on the twenty shared items suggested good reliability and validity of the family physicians', obstetricians' and midwives' questionnaires. Unfortunately, their analysis was conducted on the clustered groupings of family physicians, obstetricians and midwives and not the individual responses to the original care provider questionnaire. Therefore, this only supports the construct validity for the grouping of providers for the cluster analysis.

Most recently, an attitudinal survey was used to explore the differences in attitudes and beliefs among nulliparous, low risk women cared for by family physicians, obstetricians and midwives (Gillissen et al., in press). The 72 Likert scale items were drawn from the previously assessed MCPAB questionnaires. A psychometric analysis of the revised questionnaire was not undertaken (Gillissen et al., in press). The questionnaires were distributed to the offices of eight obstetricians, 12 family physicians and 16 midwives. The women who attended midwives perceived birth as a natural process, as exemplified by their “skepticism toward cesarean sections and interventions” (Gillissen et al., in press, p. 10). In contrast, women attending obstetricians had a more technical view of birth, reported higher levels of anxiety and expressed a greater preference for cesarean sections and other interventions (Gillissen et al., in press). Women in the family physician group had attitudes which were similar to those of midwives or obstetricians, depending on the issue (Gillissen et al., in press).

The questionnaires used in the MCPAB study possess a number of problems (Mueller, 1986):
1. They contain ambiguous terms, such as “macrosomia,” but fail to provide the participants with a list of defining terms.

2. They contain compound items or “double-barreled” items.

3. They contain repetitive questions.

4. They contain strongly worded questions.

5. They contain items that do not measure attitudes.

To address these concerns, it was necessary to change the original questionnaire that measured nurses’ attitudes. Unfortunately, because the questionnaires required identical items to compare responses within and across provider groups and undertake cluster analysis the items were not altered.

**Description of the Nurse Questionnaire**

The results from the data analysis have reinforced the need to extend our understanding of attitudes and beliefs about labour and birth to other MCPs. Exploring the attitudes and beliefs of labour and delivery nurses, in particular, is relevant because nurses spend the most time with labouring women (Miltner, 2002). The following section explores the process used to examine nurses’ attitudes and beliefs with the NABQ.

**Instrument Development**

The development of the NABQ involved numerous meetings with the MCPAB research team to evaluate the NABQ’s structure. The NABQ went through various stages of revision. The first NABQ used nursing-related demographic questions and 76 maternity care practice-related items from the original family physicians’ questionnaire. The MCPAB research team evaluated individual items for their nursing relevance,
content and composition. Items on the NABQ were modified or removed to make the questionnaire applicable to nurses.

**Pilot Study**

The MCPAB research team pretested the NABQ with a group of nurses to determine if it was an acceptable tool to measure and compare nurses’ attitudes towards the management of labour and birth. This occurred at a regional meeting of nurses sponsored by the British Columbia Reproductive Care Program. The nurses attending the meeting served as a sample for a small pilot study.

The pilot study resulted in a modest sample \((n = 31)\) which was a cross-section of nurses from across British Columbia. The nurses were an older and experienced group with an average of 14.4 years spent working as a labour and delivery nurse. The nurses were generally well-educated, with over 40% reporting university education. Analysis of the nurses’ data indicated that they did not consistently agree with family physicians, obstetricians and midwives (Klein, 2005). Nurses agreed with obstetricians with respect to questions concerning technical approaches to childbirth. The MCPAB research team did not conduct any psychometric analysis on the results from the pilot study of the NABQ (Klein, 2005). Moreover, the results from this sample could not be used in the psychometric analysis of the NABQ used in this study, because the piloted questionnaire contained two fewer questions than the final instrument.

**Description of the Nurse Questionnaire Used for this Study**

The version of the NABQ used for this study contains 14 questions about demographics and 56 items to measure nurses’ attitudes and beliefs about labour and birth (see Appendix A). The items consist of statements based on relevant research,
theory and practice-based knowledge and are rated on a 5-point Likert scale with values ranging from 1 = strongly disagree to 5 = strongly agree. The statements are derived from current research and practice literature and organization guidelines. The items are presented as “I” statements, except for items referring to procedures, labouring women, doctors or midwives. The “I” of the statement makes it clear that the nurse responding to the items must claim ownership of the attitude and not universalize it.

Chapter Summary

The analysis and synthesis of the literature revealed that there is insufficient research regarding nurses’ attitudes towards maternity care. Researchers have investigated nurses’ attitudes towards intermittent fetal monitoring (Walker et al., 2001), support of breastfeeding mothers (Bernaix, 2000), perinatal bereavement support (Chan et al., 2004) and childbearing adolescents (Cassata & Dallas, 2005). The majority of the studies used investigator-designed Likert scale questionnaires (Bernaix, 2000; Björkström & Hamrin, 2001; Chan et al., 2004; Coverston et al., 2004; Magennis et al., 1999; Marek, 2004; Walker et al., 2001). Some studies used interviews and focus groups to describe nurses’ attitudes (Cassata & Dallas, 2005; Cross, 2005). The questionnaires used in the former studies, such as the nurses’ support for breastfeeding (Bernaix, 2000), nurses’ attitudes toward termination of pregnancy (Marek, 2004), nurses’ attitudes toward role extension and expansion (Magennis et al., 1999), Swedish nurses’ attitudes towards research and development within nursing (Björkström & Hamrin, 2001) and nurses’ attitudes towards fetal monitoring (Walker et al., 2001) studies lacked thorough psychometric analyses.
The studies reviewed for this chapter provided valuable insight in relation to the objectives of this thesis (Bernaix, 2000; Björkström & Hamrin, 2001; Magennis et al., 1999; Marek, 2004). For example, it was identified that (a) nurses’ attitudes were significant in nurse-patient relationships and (b) nurses with higher levels of education were more likely to have positive attitudes towards various medically related issues (Bernaix, 2000; Cassata & Dallas, 2005; Magennis et al., 1999; Walker et al., 2001). The studies supported the general importance of investigating nurses’ attitudes. In addition, the findings from these studies facilitated the creation of the hypotheses used to evaluate the construct validity of the NABQ, while their limitations provided reinforcement for conducting a focus group to assess content validity.

The MCPAB study was explained, because it provides the underpinnings for the development and psychometric analysis of the NABQ. The questionnaires developed by the MCPAB study’s panel of experts offer a vehicle to create a broad understanding of the attitudes for all of the people involved in maternity care. Unfortunately, the psychometric analysis of the questionnaires has been limited. Therefore, a thorough analysis of the psychometric properties of the NABQ is required to have some confidence in its findings.

The literature reviewed in this chapter demonstrates that there is a significant knowledge deficit with respect to nurses’ attitudes towards maternity care. A reliable and valid questionnaire would be valuable in order to explore nurses’ attitudes. Also, the literature review supports the value of using a reliable and valid questionnaire to explore nurses’ attitudes.
Chapter three describes the methods used to recruit the sample, the research plan and the forms of data analysis. Also, the ethical considerations, assumptions and limitations of the study will be explained.
CHAPTER THREE: METHODS

Introduction

The purpose of this study was to evaluate the psychometric properties of the Nurses' Attitudes and Beliefs Questionnaire (NABQ) through reliability and validity testing to support its ability to assess labour and delivery nurses' attitudes towards the management of labour and birth. This chapter explains the research design, sample selection, recruitment strategies and procedures used to examine the reliability and validity of the NABQ.

Research Design

The research study design included quantitative and qualitative components. The quantitative portion of the study is a cross-sectional design used to analyze the psychometric properties of the questionnaire. Although the survey method is strong in directness and versatility, it is weak with respect to validity and accuracy (Polit & Hungler, 1999). Thus, the psychometric evaluation of the NABQ is important. A cross-sectional design is a practical and useful method for a survey-based study and is appropriate for describing associations among phenomena (Polit & Hungler, 1999); however, it provides no indication for the causality.

Because a qualitative component was also included, the study design incorporated methodological triangulation. The cross-sectional survey design was augmented with a descriptive qualitative component. Sandelowski (1995) explains that triangulation can be used as a confirmation or verification strategy. Underlying this approach is the idea that using several methods to understand a concept will reduce the risk of bias because it produces an intricate and verifiable depiction of the concept (Sandelowski, 1995). The descriptive component of this study provided a select group of nurses with an opportunity
to examine the acceptability of the NABQ items, any ambiguity in the NABQ items and overall perceptions of the NABQ (Krueger, 1994).

"The content validity of an instrument is derived from opinions and there is no entirely objective approach to ensure the adequate content coverage of an instrument (Polit & Hungler, 1999). The use of a panel of experts in a specific practice area has become an increasingly popular technique in research (Polit & Hungler, 1999). The experts evaluate the relevance and appropriateness of the questionnaire items in terms of each item’s construct and adequacy in measuring all dimensions of the construct (Polit & Hungler, 1999). The focus group discussion enriched the cross-sectional survey component by providing another form of evidence to support or undermine the validity of the NABQ.

Sample

Gable (1986) indicates that 6 to 10 respondents per item of a questionnaire are needed for a proper psychometric analysis. As the NABQ contains 56 items, a sample to support psychometric analysis should consist of between 336 to 560 participants. A sample size of that magnitude was not possible because approval was received only to investigate the labour and delivery nurses at one tertiary hospital (N = 160-180). In addition, this is a master’s thesis, the principle objective of which is to demonstrate an understanding of the research process.

Sample Type and Setting

The sample was recruited from British Columbia Women’s Hospital (BCWH), which is one of the largest maternity hospitals in Canada. BCWH accounts for 7,000 births a year (20% of all births in British Columbia) and has the highest number of births
of any hospital in Canada (BC Women’s Hospital and Health Center, 2006). The population of interest included all staff nurses working in labour and delivery at BCWH. There are approximately 130 permanently employed nurses at BCWH, with an additional 30 to 50 casually employed nurses (P. O’Sullivan, personal communication, July 9, 2004). Convenience sampling method was deemed the most suitable approach to obtain a sample from this population. The nonprobability method of convenience sampling is frequently used in preliminary research to provide rich data and avoid the cost and time required to select a random sample, while getting an indication of the study findings (Polit & Hungler, 1999). Unfortunately in nonprobability sampling, the sampling error, which is the degree to which the sample differs from the population, is unknown (Polit & Hungler, 1999).

Purposive sampling was used for the focus group that provided evidence about the validity of the NABQ. A subset of nurses was sampled from the group who had responded to the NABQ. Purposive sampling is preferred in selecting participants for a focus group as it helps to achieve accurate representation of the studied population and to incorporate a wide range of opinions (Hudson, 2003). A purposive sample is advantageous for assessing a new instrument because selected groups of skilled nurses are suitably experienced in their area of practice and provide accurate feedback (Polit & Hungler, 1999). Morgan (1998) recommended that a focus group consist of six to eight participants with varied training, education, employment status and experience. Six labour and delivery nurses with diverse backgrounds participated in the focus group in this study.
Sample Recruitment

The nurses at BCWH were made aware of the NABQ through the use of posters describing the study (see Appendix B). I attended staff meetings to promote recruitment and answer any questions concerning the study.

Posters were also used to publicize the focus group (see Appendix C). A preliminary analysis of the demographic data was conducted so that the nurses could be selected based on expertise and demographic characteristics, such as age, educational background and number of years working in labour and delivery. The mean and standard deviation were calculated for questions. This was done in an attempt to have focus group participants that were not only experts but also reflective of the respondents to the NABQ. A selection of expert nurses that met the demographic parameters described in the following sample inclusion criteria section were called, and their participation in a one-time focus group requested.

Sample inclusion criteria. The only inclusion criterion to participate in the NABQ study was that nurses were currently working in labour and delivery at BCWH. There were no exclusion criteria.

Prior to the focus group selection or request for participation, the following criteria were assessed from the responses to the NABQ:

1. Age ranging from 23 to 61 years, with an average age of 36.2 years.

2. Up to four nurses with a bachelor’s degree, one or two nurses with midwifery training, two nurses with a diploma and one or two nurses with a British Columbia Institute of Technology Perinatal Certificate.
3. Four nurses working full-time, one to two nurses working part-time and one nurse working casual.

4. Two or three nurses who had given birth.

The goal was to acquire a panel of nurses with some of these characteristics. The focus group poster only elicited one response. Several other nurses, who met the inclusion criteria, were contacted to participate. A representative panel of six nurses with varied training, education, employment status and experience was included in the focus group.

Sample Size

The sample consisted of 72 labour and delivery nurses at BCWH who returned a completed NABQ. According to Babbie (1992), a response rate of 50% \((n = 90)\) is “adequate”, 60% \((n = 108)\) is “good” and 70% \((n = 126)\) is “very good.” The group that responded constituted 45% of the nurses available to participate. This would be considered a less than adequate response rate (Babbie, 1992).

A one-time focus group of labour and delivery nurses who had completed the NABQ was recruited to discuss the content, structure and wording of the NABQ. The participants completed a registration and demographic form. The panel of nurses was selected based on the demographic characteristics of the nurses who responded to the NABQ. The goal of the focus group was to determine if the nurses’ opinions either supported or undermined the content validity of the NABQ.

Instrument Description

The version of the NABQ used for this study contained 70 items (see Appendix A). The first 14 items address a participant’s demographic information: education,
professional training experience, employment details, personal obstetrics history and future plans for nursing in obstetrics. The remaining 56 items were attitude and belief statements to be rated on a 5-point Likert scale with values ranging from 1 = strongly disagree to 5 = strongly agree. The research, theory and practice-based items were derived from current research and practice literature regarding such procedures as episiotomies (Klein et al., 1994), pelvic floor relaxation (Klein, Janssen, MacWilliams, Kaczorowski, & Johnson, 1997), choosing a birth attendant (Howell-White, 1997) and doulas (Gordon et al., 1999), as well as organizational guidelines, such as those of the Society of Obstetricians and Gynecologists of Canada (SOGC).

The SOGC provides health care practitioners and the public with guidelines that are based on scientific knowledge available (SOGC, 2006). The SOGC guidelines were used to develop questions about induction, fetal surveillance, cord gases, cesarean sections and episiotomies. The BCWH policy and procedure manual, which, for example, expresses a preference for external fetal monitors, inductions and cord gases, was influential in the development of specific practice-based questions (SOGC, 2006). The research- and theory-based questions were developed from references in peer reviewed journals which examined nurses’ labour support, doulas’ labour support, birth plans, hospital admissions, pelvic floor relaxation, episiotomies, cesarean sections, epidurals, intrauterine pressure catheters, home births, macrosomia, dystocia and sexual abuse (Blais, Lambert, Maheux, Loiselle, Gauthier & Framarin, 1994; Bryanton, Fraser-Davey & Sullivan, 1994; Flamm, Goings, Liu & Wolde-Tsadik, 1994; Gagnon & Waghorn, 1999; Gordon et al., 1999; Hodnett, 19996; Klein et al., 1994; Klein et al.,
The items were presented as “I” statements, except for items referring to procedures (e.g., cesarean sections, episiotomies, and epidurals), labouring women, doctors, midwives or doulas. The “I” statement makes it clear that the nurse responding to the items must claim ownership of the attitude and not universalize it. There were two doula items, seven doctor or midwife items, seven labouring women items, 18 “I” items and 21 procedure items. The goal of these statements was to adequately measure nurses' attitudes and beliefs regarding the management of labour and birth.

**Procedures**

The procedures include the data collection and the descriptive components of psychometric analysis of the NABQ.

**Ethical Consideration**

The ethics application was developed from a larger maternity care provider study previously reviewed by the University of British Columbia (UBC) Behavioural Research Ethics Board. Ethical approval was obtained for a graduate student to conduct a psychometric analysis of the NABQ from the UBC Behavioural Research Ethics Board and Children’s and Women’s Health Center Research Review Committee. The study participants were at no risk of harming themselves or others by taking part in this study. Nurses’ participation in the study was voluntary. Confidentiality was ensured because the questionnaires did not have any identifying information and were kept in a locked filing cabinet. The participants in the focus group were required to sign a consent form.
(see Appendix D). The tapes of the recorded focus group discussion were kept locked in a filing cabinet with the questionnaires.

**Benefits of participating.** The participants may have experienced the following benefits:

1. An increased understanding and awareness of their personal attitudes towards maternity care.
2. The opportunity to critically analyze their attitudes towards maternity care.
3. The motivation to investigate the theory behind their attitudes towards maternity care.
4. The stimulation of conversation on the labour and delivery unit among and between maternity care providers.

**Risks of participating.** The risks of participating in the NABQ study were as follows:

1. Completing the questionnaire may have added to participants' responsibilities and caused the participants to feel time constraints.
2. The participants may have gained new insight that caused internal conflicts or conflicts with other nurses or care providers.

**Survey Data Collection**

The data were collected at BCWH from December 13, 2004 through January 26, 2005. The NABQ and cover letter were placed in BCWH nurses' mailboxes and distributed on the labour and delivery units. A phone number was provided on the cover letter by which participants could contact the researcher if they had any questions.
regarding the NABQ. Consent to participate in this study was assumed to have been given upon the completion and submission of the NABQ (Polit & Hungler, 1999).

**Focus Group Data Collection**

The focus group consisted of a moderator (the graduate student conducting the study) guiding a small group in the discussion of topics that the interviewer raised. In a focus group, there are usually “six to eight participants who come from similar backgrounds and the moderator is a well-trained professional who works from a predetermined data set of discussion topics” (Morgan, 1998, p. 1). The focus group is an economic and resource effective way of gathering descriptive data (Krueger, 1998).

On January 26, 2005, a one-time focus group of labour and delivery nurses who had completed the NABQ were invited to discuss the content, structure and wording of the NABQ. The participants signed a consent form and filled out a demographic form.

The group setting often provides participants with a sense of security that makes it a safe forum for the expression of opinions (Hudson, 2003). The data is enriched by the cumulative dialogue that occurs when responses by participants generate other participants’ responses (Hudson, 2003). The nurses were very comfortable discussing their opinions and encouraging others’ participation. Since there was not any precise, predetermined line of questioning, I had flexibility to react to the participants’ discussion.

A focus group can be difficult to moderate because disclosure may not occur immediately or at all if participants feel overwhelmed (Kruger, 1998). There may be challenging participants that are inattentive or disruptive, that ramble or that dominate the discussion (Kruger, 1998). At times, the discussion can be difficult to control if participants feel strongly about an experience and take a long time to express their stories
Another concern with a group interview is that a participant will disclose an opinion but be unable to express the strength of that opinion because of time limitations or comfort level (Morgan, 1998). Prior to beginning the discussion, I made the participants aware that I would be guiding the discussion, including by interrupting someone if they were sharing too much, or by inviting those not sharing to participate.

Any difficulties were taken into consideration and dealt with as needed during the discussion. Fortunately, there were many occasions when the participants corrected their own problems. They often probed each other for further details, called upon a participant who was not contributing and politely interrupted a participant who was speaking too much. I interjected when the conversation was off topic, there was a dominant speaker, someone was visibly trying to contribute but could not be heard or too much time was being spent on the same issue without any new information forthcoming.

The focus group discussion was audio-taped using two tape recorders. To create a welcoming atmosphere, snacks and beverages were provided during the focus group session. The first five minutes of the focus group session consisted of small talk, introductions and a description of discussion guidelines. I guided the discussion and listened to what was said, but tried to not participate, share personal views, engage in discussion or shape the outcome of the group interview. I took field notes to record observations of the focus group session that could not be captured on tape (e.g., body language, discussion climate and the seating pattern). The field notes identified important aspects of the focus group, such as notable quotes, major themes, follow-up questions and any big ideas or hunches.
An assistant moderator as suggested by Krueger (1998) was not within the economic means of this study. I was confident in my ability to moderate the focus group, take notes and tend to the tape recorder.

The dialogue was kept at a constant pace. I anticipated that any necessary redirection would be a challenging task because the participants were peers and colleagues whose opinions I wanted to validate. I did not want to be perceived as disinterested by cutting them off and redirecting the conversation. Because I had forewarned the participants that I might interrupt the discussion if it progressed off topic, redirection was easier to do at the necessary times.

I used predetermined, open-ended questions that were sequenced. I was aware of the time allocated to each question and attempted to guide the discussion with this in mind. The questions served to determine the content validity of the NABQ. The following are examples of questions that were asked during the focus group session:

1. Were there any questions that stand out for you as irrelevant to labour and delivery nurses? What were they?
2. What did you think of the sequencing of questions?
3. What did you think of the layout of the questionnaire?
4. What would you have changed in the format of the questionnaire? Why?
5. Were there any questions that you had difficulty interpreting? What were they?
6. Were there any questions that you felt should have been asked? If so, what were they, and why was that the case?
7. What was your overall impression as you completed the questionnaire?
8. Were there any questions that I should have asked you about completing the questionnaire that I have not asked?

In closing the focus group, I thanked the group members for participating, provided a brief summary of the key points discussed and invited the participants to comment.

**Data Management for the Survey Data**

The demographic data and responses to the items were entered into the Statistical Package for Social Sciences (SPSS) version 12.0 desktop program (SPSS, 2003). The data were entered directly into the SPSS data editor using standard codes that allow for the evaluation and manipulation of data. The SPSS program is advantageous for psychometric analysis because it allows for speed, accuracy and flexibility (Field, 2000). I entered the occasional missing values with a code number of nine, 99 or 999 (Field, 2000). I conducted a random check of the responses from 10% of the returned questionnaires to ascertain that the correct data had been entered into SPSS.

**Data Management for the Focus Group**

I reviewed the notes I made during the focus group and added details, such as how the participants interacted (Hudson, 2003). I transcribed the focus group interview. I compared the taped dialogue with the transcription to identify any errors. The transcripts and discussion notes were read several times to gain an impression of the participants' thoughts and ideas.
Quantitative Data Analysis

The nurses' demographic information and the questionnaire items were analyzed using descriptive statistics and frequencies. The following section explains the procedures employed to explore and support the reliability and validity of the NABQ.

Item Analysis

Prior to any statistical testing, the NABQ items were inspected for their wording, theoretical relevance, themes, response options, statement directions, central tendencies, variability and skewness. The item assessment was conducted to (1) identify individual item characteristics, (2) categorize common themes within the items and (3) adjust for negatively worded item scores to correlate with positively worded scores. Including negatively and positively worded items on a Likert scale questionnaire reduces response bias by ensuring that the participants read the questions (Nunnally, 1967). Response bias appears when participants fail to discriminate between the items and respond to the questions in the same way (Nunnally, 1967). The negatively worded items can be recoded using the "recode" command in SPSS (Pett, Lackey, & Sullivan, 2003). Central tendency was assessed by the mean, mode and median. The standard deviation and range of each item's response set was assessed to provide a better understanding of the NABQ's response distribution.

Reliability Testing

The reliability of an instrument is the "degree of consistency with which it measures the attribute it is supposed to be measuring" (Polit & Hungler, 1999, p. 411). The internal consistency and inter-item reliability of the NABQ were estimated to determine the instrument's homogeneity or internal consistency.
Huck (2004) states that to assess internal consistency, a questionnaire need only by administered at a “single time to a single group of individuals” (p. 78). Since the NABQ uses a 5-point Likert scale response, the internal consistency of this instrument was measured using a Cronbach’s alpha (Huck, 2004). The standard range of values for Cronbach’s alpha is between 0.0 and +1.0 with a higher value indicating a higher internal consistency (Polit & Hungler, 1999). A Cronbach’s alpha of .80 or greater is desirable but in the early stages of newly developed questionnaire, a coefficient as low as .60 is acceptable (Polit & Hungler, 1999). Long instruments are more likely to achieve a high Cronbach’s alpha than shorter ones (Polit & Hungler, 1999); with 56 items, the NABQ is considered a long instrument. Cronbach’s alpha is based on the average correlation among every single item. The other factor that affects Cronbach’s alpha is the number of items and the average correlation among the items. The conceptual formula for Cronbach’s alpha is expressed as: the number of items \(N\) increases and as the average of the inter-item correlations increases, so does the alpha.

Estimating an instrument’s reliability through inter-item reliability is a process of determining “how well each item ‘hangs together’ with the other test items” (Fishman & Galguera, 2003, p.60). Inter-item reliability “tests the hypothesis that the item in question is similar to the other items” (Fishman & Galguera, 2003, p.60). An item’s reliability is determined by obtaining its average correlation with every other item in the instrument (Fishman & Galguera, 2003). Since the items on the NABQ are continuous, the appropriate correlation between them is the item alpha (Fishman & Galguera, 2003).
**Construct Validity Testing**

The validity of an instrument refers to the degree to which it measures what it purports to be measuring (Polit & Hungler, 1999). The construct validity of the NABQ was examined by obtaining correlational evidence of a relationship between the instrument and the construct it claims to measure. I examined the extent to which questionnaire items reflect constructs reported in the research literature. The correlational evidence found in the research literature was used to create the hypotheses. Hypothesis testing and exploratory factor analysis (EFA) were used to assess the construct validity of the NABQ.

**Hypotheses Testing**

The hypotheses were developed by using relevant research literature and organizational guidelines regarding maternity care to identify demographic groups that would possess a strong attitude or belief towards particular aspects of labour and birth. In the research literature, demographic characteristics such as age, education, ethnicity and training were recognized as being more likely to demonstrate high or low scores on attitude items (Bernaix, 2000; Björkström & Hamrin, 2001; Capstick & Harley, 2004; Cassata & Dallas, 2005; Chan et al., 2004; Courtney, Tong, & Walsh, 2000; Walker, Shunkwiler, Supanich, Williamsen, & Yensch, 2001). Participants with differing demographic characteristics were expected to differ on particular aspects of a construct (Waltz, Strickland, & Lenz, 1991). The demographic data available from the NABQ, such as age and training were then used to create the hypotheses.

The first set of hypotheses was developed from the attitude literature which identified that level of education was associated with nurses' attitudes towards their areas
of practice (Bernaix, 2000; Chan et al., 2004; Courtney, Tong, & Walsh, 2000; Walker et al., 2001). The second set of hypotheses was developed from the pilot study conducted at the British Columbia Reproductive Care Program conference (J. Duddy, personal communication, June 23, 2004). The pilot study identified that nurses with midwifery training answered questions similarly to midwives who completed the midwives’ attitudes towards maternity care questionnaire.

The hypothesis testing approach uses the theory underlying an instrument’s design to propose hypotheses about the characteristics of individuals and their scores. If the NABQ correctly measured the construct, labour and delivery nurses’ attitudes towards the management of labour and birth could be predicted from demographic data.

Hypothesis testing was performed using two tailed $t$ testing and the significance level was set at $.05$. The $t$ test was conducted to identify if there was a real difference between the means of group A and B, thereby confirming or rejecting the hypothesis.

A chi-square test provides a detailed look at the frequency count for each group and question response (Huck, 2004). A chi-square test was appropriate for a Likert scale questionnaire because of the different categories of responses. Since the sample size was small, a chi-square test provided a detailed evaluation of the division of responses.

Hypotheses. The hypotheses below were used to predict relationships between demographic variables and the specific scores on items. A low score for a response to an item was 1 to 2.99 and a high score was 3.01 to 5.

Nurses’ attitudes towards current methods of practice are significantly influenced by their education level (Bernaix, 2000; Chan et al., 2004; Courtney, Tong & Walsh, 2000; Walker et al., 2001). Therefore, nurses with bachelor’s or graduate degree were
expected to respond to evidence-based questions in accordance with current and generally accepted research findings.

1. Nurses with higher levels of education will have:

(a) lower scores in response to: “I prefer to use continuous external fetal monitoring [EFM] over intermittent auscultation [IA] with a hand held Doppler for all” (SOGC, 2002);

(b) lower scores in response to: “3rd and 4th degree tears are an inevitable consequence of difficult deliveries, largely due to maternal or fetal characteristics” (Austin, 2003);

(c) higher scores in response to: “Postdate women should be induced as soon as possible at or after 41 3/7 weeks” (SOGC, 2001; Treger et al., 2002);

(d) higher scores in response to: “The administration of epidurals early in labour is associated with the development of fetal malpositions (occiput transverse [OT] and occiput posterior [OP])” (Howell, 2002);

(e) higher scores in response to: “We should perform routine cord gases on all births when feasible” (SOGC, 2002); and

(f) lower scores in response to: “In the case of a previous cesarean section, an elective cesarean section is a better choice than a trial of labour” (SOGC, 2004).

Nurses with midwifery training were anticipated to respond to midwifery-specific questions similarly to registered British Columbia midwives.

2. Nurses with midwifery training will have:
(a) higher scores in response to: “I would consider working at a free standing birthing centre if it were available”;
(b) lower scores in response to: “Childbirth is only normal in retrospect”;
(c) higher scores in response to: “The most important determinant of a successful birth is a woman’s own confidence and determination”;
(d) higher scores in response to: “I prefer to use continuous EFM over IA with a hand held Doppler”;
(e) lower scores in response to: “Third and fourth degree tears are an inevitable consequence of difficult deliveries, largely due to maternal or fetal characteristics”;
(f) higher scores in response to: “I always offer alternative forms of pain relief before offering an epidural”;
(g) lower scores in response to: “Postdate women should be induced as soon as possible at or after 41 3/7 weeks”; and
(h) higher scores in response to: “The administration of epidurals early in labour is associated with the development of fetal malposition.”

**Exploratory Factor Analysis**

Factor analysis is used to identify clusters of related variables (Polit & Hungler, 1999) where every individual cluster, called a factor, consists of a uniform characteristic. Factor analysis provides a method of identifying intercorrelations among the complex variables of an instrument and determines which variables fit together as unified concepts (Pett et al., 2003). Factor analysis serves to reduce empirically a large set of variables into smaller, more manageable sets of subscales (Tabachnick & Fidell, 2001). This is
done by clustering individual items into linear combinations called factors, thereby
greatly reducing an instrument’s complexity (Pett et al., 2003). The challenge is to
identify sets of relationships among large groups of items and to reduce the number of
items to smaller subsets that contain as much valuable information from the initial items
as possible (Pett et al., 2003). This reduction is difficult because “it is very rare . . . for a
large number of attitudinal items to measure one and only one affective domain” (Waltz

Exploratory factor analysis is commonly used in the early “stages of research,
when it provides a tool for consolidating variables and for generating hypotheses about
the underlying processes” (Tabachnick & Fidell, 2001, p. 584). The variables chosen to
be correlated “may or may not have been chosen with potential underlying processes in
mind” (Tabachnick & Fidell, 2001, p. 584). The correlation of variables to form a shorter
scale decreases the number of separate statistical tests performed (Pett et al., 2003).

I analyzed the data using a factor analysis that was an exploratory rather than
confirmatory because this was the first construct validity testing using the NABQ. The
first step was the creation of a correlation matrix to assess the intercorrelations between
every item and every other item. The correlation matrix was created using SPSS 12.0.
The matrix allows for the recognition of clusters of items that measure the same
dimension and are therefore highly correlated with one another (Waltz & Bausell, 1981).
The correlation matrix was examined for item consistency and items were identified that
had either highly correlated \( r \geq .80 \) or not correlated sufficiently \( r < .40 \) with one
another (Pett et al., 2003).
This extraction of clustered items, referred to as the factoring process, was achieved by using the principal component analysis procedure. Factoring continued until there was no variance left (Polit & Hungler, 1999). The result of this process was a group of factors made up of different items. These factors were correlated with each item to produce factor loadings (Pett et al., 2003). A minimum factor loading value of at least .40 is required for an item to be considered part of a factor (Polit & Hungler, 1999).

A scree plot which plots the extracted factors against their eigenvalues in descending order of magnitude is used to identify a distinct break in the slope of the plot (Pett et al., 2003). I drew a straight line through the lower values of the plotted eigenvalues so that the number of defensible factors is indicated at the point where the factors curve above the straight line.

Since the factor matrix is often difficult to interpret, it is beneficial to conduct a factor rotation on those factors that have met the inclusion criteria (Pett et al., 2003). This rotation will often reposition the factors for greater interpretability (Pett et al., 2003). The most commonly used rotation is the varimax rotation which assumes that the factors are uncorrelated and mutually exclusive (Pett et al., 2003; Tabachnick & Fidell, 2001). “The goal of varimax rotation is to maximize the variance of factor loading by making high loading scores higher and low scores lower for each factor” (Tabachnick & Fidell, 2001, p. 594). In order for a factor to be rotated an eigenvalue of 1.0 or better (which indicates that a factor possesses at least as much total variance as contained in a single item) must be achieved (Waltz & Bausell, 1981). Items should not cross-load (≥ .40 factor loading value). As an alternative, it is recommended to take the high loadings on only one factor (Pett et al., 2003).
Factor solutions with eight, six and five factors were assessed for their item loading and content. A final number of factors was established which comprised all the essential themes of the NABQ. Items with a negative factor loading were assessed for word content and reverse coded if the item’s direction was opposite to the other variables in the factor. The individual factors were given names that were derived from the variables with the highest loading and the manner in which the variables collectively describe the concept.

**Qualitative Data Analysis**

The qualitative data analysis was a complex process. This section explores the methods used to analyze the focus group data.

**Content Analysis**

Qualitative inquiry is an active process that requires diligent concentration and intellectual work to identify relevant theories (Morse & Field, 1995). Morse and Field (1995) recognize four cognitive processes that are essential to all qualitative methods: comprehending, synthesizing, theorizing and recontextualizing.

Each line of text from the focus group was numbered for reference and coding (Reed & Payton, 1997). Software was not used to analyze the data due to the small group size and the limited nature of the data. Also, because the purpose of the one-time focus group was not to generate new concepts but instead to support the content of the NABQ, my questions were used to drive the development of the themes.

Polit and Hungler (1999) describe content analysis as a method of “organizing and integrating narrative, qualitative information according to emerging themes and concepts; classically, a procedure for analyzing written or verbal communications in a
systematic and objective fashion” (p. 698). I completed the qualitative data analysis before undertaking the quantitative analysis to prevent bias from the quantitative results. The coding procedure could have been influenced by the knowledge of the psychometric findings (Sandelowski, 1995).

I conducted a systematic thematic content analysis of the phrasings and words from the discussion to identify categories. I coded the transcript using various coloured highlighters to illustrate individual themes, concepts and words. The pages were tabbed with coordinating coloured stickers to identify individual themes, concepts and words on certain pages. The individual themes, concepts and words were sorted, counted, grouped and categorized. Re-categorizing, highlighting, cross-referencing and re-visiting the audio transcripts captured specific perceptions and sensitivities within the categories.

I coded major issues in large dialogued portions because it allowed for a detailed analysis of relevant themes. This was done through a question-by-question approach looking for themes within questions and then across questions, while considering non-verbal communication (Hudson, 2003). During the analysis, I identified topics of agreement and controversy to better understand how perspectives arise and are modified in a group setting. I evaluated if the agreement resulted from coercion or self-censoring of members with alternative viewpoints. It is important to determine whether a theme resonates with an entire group or is merely a strongly held viewpoint of one or a few members (Kidd & Parshall, 2000). I gauged the centrality of the themes by assessing the occurrence and outcomes of dominating speakers.

“Content Validity is concerned with the sampling adequacy of items for the construct being measured” (Polit & Hungler, 1999, p. 418). Content validity is a
subjective process that is important for evaluating the validity of an instrument measuring attitudes (Waltz & Bausell, 1981). Because specific focus group questions were used to determine nurses’ perceptions of the items and questionnaire design, their responses are important to support or challenge the content validity of the NABQ. The subjective opinions of nursing experts assessed the value of the questionnaire’s content.

**Rigor**

Rigor is necessary in research to prevent constant or intermittent error (Morse & Field, 1995). Morse and Field (1995) describe four aspects of rigor or trustworthiness. They are truth value or credibility, applicability, consistency and confirmability. Credibility was achieved by reporting an unbiased account of the participant’s dialogue. Applicability and consistency were not a priority because this was a one time focus group of nurses at BCWH. The priority was to explore fully these particular nurses’ interpretations of the questionnaire. Avoiding bias and confirmability were ensured by maintaining an audit trail. I used field notes, theoretical notes and the focus group transcript for reference. In addition, the guiding prewritten focus group questions, the extensive note taking concerning nonverbal communication and the use of two tape recorders ensured that procedural rigor was preserved.

**Assumptions**

The assumptions of this study are as follows:

1. Nurses are aware of their attitudes towards the management of labour and birth.
2. Nurses are able to assess and describe their attitudes towards the management of labour and birth.
3. Nurses speak truthfully regarding their attitudes towards labour and birth.
4. Nurses working in the same hospital have both similar and different attitudes towards various aspects of labour and birth.

5. Nurses are able and willing to articulate in a group setting their personal opinions on the content, structure and wording of the NABQ.

**Limitations**

The limitations of this study are the following:

1. Information obtained from survey studies tends to be relatively superficial (Polit & Hungler, 1999).

2. The use of a convenience sample introduces a possible selection bias which may limit the generalizability of findings (Polit & Hungler, 1999).

3. The sample size of 72 nurses is smaller than recommended for psychometric analysis (Gable, 1986). Accordingly, the construct validity and internal consistency testing of the NABQ for this study is considered weak and the NABQ will need future assessment with a larger sample.

4. The sampling setting is a single hospital, which resulted in a homogeneous sample and limited the variance of the scores (Polit & Hungler, 1999).

5. The nurses sampled work in a tertiary care hospital that serves many high risk women. This may influence their attitudes towards many of the intervention and technology-based questions.

6. Generalizability of the reliability and validity testing for the NABQ is limited to the study sample because these measures are situation specific (Polit & Hungler, 1999).
7. The use of a focus group discussion to examine content validity is dependent on participant disclosure. However, participants may feel uncomfortable and not disclose their opinions.

8. The focus group moderator worked with the nurse participants at BCWH which may have influenced the participants’ disclosure and the moderator’s ability to mediate the discussion (Kidd & Parshall, 2000).

9. The graduate nursing student who conducted the psychometric analysis and moderated the focus group is a novice researcher.

Chapter Summary

A questionnaire was developed to measure nurses’ attitudes towards maternity care because an appropriate instrument did not exist. The questionnaire required psychometric analysis to evaluate its usefulness for future studies.

Chapter three presented the methods that were used to assess the psychometric properties of the NABQ. The ethical considerations and sample recruitment strategy, criteria, setting and size were described to facilitate a better understanding of the population being investigated. The NABQ was briefly described and the data collection process for the questionnaire and the focus group were outlined. The data analysis procedures for examining the NABQ’s reliability and validity were explained. Finally, the study’s assumptions and limitations were reviewed.

Chapter four documents and explains the results of the psychometric testing of the NABQ and the data analysis of the focus group discussion.
CHAPTER FOUR: FINDINGS

Introduction

The following chapter presents the findings from the psychometric analysis of the Nurses’ Attitudes and Beliefs Questionnaire (NABQ) and the focus group data analysis. The chapter describes the (a) sample characteristics, (b) reliability testing using internal consistency and inter-item reliability, (c) validity testing using hypothesis testing and exploratory factor analysis (EFA) and (d) content validity assessment using a focus group discussion.

Sample Characteristics

The section provides a detailed description of the sample characteristics of the survey and focus group participants.

Survey Sample

The sample of convenience consisted of 72 labour and delivery nurses from British Columbia Women’s Hospital (BCWH) who completed and returned a NABQ. This reflects a 45% response rate, which is less than adequate for the purposes of psychometric testing (Babbie, 1992).

Table 1 provides a presentation of the sample demographics. All of the nurses in the sample were female, which is common for this specialty area in nursing (Canadian Nurses Association [CNA], 2004). The ages ranged from 23 to 61 years. The average age of the sample (36.2 years) is below the average age of maternity care nurses in Canada, which is 43.5 years (CNA, 2004).

The majority of the nurses had attended a university, less than a third of the sample had obtained a British Columbia Institute of Technology Prenatal Certificate and a smaller portion had received midwifery training. The sample of nurses from BCWH
suggests that nurses with higher levels of education may have a greater interest in research, and are therefore more inclined to fill out a questionnaire (Björkström & Hamrin, 2001; Rodgers, 2000). Alternatively, a tertiary care facility and teaching hospital may attract university-educated nurses. The nurses' experience in the labour and delivery room (LDR) area ranged from less than one to 34 years, with an average of 7.15 years of experience.

The CNA (2004) reports that the employment status of maternity care nurses in Canada is (a) 45.0% full-time, (b) 37.9% part-time, (c) 11.7% casual and (d) 5.4% unknown. It is not surprising that the work hours for the study sample are above the national average, with 63.9% working full-time, since nurses with this characteristic would have had more opportunity to be exposed to and to return the questionnaire.

The nurses found it difficult to speculate on the number of births they attended in a year; sixteen nurses did not answer the question and many wrote question marks next to it. This is understandable because nurses (a) do not record the number of births they attend, (b) may work in areas with varying exposures to births each shift (for example, assessment room, operating room or single room maternity care) and (c) may attend different number of births each shift. Those who responded (n = 56) indicated that they attended from 1 to 384 births per year.

Of the nurses sampled, almost half (47.2%) had given birth. A small number (13.9%) of the nurses indicated that they gave birth by cesarean section. Most of the nurses planned to continue working in the LDR for the next 5 years; the remainder either planned to leave the LDR or were undecided where they would be in 5 years. The
sample demographics suggest a homogeneous group in terms of age, education and employment work hours.
Table 1. Demographic Characteristics of the Survey Sample ($N = 72$)

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>$n$ (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age in years:</strong></td>
<td></td>
</tr>
<tr>
<td>20-30</td>
<td>26 (37.7%)</td>
</tr>
<tr>
<td>31-40</td>
<td>21 (30.4%)</td>
</tr>
<tr>
<td>41-50</td>
<td>13 (18.8%)</td>
</tr>
<tr>
<td>51-60</td>
<td>8 (11.6%)</td>
</tr>
<tr>
<td>61-70</td>
<td>1 (1.5%)</td>
</tr>
<tr>
<td><strong>Educational background:</strong></td>
<td></td>
</tr>
<tr>
<td>Diploma</td>
<td>31 (43.1%)</td>
</tr>
<tr>
<td>Bachelor’s Degree</td>
<td>47 (65.3%)</td>
</tr>
<tr>
<td>Master’s Degree</td>
<td>1 (1.4%)</td>
</tr>
<tr>
<td>Canadian Nurses Association Certificate</td>
<td>9 (12.5%)</td>
</tr>
<tr>
<td>Advanced Cardiac Life Support</td>
<td>6 (8.3%)</td>
</tr>
<tr>
<td>Critical Care Obstetrics</td>
<td>5 (6.9%)</td>
</tr>
<tr>
<td>Midwifery</td>
<td>12 (16.7%)</td>
</tr>
<tr>
<td>Doula</td>
<td>5 (6.9%)</td>
</tr>
<tr>
<td>British Columbia Institute of Technology Perinatal Certificate</td>
<td>22 (30.6%)</td>
</tr>
<tr>
<td>Other:</td>
<td></td>
</tr>
<tr>
<td>British Columbia Institute of Technology High Acuity</td>
<td>3 (4.2%)</td>
</tr>
<tr>
<td>Vancouver Community College Perinatal Certification</td>
<td>1 (1.4%)</td>
</tr>
<tr>
<td><strong>Hours of work:</strong></td>
<td></td>
</tr>
<tr>
<td>Full-time</td>
<td>46 (63.9%)</td>
</tr>
<tr>
<td>Part-time</td>
<td>14 (19.4%)</td>
</tr>
<tr>
<td>Casual</td>
<td>12 (16.7%)</td>
</tr>
<tr>
<td><strong>Years worked in the labour and delivery room:</strong></td>
<td></td>
</tr>
<tr>
<td>&lt;1-10</td>
<td>54 (75.0%)</td>
</tr>
<tr>
<td>11-20</td>
<td>14 (19.4%)</td>
</tr>
<tr>
<td>21-30</td>
<td>3 (4.2%)</td>
</tr>
<tr>
<td>31-40</td>
<td>1 (1.4%)</td>
</tr>
<tr>
<td><strong>Number of births attended in past year:</strong></td>
<td></td>
</tr>
<tr>
<td>1-100</td>
<td>39 (69.6%)</td>
</tr>
<tr>
<td>101-200</td>
<td>12 (21.4%)</td>
</tr>
<tr>
<td>201-300</td>
<td>2 (3.6%)</td>
</tr>
<tr>
<td>301-400</td>
<td>3 (5.4%)</td>
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<tr>
<td><strong>Given birth:</strong></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>34 (47.2%)</td>
</tr>
<tr>
<td>No</td>
<td>38 (52.8%)</td>
</tr>
<tr>
<td><strong>Had cesarean section</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>10 (13.9%)</td>
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</tbody>
</table>
Focus Group Sample

The nurses in the focus group ranged in age from 26 to 57. Four of the six nurses had a bachelor’s degree and two nurses were trained as midwives overseas. The nurses had worked in the LDR for 3 to 25 years. All but one of the nurses was employed full-time in the LDR and 66.7% worked all of their work hours in the LDR. Two nurses worked a considerable number of hours in triage or the operating room. The nurses had attended between 20 and 300 births in the past year. Only two of the nurses had given birth and neither woman had given birth via a cesarean section. The sample was divided in half concerning the decision to remain in the LDR (i.e., stay or leave) in 5 years.

The focus group sample was very similar to the survey sample regarding age, employment and education. However, in order to use their responses to examine the content validity of the NABQ, I wanted experts in their field; their demographic data supports their fit with the inclusion criteria (see Table 2). Their expertise was evident in:

1. Years of work experience: Focus group $M = 11.83$ years, Survey group $M = 7.15$ years.

2. Number of births attended in a year: Focus group $M = 133.33$, Survey group $M = 99$.

3. The percentage working full-time: Focus group $M = 83.3\%$, Survey group $M = 63.9\%$. 
Table 2. Demographic Characteristics of the Focus Group (N = 6)

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age in years:</strong></td>
<td></td>
</tr>
<tr>
<td>20-30</td>
<td>3 (50.0%)</td>
</tr>
<tr>
<td>31-40</td>
<td>1 (16.7%)</td>
</tr>
<tr>
<td>41-50</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>51-60</td>
<td>2 (33.3%)</td>
</tr>
<tr>
<td><strong>Educational background:</strong></td>
<td></td>
</tr>
<tr>
<td>Diploma</td>
<td>2 (33.3%)</td>
</tr>
<tr>
<td>Bachelor’s</td>
<td>4 (66.7%)</td>
</tr>
<tr>
<td>Canadian Nurses Association Certificate</td>
<td>1 (16.7%)</td>
</tr>
<tr>
<td>Advanced Cardiac Life Support</td>
<td>1 (16.7%)</td>
</tr>
<tr>
<td>Midwifery</td>
<td>2 (33.3%)</td>
</tr>
<tr>
<td>Doula</td>
<td>1 (16.7%)</td>
</tr>
<tr>
<td>British Columbia Institute of Technology Perinatal Certificate</td>
<td>1 (16.7%)</td>
</tr>
<tr>
<td><strong>Hours of work:</strong></td>
<td></td>
</tr>
<tr>
<td>Full-time</td>
<td>5 (83.3%)</td>
</tr>
<tr>
<td>Part-time</td>
<td>1 (16.7%)</td>
</tr>
<tr>
<td><strong>Years worked in the labour and delivery room:</strong></td>
<td></td>
</tr>
<tr>
<td>&lt;1-10</td>
<td>3 (50.0%)</td>
</tr>
<tr>
<td>11-20</td>
<td>1 (16.7%)</td>
</tr>
<tr>
<td>21-30</td>
<td>2 (33.3%)</td>
</tr>
<tr>
<td><strong>Number of births attended in past year:</strong></td>
<td></td>
</tr>
<tr>
<td>1-100</td>
<td>3 (50.0%)</td>
</tr>
<tr>
<td>101-200</td>
<td>2 (33.3%)</td>
</tr>
<tr>
<td>201-300</td>
<td>1 (16.7%)</td>
</tr>
<tr>
<td><strong>Given birth:</strong></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>2 (33.3%)</td>
</tr>
<tr>
<td>No</td>
<td>4 (66.7%)</td>
</tr>
<tr>
<td><strong>Had cesarean section</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0 (0%)</td>
</tr>
</tbody>
</table>

**Data Analysis**

The average score on the Likert scale was 2.95 which indicated a tendency towards a neutral response. The variance of scores was fairly high with an average standard deviation of .97. The number of responses for each item ranged from 61 to 72,
with 75% (42 of the 56 items) of the items having a 96% (69 to 72 responses per item) response rate. The remaining 25% of the items had a less satisfactory response rate.

**Reliability**

This section describes the internal consistency and inter-item reliability of the NABQ.

**Internal Consistency**

For this analysis of internal consistency, the Cronbach’s alpha should be .70 or higher for the set of items to be considered a scale (Nunnally, 1978; Polit & Hungler, 1999). The 56 items on the NABQ had a Cronbach’s alpha of .66. The NABQ is considered a long test with 56 items; therefore, higher internal consistency scores were anticipated.

Participants spontaneously commented on questions by writing in the margins and in the comment section of the NABQ. The comments suggested that the questionnaire required: (a) instructions and definitions, (b) items removed or reworded and (c) case study situations to give context to the questions. The following are examples of the notes the nurses made:

1. “Some questions were very hard to understand.”
2. “Perhaps a discussion/focus group.”
3. “I felt cornered by some questions and wasn’t sure if my answers really represented my attitudes.”
4. “Some questions are confusing – 2 in 1.”
5. “I don’t think ‘challenge’ is appropriate – indicates aggressive/defensive rather than collegial approach.”
6. "How do you define a 'successful birth'?"
7. "Depends" on situation, reason for intervention and specific physician.
8. "Unclear" question or definition (for example, "childbirth is only normal in retrospect", "macrosomia" or "dystocia").
9. "Nothing to do with me" in relation to questions out of nurses' scope of practice (for example, questions in relation to episiotomy and induction).

The standard deviations for the NABQ items ranged from .62 to 1.45 with an average standard deviation of .97. The range in standard deviation suggests that there was variance in responses and reflects the selection of extreme responses, such as strongly agree or disagree. There was also a high frequency of neutral (M = 2.95) responses, which may be attributed to the difficulty that nurses expressed in responding to certain questions.

**Inter-item Reliability**

The purpose of an inter-item reliability assessment is to discover any obvious items that do not belong within the questionnaire. For a corrected item-total correlation, a correlation of "0.15 or less could definitely mean the death sentence for any item" (Loewenthal, 1996, p.106). The NABQ produced correlations of .009 to .415. The items that were found to have low correlations were:

1. Questions that participants had commented were out of their scope of practice, such as "Episiotomies should be performed routinely" (r = 0.077).
2. Questions that the nurses found controversial, such as "Increased doula demand due to nurses failing as LDR nurses" (r = 0.016).
3. Questions where LDR nurses would have unanimous agreement based on their choice of profession, such as “I believe a woman benefits from labour support” \((r = 0.069)\).

The results from the Cronbach’s alpha if item deleted calculations identified that there would not be an increase in the instrument’s Cronbach’s alpha if any item were removed. The Cronbach’s alphas ranged from .635 to .668. This range demonstrates no significant change from the questionnaire’s Cronbach’s alpha of .66.

**Construct Validity**

The following section will present and describe the results from the hypotheses testing.

**Hypothesis Testing**

The construct validity of the NABQ was assessed by examining two hypotheses created from attitude literature and a pilot study (Reime et al., 2004). Summaries of the instrument scores for the items in the hypotheses are presented in Tables 3 and 4. The hypotheses were tested using a two-tailed \(t\) test and chi-square analysis with a significance level set at \(p < 0.05\).

In this assessment, the chance of making a Type I error is increased because multiple \(t\) tests were conducted (Field, 2000). Validity testing based on the performance of numerous \(t\) tests increases the chance of finding a significant result and making a Type I error. The significance level was not increased to \(p = 0.01\) because the Statistical Package for Social Sciences (SPSS) default \((p = 0.05)\) provided more material to be discussed for a master’s thesis. A chi-square analysis was conducted for each hypothesis to check the \(t\) test significance. For the chi-square analysis with 5 categories \((df = 4)\), a
chi-square greater than 9.49 was needed for significance and a chi-square greater than 7.82 was required for significance with four categories ($df = 3$). A two-tailed $t$ test was used for all of the directional hypotheses because it is considered to be a more conservative approach to testing the hypotheses than a one-tailed $t$ test (Leventhal, 1999). This is because a two-tailed test requires a $t$ score to take on a more extreme value to reach statistical significance than a one-tailed $t$ score.

**Hypotheses 1: Education.** The first hypotheses compared nurses with university education (e.g., bachelor’s or master’s degree) to nurses with non-university education (e.g., diploma or certification).
Table 3. Level of Education: Item Scores

<table>
<thead>
<tr>
<th>Item</th>
<th>University Education $(n = 47)$</th>
<th>Non-University Education $(n = 25)$</th>
</tr>
</thead>
<tbody>
<tr>
<td>I prefer to use continuous external fetal monitoring over intermittent auscultation with a hand held Doppler for all births.</td>
<td>$n$ 47, Mean 1.62, SD .74</td>
<td>$n$ 25, Mean 1.56, SD .58</td>
</tr>
<tr>
<td>3rd and 4th degree tears are an inevitable consequence of difficult deliveries, largely due to maternal or fetal characteristics.</td>
<td>$n$ 47, Mean 2.0, SD .83</td>
<td>$n$ 25, Mean 1.72, SD .61</td>
</tr>
<tr>
<td>Postdate women should be induced as soon as possible at or after 41 3/7 weeks.</td>
<td>$n$ 46, Mean 3.41, SD 1.17</td>
<td>$n$ 25, Mean 3.20, SD 1.23</td>
</tr>
<tr>
<td>The administration of epidurals early in labour is associated with the development of fetal malpositions.</td>
<td>$n$ 44, Mean 3.14, SD 1.09</td>
<td>$n$ 22, Mean 3.32, SD 1.09</td>
</tr>
<tr>
<td>We should perform routine cord gases on all births when feasible.</td>
<td>$n$ 47, Mean 2.23, SD .84</td>
<td>$n$ 25, Mean 2.12, SD .93</td>
</tr>
<tr>
<td>In the case of a previous cesarean section, an elective cesarean section is a better choice than a trial of labour.</td>
<td>$n$ 47, Mean 2.19, SD .74</td>
<td>$n$ 25, Mean 2.60, SD .91</td>
</tr>
</tbody>
</table>

Hypothesis 1a: Nurses with higher levels of education have lower scores in response to: “I prefer to use continuous external fetal monitoring (EFM) over intermittent auscultation (IA) with a hand held Doppler for all births.” The hypothesis was not confirmed. Neither the t test, $t(72) = .33, p = .74$, nor the chi-square analysis, $X^2(3, N = 72) = 1.41, p = .70$, showed any significant differences between groups.

Hypothesis 1b: Nurses with higher levels of education have lower scores in response to: “3rd and 4th degree tears are an inevitable consequence of difficult deliveries, largely due to maternal or fetal characteristics.” The hypothesis was not confirmed by
the $t$ test, $t(72) = 1.48, p = .14$. The chi-square analysis, $X^2 (3, N = 72) = 2.66, p = .45$, also failed to show any significant differences between groups.

Hypothesis 1c: Nurses with higher levels of education have higher scores in response to: “Postdate women should be induced as soon as possible at or after 41 3/7 weeks.” Neither the $t$ test, $t(71) = .72, p = .47$, nor the chi-square analysis, $X^2 (4, n = 71) = 2.10, p = .72$, showed any significant differences between groups.

Hypothesis 1d: Nurses with higher levels of education have higher scores in response to: “The administration of epidurals early in labour is associated with the development of fetal malpositions (occiput transverse and occiput posterior).” The hypothesis was not confirmed with a $t$ test, $t(66) = .64, p = .53$. The chi-square analysis, $X^2 (4, n = 66) = 2.66, p = .62$, also failed to show any significant differences between groups.

Hypothesis 1e: Nurses with higher levels of education have higher scores in response to: “We should perform routine cord gases on all births when feasible.” Neither the $t$ test, $t(72) = .53, p = .60$, nor the chi-square analysis, $X^2 (4, N = 72) = 1.19, p = .75$, indicated any significant differences between groups.

Hypothesis 1f: Nurses with higher levels of education have lower scores in response to: “In the case of a previous cesarean section, an elective cesarean section is a better choice than a trial of labour.” The hypothesis was confirmed by a $t$ test, $t(72) = 2.05, p = .044$. The chi-square analysis, $X^2 (4, N = 72) = 5.72, p = .22$, failed to show a significant difference between the two groups.
**Hypotheses 2: Midwifery.** The second hypotheses anticipated that nurses with midwifery training would respond to specific maternity care questions differently than nurses without midwifery training.

**Table 4. Midwifery Training Hypotheses: Item Scores**

<table>
<thead>
<tr>
<th>Item</th>
<th>No Midwifery Training (n = 60)</th>
<th>Midwifery Training (n = 12)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>Mean</td>
</tr>
<tr>
<td>I would consider working at a free standing birthing centre if it were available.</td>
<td>51</td>
<td>3.73</td>
</tr>
<tr>
<td>Childbirth is only normal in retrospect.</td>
<td>53</td>
<td>2.28</td>
</tr>
<tr>
<td>The most important determinant of a successful birth is a woman’s own confidence and determination.</td>
<td>58</td>
<td>3.81</td>
</tr>
<tr>
<td>I prefer to use continuous external fetal monitoring over intermittent auscultation with a hand held Doppler for all births.</td>
<td>60</td>
<td>1.63</td>
</tr>
<tr>
<td>Third and fourth degree tears are an inevitable consequence of difficult deliveries, largely due to maternal or fetal characteristics.</td>
<td>60</td>
<td>1.97</td>
</tr>
<tr>
<td>I always offer alternative forms of pain relief before offering an epidural.</td>
<td>60</td>
<td>4.40</td>
</tr>
<tr>
<td>Postdate women should be induced as soon as possible at or after 41 3/7 weeks.</td>
<td>59</td>
<td>3.34</td>
</tr>
<tr>
<td>The administration of epidurals early in labour is associated with the development of fetal malposition.</td>
<td>55</td>
<td>3.11</td>
</tr>
</tbody>
</table>

Hypothesis 2a: Nurses with midwifery training have higher scores in response to:

“I would consider working at a free standing birthing centre if it were available.” The
hypothesis was confirmed by a $t$ test, $t(61) = 2.22, p = .030$. However, the chi-square analysis, $X^2(4, n = 61) = 6.66, p = .16$, failed to reveal a significant difference between groups.

Hypothesis 2b: Nurses with midwifery training have lower scores in response to: “Childbirth is only normal in retrospect.” Neither the $t$ test, $t(65) = 1.02, p = .31$, nor the chi-square analysis, $X^2(4, n = 65) = 3.29, p = .51$, showed any significant differences between groups.

Hypothesis 2c: Nurses with midwifery training have higher scores in response to: “The most important determinant of a successful birth is a woman’s own confidence and determination.” A $t$ test did not demonstrate a significant difference between groups, $t(70) = 1.26, p = .21$; however, the chi-square analysis, $X^2(4, N = 72) = 10.42, p = .034$, demonstrated a significant difference between the two groups. The average response score ($M = 3.81$ and $3.42$) for this item are very similar but the standard deviation for the nurses with midwifery training is greater ($SD = 1.44$ versus .87). The breakdown of responses for the chi-square analysis shows that there was a real difference in the rate of response for each category. For example, of nurses without midwifery training 38 strongly agreed/agreed compared to only 7 of those with midwifery training.

Hypothesis 2d: Nurses with midwifery training have higher scores in response to: “I prefer to use continuous external fetal monitoring (EFM) over intermittent auscultation (IA) with a hand held Doppler.” Neither the $t$ test, $t(72) = 1.00, p = .32$, nor the chi-square analysis, $X^2(3, N = 72) = 2.00, p = .57$, showed any significant differences between groups.
Hypothesis 2e: Nurses with midwifery training have lower scores in response to: "Third and fourth degree tears are an inevitable consequence of difficult deliveries, largely due to maternal or fetal characteristics." A $t$ test did not demonstrate a significant difference between groups, $t(72) = 1.59, p = .12$. The chi-square analysis, $X^2(3, N = 72) = 3.07, p = .38$ also failed to reveal a significant difference between groups.

Hypothesis 2f: Nurses with midwifery training have higher scores in response to: "I always offer alternative forms of pain relief before offering an epidural." The hypothesis was confirmed by a two-tailed $t$ test, $t(72) = 2.30, p = .024$. The chi-square analysis,$X^2(4, N = 72) = 7.11, p = .13$, however, failed to reveal a significant difference between groups. This may be due to a relatively small sample size in each group and particularly the fact that there were only 12 midwifery trained nurses (60 without midwifery training). The results of the chi-square analysis show that (a) 91.7% of the midwifery trained nurses strongly agreed with this question, while 50% of the nurses without midwifery training strongly agreed and (b) 8.3% of the midwifery trained nurses agreed with this question, while 45% of the nurses without midwifery training agreed. This analysis of the responses suggests that the midwifery trained nurses agreed more strongly with the question.

Hypothesis 2g: Nurses with midwifery training have lower scores in response to: "Postdate women should be induced as soon as possible at or after 41 3/7 weeks."
Neither the $t$ test, $t(71) = .02, p = .99$, nor the chi-square analysis, $X^2(3, N = 72) = 6.54, p = .16$, showed any significant differences between groups. The chi-square analysis revealed that there were differences in the level of responses between the two groups. Of the nurses without midwifery training, 15 strongly disagreed/disagreed, whereas five of
the nurses with midwifery training strongly disagreed/disagreed. Of the nurses without midwifery training, 32 strongly agreed/agreed, whereas six of the nurses with midwifery training strongly agreed/agreed.

Hypothesis 2h: Nurses with midwifery training have higher scores in response to: “The administration of epidurals early in labour is associated with the development of fetal malposition.” Neither the \( t \) test, \( t(66) = 1.49, p = .14 \), nor the chi-square analysis, \( \chi^2 (3, n = 66) = 6.57, p = .16 \), revealed a significant difference between groups.

**Exploratory Factor Analysis**

An EFA was conducted using SPSS to investigate the construct validity of the NABQ. A principal components analysis was used to extract factors with eigenvalues greater than 1.0. An orthogonal varimax rotation was conducted to minimize the number of variables with high loading on any given component. This produced a correlation matrix which summarized the interrelationships for all the 56 items on the NABQ by using Pearson correlation coefficients between all pairs of items. The correlation matrix was examined to identify items that were either too highly correlated \( (r \geq .80) \) or inadequately correlated \( (r \leq .30) \). No items were found to be too highly correlated and although many items correlated poorly, there were more items that correlated highly. Therefore, the correlation matrix showed that factor extraction was possible. The scree plot (see Figure 2) of eigenvalues indicated that a seven, eight or nine factor model would be acceptable. Because the models with eight and nine factors lacked cohesive relationships among items, a seven factor model was selected.
The factor loadings were between .42 and .84 with 19 items loading on one or more factor. Pett et al. (2003) identify that it is very common for items to load significantly on multiple factors. Each factor was assessed so that the multiple loading items were placed with the factor that shared a collective theme. Six items (questions 29, 36, 45, 46, 59 and 64) did not fit within any factor and these six items were removed. The Cronbach's alpha was calculated for each factor. The factors are described in Tables 5 to Table 11.
Table 5. Factor 1: Childbirth Normal (Cronbach’s alpha = .789)

<table>
<thead>
<tr>
<th>Item</th>
<th>Factor Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>In the case of macrosomia, I believe it is safe for a woman to have a home birth.</td>
<td>.84</td>
</tr>
<tr>
<td>I believe that a home birth is a safe choice for women.</td>
<td>.83</td>
</tr>
<tr>
<td>I would consider working at a free standing birth center if it were available.</td>
<td>.81</td>
</tr>
<tr>
<td>Women post 41 ¾ weeks gestation should still be able to have a home birth.</td>
<td>.79</td>
</tr>
<tr>
<td>I believe it is safe for a woman having a vaginal birth after cesarean section to labour and deliver at home.</td>
<td>.76</td>
</tr>
<tr>
<td>Postdate women should be induced as soon as possible at or after 41 3/7 weeks.</td>
<td>.73</td>
</tr>
<tr>
<td>Doctors or midwives should only employ episiotomy when the birth needs to be expedited.</td>
<td>.71</td>
</tr>
<tr>
<td>I would consider being a back-up nurse for a home birth if it becomes available.</td>
<td>.64</td>
</tr>
<tr>
<td>I would prefer to see more low risk women give birth under the care of midwife than a doctor.</td>
<td>.63</td>
</tr>
<tr>
<td>I encourage delayed cord clamping.</td>
<td>.61</td>
</tr>
<tr>
<td>Doulas improve maternal and newborn outcomes.</td>
<td>.54</td>
</tr>
<tr>
<td>Pregnant women should develop a birth plan.</td>
<td>.50</td>
</tr>
<tr>
<td>I discuss delayed cord clamping with all mothers.</td>
<td>.43</td>
</tr>
<tr>
<td>Many physicians are too quick to intervene during labour.</td>
<td>.42</td>
</tr>
</tbody>
</table>

Note. Bold items loaded on one other factor.
**Table 6. Factor 2: Intervention Obstetrical Improvement (Cronbach’s alpha = .636)**

<table>
<thead>
<tr>
<th>Item</th>
<th>Factor Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>The increasing cesarean section rate in our country is a sign of improvement in \n  maternity care.</td>
<td>.77</td>
</tr>
<tr>
<td>I know what the woman needs regarding pain relief better than the woman \n  herself.</td>
<td>.65</td>
</tr>
<tr>
<td>I prefer to use continuous EFM over intermittent auscultation with a hand held \n  Doppler for all births.</td>
<td>.49</td>
</tr>
<tr>
<td>Intrauterine pressure catheters are helpful in the management of dystocia.</td>
<td>.43</td>
</tr>
<tr>
<td>Childbirth is only normal in retrospect.</td>
<td>.51</td>
</tr>
<tr>
<td>3rd and 4th degree tears are an inevitable consequence of difficult deliveries, \n  largely due to maternal or fetal characteristics.</td>
<td>.44</td>
</tr>
</tbody>
</table>

*Note.* Bold items loaded on one other factor.

**Table 7. Factor 3: Medical Model Obstetrical Care (Cronbach’s alpha = .631)**

<table>
<thead>
<tr>
<th>Item</th>
<th>Factor Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>Many family physicians have difficulty recognizing the limits of normality in \n  maternity care.</td>
<td>.74</td>
</tr>
<tr>
<td>Episiotomies should be performed routinely.</td>
<td>.72</td>
</tr>
<tr>
<td>Doctors or midwives who delay epidural analgesia when a client requests it are \n  not respectful of the woman’s choice.</td>
<td>.62</td>
</tr>
<tr>
<td>Episiotomy should be regularly employed to prevent pelvic floor relaxation.</td>
<td>.62</td>
</tr>
<tr>
<td>In our province, family physicians should not provide routine intrapartum \n  maternity care.</td>
<td>.60</td>
</tr>
<tr>
<td>It is a woman’s right to elect to have a cesarean section even if there are no \n  clear maternal or fetal indications.</td>
<td>.50</td>
</tr>
<tr>
<td>In the case of a previous cesarean section, an elective cesarean section is a \n  better choice than a trial of labour.</td>
<td>.49</td>
</tr>
<tr>
<td>We should perform routine cord gases on all births when feasible.</td>
<td>.61</td>
</tr>
</tbody>
</table>

*Note.* Bold items loaded on one other factor.
Table 8. Factor 4: Care Provider Involvement (Cronbach’s alpha = .491)

<table>
<thead>
<tr>
<th>Item</th>
<th>Factor Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>A policy of obligatory consultation with a second physician when a cesarean section is considered for dystocia could safely lower our cesarean section rate.</td>
<td>.79</td>
</tr>
<tr>
<td>Many women have painful early labour that requires admission</td>
<td>.70</td>
</tr>
<tr>
<td>A woman should be examined in her own home by her doctor or midwife to assess if she is in labour.</td>
<td>.69</td>
</tr>
<tr>
<td>Certain tests and procedures need to be performed for legal or defensive reasons rather than clinical indications.</td>
<td>.62</td>
</tr>
<tr>
<td>It is easier to repair an episiotomy than repair the lacerations that result when an episiotomy is not used.</td>
<td>.55</td>
</tr>
<tr>
<td>Given a diagnosis of macrosomia at 40 weeks, I believe that the doctor or midwife should arrange for an induction.</td>
<td>.50</td>
</tr>
</tbody>
</table>

Note. Bold items loaded on one other factor.

Table 9. Factor 5: Women’s Choice and Support (Cronbach’s alpha = .436)

<table>
<thead>
<tr>
<th>Item</th>
<th>Factor Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>The most important determinant of a successful birth is the woman’s own confidence and determination.</td>
<td>.52</td>
</tr>
<tr>
<td>In our hospital we routinely provide 1:1 nursing.</td>
<td>.55</td>
</tr>
<tr>
<td>I spend more than 60% of my time on shift in the room/with the patient.</td>
<td>.43</td>
</tr>
</tbody>
</table>

Note. Bold items loaded on one other factor.
Table 10. Factor 6: Advocacy (Cronbach’s alpha = .449)

<table>
<thead>
<tr>
<th>Item</th>
<th>Factor Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>I frequently challenge orders or practices of the midwife if I recognize a problem or don’t agree with the course of action.</td>
<td>.89</td>
</tr>
<tr>
<td>I frequently challenge orders or practices of the doctor if I recognize a problem or don’t agree with the course of action.</td>
<td>.87</td>
</tr>
<tr>
<td>I would like to see appropriately trained nurses take on more responsibility for normal labour and delivery.</td>
<td>.47</td>
</tr>
</tbody>
</table>

Table 11. Factor 7: Epidurals and Cesarean Sections (Cronbach’s alpha = .704)

<table>
<thead>
<tr>
<th>Item</th>
<th>Factor Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>The use of epidural analgesia early in labour (&lt;4 cm) increases the cesarean section rate.</td>
<td>.83</td>
</tr>
<tr>
<td>When routinely used, epidural analgesia increases the cesarean section rate.</td>
<td>.68</td>
</tr>
<tr>
<td>We could safely lower our cesarean section rate through organized peer review of cesarean sections for dystocia.</td>
<td>.51</td>
</tr>
<tr>
<td>I always offer alternative forms of pain relief before offering an epidural.</td>
<td>.51</td>
</tr>
<tr>
<td>The administration of epidurals early in labour is associated with the development of fetal malpositions.</td>
<td>.44</td>
</tr>
</tbody>
</table>

Note. Bold items loaded on one other factor.

The seven factors accounted for 66.4% of the cumulative variance. Pett et al. (2003) explained that many researchers recommend that factor extraction continue until all extracted factors account for at least 90% of the explained variance, unless the measure is situated “in the less precise social sciences, where extracted factors could account for less explained variance” of 50% to 60% (Pett et al., 2003, p. 118). In addition to being supported by the scree plot, the seven factors sufficiently met the cumulative variance criteria. Factor 1 with an eigenvalue total of 9.8 accounted for
21.8% of variance. Factor 2 with an eigenvalue total of 4.5 explained an additional 10.1% of variance. Factor 3 had an eigenvalue total of 3.7 and added 8.2% of variance. Factors 4 through 7 with eigenvalue totals of 3.6, 3.4, 2.7 and 2.2, added 8%, 7.6%, 5.9% and 4.8% of variance, respectively.

The theme of each factor was determined by examining the NABQ items that loaded highly on each factor (loading of ≥ .4). Factor 1 consisted of 14 items and was labeled “Childbirth Normal” because it contained items pertaining to low risk births, such as home birth, birthing centers, doulas and birth plans. Factor 2 comprised seven items and was named “Intervention Obstetrical Improvement” because the items deal with interventions, such as cesarean section, intrauterine pressure catheters, tears and episiotomies. Factor 3 was defined by eight items and was called “Medical Model Obstetrical Care” because the items are associated with a medical model of birth, dealing with topics such as cesarean sections, cord gasses, episiotomies and epidurals. Factor 4, with six items, was named “Care Provider Involvement” because the items focus on physician consultation, hospital admission, home exams, tests, procedures and induction. Factor 5 included three items and was named “Women’s Support” because the items were directed at supporting women. Factor 6 comprised three items and was labeled “Advocacy” because the items were directed at the role of a nurse as a patient advocate. Factor 7 included five items and was named “Epidurals and Cesarean Sections” because the items dealt with the occurrence of these two specific interventions.

The labeling of the seven factors was difficult because some of the items did not have an obvious conceptual fit. The items that did not connect conceptually were removed from the factor. The nine items that were removed from the factors were not
related to other items in a particular factor. For example, question 64, "I believe women benefit from labour support", loaded similarly in strength in both Factor 2 and Factor 3, but neither of these factors fit conceptually with labour support. The final factor analysis included 46 of the 55 loaded items. There was one item ("The responsibilities of my job compete with my role of providing support to the mother.") that did not meet the loading minimum of .4 and was excluded from the final analysis. Nurses had a neutral response to this question ($M = 3.0$).

**Reliability Estimation**

The Cronbach’s alphas for the individual factors were as follows: Childbirth Normal (14 items), .79; Intervention Obstetrical Improvement (six items), .64; Medical Model Obstetrical Care (eight items), .63; Care Provider Involvement (six items), .49; Women’s Support (three items), .49; Advocacy (three items), .45 and Epidurals and Cesarean Sections (five items), .70. The low reliability of the factors is not surprising given that the NABQ is in the initial stages of development and testing. This analysis will provide information relevant to changing and improving the reliability of the NABQ for future testing.

**Analysis of Factors**

In order to better understand the items within the factors and how they relate to the sample, a $t$ test was conducted to compare the means of nurses with university education to those with non-university education, of nurses with midwifery training to those without and of nurses who had given birth to those who had not. The factors were tested using a $t$ test with a significance level set at $p < .05$. In comparing nurses with university education to those with non-university education, the only significant
differences were found in respect of Factor 3, Medical Model of Obstetrical Care, $t(72) = 1.99, p = .05$. Also Factor 6, Advocacy, $t(72) = 2.95, p = .004$, demonstrated a significant difference between nurses who had given birth and those who had not regarding attitudes towards advocating for a patient.

The factors were correlated with further demographic characteristics, such as age, number of years worked in the LDR and number of births attended in the past year. From this analysis, modest relationships were found between two factors and two demographic characteristics. Older nurses felt strongly concerning advocating for women in labour (Factor 6), $r = .24, p < .05$. Nurses with a greater number of years working in the LDR had stronger attitudes towards advocacy (Factor 6), $r = .24, p < .05$. There was a relationship between older nurses and strongly held positions towards epidurals and cesarean sections (Factor 7), $r = .26, p < .05$.

The subsequent section describes the results from a focus group of expert LDR nurses. The findings from this focus group provide further information regarding the validity of the NABQ.

*Content Validity*

The focus group participants were asked to review the survey questions for clarity, comprehensiveness, wording and length. They used a copy of the NABQ as a reference throughout the focus group discussion. Thematic content analysis of the data generated seven relevant themes. The seven themes and supporting concepts are presented in the following section and are supported by direct quotes from the discussion. The quotations either appear as a single unit made by one participant or are numbered to make multiple participants' responses separate and obvious to the reader.
Theme 1: Institutional Constraints and Practice Setting Impede Attitudes

The majority of the focus group participants encountered difficulty indicating specific personal attitudes towards labour and birth. Institutional constraints and the practice setting made it difficult for nurses to articulate clear-cut attitudes. The nurses described feeling powerless within their institution. They indicated that expressing personal attitudes regarding patient care could be difficult, because nursing is not an autonomous profession and the primary caregiver makes the decisions about care. They found adhering to specific attitudes difficult because many variables affected professional and individual attitudes, including hospital policy and protocol, physicians' conflicting practices, staffing shortages and lack of support. Comments such as “You can have your attitude but really it just gives you a sick feeling. It doesn’t really translate into the care that people get” (6), “I find nurses completely apathetic” (4) and “You don’t have a lot of power” (4) illustrate this theme.

The participants stated they avoided holding strong attitudes to prevent personal dissonance. One participant said:

In your opinion you have something that is best for the patient and then you are trying to manipulate your environment to the way you say things to actually guide the physician towards a certain decision but the ultimate decision is still within that physician or midwife . . . that is not my responsibility. (2)

The participants identified several techniques nurses use to negotiate patient care with physicians, thereby regaining a sense of power by preventing actions, while at the same time not directly confronting the constraints of the institution and practice setting. Around preventing episiotomies, the nurses made statements such as: “You hold the
scissors... or you knock them over” (6) and “Or you hide them stating, ‘perineum looks thick and chunky!’” (2)

The participants recognized that as relationships develop and trust increases between nurses and other maternity care providers, such as obstetricians, the institution and practice setting constraints become less rigid and nurses have increased involvement in the direction of patient care. A participant expressed this by saying: “And if that doctor trusts you, they’ll act on it and if they don’t trust you [frowns].” (6)

The participants suggested the best method for implementing change in labour and birth was the education of patients. They saw themselves as advocating for patients by making suggestions to the primary care provider or assisting patients to express their wishes. As one participant expressed: “It is to suggest to the physician or to explain to the patient as much as you can and educate them so that they can participate in making that decision.” (2)

**Theme 2: Research Serves as a Weak Reflection of Attitudes**

The participants were aware that the items on the NABQ were not nursing specific and that the questions reflected current evidence-based findings. They indicated that a large portion of their nursing practice is influenced by “intuition” and “the art of nursing,” not research. The terms “intuition” and “art of nursing” were used by participants to indicate their practical nursing experience. The participants felt that the use of research-based questions and wording were not good strategies for identifying nurses’ attitudes towards labour and birth. They also saw research evidence as changing over time so that some practices that had previously been supported by research were not currently supported. One participant addressed this by stating:
The more research you do the more discoveries every year. You believe that there are only nine planets - there aren’t nine planets anymore, they think there are more planets now. I mean we are learning everyday - our knowledge is changing . . . The other way is what we are all sitting here talking about and we can’t really express what the art of nursing. It is that intuition. It is that ability to somehow find yourself in a situation and guide it. (2)

Another participant felt strongly about the influence that their “intuition” had on practice, they said, “It is intuition. A lot of nursing is intuition” (6) and “I’m not god or anything, you know. I just know . . . Say this to some of the doctors, ‘it is based on my gut feeling – I’ve got no medical evidence but this is what I think.’” (1)

**Theme 3: Relevance of the Questions**

The nurses indicated that the NABQ questions were not irrelevant to birth but that the wording of the questions was inappropriate. The questions were not within the nurses’ scope of practice. They felt that many of the questions were directed at the primary care provider and that the issues raised were not directly within nurses’ control. One participant addressed this by saying:

It is not necessarily that they are irrelevant, it is just that a lot of them are not up to you. It is just all you are doing is observing somebody else’s behaviour. We don’t get a chance to make these decisions. So it is not that it is irrelevant, we have ideas about this, I don’t think there is a room in our environment to even make a suggestion or to influence that decision at all. (2)

The nurses described having to deal with decisions that were made. They felt they inherited the problems associated with other care providers’ choices. In those
situations, they were dealing with the ‘fall-out’ but felt powerless to influence the
decisions being made. A nurse expressed those feelings by saying: “We inherit, you
know. We get in the middle of [inductions]. It is hard to say that it is not relevant to our
job. It is relevant. But at times you feel powerless of what to do about it.” (6)

Some of the nurses felt that although they did not have the ultimate choice, their
attitudes could be communicated to patients through their actions. They were aware that
their responses based on their attitudes could contribute to the way that the situations
unfolded. The following nurse shares her views:

Our attitudes come across in some way or another to those patients. Even if we
don’t have the authority or the power to affect change in the situation, I think our
attitudes in some way still come across. So even though, it is not relevant as far
as us making the decisions in that situation. What we think about it is going to
play into the situation. (3)

The participants also identified questions that they felt were not within the scope
of nursing practice. They identified, for example, questions pertaining to determining
macrosomia, vaginal birth after cesarean section (VBAC), home birth, induction, cord
clamping, cesarean section and episiotomy. The participants interpreted the questions as
asking about their responses to attitudes held by another professional group. They found
it difficult to answer these questions, because they did not perform the medical
procedures described or know enough about making decisions regarding these procedures
to form an attitude. One participant clearly expressed her thoughts concerning nurses’
scope of practice by suggesting that certain issues are simply not a nurse’s decision. She
stated, "I am a nurse and I don't think it is my decision whether or not a woman has a homebirth if she is a VBAC" (6).

The participants indicated that they were inclined to avoid conflict and confrontation in practice. This avoidance often inhibited their expression of consistent attitudes. They avoided conflict and confrontation for their patients, and to maintain a positive environment. The participants recognized that primary caregivers have established a relationship with their patients and that this may involve discussions and agreements about medical interventions. Whether or not participants feel opposed to these care directions, they respect care providers’ decisions and the relationships the care providers have with their patients. One participant clearly articulated that the nurse’s role within labour and delivery is to negotiate and avoid conflict while supporting women:

You avoid conflict and confrontation basically with the physician but you are constantly navigating in a mine field of everyone else’s opinion . . . My responsibility is to perhaps support that woman, guide that woman and make necessary observations and report those findings to the physician but ultimately that responsibility of whether to do that episiotomy or not to is his. (2)

Participants recognized that doctors establish relationships with women and discuss women’s plans for care, whereas nurses rarely have an opportunity to develop a long-term relationship with labouring women. The short-term relationship makes it difficult to contradict a previously discussed plan. The nurses felt they needed to be flexible and evaluate and implement a plan if it is safe. She conveyed her opinion as follows:
I feel like a doctor takes time with his patients, he gets to know them, he talks to them and together they have made up their minds on how, what kind of labour they want. He has already discussed that. . . . What right do we have to then upset what they've already decided with their physician, if he is going to be the doctor that is coming along? (4)

The participants proposed that to fulfill their role as patient advocates, their attitudes required a high degree of adaptability. They felt they could not subscribe to or identify specific attitudes towards labour and birth. Their practice changed to reflect individual patients’ preferences, primary care providers’ preferences and labouring or birthing situations. The attitudes they use are situation specific and even these attitudes are not fixed because obstetrics is not “black and white.” One participant addressed this in her statement: “But I think in obstetrics there really is no black and white. We have all been proven wrong. And what that teaches you is do not have attitudes. Be open. Be safe but don’t blacklist anybody.” (6)

Nurses’ experiences with patients exposed them to different and unpredictable situations, which made nurses realize that it is difficult to hold precise attitudes. One participant embodied this concept when she said:

I think it is so funny that it is an attitudes questionnaire. The more I realize life is so diverse and that I really, really can’t judge. I meet these people and in different situations, I get to know them personally and I am thinking huh that is really bizarre I don’t feel that way or strongly anymore. I wouldn’t know how I would be if I were in that situation and so it is really hard to judge. When you are a nurse you have to support every patient that you have. (2)
The nurses spoke passionately about advocating for women by remaining flexible, preventing conflict and avoiding strongly held attitudes.

**Theme 4: The NABQ Lacks Context to Identify Attitudes**

The participants indicated that a labouring woman’s detailed situation would facilitate determining which of their attitudes ought to be emphasized. For a nurse to identify an attitude, a detailed obstetrical situation would need to be clearly outlined. The participants stated that the NABQ questions were “too simplistic,” “lacked detail” and needed to be “more specific.” The participants felt that, in obstetrics, there are many variables involved, that could influence the expression of attitudes. The nurses found it difficult to answer strongly agree/agree or strongly disagree/disagree for most of the questions because the circumstances seemed ambiguous.

The questions that the participants felt strongly towards were driven by an emotional reaction to controversial subject matter. For example, they strongly disagreed with the questions (a) “a woman’s history of sexual abuse has no impact on the course of labour”; (b) “it is a woman’s right to elect to have a cesarean section even if there are no clear maternal or fetal indications” and (c) “the increase in demand for doulas is a result of nurses failing to fulfill their role as LDR nurses.”

The question concerning sexual abuse received a very strong response because the participants had experience supporting women with a history of sexual abuse and felt the wording of the question was too definitive. They indicated that the experience of being sexually abused would certainly impact a woman. They suggested that wording the question “no impact” creates a situation where the responses will be strongly disagree.

One participant expressed this by saying: “But it is heavy handed, that makes it heavy
handed to say – no impact, right? You strongly disagree, right? I think all of us would probably say strongly disagree.” (6)

The question about the normalcy of cesarean sections caused passionate reactions. The participants generated a discussion about elective cesarean sections that focused on (a) women’s fears of pain and birth, (b) the convenience of a scheduled delivery date, (c) health care professionals failing women, (d) research findings that suggest improved fetal outcomes with a cesarean delivery and (e) the media and internet influence. The discussion was initiated by a participant who wanted to give an example of an issue in obstetrics where she had a strong and inflexible attitude:

I have a huge issue because there has to be maternal and fetal negative outcomes. A cesarean section is an operation, it is not like booking their manicure on Monday. You want to book your section because you are afraid of birth? Everybody is afraid of birth. So we are failing these women, I feel. If we allow their fear to dictate an operative deliver. We are failing these women. I believe in a women’s body to be inherently designed to give birth. There is my attitude right there. (6)

One participant responded by arguing that numerous women choose to have other surgeries, such as breast augmentations and abortions, and that they should be able to have elective cesarean sections. She identified that some cesarean sections are life saving, and that women have been informed that cesarean sections have better maternal and fetal outcomes. She suggests that choosing a cesarean section is a personal decision that should be available to all women.
There are women in this culture and who is to say that they are better off or worse off than we are, that is their choice [cesarean section] they have grown up like that. If you look at statistically, our morbidity and mortality rate is so low because of intervention. (2)

The wording and subject matter of the doula question also upset the participants and resulted in strong responses. The participants were upset by the use of the word “failing.” They proceeded to differentiate the roles of nurses and doulas and defend their professional responsibilities. The question was difficult to answer for the participants because some of them expressed a positive regard for doulas but would prefer that the question be reworded and put in context.

I couldn’t disagree more with that statement. In that, nothing irked me more than that question of a nurse not fulfilling her role if she is not there supporting the woman all the time. Yeah, we are there to support women but we also have other things to be considered and thinking about. If I was a pregnant woman in labour, I would want a doula because I know at [BCWH] we are fortunate enough to have 1:1 but as a nurse you also have other responsibilities as well that are going to distract you. (5)

The participants theorized that there would be a large number of neither agree/nor disagree category responses because of the lack of context associated with some questions and the flexible nature of obstetrical nursing. However, the participants indicated that if a situation was described in detail, they might be able to identify their attitude for that particular scenario. The participants indicated that they would always remain flexible and keep an open mind, but that if they had a description of the factors,
they might be able to isolate an attitude. Since they felt that the questions lacked sufficient detail to express an attitude, many of them responded neither agree/nor disagree to the questions.

Because this questionnaire puts you either on one side or the other, maybe you will find that you’ll get mostly neither/nor because nurses in the LDR are flexible. Maybe that is the key. That is why we can’t have, you know, a strong – definitely this and definitely that, it just depends. (2)

Another participant supported this by recounting her experience and saying, “I found myself for a lot of the questions, ticking neither agree/disagree. Depending on the details, you know I would feel differently and as well, who the doctor is, does she have good support system, is she 13 and pregnant.” (5)

One participant explored her perception of attitudes and how her practice has evolved to avoid generalizations and instead, to form patient specific attitudes.

Anytime I find myself facing generalizations I really can’t commit to one way or another or I think I can and then by talking to another person I change my mind. So then I think don’t I have an attitude and then it becomes very patient specific. What forms an attitude? Is it that attitude in that moment in time or is it general like ‘I never’ That is an attitude. And people feel very strongly. (2)

**Theme 5: The NABQ Requires Improvements**

The participants felt that in order to adequately respond to the questions and to have their attitudes reflected, they needed the questions to be context specific. They suggested providing a case scenario describing a situation in detail. A case scenario reduces the number of questions by providing the context needed to combine subjects
into one question. The participants’ commented that a case scenario would help capture nurses’ attitudes and shorten the questionnaire. One participant said:

This took a lot of time. I think a case setting would have been easier...There are seventy questions here! Maybe you can get at people’s attitudes if you came up with one really good case study and ask people to go for it. Just – what do you think about this? (6)

Another participant proposed a format resembling a style of questioning that nurses are familiar with. She recommended improving the questionnaire by expressing that the Canadian Nurses Association uses case scenarios on their exams and that nurses would be comfortable answering this style of questioning. She explained this by saying, “I think if it is in a scenario form like they do in lots of questions for Canadian Nurses Association. They always do this big case scenario and then they do questions related to that scenario.” (2)

Other participants argued both for and against the simplicity of the NABQ. One participant expressed her dislike for case scenarios because they are too specific and may idealize situations so that responses may not reflect what would actually occur.

I find that sometimes with the case scenario it is too cut and dried. You can, yes you would do this but unless you are in that actual situation you may not do it.

Whereas here you do have choices – strongly disagree. (4)

One participant admitted that she might be intimidated by reading through a detailed case scenario and responding to questions. She also explained that a case scenario could encourage conversation among the nurses and become a useful education tool:
I was saying that the case scenario, I would be intimidated by it probably but I could see it stimulating a conversation and people becoming interested – Oh, what would you do and what do you think about this? (5)

The NABQ had formatting problems, such as small font. One of the older participants said: “I would like it if it was bigger print” (4). The nurses were indifferent to the artwork but liked the yellow color of the paper: “I like the color. Yellow is a happy color.” (1)

The participants reported that the content of the questions was often difficult to determine because a word or term had (a) an ambiguous definition, (b) a controversial interpretation or (c) an unclear meaning. The participants expressed some confusion regarding the definition of certain terms. The participants indicated that they would have liked clear definitions for “dystocia” and “pelvic floor relaxation.”

Lastly, the nurses were confused about the meaning of certain terms, such as “I” and “we.” A participant recognized that she may have misinterpreted the meaning of the questions and reflected on this by saying, “See, I read that as would ‘I’ look after a woman with macrosomia at home.” (4) Another participant expanded on her confusion and added, “Who is we? ‘We’ nurses? ‘We’ health care team?” (6) She followed this by suggesting that the direction of the question be changed:

If they were worded differently like ‘how would you feel about a woman who comes in after labouring dystocia and she is 42 weeks. Would you feel, you know – Oh, she shouldn’t have done that or yes she should have, and who is looking after her . . . Really discovering our attitudes. Like if that is what the
questionnaire is getting towards, certainly not until you said it, it didn’t get to me.

(6)

All the participants revealed that they were disappointed with the content of the questions and their failure to reflect a nursing scope of practice. They believed that in order to achieve an accurate reflection of nurses’ attitudes and to increase sample responsiveness the content of the questions should be nursing focused. They recommended that the questions concentrate on nursing and address topics such as nursing practice, nursing attitudes towards a changing culture and nursing as a profession.

One participant suggested a general nursing question to ask would be, “I believe nurses play a positive role in women’s birth experience.” (3) This same participant proposed a question that voiced the nurses’ frustrations about an environment lacking in support. She said: “I don’t know if this would be in line with other questions but things about how we feel we are supported in our job. What are the attitudes towards the support we receive.” (3) Another participant supported this line of questioning and recommended that questions address whether nurses are being supported, heard and respected. This participant stated:

But I think [(3)] is really right. Maybe that is what I was trying to get at. Is that – the attitudes towards are we being supported, are we being appreciated, are we being listened to, are we being respected in a way from physicians stand point of view yeah those kinds of things. (2)

The participants discussed, at length, their observations about recent changes within the hospital and social culture. They specified that these changes have influenced birth outcomes and affected their attitudes towards birth. The participants indicated that
women’s expectations of labour and birth have changed dramatically. Women expect to have a “perfect birth, perfect baby, perfect marriage, perfect everything.” (1) They hypothesized that women’s expectations are influenced by the media, the internet and friends. The participants would have appreciated questions that addressed these changes in health care practitioners’ and women’s attitudes towards birth.

The participants debated the categories because some felt that the Likert scale was too narrow, while others thought it provided suitable options. The participants all agreed that several questions seemed to require elaboration in a written response. Many of them thought that a designated space for comments would be helpful in understanding the results. One participant felt that the categories would not express nurses’ attitudes because it would be impossible to know the explanation for the nurses’ choices. She stated:

The categories were way too narrow. Right? There needed to be some way to elaborate if you were choosing neither agree/nor disagree like did we all choose that category for the same reason – or not? It was hard to know if when you go and look at these results are you going to be able to catch that. The categories are so strict. (6)

The participants agreed that the questions stimulated significant feelings that would not have been captured in a Likert scale response. Therefore, they expressed these feelings and thoughts by writing comments directly onto the questionnaire. The participants stated, “You just put comments everywhere. They agree or disagree, they’ll have to force you into one or the other” (2) and “You couldn’t help yourself. It was hard to pick those categories sometimes.” (6)
The sequencing of the questions was a concern for a couple of the participants. They found the lack of a logical pattern in the NABQ distracting. They used terms such as “schizophrenic” and “contrived” to describe the item arrangement. One participant felt that the questions were randomly mixed to keep respondents attentive:

It felt contrived. I could tell they were jumping around to keep you from getting stuck. But it felt fake. And it was intentional. This whole thing seems quite contrived. Let’s just word these really heavy to get people all worked up and then let’s randomly screw it all up in their head so they are not getting too focused on any one thing. (6)

Another participant added, “I had to go back up to the last questions . . . so that I was still in the same thoughts.” (1) The participants would have preferred to have the questions organized into themes, such as early labour, intrapartum and postpartum.

**Theme 6: Positive and Negative Impression of the NABQ**

The participants described positive and negative impressions of the questionnaire. The negative impressions of the questionnaire arose from certain questions that made the participants feel offended, angry, frustrated or insulted. The participants commented “I felt some of the questions were focused in a negative slant” (4) and “Some things are gut reactions but some really offend you . . . . I was frustrated and almost insulted . . . . It made me really defensive.” (2)

The participants identified that the combination of some questions made them feel that nurses are not doing a good job. One participant felt that certain questions imply that midwives and doulas are a better choice than nurses. She said:
This [NABQ] is kind of reminding you or kind of telling you maybe what you don’t do and you should be doing and how all these extra people are so great like the midwives and the doulas. I don’t know and it made me feel underappreciated maybe. (2)

Overall, the participants found the questionnaire challenging and interesting. They reported that the process of completing the NABQ stimulated conversation among nursing colleagues. The participants agreed that the NABQ encouraged critical thinking and helped them to evaluate their nursing practice. In this respect, one participant stated:

This really tested you. It really made you think . . . . I found it a really interesting questionnaire. Once I started it I thought – well, I could get my teeth into this.

There were some challenging questions. It is still questioning my practice, evaluating my practice. (1)

Another participant responded, “It is definitely stimulating.” (5) And another participant queried, “Didn’t it make you want to talk? Read that question – what do you think about this one? We all did that… You wanted to come to this because you wanted to say what about this one, or that one.” (6) Finally, one participant commented on her positive reaction to the questionnaire. The questionnaire caused her to evaluate her own practice which compelled her to persuade others to fill out the questionnaire.

I wanted to get others to fill it in . . . . I think that is a great thing because I think what it has done is made you think and reflect about your practice. You have, what it sounds like to me, started to evaluate yourself based on these questions. That is not the point of it, at least that is not what I perceived this as. But it made
you think about what you’ve been doing . . . . It shouldn’t make you feel like crap which it sounds like it did too. (4)

**Theme 7: The NABQ Demonstrated a Biased Attitude Towards Normal Birth**

The participants identified the entire questionnaire as having an underlying attitude. They felt that many questions were slighted towards “normal” and intervention-free labours and births. The participants indicated that this questionnaire may not be appropriate for BCWH because the hospital itself is not a low risk center. A dialogue started with one participant suggesting as follows:

A lot of the questions are leaning towards labour is natural and normal and normalcy of birth and midwives and doulas and everything . . . . I felt like this was addressing are you supporting the normalcy of birth versus are you also supporting the morbidity and mortality rate in BC. (2)

Another participant agreed with this concept and stated:

I can agree with you in that sense there was a lot of [questions] all they say to you is that everything we do in a hospital interventions period are negative. Intervening and the fact that you come in and you put on EFM or did you think about that EFM before you put it on. (5)

A different participant expressed, “It is very slighted toward normal.” (4) Another participant queried: “You don’t think the questionnaire has an attitude itself? I think it does. I think it is pro-normalcy. I agree with her that it is pro-normalcy. Maybe this [questionnaire] doesn’t fit with our work environment.” (6) Finally, another participant suggested to the nurses that BCWH is not representative of the national standard. She
said: “Remember we are in a level 3 hospital...we are the biggest obstetric hospital in Canada and we service a big area. Our statistics are going to [be different].” (1)

The themes identified recurrent thoughts and opinions that the nurses formed during the discussion of the NABQ. The themes were varied and interesting. The first theme (Institutional Constraints and Practice Setting Impede Attitudes) suggested that LDR nurses may have a difficult time expressing clear-cut attitudes towards birth. This is significant because it questions the value of the NABQ. The other themes were similarly informative and questioned the suitability of evidence-based and primary care provider-derived questions. The other themes identified specific problems that the nurses encountered while completing the NABQ. The seven themes that evolved from the focus group may provide valuable insight for the improvement of the NABQ.

Chapter Summary

This chapter presented the findings from the reliability and validity testing of the NABQ. An evaluation of the reliability and validity of the questionnaire was discussed. The focus group provided further details about the validity of the NABQ. The focus group session was presented in the context of seven themes that developed from the data analysis.

In chapter five, the impact of the findings will be discussed. The chapter will explore the implications of the findings on nursing practice, education and research. Finally, the chapter will also include recommendations for the revision of the NABQ.
CHAPTER FIVE: DISCUSSION

Introduction

In this chapter, I discuss selected findings from the psychometric analysis of the Nurses' Attitudes and Beliefs Questionnaire (NABQ). The utility of the NABQ and the implications of the psychometric testing are the focus of the discussion. I will explain the implications of the findings for nursing practice, education and research. The chapter will conclude with a summary of the thesis.

Findings from the Psychometric Analysis

The psychometric analysis of the NABQ was the first analysis of a questionnaire within the larger maternity care providers’ attitudes study of which the NABQ is a part. Unfortunately, the NABQ performed poorly psychometrically. A review of the literature using the Cumulative Index for Allied Health Literature databases found no similar literature for comparison. The following section will describe the conclusions obtained from the reliability and validity testing of the NABQ.

Reliability Findings

The NABQ was not expected to be extremely reliable because “reliability coefficients of attitude instruments are usually lower than those of cognitive measures” (Aiken, 1996, p. 238). However, reliability testing revealed that the NABQ had less than acceptable internal consistency. Low internal consistency can be the result of many different factors: poorly written items or ambiguous words (DeVellis, 2003; Nunnally, 1978); lack of detailed instructions (Nunnally, 1978); guessing or indifference by subjects as a result of difficulty responding to individual items (DeVellis, 2003); or attempting to measure an extremely broad subject matter (DeVellis, 2003). Some or all of these factors may have contributed to the NABQ’s substandard internal consistency.
The nurses indicated that the NABQ lacked detailed instructions and clear wording, as a result of which they did not understand the direction or phrasing of the questions. Also, there were many questions that the participants perceived as difficult questions to which to respond. Lack of understanding may cause the reliability coefficient to be artificially deflated because difficult questions promote guessing or indifference (DeVellis, 2003).

Another possible reason for the low internal consistency of the NABQ is the small, homogeneous sample of nurses. A homogeneous sample restricts the range of testing, meaning that a smaller proportion of variance is explained by the instrument, which in turn results in a deflated Cronbach's alpha (DeVellis, 2003). Nunnally (1978) indicates that "the size of the reliability coefficient is directly related to the standard deviation of obtained scores for any sample of subjects" (p. 241). The inadequate response rate of 45% also may have contributed significantly to the poor reliability findings and the weak psychometric testing in general.

In consideration of these various problematic aspects of the NABQ, and the substandard reliability coefficient, it should also be kept in mind that the reliability coefficient might have been even more substandard but for the considerable length of the NABQ. That is so because long questionnaires produce higher estimates of reliability which may inflate the reliability coefficient (Nunnally, 1978).

The poor reliability of the NABQ may have also resulted from the fact that it includes questions that are not worded to elicit an attitude response. For comparison purposes, another questionnaire measuring nurses' attitudes towards birth was sought.
None could be found; however, comparison to a questionnaire with a comparable attitude scale is illustrative.

Hansson and Söderhamn (2004) developed a questionnaire to measure nurses' attitudes towards perioperative conversations. This 47-item Likert scale questionnaire performed well psychometrically (Cronbach’s alpha = .96). This likely resulted in part from the use of questions consistently worded to ensure that responses reflect participants’ attitudes. For example, questions intended to determine nurses’ attitudes towards perioperative conversations’ contribution to the quality of professional nursing care are worded as follows:

1. I think that perioperative conversation makes the patient experience participation in nursing care.
2. I think that perioperative conversation increases the patient’s self-determination.
3. I think that perioperative conversation results in an increased quality of care.

The questions use “I think” statements to obtain the nurses’ attitudes. These types of questions, which are clearly directed at measuring nurses’ attitudes in a relevant respect, are not common on the NABQ; several NABQ questions are double-barreled, practice oriented, not related to birth or not related to nursing. For example, the question “If a woman has chosen to breastfeed, I believe supplemental feeding with formula should be discouraged” is targeted at attitudes about infant nutrition. The question “I encourage delayed cord clamping” does not relate to a decision within the nursing scope of practice.
Slightly different wording of some of the NABQ questions would improve their appropriateness for targeting attitudes towards birth. For example, the question “I encourage delayed cord clamping” could be rewritten as “I believe delayed cord clamping is important for positive neonatal outcomes.” As rewritten, the participant can voice an attitude about the procedure in question without indicating that it is a procedure he or she would personally perform.

The problem with the capacity of the NABQ questions to measure relevant attitudes may explain the poor inter-item reliability. The calculations for the reliability coefficient if item deleted identified that there would not be an increase or decrease in the instrument’s reliability coefficient if any one item were removed. That finding implies that the items do not relate well to one another and that all items should be assessed for relevance (Fishman & Galguera, 2003). The lack of cohesiveness of the questions creates speculation about the objectives of the questions and whether they are all measuring the same subject.

**Construct Validity Findings**

The construct validity of the NABQ was measured through hypothesis testing and exploratory factor analysis (EFA). The findings were disappointing and are discussed in the following section.

**Hypothesis Testing**

The hypotheses failed to show strong support for the NABQ and its effectiveness in measuring the construct (i.e., nurses’ attitudes towards birth). There are numerous possible reasons for those findings. To begin with, the lack of previous research, instruments and literature on the subject of measurement of nurses’ attitudes towards
birth created difficulties in specifying hypotheses based on relevant literature. Therefore, the hypotheses may have been inadequate.

The first group of hypotheses predicted that nurses with a university education (e.g., bachelor’s or master’s degree) would answer questions in accordance with practice standards and research more often than nurses with a non-university education (e.g., diploma or certification). These hypotheses were based on other studies’ findings that nurses’ attitudes towards current methods of practice are considerably affected by their education level (Bernaix, 2000; Chan, Chan, & Day 2004; Courtney, Tong & Walsh, 2000; Walker, Shunkwiler, Supanich, Williamsen, & Yensch, 2001).

The analysis of the six hypotheses in the first group resulted in the rejection of all but one hypothesis. This single hypothesis demonstrated that nurses with a university education gave answers significantly different from those of non-university educated nurses regarding elective cesarean sections after a previous cesarean section. This hypothesis reflected the policy of British Columbia Women’s Hospital (BCWH) and the Society of Obstetrics and Gynecologists of Canada (SOGC) guidelines. One possible explanation for this is that nurses with a degree may have responded to this question based on their awareness of BCWH policy and the SOGC guidelines, while nurses with a certificate may have responded based on their clinical experience. In any case, the chi-square testing failed to substantiate this difference as significant, which suggests that education does not influence labour and delivery room (LDR) nurses’ attitudes towards elective cesarean sections or that the sample size was too small to find a significant difference with chi-square testing.
The second group of hypotheses suggested that nurses with midwifery training would respond to specific maternity care questions differently from nurses without midwifery training. The hypotheses failed to find any significant difference by using both $t$ testing and chi-square testing. The failure to find a significant difference between groups might have resulted from nurses who do not have midwifery training having attitudes towards birth similar to those of midwives, and therefore expressing similar attitudes. This potential convergence of attitudes may result in nurses expressing an interest to work in the low intervention environment of a birthing centre, using intermittent auscultation or offering alternative forms of pain relief. This would lead to not finding a significant difference between groups.

The failure to find significant differences between groups may also have been due to the sample setting. Since BCWH is a tertiary care hospital, the nurses are all exposed to high cesarean section rates and complicated deliveries. These recurrent incidents could influence their attitudes towards vaginal births and cesarean sections, and make their attitudes fairly cohesive. Put slightly differently, the nurses’ experiences at BCWH may overshadow their respective educational backgrounds and training. Also, BCWH is a teaching hospital. Nurses employed in that facility are likely exposed equally to current research and relevant practices that undermine differences based on education and training. This might contribute to similar means for the groups.

In some cases, the chi-square analyses were not significant when the $t$ tests were significant or the chi-square analyses were significant when the $t$ tests were not significant. The analysis of the eight hypotheses in the second group resulted in the rejection of all but three hypotheses. For example, Hypothesis 2a predicted that nurses
with midwifery training would have higher scores in response to the question “I would consider working at a free standing birthing centre if it were available.” A t test supported the difference between groups as significant but chi-square testing failed to confirm this conclusion. This discrepancy in findings may be due to the poor response rate to the question. Chi-square testing requires a larger sample than t testing because it takes into account each Likert scale category (Huck, 2004). The analysis of the responses suggests that the midwifery trained nurses agreed more strongly with the question but the sample may have been too small to demonstrate significance. Given that 10 of the nurses without midwifery training did not respond to the question, and six had a neutral response, there may not have been enough responses for each Likert scale category for the chi-square analysis to detect a significant difference. If there had been a larger number of nurses in the groups, it is possible that a significant difference would have been found between groups with respect to other questions also (Huck, 2004).

Hypothesis 2f expected that nurses with midwifery training would have higher scores in response to the question “I always offer alternative forms of pain relief before offering an epidural.” A t test also supported the difference between the groups as significant but chi-square testing did not confirm this difference as significant. The preceding explanations for Hypothesis 2a also apply to this hypothesis.

Hypothesis 2c failed to have a t test demonstrate a significant difference between groups responding to the question “The most important determinant of a successful birth is a woman’s own confidence and determination.” However, chi-square testing demonstrated a significant difference between the two groups. In this case, the average response score was similar but the standard deviation for the nurses with midwifery
training was substantially larger. Further investigation of the responses shows that there was a real difference in the number of responses for each category. The $t$ test does not take into consideration the five categories while the chi-square testing does. The $t$ test may have found a significant difference if there had been a greater number of responses.

The problem of poor response rates may be due to unclear item wording (Nunnally, 1978). Several nurses left written comments indicating that they did not understand certain questions. For instance, the question from the previously discussed hypothesis about birth centers created some confusion for nurses; they wrote these comments in lieu of a response: “I do not know how a center would differ from where I work now – I need more information” and “free standing birthing center” – what is this?” The question “Childbirth is only normal in retrospect” also received comments such as “unclear question” and “what does this mean?” These examples and other ambiguous questions and terms may have influenced the poor response rate and the finding of a lack of significant difference between groups.

The sample size is probably the main explanation for the lack of significant differences between the groups. Nunnally (1978) supports this by suggesting that the failure to find a significant difference is largely due to a small sample. In addition to the sample being fairly small, the nurses who comprise it were self-selected, resulting in a fairly homogeneous sample of nurses. This too might account for the lack of significant differences, because it limits response variability (Nunnally, 1978).

**Exploratory Factor Analysis**

The construct validity was not supported by an EFA. The seven factors were challenging to identify because the grouped items frequently lacked an obvious
theoretical relationship. The weakness of the factors was quantified by mostly low Cronbach's alphas.

Following the rotation of the matrix, the factors were assessed for item loading and conceptual fit. Many items loaded strongly on factors, but it was often difficult to identify a conceptual connection between the multiple items within a factor. For example, the strongest loading items within Factor 4, “Care Provider Involvement,” were “policy of obligatory consultation with a second physician,” “women have painful early labour that requires admission” and “a woman should be examined in her own home by her doctor or midwife to assess if she is in labour.” These questions target very different areas of maternity care. It was challenging to find an association among them. The fact that the Cronbach’s alpha for this factor was very poor verifies the lack of cohesion among the items (Polit & Hungler, 1999).

Conversely, the theme for Factor 1, “Childbirth Normal,” was easy to identify, and the Cronbach’s alpha for it was relatively strong. The items within this factor were clearly worded with numerous “I believe” questions, nursing oriented and focused on birth. The items in Factor 7, “Epidurals and Cesarean Sections,” were within the nursing scope, were all interrelated and had a strong Cronbach’s alpha. Unfortunately, the items within the other factors do not generally possess these three important traits and it is reflected in their Cronbach’s alpha scores. By way of example, Factor 6, “Women’s Choice and Support,” is an inadequate factor with a weak Cronbach’s alpha. The items are independent of one another and they load poorly. They are not worded appropriately for a questionnaire measuring attitudes. For example, the item “In our hospital we routinely provide 1:1 nursing,” is not a question and does not ask about an attitude. This
statement could be interpreted as factual which should be avoided in an attitude instrument (Aiken, 1996).

The factor analysis was useful for identifying items that did not load on any factor. There were six such items. Each of them had identifiable problems, such as strong wording (e.g., “Increase in demand for doulas is a result of nurses failing to fulfill their role as labour and delivery room nurses”) or an obvious unanimous response with no variability (e.g., “I believe women benefit from labour support”). These items were removed from the factors.

The factors were correlated with certain demographic characteristics. For example, older nurses felt strongly about advocating for women in labour. One explanation for this is that older nurses have greater experience in the LDR. Tanner (2006) identified that an experienced nurse may advocate more often because the “needed knowledge is readily solicited,” while a beginning nurse must “reason things through analytically” (p. 205). This explanation also supports the fact that a significant relationship was observed between a greater number years spent working in the LDR and a strong attitude towards advocacy.

One might also have expected a correlation between age or experience and perceptions concerning deviations from normal birth, on the basis that older nurses may have been trained in a time when fewer epidurals and cesarean sections were performed. By contrast, younger nurses are more accustomed to the routine use of these interventions. No such correlation between age and perceptions concerning deviations from normal birth was found. This may be caused by the sampling inadequacies. As previously mentioned, the sample size was inadequate for an appropriate EFA (Nunnally,
1978). Another possible explanation is that no such correlation exists. Lupoli and Rizzo (2004) investigated older nurses (> 45 years of age) over 4 months and their adaptation to using technology. They found that the nurses adjusted well and modified their practice according to the new technology.

**Content Validity Findings**

The qualitative findings provided valuable perspectives from expert LDR nurses about the content of the NABQ. Triangulating the qualitative analysis with the quantitative analysis was ideal to explore the validity of the NABQ (Sandelowski, 1995). The quantitative psychometric analysis provided some insight concerning the validity of the NABQ, while the focus group offered some reasons for the poor performance of the NABQ. The nurses freely expressed their constructive criticisms of the NABQ. The seven themes that developed supported earlier supposition that the poor reliability and validity findings were a result of problems with the items in the NABQ – for example, in relation to context and wording. The focus group nurses expressed difficulties with the subject, language, structure, direction and length of the NABQ items were supported by literature on instrument development (Nunnally, 1978; Aiken, 1996; Mandal, Eaden, Mayberry, & Mayberry, 2000). These difficulties will be discussed this section.

The nurses discussed the difficulty of having and expressing personal attitudes towards birth. They suggested that institutional constraints, practice setting and the flexible nature of obstetrics make it hard to express definite attitudes. With respect to the first two factors, the avoidance of subscribing to specific attitudes appeared to be a method of personal preservation. Healy and McKay (2000) studied the coping mechanism of avoidance in nurses and concluded that it was effectively used by nurses
during moments of tension or conflict. The nurses acknowledged that their attitudes were often overshadowed by the primary caregivers’ decisions and other external influences. Simpson and Thorman (2005) state that “the hierarchical nature of professional licensure presents challenges for nurses when the provider suggests an intervention at the bedside that the nurse believes is not in the best interests of the mother or infant” (p. 140). These occurrences were often frustrating, and made the nurses feel that it was essential to maintain a flexible attitude towards birth. With respect to the third factor, the nurses expressed the view that obstetrical care can be complicated and the decision making process is varied. Therefore, a flexible attitude may be beneficial. Carlton, Callister and Stoneman (2005) explored the complex decision making that occurs in labour and birth. They found that the best predictor of labouring women’s satisfaction with healthcare was the nursing care they received (Carlton et al., 2005). This was primarily related to the nurses supporting and respecting labouring women’ wishes, which inherently requires a flexible attitude.

A significant discovery made as a result of the focus group discussion was that the nurses perceived some questions as being outside their scope of practice, which lead them to doubt their relevance. This perception was a result of many questions on the NABQ being directly taken from the other maternity care providers’ attitudes towards birth questionnaires (Loewenthal, 1996). However, the nurses concluded that the subject matter of most of the questions was relevant because it would inevitably affect their nursing practice.

The participants’ conversation concerning their boundaries of patient care lead to the revelation that nurses possess more influence than they are aware. The nurses
recognized that their attitudes may not be the prevailing influence on patient outcome, but understood that their attitudes certainly could affect patient care and outcomes. In interviewing women about their birth experience, Carlton et al. (2005) discovered that nurses have a substantial effect on labour and birth. The labouring women interviewed in their study described a “deafening silence” when nurses attempted to be neutral (Carlton et al., 2005, p. 149). For example, there were subtle ways in which the nurses’ attitudes influenced women’s decisions about having an epidural. One participant explained that a nurse would leave an epidural “consent form on the table, ‘Just in case you change your mind’ or saying, ‘are you ready for your epidural yet?’” (Carlton et al., 2005, p. 149). This supports the position that nurses’ attitudes towards birth are important, and highlights the need to revise the questions on the NABQ so that they are directed at nurses and their attitudes.

Questionnaires can be revised to target specific populations that are not fully encompassed in the original version. For example, Wolf et al. (2004) successfully modified a Caring Behaviours Inventory (CBI) to make it specific to the elderly. They carefully evaluated the performance of the CBI with previous samples and made revisions to address an elderly population. They also had six expert gerontologic nurses provide their opinions about making the CBI elderly-specific. Finally, they piloted the elderly-specific CBI and found it to be highly reliable and valid. This method of instrument development is ideal. The development of the NABQ could not follow such a process because the original instrument (a) lacked appropriate psychometric analysis, (b) underwent various stages of modifications and (c) was not deeply studied.
Two of the focus group participants' principal criticisms of the NABQ were the lack of context and the ambiguity of terms. These issues may have caused the participants to leave questions unanswered (Nunnally, 1978). Also, without detailed instructions and clear wording, measurement error may occur because the participants do not understand the direction or phrasing of the questionnaire items (DeVellis, 2003; Nunnally, 1978). This is consistent with the focus group characterizing NABQ questions that generally elicited neutral responses as confusing, unclear and lacking context.

Aikenhead and Ryan (1992) researched the problem of language when tailoring an instrument for use with a specific sample. They found that Likert scale items "offer only a guess at [participants'] beliefs, and the chances of an evaluator guessing accurately are very remote" (Aikenhead & Ryan, 1992, p. 479). This finding supports the importance of carefully wording items to obtain accurate and reliable responses. Hilton and Skrutkowski (2002) and Willgerodt, Kataoka-Yahiro, Kim and Ceria (2005) explored preserving the content, semantic, technical, criterion and conceptual characteristics of an original instrument when translating that instrument to another language. The goal of translating an instrument is to achieve equivalence while being culturally sensitive to group differences (Hilton & Skrutkowski, 2002; Willgerodt et al., 2005). Although the NABQ was not translated into a different language, nurses present a different culture from other maternity care providers that too requires sensitivity.

Another of the participants' principal criticisms of the NABQ was the harsh wording of some of its items. Aiken (1996) identifies that strong wording should be avoided because it introduces ambiguity. The nurses stated that the use of the word "failing" (in the item "the increase in demand for doulas is a result of nurses failing to
fulfill their role as LDR nurses”) was harsh because it was directed at their capacity to nurse. They were offended by this item.

The participants felt that an overwhelming number of questions were focused on other maternity care providers, such as doctors, midwives or doulas. This upset the participants. Their concern is valid because the NABQ questions should concentrate on relevant nurses’ attitudes. Hilton and Skrutkowski (2002) found that it was inadequate simply to translate a questionnaire into a different language without considering the culture in which the questionnaire would be used. Essentially, this is due to different cultural interpretations of content, semantics and concepts. Yamaguchi (2004) studied Italian operating room nurses and identified that a unique culture existed. A social system emerges when people engage in sustained interactions. “This system of informal relationships is comprised of cultural norms and values which become a significant element influencing behaviour” (Yamaguchi, 2004, p. 262). The NABQ should be sensitive to nursing professionals and the wording of the items should reflect their culture.

There were many questions on the NABQ that were derived from research. The focus group participants indicated that research is not often reflective of their attitudes because it is hard to implement. This is supported in the literature. Rycroft-Malone et al. (2004) identify four barriers to implementing evidence-based research in nursing practice. These barriers accord with what was said in the focus group discussion. The barriers that Rycroft-Malone et al. (2004) found were:

1. Problems in interpreting and using research products, which were viewed as too complex, academic and statistical.
2. Nurses who felt confident to use research-based information lacked support from the organization to do so.

3. Many nurses felt that researchers and research products lacked clinical credibility and failed to offer the desired level of clinical direction.

4. Some nurses lacked the skills and to a certain degree the motivation to use research themselves. They preferred the messages from research to be passed on to them from a third party, such as a clinical nurse specialist.

These findings suggest that nurses' attitudes may be influenced by research, but that practical and personal experience is the most significant source of nurses' attitudes (Bernaix, 2000; Blais et al., 1994; Cassata & Dallas, 2005; Chan, Chan, & Day, 2004).

The focus group participants proudly discussed their use of nursing intuition. Faugier (2005) refers to nursing intuition as something that is "beyond description or definition, but nonetheless based on learned expertise" (p.15). Intuition should be valued by all maternity care providers because it is the result of "learned experience as an expert" (Faugier, 2005, p. 14). This suggests that evidence-based research may influence intuition because expert nurses' learning experiences are often derived from evidence-based practice (Rodgers, 2000). Viewed in that light, the wording of the NABQ questions should be modified and presented with a tailored nursing practice direction.

The nurses stated that the NABQ was too long and time consuming. Because nurses are busy, this perception may cause nurses to abstain from filling out a questionnaire (Aiken, 1996; Simkin, 2002). The lengthy NABQ may lead to partially completed questionnaires because of time or dwindling interest (Aiken, 1996).
Fortunately, the nurses had several positive reactions to the NABQ. The participants all agreed that filling out the questionnaire was interesting and challenging. Although the purpose of the questionnaire was to obtain information regarding nurses' attitudes towards birth, the participants themselves derived benefit from filling out the questionnaire. The process of completing the NABQ caused the participants to evaluate their nursing practice, encouraged critical thinking and stimulated conversations with colleagues. This was not the intent of the NABQ but the participants perceived it as beneficial. This positive reaction caused the participants to persuade other nurses to fill out the questionnaire so that they could discuss the questions and responses. These are excellent results because it demonstrates that the nurses sufficiently valued the questionnaire to reflect on their own practice and to discuss the questions with their colleagues. From a researcher's perspective, this reaction is helpful because it increases response rate.

The participants recognized that the NABQ had a biased attitude towards normal birth, in that it promoted it. This was seen in the questions that addressed home birth, labour support, fetal monitoring, cord clamping, elective cesarean sections and episiotomies. BCWH has a high cesarean section rate and the focus group participants were experienced nurses who often work with high risk obstetrical patients (Canadian Institute for Health Information, 2004c). The participants appreciate that their attitudes are reflective of their working environment. Since they work in a tertiary care facility, they are involved in numerous births involving interventions and surgeries. This discord between the participants' practice and the pro-normalcy attitude of the NABQ may have contributed to the negative impressions expressed by the participants.
The seven themes that surfaced during the analysis of the focus group data supported my speculation that the poor reliability and validity findings were a result of problems ingrained in the NABQ, such as wording and context. This section has briefly mentioned some suggestions that the participants made for improving the questionnaire. These potential improvements will be discussed in the next section, which explores the psychometric analysis’s implications for the development of the NABQ.

**Implications for the NABQ Development**

A priority for revising the NABQ will be to make certain that all questions concentrate on obtaining feedback to determine nurses’ attitudes towards birth (Aiken, 1996). The questions that do not deal with the labour and birth experience should be removed. This adjustment could increase the internal consistency and inter-item reliability. For example, the question “Interprofessional power struggles are a thing of the past” is an interesting question but does not target information pertaining to attitudes towards birth. Also, the questions need to exhibit a nursing scope of practice. This will require changing terms and rewording questions. For example, the question “I discuss delayed cord clamping with all mothers” does not relate to the responsibilities of LDR nurses. The question can be re-worded to “I believe delayed cord clamping should be discussed with all mothers.” This method of questioning would elicit a clear indication of nurses’ attitudes without creating any confusion for the participants (Aiken, 1996).

The participants may benefit from a short introduction to the questionnaire that explains the purpose of the NABQ. Boynton and Greenhalgh (2004) highlight the importance of clearly worded instructions that provide participants with information and examples, if necessary, on completing the items on the questionnaire. The preamble
could include an instruction to the participants to respond to each question with their initial reactions and impressions. This would direct the nurses to respond with a gut reaction instead of scrutinizing every question and believing they require more information to answer the question. This may address the focus group participants’ perceived need for detailed case scenarios.

The terms in the NABQ with potentially ambiguous definitions should be defined clearly so that such terms are understood to take on their generally accepted meanings (Aiken, 1996). Definitions could be presented before the start of the Likert scale questions; each use of a defined term could be followed by an asterisk to denote the inclusion of a definition. For example, all of the questions concerning macrosomia would include an asterisk next to that term (e.g., macrosomia*). This method is preferable to having each question define the term because this may become repetitive and makes the questionnaire appear wordy and long (Nunnally, 1978).

The NABQ might benefit from some organization of the questions into logical themes, such as cesarean sections, macrosomia, episiotomies and cord gases. The literature recommends identifying the data to be included in a questionnaire and clustering related constructs together (Babbie, 1992; Mandal, Eaden, Mayberry, & Mayberry, 2000; Polit & Hungler, 1999). This would decrease participant frustration with seemingly identical questions, which might in turn lead to an increase in participant response (Aiken, 1996).

The questions that are “likely to be endorsed by almost everyone or by almost no one” should be removed (Aiken, 1996). For example, “I believe women benefit from labour support” is a statement that all participants agreed with. In a similar vein, the
statement “Episiotomies should be performed routinely” was rejected by all the participants.

The questionnaire would benefit from removing all questions that contain more than one complete thought (Aiken, 1996). The question “I believe it is safe for a woman having a vaginal birth after cesarean section to labour and deliver at home” is essentially asking two questions. A nurse may believe that it is safe for a woman with a previous cesarean section to labour at home but that it is not safe for her to have a home delivery. Unfortunately, a response to the question does not accurately reflect nurse’s attitudes.

Aiken (1996) recommends that “statements containing universals such as all, always, none, and never” (p. 232) be avoided because they introduce uncertainty. This is illustrated in the question “I prefer to use continuous external fetal monitoring over intermittent auscultation with a hand held Doppler for all births.” A participant may be uncertain and apprehensive about responding to this question because it may not always be feasible for the participant to use a hand held device (notwithstanding that it is his or her preference).

The NABQ requires specific revisions to improve its reliability and validity. Specifically, the questions need to be consistent with the purpose of the NABQ, which is to measure nurses’ attitudes towards birth. In order for this to be achieved, questions will need to be simplified, re-worded and removed, and ambiguous terms they use will need to be defined.

**Future Psychometric Testing**

Additional psychometric testing of the NABQ is required. However, since the reliability and validity of the NABQ with the BCWH sample were not supported, the
NABQ requires extensive revisions prior to any further testing being conducted. In due course, repeat psychometric testing is called for because it improves questionnaires by contributing to their evolution (Waltz, Strickland, & Lenz, 1991). Also, recurrent analysis increases researchers’ confidence in the effectiveness of a questionnaire in measuring what it purports to measure (Waltz et al., 1991).

A strong recommendation for future studies is to obtain a large and heterogeneous sample. Researchers should sample LDR nurses from various provincial and national settings. The response rate should increase with the modifications made to the NABQ.

The data analysis of the NABQ should include internal consistency and inter-item reliability. A revised set of hypotheses using the same group characteristics of university compared to non-university educated nurses and midwifery compared to non-midwifery educated nurses should be developed and tested. This is because a small sample size is believed to be the reason for the hypotheses failing to show a significant difference between groups. An increase in sample size should find some significant differences between these groups of nurses. The inclusion of additional hypothesis relating to nursing and personal experience should be explored (Bernaix, 2000; Blais et al., 1994; Cassata & Dallas, 2005; Chan, Chan, & Day, 2004).

The EFA provided valuable insight concerning possible themes and connections between the items. Most of the factors were not conceptually strong and their Cronbach’s alphas were weak. Therefore, a confirmatory factor analysis is not recommended (Pett, Lackey, & Sullivan, 2003). The subsequent psychometric testing should involve an EFA. This EFA may discover similar or unique themes and a varying
number of factors. The modified items should be more cohesive and internally consistent.

**Utility of the NABQ for Nursing**

The nursing component of the maternity care providers’ attitudes towards birth study is important because nurses have a central role within the birthing process. Birth is changing in Canada – maternity care providers’ and the general population’s attitudes towards birth are evolving. The process of obtaining nurses’ responses to the NABQ and conducting focus groups offers important insight concerning nurses’ attitudes towards birth. Nurses deserve to be heard and their attitudes are important.

Since nurses spend a substantial amount of time with labouring women, it is beneficial to explore their attitudes towards birth (Simkin, 2000). Nurses’ attitudes may influence women’s attitudes towards birth or other maternity care providers’ attitudes towards birth (Carlton et al., 2005).

**Implications for Nursing**

This section of the chapter presents a discussion of the implications for nursing practice, education and research.

**Clinical Practice**

The focus group findings indicate that nurses have strong attitudes towards birth. Nurses have concrete philosophies concerning the LDR environment and culture, such as being flexible towards obstetrical care. These beliefs may not be identified in their responses on the NABQ, but they were made clear in the focus group discussion.

The focus group participants found that the NABQ was a useful reflective tool. The participants noticed that they were examining their own practice and discussing it
with other nurses. This reflection may not be the purpose of the questionnaire, but it provides the nurses with an incentive to complete one.

The nurses in the focus group occasionally digressed from discussing the psychometric properties of the NABQ. The focus group offered them an opportunity to be heard that they greatly appreciated because they often felt unheard. The participants were supportive of the NABQ because it provides nurses with a voice within the larger maternity care provider group. This is likely of considerable value to the participants because they also feel unsupported within the hospital organization.

While and Blackman (1998) found that nurses commonly felt unsupported in their workplace. Their study sought to understand the high turnover and poor retention that hospitals experience with nursing staff. Their results showed that the nurses felt their role was restricted by physicians (While & Blackman, 1998). Yamaguchi (2004) found similar results in her focus group discussion – the nurses stated that “doctors decide the nurses’ role” (p. 265). These nurses expressed fear, anger and powerlessness in relation to physicians (Yamaguchi, 2004). The participants in the NABQ focus group expressed feeling powerless towards many decisions that occur in the LDR. They were troubled by their inability to advocate for patients because the primary care givers make the ultimate decision in patient care. Simpson and Thorman (2005) found that “advocating for women includes requesting that the primary care provider speak with the patient before the procedure is initiated; however, at times this request can be seen as interfering with a previously made decision for care and/or the physician-patient relationship” (p.140).

The data collected from the NABQ will increase researchers’ and maternity care providers’ understanding of nurses’ attitudes towards birth. This understanding is
important because nurses have a crucial role in caring for labouring women, and their attitudes influence their actions. Also, an awareness among maternity care providers of each other’s attitudes towards birth may foster an environment of mutual respect and support for each other’s attitudes and actions (Chinn, 1995).

**Nursing Education**

The results from this study can be used to teach nurses the value of psychometric testing. This study has identified numerous modifications to improve the reliability and validity of the NABQ. This study also demonstrates the benefits of having a qualitative analysis complement the findings of quantitative testing. Nursing students would appreciate the ability of a focus group to explore the validity of a questionnaire.

**Nursing Research**

The NABQ requires future revisions and psychometric assessments. In addition, the evolution of the NABQ would benefit from a second focus group meant to assist in the redefining of the questionnaire. It may be beneficial to include participants from the first focus group to provide some detailed feedback concerning proposed revisions to NABQ questions. The sample of six expert LDR nurses was a good size.

The NABQ should also be tested within various settings to obtain a larger, heterogeneous sample. Improvements to the sampling method will increase the generalizability of the findings from the NABQ.

Results from this study suggest that there were few differences in attitudes towards birth held by nurses with university versus non-university education, or by those with midwifery versus non-midwifery training. The significance levels for these hypotheses were very low and none of the hypotheses found a significant difference with
The NABQ questions concerning normal childbirth were very cohesive. This should be explored further. There are various factors that may have contributed to this finding, such as the question wording and the characteristics of the nurses sampled. However, it is interesting that the questions pertaining to normal childbirth held together strongly in the factor analysis while the other questions dealing with medicalized childbirth held together poorly. This could suggest that nurses have a clearer perception of their attitudes towards normal childbirth than they do regarding their attitudes towards obstetrical interventions. This could be because normal childbirth is within their scope of practice.

Future research may attempt to identify a correlation between nurses' attitudes and their behaviour. This could be done with chart reviews of the women nurses support in labour. Guidelines will have to be developed to determine the length of time a nurse would have to support a woman to be able to have his or her attitudes correlate with his or her actions. Radin, Harmon and Hanson (1993) conducted a retrospective study to determine the influence of nurses' care on the cesarean section rate of women. They used medical records for their data. A similar approach could be used for finding the outcomes of women supported in labour by nurses with certain attitudes. This would be a difficult study but the results would be very informative.

Another possibility is a qualitative study of nurses' attitudes towards birth. This would provide rich data regarding nurses' attitudes. I would recommend that an exploratory, descriptive or ethnographic study be conducted.
Chapter Summary

The results from the reliability and validity testing of the NABQ suggest that there are legitimate problems with the current version. For example, the poorly written items, ambiguous terms and lack of detailed instructions may have contributed to the poor psychometric performance of the NABQ. Also, the small and homogeneous sample of nurses may have been a factor in the findings.

The focus group provided a valuable assessment of the validity of the NABQ. The participants provided substantial data to analyze. The session not only achieved the ultimate goal of discovering the participants’ thoughts regarding the questionnaire, but also provided some insight into nurses’ attitudes. The nurses found it difficult to express their attitudes towards birth and concluded that this was caused by the complex nature of obstetrics. The literature supported this and further substantiated that labouring women appreciate nurses’ flexibility (Carlton et al., 2005). The literature also found that nurses do influence birth (Carlton et al., 2005). The participants believed that many items on the NABQ were out of their scope of practice but nurses may not realize that they have an important role in labour and birth.

Nurses’ attitudes are largely influenced by their personal and practice experience. This includes intuition, which the literature supports as an element of experience (Faugier, 2005). The nurses identified that research plays a limited role in their attitudes and the literature identified barriers to implementing evidence-based research (Rycroft-Malone et al., 2004).
Nursing is unique from other maternity care provider groups. The literature demonstrates that different versions of a questionnaire need to be sensitive to the population being tested (Willgerodt et al., 2005).

The focus group nurses enjoyed the process of filling out the questionnaire and participating in the focus group. It gave them an opportunity to voice an opinion and to be heard.

A reliable and valid NABQ will provide valuable insight concerning nurses' attitudes towards birth. The information obtained from the responses to the NABQ are important for nurses' clinical progression, nursing students’ development and researchers’ plans for future studies.

**Thesis Summary**

In this study, I have presented the process of psychometrically testing a new instrument that assesses nurses' attitudes towards birth. A comprehensive literature review was conducted. The literature review helped identify studies with similar goals and these studies were used to develop a comprehensive plan for the psychometric analysis of the NABQ. The study design, methods, ethical considerations, sampling methods and setting, and procedures were described for both the survey and focus group portion of the study. The procedures used for testing the reliability and validity of the NABQ were explored and details were provided. The findings from the psychometric testing were described and discussed. The NABQ performed poorly psychometrically. From this thesis study, several recommendations were made regarding revisions to the NABQ that are necessary before proceeding with future testing. The NABQ has the potential to provide practicing nurses and nursing educators with valuable information.
REFERENCES


Leventhal, L. (1999), Updating the debate on one-versus two-tailed test with the directional two-tailed test. *Psychological Reports, 84*, 707-718.


Electronic records will be accessible only to the research team. Participants will be identified in study reports neither by their name nor by the hospital where they work. You understand that, if you refuse to participate in this study or withdraw from the study at any time, your employment status will not be affected. There should be no risks from participating in the study. If you have any concerns or questions about your rights as research subjects, you can contact the Office for Research Services at UBC (604-822-8598). Thank you for your help!

Sincerely,
Wendy Hall, RN, PhD

1. Are you currently working as a labour and delivery nurse? Yes ☐ No ☐
   If NO please do not complete the rest of the survey but return it in the attached envelope.

2. Age ☐

3. What is your educational background? Check as many as applicable
   ☐ diploma ☐ bachelors ☐ masters ☐ CNA certification ☐ ACLS ☐ CCOB
   ☐ midwifery ☐ doula ☐ breastfeeding counsellor ☐ childbirth educator
   ☐ BCIT Perinatal Certificate ☐ other: _______________________

4. Where did you complete your RN or BSN training? (Check any that apply)
   ☐ UBC ☐ BCIT ☐ UK ☐ Other - please specify _______________________

5. How many years have you worked as a labour and delivery nurse? ☐

6. What hours do you work? ☐ full time ☐ part time ☐ casual # of hours/week ☐

7. Percent of your hours spent working in labour/delivery duty in an average week
   ☐ 100% ☐ < 100% ☐ 50% ☐ < 50%

8. Approximately how many births have you attended in the past year? ☐

9. Have you ever given birth? Yes ☐ No ☐ If NO skip to question 11

10. Have you had a caesarean section Yes ☐ No ☐

11. Does the hospital you work in have caesarean section capability, either with a GP or OB? Yes ☐ No ☐

12. Five years from now do you see yourself still practicing as a labor and delivery nurse?
   ☐ Yes. If yes skip to question 15
   ☐ No.
   ☐ Undecided. Please explain
13. Reasons for discontinuing practice as a labour and delivery nurse. Please rank each statement from 1 to 5, with 1 being the most important reason.

- Fear of litigation
- Retirement
- Politics of healthcare
- Not enjoying intrapartum nursing
- Fatigue/sleep deprivation
- Personal physical limitation
- Hospital administration policies
- Lack of support from nurse management/staff
- Furthering Education
- Maternity Leave
- Young children at home
- Career change
- Other, please specify

14. What circumstances would convince you to continue practicing as a labour and delivery nurse?
The second section contains questions pertaining to maternity care in general

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<tr>
<th></th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neither agree / nor disagree</th>
<th>Agree</th>
<th>Strongly Agree</th>
<th>Don't know / not applicable</th>
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<tr>
<td>15. If a woman has chosen to breast feed, I believe supplemental feeding with formula should be discouraged.</td>
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<td>16. I would consider working at a free standing birthing center if it were available.</td>
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<td>17. The increasing cesarean section rate in our country is a sign of improvement in maternity care.</td>
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<td>18. Childbirth is only normal in retrospect.</td>
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<td>19. Doulas improve maternal and newborn outcomes.</td>
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<td>20. I would consider being a back-up nurse for a home birth if it becomes an option.</td>
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<td>21. Many physicians are too quick to intervene during labour.</td>
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<td>22. I believe that a home birth is a safe choice for women.</td>
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<td>23. In the case of macrosomia, I believe it is safe for a woman to have a home birth.</td>
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<td>24. I believe it is safe for a woman having a VBAC to labour and deliver at home.</td>
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<td>25. Few women would choose to have a VBAC if they knew the consequences of uterine rupture.</td>
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<td>26. Doctors or midwives who delay epidural analgesia when a client requests it are not respectful of the woman's choice.</td>
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<td>27. A woman's history of sexual abuse has no impact on the course of labour.</td>
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<td>28. The most important determinant of a successful birth is the woman's own confidence and determination.</td>
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<td>29. If a woman prefers to avoid erythromycin eye ointment for the newborn, I support her.</td>
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<td>30. Many women have painful early labour that requires admission</td>
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31. It is a woman’s right to elect to have a caesarean section even if there are no clear maternal or fetal indications.

32. Women post 41 ½ weeks gestation should still be able to have a home birth.

33. I prefer to use continuous EFM over intermittent auscultation with a hand held doppler for all births.

34. 3rd and 4th degree tears are an inevitable consequence of difficult deliveries, largely due to maternal or fetal characteristics.

35. Given a diagnosis of macrosomia at 40 weeks, I believe that the doctor or midwife should arrange for an induction.

36. When confronted with a difficult situation I first discuss it with another nurse before consulting a doctor or midwife.

37. In our province, family physicians should not provide routine intrapartum maternity care.

38. Intrauterine pressure catheters are helpful in the management of dystocia.

39. I encourage delayed cord clamping.

40. I discuss delayed cord clamping with all mothers.

41. When routinely used, epidural analgesia increases the cesarean section rate.

42. Doctors or midwives should only employ episiotomy when the birth needs to be expedited.

43. A woman should be examined in her own home by her doctor or midwife to assess if she is in labour.

44. I always offer alternative forms of pain relief before offering an epidural.

45. If oxytocin were used more consistently we would do fewer cesarean sections for dystocia.
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<tr>
<td>46. Routine episiotomies prevent pelvic floor relaxation</td>
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<td>47. Episiotomies should be performed routinely.</td>
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<td>48. Postdate women should be induced as soon as possible at or after 41 3/7 weeks.</td>
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<td>49. The administration of epidurals early in labour is associated with the development of fetal malpositions (OT and OP).</td>
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<td>50. Certain tests and procedures need to be performed for legal or defensive reasons rather than clinical indications.</td>
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<td>51. We should perform routine cord gases on all births when feasible</td>
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<td>52. Pregnant women should develop a birth plan.</td>
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<td>53. Many family physicians have difficulty recognizing the limits of normality in maternity care.</td>
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<td>54. It is easier to repair an episiotomy than repair the lacerations that result when an episiotomy is not used.</td>
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<td>55. The use of epidural analgesia early in labour (&lt;4 cms) increases the cesarean section rate.</td>
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<td>56. In the case of a previous cesarean section, an elective cesarean section is a better choice than a trial of labour.</td>
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<td>57. A policy of obligatory consultation with a second physician when a Cesarean section is considered for dystocia could safely lower our cesarean section rate.</td>
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<td>58. I would like to see appropriately trained nurses take on more responsibility for normal labour and delivery.</td>
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<td>59. The increase in demand for doulas is a result of nurses failing to fulfill their role as LDR nurses.</td>
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<td>60. The responsibilities of my job compete with my role of providing support to the mother.</td>
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<td>61. I spend more than 60% of my time on shift in the room/with the patient.</td>
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<td>62. I frequently challenge orders or practices of the doctor if I recognize a problem or don’t agree with the course of action.</td>
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<td>63. I frequently challenge orders or practices of the midwife if I recognize a problem or don’t agree with the course of action.</td>
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64. I believe women benefit from labour support

65. In our hospital we routinely provide 1:1 nursing

66. I know what the woman needs regarding pain relief better than the **woman herself**.

67. Inter professional power struggles are a thing of the past

68. I would prefer to see more low risk women give birth under the care of midwife than a doctor.

69. Episiotomy should be regularly employed to prevent pelvic floor relaxation.

70. We could safely lower our cesarean section rate through organized peer review of cesarean sections for dystocia.

---

You have completed the questionnaire. Please ensure that you have responded to all questions.

We welcome any further comments in the space provided below.
The researcher wishes to tape record the focus group in order that the focus group can be transcribed for research purposes. You understand that the researcher will not report any information that identifies you and all information obtained will be kept strictly confidential. All documents and transcripts will be kept in a locked filing cabinet in Room F415 Women’s Health Center at BC Women’s Hospital. Electronic records will be accessible only to the research team. Participants will be identified in study reports neither by their name nor by the hospital where they work.

Once the focus group’s discussions are transcribed, the tapes will be destroyed. Only the principal investigator and research staff will have access to the information gathered during the course of this study.

You have the right to refuse to participate in this focus group and refusing to participate will not in any way affect your employment status. You may also refuse to answer any questions or withdraw from the study at any point without consequences. If you have any concerns or questions about your rights as research subjects, you can contact the Office for Research Services at UBC (604-822-8598). Thank you for your help!

Your signature indicates that you consent to participate in this study.

Subject name (printed)             Subject signature             Date

Person obtaining consent (printed) Signature of person obtaining consent Date