Basic Needs Satisfaction in Birthplace Choice of Rural Banyankole Women in the Kashongi Sub-County of South Western Uganda

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BASIC NEEDS SATISFACTION IN BIRTHPLACE CHOICE
OF RURAL BANYANKOLE WOMEN IN THE KASHONGI SUB-COUNTY OF
SOUTH WESTERN UGANDA

A Dissertation
Presented to
the Graduate School of
Clemson University

In Partial Fulfillment
of the Requirements for the Degree
Doctor of Philosophy
International Family and Community Studies

by
Annah Kamugizire Amani
May 2014

Accepted by:
Dr. Bonnie Holaday, Committee Chair
Dr. Susan Limber
Dr. Arelis Moore de Peralta
Dr. Joel Williams
ABSTRACT

Introduction: This study is a testing, translation and cross-cultural domain specific adaptation of the Basic Psychological Needs Scale to assess basic needs satisfaction in birthplace choice of rural women in the Kashongi Sub-county of South Western Uganda. The purpose of this study is to test adapted quantitative survey tools that examine basic psychological needs factors and how they influence birthplace choice.

Methods: The theoretical framework is Ryan and Deci’s Self-Determination Theory (SDT), a theory of human motivation. SDT is concerned with support for basic psychological needs of autonomy, competence and relatedness to motivate behavior that is healthy and effective. A sample of 142 participants was engaged through community health workers in the Kashongi Sub-County of South Western Uganda.

Results: Relevant findings of the research were as follows; 1) The adapted scales maintained structural integrity with recommended modifications as assessed through confirmatory factor analysis 2) The adapted scales demonstrated that birthplace choice was consistent with the domain for which participants reported higher level of overall basic needs satisfaction.

Conclusion: The adapted scale performed as theorized in assessing basic needs satisfaction for birthplace choice
DEDICATION

To God the creator, the creative force that unites us all in love and who created me to pursue the highest common good for all. To every woman who has lost life to bring forth life, I vow to do better for your sisters remaining here on earth. To my 15 year old mother who was fortunate enough to survive my birth and grow into the strong woman who taught me to stand up for what I believe in, I am what I am because of your tireless efforts, I honor you with all that I am. To my father Alfred, I greatly appreciate the years of love and support. To my father Moses, from whom I inherited the heart of a pioneer and the mind of a revolutionary, I thank you. To my sister Alice and my brothers, Apollo, Kenneth and Abraham, the peas in my pod, the riders in my posse, the first response team, I am ever inspired by the brilliant light you cast wherever you are, continue to pursue the extraordinary, posse up!

To my sons Avery and Agasha, who are courageously sharing me with the world at large; Avery, you are ever evolving into a creative genius; your emotional intelligence is amazing; your birth brought me into a period of my life in which I gained an evolutionary understanding of love. Agasha, your potential is limitless; your brilliance is already evident.

To my beloved Uganda, the home of my heart, bantu mwe twashoma, Mukama asiimwe! I am coming back to do the work I was created to do.
ACKNOWLEDGEMENTS

We have a stake in one another ... what binds us together is greater than what drives us apart, and ... if enough people believe in the truth of that proposition and act on it, then we might not solve every problem, but we can get something meaningful done for the people with whom we share this Earth.

~ Barack Obama~

To the global community of people who have stood by me and shared in the effort essential to the attainment of this degree, you have not labored in vain, we realize this achievement together. To Dr. Bonnie Holaday, who was always on hand to stand in as a counselor, guide, teacher, and friend, I appreciated you. To my committee members, Dr. Joel Williams, Dr. Sue Limber, Dr. Arelis Moore de Peralta, you were always there when called upon, each of you offering a unique perspective and a wealth of knowledge, I am truly grateful.

To my Freeway church family, most especially Jackie and Carl Sharperson, and Pastor Jeff and Joni Davis, you adopted me as family when I landed in Clemson to start this Ph.D. program five months pregnant and with a teenager to care for, you babysat, you drove me around, you paid some bills, you fed my kids, you comforted us, you encouraged us and most importantly you kept me spiritually uplifted, words cannot express my gratitude for your continued love and care.

To the people I encountered in my studies here at Clemson, who have become dear friends and respected colleagues, we are already a real world super friends and a force for good in the world at large; your goals and aspirations are inspiring. Special recognition to one of my super friends, John Mgonja, my translator and guide in the wonderland of statistical analysis, your patience and clarity was a calming force in this process.
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CHAPTER ONE

Introduction to the study

Giving birth is a psychological experience, a sociocultural event as well as a biological process. “Each society has its own consensual understanding of birth and its determinants” (Viisainen, 2001, p.1109). At the core of the birth and maternal health debate are essentially two diverging constructs on birth: birth is a potentially pathological condition for which medical intervention is required (technocratic/medicalized/facility based birth) or birth is a natural physiological process for which medical intervention is occasionally necessary (holistic/natural/home birth) (Kitzinger, 2005). More and more these two opposing outlooks vie for primacy in communities around the globe. In Uganda, these two paradigms continuously vie for allegiance when women are pregnant and preparing to give birth (Kyomuhendo, 2003). There is not sufficient research surrounding the elements that influence birthplace choice of women in rural Uganda. Examining birthplace choice at a basic psychological needs level, may provide insight into how these two conflicting birth paradigms impact women psychosomatically. The purpose of this study is to test adapted quantitative survey tools that examine basic psychological needs factors that influence birthplace choice.

This study is the first of its kind in Uganda, providing insight into birthplace choice factors at an interpersonal level and utilizing a psychometric measure that was analyzed quantitatively. In order to generate more effective methods for reducing maternal mortality in Uganda, it is critical to gain greater understanding of the factors that influence birthplace choice at an interpersonal level and utilizing a quantitative method.
In studying the literature on birthplace choice, three prevailing themes were identified: a) power/control (autonomy), b) authoritative knowledge/knowledge acquisition (competence) and c) culture/social norms (relatedness). Self Determination Theory (SDT) was utilized as the theoretical framework for this study. SDT posits that environments satisfying three basic psychological needs of autonomy, competence and relatedness produce high quality motivation and engagement for life activities (Ryan & Deci, 2000). The SDT framework has been utilized to study other health behaviors such as smoking cessation, exercise, and medication compliance (Gagne, 2003; Williams, Niemiec & Ryan 2011; Wilson, Mack & Grattan, 2008). The parallels between themes in birthplace choice literature and elements contained in SDT made the framework a logical choice for conducting this study.

Chapter One Outline

Chapter one will provide an introduction and background to the problem of maternal mortality globally and in Uganda specifically. Uganda country demographics, modern maternal services system and the role of traditional medicine practitioners in maternal care will be summarized. Self Determination Theory will be presented as an appropriate theoretical framework to examine birthplace choice. The significance of the study, statement of the problem, purpose of the study, and research questions will be explained.
Background of the Study

Evolutionary biologists have long puzzled over the exceptional anatomical features of the human pelvis and the difficulties it presents human offspring navigating the birth course (Selin & Stone, 2009). Anthropologist Wilton Krogman (1951) first referred to childbirth as a “scar of human evolution” (p.54). In relation to other primates, human birth is far more complex due to the flattened pelvis essential to bipedalism (Lovejoy, 1988). Human birth is further complicated due to the head size of a large brained infant; the fetal head is nearly the same size or larger than the maternal pelvis (Selin & Stone, 2009). Non-human primates usually choose to give birth alone and under the cover of night (Selin & Stone, 2009). Theoretically there are three main factors associated with the uniquely human adaptation of seeking assistance at birth. The first factor is the presentation of human offspring at birth. “Human babies emerge facing away from the mother (a position called occiput anterior, it is difficult for the mother to reach down…to clear an airway or remove umbilical cord from around the infant’s neck (Selin & Stone, 2009).” (See figure 1.1: Cardinal movements of human delivery in occiput anterior presentations. (Nettina & Mills, 2006))
1) Secondly, in relation to other primate offspring, human babies are extraordinarily helpless. Human infants are particularly helpless because their brains are relatively underdeveloped. Theoretically, a human fetus would have to undergo a gestation period of 18 to 21 months instead of the usual nine to be born at a neurological and cognitive development stage comparable to that of a chimpanzee newborn; Anthropologists postulate that the size of the pelvis has limited human gestation length (Wong, 2012). Lastly, according to Trevathan (1997) intense maternal emotions during labor and birth may drive women to seek support. According to Sargent (2004) “The cross-cultural analysis of birthing systems has documented that birth is globally a culturally marked life event that is socially patterned as well as being a biological phenomenon.” (p. 224)

It is widely accepted that socialization substantially influences birthplace choice (Sargent, 2004; Selin & Stone, 2009). Much like other rural African women, Ugandan women have traditionally ascribed to the belief that birth is a natural physiological process for which medical intervention is occasionally necessary (holistic/natural/home birth) (Amooti-Kaguna & Nuwaha, 2000; Gabrys & Campbell, 2009; Kyomuhendo, 2003). However, much of Uganda’s maternal services policy and programming in keeping with international guidelines promotes a medicalised/facility based birth experience ("Safe Motherhood Initiatives:Critical Issues," 2006; Stephenson, 2006; Ssengooba, Neema, Mbonye, Sentuye, & Onama, 2003). In rural Africa, Uganda inclusive, the unresolved conflict between the medicalized model of birth and the “natural” model of birth maybe a contributing factor in the stagnating high rate of maternal mortality. The information and counsel, which informs birthplace choice of
women in rural Uganda, from the community and from the health authorities is frequently conflicting.

**Maternal mortality overview**

In 1990, 546,000 women worldwide died of maternal causes, 99% of them in developing countries (Zureick-Brown et al., 2013). Worldwide, the number of maternal deaths declined by 34% between 1990 and 2008, from approximately 546,000 to 358,000 deaths (Zureick-Brown et al., 2013). Sub-Saharan Africa currently bears the overwhelming proportion of global burden in maternal deaths (World Health Organization, 2010).

Progress on reducing maternal mortality in Asia accounts for the majority of the reduction of maternal deaths worldwide (Zureick-Brown et al., 2013). In 1990, an estimated 58% of global maternal deaths occurred in

*Figure 1.2: Estimated levels of the maternal mortality ratio (MMR), with and without AIDS-related maternal deaths, world and Sub-Saharan Africa, 1990–2008 (WHO, 2010)*
Asia and 36% in Sub-Saharan Africa; in contrast, in 2008, 57% of global maternal deaths occurred in Sub-Saharan Africa and 39% in Asia (Zureick-Brown et al., 2013).

Disparities in Maternal Mortality Rates (MMR) between Sub-Saharan Africa and other developing regions grew over the period 1990–2008, as the rate of decline in MMR in Sub-Saharan Africa, 1.7% per year, was substantially slower than the declines achieved in all other developing regions. In Southern and Southeastern Asia, average annual declines in MMR over the same time period were considerably more rapid, at 4.2% (3.6–4.8%) and 4.7% (3.8–5.6%), respectively (World Health Organization, 2010).

Today, a woman in sub-Saharan Africa has a 1 in 16 chance of dying in pregnancy or childbirth, compared to a 1 in 4,000 risk in a developing country – the largest difference between poor and rich countries of any health indicator (United Nations Population Fund, 2011).

Decades of stagnating maternal mortality statics indicate that the current protocol and recommendations as outlined in the national reproductive health policy (Uganda Ministry of Health, 2001) are not working in Uganda. It is globally recognized that one of the main challenges to achieving the Millennium Development Goal (MDG) of a global reduction of maternal death by 75% by 2015 (between 2000 and 2015) is the low proportion of women who deliver with a skilled birth attendant (Darmstadt, 2009; Millennium Development Goal 5, 2007;). The regions with the lowest proportions of skilled attendants at birth were eastern Africa (34%), western Africa (41%) and south-central Asia (47%), these regions also have the highest numbers of maternal deaths. Currently,
all skilled birth attendants in Uganda are stationed in health facilities. (Ssengooba et al., 2003) However, relevant available studies indicate that rural women show a strong preference for traditional home birth (Amooti-Kaguna & Nuwaha, 2000; Kyomuhendo, 2003; MacKain, 2007). This discord between rural women’s inclination and national maternal services programming may prove to be a critical issue in the persistent high rate of maternal mortality in Uganda.

**Maternal mortality and birth services/attendants in Uganda**

Over the last 10 to 15 years, trends in indicators of maternal health status in Uganda have been hotly debated by politicians, health practitioners and other major stakeholders. There are no comprehensive sources of reliable accurate health data for maternal mortality. The current optimistic estimate of the MMR in Uganda is 430 deaths per 100,000 live births (United Nations Population Fund, 2011). There is a great deal of political pressure to demonstrate a decline in MMR. However, in 2006 the Uganda Health and Demographics survey stated that the decline in MMR could be attributed to changes in records gathering and measurement. Additionally, the lower MMR cannot be substantiated by other gauges of better-quality maternal health such as increased prenatal visits, greater number of skilled birth attendants or hospital deliveries (Uganda Bureau of Statistics, 2006). The continuing challenge to collect accurate MMR data is confounded by the countries predominant rural dwelling population.

Uganda is among the least urbanized countries in Africa. Of the 36.35 million Ugandans, an estimated 87% live in rural areas (United Nations Population Fund, 2011).
There are 7.3 million women of reproductive age, approximately 22% of the population and 1.4 million babies are born in Uganda every year (United Nations Population Fund, 2011). Ugandan women average 6.4 children per woman, making Uganda the fourth most fertile country on the globe (CIA World Fact Book, 2012). The high fertility rate makes maternal mortality a high priority concern for the nation.

The lifetime risk for maternal death for a Ugandan woman is 1 in 35 (United Nations Population Fund, 2011). In Uganda, more than 5,000 women die each year due to complications of pregnancy or birth (Madsen, Bergeson-Lockwood, & Bernstein, 2007). Eighty five percent of maternal deaths can be attributed to direct causes, hemorrhage, sepsis, obstructed labor, abortion complications and ruptured uterus. Indirect causes of maternal death include miscarriage complications, malaria and HIV (Madsen, Bergeson-Lockwood, & Bernstein, 2007).

The majority of Ugandan women (62%) are not attended by a trained health worker when giving birth. Midwives and other health professionals attend 38% of births; doctors attend less than 10% of births (United Nations Population Fund, 2011). Traditional birth attendants, mothers, mothers in law, sisters, aunties, grandmothers and other women in the rural community attend an estimated 744,000 births each year. The majority of births take place in the mother’s rural home or the home of relative or rural community member (United Nations Population Fund, 2011).
Traditional medicine in Uganda

For the 62% of births that take place at home in the rural community, one or more traditional medicine practitioner may be called to aid in attending the birth. It is estimated that much like other parts of rural Africa, 80% of Ugandans rely on traditional medicine (World Bank, 2003).

Traditional medicine practice is based on the indigenous knowledge of a given people, a given community, and their experiences in the context of the local culture and environment—it is dynamic and changes with time depending on the prevailing situation. Traditional medicine practitioners (TMP) comprise herbalists, bonesetters, psychic healers, traditional birth attendants, faith healers, diviners and spiritualists who use indigenous knowledge for developing materials and procedures (World Bank, 2003). (p.1)

Especially in the rural communities, the number of practitioners trained in western medicine is extremely limited (World Bank, 2003). There is also a significant level of mistrust towards the practitioners, western medicine trained personnel are frequently not members of the community they practice in (Kyomuhendo, 2003). The availability and ratio of practitioners to the population also leads to ease of access for traditional medicine practitioners. If the rural population was assigned to a practitioner, each traditional medicine practitioner would serve approximately 290 rural dwellers, whereas each western trained doctor would serve 50,000 rural people (World Bank, 2003). Within the rural community, traditional healers are regarded as essential sources of knowledge and
care for health needs (Esegú, 2002). Traditional healers are frequently sought out by rural community members because the explanations they offer for certain conditions are culturally relevant and understandable to the people seeking care (Imogie, Agwubike, and Aluko, 2002).

In spite of the vital part that traditional medical practitioners hold in many rural communities; their services are often unregulated and for the most part entirely disregarded by the contemporary health care system and national health policy guidelines (Kaboru et al., 2006). Frequently there is friction and discord between community attitudes towards traditional medicine and the attitudes of contemporary health practitioners towards traditional medicine practitioners. This conflict in attitudes towards traditional medicine, adds to the general distrust and unease between the rural population and contemporary health care practitioners (Kayombo et al., 2007).

The contentious division between traditional medicine and modern health care contributes to the dissonance in communication to rural women regarding “appropriate” care for the birth of their children. In recent times the need to bridge the divide between modern medicine and traditional cultures has become much more evident. According to Dutta (2008),

The locally situated nature of health communication processes has become particularly relevant in the context of a growing awareness of the diverse ways in which meanings of health and illness are constituted in diverse societies and cultures. As the grand narratives of health have ruptured in the backdrop of an
increasing realization that the biomedical model provides a limited viewpoint for engaging in issues of global health, there is also an increasing awareness of the need to open up the spaces of health communication to the voices of cultural communities (p. 1).

As evidenced by the lack of traditional medicine acknowledgement in the national reproductive health policy, the contemporary medical system, health authorities and national health policy, consistently disregard and dismiss the traditional health practitioners to which rural communities entrust their health care.

*Uganda national contemporary maternal services structure*

The Ministry of Health (MOH) governs maternal health policies and services in Uganda’s public sector. Health worker education and training is conducted by the Ministry of Education (MOE). There is a monthly meeting of stakeholders in national maternal child health issues that is headed by the MOH. The group consists of non-governmental organization partners, donors, private service providers and health alliance associations. At the policy level maternal health is endorsed by the Population
Secretariat, housed within the Ministry of Finance, Planning and Economic Development.

Health Centers (HC) are ranked based on level of care available at each facility. (See Figure 1.3) The rankings are (HC) II, III and IV with each subsequent level representing an advanced level of service, the highest level of public facility based care is the Sub-County hospitals. Additionally, there are private clinics, hospitals and for profit health care providers. Most of the private facilities are located in the more urban areas and are not feasibly accessible for the rural poor. There is also a government supported effort for community based care in the form of Village Health Teams (VHT); the implementation of this program is in progress and only provides the most basic of monitoring and health maintenance services (Madsen et al, 2007). However, its existence indicates that the need for community based care is being discussed at the highest levels in the nation. National reproductive health guidelines promote facility birth as the safe choice for birth.

There is a remarkable discrepancy between the relatively high rate of facility-based prenatal care and low rate of facility-based deliveries. An estimated 94% of women attend at least one prenatal care visit at a health facility (United Nations Population Fund, 2011). Yet, only 38 percent of women deliver in a health facility (United Nations Population Fund, 2011). This indicates that approximately 56% of women choose to give birth at home in the community even after making contact with facility-based care for their prenatal examination. Additionally, post-partum care seemingly represents another
statistical anomaly since only 23 percent of women receive post-partum care (Kabuya, 2006).

Statement of the Problem

The past two decades have been a time of unprecedented attention to the problem of maternal mortality in Africa, including Uganda. Large organizations such as World Health Organization (WHO), The United Nations Population Fund (UNFPA), The United Nations Children’s Fund (UNICEF), Family Health International (FHI) and the Bill/Melinda Gates Foundation have invested a substantial amount of time, money and resources into the quest of reducing maternal mortality. A plethora of research around interventions, maternal services utilization and more accurate measures has been undertaken and reported (World Health Organization, 2010). What is scarce is research or interventions informed by rural African woman’s choices in care seeking. Little is known about the psychosocial elements and underlying motivational factors involved in rural African women’s delivery site choice.

Studies conducted in rural Africa centered on utilization trends or lack of utilization (Gabrysch & Campbell, 2009; Letamo & Rakgoasi, 2003; Mekonnen & Mekonnen, 2003; Stekelenburg, Kyanamina, Mukelabai, Wolffers, van Roosmalen, 2004; Stephenson, Baschieri, Clements, Hennink, Madise, 2006). It is important to examine the underlying motivation and level of self- determination in birthplace choice of rural women. Barriers to seeking modern health care do exist in the rural environment and a better understanding of motivations to overcome these barriers, or the decision to give
Birth at home with traditional means is critical for informing global policy, national maternal services programs and utilization interventions.

Significance of the study

Rural African women have no input in the types of delivery options they want and in influencing maternal services programming. Over two decades ago Allan Rosenfield and Deborah Maine of Columbia University asked the vital question where is the M in MCH? (Rosenfield & Maine, 1985). The groundbreaking article of the same title published by The Lancet on July 13, 1985 stimulated a dialogue in the Maternal Child Health world that eventually informed the Safe Motherhood Initiative (SMI), launched in 1987 at a conference hosted in Nairobi, Kenya. Since then a host of donor entities, government agencies, international non-governmental Organizations (NGO’s), national health ministries and academicians have continued to debate the best way forward in the quest to reduce maternal mortality (Dramstadt, Lee & Cousens, 2009). Conspicuously silent in the cacophony of voices asserting what needs to be done is the voice of rural African women. Global statistics indicate that rural African women are the overwhelming majority losing life to maternal death. In the lessons learned over two decades of programming and research aimed at reducing maternal mortality, tremendous gaps remain in understanding the will of the silent majority (rural women). It is important to undertake research that strives towards a greater understanding of the women for whom the majority of maternal services programming is intended to aid.
Every year an estimated 60 million women give birth outside health facilities, mainly at home, and 52 million births occur without a skilled birth attendant (SBA). (UNICEF, 2011b) Access to skilled care at birth and especially to emergency obstetric care (EmOC) is lowest for the poor, who carry the burden of maternal and neonatal morbidity and mortality related to complications of childbirth (UNICEF, 2011b). Globally, the lowest rates of skilled birth attendance are in South Asia and Sub-Saharan Africa, and progress in achieving universal skilled attendance is staggeringly slow, particularly in Sub-Saharan Africa, where the average increase in skilled birth attendance is rising by only about 0.2% per year (Lawn et al., 2009). At this rate, by the Millennium Development Goal (MDG) target date of 2015, still fewer than half of births in the region will occur with skilled birth attendant (Knippenberg et al., 2005).

To date, majority of maternal services programming/interventions undertaken in Uganda promote facility based medically intensive maternity care (Sengooba et al., 2003). Most national, international, public and private efforts have whole heartedly embraced the notion that “safe birth” equals “facility birth” (Kitzinger, 2005). Policy and programming is generally geared towards providing a “western” standard of care in-facility birth (Kitzinger, 2005). Such a standard continues to be elusive in rural Uganda; facilities are frequently ill equipped and under staffed; maternity wards in major area hospitals are frequently overcrowded and under staffed (Global Health Workforce Alliance, 2009). Currently in Uganda less than 40% of births take place in a health facility (United Nations Population Fund, 2011).
Available research indicates that traditional birth attendants and home births are the birth provider and place of choice for rural African women (Amooti-Kaguna & Nuwaha, 2000; Kyomuhendo, 2003; Letamo & Rakgoasi, 2003; Stekelenburg et al., 2004; Stephenson et al., 2006). Research also indicates that traditional birth attendants lack the skills and resources to effectively respond to life threatening birth complications; yet referral of women to rural health facilities has been largely unsuccessful in Uganda as 60%-80% of rural mothers deliver at home (Mbonyea, Asimwe, Kabarangirac, Nandad, & Orindac, 2007). To effectively reduce rural maternal mortality, policies and programs must find the optimal balance between these two approaches and promote solutions accordingly. The motivation for this research is to gain a greater understanding of the basic psychological needs of rural Ugandan women. It is critical to ascertain the underlying motivations and elements that influence rural women’s decision making in choice of birthplace, this information may be vital in informing decision makers for maternal services policy and programming. The purpose of this study is three-fold 1) Adapt and translate the Basic Psychological Needs Scale (BPNS) for the domains of home birth and facility birth. 2) Test the adapted scale and identify how the items in the adapted version of the BPNS are distributed in the questionnaire and identify the reliability of the developed questionnaire. 3) Understand the impact of basic needs satisfaction on birthplace choice by answering the research questions set forth below.
Research Questions

1. What are the factorial dimensions of the adapted scale?

2. How are the items in the adapted versions of the Basic Psychological Needs scale distributed in relation to the theorized model?

3. What is the reliability of the developed questionnaires?

4. Is there a significant difference in perception of overall basic needs satisfaction for the home birth domain and the facility birth domain? Moreover, as participant’s birthplace choice consistent with the birth domain for which they report a higher level of overall basic needs satisfaction?

5. Is there a significant difference in perception of basic need satisfaction for autonomy in the home birth domain and the facility birth domain? Moreover, as participant’s birthplace choice consistent with the birth domain for which they report a higher level of basic need satisfaction for autonomy?

6. Is there a significant difference in perception of basic need satisfaction for competence in the home birth domain and the facility birth domain? Moreover, as participant’s birthplace choice consistent with the birth domain for which they report a higher level of basic need satisfaction for competence?

7. Is there a significant difference in the perception of basic need satisfaction for relatedness in the home birth domain and the facility birth domain? Moreover, was participant’s birthplace choice consistent with the birth domain for which they reported a higher level of need satisfaction for relatedness?

8. What is the association between variables of autonomy, relatedness and
competence for facility birth needs satisfaction and home birth needs satisfaction?

Chapter One Summary

Chapter one provided an introduction and background to the problem of maternal mortality globally and in Uganda specifically. Uganda country demographics, modern maternal services system and the role of traditional medicine practitioners in maternal care were presented in summary as related to this dissertation. Self Determination Theory was presented as an appropriate theoretical framework to examine birthplace choice. The significance of the study, statement of the problem, purpose of the study, and research questions were explained.

Chapter 2 presents the theoretical framework and a literature review that discusses and endeavors to synthesize prevailing themes in the literature pertaining to birthplace choice and health behavior self-determination.
CHAPTER TWO

Literature review and conceptual framework

*Literature review questions*

A literature review was undertaken using online database research. This review aimed to analyze current published research concerning birthplace choice and the elements influencing the decision making process of women. The main purpose of this review was to identify prevailing themes in the birthplace choice literature and discourse. This study is the first of its kind; literature was gathered from the self-determination field of study and from birthplace choice research. This review merges the two elements together to highlight salient themes.

The following databases were searched using key terms, PubMed, Science Direct, Elsevier, CINHAL (Cumulative Index to Nursing and Allied Health Literature), Academic OneFile, Academic Search Premier, PsycInfo, PsycArticles and Google Scholar. The keywords that guided the search were birthplace; choice; childbirth; women; self-determination; decision-making; Africa, Uganda. Table 1 summarizes key articles used in the synthesis of this review. The purpose of the review was to answer the following questions.

1. What are the prevailing themes in birthplace choice literature and studies using Self-Determination Theory to study health behavior?
2. What elements influence birthplace choice and the decision making process of mothers in Africa and worldwide?
### Table 2.1 Summary of birthplace choice literature review articles

<table>
<thead>
<tr>
<th>Author and Country</th>
<th>Objective</th>
<th>Study Sample</th>
<th>Research Design</th>
<th>Findings</th>
</tr>
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<tbody>
<tr>
<td>Amooti-Kaguna and Nuwaha (2000) Uganda</td>
<td>To understand factors influencing choice of delivery sites in Rakai district of south-western Uganda</td>
<td>Eight focus group discussions based on the Attitudes-Social influence-Self efficacy model were held with 32 men and 32 women. Semi-structured interviews were also held with 211 women from 21 random cluster samples who had a delivery in the previous 12 months.</td>
<td>Two qualitative methods namely focus group discussions (FGDs) and semi-structured interviews (SSIs) were used to collect data.</td>
<td>Among the factors influencing choice of delivery site were: access to maternity services; social influence from the spouse, other relatives, TBAs and health workers; self-efficacy; habit (previous experience) and the concept of normal versus abnormal pregnancy. Attitudinal beliefs towards various delivery sites were well understood and articulated. Attendance of ante-natal care may discourage delivery in health units if the mothers are told that the pregnancy is normal.</td>
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<tr>
<td>Chesney (2008) United States</td>
<td>Examine the process and motivations involved when women in the U.S. choose to circumvent the dominant obstetric care paradigm by delivering at home with a group of care providers called direct entry midwives.</td>
<td>Using grounded theory, participant observation, and open-ended, semi-structured interviewing, collected and analyzed homebirth narratives from a theoretical sample of women (n=50) in two research locales.</td>
<td>Modified grounded theory approach.</td>
<td>Findings interpreted from the perspective of critical medical anthropology suggest that women who choose to birth at home negotiate fears associated with the “just in case something happens” argument that forms the foundation for hospital birth rationales through complex individual and social processes. These involve challenging established forms of authoritative knowledge, valuing alternative and more embodied or intuitive ways of knowing.</td>
</tr>
<tr>
<td>Gabrysch and Campbell (2009) selected low and middle income countries</td>
<td>Skilled attendance at childbirth is crucial for decreasing maternal and neonatal mortality, yet many women in low- and middle-income countries deliver outside of health facilities, without skilled help. The main conceptual framework in this field implicitly looks at home births with complications. We expand this to include “preventive” facility delivery for uncomplicated childbirth, and review the kinds of determinants studied in the literature, their hypothesised mechanisms of action and the typical findings, as well as methodological difficulties encountered.</td>
<td>Searched PubMed and Ovid databases for reviews and ascertained relevant articles for these and other sources</td>
<td>Twenty determinants identified were grouped under four themes: (1) sociocultural factors (2) perceived benefit/need of skilled attendant (3) economic accessibility (4) physical accessibility</td>
<td>Studies of the determinants of skilled attendance concentrate on sociocultural and economic accessibility variables and neglect variables of perceived benefit/need and physical accessibility. To draw valid conclusions, it is important to consider as many influential factors as possible in any analysis of delivery service use. The increasing availability of georeferenced data provides the opportunity to link health facility data with large-scale household data, enabling researchers to explore the influences of distance and service quality.</td>
</tr>
<tr>
<td>Hadjigeorgiou et al. (2011) U.S.A, Greece, Scotland, Netherlands, Finland, UK, Sweden, Australia</td>
<td>Provide a critical synthesis of published research concerning women’s experiences in choosing where to give birth.</td>
<td>21 Research based papers</td>
<td>An integrative literature review was conducted using three databases (MEDLINE, CINAHL, and Ovid) for 1997-2009. Inclusion criteria were: (1) publication in the English language; (2) research article; (3) focus on women’s perceptions for their birthplace choices, and (4) data collected during pregnancy, at birth and post-partum</td>
<td>There is considerable evidence that women worldwide wish to be able to exercise their rights and make informed choices about where to give birth. The medical model remains a strong and powerful influence on women’s decisions in many countries. The midwifery model offers birthplace choices to women, while policies and culture in some countries affect midwifery practice. Perceptions of safety shaped women’s preferences, and women’s autonomy facilitated birthplace choices.</td>
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</table>
This study was carried out to identify the factors which influenced choice of place of delivery by pregnant women in Enugu, southeastern Nigeria, and to recommend ways to improve women’s access to skilled attendants at delivery. A pre-tested questionnaire was administered by interviewers to women who had delivered within 3 months prior to date of data collection. The response rate was 75.5% (n = 1098). Of the respondents, 52.9% delivered outside health institutions and 47.1% in health institutions.

This was a population based cross-sectional survey carried out in Enugu, capital of Enugu State in Southeast geopolitical zone of Nigeria.

Factors which will positively influence women to deliver in health institutions in Enugu, Nigeria include a variety of interacting social, economic and health system factors, which operate at various levels—the household, community, the health institutions and the larger social and political environment.

In Uganda, lack of resources and skilled staff to improve quality and delivery of maternity services, despite good policies and concerted efforts, have not yielded an increase in utilization of these services by women or a reduction in the high ratio of maternal deaths. This paper reports a study conducted from November 2000 to October 2001 in Homa, a rural district in western Uganda, whose aim was to enhance understanding of why, when faced with complications of pregnancy or delivery, women continue to choose high risk options leading to severe morbidity and even their own deaths.

A total of 888 women with more than one birthing experience were interviewed in the quantitative survey (Table 1). Several villages (clusters) were randomly selected from each of the two counties in the district. In each village, all households with eligible women were interviewed using a pre-tested questionnaire with both open and closed questions. A total of 24 FGDs were also held, involving 240 participants (with men only and women only in each of five localities).

The findings demonstrate that adherence to traditional birthing practices and beliefs that pregnancy is a test of endurance and maternal death a sad but normal event, are important factors. The use of primary health units and the referral hospital, including when complications occur, was considered only in a last resort. Lack of skilled staff at primary health care level, complaints of abuse, neglect and poor treatment in hospital and poorly understood reasons for procedures, plus health workers’ views that women were ignorance, also explain the unwillingness of women to deliver in health facilities and seek care for complications.

Previous studies of maternal health-seeking behavior focused on individual- and household-level factors. We examined community-level influences on the decision to deliver a child in a health facility across 6 African countries.

Demographic and Health Survey data were linked with contextual data, and multilevel models were fitted to identify the determinants of childbirth in a health facility in the 6 countries. The sample for each country represents all women of reproductive age covered in the national survey who had given birth in the past 3 years. Sample sizes are as follows: Burkina Faso, 3147; Ghana, 1708; Ivory Coast, 1131; Kenya, 3058; Malawi, 6318; and Tanzania, 1710.

These surveys used a stratified multistage cluster sample design to collect nationally representative samples of women of reproductive age (15–45 years). Questionnaires were conducted with all eligible women in each sampled household; data on fertility, family planning, and health care-seeking during pregnancy were collected, in addition to demographic and socioeconomic data.

Community economic development, the climate of female autonomy, service provision, and fertility preferences all exert an influence on a woman’s decision to seek care during labor, but significant community variation remains unexplained.

This article explores the way in which these cultural models of birth and the existing practical possibilities for choices shape women’s and men’s understanding of home birth.

Based on interviews with 21 Finnish women and 12 Finnish men, the reasons for and experiences of planning and building toward a home birth are examined through an analysis of birth narratives.

The unstructured and open-ended interviews were conducted in the respondents’ homes. The interviews, all of which were tape-recorded, lasted between 1.5 and 3 h each. A list of themes concerning the planning, preparation and organization of a home birth and the parents’ experience of the process was used. The tapes were transcribed and coded using qualitative analysis support software. New codes were created and code clusters formed in order to describe the interpretations made of the narratives and discussions in the interview situations. Kvale, 1996 method of narrative structuring was used in the analysis. The interview transcripts were treated as pieces of a narrative, reconstituted from the stories the women and men told and the discussions with the interviewer.

The analysis shows that the notion of ‘natural birth’ holds various meanings in Finnish women’s narratives namely self-determination, control, and trust in one’s intuition. I seek to demonstrate that just as the biomedical management of childbirth exhibits distinct cross-cultural variation, so also does resistance to biomedical hegemony, as such resistance is strongly embedded in the local socio-cultural situation.

This book brings together global research conducted by professional anthropologists, midwives and doctors who work closely with the individuals from the cultures they are writing about, offering a unique perspective direct from the cultural group.
**History of birthplace and the notion of choice**

Global social and cultural norms for practices surrounding birth have always varied. However, prior to the eighteenth century, the places where birth transpired had distinct similarities worldwide; women gave birth in their community, in a home, attended by a local midwife or other women in that community such as close friends and relatives. Birth was entirely a women’s domain (Selin & Stone, 2009). In much of rural Africa today, birth remains a women’s domain.

Historically speaking, the modern male dominated medicalized notion of birth is a relatively recent phenomenon. The introduction of instruments by the Chamberlen family, a small group of male midwifery practitioners from France, had a notable influence on the shift in the role of male attendants at birth during the late seventeenth century (Selin & Stone, 2009). The introduction of instruments aided in the isolation of the female reproductive system as a baby producing mechanism separate from the female person housing that machine (Martin, 1992). The separation was critical to normalize the male intrusion into the most intimate areas of the female anatomy (Selin & Stone, 2009). “Science” was used to overcome the strong moral objection to the intimate handling of women by male doctors attending birth. The medicalization of birth introduced obstetric standards that constructed a narrative of a single normal course of labor and birth, deviation from the defined standard course required intervention (Loudon, 1997). Over time, interventions became more common even within the defined “standard” course of birth. Power and control over the birth process shifted from the women giving birth and
her female attendants to male doctors. Prevailing attitudes regarding the inherent risk of childbirth particularly in women of European decent increased the use of interventions such as cesarean section (Nielsen, 1995). Cesarean section (C-section) was not new to the nineteenth century, the use of the technique dramatically increased during the Victorian era. The method of an incision to remove a baby from the mother’s womb dates back to early Romans and was reportedly used on the mother of Caesar (Nielsen, 1995). Written records indicate birth by incision was known to the ancient Egyptians, Hindus and Hebrews as well. However the operation was rarely used and only employed following death of the mother or when death was imminent.

Bio-cultural factors associated with Victorian era practices precipitated the use of C-sections and the perceived risk of birth in general (Nielsen, 1995). Women of European decent were at an increased risk for obstructed labor due to flattening of the pelvis associated with rickets (vitamin D deficiency) and constant corset use. European women experienced extremely high maternal mortality rates not previously seen in other populations. In England and Wales between 1850 and 1900,
rates of maternal mortality were estimated at 50% of women giving birth (Selin & Stone, 2009). Women delivered by C-section during the era had even greater rates of maternal mortality. Throughout the eighteenth century into the early nineteenth century, reportedly 80% to 90% of women giving birth by C-section died following the procedure (Selin & Stone, 2009). Maternal mortality in this era associated with rickets, corset use and increased use of C-sections gave credence to the notion of birth as a potentially pathological process requiring increasing levels of medical intervention.

The legacy of birth as a potentially pathological process lingers on in the current medicalized model of birth (Selin & Stone, 2009). The modern medicalized view of birth is directly opposed to the original notion of birth as a natural culmination of pregnancy, progressing naturally and requiring little or no intervention. Furthermore, each view of birth is inseparably linked with a birthplace. Modern medicalized birth is linked with hospitals or medical facilities and traditional or “natural birth” is linked with the home and in recent times for more developed regions of the world, birth centers. This history of traditional “natural birth” contrasted with modern medicalised birth gives rise to the dialogue surrounding birthplace and the notion of choice. Prevailing themes in birthplace choice dialogue reflect the conflict faced by women (and at times men) who make those choices; hospital versus home, male dominated versus female centered, intervention versus natural progression, science versus nature. In regions where these two birth paradigms exist as options for giving birth, the notion of birthplace choice also exists; it is framed as a “notion” of choice due to the overwhelming social, cultural and political barriers that may prevent full autonomy for women in birthplace choice (Kitzinger,
Involved in the birthplace choice dialogue are issues of power/control, knowledge and intimacy (Cheyney, 2008). These issues have parallels that are examined by Self-Determination Theory and represented as autonomy (power/control), competence (knowledge) and relatedness (intimacy) (Deci & Ryan, 1985).

Conceptual Framework

Self-determination theory (SDT) is a theory of human motivation, developed by Edward L. Deci and Richard M. Ryan of University of Rochester. SDT is based on the premise that interpersonal and environmental contexts can either support or block a person’s behavioral regulation. SDT also posits that human beings have basic psychological needs for autonomy, competence and relatedness (Deci & Ryan, 1985). Environments that support the satisfaction of these needs will promote a person’s gratification with activities and the autonomous self-regulation of behaviors (Gagne, 2003). People are moved to act by various diverse factors. Individuals can be motivated because they value an activity or because there is strong external coercion (Ryan & Deci, 2000). The matter of whether persons stand behind a behavior out of their interests and values, or do it for reasons external to the self, is a matter of significance in every culture (Johnson, 1993). Intrinsic motivation drives behavior that is internally motivated or autonomous. Extrinsic motivation is externally controlled and less autonomous. SDT proposes that the autonomy related to extrinsic motivation can vary greatly from person to person (Ryan & Connell, 1989).

In the context of health, behavior that is motivated internally or by internalized external cues is more likely to be sustained by individuals. For example, a person is more
likely to maintain a physical exercise routine if they are doing the exercise because they believe it is best for their health versus because their doctor told them to exercise for better health. Research has applied SDT in several health behavior related domains, such as diet, physical activity, smoking cessation and diabetes glucose monitoring (Deci & Ryan, 2000; Reis, Sheldon, Gable, Roscoe & Ryan, 2000). Years of research using SDT as a framework reveal that positive health behavior is more likely to be maintained if intervention/program conditions are conducive to meet an individual’s inherent basic needs for autonomy, competence and relatedness. Vallerand, Pelletier and Koestner (2008) expressed this concept as follows, “…to the extent that the environment allows one to experience feelings of competence, autonomy and relatedness, the person’s motivation toward a given task will be optimal.” (Vallerand, Pelletier, & Koestner, 2008)

According to Deci and Ryan (2008),

Based on years of research on intrinsic motivation and internalization we found that a satisfactory account of the various empirical results required the hypothesis that there is a set of universal psychological needs that must be satisfied for effective functioning and psychological health. Subsequent research in a variety of countries, including some cultures with collectivist, traditional values and others with individualist, equalitarian values, have confirmed that satisfaction of the needs for competence, autonomy, and relatedness do indeed predict psychological well-being in all cultures. (p.183)

*Autonomy* literally means “self-rule” and refers to individual will and willing endorsement of one’s actions (deCharms, 1968; Deci, 1975; Deci & Ryan, 1985, 2000).
The need for autonomy is satisfied when a person believes that their actions are self-determined. The need for competence refers to the experience of behavior as mastered or skillfully executed (Deci & Ryan, 2000); the need for competence is fulfilled by experiences where one perceives the ability to effectively actualize desired outcomes. Relatedness is the desire to interact, be connected to, and experience caring and belonging (Baumeister & Leary, 1995; Ryan & Deci, 2000).

Substantial research using self-determination theory in the health field indicates that intrinsic motivation as supported by the inherent basic needs of autonomy, competence and relatedness is a vital factor in the initiation and maintenance of positive health behavior change (Ryan & Connell, 1989; Williams, Freedman, & Deci, 1998; Williams, Deci, & Ryan, 1998; Williams, Grow, Freedman, Ryan, & Deci, 1996; Williams, Patrick, Niemiec, & Ryan, 2011). Additionally, health practitioners providing autonomy support for positive health behavior initiation and maintenance will facilitate intrinsic motivation for desired behavior (Ryan & Connell, 1989; Williams, Freedman, & Deci, 1998; Williams, Deci, & Ryan, 1998; Williams, Grow, Freedman, Ryan, & Deci, 1996; Williams, Patrick, Niemiec, & Ryan, 2011).

Deci and Ryan (1991) liken the basic needs of autonomy, competence and relatedness to nutrients that are essential for a being to thrive psychologically overall and within a specified domain. Much like humans seek out essential nutrients to thrive biologically, to thrive psychologically, people choose or generally seek out experiences that satisfy these basic needs in everyday activities and major life events such as birth. SDT was selected as a theoretical framework.
after careful consideration of emerging themes within literature pertaining to birthplace choice.

**Birthplace choice as a health behavior**

The free online medical dictionary defines health behavior as follows, “an action taken by a person to maintain, attain, or regain good health and to prevent illness. Health behavior reflects a person's health beliefs. Some common health behaviors are exercising regularly, eating a balanced diet, and obtaining necessary inoculations.” Health behavior is an essential concept to understand for the study of professional health services utilization (Steele, 1972). An important distinction is drawn between “health behavior” and “illness behavior”. Rosenstock (1969) emphasizes that “health behaviors” are those activities undertaken when an individual is asymptomatic. Health behaviors actions maintain health and/or prevent disease (Steele, 1972). Conversely, “illness behavior” is defined as follows… “Any condition which causes, or might usefully cause, an individual to concern himself with his symptoms and to seek help” (Mechanic & Volkart, 1961).

The state of normal uncomplicated pregnancy and birth is not usually classified as a disease. However, it can and often does produce marked symptoms. Additionally, there are illnesses as a result of pregnancy and birth complications. Thus, pregnancy and childbirth present unique and distinct complexities in the “health” or “illness” behavior paradigm. Socialization is a crucial determinant in perception of “health” or “illness” for symptoms resulting from pregnancy or birth (Kabuya, 2006; Kyomuhendo, 2003; Letamo & Rakgoasi, 2003; Stekelenburg et al., 2004).
Theme 1: Birthplace choice and women's autonomy

Globally, governments and maternal health experts have strongly recommended that maternity services should take women’s unique needs into account and offer more choices (World Health Organization, 2010). The dialogue surrounding birthplace choice began in modern Western societies as a way to mitigate the increased medicalization of childbirth (Cheyney, 2008; Jomeen, 2006). Giving birth is a highly personal and an emotional experience; as such, women should be afforded every opportunity to facilitate a positive birth experience (Halldorsdottir & Karlsdottir, 1996; Odent, 2006; Thomson, 2003). Choice during childbirth is recognized as a human right for all women (Kitzinger, 2005). For women, choice in birthplace is documented as a vital factor for a positive birth experience. (Bryanton, Gagnon, Johnston, & Hatem, 2008; "Evidence basis for the Ten Steps of Mother-Friendly Care," 2007; Lothian, 2009) In developed countries where hospital birth is the norm, midwife attended home birth is viewed as an expression of women’s autonomy (Boucher, Bennett, & McFarlin, 2009; Edwards, 2005; Galotti, Pierce, Reimer & Luckner, 2000).

In nations where medicalized birth dominates, women’s choices are limited by political and socio-cultural factors (Kitzinger, 2005). The limitations are so severe that some argue the notion of choice is an illusion (Jomeen, 2006). However, a growing minority of women (in developed nations where medicalised birth dominates reject the societal standard of obstetrician attended hospital birth and chooses to deliver at home with a midwife (Cheyney, 2008, Kitzinger 2005). The women who reject the cultural norm for hospital birth are considered to be demonstrating higher levels of autonomy.
than women who give birth in the socially sanctioned medical model (Boucher, Bennett, & McFarlin, 2009; Edwards, 2005). Women, who choose homebirth where hospital birth is the norm, express the desire to exercise control and maintain personal autonomy over their birth experience; they are more likely to be well educated, professional, openly feminist and of a higher economic status (Edwards, 2005). Conversely, in a landmark study, involving over 17,000 African women in 6 sub-Saharan countries, Stephenson et al. (2006) found that factors associated with individual female autonomy and community level support of female autonomy were positively associated with seeking skilled attendant care at birth.

A significant factor associated with individual level female autonomy is attainment of secondary level education (Hyacinth, Ikeako, and Iloabachie, 2006; Stephenson et al., 2006). Communities with higher socio-economic status, urban dwelling communities and husband support of birth control use were identified as being more supportive of female autonomy; women in these communities were more likely to seek skilled attendance at birth (Stephenson et al., 2006). Stephenson et al. (2006) determined as follows, “hence, women living in communities with higher levels of female education and approval of family planning may also be living in climates of greater autonomy, allowing them greater decision making power and the opportunity to seek care during pregnancy and labor.” Autonomy is critical to the birthplace choice factor. In developed nations women who choose homebirth where hospital birth is the norm demonstrate higher levels of autonomy than their counterparts. In Africa women who choose hospital birth where homebirth is the norm demonstrate higher levels of autonomy than their counterparts. It
appears that higher levels of autonomy empower women to choose an “alternative” birthplace that is not supported by the societal norms of the communities where they live.

SDT research with glucose control, alcohol treatment and weight loss has consistently shown that health behavior driven by autonomous motivation yields long term persistence and adherence to intervention protocol (Williams, Freedman, & Deci, 1998; Wilson, Mack, & Grattan, 2008). According to Deci and Ryan (2000) “Comparison between people whose motivation is authentic (literally, self-authored or endorsed) and those who are merely externally controlled for an action typically reveal that the former, relative to the latter, have more interest, excitement, and confidence, which in turn is manifest as enhanced performance, persistence, and creativity.” (pg.69)

Theme 2: Social norms and birthplace choice

Social norms surrounding birth have a powerful influence on women’s birthplace choice. Studies in developed countries where medical hospital births prevail, reveal that women’s choice of where to give birth is mainly limited by the general belief that birth is only safe in a hospital (Hadjigeorgiou, Kouta, Papastavrou, Papadopoulos, & Martenson, 2011; Jomeen, 2006; Nusbaum, 2006). Additionally, in developed countries where hospital birth is the norm, women meet considerable resistance from insurance and health care providers when choosing home birth (Kitzinger, 2005). The Netherlands is the notable exception in actively promoting midwife attended home birth. In developed nations where the medical model prevails, birth is considered to be a potentially pathological condition in which something could go wrong at any time (Edwards, 2005).

On the contrary, in rural Uganda, birth is viewed as a normal physiological process
and not a potentially pathological condition (Amooti-Kaguna & Nuwaha, 2000; Kyomuhendo, 2003; Neema, 1994). In contrast to the medical birth paradigm, risk is perceived in a different way and emphasis is on natural process of childbirth without medical intervention (Neema, 1994). Women draw power from the birth experience as a rite of passage. Giving birth at a health facility is viewed as an anti-climax, which compares negatively with traditional options (Kyomuhendo, 2003; Selin & Stone, 2009). A study in the Hoima district by Kyomuhendo (2003) revealed that “Pregnancy is perceived as an inevitable burden, unique but essential for continuation of life and lineage.” (pg. 19)

Self-Determination research reveals that relatedness or the ability to connect to a practice through shared experience and social ties enhances intrinsic motivation for and adherence to the practice (Williams, Frankel, Campbell, & Deci, 2000). One of the central concepts in Self-Determination Theory is autonomy support. In the realm of health behavior change, this refers to interacting with individuals by taking full account of their perspectives, affording choice and providing information. Autonomy support encompasses consideration of family and social ties and is a key element for intrinsic motivation in health behavior (Williams, Grow, Freedman, Ryan, & Deci, 1996).

Theme 3: Knowledge acquisition and birthplace choice

Women are exposed to varying sometimes conflicting information about birth from diverse sources, including family, friends, medical personnel and society at large. Informed choice is the cornerstone of true autonomy in birthplace choice. However, frequently information is skewed in one direction or the other based on the source of information;
medical personnel do not deliver balanced messaging on traditional methods or home delivery and traditional attendants are frequently not knowledgeable about facility birth (Cheyney, 2008). Both the traditional attendant and medical personnel vie for total control over women’s birthplace and attendant choices (Amooti-Kaguna & Nuwaha, 2000; Kyomuhendo, 2003 Pfeiffer & Mwaipopo, 2013).

In day to day decision making, the information that comes from interpersonal communication with peers, relatives and health personnel is the most important factor for women. In a study by Cheyney (2008), women expressed that it was important to acquire informal knowledge through sharing with peer networks (Cheyney, 2008). Lack of knowledge and poor communication with health personnel led to feelings of alienation and estrangement in the facility birth experience (Kyomuhendo, 2003). Edwards (2005) described women’s power to give birth at home as ‘embodied knowledge’ and ‘women’s inner wisdom’, conversely women’s narratives about hospital birth reported feelings of alienation and lack of control (Boucher, Bennett, McFarlin, & Freeze, 2009). In studies on birthplace choice by Edwards (2005) and Cheyney (2008) women expressed the importance of knowledge acquisition to achieving full autonomy in decision making. Hadjigeorgiou et al. (2011) states “In order for each woman to be truly autonomous, she needed to be respected, valued and honored for the authoritative knowledge that she possessed: knowledge of her body, her values and beliefs, and what is important to her.”(p. 388) Knowledge acquisition is closely associated with decision making autonomy. If a woman is not fully informed, she cannot achieve full autonomy in her decision making on birthplace choice (Barber, Rogers, & Marsh 2006). Women from various world regions,
from both developed and developing nations expressed that they encounter obstacles when seeking information relevant to birthplace choice (Barber, Rogers, & Marsh, 2006; Cheyney, 2008; Edwards, 2005; Kyomuhendo, 2003). In the world of birth practitioners, medical or traditional, there is no neutral source for women to seek information. Information is often biased towards a specific view of birth either “medicalized” or “natural” birth. Beyond practitioners, women often receive conflicting information from friends, relative and people in their community at large. According to self-determination theory, competence informed by knowledge acquisition is a key construct for intrinsic motivation in health behavior (Vlachopoulos & Michailidou, 2006). The need for competence refers to an individual’s ability to interact effectively with their environment (Ryan & Deci, 2000).

Self-Determination and birthplace choice

Control and autonomy are common themes in birthplace choice literature. The concepts of control and autonomy are frequently mentioned in association with a “good” or desirable birth experience (Hadjigeorgiou et al., 2011; Mander & Melender, 2007; Namey & Lyerly, 2010; Viisainen, 2001). However, there is significant variability in the meaning women associate with the notions of control and autonomy. There is much ambivalence in the terms and concepts that are inherent to the nature of birth. A significant proportion of respondents in birthplace choice studies acknowledge that birth is beyond control (Namey & Lyerly, 2010). The meaning of control appears to have many facets that are not easily distinguished from one another (Fox & Worts, 1999). In one of the largest studies focused on birthplace choice, Namey & Lyerly (2010) found that meanings for control are
associated with five distinct domains: self-determination, respect, personal security, attachment, and knowledge. Self-determination was further distilled to notions encompassing authority, decision-making, agency and presence (Namey & Lyerly, 2010). Additionally, Namey and Lyerly (2010) defined the self-determination factor as “…the ability to have a birth that is shaped and guided by one’s own inclinations and values rather than those of others.” (p.4)

The following are respondent comments illustrating varying notions of control in birth experience from Namey and Lyerly (2010).

From all the reading I had done, I know that hospitals had rules and that if they didn’t make sense to me I wasn’t going to them. I wanted to be in control of what happened to me, even if something was necessary to be done, like having a C-section, I wanted my permission asked, I wanted it described, why it was necessary, and I wanted to be able to be the one to make the decision. (Jill, European American, 28, 3 children, hospital, home and birth center births) (p.5)

Jill’s comments denote a notion of “being in control” or “having control” over her birth experience, as well as power and authority to direct aspects of the birth (Namey & Lyerly, 2010).

Control would have to be ability to accept or decline. Say “yes” or “no”. Just to be able to know what is going on. To have a doctor come in and say, “Well I’m doing this”. It’s better to say, “Would you prefer we do this, or do you want to….?” Options, you have to have options. If not then you are not in control. (Shae, African American, 3 hospital births) (p.5)
Shae’s comments demonstrate a sense of control as access to choices or options. This is a delineated dimension of the overall self-determination construct.

I was fully in charge, I had to go through it, there was nobody or nothing that can take the pain away from me that could take me away from being in charge of it. (Monica, European American, 38, 1 C-section, 3 hospital VBAC’s, 1 home VBAC) VBAC (virginal birth after C-section) (p.5)

I mean I felt in control the whole time, I had to be in control of the whole time because I’m the one that has to push. (Aneesa, African American, 23, 1 unplanned C-section, 1 hospital VBAC) (p.5)

Monica and Aneesa’s comments stress a sense of agency and are more “self” focused rather than directed at the birth environment or birth attendants (Namey & Lyerly, 2010).

The nuances of varying notions of control and self-determination become more apparent through the examination of respondent comments and scrutiny of their meaning. It is also important to highlight the parallels between elements of Self-Determination Theory and the expanded meanings of control and self-determination as distinguished in studies of birthplace choice. The expanded meaning of control and self-determination encompass notions of knowledge, attachment, authority, power, and decision making. These notions are also reflected in the elements that constitute SDT, autonomy, competence, and relatedness.
Chapter Two Summary

In Summary, the key points from this literature review are, higher levels of autonomy empower women to make birthplace choices that are counter cultural, knowledge acquisition is crucial to achieving full autonomy in decision making, social norms surrounding birth choice have a powerful influence on women’s birthplace choice.

Chapter two examined and presented prevailing themes in birthplace choice literature and health behavior self-determination study literature. Emerging parallels between birthplace choice literature and health behavior SDT study literature were emphasized. Self Determination Theory as a conceptual framework was explained in sufficient detail. This chapter established a foundation for the current study. The benefits of examining birthplace choice through the lens of Self Determination Theory are apparent, the myriad entwined elements influencing birthplace choice call for clarification and simplification. Self Determination Theory allows for the study of these complex influences distilled down to the basic psychological needs level of autonomy, competence and relatedness. Research on birthplace choice is relatively recent and there is a great deal that remains unknown in regards to the elements that influence choice of birthplace. The present study has major implications for facilitating understanding of the essential elements that influence birthplace choice. Chapter three details the instruments, research methodology and procedures used in this study.
CHAPTER THREE

METHODOLOGY

Study Design

The study used a descriptive cross-sectional survey, without a comparison group. This design allowed the researcher to apply and test an adapted version of the BPNS, and to confirm the questionnaire structure with confirmatory factor analysis.

Setting and target population

The study employed a convenience sample of Banyankole (ethnic group) women residents in Kashongi Sub-County, a rural agricultural community in South West Uganda. Kashongi Sub-County is in Kiruhura District, the closest national major city center is Mbarara. Kashongi Sub-County is

Figure 3.1: Map of Uganda with major cities and major ethnic groups (CIA World Fact Book, 2010)
divided into seven parishes Rwenjubu, Kitabo, Byanamira, Kitura Mooya, Rwanyangwe, and Rwemamba. An estimated 2,772 women of child bearing age reside in the Kashongi Sub-County. The majority of Banyankole in Uganda live in and around the rural area surrounding Mbarara. The Banyankole are one of the major ethnic groups in Uganda, comprising approximately 8% of the population or approximately 2.8 million people. Prior to colonialism the nation was organized by tribal kingdoms, the Banyankole people resided in the kingdom of Ankole (South West region of Uganda). The rural areas are reflective of this tribal kingdom history, in that each ethnic group remains concentrated in the region associated with their tribal kingdom.

Ethnic diversity predominantly exists in the capital city of Kampala and to a much lesser extent in the main city centers. The region of Ankole was chosen mainly due to the principal investigator’s connection to the region and language skills. A study of rural women inclusive of the major ethnic groups in Uganda would necessitate extensive cross country travel and costly translation expertise for each ethnic group. The financial and
human resources required for an ethnically diverse study of rural women in Uganda, are beyond the scope of this dissertation research.

**Measures**

At the center of self-determination theory is the idea of basic psychological needs that are presumed to be innate and basic human needs for people worldwide (Deci & Ryan, 2000). According to Deci & Ryan (2000),

The needs for competence, autonomy, and relatedness—must be continuously satisfied for people to develop and function in healthy or optimal ways… many of the propositions of SDT derive from the postulate of fundamental psychological needs, and the concept has proven essential for making meaningful interpretations of a wide range of empirically isolated phenomena. (Self-Determination Theory website, para 1)

The BPNS was chosen to examine the numerous and complex relationship of constructs involved in birthplace choice at a basic psychological needs level. The insight that can be gained by examining birthplace choice at a basic psychological needs level may aid in clarifying the basic elements essential to birthplace choice selection.

The Basic Psychological Needs Scale (BPNS) is a set of scales: one that examines need satisfaction overall in one’s life and others that can be adapted to examine need satisfaction in specific domains (Self-Determination Theory website, para 2). For the purposes of this study the 21 item *BNPS was utilized in two variations. The Basic Psychological Needs Scale (BPNS) includes 21 items, with three subscales: autonomy (7 items), competence (6 items) and relatedness (8 items). Participants were requested to
rate their agreement with each statement using a 5-point scale (1 = totally false and 5 = very true). Examples of items include: (autonomy), “I am free to express my ideas and opinions at the health facility”, (competence) “People at health facility have confidence in my knowledge of matters concerning pregnancy and birth”, (relatedness) “I consider the people at the health facility to be my friends”. Internal consistency for the subscales ranged from acceptable to good (autonomy = .61 to .81; competence = .60 to .86; and, relatedness = .61 to .90) (Conway & Coatsworth, 2007; Gagne, 2003; Kashdan, Julian, Merritt & Uswatte, 2006; Meyer, Enstrom, Hartstveit, Bowles, et al., 2007; Niemiec, Ryan & Deci, 2009). Reported measures of internal consistency for the total needs satisfaction score ranged from .84 to .90 (Gagne, 2003; Meyer et al., 2007; Wei et al., 2005). Johnston and Finney (2010) evaluated the external validity of the BPNS and found that the pattern of differential and theoretically meaningful relationships with the three factors of psychological well-being (autonomy, competence and relatedness). Another research team Hansf stingl, Andreitz, Muller & Thomas (2010) studying teacher motivation adapted the BPNS by modifying the questions to reflect the school setting. For example, an autonomy support question was modified to “In my school I can do my job as I like”. They found the internal consistency scores remained good (autonomy = .83, competence = .75 and relatedness = .91). This study also translated the questionnaire into German. Vlachopoulos (2007) also adapted the BPNS and developed a scale Basic Psychological Needs in Exercise Scale (BPNES). This scale used a 5 point Likert-type-type scale with 1 indicating “Do not agree at all” and 5 indicating “Very strongly agree”. The Cronbach’s alpha values for the BPNES subscales were .84 for autonomy, .86 for
competence, and .92 for relatedness. This scale was also translated into Greek.

For the purposes of this survey the BPNS was adapted for the domains of home birth and facility birth. (See Table 3.1 for examples of adapted questions) The adapted home and facility birth survey each contain 21 items. Together the home and facility birth survey comprise the 42 item survey instrument developed for the present study. The 42 item survey was named The Basic Psychological Needs in Birthplace Choice Scale. The Basic Psychological Needs in Birthplace Choice Scale (BPNBCS) is a self-report instrument designed to assess individual differences in the extent to which the innate psychological needs for autonomy, competence and relatedness influence birthplace choice. Similar to the process used by Hanfstingle et al. (2010) the stem from Ryan and Deci’s BPNS scale was retained, but a reference to health facility or home birth was inserted into the question. For example, the BPNS autonomy item “I generally feel free to express my ideas and opinions” became “I am free to express my ideas and opinions at the health facility”. Once the items were developed, they were examined by two doctoral prepared faculties with knowledge of SDT. The faculty advisors were asked to indicate which psychological need each scale item addressed, the relevance of the question to the research project, and the readability of the item. This process was repeated with research associates in Uganda. The BPNBCS items were found to be satisfactory. Items comprising the Basic Psychological Needs in Birthplace Choice Scale (BPNBCS) are as follows;

- BPNBCS to measure need satisfaction for facility birth experience (21 items)
Subscales: Autonomy-FB (7 items), Competence-FB (6 items),
Relatedness-FB (8 items)

- BPNBCS to measure need satisfaction for home birth experience (21
  items)

Subscales: Autonomy-HB (7 items), Competence-HB (6 items),
Relatedness-HB (8 items)
(* The original BPNS and the BPNBCS are in Appendix A)

The three constructs of autonomy, competence and relatedness are operationalized as
variables by computing a mean of the 6-8 items representing each factor.

**Table 3.1 Basic Psychological Needs Scale—Domain Adaptation Examples**

<table>
<thead>
<tr>
<th>Domain</th>
<th>Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autonomy</td>
<td><strong>Original question (general basic psychological needs survey)</strong></td>
</tr>
<tr>
<td></td>
<td>I generally feel free to express my ideas and opinions</td>
</tr>
<tr>
<td></td>
<td><strong>Adaptation (facility birth basic psychological needs survey)</strong></td>
</tr>
<tr>
<td></td>
<td>I am free to express my ideas and opinions at the health facility</td>
</tr>
<tr>
<td></td>
<td><strong>Adaptation (home birth basic psychological needs survey)</strong></td>
</tr>
<tr>
<td></td>
<td>I am free to express my ideas and opinions at the home birth environment</td>
</tr>
</tbody>
</table>

| Competence | **Original question (general basic psychological needs survey)** |
|            | Most days I feel a sense of accomplishment from what I do          |
|            | **Adaptation (facility birth basic psychological needs survey)**   |
|            | Most visits I feel a sense of accomplishment at the health facility|
|            | **Adaptation (home birth basic psychological needs survey)**      |
|            | Most visits I feel a sense of accomplishment in the home birth environment |

45
Relatedness

**Original question (general basic psychological needs survey)**
People in my life care about me

**Adaptation (facility birth basic psychological needs survey)**
People at the health facility care about me

**Adaptation (home birth basic psychological needs survey)**
People in the home birth environment care about me

The BPNBCS was developed in this way to examine if the overall basic needs score for each domain holds predictive value in terms of where the participant actually gave birth. Participants provided responses about their basic needs satisfaction for domains, facility birth and home birth. If a participant gave birth in a facility, they were asked to respond to the home birth questionnaire based on their perceptions about elements in the home birth environment. If participants gave birth in the home birth environment, they were asked to respond to the facility birth questionnaire based on their perceptions about elements in the facility birth environment. Village Health Team members had knowledge about each participant’s actual birth place choice and were able to verify that information for the research team.

*Translation and cross-cultural adaptation*

The World Health Organization Constitution promotes the highest attainable standard of health as fundamental human right of every human being (WHO, 2013). Globally, there is a move to achieve equality in health care for all ethnic groups (Hunt & Bhopal, 2004). High quality research data is essential to achieve equality in care, produce sound policies and provide appropriate culturally competent health services. According to Hunt and Bhopal (2004),
When data collection instruments designed for English speakers are simply translated into ethnic minority languages, measurement error can result from inadequate translation procedures, inappropriate content, insensitivity of items, and the failure of researchers to make themselves familiar with cultural norms and beliefs. (p. 618)

When working with self-report survey instruments designed for English speakers, it is critical to proceed with caution and avoid the major barriers to the collection of reliable and valid data (Hunt & Bhopal, 2004).

After careful consideration of recommendations and guidelines for cross-cultural adaptation and translation (Beaton, Bombardier, Guillemin, & Ferraz, 2002; Harkness, 2003; Hunt & Bhopal, 2004) a seven stage process was adopted and adhered to for the present study. The study instruments were translated into Runyankole, native language of the kingdom of Ankole and the Banyankole people of South-West Uganda. The translation team was comprised of the primary investigator and five research assistants. The primary investigator is a native speaker of Runyankole and holds a master’s degree in public health. The five research assistants are native speakers of Runyankole, hold baccalaureate degrees in public health, and are fully literate in English and experienced in translation of public health survey instruments. The seven stages utilized for translation and cross-cultural adaptation were as follows:

- Translation of items by a team of bi-lingual researchers
- Comparison of translations
- Negotiation of “best” items
Consultation with women who are monolingual and demographically similar to respondents in study sample

Item refinement

Back translation of items to ensure preservation of survey integrity

Field testing of items in study sample area

The survey was initially separately translated by two research assistants. The two translations were reviewed by the primary investigator and a third research assistant. Three research assistants and the primary investigator implemented the process of negotiating “best” items. The translation team decided on which translated items offered the “best” translation for the survey. The translated survey was then reviewed with women in Mbarara city center who were similar to the study sample respondents demographically and spoke only Runyakole. This stage helped the researchers to gauge the understanding of questions by respondents with Runyakole only speakers with low levels of education and literacy. Refinements where made to the translated survey as indicated. It is not meaningful to discuss item refinement examples in this context, the nuances in meaning are only comprehensible in Runyankole.

Two more research assistants were retained to back translate the survey; these research assistants were not previously exposed to the survey or the study purpose. Back translation revealed that satisfactory survey integrity was maintained. The survey was then field tested in the study sample area with ten women who were demographically similar to study sample respondents. Final minor adjustments were made to the translated survey.
Procedures

*Training of research assistants*

Four research assistants were retained for the purpose of administering translated survey to study respondents. All the research assistants retained had previous experience with community public health research for universities and institutions based in the United States. The research assistants were sufficiently acquainted with ethical research guidelines for the protection of human subjects and approved to work on this study by Clemson IRB. Additionally, the primary investigator conducted an in depth training using the Clemson University Institutional Review Board (IRB), Investigators Manual. The Clemson IRB approved a verbal informed consent procedure for the present study. The translated consent script was read by the primary investigator or trained research assistant to each respondent. Respondents were then given the opportunity to ask questions about the study and the consent procedure, respondents were then verbally invited to accept or decline participation in the study. Verbal consent was recorded on each respondents survey form. Participants were also given contact information for the primary investigator and research assistants for follow up comments, questions or concerns.

*Consent procedures*

Before beginning interview with each participant the following informed consent statement was read to the participant for consent. Statement is in English here but was translated into Runyankole and read to participants in Runyankole. The statement included here was used by the principal investigator. Once the statement was read and if the participant gave consent, the researcher recorded verbal consent on the respondents
survey form and indicated participant’s agreement to partake in survey (See consent script in Appendix B).

Study Sample

Sample size estimation

According to the Uganda Bureau of Statistics, there are approximately 2,772 women of childbearing age in Kashongi Sub-County, with childbearing age defined as 15-49 years of age. Sample size was estimated using a table developed by Bartlett, Kotrlik & Higgins (2001). For a continuous data with margin of error = .03, alpha=.05, \( t = 1.96 \), population size between 2000 and 4000 the minimum returned sample size is 112 to 119.

Recruitment employed a nonprobability purposive opportunistic cross-sectional sampling technique. Parous women were identified through village health team workers. The women were then approached and study participation solicited by the primary investigator or a trained research assistant and a member of the village health team. The research team successfully interviewed 142 parous women who met the study criteria of being 18 years of age or older and having delivered an infant within the previous 24 months. *Inclusion criteria:* Indigenous women living within the study area having given birth within the past 12 months and 18 years of age or older. *Exclusion criteria:* Non-indigenous women living in the area for a limited time such as health workers, missionaries, expatriate NGO staff. In keeping with cultural norms, we did not interview women meeting the study criteria if their baby had died.
**Participants**

Overall the research team was welcomed by the community and women were enthusiastic participants in the study. There was no incentive offered or given to the respondents. The research team found women in the area very willing to share their birth experience. Table 2, summarizes relevant characteristics of the study sample.

**Table 3.2 Summary Relevant Study Sample Characteristics**

<table>
<thead>
<tr>
<th></th>
<th>Median</th>
<th>Lowest</th>
<th>Highest</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>27.2</td>
<td>18</td>
<td>48</td>
<td>6.59</td>
</tr>
<tr>
<td>Years of Education</td>
<td>5.8</td>
<td>0</td>
<td>15</td>
<td>2.99</td>
</tr>
<tr>
<td>Number of Children</td>
<td>3.4</td>
<td>1</td>
<td>9</td>
<td>2.32</td>
</tr>
<tr>
<td>Age of Last Born (months)</td>
<td>9.7</td>
<td>1</td>
<td>24</td>
<td>5.84</td>
</tr>
<tr>
<td>Pre-Natal Visits</td>
<td>3.8</td>
<td>0</td>
<td>10</td>
<td>1.77</td>
</tr>
<tr>
<td>Married</td>
<td>91%</td>
<td>------</td>
<td>-------</td>
<td>-----</td>
</tr>
<tr>
<td>Gave Birth in Facility</td>
<td>39.7%  (n=52)</td>
<td>------</td>
<td>-------</td>
<td>-----</td>
</tr>
<tr>
<td>Gave Birth at Home</td>
<td>60.3%  (n=90)</td>
<td>------</td>
<td>-------</td>
<td>-----</td>
</tr>
<tr>
<td>Experienced Birth Complications</td>
<td>26.0%  (n=36)</td>
<td>------</td>
<td>-------</td>
<td>-----</td>
</tr>
</tbody>
</table>

Data were collected in or around the respondent’s home. To participate in the study, a woman had to be 18 years of age or older and have given birth within the previous 24 month period. Nearly all the women were breastfeeding the infant and the researchers were able to tangibly verify motherhood status by seeing the infant.
Data Collection

Procedure

The questionnaire was comprised of three sections and included a total of 42 questions. (See English and Runyankole versions of the questionnaire in Appendix A) Field testing of the questionnaire was conducted using a convenience sample of four women in the study area. The field testing was performed with the entire research team present to determine length of time required to complete survey administration, and to discuss any emerging comprehension issues. Each research assistant administered the survey under the supervision of the primary investigator to ensure uniformity in survey administration. A convenience sample of women assisting with field testing was consulted for input about study comprehension and adjustments were made in survey administration based on research team discussion and the convenience sample recommendations. The field testing identified that the survey with the verbal consent procedures would take approximately ninety minutes per participant.

Based on field testing results, the research assistants were instructed on standard ways to answer questions and to explain the study. The research team was in contact with the principal investigator via cell phone if new questions or scenarios presented in the field. Once the principal investigator was satisfied with the survey administration procedure for each research assistant, the research team divided the study area by parish. Kashongi Sub-County is divided into seven parishes Rwenjubu, Kitabo, Byanamira, Kitura Mooya, Rwanyangwe, and Rwemamba. The parishes are further divided into villages. Each village has Village Health Team (VHT) members assigned to serve the population of the
village. With the help of VHT members, over a five day period, survey data was collected from all seven parishes. The rural area can be traveled using a network of gravel roads and dirt paths. Research team members traveled by motorcycle taxi to each parish, where they met VHT members who helped locate the homes of parous women by walking to their family farms or homesteads. At the end of each day of survey data collection, the principal investigator reviewed all of the surveys for completeness. Due to the logistical challenges and difficulty of locating study participants it was critical to ensure that each survey was complete and usable.

*Study variables*

This research used a Self-Determination Theory framework to investigate basic needs satisfaction in birthplace choice. SDT suggests that the environment in which the behavior takes place can influence an individual’s motivational orientation (Deci & Ryan, 2000). The study examined the relationships between seven SDT variables (autonomy facility birth, competence facility birth, relatedness facility birth, autonomy home birth, competence home birth, relatedness home birth, and self-determination with birth attendant relationship). These variables are thought to identify rural women’s views and attitudes related to self-determination in birthplace choice. (See Table 3.3 and 3.4 study variables by domain)

The dependent variable birthplace choice was measured as a dichotomous variable, where did you give birth? Answer: facility or home/community.
<table>
<thead>
<tr>
<th>Domain</th>
<th>Item</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Autonomy</strong>&lt;br&gt;Facility Birth</td>
<td>I feel like I can express my feelings when giving birth at a health facility&lt;br&gt;I feel pressured at the health facility&lt;br&gt;I am free to express my ideas and opinions at the health facility&lt;br&gt;When I am at the health facility, I have to do what I am told&lt;br&gt;My feelings are taken into consideration at the health facility&lt;br&gt;I feel like I can pretty much be myself at the health facility&lt;br&gt;There is not much opportunity for me to decide for myself in matters at the health facility</td>
</tr>
<tr>
<td>FB1</td>
<td>FB5</td>
</tr>
<tr>
<td><strong>Competence</strong>&lt;br&gt;Facility Birth</td>
<td>I do not feel very competent when I am at the health facility.&lt;br&gt;People at health facility have confidence in my knowledge of matters concerning pregnancy and birth.&lt;br&gt;I have been able to learn interesting new facts about pregnancy and childbirth at the health facility&lt;br&gt;Most visits I feel a sense of accomplishment at the health facility&lt;br&gt;At health facility I do not get much of a chance to show how capable I am&lt;br&gt;When I am at the health facility, I often do not feel very capable.</td>
</tr>
<tr>
<td>FB3</td>
<td>FB4</td>
</tr>
<tr>
<td><strong>Relatedness</strong>&lt;br&gt;Facility Birth</td>
<td>I really like the people at the health facility where I would consider giving birth or did give birth&lt;br&gt;I get along with people at the health facility&lt;br&gt;I pretty much keep to myself when I am at the health facility&lt;br&gt;I consider the people at the health facility to be my friends&lt;br&gt;People at the health facility care about me&lt;br&gt;There are not many people at the health facility that I am close to&lt;br&gt;The people at the health facility do not seem to like me much&lt;br&gt;People at the health facility are very friendly towards me</td>
</tr>
<tr>
<td>FB2</td>
<td>FB6</td>
</tr>
</tbody>
</table>
### Table 3.4 Basic Psychological Needs Variables-Home Birth

<table>
<thead>
<tr>
<th>Domain</th>
<th>Item</th>
<th>Item No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autonomy</td>
<td>I feel like I can express my feelings when giving birth at a home</td>
<td>HB1</td>
</tr>
<tr>
<td>Home Birth</td>
<td>I feel pressured in the home birth environment</td>
<td>HB5</td>
</tr>
<tr>
<td></td>
<td>I am free to express my ideas and opinions in the home birth</td>
<td>HB8</td>
</tr>
<tr>
<td></td>
<td>environment</td>
<td>HB11</td>
</tr>
<tr>
<td></td>
<td>When I am in the home birth environment, I have to do what I am</td>
<td>HB13</td>
</tr>
<tr>
<td></td>
<td>told</td>
<td>HB17</td>
</tr>
<tr>
<td></td>
<td>My feelings are taken into consideration in the home birth</td>
<td>HB20</td>
</tr>
<tr>
<td></td>
<td>environment</td>
<td></td>
</tr>
<tr>
<td></td>
<td>I feel like I can pretty much be myself in the home birth</td>
<td></td>
</tr>
<tr>
<td></td>
<td>environment</td>
<td></td>
</tr>
<tr>
<td></td>
<td>There is not much opportunity for me to decide for myself in</td>
<td></td>
</tr>
<tr>
<td></td>
<td>matters in the home birth environment</td>
<td></td>
</tr>
<tr>
<td>Competence</td>
<td>I do not feel very competent when I am in the home birth</td>
<td>HB3</td>
</tr>
<tr>
<td>Home Birth</td>
<td>environment</td>
<td>HB4</td>
</tr>
<tr>
<td></td>
<td>People in the home birth environment have confidence in my</td>
<td>HB10</td>
</tr>
<tr>
<td></td>
<td>knowledge of matters concerning pregnancy and birth.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>I have been able to learn interesting new facts about pregnancy and</td>
<td>HB12</td>
</tr>
<tr>
<td></td>
<td>childbirth in the home birth environment</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Most visits I feel a sense of accomplishment in the home birth</td>
<td>HB14</td>
</tr>
<tr>
<td></td>
<td>environment</td>
<td></td>
</tr>
<tr>
<td></td>
<td>In the home birth environment I do not get much of a chance to</td>
<td>HB19</td>
</tr>
<tr>
<td></td>
<td>show how capable I am</td>
<td></td>
</tr>
<tr>
<td></td>
<td>When I am in the home birth environment, I often do not feel very</td>
<td></td>
</tr>
<tr>
<td></td>
<td>capable.</td>
<td></td>
</tr>
<tr>
<td>Relatedness</td>
<td>I really like the people involved with my home birth or I really like</td>
<td>HB2</td>
</tr>
<tr>
<td>Home Birth</td>
<td>the people I would consider attending me during a home birth</td>
<td></td>
</tr>
<tr>
<td></td>
<td>I get along with people in the home birth environment</td>
<td>HB6</td>
</tr>
<tr>
<td></td>
<td>I pretty much keep to myself when I am in the home birth</td>
<td>HB7</td>
</tr>
<tr>
<td></td>
<td>environment</td>
<td>HB9</td>
</tr>
<tr>
<td></td>
<td>I consider the people attending the home birth to be my friends</td>
<td>HB15</td>
</tr>
<tr>
<td></td>
<td>People in the home birth environment care about me</td>
<td>HB16</td>
</tr>
<tr>
<td></td>
<td>There are not many people in the home birth environment that I am</td>
<td>HB18</td>
</tr>
</tbody>
</table>
The people in the home birth environment do not seem to like me much
People in the home birth environment are very friendly towards me

* This question was removed after many respondents continually commented that it was not possible to “keep to oneself” in the home birth environment

Study participants responded using a five-point Likert-type-type scale with a response of 1 meaning “totally false” and a response of 5 meaning “very true”. The decision was made to condense the Likert-type-type scale to five points instead of seven points to facilitate comprehension in the low literacy study sample population. Researchers generally found that the population was not at all familiar with the use of a Likert-type-type scale as a response mechanism. None of the participants had ever been formally surveyed using scaled responses. Some respondents had participated in previous unrelated research through focus group discussion. Study respondents had to first be instructed on the general concept of a Likert-type scale and then directed to answer using the one to five scale. Scale responses had to be further explicated to facilitate understanding by study respondents.

To assist respondents with Likert-type scale responses, each number in the scale was assigned a response as follows:

1 = totally false
2 = mostly false
3 = somewhat true
4 = mostly true
5 = very true
Generally researchers found that study participants tended to respond to questions yes/no or with and extended verbal response. Study participants had to frequently be redirected to answer using scaled responses. Unfamiliarity with use of Likert-type scale response mechanism may have polarized responses to the ends of the scale (1 = totally false or 5 = very true), reducing response variability.

Analytic Method

The following section describes the statistical analysis used in this study. The analytic approach selected for the present study is confirmatory factor analysis. The analytic procedures understood collectively as confirmatory factor analysis (CFA) were developed largely within the past twenty years (Joreskog, 1969, 1971). The analytic approach is ideal for developing and refining psychological survey instruments such as the Basic Psychological Needs Scale. Confirmatory factor analysis usually exposes some of the expected latent constructs and may also manifest additional unexpected factors. CFA is principally a method for evaluating the construct validity of a measure. In the present study the construct validity of the adapted domain specific BPNS as administered to a cross-cultural sample is highly germane to this research.

Validation of theorized factor structures is most sufficiently established with confirmatory factor analytic techniques (Bentler, 1989). CFA is a special case of structural equation modeling approaches where a factor structure is clearly theorized and is tested for its fit with the perceived covariance structure of the measured variables; (Floyd & Widaman, 1995) competing factor models may also be tested using the CFA approach. The results of CFA may lead to an indication for model modification that
proposes alterations in factor structure (Floyd and Widaman, 1995). Characteristics of CFA relevant to the refinement and evaluation of measures include investigating measurement invariance across groups or samples (Reise, Widaman & Pugh, 1993). These two elements together, the fact that CFA offers opportunity for model modification suggestions and evaluates measurement invariance across groups and samples makes the approach a particularly appealing one for this research. See figure 3.3 for graphical depiction of research design.

Analytic Software

Factor analyses were conducted using the EQS Structural Equation Modeling Software. The EQS software was developed by Dr. Peter Bentler (1985), a leading authority on the subject of structural equation modeling. EQS tests the full range of structural equations models including confirmatory factor analysis. Structural equation modeling (SEM) is a series of statistical methods that allow complex relationships between one or more independent variables and one or more dependent variables.
Figure 3.3 Study Design, Descriptive Study of Self-Determination and Birthplace Choice

Descriptive Cross-Sectional Study of Basic Needs Satisfaction in Birthplace Choice
Chapter Three Summary

Chapter three detailed methods and procedures used to examine the variables of interest in this study. A description of the study design, population served and setting, and sample size calculation techniques were discussed. The procedures for participant’s recruitment, data collection, and consent procedures, were described. Variables and selected instruments and scales used were explained. The methodological limitations of the study were detailed. Finally, the analytic method selected to assess study findings was set forth.

Chapter four outlines the analytic strategy and vital results of this research.
CHAPTER FOUR

Analytic strategy and results

The following section describes the statistical analysis used in this study. This section is divided into two sections. The first section describes the confirmatory factor analysis used to answer research questions one through three, and the second section details the plan for analysis to answer research questions four through eight. The current study investigates item complexity and basic needs satisfaction for birthplace by domain through a series of confirmatory factor models, each examining a piece of the analytic whole. The broad goal is to examine how well observed variables fit into the theorized model of the Basic Needs Satisfaction Scale. Each analytic series builds upon previous analyses, examining needs satisfaction in birthplace by domain.

Confirmatory factor models were generated and examined for the domain of facility birth and for the domain of home birth. Each model was then modified based on output recommendations to achieve the most parsimonious model with the best goodness of fit scores. After it was established that the observed variables fit the theorized model with recommended modifications, variance within variables and variance between variables was examined using a paired sample t test. Variance was examined at the individual variable level and within the constructs of autonomy facility birth (autonomy-fb), competence facility birth (competence-fb), relatedness facility birth (relatedness-fb), autonomy home birth (autonomy-hb), competence home birth (competence-hb), and relatedness home birth (relatedness-hb).
Additionally, variance was examined for overall Basic Needs Satisfaction for facility birth (BNS-FB) and overall Basic Needs Satisfaction for home birth (BNS-HB) (See Figure 4.1 and figure 4.2). The BNS-FB includes all constructs examined in relation to facility birth i.e. autonomy-fb, competence-fb and relatedness-fb. Similarly, the BNS-HB includes all constructs examined in relation to home birth i.e. autonomy-hb, competence-hb and relatedness-hb. Finally, to examine the predictive value of the scale the overall Basic Needs Satisfaction for home birth and facility birth were compared by independent samples test. The examination of variance in participant responses within constructs (autonomy, competence and relatedness) and between constructs produced the results utilized to respond to the study research questions.

*Figure 4.1 Diagram of all included constructs Basic Needs Satisfaction- Facility Birth*

*Figure 4.2: Diagram of all included constructs Basic Needs Satisfaction- Home Birth*
Definition of terms goodness-of-fit measures (Byrne, 2006)

*Standardized Root Mean Square (SRMR)*

The root mean square residual (RMR) represents the average residual value derived from the fitting of the variance-covariance matrix for the hypothesized model $\sum (\Theta)$ to the variance-covariance matrix of the sample data ($S$). The SRMR is the average value across all standardized residuals and ranges from zero to 1.00; in a well-fitting model, this value is small—.05 or less. (p. 99)

*Root Mean Square Error of Approximation (RMSEA)*

The RMSEA considers the error of approximation in the population and asks the question, “How well would the model, with unknown but optimally chosen parameters values, fit the population covariance matrix if it were available?” This discrepancy, as measured by the RMSEA, is expressed per degree of freedom, thus making it sensitive to the number of estimated parameters in the model (i.e. complexity of the model). Values less than .05 indicate good fit and values as high as .08 represent reasonable errors of approximation in the population (p. 100).

*Comparative Fit Index (CFI) / Normal Fit Index (NFI)*

These indexes measure the proportionate improvement in fit by comparing a hypothesized model with a more restricted, nested baseline model. The independence (or null) model is typically the most commonly used baseline model. Values > .90 represent good fit (p.97).
Analytic 1: confirmatory factor analysis-facility birth model 1

Scale structure was assessed for the basic needs satisfaction in the facility birth survey through Confirmatory Factor Analysis (CFA) using maximum likelihood estimation (normal distribution theory) as implemented in EQS. The results indicated that the model was a less than an adequate fit. Table 4.1 lists goodness-of-fit Statistics for model 1—maximum likelihood estimation. The standardized Root Mean Square-SRMR (.079) is barely within acceptable range, an SRMR of .05 or less indicates a good fit for the model. The root mean square error of approximation- (RMSEA) is .086; confidence interval-CI 90% .073 to .098, this measure is also barely within acceptable range for a good fit. The CFI value of (.773) clearly indicates poor goodness-of-fit. These results indicate that some modification is needed to determine a model that better represents the sample data.
It was determined that model one using the maximum likelihood estimation produced a less than adequate goodness-of-fit for our data sample. To determine which parameters to free in the re-specification of the model, the LM test was turned on and the search for misfitting parameters was set to only factor loading (GVF) and error covariances (PEE). Review of the ordered univariate test statistics identified three parameters (E18, E5: E2, E1: E12, E11) the LM Test $X^2$ values stand apart from the rest, these represent error covariances. According to Byrne (2006), “model re-specification that includes correlated errors, as with other parameters, must be supported by a strong substantive and/or empirical rationale” (p. 136). Error covariances such as the one represented by the specified parameters (E18, E5: E2, E1: E12, E11) represent systematic rather than...

Analytic 1: Confirmatory factor analysis-facility birth model 2 modification 1
random measurement error in item responses, and they may derive from characteristics either specific to the items or the respondents (Byrne, 2006). Further query into this type of error reveals that it may reflect a bias such as answering in the extremes of the scale or responses that are perceived more socially desirable by the respondent. This bias is identified as a distinct possibility in the study limitations section of this research based on the study sample’s challenges with comprehension of responses using the Likert-type scale. Therefore, re-specification of this initial model with the recommended parameters is justified. The model fit was reassessed with modified error covariance parameters (E18, E5: E2, E1: E12, E11). (See Table 4.2 Goodness-of-Fit Statistics Model 2, modification 1). The model shows improvement with the RMSEA (.057; C.I. 90% .041 .071). However, the CFI of .866 is still below the acceptable level of .90. The model required further modification to achieve improved goodness-of-fit measures.

Table 4.2
Selected EQS Output for Model 2, Modification 1-FB: Goodness-of-Fit Measures

<table>
<thead>
<tr>
<th>Fit Indices</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Bentler-Bonett Normed Fit Index</td>
<td>0.678</td>
</tr>
<tr>
<td>Bentler-Bonett Non-Normed Fit Index</td>
<td>0.846</td>
</tr>
<tr>
<td>Comparative Fit Index (CFI)</td>
<td>0.866</td>
</tr>
<tr>
<td>Bollen's (IFI) Fit Index</td>
<td>0.871</td>
</tr>
<tr>
<td>McDonald's (MFI) Fit Index</td>
<td>0.747</td>
</tr>
<tr>
<td>Root Mean-Square Error of Approximation (RMSEA)</td>
<td>0.057</td>
</tr>
<tr>
<td>90% Confidence Interval of RMSEA</td>
<td>(.041, .071)</td>
</tr>
<tr>
<td>Reliability Coefficients</td>
<td></td>
</tr>
<tr>
<td>Cronbach's Alpha</td>
<td>0.846</td>
</tr>
<tr>
<td>Reliability Coefficient Rho</td>
<td>0.841</td>
</tr>
</tbody>
</table>
Analytic 1: confirmatory factor analysis-facility birth model 3, modification 2 & 3

The model did not have adequate goodness-of-fit measures after the initial modifications of error covariance parameters. The LM Test $X^2$ table was consulted once more and two more modifications were implemented. In the second modification, additional error covariance pair parameters were selected for re-specification based on LM Test $X^2$ values (E18, E15: E19, E14), the same justification stated above applied to these parameters as well. In the third modification, it was identified that variable V6 was loading on more than one factor. In the initial model, variable V6 was correlated with factor 3. However, the LM test showed that it was also loading (correlated with) on factor 2. Variable V6 represents the survey question “I get along with people at the health facility” in the adapted Basic Psychological Needs Scale for facility birth. Factor 3 represents the construct of relatedness-facility birth, and factor 2 represents the construct of competence-facility birth. In the theorized model, the question is intended to be a measure for the relatedness construct. However, the recommended modification indicates that it also a measure for competence.

Upon contemplation on why the measure may be loading to competence the researcher put forward the following justification. When the question “I get along with people at the health facility” was translated into Runyankole, the term “I get along with people” can also be interpreted as “I understand people”. This alternative meaning of the term may have caused the variable to load to the competence construct. It was decided that recommended modification three of cross-loading (V2, F2) was justifiable. Table 4.3 displays goodness-of-fit measures after these two modifications were applied to the
model. The model showed improvement in measures of CFI (.907). This is within the acceptable range for a good fit. The RMSEA (.048; C.I. 90% .029 .063) was also improved by falling below .05. This is considered an indicator of good fit. However, the NFI (.712) remained below the recommended level of (.09). Moreover, a significant value for the chi-square fit index (0.00265) indicates poor goodness of fit (Garson, 2012). The initial run using the maximum likelihood estimation showed that the data collected was skewed and not normally distributed, and this may lead to not achieving desired values for certain goodness-of-fit measures. Overall the model achieves moderately adequate goodness-of-fit with the applied modifications. An additional modification of cross-loading (V9, F1) was attempted; however it produced unremarkable change in the model goodness-of-fit measures. Model 3, modification 3 remains the most parsimonious model for basic needs satisfaction in facility birth. Figure 4.3 displays the final diagram of model 3, modification 3 with goodness-of-fit measures as detailed in Table 4.3.
Table 4.3
Selected EQS Output for Model 3, Modification 3-FB: Goodness-of-Fit Measures

<table>
<thead>
<tr>
<th>Measures</th>
<th>Value</th>
<th>Degrees of Freedom</th>
</tr>
</thead>
<tbody>
<tr>
<td>Robust Independence Model Chi-Square</td>
<td>825.788</td>
<td>210</td>
</tr>
<tr>
<td>Satorra-Bentler Scaled Chi-Square</td>
<td>237.4278</td>
<td>180</td>
</tr>
<tr>
<td>Probability value for the Chi-Square statistic (RMSEA)</td>
<td>0.00265</td>
<td>0.017</td>
</tr>
<tr>
<td>Mean- and Variance-Adjusted Chi-Square</td>
<td>45.659</td>
<td>35 D.F.</td>
</tr>
<tr>
<td>Probability value for the Chi-Square statistic (CFI)</td>
<td>0.10718</td>
<td></td>
</tr>
</tbody>
</table>

Fit Indices

<table>
<thead>
<tr>
<th>Measures</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bentler-Bonett Normed Fit Index</td>
<td>0.712</td>
</tr>
<tr>
<td>Bentler-Bonett Non-Normed Fit Index</td>
<td>0.891</td>
</tr>
<tr>
<td>Comparative Fit Index (CFI)</td>
<td>0.907</td>
</tr>
<tr>
<td>Bollen's IFI (IFI) Fit Index</td>
<td>0.911</td>
</tr>
<tr>
<td>McDonald's (MFI) Fit Index</td>
<td>0.817</td>
</tr>
<tr>
<td>Root Mean-Square Error of Approximation (RMSEA)</td>
<td>0.048</td>
</tr>
<tr>
<td>90% Confidence interval of RMSEA</td>
<td>0.029, 0.063</td>
</tr>
</tbody>
</table>

Reliability Coefficients

<table>
<thead>
<tr>
<th>Measures</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cronbach's Alpha</td>
<td>0.846</td>
</tr>
<tr>
<td>Reliability Coefficient Rho</td>
<td>0.632</td>
</tr>
</tbody>
</table>
Figure 4.3: Basic Needs Satisfaction Facility Birth Model 3, Modification 3
F1: Autonomy F2: Competence F3: Relatedness
Examination of the correlation coefficients in the final model (Figure 4.3) displayed the relationships of each variable to the corresponding construct. The model (Figure 4.3) facilitated understanding of which variables were most influential for each construct. Table 4.3A highlights the most influential variables for each basic needs satisfaction construct associated with facility birth. It can also be observed that the correlation coefficients for the most influential variables in constructs Autonomy-FB (FB8, .70; FB13, .68) and Relatedness-FB (FB9, .77; FB2, .65) were significantly higher than the correlation coefficients for construct Competence-FB (FB4, .48; FB12, .46). This suggests that comparatively the competence variables may not be as well fitted to the competence construct. Given the results, variables within the competence construct may have to be re-assessed for relevance in this context.

Analytic 2: confirmatory factor analysis- home birth model 1

Scale structure was assessed for the Basic Needs Satisfaction in Birthplace Choice- home birth through Confirmatory Factor Analysis (CFA) using maximum likelihood
estimation (normal distribution theory) as implemented in EQS. The results indicated that the model was a less than adequate fit. Table 4.4 lists goodness-of-fit statistics for home birth model 1-maximum likelihood estimation. The SRMR (.077) is barely within acceptable range, an SRMR of .05 or less indicates a good fit for the model. The RMSEA (.086; C.I. 90% .072 .098), this measure is also barely within acceptable range for a good fit. The CFI value of (.704) clearly indicates poor goodness of fit. These results indicate that some modification is needed to determine a model that better represents the sample data.

Table 4.4
Selected EQS Output for Initially Hypothesized Model-HB: Goodness-of-Fit Measures

<table>
<thead>
<tr>
<th>CHI-SQUARE</th>
<th>339.684 BASED ON 167 DEGREES OF FREEDOM</th>
</tr>
</thead>
<tbody>
<tr>
<td>THE NORMAL THEORY RLS CHI-SQUARE FOR THIS ML SOLUTION IS</td>
<td>366.003</td>
</tr>
<tr>
<td>FIT INDICES</td>
<td>------------------------------------------</td>
</tr>
<tr>
<td>BENTLER-BONETT  NORMED FIT INDEX =</td>
<td>0.704</td>
</tr>
<tr>
<td>BENTLER-BONETT NON-NORMED FIT INDEX =</td>
<td>0.795</td>
</tr>
<tr>
<td>COMPARATIVE FIT INDEX (CFI) =</td>
<td>0.820</td>
</tr>
<tr>
<td>BOLLEN'S (IFI) FIT INDEX =</td>
<td>0.824</td>
</tr>
<tr>
<td>MCDONALD'S (NFI) FIT INDEX =</td>
<td>0.544</td>
</tr>
<tr>
<td>JURESKOG-SORBOM'S GFI FIT INDEX =</td>
<td>0.794</td>
</tr>
<tr>
<td>JURESKOG-SORBOM'S AGFI FIT INDEX =</td>
<td>0.741</td>
</tr>
<tr>
<td>ROOT MEAN-SQUARE RESIDUAL (RMR) =</td>
<td>0.177</td>
</tr>
<tr>
<td>STANDARDIZED RMS =</td>
<td>0.077</td>
</tr>
<tr>
<td>ROOT MEAN-SQUARE ERROR OF APPROXIMATION (RMSEA) =</td>
<td>0.086</td>
</tr>
<tr>
<td>90% CONFIDENCE INTERVAL OF RMSEA (</td>
<td>0.072, 0.098</td>
</tr>
<tr>
<td>RELIABILITY COEFFICIENTS</td>
<td>------------------------------------------</td>
</tr>
<tr>
<td>CRONBACH'S ALPHA =</td>
<td>0.860</td>
</tr>
<tr>
<td>RELIABILITY COEFFICIENT RHO =</td>
<td>0.869</td>
</tr>
</tbody>
</table>
Analytic 2: Confirmatory factor analysis-home birth model 2 modification 1

It was determined that model one using the maximum likelihood estimation produced a less than adequate goodness-of-fit for our data sample. To determine which parameters to free in the re-specification of the model, the LM test was turned on and the search for misfitting parameters was set to only factor loading (GVF) and error covariances (PEE). Review of the ordered univariate test statistics identified three parameters (E23, E22: E34, E31). The LM Test $X^2$ values stand apart from the rest, these represent error covariances. According to Byrne (2006), “model re-specification that includes correlated errors, as with other parameters, must be supported by a strong substantive and/or empirical rationale” (p.136). Error covariances such as the one represented by the specified parameters (E23, E22: E34, E31) represent systematic rather than random measurement error in item responses, and they may derive from characteristics either specific to the items or the respondents (Byrne, 2006). Further query into this type of error reveals that it may reflect a bias such as answering in the extremes of the scale yea/nay-saying or responses that are perceived more socially desirable by the respondent. This bias is identified as a distinct possibility in the study limitations section of this research based on the study sample’s challenges with comprehension of responses using the Likert-type scale. Therefore, re-specification of this initial model with the recommended parameters is justified.

Additionally, a cross-loading factor (V35, F1) was identified using the LM Test $X^2$ table that was generated in the univariate test. Variable V35 represents the question “People in the home environment care about me”. In the initially theorized model the
variable is a measure of relatedness-hb (factor 3). However, based on the cross-loading factor recommendation, it also is a measure of autonomy-hb (factor 2). The literature suggests that there is significant variability in how women define control and autonomy (Namey & Layerly, 2010). For the cross-loading factor, it is conceivable that women feel more free to be themselves (autonomy measure) in an environment where they feel cared for (relatedness). This may lead to the cross-loading of autonomy and relatedness measures. Therefore, it was decided that the cross-loading modification was reasonably justifiable based on knowledge of overlap in basic psychological needs constructs. Table 4.5 displays goodness-of-fit measures after described recommended modifications were applied to the model. The model showed improvement in the measure of CFI (.909). This is within the acceptable range for a good fit. The RMSEA (.062; C.I. 90% .046 .076) was also improved but did not fall below .05. This is still within the range for the measure to be considered an indicator of good fit. However, the NFI .712 remained below the recommended level of .09. Moreover, a significant value for the chi-square fit index (0.00265) indicates poor goodness of fit (Garson, 2012. The initial run using the maximum likelihood estimation showed that the data collected was skewed and not normally distributed. This may lead to not achieving desired values for certain goodness-of-fit measures. Overall the model achieves an acceptable level in goodness-of-fit measures. Figure 4.4 displays the diagram of final model basic needs satisfaction home birth model 2, modification 1 with goodness-of-fit measures as detailed in Table 4.5.
Table 4.5
Selected EQS Output for Model 2, Modification 1-HB: Goodness-of-Fit Measures

ROBUST INDEPENDENCE MODEL CHI-SQUARE = 1153.236 ON 90 DEGREES OF FREEDOM
SATORRA-BENTLER SCALED CHI-SQUARE = 251.9353 ON 164 DEGREES OF FREEDOM
PROBABILITY VALUE FOR THE CHI-SQUARE STATISTIC IS 0.00001

MEAN- AND VARIANCE-ADJUSTED CHI-SQUARE = 82.848 ON 54 D.F.
PROBABILITY VALUE FOR THE CHI-SQUARE STATISTIC IS 0.00701

FIT INDICES
---------
BENTLER-BONETT NORMED FIT INDEX = 0.782
BENTLER-BONETT NON-NORMED FIT INDEX = 0.894
COMPARATIVE FIT INDEX (CFI) = 0.909
BOLLEN'S (IFI) FIT INDEX = 0.911
MCDONALD'S (NFI) FIT INDEX = 0.734
ROOT MEAN-SQUARE ERROR OF APPROXIMATION (RMSEA) = 0.062
90% CONFIDENCE INTERVAL OF RMSEA (0.046, 0.076)

RELIABILITY COEFFICIENTS
-------------------------
CRONBACH'S ALPHA = 0.860
RELIABILITY COEFFICIENT RHO = 0.869
Figure 4.4: Basic Needs Satisfaction Home Birth Model 2, Modification 1
Examination of the correlation coefficients in the final model (Figure 4.4) displays the relationships of each variable to the corresponding construct. The model (Figure 4.4) facilitates understanding of which variables are most influential for each construct. Table 4.4A highlights the most influential variables for each basic needs satisfaction construct associated with home birth. The most influential variables for construct competence-HB (HB12, .78; HB4, .46) are the same questions identified as most influential in the competence construct. Variable HB4 shows a comparatively low correlation score (.46). Which may suggest that the variable is not as well fitted to the competence construct. Given the findings, similar to the situation in the facility birth model, the variables in this construct warrant closer examination for relevance in this context.

**Reliability-Basic Needs Satisfaction in Birthplace Choice Scale-home & facility birth**

EQS computes several different reliability coefficients, each of which describes the internal consistency of a hypothetical composite of summed scores on the variables being analyzed (Byrne, 2006). Cronbach’s alpha (α) coefficient is the most widely used
index of internal consistency reliability. However, its application to latent variable models, particularly those with a multidimensional structure is problematic (Byrne, 2006). Cronbach’s $\alpha$ is based on a very restrictive one-factor model that requires all factor loading and error variances be equal (Bentler, 2005). Unless a CFA model can meet these strict and unrealistic conditions, Cronbach’s $\alpha$ is not a good estimate of internal consistency for the model (Byrne, 2006). The Rho coefficient is a factor based coefficient and is a good estimate of internal consistency for a multifactor model setup, such as the CFA models of the BPNBCS- home birth and facility birth. The Rho coefficient value (FB, .832; HB, .860) indicates good internal consistency for the presented models. For the models presented there was no marked difference between the Rho coefficient and the Cronbach’s alpha for presented models (FB: .84; HB: .86), the Cronbach’s alpha values also indicate good internal consistency.

Analytic 3: T-test overall basic needs satisfaction home birth vs. facility birth

Answers research question 4: Is there a significant difference in perception of overall basic needs satisfaction for the home birth domain and the facility birth domain? Was participant’s birthplace choice consistent with the birth domain for which they report a higher level of overall basic needs satisfaction?

One of the research questions which are guiding this study asks, is there a significant difference in perception of overall basic needs satisfaction for the home birth domain and the facility birth domain? Was participant’s birthplace choice consistent with the birth domain for which they report a higher level of overall basic needs satisfaction? An
independent-samples t-test was conducted to compare overall basic needs satisfaction for the facility birth domain by participants who gave birth in a facility and participants who gave birth at home. There was a significant difference in the scores for overall basic needs satisfaction for facility birth by participants who gave birth in a facility (M=3.97, SD=.49) and overall basic needs satisfaction for facility birth by participants who gave birth at home (M=3.61, SD = .68). The effect size of the comparison of means Facility-BNS was .76 (Large), a large effect size is a desirable. In addition, an independent-samples t-test was conducted to compare overall basic needs satisfaction for the home birth domain by participants who gave birth in a facility and participants who gave birth at home. There was a significant difference in the scores for overall basic needs satisfaction for home birth by participants who gave birth in a facility (M=2.99, SD=.76) and overall basic needs satisfaction for home birth by participants who gave birth at home (M=3.48, SD = .76). The effect size for comparison of means Home – BNS was .64 (Large), a large effect size is desirable. Table 4.6 displays the results of the independent samples t-test.

Comparison of the means for overall basic needs satisfaction by domain reveals that the adapted surveys performed in accordance with the theorized model (See Table 4.6A). The participants who gave birth in a facility reported higher overall needs satisfaction for the facility birth domain (M=3.97, SD=.49) than the participants who gave birth at home (M=3.61, SD = .68). Similarly, the participants who gave birth at home reported higher overall needs satisfaction for the home birth domain (M=3.48, SD = .76) than the participants who gave birth in a facility (M=2.99, SD=.76). This indicates that
participants’ birthplace choice was consistent with the domain for which they reported higher overall basic needs satisfaction. The participants who gave birth at a health facility reported higher overall basic needs satisfaction for the facility birth domain. Similarly, the participants who gave birth in the home birth environment reported higher overall basic needs satisfaction for the home birth domain. Additionally, the results indicate that the developed survey instrument performed as theorized for the assessment of overall basic needs satisfaction for each domain.

<table>
<thead>
<tr>
<th>Table 4.5</th>
<th>Independent Samples Test, Comparison Overall Basic Needs Satisfaction Home Birth Vs. Facility Birth</th>
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<tbody>
<tr>
<td></td>
<td>Levene’s Test for Equality of Variances</td>
</tr>
<tr>
<td></td>
<td>F</td>
</tr>
<tr>
<td>Facility_BNS</td>
<td>Equal variances assumed</td>
</tr>
<tr>
<td>Facility_BNS</td>
<td>Equal variances not assumed</td>
</tr>
<tr>
<td>Home_BNS</td>
<td>Equal variances assumed</td>
</tr>
<tr>
<td>Home_BNS</td>
<td>Equal variances not assumed</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Table 4.6A</th>
<th>Group Statistics - Comparison Overall Basic Needs Satisfaction Home Birth Vs. Facility Birth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birthplace</td>
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<tr>
<td>Facility_BNS</td>
<td>home</td>
</tr>
<tr>
<td>Home_BNS</td>
<td>facility</td>
</tr>
<tr>
<td>Home_BNS</td>
<td>home</td>
</tr>
</tbody>
</table>
Analytic 4: T-test basic needs satisfaction for autonomy home birth vs. facility birth

Answers research question 5: Is there a significant difference in perception of basic need satisfaction for autonomy in the home birth domain and the facility birth domain? Was participant’s birthplace choice consistent with the birth domain for which they report a higher level of basic need satisfaction for autonomy?

One of the research questions guiding this study asks, is there a significant difference in perception of basic need satisfaction for autonomy in the home birth domain and the facility birth domain? In addition, was participant’s birthplace choice consistent with the birth domain for which they report a higher level of basic need satisfaction for autonomy? An independent-samples t-test was conducted to compare basic needs satisfaction for autonomy-facility birth by participants who gave birth in a facility and participants who gave birth at home. (See table 4.7) There was a significant difference in the scores for basic needs satisfaction for autonomy-facility birth by participants who gave birth in a facility (M=3.78, SD=.57) and by participants who gave birth at home (M=3.40, SD = .71). The effect size for the comparison of means Autonomy-facility birth was .65 (Large), a large effect size is desirable.

Additionally, an independent-samples t-test was conducted to compare basic needs satisfaction for autonomy-home birth by participants who gave birth in a facility and participants who gave birth at home. There was a significant difference in the scores for basic needs satisfaction for autonomy-home birth by participants who gave birth in a facility (M=2.96, SD=.77) and by participants who gave birth at home (M=3.39, SD =
.80). The effect size for the comparison of means Autonomy–home birth was .53 (Moderate/Large), this effect size is adequate. Table 4.7 displays the results of the independent samples t-test.

Comparison of the means for responses to the variables associated with the autonomy construct for the home birth domain and responses to the variables associated with the autonomy construct for the facility birth domain showed that participants reported higher levels of need satisfaction in autonomy-facility birth/autonomy-home birth consistent with their choice of birthplace (See Table 4.7A). The participants who gave birth in a facility reported higher need satisfaction in autonomy-facility birth (M=3.78, SD=.57) than the participants who gave birth at home (M=3.40, SD = .71). Similarly, the participants who gave birth at home reported higher need satisfaction in autonomy-home birth (M=3.39, SD = .80) than the participants who gave birth in a facility (M=2.96, SD=.77). This indicates that participants’ birthplace choice was consistent with the domain for which they reported a higher level of basic need satisfaction for autonomy. The participants who gave birth at a health facility reported higher levels of basic need satisfaction for autonomy in the facility birth domain. Similarly, the participants who gave birth in the home birth environment reported higher levels of basic need satisfaction for autonomy in the home birth domain. Furthermore, the results indicate that the developed survey instrument performed as theorized for the assessment of basic need satisfaction for autonomy in each domain, facility birth and home birth.
Analytic 5: T-test basic needs satisfaction for competence home birth vs. facility birth

Answers research question 6: Is there a significant difference in basic need satisfaction for competence in the home birth domain and the facility birth domain; how does this impact birthplace choice?

One of the research questions which is guiding this study asks, is there a significant difference in perception of basic need satisfaction for competence in the home birth domain and the facility birth domain? Moreover, was participant’s birthplace choice consistent with the birth domain for which they report a higher level of basic need satisfaction?
satisfaction for competence? An independent-samples t-test was conducted to compare basic needs satisfaction for competence-facility birth by participants who gave birth in a facility and participants who gave birth at home. There was a significant difference in the scores for basic needs satisfaction for competence-facility birth by participants who gave birth in a facility (M=4.01, SD=.74) and by participants who gave birth at home (M=3.53, SD = .75). The effect size for the comparison of means competence – facility birth was .64 (Large).

Additionally, an independent-samples t-test was conducted to compare basic needs satisfaction for competence-home birth by participants who gave birth in a facility and participants who gave birth at home. There was a significant difference in the scores for basic needs satisfaction for competence-home birth by participants who gave birth in a facility (M=2.55, SD=.89) and by participants who gave birth at home (M=3.02, SD = 1.06). The effect size of the comparison of means competence – home birth was .54 (Moderate/Large). Table 4.8 displays the results of the independent samples t-test.

Comparison of the means for responses to the variables associated with the competence construct for the home birth domain and responses to the variables associated with the competence construct for the facility birth domain showed that participants reported higher levels of need satisfaction in competence-facility birth/competence-home birth consistent with their choice of birthplace (See Table 4.8A). The participants who gave birth in a facility reported higher need satisfaction in competence-facility birth (M=4.01, SD=.74) than the participants who gave birth at home (M=3.53, SD = .75).
Similarly, the participants who gave birth at home reported higher need satisfaction in competence-home birth (M=3.02, SD = 1.06) than the participants who gave birth in a facility (M=2.55, SD=.89). This indicates that participants’ birthplace choice was consistent with the domain for which they reported a higher level of basic need satisfaction for competence. The participants who gave birth at a health facility reported higher levels of basic need satisfaction for competence in the facility birth domain. Similarly, the participants who gave birth in the home birth environment reported higher levels of basic need satisfaction for competence in the home birth domain. Moreover, the results indicate that the developed survey instrument performed as theorized for the assessment of basic need satisfaction for competence in each domain, facility birth and home birth.
### Table 4.8

**Independent Samples Test** - Comparison of Competence Construct Home Birth vs. Facility Birth

<table>
<thead>
<tr>
<th>Competence</th>
<th>Variance Assumption</th>
<th>F</th>
<th>Sig</th>
<th>t</th>
<th>df</th>
<th>Sig (2-tailed)</th>
<th>Mean Difference</th>
<th>Std. Error Difference</th>
<th>95% Confidence Interval of the Difference</th>
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</thead>
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<td>3.482</td>
<td>140</td>
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<td>.47678</td>
<td>.12549</td>
<td>.22676, .73278</td>
</tr>
<tr>
<td></td>
<td>Equal variances not assumed</td>
<td>3.486</td>
<td>197.366</td>
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<td>.12893</td>
<td>.22122</td>
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</tr>
<tr>
<td>HB</td>
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<td>140</td>
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### Table 4.8A

**Group Statistics** - Comparison of Competence Construct Home Birth vs. Facility Birth

<table>
<thead>
<tr>
<th>Birthplace</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
</tr>
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<td>- home</td>
<td>90</td>
<td>3.5296</td>
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</tr>
<tr>
<td>Competence_HB</td>
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<td>.88814</td>
<td>.12316</td>
</tr>
<tr>
<td>- home</td>
<td>90</td>
<td>3.0185</td>
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<td>.11122</td>
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</table>
Analytic 6: T-test basic needs satisfaction for relatedness home birth vs. facility birth

Answers research question 7: Is there a significant difference in the perception of basic need satisfaction for relatedness in the home birth domain and the facility birth domain? Was participant’s birthplace choice consistent with the birth domain for which they reported a higher level of need satisfaction for relatedness?

One of the research questions guiding this study asks, is there a significant difference in the perception of basic need satisfaction for relatedness in the home birth domain and the facility birth domain? Another asks, was participant’s birthplace choice consistent with the birth domain for which they reported a higher level of need satisfaction for relatedness? An independent-samples t-test was conducted to compare basic needs satisfaction for relatedness-facility birth by participants who gave birth in a facility and participants who gave birth at home. There was a significant difference in the scores for basic needs satisfaction for relatedness-facility birth by participants who gave birth in a facility (M=4.11, SD=.59) and by participants who gave birth at home (M=3.85, SD = .80). The effect size of the comparison of means relatedness –home birth was .45(Moderate).

Additionally, an independent-samples t-test was conducted to compare basic needs satisfaction for relatedness-home birth by participants who gave birth in a facility and participants who gave birth at home. There was a significant difference in the scores for basic needs satisfaction for relatedness-home birth by participants who gave birth in a facility (M=3.42, SD=.93) and by participants who gave birth at home (M=3.96, SD =
The effect size of the comparison of means relatedness-home birth was .58 (Large). Table 4.9 displays the results of the independent samples t-test.

Comparison of the means for responses to the variables associated with the relatedness construct for the home birth domain and responses to the variables associated with the relatedness construct for the facility birth domain showed that participants reported higher levels of need satisfaction in relatedness-facility birth/relatedness-home birth consistent with their choice of birthplace (See Table 4.9A). The participants who gave birth in a facility reported higher need satisfaction in relatedness-facility birth (M=4.11, SD=.59) than the participants who gave birth at home (M=3.85, SD = .80). Similarly, the participants who gave birth at home reported higher need satisfaction in relatedness-home birth (M=3.96, SD = .82) than the participants who gave birth in a facility (M=3.42, SD=.93). This indicates that participants’ birthplace choice was consistent with the domain for which they reported a higher level of basic need satisfaction for relatedness. The participants who gave birth at a health facility reported higher levels of basic need satisfaction for relatedness in the facility birth domain. Similarly, the participants who gave birth in the home birth environment reported higher levels of basic need satisfaction for relatedness in the home birth domain. Moreover, the results indicate that the developed survey instrument performed as theorized for the assessment of basic need satisfaction for relatedness in each domain, facility birth and home birth.
Analytic 7: Comparison of basic needs satisfaction across constructs home birth vs. facility birth

Answers research question 8: What is the relationship between variables of autonomy, relatedness and competence for facility birth needs satisfaction and home birth needs satisfaction?

Another of the research questions which is guiding this research is seeking to understand which constructs are most influential in basic needs satisfaction in the domains of home birth and facility birth. A paired sample t-test was conducted to assess variability across the basic needs satisfaction constructs. Table 4.10 displays the results of the t-test. The t-test showed that there was a significant difference between all paired
samples. For the facility birth domain, the most influential construct was relatedness with a mean response of \( (M=3.94, SD=.74) \) followed by competence with a mean response of \( (M=3.70, SD=.78) \). For the home birth domain, the most influential construct was also relatedness with a mean of responses \( (M=3.75, SD=.90) \) followed by autonomy with a mean of responses \( (M=3.23, SD=.82) \). It is not surprising that both domains received higher levels of basic needs satisfaction in the construct of relatedness. Recall that people in this region generally all belong to one ethnic familial group and birth attendants are usually well known to the participants. The home birth domain received low levels of basic needs satisfaction in competence with a mean of responses \( (2.84) \).

<table>
<thead>
<tr>
<th>Paired Differences</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
<th>95% Confidence Interval of the Difference</th>
<th>t</th>
<th>df</th>
<th>Sig. (2-tailed)</th>
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<tr>
<td>Pair 1</td>
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<td>-.26511 - .05280</td>
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<tr>
<td>Pair 2</td>
<td>-.39663</td>
<td>.53450</td>
<td>.04485</td>
<td>-.48530 - .30796</td>
<td>-8.843</td>
<td>141</td>
<td>.000</td>
</tr>
<tr>
<td>Autonomy_FB</td>
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<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Relatedness_FB</td>
<td>-.23768</td>
<td>.68236</td>
<td>.05726</td>
<td>-.35088 - .12447</td>
<td>-4.151</td>
<td>141</td>
<td>.000</td>
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<tr>
<td>Competence_FB</td>
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<tr>
<td>Relatedness_FB</td>
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<tr>
<td>Pair 4</td>
<td>.38632</td>
<td>.79013</td>
<td>.06631</td>
<td>.25523 - .51740</td>
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<td>Autonomy_HB</td>
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<tr>
<td>Competence_HB</td>
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<tr>
<td>Pair 5</td>
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<td>.06477</td>
<td>-.65522 - .39911</td>
<td>-8.138</td>
<td>141</td>
<td>.000</td>
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<td>Autonomy_HB</td>
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<tr>
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<tr>
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<td>-.103824 - .78872</td>
<td>-14.475</td>
<td>141</td>
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</table>
Analytic 8: T-test home birth compared to facility birth by survey question-simple effects

To gauge variance in survey sample responses for home birth and facility birth surveys, a t-test was conducted to paired survey question sets. Table 4.11A displays the results of the paired sample t-test for home birth compared to facility birth by survey question. Paired samples t-tests were conducted to assess variance at the individual variable level, comparing differences in responses per question. The results for comparisons with a significant difference are as follows:
Pair 1:

FB2: I really like the people at the health facility where I would consider giving birth or did give birth.

HB2: I really like the people involved with my home birth or I really like the people I would consider attending me during a home birth.

A paired sample t-test was conducted to compare responses between relatedness variables FB2 and HB2 as represented by the questions above. There was a significant difference in the scores between relatedness variable FB2 (M=4.47, SD=.90) and relatedness variable HB2 (M=3.97, SD=1.27). This indicates that the participants reported that they really like the people at the health facility, more so than the people in the home birth environment.

Pair 2:

FB3: I do not feel very competent when I am at the health facility.

HB3: I do not feel very competent when I am in the home birth environment.

A paired sample t-test was conducted to compare responses between competence variables FB3 and HB3 as represented by the questions above. There was a significant difference in the scores between competence variable FB3 (M=3.70, SD=1.53) and competence variable HB3 (M=2.85, SD=1.65). This indicates that the participants reported that they did not feel very competent in the facility birth environment, more so than in the home birth environment.
Pair 4:

*FB5: I feel pressured at the health facility.*

*HB5: I feel pressured in the home birth environment.*

A paired sample t-test was conducted to compare responses between autonomy variables FB5 and HB5 as represented by the questions above. There was a significant difference in the scores between autonomy variable FB5 (M=4.35, SD=1.34) and autonomy variable HB5 (M=3.19, SD=1.80). This indicates that the participants reported that they feel pressured at the health facility, more so than in the home birth environment.

Pair 5:

*FB6: I get along with people at the health facility.*

*HB6: I get along with people in the home birth environment.*

A paired sample t-test was conducted to compare responses between relatedness variables FB6 and HB6 as represented by the questions above. There was a significant difference in the scores between relatedness variable FB6 (M=4.09, SD=1.15) and relatedness variable HB6 (M=3.81, SD=1.39). This indicates that the participants reported that they get along with people at the health facility, more so than with people in the home birth environment.

Pair 9:

*FB11: When I am at the health facility, I have to do what I am told.*

*HB11: When I am in the home birth environment, I have to do what I am told.*

A paired sample t-test was conducted to compare responses between autonomy variables FB11 and HB11 as represented by the questions above. There was a significant
difference in the scores between autonomy variable FB11 (M=1.60, SD=.95) and autonomy variable HB11 (M=2.33, SD=1.50. This indicates that the participants reported that they had to do what they were told in the home birth environment, more so than in the facility birth environment.

Pair 10:

FB12: Most visits I feel a sense of accomplishment at the health facility.

HB12: Most visits I feel a sense of accomplishment in the home birth environment.

A paired sample t-test was conducted to compare responses between competence variables FB12 and HB12 as represented by the questions above. There was a significant difference in the scores between competence variable FB12 (M=4.25, SD=1.08) and competence variable HB12 (M=2.76, SD=1.57). This indicates that the participants reported feeling a greater sense of accomplishment at the health facility than in the home birth environment.

Pair 11:

FB13: My feelings are taken into consideration at the health facility.

HB13: My feelings are taken into consideration in the home birth environment.

A paired sample t-test was conducted to compare responses between autonomy variables FB13 and HB13 as represented by the questions above. There was a significant difference in the scores between autonomy variable FB13 (M=3.95, SD=1.22) and autonomy variable HB13 (M=3.14, SD=1.54). This indicates that the participants reported that to a greater extent their feelings are taken into consideration at the facility than in the home birth environment.
Pair 12:

FB14: At the health facility, I do not get much of a chance to show how capable I am.
HB14: In the home birth environment, I do not get much of a chance to show how capable I am.

A paired sample t-test was conducted to compare responses between competence variables FB14 and HB14 as represented by the questions above. There was a significant difference in the scores between competence variable FB14 (M=3.48, SD=1.51) and competence variable HB14 (M=2.99, SD=1.58). This indicates that the participants reported that they do not get much of a chance to show how capable they are in at the facility, more so than in the home birth environment.

Pair 13:

FB15: People at the health facility care about me.
HB15: People in the home birth environment care about me.

A paired sample t-test was conducted to compare responses between relatedness variables FB15 and HB15 as represented by the questions above. There was a significant difference in the scores between relatedness variable FB15 (M=3.95, SD=1.22) and relatedness variable HB15 (M=3.52, SD=1.45). This indicates that the participants reported that people at the health facility care about them, more so than people in the home birth environment.
Pair 15:

*FB17:* I feel like I can pretty much be myself at the health facility.

*HB17:* I feel like I can pretty much be myself in the home birth environment.

A paired sample t-test was conducted to compare responses between autonomy variables FB17 and HB17 as represented by the questions above. There was a significant difference in the scores between autonomy variable FB17 (M=3.56, SD=1.36) and autonomy variable HB17 (M=2.99, SD=1.54). This indicates that the participants reported that they can pretty much be themselves at the health facility, more so than in the home birth environment.

Pair 16:

*FB18:* People at the health facility do not seem to like me much.

*HB18:* People in the home birth environment do not seem to like me much.

A paired sample t-test was conducted to compare responses between relatedness variables FB18 and HB18 as represented by the questions above. There was a significant difference in the scores between relatedness variable FB18 (M=4.33, SD=1.23) and relatedness variable HB18 (M=3.90, SD=1.53). This indicates that the participants reported that people at the health facility did not seem to like them very much, more so than people in the home birth environment.
Pair 17:

*FB19: At the health facility, I often do not feel very capable.*

*HB19: In the home birth environment, I often do not feel very capable.*

A paired sample t-test was conducted to compare responses between competence variables FB19 and HB19 as represented by the questions above. There was a significant difference in the scores between competence variable FB19 (M=4.15, SD=1.28) and competence variable HB19 (M=2.63, SD=1.68). This indicates that the participants reported that they often do not feel very capable at the health facility, more so than in the home birth environment.

Pair 19:

*FB21: People at the health facility are very friendly towards me.*

*HB21: People in the home birth environment are very friendly towards me.*

A paired sample t-test was conducted to compare responses between relatedness variables FB21 and HB21 as represented by the questions above. There was a significant difference in the scores between relatedness variable FB21 (M=3.86, SD=1.25) and relatedness variable HB21 (M=4.17, SD=1.14). This indicates that the participants reported that people at the health facility are very friendly towards them, more so than in the home birth environment.

Pair 20:

*FB1: I feel like I can express my feelings when giving birth at the health facility.*

*HB1: I feel like I can express my feelings when giving birth at home.*
A paired sample t-test was conducted to compare responses between autonomy variables FB1 and HB1 as represented by the questions above. There was a significant difference in the scores between autonomy variable FB1 (M=4.21, SD=1.16) and autonomy variable HB1 (M=3.82, SD=1.49). This indicates that the participants reported that they can express their feelings when giving birth at the health facility, more so than when giving birth in the home birth environment.

Additional results

To assess perception of decision making power in the study sample, participants were asked “do you feel you have the power to decide for yourself where to give birth. Of the 142 participants, 129 (90%) participants answered yes they felt they had the power to decide for themselves where to give birth.
<table>
<thead>
<tr>
<th>Pair</th>
<th>Paired Differences</th>
<th>Std. Deviation</th>
<th>Std. Error</th>
<th>Lower Interval of the 95% Confidence Interval</th>
<th>Upper Interval of the 95% Confidence Interval</th>
<th>t</th>
<th>df</th>
<th>Sig. (2-tailed)</th>
</tr>
</thead>
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Chapter Four Summary

Chapter four presented the detailed analysis and results of the present study. Confirmatory factor analysis models were generated and discussed for the home birth domain and the facility birth domain. The models achieved adequate goodness-of-fit measures after recommended modifications were applied. Additionally, variance analysis was performed to facilitate greater understanding of study variables and answer stated research questions. Chapter five will discuss results of the survey and implications for further study.
CHAPTER FIVE
Discussion

Key Findings

This chapter discusses key findings of the present study. The purpose of the study was three-fold: 1) Adapt and translate the Basic Psychological Needs Scale (BPNS) for the domains of home birth and facility birth 2) Test the adapted scale and identify how the items in the adapted version of the BPNS are distributed in the questionnaire and identify the reliability of the developed questionnaire, and 3) Answer the research questions set forth in chapter one. The Basic Psychological Needs in Birthplace Choice Scale (BPNBCS) for the domains of home birth and facility birth is a self-report instrument designed to assess individual differences in the extent to which the innate psychological needs for autonomy, competence, and relatedness are fulfilled in the domains of facility birth and home birth. Scale structure was assessed for basic needs satisfaction in home birth and facility through Confirmatory Factor Analysis (CFA). Following a series of justifiable modifications, as detailed in chapter four, the adapted scales achieved adequate goodness-of-fit measures.

Results of the present study indicate that the theorized model was not initially a good fit for the collected data. However, the required modifications to improve goodness-of-fit were justifiable based on the research field experience and birthplace choice literature. For the home birth CFA model the correlation coefficients ranged as follows: autonomy (.34 to .79); Competence (.40 to .78); and, relatedness (.34 to .80). For the facility birth CFA model correlation coefficients ranged as follows: autonomy (.40 to
.70); competence (.23 to .48); and, relatedness (.26 to .77). The correlation coefficients are instructive for further development of the instruments. For example, we observe relatively lower correlation coefficients for competence in the facility birth domain. This would be a good starting point to evaluate and perhaps modify questions for further development of the instrument. Lower correlation coefficients may indicate that the variables in question were not as well fitted to the competence construct as variables in the constructs of autonomy and relatedness.

Additionally, the variables that show cross-loading on more than one factor most certainly require evaluation for modification. In the development of the CFA model for facility birth, there was a variable that was cross-loading and the suspected reason for the cross-loading might be attributed to interpretation in the Runyankole language. The cross-loading variable represented the question “I get along with people at the health facility” and in Runyankole the phrase “I get along with people” can also be interpreted as “I understand people”, this nuance in interpretation may be causing the variable to cross load on both the relatedness and competence factors. For further development of the instrument, the item would have to be modified to restrict meaning or dropped from the survey.

Summary of key findings by research question

Questions one through three for the current study was concerned with scale structure as assessed by confirmatory factor analysis using EQS software. The results of the scale structure assessment were discussed above. After establishing that the models generated by the data collected for the present study, the reminder of the research questions
assessed whether the scales performed as theorized based on the collected data. The relevant key findings for each research question are detailed below.

Research question 4: Is there a significant difference in perception of overall basic needs satisfaction for the home birth domain and the facility birth domain? Was participant’s birthplace choice consistent with the birth domain for which they report a higher level of overall basic needs satisfaction?

An independent samples t-test was conducted comparing overall basic needs satisfaction for facility birth by participants who gave birth in a facility and participants who gave birth at home. The comparison analysis showed that there was a significant difference in overall basic needs satisfaction for facility birth between participants who gave birth in a facility and participants who gave birth at home. When compared to the participants that gave birth at home, the participants who gave birth in a facility expressed a higher level of overall basic needs satisfaction in the facility birth domain. Conversely, when compared to the participants who gave birth in a facility, the participants who gave birth at home expressed a higher level of overall basic needs satisfaction for the home birth domain.

It is important to note that the participants who gave birth at home have exposure to the local medical facility, but may or may not have had previous experience with giving birth in a facility. Therefore, their responses to the facility birth portion of the questionnaire represent their thoughts on basic needs satisfaction in the facility birth domain and not necessarily their experience. Similarly, the participants who gave birth in a facility have communal experience with the home birth environment, but may or may
not have had previous experience with giving birth at home. Therefore their responses to
the home birth portion of the questionnaire represent their thoughts on basic needs
satisfaction in the home birth domain and not necessarily their experience

The findings of the current study indicate that the BPNBCS is assessing overall basic
needs satisfaction as theorized in the conceptual model. In order to understand the
predictive value of the BPNBCS for overall basic needs satisfaction, a longitudinal study
would have to be undertaken following pregnant women from early pregnancy to birth.
The pregnant women would take the BPNBCS early on in their pregnancy and then
researchers would follow them through birth and be able to assess if women did indeed
choose a birthplace consistent with the domain for which they reported higher overall
basic needs satisfaction. What the present study has accomplished is to determine that
preliminary research with the BPNBCS suggests that the scale assesses overall basic
needs satisfaction as theorized in the conceptual model.

Research question 5: Is there a significant difference in perception of basic need
satisfaction for autonomy in the home birth domain and the facility birth domain? Was
participant’s birthplace choice consistent with the birth domain for which they report a
higher level of basic need satisfaction for autonomy?

An independent samples t-test was conducted comparing basic needs satisfaction for
autonomy-facility birth/autonomy-home birth between participants who gave birth in a
facility and participants who gave birth at home. The comparison analysis showed that
there was a significant difference in basic needs satisfaction for autonomy-facility
birth/autonomy-home birth between participants who gave birth in a facility and
participants who gave birth at home. When compared to the participants who gave birth at home, the participants who gave birth in a facility expressed a higher level of basic needs satisfaction for autonomy-facility birth. Similarly, when compared to the participants who gave birth in a facility, the participants who gave birth at home expressed a higher level of basic needs satisfaction for autonomy-home birth.

It is important to note that the participants who gave birth at home have exposure to the local medical facility, but may or may not have had previous experience with giving birth in a facility. Therefore their responses to the facility birth portion of the questionnaire represent their thoughts on basic needs satisfaction in the facility birth domain and not necessarily their experience. Similarly, the participants who gave birth in a facility have communal experience with the home birth environment, but may or may not have had previous experience with giving birth at home. Therefore, their responses to the home birth portion of the questionnaire represent their thoughts on basic needs satisfaction in the home birth domain and not necessarily their experience. The findings of the current study indicate that the BPNBCS is assessing basic needs satisfaction for autonomy-facility birth/autonomy-home birth as theorized in the conceptual model.

In order to understand the predictive value of the developed scale in relation to autonomy-facility birth/autonomy home birth, a longitudinal study would have to be undertaken following pregnant women from early pregnancy to birth. The pregnant women would take the BPNBCS early on in pregnancy and then researchers would be able to assess if women did indeed choose a birthplace consistent with the domain for which they reported higher levels of basic needs satisfaction for autonomy. What the
present study has accomplished is to determine that preliminary research with the BPNBCS suggests that the scale assesses basic needs satisfaction for autonomy as theorized in the conceptual model.

*Research question number 6: Is there a significant difference in perception of basic need satisfaction for competence in the home birth domain and the facility birth domain? Was participant’s birthplace choice consistent with the birth domain for which they report a higher level of basic need satisfaction for competence?*

An independent samples t-test was conducted comparing basic needs satisfaction for competence-facility birth/competence-home birth between participants who gave birth in a facility and participants who gave birth at home. The comparison analysis showed that there was a significant difference in basic needs satisfaction for competence-facility birth/competence-home birth between participants who gave birth in a facility and participants who gave birth at home. The statistical details of the t-test analysis are discussed in chapter four, analytic five. When compared to the participants that gave birth at home, the participants who gave birth in a facility expressed a higher level of basic needs satisfaction for competence-facility birth. Similarly, when compared to the participants that gave birth in a facility, the participants who gave birth at home expressed a higher level of basic needs satisfaction for competence-home birth.

It is important to note that the participants who gave birth at home have exposure to the local medical facility but may or may not have had previous experience with giving birth in a facility. Therefore, their responses to the facility birth portion of the questionnaire represent their thoughts on basic needs satisfaction in the facility birth
domain and not necessarily their experience. Similarly, the participants who gave birth in a facility have communal experience with the home birth environment but may or may not have had previous experience with giving birth at home. Therefore, their responses to the home birth portion of the questionnaire represent their thoughts on basic needs satisfaction in the home birth domain and not necessarily their experience. The findings of the current study indicate that the BPNBCS is assessing basic needs satisfaction for competence-facility birth/competence-home birth as theorized in the conceptual model.

In order to understand the predictive value of the developed scale in relation to competence-facility birth/competence home birth, a longitudinal study would have to be undertaken following pregnant women from early pregnancy to birth. The pregnant women would take the BPNBCS early on in pregnancy and then researchers would be able to assess if women did indeed choose a birthplace consistent with the domain for which they reported higher levels of basic needs satisfaction for competence. What the present study has accomplished is to determine that preliminary research with the BPNBCS suggests that the scale assesses basic needs satisfaction for competence as theorized in the conceptual model.

Research question 7: Is there a significant difference in the perception of basic need satisfaction for relatedness in the home birth domain and the facility birth domain? Was participant’s birthplace choice consistent with the birth domain for which they reported a higher level of need satisfaction for relatedness?

An independent samples t-test was conducted comparing basic needs satisfaction for relatedness-facility birth/relatedness-home birth between participants who gave birth in a
facility and participants who gave birth at home. The comparison analysis showed that there was a significant difference in basic needs satisfaction for relatedness-facility birth/relatedness-home birth between participants who gave birth in a facility and participants who gave birth at home. The statistical details of the t-test analysis are discussed in chapter four, analytic six. When compared to the participants who gave birth at home, the participants who gave birth in a facility expressed a higher level of basic needs satisfaction for relatedness-facility birth. Similarly, when compared to the participants who gave birth in a facility, the participants who gave birth at home expressed a higher level of basic needs satisfaction for relatedness-home birth.

It is important to note that the participants who gave birth at home have exposure to the local medical facility but may or may not have had previous experience with giving birth in a facility. Therefore, their responses to the facility birth portion of the questionnaire represent their thoughts on basic needs satisfaction in the facility birth domain and not necessarily their experience. Similarly, the participants who gave birth in a facility have communal experience with the home birth environment but may or may not have had previous experience with giving birth at home. Therefore, their responses to the home birth portion of the questionnaire represent their thoughts on basic needs satisfaction in the home birth domain and not necessarily their experience. The findings of the current study indicate that the BPNBCS is assessing basic needs satisfaction for relatedness-facility birth/relatedness-home birth as theorized in the conceptual model.

In order to understand the predictive value of the developed scale in relation to competence-facility birth/competence home birth, a longitudinal study would have to be
undertaken following pregnant women from early pregnancy to birth. The pregnant women would take the BPNBCS early on in pregnancy and then researchers would be able to assess if women did indeed choose a birthplace consistent with the domain for which they reported higher levels of basic needs satisfaction for relatedness. What the present study has accomplished is to determine that preliminary research with the BPNBCS suggests that the scale assesses basic needs satisfaction for relatedness as theorized in the conceptual model.

Research Question 8: What is the association between variables of autonomy, relatedness and competence for facility birth needs satisfaction and home birth needs satisfaction?

Comparison of means testing (statistical detail chapter four, analytic 7) also revealed differences in which basic needs constructs were more influential in each domain. It was observed that participants reported feeling the highest levels of needs satisfaction for the relatedness construct in both domains. However, for the facility birth domain, the competence construct received the next highest level of needs satisfaction. Whereas, for the home birth domain the next highest level of needs satisfaction was reported for the autonomy construct. Therefore, for the facility birth domain the most influential constructs in needs satisfaction were relatedness and competence; however, for the home birth domain relatedness and autonomy were the most influential constructs for needs satisfaction.

The literature suggests that women draw power from and demonstrate their strength by giving birth at home (Kyomuhendo, 2003). This may account for the greater influence of the autonomy construct for the home birth domain. Moreover, in Uganda, due to public
health campaigns promoting facility birth, there is a general sense that facility birth a is more “progressive” and “educated” way to give birth. This may account for the greater influence of the competence construct for the facility birth domain.

These findings indicate that there were some differences in the extent to which the two groups experience satisfaction of basic needs in the two birth domains—home and facility. Future research needs to examine the link between satisfaction of autonomy, competence and relatedness as associated with birthplace choice and different types of motivation (intrinsic and internalization of external values). Most research on SDT uses psychological need satisfaction as an aggregated construct (Baard, Deci & Ryan, 2004; Gagne, 2003). However, the few studies that have differentiated between the three needs found that separating them demonstrated that separating them finds interesting contributions (Bozeman, Ellemers, 2009; Lynch, Plant & Ryan, 2005). In future studies, differentiating between the needs could permit a better understanding of the role of psychological need satisfaction in the internalization process of birthplace choice.

Additional findings

Paired samples t-tests were conducted to assess variance at the individual variable level, comparing differences in responses per question. The discussions of results for comparisons with a significant difference are as follows:
Pair 1:

FB2: I really like the people at the health facility where I would consider giving birth or did give birth.

HB2: I really like the people involved with my home birth or I really like the people I would consider attending me during a home birth.

The participants reported felt that they really like the people at the health facility to a greater extent than they liked the people in the home birth environment. It is theorized that the responses may be skewed towards over reporting of affinity for the facility birth experience based on public health campaigns promoting facility birth. This finding is not consistent with the literature which generally suggests that Ugandan women feel more of an affinity for people in the home birth environment. (Amooti-Kaguna & Nuwaha, 2000; Kyomuhendo, 2003)

Pair 2:

FB3: I do not feel very competent when I am at the health facility.

HB3: I do not feel very competent when I am in the home birth environment.

The participants reported that they did not feel competent in the facility birth environment more so than in the home birth environment. This finding is consistent with the literature which suggests that rural women feel intimidated in the hospital birth environment (Amooti-Kaguna & Nuwaha, 2000; Kabuya, 2006; Kyomuhendo, 2003; Letamo, 2003).
Pair 4:

*FB5: I feel pressured at the health facility.*

*HB5: I feel pressured in the home birth environment.*

The participants reported that they felt more pressured in the facility birth environment than they did in the home birth environment. This finding is consistent with the literature which suggests that rural women feel pressured in the hospital birth environment. In the literature women reported feeling pressured to give birth lying on their backs rather than squatting or on their hands and knees. Women also felt rushed due to hospital staff having to attend to many women at once. (Amooti-Kaguna & Nuwaha, 2000; Kyomuhendo, 2003; Letamo, 2003).

Pair 5:

*FB6: I get along with people at the health facility.*

*HB6: I get along with people in the home birth environment.*

The participants reported that they got along with people in the facility birth environment more so than with the people in the home birth environment. This finding is not consistent with the literature which suggests that rural women feel more at ease in the home birth environment (Amooti-Kaguna & Nuwaha, 2000; Gabrysch & Campbell, 2009; Kyomuhendo, 2003; Letamo, 2003). As discussed earlier, this finding may be a function of participants giving a response that they perceive to be more socially desirable.
Pair 9:

**FB11:** When I am at the health facility, I have to do what I am told.

**HB11:** When I am in the home birth environment, I have to do what I am told.

The participants reported that they had to do what they were told in the home birth environment more so than in facility birth environment. The means for this variable are generally lower than what was observed for other variables. In general it appears women did not report high levels of having to do what they were told in either environment. The difference may be that in the home birth environment, women are generally attended by older women (i.e. mother, mother in law) (Amooti-Kaguna & Nuwaha, 2000; Kyomuhendo, 2003; Mekennon & Mekennon, 2003; Pfeiffer & Mwaipopo, 2013). Uganda is a hierarchal society where older people are generally expected to be obeyed without question (Nyakato & Rwabukwali, 2013). Staff in the health facility is generally of a younger generation and may behave in a more egalitarian manner towards women giving birth.

Pair 10:

**FB12:** Most visits I feel a sense of accomplishment at the health facility.

**HB12:** Most visits I feel a sense of accomplishment in the home birth environment.

The participants reported that they felt a greater sense of accomplishment at the health facility than in the home birth environment. Nothing was found in the literature that directly speaks to this finding. However, as noted earlier, facility birth is associated with a more “progressive” and “educated” way of giving birth, due to national public health
campaigns. Consequently, the facility birth environment may give woman a greater sense of accomplishment through their association with facility staff.

Pair 11:

*FB13: My feelings are taken into consideration at the health facility.*  
*HB13: My feelings are taken into consideration in the home birth environment.*

The participants reported that they felt their feelings were taken into consideration more so at the health facility than in the home birth environment. This finding is consistent with the literature, which suggests that in the home birth environment women are more empowered and respected when they give birth stoically without expressing emotions or feelings of the pain or appearing to fear birth (Kyomuhendo, 2003; Pfeiffer & Mwaipopo, 2013).

Pair 12:

*FB14: At the health facility, I do not get much of a chance to show how capable I am.*  
*HB14: In the home birth environment, I do not get much of a chance to show how capable I am.*

The participants reported that they did not get much of chance to show how capable they are in the facility birth environment, more so than in the home birth environment. This finding is consistent with the literature which suggests that home birth provides an opportunity for a woman to demonstrate her strength as a woman, women draw power and are more honored when they successfully give birth at home (Kyomuhendo, 2003).
Pair 13:

FB15: People at the health facility care about me.

HB15: People in the home birth environment care about me.

The participants reported that they felt more cared for in the facility birth environment than in the home birth environment. This finding is not consistent with the literature which suggests that women feel a higher level of intimacy and closeness in the home birth environment (Amooti-Kaguna & Nuwaha, 2000; Cheyney, 2008; Kyomuhendo, 2003).

Pair 15:

FB17: I feel like I can pretty much be myself at the health facility.

HB17: I feel like I can pretty much be myself in the home birth environment.

The participants reported that they could pretty much be themselves in the facility birth environment, more so than in the home birth environment. This finding is not consistent with the literature which suggests that women feel more at ease in the home birth environment. (Amooti-Kaguna & Nuwaha, 2000; Cheyney, 2008; Kyomuhendo, 2003).

Pair 16:

FB18: The people at the health facility do not seem to like me much.

HB18: The people in the home birth environment do not seem to like me much.

The participants reported that the people at the health facility did not seem to like them very much, more so than in the home birth environment. This is a particularly confounding finding in light of the overall results of the survey which showed high levels
of need satisfaction in relatedness for both domains. In future iterations of this research, this particular question should be further tested for comprehension as translated. In addition, qualitative methods can be employed to examine the results of this variable more comprehensively.

Pair 17:

FB19: At the health facility, I often do not feel very capable.

HB19: In the home birth environment, I often do not feel very capable.

The participants reported that they often did not feel very capable in the facility birth environment, more so than in the home birth environment. This finding is consistent with the literature which suggests that home birth provides an opportunity for a woman to demonstrate her strength as a woman, women draw power and are more honored when they successfully give birth at home (Kyomuhendo, 2003). It is reasonable to theorize that since women feel stronger and more powerful when they give birth at home, they would feel less powerful and capable in the facility birth environment.

Pair 19:

FB21: People at the health facility are very friendly towards me.

HB21: People in the home birth environment are very friendly towards me.

The participants reported that people are very friendly to them in the home birth environment, more so than in the facility birth environment. This finding is consistent with the literature which suggests that women feel a higher level of intimacy and closeness in the home birth environment (Amooti-Kaguna & Nuwaha, 2000; Cheyney, 2008; Kyomuhendo, 2003).
Pair 20:

FB1: *I feel like I can express my feelings when giving birth at the health facility.*

HB1: *I feel like I can express my feelings when giving birth at home.*

The participants reported that they could express their feelings when giving birth at the health facility, more so than when giving birth at home. This finding is consistent with the literature, which suggests that in the home birth environment women are more empowered and respected when they give birth stoically without expressing feelings or emotions about the pain or appearing to fear birth (Kyomuhendo, 2003; Pfeiffer & Mwaipopo, 2013).

It was also generally observed that at the individual variable level, comparison of means exposed some results that were consistent with literature and some that were not. Future iterations of the study should analyze the individual variable level comparisons to determine if questions require modification. Another explanation for some of the inconsistency with literature at the individual variable level may be that what is generally known about the birth domains primarily from qualitative research does not hold true when tested with a quantitative psychometric measure such as the BPNBCS.

*Instrument integrity*

This study sought to contribute to the understanding of what basic psychological needs influence birthplace choice of rural women of Kashongi Sub-County by testing a theoretical model, Self-Determination Theory (SDT) (Deci & Ryan, 1985). SDT is based on the premise that interpersonal and environmental contexts can either support or block a person’s behavioral regulation. SDT also posits that human beings have basic
psychological needs for autonomy, competence and relatedness (Deci & Ryan, 1985). Environments that support the satisfaction of these needs will promote a person’s gratification with activities and the autonomous self-regulation of behaviors (Gagne, 2003). The present study demonstrated the soundness of Self-Determination Theory in explaining behavioral regulation.

Data collected with the BPNBCS domain specific instruments revealed that participant’s birthplace choice was consistent with higher levels of basic needs satisfaction in that domain. The findings were consistent for the overall basic needs satisfaction by domain as well as for the constructs autonomy, competence and relatedness. Participants’ birthplace choice was consistent with where they reported higher levels of basic needs satisfaction in autonomy, competence and relatedness. Considering the vast cultural/language differences and the adaptation to a domain that is fraught with conflicting perspectives, the fact that the survey maintained predictive value speaks very highly of Self-Determination Theory and the Basic Psychological Needs Scale. According to Deci and Ryan (2008),

Based on years of research on intrinsic motivation and internalization we found that a satisfactory the account of the various empirical results required the hypothesis that there is a set of universal psychological needs that must be satisfied for effective functioning and psychological health. Subsequent research in a variety of countries, including some cultures with collectivist, traditional values and other with individualist, equalitarian values, have confirmed that
satisfaction of the needs for competence, autonomy, and relatedness do indeed predict psychological well-being in cultures. (p. 183)

Deci & Ryan (2008) made the assertion that the basic psychological needs were universal; however, prior to the present study, Self-Determination Theory had not been tested on any segment of the African population.

The current findings made a vital contribution to the existing research in the field. Models of behavior incorporating universal basic psychological needs are essential for the development of effective intervention programs. This study was based on Self-Determination Theory (Deci & Ryan, 1985) and the results established that SDT can be used to examine and understand birthplace choice. Birthplace choice is a highly complex phenomenon, incorporating elements of health, psychology, socialization and economics among other things. Examining birthplace choice at the basic psychological needs level provided a clearer picture of how basic psychological needs influence birthplace choice. The current findings, if validated by repetition, can have important implications for researchers and reproductive health professionals developing interventions to reduce maternal mortality.

Methodological Limitations of the Study

Although the results for the Basic Psychological Needs in Birthplace Choice Scale are promising, there are some limitations to the present research. The researcher relied entirely on responses provided to a self-report survey tool. Survey data is wholly subjective and susceptible to the distortions described in the following paragraphs.
**Honesty/image management**

Study participants were instructed to be completely honest and were told that there was no right or wrong answer. However, all respondents were exposed to a national campaign that promoted birth in a health facility and demeaned birth utilizing traditional medicine practitioners or traditional birth attendants. There is also a general sense that “educated” and “progressive” people use health facilities to give birth. In an effort to appear more “educated” and “progressive”, respondents may have expressed a preference for a facility birth. Additionally, participants may have been honest to the best of their knowledge but lacked the introspective ability to provide an accurate answer to a question. It is also likely that the research (a function of higher education) was perceived as being aligned with “educated” and “progressive” viewpoints of promoting facility birth. The exposure to national public health campaigns and a desire to please the research team may have masked the respondent’s true feelings about home birth, and survey responses may have overestimated the preference for facility birth and underestimated the preference for home birth.

**Comprehension**

The participants’ understanding of survey questions is of particular concern with the target population we sampled. The study sample involved women with low literacy rates and no experience with survey research. The research team frequently fielded questions regarding how “such questions” could help us understand their birth experience. Generally, the women in the study sample very much wanted to give an extended narrative of their birth experience to help researchers understand the rural birth
experience. In the current study, there is no way to gauge the varying interpretations of study questions among respondents. The varied interpretations of the study questions may skew or distort the research data.

**Rating scale**

As previously detailed, the respondents generally had some difficulty understanding and applying the proper use of the Likert-type scale. Researchers frequently had to redirect study participants to respond using the scale and repeat instructions on the proper use of the scale to respond to the survey questions. This may have led to answers using the extremes of the scale (i.e. 1= totally false and 5= very true), reducing variability in survey responses.

This study employed a cross-sectional design and data collection occurred at one point in time. Consequently, the temporal relationships among variables could not be assessed. This study utilized an opportunistic convenience sample; women were selected for the study based on village health team referrals. The sample may have been represented by women most likely to be in communication with village health team members. Women not known to village health team members or in more remote parts of the village may differ in their perception of birth place choice. The study sample was homogeneous in ethnicity; Banyankole women may hold different beliefs about birthplace choice than the other major ethnic groups of Uganda. The study was limited to non-pregnant child bearing women having given birth within the previous 24 months, pregnant women and child bearing women not having given birth in the past 24 months may have different
perspectives on birthplace choice. Essentially, the study is not generalizable to the entire child bearing population of Uganda.

There are varying viewpoints on the subject of sample size adequate for producing generalizable results in factor analysis, such as the one performed in this study. Hatcher (1994) recommended that the number of subjects should be the larger of 5 times the number of variables, or 100. Each of our models had 21 variables, thus 105 (21 x 5) participants would be called for. However, Comrey and Lee (1992) thought that for CFA a sample size of 200 would be fair and a sample size of 300 would be good. The sample size of 142 for the present study may or may not be considered adequate for generalizability of the factor analysis.

**Implications for future Research and Practice**

To decrease maternal and neonatal mortality, skilled attendance at childbirth is critical (Gabrysch, Oona & Campbell, 2009). Currently in Uganda, all skilled attendants (doctors, nurses, midwives) are facility based. Yet 60% of births take place at home in the rural community, they are non-facility based (Kyomuhendo, 2003). To date, studies of the determinants of facility-based delivery service use focus on sociocultural factors, economic accessibility, risk/benefit analysis and physical accessibility (Amooti-Kaguna, Nuwaha, 2000; Dramsd, Lee & Cousens, 2009; Gabrysch, Oona & Campbell, 2009; Kabuya, 2006; Kyomuhendo, 2003; Mekonnen & Mekonnen, 2003; Stephenson et al. 2006).
Birthplace choice in Africa is predominantly presented as a function of external factors (i.e. social influence, economic accessability and physical accessability) (Amooti-Kaguna, Nuwaha, 2000; Dramsdt, Lee & Cousens, 2009; Gabrysch, Oona & Campbell, 2009; Kyomuhendo, 2003; Stephenson et al. 2006). In other words, it is generally theorized that low use of facility based delivery services is due to social, economic and physical barriers (Amooti-Kaguna, Nuwaha, 2000; Dramsdt, Lee & Cousens, 2009; Gabrysch, Oona & Campbell, 2009; Kabuya, 2006; Kyomuhendo, 2003; Mekonnen & Mekonnen, 2003; Stephenson et al. 2006). Individual psychological factors are rarely examined in the equation of birthplace choice in Africa. Though the results are not generilizable for this preliminary study, the results of the present study suggest that not examining individual psychological factors of rural African women and emphasizing external barriers may be a critical error in understanding elements that influence birthplace choice. In the present study, women were asked “Do you feel you have the power to decide for yourself where to give birth”, of the 142 participants, 129 participants answered yes, they felt they had the power to decide for themselves where to give birth. This suggests that individual/personal choice may be a powerful determinant to consider in the equation of birthplace choice.

The development of a psychometric measure to assess basic needs satisfaction in birthplace choice is vital first step in understanding basic psychological factors that influence birthplace choice. All the literature reviewed pertaining to birthplace choice for this research was qualitative in nature, primarily employing group discussion or personal interview techniques. The use of the BPNBCS, a psychometric measure that can be
analyzed quantitatively is a step forward in gaining a more comprehensive understanding of birthplace choice.

*Policy recommendations*

This study suggests that women’s personal choice is an essential factor to consider in the birthplace choice equation. If the results of this study are validated through repetition, then there would be significant implications for maternal reproductive health services policy. The current policy promotes facility based delivery (Uganda National Reproductive Health Policy, 2010). The current public health approach and protocol is to encourage women towards facility-based birth. Based on the literature, it is believed that low use of facility-based delivery services is due to lack of access, lack of income or lack of knowledge (Amooti-Kaguna & Nuwaha, 2000; Dramsdt, Lee & Cousens, 2009; Gabrysch, Oona & Campbell, 2009; Kabuya, 2006; Kyomuhendo, 2003; Mekonnen & Mekonnen, 2003; Stephenson et al. 2006).

The results of the present study, call for some re-thinking about the current approach at the national policy level and at the local practice level. In 2001 the nation of Bangladesh was similarly faced with a high maternal mortality rate of 320 deaths per 100,000 live births (Anwar et al., 2011), 90% of births took place at home in the rural community (UNICEF, 2011a). Today Bangladesh is on track to achieve millennium development goal number 5 by the year 2015, the nation has reduced maternal mortality by 40% in less than 9 years, and the current maternal mortality rate is 194 maternal deaths per 100,000 live births.
Many factors were associated with the dramatic drop in maternal mortality rate. One of the key factors was a shift in national policy to focus on training of skilled birth attendants that provided health services in the rural community where women gave birth; the skilled birth attendants (SBAs) provide normal safe delivery in homes and referral facilities with emergency obstetric care when needed (Koblinsky, Anwar, Mrindha, Chowdhury, & Botelero, 2008). The results in Bangladesh indicate that providing delivery services to women in their home where they prefer to give birth is a critical element to reducing maternal mortality in rural populations. Preliminary findings in the present study support the notion that woman centered delivery care should meet the needs of rural women who choose to deliver at home as well as those who choose to deliver in a health facility.

Recommendations for Future Research and Practice

1. Examine variance at the individual variable level to gain insight for intervention programs. The variable level analysis can provide specific information on basic needs satisfaction of rural women for each domain. Elements for which respondents gave a higher mean of responses may be used to inform intervention programs. Furthermore, probing on most influential variables may provide insight that can inform future interventions.

2. It bodes well for this psychometric measure that it maintains scale structure integrity when translated and adapted, further development of the instrument could produce and tool with good predictive value for choosing home or hospital
birth. Further development of the instrument would entail closer examination of
the individual level analysis for the variables and perhaps follow-up with
qualitative methods to determine if some variables should be modified or dropped
from the survey. Longitudinal studies should be designed to follow women from
early pregnancy through childbirth. Such studies would be instructive in regard to
the BPNBCS’s predictive value. Develop longitudinal studies to follow women
from their first pre-natal visit through birth to understand the sequence of events
that lead to choosing facility birth or choosing home birth.

3. The research should be repeated in various regions of Uganda to gauge variability
in beliefs regarding birthplace choice. Further translation and cross-cultural
adaption is required in order to administer the survey to various ethnic groups in
Uganda. Translation and cross-cultural adaption are critical to achieve an
ethnically representative study sample from which research data would be
generalizable to the child bearing population of Uganda.

4. Adapt the scale to address and study other reproductive or public health concerns
such as compliance with HIV drug regimen or HIV testing. The BPNS has vast
potential for adaptation in the public health field. The adaptation procedures are
simple and the survey is readily available.
Conclusion

The translation and adaptation of the Basic Psychological Needs Scale for the domains of home birth and facility birth was a unique pilot study of applying psychometric measures to a population not previously exposed to such measures. It is very encouraging for future research that with justifiable modifications the scale structure maintained integrity. There is an enormous vacuum in social science research conducted with and produced by Africans. According to Mouton (2013),

The independence, nation-building and development euphoria of the 1960s and 1970s; economic and social crises; the subsequent structural adjustment process, mainly induced by external actors; the crisis of the state; and the spread of armed conflict have all left their mark on the social sciences, on higher education and research institutions, and on researchers and research communities in Africa (p.63).

The challenges and barriers to conducting field research in rural Uganda were at times overwhelming. Yet there is tremendous need for such research. This research demonstrates the insight that can be gained by examining birthplace choice at the basic psychological needs level. The model has far reaching implications for future research in rural Africa for the field of psychometric measures. The research represents a small contribution to the field and most importantly highlights the potential for future research endeavors in applying psychometric measures to the population of rural Africa.
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Appendix A

*Basic Psychological Needs in Birthplace Choice Survey*

A: Amazina gawe oi oha?

B: Abaana bangahí?

C: Ogu ni omwana wa kangahi?

D: Oine emyaka engahi?

E: Oine Omushwaija omuka?

F: Oragizire obuziibu omukuzara?

**Basic Psychological Needs (General)**

Shoma ebiri ahansi nokwegyendeseza, orikutuka akakwaate akikiine aha magara gaawe, kandi oyoreke okukihikire ahabwawe. Yejunise orurengo oru kugarukamu

1 = Tikihihire nakakye

2 = Kirimu amazima makye

3 = Kirimu amazima kwonka tigali mingi

4 = Kirimu amazima

5 = Namazima genyini

1. I feel like I am free to decide for myself how to live my life.
   Nimpurira nyine obugabe kweshariramu okunyine okutuura amagara gangye.

2. I really like the people I interact with.
   Buzima ninkunda abantu abundikukoragana nabo.

3. Often, I do not feel very competent.
   Obumwe tindikumanya ekindikukora

4. I feel pressured in my life.
1. People I know tell me I am good at what I do.
   Abantu abunkikumanya nibangira ngu ninkoagye ebindikukora.

2. I get along with people I come into contact with
   Ninkoragana gye nabantu.

3. I pretty much keep to myself and don’t have a lot of social contacts.
   Tindiwehisya abantu kandi tinyine abanywani bingi.

4. I generally feel free to express my ideas and opinions.
   Nimpurira nyine obusingye kugamba ebinkikutekaeka.

5. I consider the people I regularly interact with to be my friends.
   Nintwara abantu abundikukira kukoragana nabo kuba banywani bangye.

6. I have been able to learn interesting new skills recently.
   Omuubwire obu mbasize kwega obukodyo bwa okwebisaho bistya bwa omutana.

7. In my daily life, I frequently have to do what I am told.
   Buriijo nintekwa kukora ekibandagie.

8. People in my life care about me.
   Abantu abari omumagara gangye nibafaho.

9. Most days I feel a sense of accomplishment from what I do.
   Ebiro ebingi nimpurira okumarwa kuruga omubindikukora.

10. People I interact with on a daily basis tend to take my feelings into consideration.
    Abantu abundikukoragana nabo burizooba nibakira kufayo aha kundikwehurira.

11. In my life I do not get much of a chance to show how capable I am.
    Omumagara gangye tinkabona o’mugisha kworeka abantu ebindikubaasa kukora.

12. There are not many people I am close to.
    Tihariho bantu bingi abundi kwehistya munonga.
17. I feel like I can pretty much be myself in my daily situations.
   Nimanya ngu buzima nimbasa kuba okuundi omubindikukora burizooba.

18. The people I interact with regularly do not seem to like me much.
   Abantu abundikuwa nabo burijo nibandebekira nkabatari kunkuunda munonga.

19. I often do not feel very capable.
   Obumwe tindikujurira ngu nimbasa bingi.

20. There is not much opportunity for me to decide for myself how to do things in my
daily life.
   Tinyine mugisha gwokweshariramu okundakore ebintu burijo.

21. People are generally pretty friendly towards me.
   Okutwariza hamwe abantu nibanyakira.
Basic Psychological Needs in Birthplace Choice (Facility Birth)

The following questions concern your feelings about a health facility birth. If you delivered at a health facility answer the questions in regard to the health facility where you delivered; if you did not give birth at a health facility, answer the questions regarding a health facility where you would consider giving birth, perhaps one where you attended ante-natal care or have previous experience with.

Ebibuuzo ebi nibikwata ahakworkiwehurira ahakuzarira omwirwario. Kworabe wazariire aheirwariro, garukamu ebibuuzo kurugira aheiwario eriwazariireho; kwoarabe otarazariire mwirwariro, garukamu ebibuuzo kurugira ahuwakubiire noyenda kuzarira, nkahuwantungiire obuhereza otakaziire ninga ahorikwetegyerezagyae.

Yejunise orureka oru kugarukamu

1 = Tikihikire nakakye
2 = Kirimu amazima makyne
3 = Kirimu amazima kwonka tigali mingi
4 = Kirimu amazima
5 = Namazima genyini

1. I feel like I can express my feelings when giving birth at a health facility.
   Nimpurira nimbasa kushoboora ahakundiwehurira naba ninzara ahiwariro.

2. I really like the people at the health facility where I would consider giving birth or did give birth.
   Buzima ninkuunda abantu bahiwario ahunakwenzire kuzarira ninga ahunazariire.

3. I do not feel very competent when I am at the health facility.
   Tinkuhurira nka orikubaasa kundikuba ndi ahiwariro.

4. People at the health facility have confidence in my knowledge of matters concerning pregnancy and birth.
   Abantu omwiwariro beine okwikiriza omubwenge bwangye ahabikwatriiriine nenda nokuzaara.
5. I feel pressured at the health facility.
   Nimpurira ngyemiwe aha irwariro.

6. I get along with people at the health facility.
   Ninkwatanisa nabantu abari aha irwariiro.

7. I pretty much keep to myself when I am at the health facility.
   Tinkwehistya naba ndi aheirwariro.

8. I am free to express my ideas and opinions at the health facility.
   Nyine obugabe kushoborora ebitekateeko byangye aheiwariro.

9. I consider the people at the health facility to be my friends.
   Nitwara abantu aheiwariro kuba banywani bangye.

10. I have been able to learn interesting new facts about pregnancy and childbirth at
    the health facility.
    Mbasize kwega ebintu bistya ahabikwatiriine na enda n’okuzarira omwana
    aheiwariro.

11. When I am at the health facility, I have to do what I am told.
    Kundikuba ndi aheiwariro nyine okukora ekinagambiwa.

12. Most visits I feel a sense of accomplishment at the health facility.
    Emirundi emiingi kundikuza aheiwariro nimpurira nyine okumarwa.

13. My feelings are taken into consideration at the health facility.
    Aheiwariro nibafaho kumanya okundikwehurira.

14. At the health facility, I do not get much of a chance to show how capable I am.
    Aheiwariro tindikubona mugisha kworeka okubaasa kwangye.

15. People at the health facility care about me.
    Abantu aheiwariro nibanfaoho.

16. There are not many people at the health facility that I am close to.
Aheirwario tihariho abantu bingi abundi kwehisya.

17. I feel I can pretty much be myself at the health facility. Nimpurira nimbasa kuba okuundi aheirwario.

18. The people at the health facility do not seem to like me much. Abantu aba aheirwario nibrebeka nkabatarikunkunda.

19. When I am at the health facility, I often do not feel very capable. Kundikuba ndi aheirwario ninkira kwehurira nkotakubaasa.

20. There is not much opportunity for me to decide or myself in matters at the health facility. Tinyine mugisha muhango gwokweshariramu omunshonga ezimwe aheirwario.

21. People at the health facility are very friendly towards me. Abantu aheirwario nibanyakira munonga.
Basic Psychological Needs in Birthplace Choice (Home Birth)

The following questions concern your feelings about a home birth (non-facility, your home or that of a relative or TBA). If you delivered at home answer the questions in regard to the home birth experience; if you did not give birth at home, answer the questions in relation to your feelings about home birth.

Ebibuuzo ebi nibikwata ahakworikwehurira ahakuzarira omukyaro (ahatari omwiwariro, omuka ninga omunyabuzaare nali omuzarisa). Kworabe wazariire omukyaro, garukamu ebibuuzo ebikwatiriine nokumanya ahakuzarira omukyaro; waba otarazariire omukyaro, garukamu ebibuuzo ebikwatiriine nekorikutekateka ahakuzarira omukyaro.

Yejunise orurengo oru kugarukamu

1 = Tikihikire nakakye
2 = Kirimu amazima makyе
3 = Kirimu amazima kwonka tigali mingi
4 = Kirimu amazima
5 = Namazima genyini

1. I feel like I can express my feelings when giving birth at home.
   Nimpurira nimbasa kushoboora ahakundiwehurira naba ninzara omukyaro.

2. I really like the people involved with my home birth or I really like he people I would consider attending me during a home birth.
   Buzima ninkuunda abantu abarikunyamba omukuzarira omukyaro, ninga ninkunda abantu abunakwenzire banyanbe naba ninzaira omukyaro.

3. I do not feel very competent about the home birth experience.
   Tinkuhurira nka orikubaasa kuzarira omukyaro.

4. People attending the home birth have confidence in my knowledge of matters concerning pregnancy and birth.
   Abantu abaikuzarisa omukyaro beine okwikiriza omubwenge bwangye ahabikватриине ненда нокузаа.
5. I feel pressured in the home birth environment.
   Nimpurira ngyemirwe aha iwariro.

6. I get along with people at the health facility.
   Ninkwatanisa nabantu abarikuzarisa omukyaro.

7. I prefer delivering alone in a home birth.
   Nkakunzire kuzara nyenka omukyaro.

8. I am free to express my ideas and opinions in the home birth environment.
   Nyine obugabe kushoborora ebitekateeko byangye omukyaro.

9. I consider the people at the health facility to be my friends.
   Nitwara abantu bakuzarisa omukyaro kuba banywani bangye.

10. I have been able to learn interesting new facts about pregnancy and childbirth at
    the health facility.
    Mbasize kwega ebintu bistya ahabikwatiriine na enda n’okuzarira omwana
    omukyaro.

11. When I am in the home birth environment, I have to do what I am told.
    Kundikuba ndi nabazarisa omukyaro nyine okukora ekinagambiwa.

12. Most visits I feel a sense of accomplishment at the health facility.
    Emirundi emiingi nimpurira okumarwa nomuzaisa wekyaro.

13. My feelings are taken into consideration in the home birth environment.
    Ahindikuzarira omukyaro nibafaho kumanya okundi kwehurira

14. At the health facility, I do not get much of a chance to show how capable I am.
    Omkyaro nabazarisa tindikubona mugisha kworeka okubaasa kwangye.

15. People in the home birth environment care about me.
    Abantu abarikuzarisa omukyaro nibanfaho.

16. There are not many people in the home birth environment that I am close to.
17. I feel I can pretty much be myself in the home birth environment. Nimpurira nimbasa kubanka okundi omukyaro kuzariramu.

18. The people in the home birth environment do not seem to like me much. Abantu abarikuzarisa ahakyaro nibarebeka nkabatari kunkunda munonga.

19. When I am in the home birth environment, I often do not feel very capabale. Kundikuba ndi nabarikuzarisa ahakyaro nyehurira nka otakubasa.

20. There is not much opportunity for me to decide or myself in matters at the health facility. Tinyine mugisha muhango gwokweshariramu omunshonga zikwatiriine nokuzarira omukyaro.

21. People at the health facility are very friendly towards me. Abantu abarikuzaria omukyaro nibanyakira munonga.
Appendix: B

IRB Approval Notice

From: Nalinee Patin
Sent: Friday, December 09, 2011 11:29 AM
To: Bonnie Holaday (HOLADAY@clemson.edu)
Cc: akabukuru (akabukuru@yahoo.com); akabukuru@clemson.edu
Subject: Validation of IRB2011-401: Uganda Project

Dear Dr. Holaday,

The chair of the Clemson University Institutional Review Board (IRB) validated the protocol identified above using exempt review procedures and a determination was made on December 8, 2011, that the proposed activities involving human participants qualify as Exempt from continuing review under category B2, based on federal regulations 45 CFR 46.

You may not begin this study until the IRB receives a copy of the research clearance letter from the appropriate agency in Uganda.**

Please remember that the IRB will have to review all changes to this research protocol before initiation. You are obligated to report any unanticipated problems involving risks to subjects, complications, and/or any adverse events to the Office of Research Compliance (ORC) immediately. All team members are required to review the "Responsibilities of Principal Investigators" and the "Responsibilities of Research Team Members" available at http://www.clemson.edu/research/compliance/irb/regulations.html.

We also ask that you notify the ORC when your study is complete or if terminated. Please let us know if you have any questions and use the IRB number and title in all communications regarding this study.

Good luck with your study.

All the best,
Nalinee

**This approval is based on U.S. human subjects protections regulations (45 CFR 46) and Clemson University human subjects protection policies. We are not aware of any regulations that may be in place for the country you are planning to conduct research in that would conflict with this approval. However, you should become familiar with all pertinent information about local human subjects protection regulations and requirements when conducting research in countries other than the United States. We encourage you to discuss with your local contacts any possible human subjects research requirements that are specific to your research site, to comply with those requirements, and to inform this office of those requirements so we can better help other researchers prepare for international research in the future.
Appendix: C

Consent procedures

Before beginning interview with each participant the following informed consent statement will be read to the participant for consent. Statement is in English here but will be translated into Runyankole and read to participants in the language they are most comfortable with using for study purposes. Statement will be modified based on name and status of researcher. The statement included here is intended for use by the principle researcher. Once the statement has been read and if the participant gives consent, the researcher will sign off on verbal consent form and indicate participant’s agreement to partake in survey. Signed verbal consent form, must accompany each completed survey.

I am Annah Kabukuru working with The Mayanja Memorial Foundation. I am a doctoral student leading a study on degree of self-determination in birthplace choice for rural women of Kashongi District. The research will help me understand birthplace choice in rural women. The research may help inform future interventions to reduce maternal mortality in rural women and improve clinic maternal services outreach.

Today you will be participating in a one-on-one interview, which should take approximately ninety minutes. Your participation is voluntary. If you do not wish to participate, you may stop at any time. Responses will be completely confidential. Your name will not appear anywhere in the final write up. There are minimal risks associated with this survey. Taking part in this survey is your agreement to participate.

If you would like a copy of this letter for your records, please let me know and I will give you a copy. If you have any questions regarding the research, contact me at Mayanja Memorial Foundation. If you have any questions regarding your rights as a research subject, please contact the Kiruhura district ministry of health.