THE INFLUENCE OF TRADITIONAL HERBAL USE ON UTILISATION OF MODERN MATERNAL HEALTH CARE SERVICES; A CASE STUDY OF NAKAWA DIVISION

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DECLARATION

I hereby declare that this study is my original work. Unless otherwise stated, the views and opinions expressed are mine. This study in full or otherwise has not been submitted for publication anywhere, neither has it been for the award of any degree in any other university.

Signed

_____ _____

Miriam Twikirize, MPH candidate **Date**

Dissertation supervised by;

_____ _____

Dr. Peter Kirabira **Date**

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I wish to acknowledge;

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May God bless you all.

DEDICATION

This book is dedicated to, my dear husband, Dr. Robert Ayella Lapyem who encouraged me to study, sacrificed to pay my tuition and helped me all the way throughout this course. I thank you for consistently supporting me and for being selfless may the good lord richly bless you. I owe you more than a thank you!

My parents Mr. Arthur and Mrs. Irene Kazoora for giving me the opportunity of going to school.

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OPERATIONAL DEFINITIONS

Antenatal care: A care a woman needs during pregnancy to ensure healthy outcomes for the women and newborn (WHO/UNICEF, 2003)

Traditional herbs: These are leaves, roots, branches of trees or plants that can be bathed, drank or applied for treating particular illnesses and also commonly used in pregnancy (WHO, 2005)

ABBREVIATIONS AND ACRONYMS

ANC	Antenatal care
CAM	Complementary Alternative medicines
DFID	Department for International Development
FGD	Focus Group Discussions
TBA	Traditional birth attendants
UDHS	Uganda Demographic Health Survey
UNICEF	United Nations International Children's Education Fund
USA	United States of America
WHO	World Health Organization.

ABSTRACT

Introduction: Herbal use in pregnancy is a long time practice and is often regarded as a cultural or traditional practice in African setting (Saba lssayas, 1996).However there has been a growing trend of herbal use in other developed countries like china ,Japan USA, Australia among others (Wiley John et al ,2004). The purpose of this study was to assess the influence of herbal use during pregnancy on the utilization of antenatal care services in Nakawa Division.

Objective: The main objective of this study was to assess the influence of herbal use in pregnancy on the utilization of modern maternal healthcare in Nakawa Division.

Methodology: This was a cross-sectional survey conducted in Nakawa division using both qualitative and quantitative methods of information gathering.

The primary sources of data were collected using structured interviews, key informant and the focus group discussion interviews. The secondary data was collected from the already existing, statistical, documents, reports, library books from health centers authority and other relevant sources. My study population was all pregnant women from Nakawa Division from which a sample of three hundred and eighty four (n =384) pregnant women who used herbs during pregnancy were drawn.

Results: Among the 384 pregnant women interviewed, 335(87.2%) had used herbs during pregnancy. A bivariate analysis was done to determine the level of influence on the utilization of ANC and it returned a significant P value of 0.000 and an odds ratio of 20.2.This meant that mothers who use herbs are 20.2 times likely not to attend ANC compared to the respondents who did not use herbs.

Mothers using herbs in the current pregnancy are 0.48 times less likely to have used them in the previous pregnancies, implying that mothers are more likely to use herbs in the subsquent

pregnancies**.** Self employed mothers were 9.5 times more likely to use herbs than their employed (in a formal sector) counterparts.

Conclusion: This study has demonstrated that, herbal use in pregnancy has a significant influence on the utilization of ANC in Nakawa Division.The married pregnant mothers were 3.6 times more likely to use herbs when pregnant as compared to pregnant mothers who were separated in Nakawa division. This was indicated in the levels of income and the employment status of the pregnant mothers, which revealed that mothers who had low incomes use herbs more often than those whose income were high, which was a characteristic of majority of our respondents.

The study recommends that, sensitization should be directed towards those low income earners and self employed who are more vulnerable to use herbs. Mothers should be discouraged from using any un-prescribed drugs/herbs used for self medication.

It is recommended that antenatal care services should be free and availed to the mothers within the radius of 5km from their homes, and create and emphasize awareness messages about the importance of ANC attendances.

CHAPTER ONE: GENERAL INTRODUCTION

1.1 Introduction

This Chapter gives a brief introduction of the research and includes, the background, to the study, statement of the problem, the research objectives, research questions, justification of the study, scope and significance of the study

Traditional herbs or medicines are extracts from plants in form of leaves, stems, roots flowers, seeds, fruits, wood, barks and some types of soil. These can be mixed together to make a concoction that can be drunk smeared or worn. Herbs are defined as plant derived materials or preparations with therapeutic or other human health benefits that contain either raw or processed ingredients from one or more plants(Azriani *et al*, 2008) Women have used herbal drugs since time immemorial in pregnancy to treat pregnancy related illnesses and their own health and well-being

Studies show that over half of the global population is using herbal medicine and the trend is increasing rapidly (Oreagba *et al*, 2011).

Studies show that there is an increased use of traditional herbal drugs in developed world especially Europe, USA, Australia, Japan and China (Wiley John et al 2004). It is believed, some of these traditional herbs have been proven useful, though scientific studies have not been done on the active ingredients (Kasolo *et al*, 2000).

The World Health Organization (WHO) estimates that about 80% of people living in Africa and Asia use traditional medicines for the management of their prevailing diseases. This high use of herbal medicines may be due to accessibility, affordability,

availability and acceptability of traditional herbal medicines by majority of the population in developing countries (WHO Media Centre, 2008).

The trend of using both traditional herbs and modern maternal health services have continued to increase and this has been adduced to its long standing integration into the culture of the people and its perception as their own indigenous medicine (Igbiks *et al*,2010).

Use of herbs in pregnancy is a common practice, and they are used by all classes of women. It is a cultural practice that is embedded in women, that even when they are under the care of the health professional they still use herbs during pregnancy.

The use of traditional herbs in pregnancy raises particular concerns of safety and risks both to the mother and the unborn baby. Studies show that most women who use these herbs and modern maternal health care do not tell the physician about their use, for fear of being rebuked. These safety concerns are attributed to the ingredients and interactions between herbal product and other pharmaceuticals, for example, ginseng and insulin (Igbiks *et al*, 2011).There is a high prevalence of use of herbs and this could hinder proper utilization of antenatal care services. This study therefore, established the influence of herbal use on the utilization of antenatal care services in Nakawa division.

1.2 Background

Studies have indicated increased use of herbs and remedies in pregnancy especially in developed countries. Countries like, Australia, China, Japan and USA are increasingly using herbs for the ailments in pregnancy. This is attributed to the belief that herbals are safer and contain no chemicals, and therefore better than the conventional medicine (Hananja, 2009)

The world health Organization reported 7% to 96% herbal use in pregnancy and this is most practiced in developing countries especially Africa(WHO report, 2005).In Uganda women use herbs as well as modern maternal care concurrently especially during labor for induction in preparation for safe delivery which is normally referred to as normal delivery. Herbs are used for different kinds of problems, some for cleaning the baby inside the womb, some are used to strengthen the mothers, right positioning of the baby and other ill health situations during pregnancy. Herbal use is common among rural women with lower education levels, however even women with a higher level of education in urban centres do use herbs. This increased use posses a great risk to the expectant mothers who are using the herbs of which its active ingredients are not tested. In 2008, there were an estimated 358,000 maternal deaths worldwide (WHO report, 2008).Out of the 1000 women that die 570 live in sub Sahara Africa. Although the causes of deaths are not documented well in Africa, due to poor data collection and storage, some studies have linked these causes to herbal use and poor utilization of ANC in these affected areas.(Fekeye et al, 2009).The World Health Organization reported a decline in the death rate of 34%.However the annual rate decline was less than a half despite the progress towards the targeted millennium development goal. Maternal deaths are a result

of so many causes among which is the effect of use of herbs during pregnancy one such cause is peripheral sepsis. These causes can be avoided if the strategies are tailored according to the health needs of pregnant mothers.(WHO -2008)

The situation of pregnancy and childbirth related morbidity and mortality is worse in Uganda and is closely related to poor uptake of maternal health services among others. Some of the factors attributing to low uptake of maternal health services include cultural beliefs and use of herbs among others. This study therefore aimed at analyzing and evaluating the use of herbs as an influencing factor to the uptake of antenatal care during pregnancy.

Uganda has a high maternal mortality ratio, typical of many countries in sub-Saharan Africa, with an estimated 385 maternal deaths per 100,000 live births (UDHS, 2006). Nakawa Division was chosen, basing on the background characteristics. It is situated in the east of Kampala, and it is considered to be a fast growing suburb, with high economic activities. The division has good network of roads and have access to the best health facilities within and outskirts. It has different ethnic tribes and some areas have some settlements of the Acholi and Nubian community. The division has different classes of people economically, ranging from the very poor and the rich. With this background, we would be able to evaluate the behaviors of mothers towards use of herbs and ANC utilization in semi city environment with access to free health care.

Pregnancy-related complications such as hemorrhage, obstructed labor, sepsis, eclampsia, puerperal infections are some of their immediate causes of maternal mortality. These can be reduced if mothers attend fully antenatal care services during pregnancy and be able to avoid risks that associated with use of herbs.

Measures have been put in place to combat the increasing rate of maternal and infant mortality death rates by government and more focus has been on Maternal and Child Health programs, with particular emphasis on immunization (Ssengooba *et al* 2004).This means, strategies to combat maternal mortality have not been well addressed, due to lack of relevant data on the major factors that influence or hinder utilization of antenatal care services. Therefore, this study attempted to establish if any relationships exists between herbal use in pregnancy and utilization of antenatal care services.

1.3 Statement of the problem

There still low utilization of antenatal care services 41.9% (UDHS,2012)

The use of traditional herbs during pregnancy and their influence to the seeking and utilization of maternal health services is not well documented, yet it is widely practiced.

Use of herbs poses a great risk to expectant mothers and could expose them to heamorrhage, obstructed labor, eclampsia puerperal sepsis, toxicity, congenital abnormalities. Possible influencing factors for high level use of herbs are poor knowledge on the side effects of herbs on pregnancy, and social economical factors such as poverty, cultural beliefs, religion and marital status among others.

In addition, there is no specific policy or guidelines on the use and manufacturing of herbs in Uganda and this puts the users at even more greater risk. Also efforts to encourage pregnant mothers to attend ANC in the country not considered as more serious issues like HIV/AIDS take first priority.

The study that could examine the relationship of herb use in pregnancy and uptake of antenatal care would possibly reduce maternal mortality rate that is as a result of use of herbs in pregnancy directly or indirectly.

1.4 Objectives

1.5 General Objective

To determine the influence of use of traditional herbs on the utilization of modern maternal health services amongst pregnant mothers in Nakawa Division

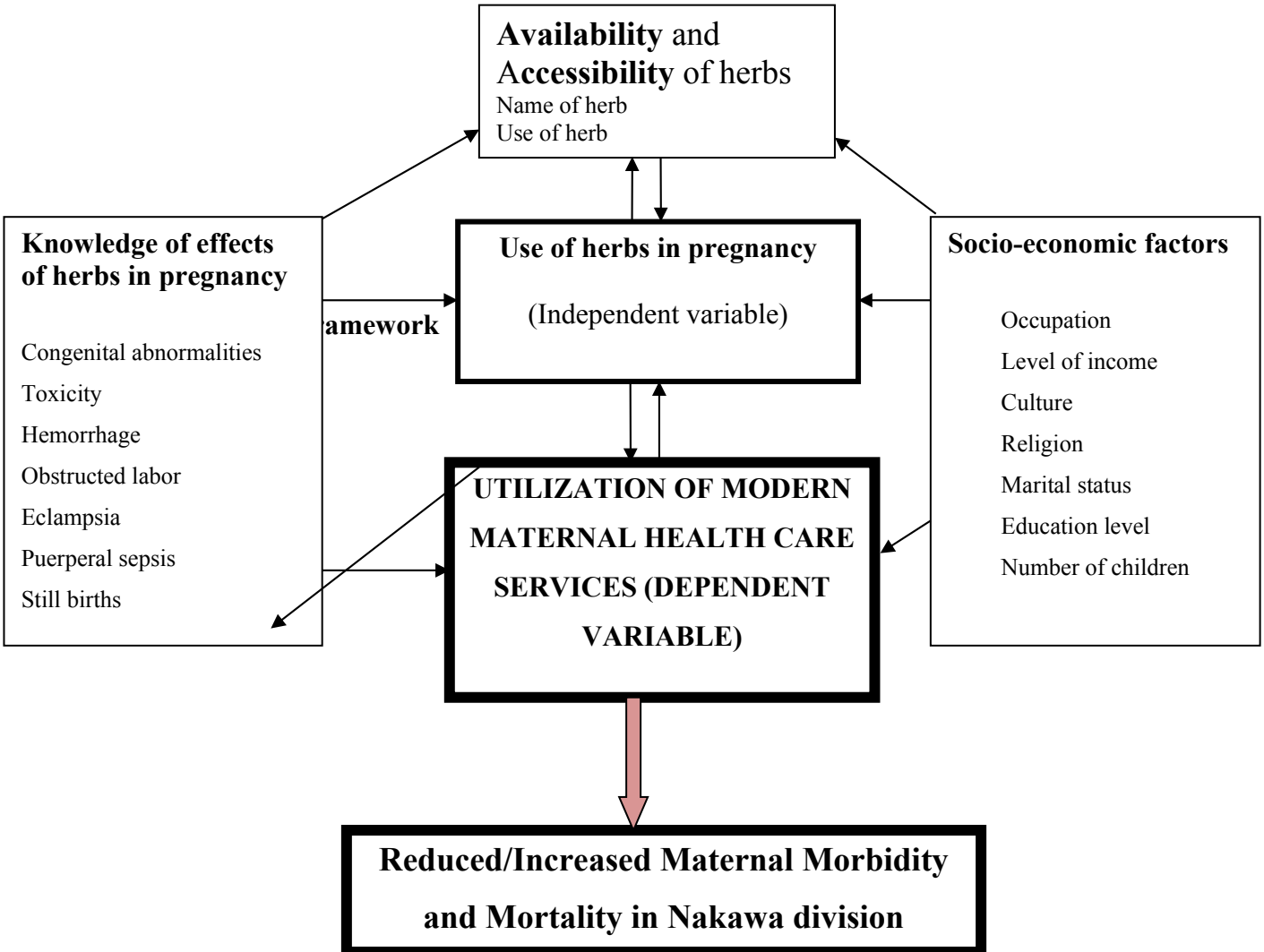
1.6 Specific Objectives

1. To identify the socio-economic factors that influence the preference of traditional herbs to utilization of modern maternal healthcare in Nakawa division
2. To identify the herbs and their uses that are commonly used by expectant mothers in Nakawa division

3. To assess the knowledge of pregnant mothers on the effects of use of traditional herbs on the unborn babies in Nakawa Division
4. To assess how the use of local herbs influences the uptake of ANC services during pregnancy

1.7 Research Questions.

1. What are the socio-economic factors that influence the preference of traditional herbs to utilization of modern maternal healthcare in Nakawa division?
2. What are the commonly used herbs in pregnancy?
3. What knowledge do mothers have on the effects of traditional herbs on pregnancy?
4. What influences pregnant mothers to use traditional herbs during pregnancy.



The magnitude of the factors that influence women to the use herbal remedies during pregnancy will determine their utilization of modern maternal health care during pregnancy and this will either increase or decrease maternal mortality rates. The independent variables are the social economic factors, the knowledge of mothers on the effects of herbs and the availability of herbs.Utilisation of ANC by mothers will depend on the significance of influence of these factors. Other underlying factors could be awareness of ANC and its importance.

1.9 Justification of the Study

There is limited information on the use of herbs in pregnancy in Uganda.
Antenatal care is an important component for maternal health, to monitor the mother, anticipates difficulties and complications of labor, and to ensure the birth of a healthy baby and how to raise them. Women play a principal role to bring up of children and the

management of family affairs, and their loss from maternity-related causes is a significant social economical decline and personal tragedy.

Non use of ante-natal care puts both the mother and child at risk of dying from pregnant related complications. Therefore, an investigation in any factor that hinders efforts to improve the health of an expectant mother is a step towards achieving social economic development and the millennium development goals.

Identifying an influential factor that may facilitate or hinder the effective use of Antenatal care services for treating maternal morbidity may help us to identify those who are vulnerable and provide information that policy makers can use to target and integrate services to those in the greatest need.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter describes the different studies and publications that have been done on the use of herbs globally, as our subject of our study. It provides the literature that is used to evaluate the magnitude of the problem and possible suggestions made. It acts as a guide and provides information for comparison purposes.

The different studies indicate increased use of herbs for the general wellbeing of people, and more so during pregnancy. In Africa, and other Asian countries people have used herbs since time immemorial. This has been attributed to several factors including

acceptability and accessibility of these herbs among others. Also these studies showed that, there is little research done on the components of the herbs that are used during pregnancy. Therefore, this overview gives detailed information on the herbal use in different countries and helps in comparison purposes.

The world health organization report estimates that, 80% of the world‘s population depend on traditional medicine for their primary health care needs, and most of these are from the developing world (WHO Media Centre, 2008).These herbs are not completely harmless and more especially women who use them during pregnancy**.** The trend of using both traditional herbs and modern maternal health services have continued and this could be adduced to its long standing integration into the culture of the people and its perception as their own indigenous medicine (Igbiks et al, 2009)

2.2 Social Economic factors influencing Herbal use in pregnancy

Uganda is faced with a challenge of poor infrastructure in the health sector. In the rural areas pregnant mothers walk undesired long distances to a health facility which is poorly equipped, with chronic drug stock out and unqualified rude personnel. When mothers visit a health center that is characterized by the above scenario they will definitely opt to use herbal drugs unless they develop complications which is usually too late and end up dying before they are referred to the hospital**.**

In Kenya ,a study done in Nyanza province indicated, infrastructure as barrier to utilization of Antenatal health care since most women walked long hours to the health facility. Some health facilities were inaccessible due to poor transport systems, lacked essential drugs, qualified personnel and equipments .A research by Department of International Development (DFID) reported that women prefer to use TBA’s because the

facilities are far from their homes (Ankunda et al, 2010). However, some women did not visit the facilities which were close to them, the quality of services offered at the health centers, education level of the mother hinders women from utilizing health services (van Eijk *et al,2006*).

2.2.1 Level of income

A study done in Uganda (Kasolo et al2001), concluded that the poor knowledge of what is done at the health facility and poverty amongst women greatly affects the utilization of health services. Most young illiterate pregnant mothers have no idea on what is done at the health centre. So if they are not sick, they will not see any need to visit the hospital (Kasolo *et al*, 2001). In addition, most studies on herbal usage in pregnancy report low levels of education and illiteracy amongst users (Igbiks *et al*, 20110) .In the rural setting majority mothers are illiterate and school dropout. This implies, they have no source of income and therefore prefer the use of herbs, which are cheaper than the conventional medicine.

2.2.2 Education Level

Education level is closely related to the income of the individual. However some few uneducated individual may have a higher income than the educated ones. In relation to the use of herbs, pregnant mothers who use herbs tend to have low levels of education, since they are not aware of the effects of those herbs on themselves and the unborn baby. In contrast, women with higher education level will utilize the maternal health care services due to the influence they have by the information availed to them through the media.

Another study in Bangladesh concluded that education of the mother determines utilization of maternal health services regardless of other factors. Also a tendency to use both modern health care and traditional herbs was practiced amongst women whose husbands were engaged in business (Chakrabortyeta *et al*, 2003).

In Nigeria, a study conducted revealed that 31.4% prevalence of herbal medicine use among pregnant women. It also unveils an association between herbal medicine use and illiteracy, low socioeconomic status and self medication with orthodox drugs. Female formal education, health education as well as economic empowerment will help ensure women enlightenment and ability to appreciate the effects of drugs on the fetus, as well as afford appropriate drugs (Igbiks *et al*, 2011).

A study in Ghana reported high usage of herbs amongst women whose husbands were businessmen, farmers and the unemployed**.** This means their level of education is low and there is information gap on the possible side effects of herbal usage during pregnancy (Asumeng *et al*, 2011).

2.2.3 Cultural Factors

In many African countries herbal use in pregnancy is a cultural practice, these herbs have been used from time immemorial. And have been passed on from one generation to another, often from the older members of the family to the younger mothers. Mothers in law , mothers and TBA's often are the major sources of these herbs, and this means they are trusted and believed to be safe than medicine prescribed by rude nurses (Fakeye *et al*,2009).

In South Africa, black women use herbal medicine because it's their indigenous medicine. It's preferred for it is perceived to be safe since it has been used from one

generation to another (Ndlovu, 2011). A study conducted in the northern Hhohho region suggested; Rural Swazi women utilize biomedical maternity services whilst still strongly adhering to traditional practices and beliefs during labor .The new research published show that rural Swazi women prefer giving birth at home. The practice of using traditional herbs alongside conventional medicine is common amongst pregnant women (Ndlovu, 2011)

In another study in western Uganda, observed that 80% of women deliver at home with help of a traditional birth attendant who use herbal remedies .These remedies when used during the first and second trimester were found to cause contractions that could cause miscarriages **(**Kamatenesi *et al*, 1999).

The study in Ethiopia demonstrates that, most important factors influencing the use of maternal health services are demographic and social cultural in nature. Most women use herbs because of culture, they believe in these herbs to be safe and effective (ekonnen *et al,* 2002).

2.2.4 Marital Status

Most studies report that married women whose spouses have a high education level are less likely to use herbs than those whose husband are uneducated (Folacade *et al*,2009). In addition, married women may use herbs depending on the belief and attitude their husbands have towards herbal use. Men are the major decision makers in some African home settings; their choice of antenatal care is unquestionable. And the women are left with no option despite the fact that they may need to go to the health facility (Kamatenesi *et al*, 1999) .On the other hand, single mothers are more disadvantaged by poor incomes and inability to access health care services.

2.2.5 Religious Factors

There is very scanty data on the influence of religion on the usage of herbs in pregnancy. In Nigeria orthodox drugs are given to women during pregnancy and religious birthing homes are set up for prayers in preparation for safe delivery (Fakeye *et al*, 2009)

2.2.6 Occupational Factors

Occupation of women determines their income and lifestyle. Most women are employed in the informal sector like farming especially in Africa. This makes it so difficult for women to choose modern maternal health care services, due to inadequate incomes from farming products. In contrast, women who are in occupations get better incomes and are likely to use maternal health care .In Ghana, women who used herbs in pregnancy were mostly farmers (11.8% and traders (52%), and the unemployed (21.1%) (Asumeng *et al*, 2011).

Many studies report that, most women who use herbs lack a reasonable source of income and are generally poor especially in Africa .In Uganda rural women use herbs in pregnancy more than the urban women, due to the fact that herbs are affordable and available for use. This is more associated to the occupation since they are more involved in subsistence farming. And this renders them with low incomes to obtain appropriate maternal health care during pregnancy, that is usually expensive and unaffordable **(**Kamatenesi *et al*, 1999).

A study conducted in coastal Kenya, traditional and modern medical services were complementary, and there was an increase of specialized traditional birth attendant and traditional healers in maternal and child health (Boerma *et al*, 2010).

Traditional herbal use is on the increase amongst pregnant women, and this calls for an investigation into the active ingredients in those herbs that are commonly used to save the lives of many mothers and their unborn children.

2.3 Herbal use in pregnancy

Use of herbs in pregnancy is a common practice, and they are used by all classes of women. It is a cultural practice that is embedded in women, that even when they are under the care of the health professional they still use herbs during and after delivery (Ndlovu,2011)

In Eritrea, a study done in most parts of the country indicates that traditional medicine remains a major health care option for many people especially in rural areas where utilization of health services is at 6%. Home remedies are trusted by the communities and still accessible by many people, since they are given by trusted family members and friends. Some of these herbs are beneficial to the mothers; some are believed to give energy and improves on the general wellbeing of pregnant mothers. This makes it inevitable for mothers to avoid them. However these herbs if they are taken in large quantities or even taken alongside other drugs can be dangerous both to the mother and the baby as well (Saba lssayas, 1996).

(Kamatenesi *et al*, 1999) concluded that 80% of women deliver at home with help of a traditional birth attendant who use herbal remedies in a study done in western part of Uganda. These remedies when used during the first and second trimester were found to cause contractions that could cause miscarriages.

For instance in Australia, use of traditional medicine in pregnancy was likely to increase and there was need to establish which supplements were used. Most studies in Australia alone indicated that use of herbal medicine during pregnancy ranged from 10%-56% and use of complementary alternative medicine (CAM) was stable at 50%. This study stated that there was limited data on the use of herbal medicine and supplements during pregnancy in Australia like in other developing world (Forster et al, 2006).

In Ghana, a study that was conducted amongst pregnant women observed that the majority which was 74.1% of those studied used herbs during pregnancy and were over 40years and 99% used herbs for their well being. Users were mainly traders (52%), farmers (11.8%), and the unemployed (21.1%). Most users cooked these herbs with soup (48.7%) or extracted appropriately and add to their meals (40.8%) (Asumeng *et al*, 2011).

In Nigeria a study conducted revealed 31.4% prevalence of herbal medicine use among pregnant women. It also unveils an association between herbal medicine use and illiteracy, low socioeconomic status and self medication with orthodox drugs. Female formal education, health education as well as economic empowerment will help ensure women enlightenment and ability to appreciate the effects of drugs on the fetus, as well as afford appropriate drugs (Igbiks *et al*, 2011).

2.4 Knowledge on adverse effects of herbal use in pregnancy

Studies also show that there is little research done in the components of those herbs that are commonly used and recommendations are suggested in that area.

Studies have indicated that herbal use is associated with illiteracy. This is based on the fact that majority of the people who use the herbs have no knowledge on the adverse effects of those herbs. In addition, the education levels of the women who use herbs is

low and therefore unable to comprehend that these herbs could have any effects, the fact that they are given to them by the trusted people, and have been used for a long time.

In another study in Uganda, concluded that the poor knowledge of what is done at the health facility and poverty amongst women greatly affects the utilization of health services. Most women do not know that the herbs they use during pregnancy could have any effects on them and their unborn babies since they are prescribed by their immediate family member or a friend. Therefore they are accepted as a safe treatment compared to drugs given at the health centre by a rude health worker (Kasolo*et al,* 2000).

Other studies reported that, women use herbs because they prefer them to conventional medicine because of their perceived efficacy and safety. Many people as well as women believe herbal drugs are more efficient since they are taken as whole without other preservation. And conventional medicine is perceived to be very toxic and unsafe and should be avoided .Therefore pregnant mothers will use herbal medicines to alleviate illnesses instead of seeking modern maternal health care for appropriate diagnosis and early detection of abnormalities and prescriptions (Fakeye *et al*, 2009).

Herbal extracts have the same chemical components that are similar to the purified medicines and they can even prove to be stronger .However mothers are ignorant about the side effects and the ingredients of the herbal medicines they are using. This therefore makes it hard for them to seek alternative source of medical care that is safe (Marcus D.M *et al*,2005).

In addition, another study conducted in Nigeria on the use of herbs during pregnancy, safety of usage, knowledge on the effects and benefits or harm on the combination of herbs with conventional therapies. A sample size of 595 and a two thirds (67.5) of it was using herbal medicines in a crude form. The reason for using was that the herbal medicine was more effective, safer with no side effects, cheaper and easily accessible and traditionally and culturally accepted (Fakeye *et al*, 2007).

A survey of 578 pregnant women conducted in the eastern United States reported that 45% respondents had used herbal medicines. In Australia a survey of 588 pregnant women, 36% revealed to have used at least one herbal product during pregnancy. The reason was because of their perceived to be safer, easily accessible and widely available information on the internet, magazines (Low Dog *et al*, 2009).

Herbal medicines are casually perceived to be safer and gentle during pregnancy compared to the conventional medicine. However there is no scientific basis for that belief. The active ingredients of plant extracts are chemicals that are similar to those purified medicines. These chemical components have the same potential to cause serious adverse effects, more so when a woman who is pregnant uses them co-currently with other drugs. Therefore health providers should advise pregnant mothers to avoid using herbal extracts which exposes the fetus to risks of herbal medicines (Marcus *et al*, 2005)

In United States herbs are classified as dietary supplements so manufacturers are not required to prove the efficacy and safety of these herbs before they are sold in the market. In addition little research has been conducted about the safety of the herbs in the general population and more so during pregnancy .Therefore there is information gap about the herbal medicine use and the safety (Born D *et al*, 2005).

In Africa as well as Uganda, little research has been done on the active ingredients of those herbs that are used in pregnancy yet these herbs pose a danger to the mother and the unborn baby. In South Africa Isihlambezo is the most commonly used among black women .Conditions such as childhood malnutrition, congenital malformations, tumors, and acute renal failure have been linked to toxic or carcinogenic constituents present in herbal medicines taken during pregnancy (Mabina *et al*). Some herbs which have been studied have been found to have components that can cause contractions, spontaneous abortion and premature, hemorrhage among others (Oreagba *et al* 2011).

2.5. Influence of herbal use on the uptake of ANC

There is scanty information, and no specific studies directed on the influence of herbal use on the uptake of ANC .Most related studies indicate culture as the main drive behind poor uptake of ANC. Mothers' beliefs determine their attitude in seeking health care. Culture in this case implies one embraces traditional values and beliefs and this comes along with the use of herbal medicines and practices. Mothers will always take herbs as long as they still believe in them (Igbiks *et al,* 2011).A study in Nigeria by (Iyaniwura *et al*,2009) suggested that herbal use is preferred due to the education level, levels of income among others. This implies majority will use herbs and it will affect their use of antenatal care since herbs are affordable and available.Kasolo *et al*, 2009, found out that herbs are widely trusted and believed in and used during pregnancy by the majority women in western Uganda. This is as result of the traditional beliefs and myths that prevent mothers from attending antenatal care. These herbs are believed to be useful to the mothers.

It should be noted that, some mothers use herbs alongside attending antenatal care, despite the fact that they attend late and mainly if there is an obstetric problem (Kasolo *et al*, 2009)

CHAPTER THREE: METHODOLOGY

3.1 Introduction

The research methodology looked into methods and techniques that are to be applied in the process of getting the relevant information that is required. This also involved choosing the right technique and how to apply it appropriately. The study design, inclusion criteria quality control and ethical issues were all looked into in the methodology.

3.2 Study Design

This was a cross-sectional survey conducted in Nakawa division using both qualitative and quantitative methods of information gathering. This was conducted from 24th July 2012 to 10th August 2012. The quantitative data was collected using a pre –tested structured questionnaire. While qualitative data was collected using key informant and focus group discussion interview guides. This helped the researcher to get detailed information that was not captured using the questionnaire.

3.3 Sources of Data

The primary sources of data were collected using structured interviews, key informant and the focus group discussion interviews. The secondary data was collected from the

already existing, statistical data, documents, reports, library books and other relevant sources.

3.4 Study population

The study population was all pregnant women from Nakawa Division from which a sample of pregnant women were drawn. The pregnant woman was thus our unit of analysis.

3.5 Sample size calculation/estimating

Sample size was estimated according to the Kish and Leslie formula.

$$\mathbf{n} = \frac{t^2 \times p(1-p)}{\delta^2}$$

Where:

n= required sample size

t = confidence level at 95% (standard value of 1.96)

p = estimated prevalence of use of herbs in pregnancy, which is not known and P=0.5

δ = margin of error at 5% (standard value of 0.05)

For this study p =50% .

Substituting values in the above formula,

$$N = \frac{1.96 \times 1.96 \times 0.25}{0.05 \times 0.05}$$

= 384

The representative sample was n= 384 pregnant mothers

3.6 Sampling procedure

Out of 27 parishes, eight parishes from Nakawa division were selected by purposive sampling. These 8 parishes were more populated and had different tribal background, with low and medium income classes of people. Simple random sampling was conducted in each parish by having a random start of a bottle being spanned to direct the start of sampling .Every 2nd pregnant mother met in those villages was interviewed. The research team moved in all the villages identifying pregnant mothers with the help of local council in each village. Each of these parishes provided a number of pregnant mothers in proportion with the projected expectant mothers in that same parish.

3.7 Study variables

3.7.1 Dependent variable

Utilization of modern maternal healthcare services in Nakawa Division.

3.7.2 Independent variables

- Socio-demographic variables include; age, religion, occupation, education level, distance to health units, marital status, culture and levels of income.
- Availability of herbs; accessibility and affordability of herbs, their purpose and eventual use in maternity services including place of delivery.
- Knowledge of mothers on effects of herbal use during pregnancy
- The actual use of herbs during pregnancy

3.8 Data collection techniques and procedure

Four research assistants were identified, recruited and trained to assist the principal investigator in the collection of data. We introduced the letter from the IHSU and from

the DHO, for permission of carrying out the study to the public health office of Nakawa division.The senior clerk gave the letter of introduction to the community together with 2 health division staff, and the in-charges of the 2 government health facilities in Nakawa division. The research team then proceeded to interview the mothers in the community on their consent for the questionnaire. Quantitative data was therefore collected by interviewing of participants (pregnant mothers) using a questionnaire in the local language (Luganda) and in English. Field checking and editing of the data was done, followed by entering the data into an already created SPSS data base. The Focus group discussions and Key informant interviews were organized in collaboration with the local council leadership of the zones and informed consents were obtained before each discussion and interview respectively. The key informants were 6 VHTs, senior nursing officer, assistant commissioner nursing, and 2 midwives. Six homogenous FGDs of different age groups were conducted using a guide in each parish. Pregnant mothers between the ages of 16- 24 were grouped together and from the 25 and above were considered together, with each group consisting of 7-10 members These provided qualitative data.

3.9 Data collection tools

Two research assistants were used to collect quantitative data using pre-tested semi structured questionnaires.

The other two research assistants collected the qualitative data, by carrying out homogenous focus group discussions of different age groups from different parishes. Pregnant mothers between the ages of 16- 24 were grouped together and from the 25 and above were considered together, with each group consisting of 7-10 members. A total of

6 FGDs were conducted in each parish with the exception of Nakawa institute. We also carried out key informant interviews of village health teams, senior nursing officers, commissioner nursing assistant and midwives.

All the tools were designed to provide us with information on knowledge of mothers on the effects of herbal remedies in pregnancy, socio-demographic characteristics of these mothers and the availability of herbal remedies in their community.

3.10 Data management and analysis

The quantitative collected data was edited, coded and entered in the database by double entry, and analyzed using *SPSS.* Results are presented in tables. Associations between the dependent and independent variables were also determined at this level .The qualitative data on the other hand was managed using coding manuals, thus converting qualitative data into numerical codes. Similar responses were grouped together and assigned codes for easy analysis, presentation and interpretation.

3.11 Quality control

A Pre tested open ended questionnaire was administered to pregnant women in Naka*wa division.* Pre testing was conducted in Makindye division, Ndejje parish, on pregnant women. Trained research assistants helped collect the data. This helped avoid unnecessary errors, and ensure quality data collected.

3.12 Steps to minimize errors and bias in the study

In order to control for errors and biases throughout the study, serial numbers were given to each questionnaire before issuing it. This minimized the issue of loss of papers and double recording or pages and both qualitative and quantitative data was edited before it was entered in the computer.

Trained research assistants administered questionnaires; cases of unfilled pages not understanding were minimal.

3.13 Ethical issues

The study commenced after approval from the Research Education committee of International Health Sciences University with a recommendation letter from the University. District Medical Officer, Nakawa Division, the local leaders from the study area in Nakawa Division also gave their recommendation to allow me collect data in the area. The purpose of the study was explained to the participants and their contribution was well elaborated. Confidentiality was assured to the participants by ensuring that questionnaires did not indicate the names of participants (anonymity) throughout the entire process of interviews. The research worked towards achieving honest in all communications, promises and agreement. Participants and the research team acted with sincerity, strived for consistency of thought and action, and avoided careless errors and negligence, while respecting relevant laws and government policies. The results and data is to be open to criticism and new ideas

3.13 Dissemination of study findings

The outcome of this study will be disseminated to different people who may need to use it.

First, the outcome of the study will be submitted for evaluation as a partial fulfillment of the requirements for the award of the degree of Masters of Sciences in Public Health of International Health Sciences University. The district health officer will be availed information, and the local officials who may have requested for the outcome of the study.

The ministry of health will be availed with the results which can be used to improve welfare of pregnant mothers through increased uptake of modern maternal health services**.**

3.14 Limitations

- Some pregnant mothers did not want to associate themselves with herbal use and likely to give inaccurate information.
- Some of the parishes in Nakawa division were abolished and others were inaccessible due to security reasons.However, other parishes were taken on to replace those that were inaccessible.
- Identifying pregnant mothers was difficult since we had to see those with big bellies and who confirmed to us that they are actually pregnant.

CHAPTER 4: RESULTS

4.0 Introduction of Results

This chapter presents the findings from the study. The results are presented in form of tables and are interpreted and arranged according to the study objectives. It thus, includes the socio-demographic characteristics of the target respondents who were pregnant women, social economic factors that influence use of herbs, the types and uses of herbs knowledge of mothers on the effects of herbs and the influence of herbs on the uptake of

ANC. Qualitative data is presented using quotations that are corresponding with the findings from the key informant interviews and Focus group discussions by objective.

4.1 Demographic Characteristics

Table 1: Demographic Characteristics

Characteristic	Frequency (N=384)	Percentage (%)
Age (years)		
10-19	67	17.45
20-29	152	39.58
30-39	105	27.34
40 and above	60	15.63
Level of education		
None	67	17.45
Primary level	99	25.78
Secondary level(O&A)	128	33.33
Tertiary(University or Other)	90	23.44
Religion		
Catholic	79	20.57
Anglican	75	19.53
Moslem	100	26.04
Pentecostal	108	28.13
Others	22	5.73

Age of respondents: According to results from Table 1 above, a big number of the respondents interviewed, 152(39.58%) were between the 20-29 age bracket. This was followed by the 30-39 bracket, 105(27.34%). This shows that these age brackets are the most active in reproduction.

Level of education: The highest level to have been attained by most of the respondents was secondary level (O&A), 128(33.33%). This was followed by 100(26.04%) of the respondents who had attained primary level as the highest level of education.

Religion: More than a quarter of the respondents were Pentecostal, 108(28.13%). 100(26.04%) were Moslem while 79(20.57%) were Catholic.

4.2 Socio-economic Factors influencing herbal use in pregnancy

4.2.1 Uni-variate analysis of the socio-economic factors influencing herbal use in pregnancy

Table 2: Socio-Economic Factors

Characteristic	Frequency (N=384)	Percentage (%)
Employment status		
Un employed	137	35.68
Self employed	180	46.88
Employed in formal sector	67	17.45
Marital status		
Single	53	13.80
Married/cohabiting	255	66.41
Widowed	34	8.85
Separated	42	10.94
Number of children		
1-3 Children	292	76.04
4 Children and above	92	23.96
Average income per month (Ug. Shs.)		
0-75,000	184	47.92
75001-25,000	114	29.69
250,001-500,000	61	15.89
Above 500,000	25	6.51

Employment status: According to table 2, nearly half of the respondents 180(46.88%) were self-employed. 137(35.68%) were unemployed. Only 67(17.45%) were employed in the formal sector.

Marital status: More than half of the respondents, 255(66.41%) were either married or cohabiting. This shows that most of the respondents were in long-term relationships and probably involved in active reproductive activity.

Number of children: A biggest number of the respondents, 292(76.04%) had at 1-3 children. This implies that most of them are still actively involved in reproduction.

Average income per month: Nearly half of the respondents, 184(47.92%) earned between 0-75,000/=per month while 114(29.69%) were earning 75,001-25,000/= per month, while only 25(6.51%) of the respondents earned above 500,000/= per month.

Table 3: Bi-variate analysis on the Relationship between Socio-economic factors and the utilization of herbs

Variable	Users	Percentage	Nonusers	Percentage	OR	95% CI	P-value
	N=335		N=49				
Employment status							
Un employed	122	36.4	15	30.6	4.5	2.18-9.45	0.00002*
Self-employed	170	50.7	10	20.4	9.5	4.22-21.33	0.0000*
Employed in formal sector	43	12.8	24	49.0	1.0	Reference	
Marital status							
Single	43	12.8	10	20.4	4.3	1.62-11.42	0.0025*
Married/cohabiting	240	71.6	15	30.6	16.0	6.72-38.09	0.0000*
Separated	36	10.7	8	16.3	4.5	1.60-12.64	0.0032*
Widowed	16	4.8	16	32.7	1.0	Reference	

Number of children							
At most 3	271	80.9	21	42.9	5.6	2.90-10.03	0.0000*
At least 4	64	19.1	28	57.1	1.0	Reference	
Average income per month							
0-75,000	165	49.3	19	38.8	8.0	3.20-20.06	0.0000*
75,001-25,000	105	31.3	9	18.4	10.8	3.81-30.43	0.0000*
250,001-500,000	52	15.5	9	18.4	5.3	1.85-15.34	0.001119 *
Above 500,000	13	3.9	12	24.5	1.0	Reference	

**Statistically significant association*

An analysis of the odd ratio (OR values) and P-value at 95% confidence interval was used to interpret the findings. The employment status of the respondents returned significant figures for unemployed and self-employed respondents in relation to their employed colleagues (0.0000 and 0.00002). An OR value of 9.5 for self employed women meant that a self-employed woman is 9.5 times more likely to use herbs in comparison with her employed colleague (Those in the formal sector). As for unemployed women, an OR value of 4.5 means that they were 4.5 times more likely to use herbs in relation to their employed colleagues.

The other significant factors included marriage/cohabitation (OR=16.0, p=0.0000) meant married women were 16 times most likely to use herbs as compared to the widowed respondents. Single mothers in comparison to the widowed returned OR=4.3 and p value=0.0025. This implies that single mothers are 4.3 times most likely to use herbs in comparison with their widowed companions. Separated mothers in comparison to the widowed returned OR=4.5 and p value=0.0032. This implies that single mothers are 4.5 times most likely to use herbs in comparison with their widowed companions.

The number of children one has also proved significant in the use of herbs (p=0.000000, OR=5.3) meant that mothers with 4 children and above were 5.3 times more likely to use herbs than those who have 3 children and less.

Average monthly income also returned significant results (p= 0.000000, 0.000000, 0.001119) at 95% confidence interval, OR=8.0 for 0-75,000 means that mothers in that group were 8 times likely to use herbs in comparison with those who earn above 500,000. OR=10.8 for the 75,001-250,000 group meant they were 10.8 times most likely to use herbs in relation to their colleagues in the 500,000 group. The ones in the 250,001-500,000 were 5.3 times likely to use herbs. All the groups returned significant figures.

4.3.3 Multi-variate analysis of the socio-economic factors influencing herbal use in pregnancy

Table 4: Multivariate analysis –

Variable	Users	Percentage	Nonusers	Percentage	OR	95% CI	P-value
Employment status							
Un employed	122	41.8	15	60	0.4784	0.21-1.10	0.077578
Self-employed	170	58.2	10	40	1.0	Reference	
Marital status							
Single	43	13.5	10	30.3	0.9556	0.34-2.68	0.931041
Married/cohabiting	240	75.2	15	45.5	3.5556	1.41 -8.98	0.004692 *
Separated	36	11.3	8	24.2	1.0	Reference	
Average income per month							
0-75,000	165	51.2	19	51.4	1.503	0.64- 3.52	0.346186
75,001-250,000	105	31.6	9	24.3	2.0192	0.76-5.39	0.154614

250,001-500,000	52	16.1	9	24.3	1.0	Reference

**Statistically significant association*

The equation used,

Therefore, the equation of the Logic Regression model at this stage as you begin the multi-variate analysis to bring out the 6 variables that were significant on bi-variate analysis in the 4 objectives above; E.g.

Logic (X) = $\alpha + \beta 1$ MS + $\beta 2$ ES + $\beta 3$ NC + $\beta 4$ IPM + $\beta 5$ UHP + $\beta 6$ UHA

Where

- (X) stands for pregnant mother utilization of modern maternal health care services
- α stands for Alpha at a constant
- $\beta 1$ MS stands for the marital status of the pregnant woman being married/cohabiting
- $\beta 2$ ES stands for the employment status of the pregnant woman
- $\beta 3$ NC stands for the number of children of the pregnant woman
- $\beta 4$ IPM stands for the average income per month of the pregnant woman
- $\beta 5$ UHP stands for the Use of herbs in current pregnancies against use in previous pregnancies
- $\beta 6$ UHA stands for Use of herbs influence on attendance of ANC

NB: $\beta 1 - \beta 6$ were the variables found to be significant on bi-variate analysis

This initial equation was entered into logical regression model; a back ward step down (elimination method) was run for these variables, after those variables that were not good predictors of pregnant mother utilization of modern maternal health care services were eliminated from the model, leaving in only Marital status of being married/cohabiting.

Final Model

Logic (X) =α+ exp OR β1

Therefore:

Logic (X) = α+ e^ (3.5556)

Where

- (X) Stands for pregnant mother utilization of modern maternal health care services
- e^ (3.5556) is the exponent (odds ratio) of β1 Being married/cohabiting

To further confirm the results, multivariate analysis of the variables was done to confirm the ones that were statistically significant in a further narrowed sample space. For comparison of the unemployed to the employed, an OR =0.4784 and p=0.077578 implied that there is no much significance between the two groups and one falling in each of them had no effect or significant difference in the utilization of herbs.

Further analysis of the single group in relation to the separated returned p=0.931041 and OR=0.9556 which implied that there was little or no significance between the two groups as far as herb utilization is concerned. However Married/cohabiting against the separated returned OR=3.5556 and p=0.004692 which implied some further significance between the two groups in herb utilization. This means that the married/cohabiting were 3.6 times most likely to use herbs in comparison with their separated companions.

Further analysis of average income per month showed no significance between the 0-75,000 and the 75,001-250,000 groups compared against the 250,001-500,000 groups. OR values of 1.503 and 2.0192 and p values of 0.346186 and 0.154614 implied that being in any of the two groups had no any definite significance/difference as far as herb utilization is concerned.

Table 5: Further analysis (Multivariate)

Variable	Users	Percentage	Nonusers	Percentage	OR	95% CI	P-value
Marital status							
Single	43	15.2	10	40	0.2688	0.113-0.637	0.001634 *
Married/cohabiting	240	84.8	15	60	1.0	Reference	
Average income per month							
0-75,000	165	61.1	19	67.9	1.503	0.641-3.524	0.484473
75,001-250,000	105	38.9	9	32.1	1.0	Reference	

* *Statistically significant association*

The single group against the married/cohabiting returned a significant p-value (0.001634) and OR=0.2688. This implies that there is some significance between the two groups as far as herb utilization is concerned. This means that the singles and married are more likely to use herbs if compared with the other groups.

4.3 Commonly used herbs and their uses in pregnancy

Table 6: Herbs and their uses in pregnancy

Characteristic	Frequency=335	Percentage%
Herbs used by respondents during pregnancy		
Mumbwa	93	27.76
Musota Talumwa	54	16.12
Kamumbiri	78	23.28
Namirembe	55	
Snail shells	19	5.67
Banana leaves	11	3.28
Kafumbe	17	5.07
Bombo	5	1.49
Luwoko	3	0.90
Uses of the herbs (n=335)		
Inducing labor	78	23.28
Strength	56	16.72
Safe delivery	76	22.69
Laxity of pelvic Ligament	28	8.36
Health baby	20	5.97
Others	52	15.52
At least any 3 of the above		
Why respondents use herbs(n=335)		
Affordable	158	47.16
Accessible	82	24.48
Others	30	8.96
Affordable and accessible	65	19.40

4.3.1 Use of herbs in previous/Current pregnancies

Of the 384 interviewed, 335 respondents had ever used during pregnancy, the respondents gave various names of the herbs they use. The herbs used included Mumbwa, Musota Talumwa, Kamumbiri, Namirembe, Snail shells, and Banana leaves, Kafumbe, Bombo, snail shell, eggshell and Luwoko. In the focus group findings, the study found out that Mumbwa, Mubiri, Kirara Nkuba, all green leaves for bathing and drinking were the most used herbs by pregnant women. Mumbwa is a mixture of many shrubs and herbs picked from where a dog has delivered and mixed together to make Mumbwa of one kind.

Uses of the herbs

The respondents who had /were using herbs gave the uses of the herbs; as inducing labor, strength, Safe delivery, Laxity of pelvic Ligament and delivery of a healthy baby. In the focus groups it was revealed that herbs are used most especially for strength, cleaning the baby, for pains and good looking of the mother. They are also used for laxity of the ligament and to induce labor.

Why respondents use herbs

Nearly half of the respondents, 158(47.16%) stated that they used herbs because they were affordable and accessible. This is in relation to the other drugs provided in hospitals that are not easily accessible and expensive for most of the mothers. Of the 82(24.48%) of the respondents stated that they used herbs because they were accessible.

In the focus groups and key informants, it was discovered that according to most mothers, drugs from the hospital do not work well and have side effects on the baby. It was also revealed in the focus groups one pregnant mother stated *"In the hospital there is no medicine for strength"*[Focus group discussant]. Mothers also perceive drugs in the hospital to be of poor quality. It was also revealed that herbal use is cultural and it's because our parents and grandparents used them. Also most of the users of herbs perceive them to be good and having no side effects. They also urged that herbs have been used from time immemorial and trusted from one generation to another and this makes them trustable as an indigenous form of antenatal care. The other reason for using herbs was because TBAs are very friendly and motherly they care for them and are cheaper and easier to pay. The village health team as one of the key informant commented, "S*ome women are traditionalists they just do not go to the hospital for ANC; they prefer to give birth at home either due to culture*

or beliefs. Some women are discouraged by the attitude of health workers who abuse them and neglect them during delivery." [VHT, Mbuya central]

Bi-variate analysis on commonly used herbs by expectant mothers and their uses

Table 7: Use of herbs in current pregnancies against use in previous pregnancies

Use of herbs in current pregnancies against use in previous pregnancies

	Users			Non Users				
Variable	**N=335**	**Percentage**	**Variable**	**N=49**	**Percentage**	**OR**	**95% CI**	**P-value**
Yes(Current)	294	87.24	No(Current)	90	76.56	0.48	0.326-0.70	0.00012*
Yes(Previous)	335	12.76	No(Previous)	49	23.44	1.0	Reference	

* *Statistically significant association*

Analysis of the use of herbs in their current pregnancies against the same in the previous pregnancies returned a non-significant p value (0.454) and a very low odds ratio (OR) value of 0.48. This implies that there has been just a small decline in usage of drugs during pregnancy. It implies that the respondents currently using herbs were only 0.48 times most likely not to use herbs again. This was in line with the key informants who stated that a majority women use herbs, and the percentage of herb usage is almost 80%.

1.3 Knowledge of mothers on effects of herbs during pregnancy

4.4.1 Uni-variate analysis on the unborn babies in Nakawa Division

Table 8: Knowledge of herbal effects

Characteristic	Frequency=95	Percentage %
Congenital abnormalities	21	22.11
Toxicity	14	14.74
Hemorrhage	23	24.21
Obstructed labor	15	15.79
Puerperal sepsis	3	3.16
Still birth	10	10.53
Others	9	9.47

Respondents' knowledge of any side effects of using those herbs during pregnancy

The 95 respondents who had knowledge about the side effects of using herbs stated congenital abnormalities, Toxicity, Hemorrhage, Obstructed labor, Puerperal sepsis and still birth as the side effects of using herbs during pregnancy.

During the interview with a senior nursing officer had this to say, "*Mothers are not aware of the side effects of herbs*. *Herbs are toxic and leading causes of fresh still birth, suffocation, Post-partum hemorrhage (PPH) , ante partum hemorrhage (APH) , ruptured uterus and foetal distress*. *It is the leading causes of neonatal deaths. Most women who use herbs come in with complications*. It was also observed that since herbs have no dozes, mothers take a lot of them and they are toxic. The key informants also revealed "*that some herbs contain oxytoceen which causes contraction of uterus and some of these concoctions are unhygienic*."

A mid wife as one of my key informant revealed that *side effects can be seen on the woman during labor, and are made to confess that they have used herbs. These herbs cause intensive labor pains, which can result into obstructed labor, foetal distress, and may cause ruptured uterus and sometimes death*. According to one Assistant commissioner Nursing as a key informant she said, *"one of the mothers used herbs to*

induce labor and they took long to work and she had already delivered .So she experienced rapid contractions of the uterus they worked on her uterus so much and she died of over breeding"

. **4.4.2 Bi-variate analysis on the knowledge of pregnant mothers on the effects of use of traditional herbs on unborn babies in Nakawa Division**

Table 9: Usage versus knowledge of side effects

Variable	Users N=335	Percentage	Non Users N=49	Percentage (%)	OR	95% CI	P-value
Knowledge Of Side Effects							
Don't Know	254	75.8	35	71.4	1.3	0.64-2.45	0.506
Know	81	24.2	14	28.6	1.0	Reference	

*****Statistically significant association*

At 95% confidence interval, the relationship between knowledge about side effects of herbs and their usage returned an odds ratio (OR) of 1.3 and a non-significant p value of 0.506. This means that the level of knowledge about side effects of herbs has no effect on the level of utilization of the herbs by respondents in that group.

1.4 Herbs influence on the Uptake of ANC services

4.5.1 Uni-variate analysis on herbal use influence on the uptake of ANC services
Table 10: Herbal use influence on ANC uptake

Characteristic	Frequency=335	Percentage %
Who introduced you to herbs		
Relative	65	19.40
Husband	103	30.75
Friend	120	35.82
TBA	40	11.94
Others(specify)	7	2.09
How much is paid for transport to get herbs		
Free	189	56.42
Less than 5000	130	38.81
5000-10000	16	4.78
How much the complete doze of herbal during pregnancy costs		
Free	148	44.18
Less than 5000	167	49.85
5000-10000	20	5.97

According to findings in Table 6 above, a majority of the respondents that had used herbs during pregnancy, 120 (35.82%) were introduced to herbs by friends. Husbands introduced herbs to 103 (30.75%) of the respondents. The other sources of introduction of the drugs included Friends, TBAs and Others that included sales people in markets, religious leaders. More than half, 189(56.42%) of the respondents got the herbs for free while 130(38.81%) got the herbs for less than 5000 shillings.

The study found out that nearly half of the respondents, 167 (49.85%) got herbs for less than 5000 shillings. This included the transport costs and the actual payment made for the herbs. The other source was absolutely free, 148(44.18%). This was discovered to be the main influencing issue on mother who use herbs. Because they are free/cheap and easily accessible, they are easily preferred in comparison to hospital drugs and ANC. During the focus group discussion a lady confirmed, *"Herbs are cheap and some of them are free of charge, in the market we buy at 2,000/=. Also mothers, herbalists and TBAs. Provide herbs"*

4.5.2 Bi-variety analysis on herbal use influence on the uptake of ANC services

Table 11: Herb Usage versus Attendance of ANC

Variable	Users	Percentage	Non Users	Percentage	OR	95% CI	P-value

	N=335		N=49				
Attended ANC							
No	155	46.3	2	4.1	20.2	4.84-84.67	0.000*
Yes	180	53.7	47	95.9	1.0	Reference	

*****_Statistically significant association between the independent herbal use and attendance of ANC._

A bivariate analysis of usage of herbs and utilization of ANC services returned a significant p value of 0.000 and an odds ratio of 20.2. This implies that respondents who used herbs were 20.2 times less likely to attend ANC services as compared to the respondents who don't use herbs.

CHAPTER FIVE: DISCUSSION

5.0 Introduction

This chapter discusses the results of chapter four and the methodology of the research conducted in relation with the objectives. Comparison will be made with other researchers on the use of herbs in pregnancy and possible contradictions will be highlighted.

In this study, 384 pregnant women were interviewed in Nakawa division from the 8 parishes that were purposively selected using proportionate sampling method. Both open and closed ended questionnaire was used to get information from the pregnant mothers. Five homogenous focus group discussions were held in the five parishes and key informant interviews were conducted.

The majority of the respondents, 335 (87.24%) that were interviewed had ever used herbs in their previous pregnancies. Only 49(12.76%) had never used herbs in their past pregnancies. This was nearly the same for the respondents that were currently having pregnancies. Most, 294(76.56%) of the respondents were using herbs during the current pregnancy

The majority of the respondents were in the age group of 20-29, which accounted for 39.58%, followed by the age group of 30 -39, at 27.34%. Uganda's population growth rate is increasing rapidly with a high percentage as the youth, which accounts for 65% -75%. This study indicated that 76.04% had at most 3 children. Uganda has been indicated as one of the top countries that has a high fertility rate of 6.7%. An average woman in Uganda is capable of producing at least 7 children, and this has been reflected in this study.

Also,secondary level of education was indicated to be the highest attained by the majority mothers at 33.33%.This is consistent with other studies in Nigeria ,Kenya and Ghana that showed low levels of education for mothers who used herbs compared to those with high education levels.

5.1 Social- economic factors that influence the preference of herbs.

The study indicated that self-employed, 46.88% use herbs compared to those who are employed in the formal sector and the unemployed. This concurs with other studies that indicated the employment status as an influence to herbal use. (Asumeng *et al,* 2011), implying that mothers who use herbs, are involved in the economic activities that yield less incomes, that renders them with less chances to attain expensive modern antenatal health care. Consequently, they have only one alternative available that is use of herbs.Studies show that mothers whose husbands are traders use herbs than those whose husbands are educated and employed in the formal sector. (Asumeng *et al,* 2011).

Nearly half of the respondents, 47.92% had their average incomes below the poverty line, this indicated high levels of poverty in these parishes of Nakawa.Majority of the mothers confessed that they could not afford even transport to the health facility. These health centres ask mothers to provide gloves for each visit and other requirements, of which they cannot afford. Therefore the herbs are used as an alternative. This makes it so difficult for pregnant mothers whose average income is 75000 to access antenatal care. The findings of this study also indicated ,most of the respondents were Pentecostal, 28.13% compared to other religious affiliations. This explains the growing number of Pentecostal churches in the city suburbs. This also indicates that ,religion has less influence on herbal use.

Generally most pregnant mothers were married /cohabiting, 66.41%. and 76.4% had at least 4 children. This is indicated in other studies where husbands have a role in deciding where their pregnant wives should seek antenatal care (Kasolo et al, 2009) .The women with a higher parity were more likely to use herbs than those who had one or two children.

5.2 Herbs commonly used and their uses.

In this study, a number of herbs were identified and their uses. Mothers were also aware of how to use these herbs. The key informants provided more accurate information on the use and the side effects of these herbs. They stated that the percentage of herb usage is almost 80%.Its surprising that even those who do not use herbs know them. The herbs used included Mumbwa (mixed clay and herbs), Olweza (Aerva lanata), Nalongo(justicia betonica)Musota Talumwa, Kamubiri,Ekitonto(grassocephalum vitellinum) Namirembe, Snail shells, and Banana leaves, Kafumbe,mubiri(coleuslatifolius), Ebombo and Luwoko.The most commonly used was Mumbwa and Ebombo and MusotaTalumwa.This, was consistent with information collected from the key informant interviews and the focus group discussions. The commonly used herbal medicine was Mumbwa and was described to be made by different herbs mixed together and was drunk as often as you feel thirsty.

Respondents gave various uses of herbs of which included inducing labor, Strength, Safe delivery, Laxity of pelvic Ligament and delivery of a healthy baby among others

Respondents used herbs because they were accessible, affordable, available and culture. This was in line with the WHO report 2008, which indicated 80% of people using herbs for all kinds of ailments. Also agrees with studies conducted in Nigeria (Fakeye et al 2010) and in western Uganda (Kasoro *et al* 2009) .

5.3 Knowledge of mothers on the side effects of herbs.

Of the 384 pregnant mothers interviewed, 75.26 %) had no idea that herbs have side effects on the mother and their unborn babies compared to 24.74% who knew the side effects of the herbs used during pregnancy. This is in line with the study in South Africa,

where the majority of the black women preferred to give birth at home. Commonly used herbal concoction called isihlambezo during pregnancy that was proved to cause abortion , hemorrhage and other congenital malformations, yet all who used it did not know about the side effects.

Most of the studies indicated that, pregnant mothers do not talk about herbs they use to their physicians, when they visit the antenatal care for fear to be rebuked .This was confirmed during the interview with one of the key informant "*Mothers do not talk about the herbs they use unless if they are asked and even then they do not accept* ". For instance Omuhoko(phytolaca dodecandra) are commonly used and are known to cause abortion .This research found that mothers are very ignorant about the side effects of herbs, and are used early in the first trimester up to the time of delivery .This means that these herbs can be a great danger and a major hindrance to the normal development of a fetus resulting into congenital malformation.

This study indicated that, mothers use herbs because they are given to them (pregnant mothers) by their close relatives. The herbs are believed to be safer and trustable with no side effects compared to the drugs in the hospital by rude health workers. This is in line with many studies in Nigeria (Igbiks *et al* 2010) and in Australia (low Dog *et al* 2009)

5.4 Influence of herbal use on the uptake of Antenatal health care.

This study has established a relationship between herbal use and the uptake of ANC.This was confirmed by the analysis which returned a significant p value of 0.000 and an odds ratio of 20.2. This implies that respondents who used herbs were 20.2 times less likely to attend ANC services as compared to the respondents who don't use herbs.

The study found out that, more than half, 56.42%) of the respondents got the herbs for free while 38.81% got the herbs for less than 5000 shillings. Also herbs are easily accessible considering the costs of transport and their availability. This was discovered to be the main influencing factor on mothers who use herbs. Herbs were considered to be safer and trusted by the majority of mothers compared to the drugs from the hospital. Because they are free/cheap and easily accessible, they are easily preferred in comparison to antenatal care services, which are mainly characterized by drug stock outs and rude health workers. Despite free services from the government, health units where majority of the respondents seek antenatal care,pregnant mothers seek ANC for purposes of registration and booking for delivery so that they can be attended to in time in case of any obstetric problem. This is in line with the study in South Africa where majority black women prefer natural remedies and deliver at home. In Nakawa division, during the FGD interviews mothers complained, "*I go to the hospital if am feeling pain and in case I develop any complications. But when I am okay there is no need "*

Generally, mothers seek antenatal care services when they have got persistent pain , in preparation for delivery to be registered, and in case they develop complications they can be attended to. But not necessarily for antenatal visits, a pregnant mother is required to have. This is evidenced by the UDHS report, 92.7% of pregnant mothers have had antenatal at least once.

Therefore herbs are used as another alternative form of antenatal care. The correlation analysis of use of herbs and uptake of antenatal care was found to be with a lowly

significant negative correlation of -0.063 .This meant that, the increase in use of herbs during pregnancy led to a decrease in attendance of antenatal services. Antenatal attendance is still low in Uganda which is at 51% and this means the 49% seek alternative means of antenatal care which is more likely to be herbs. The UDHS 2006 reported that 95% of pregnant mothers have antenatal visits at least once during pregnancy in the urban centre and this number goes remarkably low in the rural areas. Moving forward, this is contrary to the findings of this study basing on the fact that Nakawa is within the suburbs of Kampala where Health facilities are easily accessible with the advantage of the major referral hospitals. Some of these are within the radius of 5km recommended by the WHO; still the antenatal attendance is low. This was evidenced by the late attendance of majority mothers during pregnancy turned up at six months for their first antennal visit (FGD interview)

It should be noted that, if herbs are taken as another form of antenatal care, the risks of using these herbs will increase maternal death and

CAPTER SIX: CONCLUSION AND RECOMMENDATION

6.2 Conclusion

→ The Single pregnant mothers in Nakawa division, were 0.27 times less likely to use herbs as compared to their married/ cohabiting counterparts.

→ The pregnant mothers who did not know the side effects of herbs on the pregnancy and the un-born child were 1.3 times more likely to be using herbs in their current pregnancy.

→ The respondents who used herbs were 20.2 times less likely to attend ANC services as compared to the respondents who don't use herbs.

→ The Married/cohabiting use herbs than their single and separated counterparts

→ Mothers use herbs because they are available, affordable and cultural reasons.

6.2 Recommendations

- Basing on the results of the study that indicated ignorance of side effects of herbs, there is need to research on the main components of the herbs that are used during pregnancy so that the dangers these herbs pose to the unborn and the mother can be reduced. Therefore a comprehensive research on these herbs would be one way of reducing mortality rates amongst the group that use them since they are the majority in the country.
- The married couples should be targeted for sensitization on the herbal usage during pregnancy since they were more likely to use herbs than the single or

separated. Encouraging husbands to attend antenatal visits with their wives would increase uptake of ANC.

- Majority of women use herbs. If these herbs are found to be scientifically helpful to pregnant mothers they can be incorporated in the package of ANC services, to provide comprehensive services for the mothers that use them, as a way of encouraging mothers to attend ANC.
- The community needs sensitization about the use of herbs and drugs not prescribed by the doctor especially during pregnancy.
- Efforts should be put towards improving mothers' attitude towards ANC services in order to encourage them to have at least the 4 recommended visits.
- It is equally important to know the components of these commonly herbs to evaluate their effectiveness and toxicity, therefore research should be done to determine the main components.

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7.2 Consent form for questionnaire

INTERNATIONAL HEALTH SCIENCES UNIVERSITY

Questionnaire Consent Form

Study Topic : The influence of herbal use in pregnancy on the utilisation of modern maternal health services

Principal Investigator. MiriamTwikirize a student of Masters of Science in Public Health.

Study Purpose and Procedures

This study is designed to investigate the influence of herbal use in pregnancy on the utilisation of antenatal care or modern maternal health care. We shall also be looking at the the underlying factors,social economic factors that influence the usage and the knowledge of mothers on the possible effects of those herbs.

The purpose of this study is to obtain information on the relationship between herbal use and modern maternal health care so as to improve the welfare of pregnant mothers and to encourage them to utilise antenatal care services.

You are being asked to complete a questionnaire to assist us in that regard. We expect it will take you approximately 45minutes to complete the questionnaire.

Confidentiality

The identities of all people who participate will remain anonymous and will be kept confidential. Identifiable data will be stored securely in a locked metal filing cabinet or in a password protected computer account. All data from individual participants will be coded so that their anonymity will be protected in any reports, research papers, thesis documents, and presentations that result from this work.

Remuneration/Compensation

We are very grateful for your participation. However, you will not receive compensation of any kind for participating in this study

Contact Information About the study

If you have any questions or require further information about the project you may contact the principle investigator on 0772522998

Consent

We intend for your participation in this project to be pleasant and stress-free. Your participation is entirely voluntary and you may refuse to participate or withdraw from the study at any time.

Your consent to participate in this project is assumed once you have completed the questionnaire.

Participants Signature ----------

Principal Investigator----------

7.3Questionnaire

Questionnaire Serial Number – ☐

Date---------- Location----------

Interviewer----------

Section A: Socio-demographics Characteristics

1. Age [ ] Lee than 15 [ ] 15-18 [ ] 19-24

   [ ] 25-34 [ ] 35-44 [ ] 45year and above

2. Residence: Zone---------- Parish----------

3. Occupation---------- (Indicate if self supporting and the head of the family's occupation)----------

4. Are you the house hold head? [ ] Yes [ ] No

5. Marital status (tick correctly)

   [ ] Single

   [ ] Married/Cohabiting

   [ ] Widowed/Divorced

   [ ] Others indicate ----------

6. Number of biological children----------

7. Level of Education.

   [ ] Never gone to school

   [ ] Pre-primary level

   [ ] Primary level

   [ ] Secondary level (O&A level)

   [ ] Tertiary level (University)

   [ ] Other, specify----------

[ ] Informal education specify ----------

8. Religion (tick appropriately)

[ ] Catholic

[ ] Anglican

[ ] Moslem

[ ] Pentecostal

[ ] Others specify

9. Income Level

[ ] High

[ ] Medium

[ ] Low

Section B: Availability and accessibility of herbs

10. Do you use herbs?

11. If yes, who introduced you to those herbs?

[ ] My relative /mother

[ ] Friend

[ ] TBA

[ ] Other (Specify) _____

12. Where do you get those herbs from?

[ ] Relative/Mother

[ ] Herbal shops

[ ] Other (Specify) _____

13. How far is the place where you get your herbs in terms of kilometers? _____ Km

14. Are herbs cheaper than conventional medicine in terms of cost? [ ] Yes [ ] No

15. Are herbs more accessible than conventional medicine? [ ] Yes [ ] No

16. Are these herbs readily available when you need them? [ ] Yes [ ] No

17. Are there mobile herbal sellers in your community? [ ] Yes [ ] No

Section C: Traditional Herbal Usage, knowledge and Utilization of Modern Maternal Health Services

18. Where do you attend your antenatal care? (for all pregnancies)

Order of Pregnancy	Place of ANC attendance
1st	
2nd	
3rd	
4th	
5th	
6th	
7th	

19. How far is the health facility you attend ANC from your home? (in kilometers)

_____

20. At what stage of the pregnancy did you start antenatal care in each pregnancy? (Tick correctly)

	1st pregnancy	2nd pregnancy	3rd pregnancy	4th pregnancy	5th pregnancy	6th pregnancy	7th pregnancy
First trimester							
Second trimester							
Third trimester							

21. Have you ever used any herbal medicine when pregnant before this current pregnancy? [ ] Yes [ ] No

22. If Yes to Question 21, explain why you used them _____

_____

23. If No to Question 21, explain why you did not use them _____

_____

24. Have you used any herbal medicine in this current pregnancy?

[ ] Yes [ ] No

25. If Yes to Question 24, explain why you used them _____

_____

26. If No to Question 24, explain why you did not use them _____

_____

27. When did you start using traditional herbs during this pregnancy? (tick correctly)

[ ] First trimester

[ ] Second trimester

[ ] Third trimester

28. Explain why you take those herbs at different stages.

_____

_____

29. How frequent do you take these herbs per day? _____

30. In what amounts do you take per dose?

[ ] One cup

[ ] Two cups

[ ] Three cups

[ ] Four cups

31. How do you take them?

[ ] Drink

[ ] Eat

[ ] Smear

[ ] Bathe in them

[ ] Wear

[ ] Other, specify _____

32. Do you know any side effects of using those herbs during pregnancy?

[ ] Yes [ ] No

33. If yes to Question 32, which side effects do you know?

_____

_____

_____

34. Do you think the herbs are better than the modern medicine or care you receive from the health facility for antenatal care? [ ] Yes [ ] No

35. When you use the herbs, how helpful are they to both you and the unborn child?

    [ ] Yes [ ] No

36. Why do you think women do not attend antenatal care services and opt for herbs?

    _____

    _____

    _____

37. Do you use both herbs and modern maternal health care?

    [ ] Yes [ ] No

38. If you were asked at the health centre to find out whether you were using herbs, would you accept to talk about it? [ ] Yes [ ] No

39. Explain why/your answer in Question 38 above.

    _____

    _____

40. Do you know any reason for attending modern maternal health care when pregnant? [ ] Yes [ ] No

41. If Yes in Question 40 above, what are some of the reasons you know?

    _____

    _____

    _____

    _____

42. How did you get this message? _____

43. How would you advise a young pregnant mother, to attend modern maternal health care or use herbs? (Explain why) _____

_____

_____

44. Would you appreciate if we started a campaign for uptake of maternal health care?

[ ] Yes [ ] No

45. If Yes to Question 45 above, explain why; _____

_____

46. What do you think are the major challenges in the provision of adequate maternal health care in your community?

_____

_____

_____

_____

47. What then would you recommend to improve maternal health care in your community?

_____

_____

_____

_____

48. Which target group do you think should be addressed? _____

_____

49. What messages do you think would be given to them? _____

_____

7.4 Consent Form for Focus Group Discussions

INTERNATIONAL HEALTH SCIENCES UNIVERSITY

Study Topic : The influence of herbal use in pregnancy on the utilisation of modern maternal health services

Principal Investigator. Miriam Twikirize a student of Masters of Science in Public Health.

Study Purpose and Procedures

This study is designed to investigate the influence of herbal use in pregnancy on the utilisation of antenatal care or modern maternal health care. We shall also be looking at the the underlying factors,social economic factors that influence the usage and the knowledge of mothers on the possible effects of those herbs.

The purpose of this study is to obtain information on the relationship between herbal use and modern maternal health care so as to improve the welfare of pregnant mothers and to encourage them to utilise antenatal care services.

You are being asked to complete a questionnaire to assist us in that regard. We expect it will take you approximately 45minutes to complete the questionnaire.

Confidentiality

The identities of all people who participate will remain anonymous and will be kept confidential. Identifiable data will be stored securely in a locked metal filing cabinet or in a password protected computer account. All data from individual participants will be coded so that their anonymity will be protected in any reports, research papers, thesis documents, and presentations that result from this work.

Remuneration/Compensation

We are very grateful for your participation. However, you will not receive compensation of any kind for participating in this study

Contact Information About the study

If you have any questions or require further information about the project you may contact the principle investigator on 0772522998

Consent

We intend for your participation in this project to be pleasant and stress-free. Your participation is entirely voluntary and you may refuse to participate or withdraw from the study at any time.

Your consent to participate in this project is assumed once you have completed the questionnaire.

Participants Signature ----------

Principal Investigator----------

7.5 Focus Group Discussion guide

You are welcome to this briefing and I thank you for participating in this session. Introduce yourself the interviewer and then each interviewee to introduce themselves. Give brief background of what is going to take place and what you expect from the participants.Please highlight on the importance of the discussion and how helpful to the research you doing and to them.

Is attending antennal care actually important to this community?

What are the commonly used herbs during pregnancy?

What are the uses of each of these herbs used during pregnancy?

Where do you get these herbs from, and how much are they each per dose?

When you compare them with the antenatal care at the hospital which is cheaper?

How do you know that these herbs are good and are working for you?

Why are more pregnant mothers using herbs than attending antenatal care?

Do mothers use herbs concurrently with antenatal care provided drugs?

How do you compare herbs with the medicine you receive from the health centre?

Do you know the side effects of these herbs to the mother and the unborn baby?

If these herbs are provided at the hospital as part of antenatal care would you use them?

Generally, what kind of services do you receive at the health centre where you go for antenatal care?Domidwives treat you with respect and dignity?

What kind of improvement would you like to see in the antenatal care services?

7.6 Consent Form for Key Informant Interview

INTERNATIONAL HEALTH SCIENCES UNIVERSITY

Study Topic : The influence of herbal use in pregnancy on the utilisation of modern maternal health services

Principal Investigator. Miriam Twikirize a student of Masters of Science in Public Health.

Study Purpose and Procedures

This study is designed to investigate the influence of herbal use in pregnancy on the utilisation of antenatal care or modern maternal health care. We shall also be looking at the the underlying factors,social economic factors that influence the usage and the knowledge of mothers on the possible effects of those herbs.

The purpose of this study is to obtain information on the relationship between herbal use and modern maternal health care so as to improve the welfare of pregnant mothers and to encourage them to utilise antenatal care services.

You are being asked to complete a questionnaire to assist us in that regard. We expect it will take you approximately 45minutes to complete the questionnaire.

Confidentiality

The identities of all people who participate will remain anonymous and will be kept confidential. Identifiable data will be stored securely in a locked metal filing cabinet or in a password protected computer account. All data from individual participants will be coded so that their anonymity will be protected in any reports, research papers, thesis documents, and presentations that result from this work.

Remuneration/Compensation

We are very grateful for your participation. However, you will not receive compensation of any kind for participating in this study

Contact Information About the study

If you have any questions or require further information about the project you may contact the principle investigator on 0772522998

Consent

We intend for your participation in this project to be pleasant and stress-free. Your participation is entirely voluntary and you may refuse to participate or withdraw from the study at any time.

Your consent to participate in this project is assumed once you have completed the questionnaire.

Participants Signature ----------

Principal Investigator----------

7.7 Key informer interview guide

Hello. We are working on a study approved by the International Health Sciences University. We want to talk to people like you who know about this community and ask you a few questions. The purpose of the study is to identify reasons why women prefer use of herbs in pregnancy to antenatal care, in order to t put up strategies to encourage mothers to attend antenatal care services.

We do not want to know your name or any information about yourself that could identify you. This is an anonymous questionnaire. . Your participation is completely voluntary and you may decline to answer any specific question or completely refuse to participate. We would greatly appreciate your help in responding to these questions, even though we are not able to financially compensate you for your time. You may not personally benefit directly from this study, but the results will be used to improve health programs in this area

Interviewer's name ……

Are there policies related with herbal use in your community?

What do you think are the biggest issues facing antenatal care services in the health centre?

What are the main complaints do you usually deal with concerning pregnant mothers?

Do women express freely their health needs and concerns when they come to the health facility? If no why what do you think hinders them?

On average what % of pregnant women consistently attends all antenatal visits, and what % delivers from the same facility?

What stage of pregnancy do mothers commonly come to the health facility for Antenatal care? And why?

Are the pregnant mothers ever asked about usage of herbs alongside conventional medicine in pregnancy?If yes what herbs do they usually use and what reasons do they give?

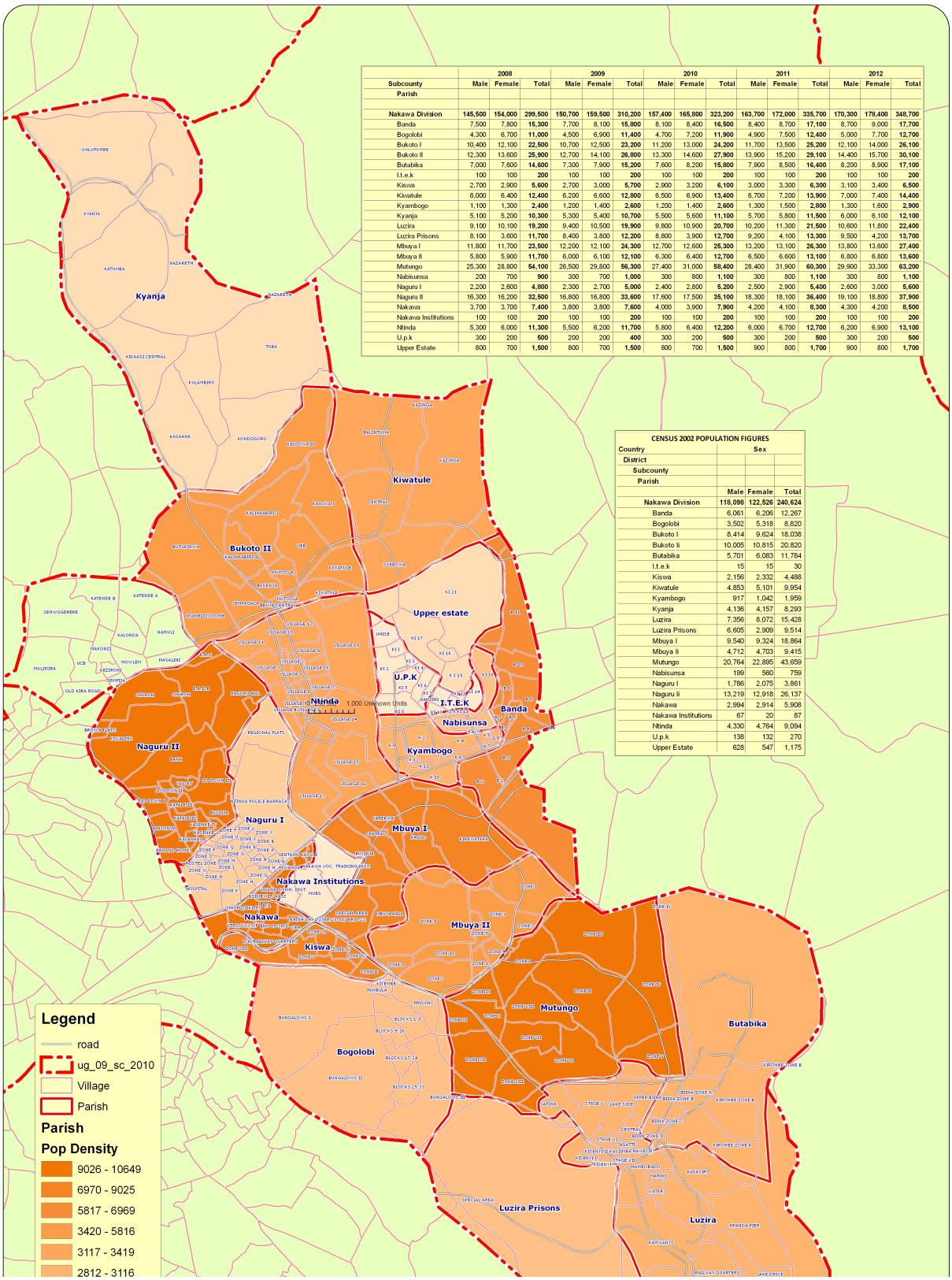
What is your perception and opinion on the use of herbs during pregnancy?

Are the herbs used in pregnancy easily available and accessible in this community? Why do you think these pregnant mothers prefer use of herbs to conventional medicine?

What would you advise a pregnant mother who is using herbs? What general approach would you suggest to appropriately address the use of herbs in pregnancy?

What measures would you suggest that would lead to increased utilization of maternal care services in your community?

Map of Nakawa Division Showing Administrative Units



Subcounty / Parish	2008 Male	2008 Female	2008 Total	2009 Male	2009 Female	2009 Total	2010 Male	2010 Female	2010 Total	2011 Male	2011 Female	2011 Total	2012 Male	2012 Female	2012 Total
Nakawa Division	**145,500**	**154,000**	**299,500**	**150,700**	**159,500**	**310,200**	**157,400**	**165,800**	**323,200**	**163,700**	**172,000**	**335,700**	**170,300**	**178,400**	**348,700**
Banda	7,500	7,800	**15,300**	7,700	8,100	**15,800**	8,100	8,400	**16,500**	8,400	8,700	**17,100**	8,700	9,000	**17,700**
Bogolobi	4,300	6,700	**11,000**	4,500	6,900	**11,400**	4,700	7,200	**11,900**	4,900	7,500	**12,400**	5,000	7,700	**12,700**
Bukoto I	10,400	12,100	**22,500**	10,700	12,500	**23,200**	11,200	13,000	**24,200**	11,700	13,500	**25,200**	12,100	14,000	**26,100**
Bukoto II	12,300	13,600	**25,900**	12,700	14,100	**26,800**	13,300	14,600	**27,900**	13,900	15,200	**29,100**	14,400	15,700	**30,100**
Butabika	7,000	7,600	**14,600**	7,300	7,900	**15,200**	7,600	8,200	**15,800**	7,900	8,500	**16,400**	8,200	8,900	**17,100**
I.t.e.k	100	100	**200**	100	100	**200**	100	100	**200**	100	100	**200**	100	100	**200**
Kiswa	2,700	2,900	**5,600**	2,700	3,000	**5,700**	2,900	3,200	**6,100**	3,000	3,300	**6,300**	3,100	3,400	**6,500**
Kiwatule	6,000	6,400	**12,400**	6,200	6,600	**12,800**	6,500	6,900	**13,400**	6,700	7,200	**13,900**	7,000	7,400	**14,400**
Kyambogo	1,100	1,300	**2,400**	1,200	1,400	**2,600**	1,200	1,400	**2,600**	1,300	1,500	**2,800**	1,300	1,600	**2,900**
Kyanja	5,100	5,200	**10,300**	5,300	5,400	**10,700**	5,500	5,600	**11,100**	5,700	5,800	**11,500**	6,000	6,100	**12,100**
Luzira	9,100	10,100	**19,200**	9,400	10,500	**19,900**	9,800	10,900	**20,700**	10,200	11,300	**21,500**	10,600	11,800	**22,400**
Luzira Prisons	8,100	3,600	**11,700**	8,400	3,800	**12,200**	8,800	3,900	**12,700**	9,200	4,100	**13,300**	9,500	4,200	**13,700**
Mbuya I	11,800	11,700	**23,500**	12,200	12,100	**24,300**	12,700	12,600	**25,300**	13,200	13,100	**26,300**	13,800	13,600	**27,400**
Mbuya II	5,800	5,900	**11,700**	6,000	6,100	**12,100**	6,300	6,400	**12,700**	6,500	6,600	**13,100**	6,800	6,800	**13,600**
Mutungo	25,300	28,800	**54,100**	26,500	29,800	**56,300**	27,400	31,000	**58,400**	28,400	31,900	**60,300**	29,900	33,300	**63,200**
Nabisunsa	200	700	**900**	300	700	**1,000**	300	800	**1,100**	300	800	**1,100**	300	800	**1,100**
Naguru I	2,200	2,600	**4,800**	2,300	2,700	**5,000**	2,400	2,800	**5,200**	2,500	2,900	**5,400**	2,600	3,000	**5,600**
Naguru II	16,300	16,200	**32,500**	16,800	16,800	**33,600**	17,600	17,500	**35,100**	18,300	18,100	**36,400**	19,100	18,800	**37,900**
Nakawa	3,700	3,700	**7,400**	3,800	3,800	**7,600**	4,000	3,900	**7,900**	4,200	4,100	**8,300**	4,300	4,200	**8,500**
Nakawa Institutions	100	100	**200**	100	100	**200**	100	100	**200**	100	100	**200**	100	100	**200**
Ntinda	5,300	6,000	**11,300**	5,500	6,200	**11,700**	5,800	6,400	**12,200**	6,000	6,700	**12,700**	6,200	6,900	**13,100**
U.p.k	300	200	**500**	200	200	**400**	300	200	**500**	300	200	**500**	300	200	**500**
Upper Estate	800	700	**1,500**	800	700	**1,500**	800	700	**1,500**	900	800	**1,700**	900	800	**1,700**

CENSUS 2002 POPULATION FIGURES Country / District / Subcounty / Parish	Sex Male	Female	Total
Nakawa Division	**118,098**	**122,526**	**240,624**
Banda	6,061	6,206	12,267
Bogolobi	3,502	5,318	8,820
Bukoto I	8,414	9,624	18,038
Bukoto Ii	10,005	10,815	20,820
Butabika	5,701	6,083	11,784
I.t.e.k	15	15	30
Kiswa	2,156	2,332	4,488
Kiwatule	4,853	5,101	9,954
Kyambogo	917	1,042	1,959
Kyanja	4,136	4,157	8,293
Luzira	7,356	8,072	15,428
Luzira Prisons	6,605	2,909	9,514
Mbuya I	9,540	9,324	18,864
Mbuya Ii	4,712	4,703	9,415
Mutungo	20,764	22,895	43,659
Nabisunsa	199	560	759
Naguru I	1,786	2,075	3,861
Naguru Ii	13,219	12,918	26,137
Nakawa	2,994	2,914	5,908
Nakawa Institutions	67	20	87
Ntinda	4,330	4,764	9,094
U.p.k	138	132	270
Upper Estate	628	547	1,175