

**AN INVESTIGATION INTO THE USE OF MOBILE PHONES FOR HEALTH  
INFORMATION DELIVERY TO RURAL WOMEN IN UGANDA.**

MINI DISSERTATION

BY

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## DECLARATION

I, Irene Mbawaki do hereby declare that this Mini-dissertation is my original work and has not been submitted before to University of Pretoria or any other Institution for the award of a degree.

Signed: *imbawaki*

Irene Mbawaki

Date: 1<sup>st</sup> November, 2014

## DEDICATION

With immense pride and gratitude I dedicate this piece of work to my parents, Mrs. Margret Bamwise and Mr. Patrick Bamwise Kakaire. Thanks to your endless efforts, we your children are having an education. God bless you with more years ahead!

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## LIST OF ABBREVIATIONS

HEPS (U):	Coalition for Health Promotion and Development
ITU:	International Telecommunication Union
MDGs:	Millennium Development Goals
OHCHR:	Office of the United Nations High Commissioner for Human Rights
UCC:	Uganda Communications Commission.
UN:	United Nations
UNICEF:	United Nations International Children's Emergency Fund
UNDP:	United Nations Development Programme
UNFPA:	United Nations Population Fund
WHO:	World Health Organisation

## ABSTRACT

The study looked at the viability of using mobile phones by an academic health library to provide health information to rural women. It is understood that Mobile phones have become household items thereby providing an opportunity for organisation to use them for information delivery. Access to information by individuals is essential in reducing people's levels of uncertainty especially in matters that relate to growth and survival such as health.

The central research question upon which this study was based was, "How can an academic library adopt the use of mobile phones as an information delivery device to enhance access to health information for rural women?" with sub-questions focusing on information needs and sources of health information for women and the adaptation of mobile services within the library. It further looked at appropriate partnership needed in developing mobile services for health information delivery.

Reviewed literature revealed that mobile phones are already being used by several organisations in making available information. In particular academic libraries have embraced the mobile revolution by creating mobile services for their users.

A qualitative approach was adopted for this study and interviews were used for all the three categories of respondents, who are rural women from Buyengo sub-county, health workers from Kakaire health centre iv and librarians from Albert Cook Medical Library.

Findings from the study have shown that in the information era where one's survival is highly dependent upon information, rural women do not have access to credible sources of health information despite the fact that they have high demand for health information because of the soaring disease burden in rural areas. The study without doubt has led to the establishment that the use of mobile phones to fill this gap is a cost effective and life saving venture which if well set up and implemented will add to the global programmes initiated with the aim of reducing child mortality, maternal deaths and combating HIV/AIDS, malaria and other diseases.

**Keywords:** Academic libraries, health information, health librarians, health workers, mobile phones, mobile services, rural women.

## CHAPTER ONE: INTRODUCTION

### 1.1. Introduction and background to the study

Times have changed and as a result information is essential for the growth and survival of people in the evolving information society. According to Olorunda (2004:2), “the information society is where everyone can create, access, utilize and share information and knowledge, enabling individuals, communities and peoples to achieve their full potential in promoting their sustainable development and improving quality of life”. In close relationship to the above, Rangathan’s five laws of library science discussed by Rimland (2007:24-26), state that the ideal library experience is when libraries avail information to people regardless of their gender, race, class, status, nationality, educational background, or membership .

However, in spite of these ‘illustrious’ aims at providing information to all, the reality is often very different; not everyone has access to information to satisfy their information needs at any given time especially when it comes to rural communities in developing countries.

This study was therefore aimed at exploring the potential of using mobile phones to provide basic (needed) health information to rural communities, specifically focusing on rural women on whose shoulders the major responsibility of child and general family care lies. Health Information provision is a bid necessary in achievement of the health related United Nations Millennium Development Goals (MDGs).

As we draw close to the year 2015, the world is focused on achieving the United Nations Millennium Development Goals (MDGs) stipulated by the United Nations member countries. This study’s focus was on the three health related goals, 4, 5 and 6. Goal four aims at reducing child mortality, goal five is about improvement in maternal health and goal six concerns combating of HIV/AIDS, malaria and other diseases (United Nations [UN], 2013b).

The problem of child and maternal mortality is one of the major health hazards in Sub-Saharan Africa (Population Institute, 2010:1). As the main care takers of the general wellbeing of their families, women need health information to keep the members of their households in good

health. Making health information available to women and mothers is, therefore, one of the ways in which health problems can be mitigated in poor rural communities. Unfortunately in many developing countries, hospitals and health personnel are limited, especially in rural areas. It is furthermore acknowledged that to achieve the Millennium Development Goals as stipulated by the United Nations can be very costly and difficult for developing nations (United Nations-Millennium Project, 2010). Therefore, alternative ways in which effective health information can be provided to rural communities must be investigated. One of these can be the library, and in particular the academic library. Academic libraries, in addition to availing information to academicians and students within the institutional boundaries, also help disseminate their works and findings to the general public (Musoke, 2012).

Uganda is an example of a developing country where the provision of information poses a major problem. Not only is it a relatively poor country, but according to Dr. Anthony Mbonye, Uganda's Health Ministry's Commissioner of community health services, "with a ratio of 1.8 health workers per 1,000 people, Uganda is far below the World Health Organisation (WHO) standard of at least 2.5 health workers per 1,000 people" (World Bank, 2012b). This situation is further worsened by failure to meet the 15% health budget allocation by the Abuja declaration to which Uganda is a signatory (World Bank, 2012). Additionally in a report by Uganda's Ministry of Health (quoted by Ministry of Health, Uganda: 2010:7b), 49% of the population lives within five kilometres from a health facility, implying that health centres are quite far for most rural households. Furthermore, Uganda's disease morbidity and mortality rates especially from preventable diseases are high, as indicated by the Ministry of Health report 2005 (cited by Ministry of Health: 2010:7b), where it is reported that over 75% of the diseases are preventable if only people adopted behaviours that encourage better sanitation, hygiene and change of sexual practices.

In relation to the above, academic libraries can be employed to provide information necessary to combat the lack thereof to the rural population. In Uganda, however, academic libraries are located within institutions which are concentrated in urban areas; as a result this makes them inaccessible to the greater population residing in rural areas. The use of mobile phones can provide a solution to this problem. Indeed academic libraries are already offering mobile services

to their immediate clientele (Murray, 2010) but these services can be extended outside of their physical walls, thus enabling the library to carry out extensive outreach to the larger community (Uhegbu, 2001).

Mobile phones have become part and parcel of people's daily lives, both in developing and developed countries. Although one's choice of the information channel or carrier depends on its appropriateness and affordability (Ochieng, 1999), the availability of mobile phones to rural women can for instance enhance women's access to information as investigated in this study.

Today, mobile phones are increasingly becoming cheap thereby making them affordable to a large number of people even in developing countries such as Uganda. In a recent report by Uganda Communications Commission [UCC] (2014), Uganda's mobile subscribers have risen to 19.5 million in 2014 from 12.8 Million in 2010 while almost 100 percent of Uganda's geographical area has access to mobile network coverage (International Telecommunication Union [ITU], 2014a). Mobile phone technology facilitates information delivery in a cost-effective and sustainable manner to larger audiences even in remote areas which would otherwise be inaccessible to librarians, medical personnel and Non-government organisations (Gavani, 2014). Through adopting the use of mobile phones for health information delivery, Albert Cook Medical Library would be exploiting resources that are readily available and affordable to the majority of Uganda's population.

Makerere University under which Albert Cook Medical Library belongs has got a number of outreach activities where every department is mandated to carry out outreach activities for national development (Makerere University Library, 2013). In line with the vision and mission of its parent organisation, the mission of the University Library to which Albert Cook medical library is a branch is "To meet the study, teaching, research and outreach information needs for sustainable development" (Makerere University Library, 2013).

Mobile phones, if innovatively used, would therefore not only provide needed information to a large number of people living in rural as well as urban areas, but would also add value to the library's outreach programmes in accordance with the global mandate to achieve the UN Millennium Development Goals by 2015.

## **1.2. Statement of the problem**

### **1.2.1. Research question**

In light of the above, the central question posed in this study is:

How can an academic library adopt the use of mobile phones as an information delivery device to enhance access to health information for rural women?

### **1.2.2. Sub-research questions**

- i. What are the basic health information needs of rural women?
- ii. What are the sources of health information for rural women?
- iii. What challenges are associated with these sources?
- iv. What are the common uses of mobile phones in rural communities?
- v. How is Makerere University library internally using mobile phones for information service delivery?
- vi. What skills do rural women need to access health information through mobile phones?
- vii. What are the implications of adopting the mobile phone health information delivery strategy on the achievement of MDGs 4, 5 & 6?

## **1.3. Statement of purpose**

To explore the viability of mobile technology as a tool for delivering real time health information to rural women in Uganda in a bid to contribute to meeting the Millennium Development Goals.

## **1.4. Aim and objectives of the study**

This study aims at exploring the use of mobile phones as an information delivery device for extending the borders of Makerere University Library's outreach services to rural communities with specific focus on meeting the health information needs of rural women.

## **1.5. Scope of the study**

It is important to identify the scope of the study in order to define the parameter to be included in the study. The study area was selected on purpose with careful consideration of an area with a big concentration of rural women. The scope is thus divided into two categories; geographical scope, and conceptual scope as discussed below:

### **1.5.1. Geographical scope**

Buyengo sub-county in Jinja district was chosen because it is a remote area thereby having a multitude of rural women. Secondly, Makerere University's Albert Cook Library in Kampala municipality was used as the case study because it's a branch library of Makerere University Library which is the place of work for the researcher, thereby saving on transport costs and time.

### **1.5.2. Conceptual scope**

The study will cover various aspects relating to health information delivery with the aid of mobile phones. The study also examined how Makerere University Library specifically Albert Cook Library with its limited budget can develop mobile services for rural women.

## **1.6. Methodology:**

Research methodology is defined by Patton (2009:4) as "a highly intellectual human activity used in the investigation of nature and matter and deals specifically with the manner in which data is collected, analyzed and interpreted". The research therefore used following qualitative research methods to collect, analyse and interpret data.

### **1.6.1. Case study**

A case study is an in-depth study of one or a few cases, in contrast to more superficial cross-sectional study of a larger sample; usually but not always an observational study (Bailey, 1994:508). In view of this definition, Albert Cook Medical Library was used as the case study of the library's use of mobile phones for information delivery. Through studying this Library as a unit, the data gathered was generalized to inform other academic libraries in Uganda.

### **1.6.2. Interviews**

Interviews are sessions involving verbal interaction between the researcher and the respondent/s (Kumar, 2011). The purpose of the interviews was to facilitate the process of gathering data from rural women, health personnel and health librarians. Interviews were the most suited data collection method for the rural women because most of them do not write or read, therefore, the physical presence of the researcher made it possible to guide them by clarifying difficult issues, more so in their language of understanding. During the interviews specifically for rural women and health workers, semi-structured questions were used and an audio recorder was used for purposes of gathering all the important information. The questions sought to find out the health



information needs of rural women, sources from which rural women find health information, mobile phone skills possessed by the women, preferred language of transmission and the usefulness of the information delivered via mobile phones.

The third category of respondents were the health librarians working with Albert Cook medical Library. This group of people comprises of the implementers of the service, policy makers and they also draw the library budget, and therefore they determine fund allocation within the library. Questions included in their interview schedule were purposely geared towards gathering information on the library's outreach mandate, library mobile services and possibilities available for the library to take the delivery of health information to rural women in terms of the availability of funds, staff and skills to extend this service to rural women.

### **1.6.3. Population of study**

The study involved women and health personnel from Buyengo sub-county in Jinja district, Uganda together with library staff from Albert Cook Medical Library. This was deemed appropriate for the study based on the ability of this population to avail information that the researcher was seeking.

Buyengo Sub-county is a rural community therefore it offered the researcher an opportunity to interact with rural women and gather a sizeable number for the interviews. This area is geographically isolated from community libraries given the remoteness of its location.

The second category were library staff from Albert Cook medical Library. They were chosen based on their working experience in an academic Medical Library with medical information materials and because they are the implementers of services in the library, therefore they were in position to provide provided information on the viability of such a mobile service.

### **1.6.4. Sample size**

A sample is a small representation of the bigger population selected for purposes of estimating the thoughts and behaviours of the larger population (Bryman and Bell, 2011). According to the 2002 Uganda population and housing census, Buyengo sub-county had a total population of 14,164 women with an average household size of about 5 people (Uganda Bureau of Statistics [UBOS], 2002).

Given the time and cost constraints, fifty women from different households were used for this study. Buyengo sub-county has got one health centre with only four professional health workers who were all interviewed. In addition, all the three senior librarians of Albert Cook Medical Library were involved in the study because they are colleagues to the researcher; therefore they were easily accessible.

#### **1.6.5. Data Analysis and Presentation**

During the course of the study, the researcher gathered relevant information that answered the objectives of the study. Data from interviews was transcribed, coded and interpreted. The contents were grouped into given themes derived from the study objectives.

#### **1.7. Ethical issues**

This research was undertaken in order to improve access to health information by rural women; therefore, the researcher made this known to the respondents and adhered to participants' confidentiality demands.

#### **1.8. Rationale for the study**

Public health services in Uganda are delivered free of charge through Health centres at sub-county and district levels. However, the ratio between the number of people and the available government health care centres is big thereby crippling effective health care service delivery. The disease burden is preventable not only through use of medicine but also through improved hygiene, sanitation, good nutrition and other preventative measures such as use of condoms and free vaccination at government health centres. Such measures call for health awareness programmes such as information services to rural communities.

Makerere University Library has been ably carrying out some health outreach services by using health personnel. The researcher is of the opinion that rural women as the main care-takers of their families should get first hand information concerning their health and the health of their families. In this way, they can make a major contribution to improving the health status of their

communities. This research was therefore aimed at exploring the use of mobile phones by an academic library, in the delivery of health information to rural women.

## **1.9. Definition of key terms**

It is necessary define key terms to enable clear understanding of the context in which they are used within the study.

### **1.9.1. Academic Libraries.**

In this study academic libraries refer to libraries within institutions of higher learning such as universities offering a variety of information services to support the teaching and research objectives of their institutions (Simmonds and Andaleeb, 2001).

### **1.9.2. Health information.**

Health information was used to refer to information that enlightens a person on how to live a health life. The aim of such information should be to enable individuals make appropriate health decisions.

### **1.9.3. Health Librarians**

In this study, health librarians referred to professional librarians in custody of information materials that cover health related issues. However, they may not have a health training background. Their primary clientele are medical such as medical students, medical teaching staff and institutions that deal with health provision. That is the reason Librarians in Albert Cook Medical Library were termed as health Librarians.

### **1.9.4. Health workers**

According to WHO (2006), health workers are individuals primarily involved in activities that enhance the health of people. This researcher applied this definition to the study, thus the use of professional workers from Kakaire Health centre iv, as respondents to inform the study.

### **1.9.5. Mobile phones**

Mobile phones have been defined a “type of wireless communication device that uses many small cells with a base station and a cell phone tower at the centre of each cell” (Kinder, 2003).

in view of this sophisticated definition, mobile phones are another form of communication gadget used by people to transmit information between each other using a wireless communication network to which they subscribe.

#### **1.9.6. Mobile services**

Mobile services are services that can be delivered using a mobile device with the aid of data, audio and visual applications such as voice calls, texting and video streaming (Zhdanova, 2009).

#### **1.9.7. Rural women**

This study made use of Ukachi's (2007) definition of rural women as being women that are mainly illiterate who live in villages with limited access to economic and social services essential for life enjoyment. This group can barely read or write and besides being housewives they mainly engage in farming.

### **1.10. Lay out of the dissertation**

The study was structured into five chapters as follows:

#### **Chapter One: Introduction.**

This chapter sets the scene for the entire dissertation through an introduction and background to the study. It highlights the research question and sub-questions, as well as the statement of purpose. It further covers the aim and objectives of the study, scope of the study, a brief overview of the methodology adopted for the study, the rationale for the study and definitions of key terms.

#### **Chapter Two: Literature review.**

It contains an overview of the literature pertaining to the main issues related to the study. It covers; the status of the health related MDGs 4, 5 and 6, on all levels, global, continental (Africa) and national (Uganda). Other areas covered are the health situation in Uganda, access to health information in general, the role of academic libraries in providing health information and lastly mobile phones and broad band penetration and use.

#### **Chapter Three: Methodology.**

This chapter deals with the research methodology adopted for the study. It presents the research design and approach, population of study and sampling methods, data collection methods, data

presentation and analysis, as well as ethical issues adopted for the study.

#### **Chapter Four: Presentation of findings.**

Chapter four presents the main findings of the study. It is composed of seven major sections namely; description of the respondents, health information needs of rural women, sources of health information for rural women, the academic library as a source of health information for women and use of mobile phones for delivery of information. Other sections include, proposed health information that can be provided through use of mobile phones, and partnerships required in making accessible health information for rural women.

#### **Chapter Five: Analysis of the findings and recommendations.**

This chapter expands on chapter four by presenting an analysis of the findings. The findings are discussed in line with related literature from chapter two. Furthermore, it presents the recommendations and areas for further research drawn from the study as well a conclusion.

## CHAPTER TWO: LITERATURE REVIEW

### 2.1. Introduction

This chapter reviews some of the available and relevant literature related to health, mobile phones and academic libraries at both the local and international levels. Sections covered here include: i) Millennium Development Goals (MDGs) with emphasis on Goals 4, 5 and 6 which are health related, ii) the health situation in Africa highlighting MDG progress in Africa, health challenges and solutions, iii) the health situation in Uganda, putting forward factors that impact on health services in Uganda and women's health in the country, iv) access to health information, as well as the need for health information and health information sources for rural women in general, further reviewing, v) the role of libraries in providing access to information and lastly, vi) mobile phone usage, mobile broadband and access to health information.

The chapter was structured in this way so as to review existing literature relating to the topic under study and enable the researcher identify the research gap thereby highlighting the relevancy of the study.

### 2.2. Millennium Development Goals

#### 2.2.1. Introduction

The Millennium Development Goals (MDGs) are “the world's biggest promise-a global agreement to reduce poverty and human deprivation at historically unprecedented rates through collaborative action” (Hulme, 2009:4). These goals evolved from the millennium declaration which was the main document of the United Nations millennium summit held in New York from 6 to 8 September 2000.

In the 1990s, United Nations member states for example, the United States of America, Australia, Belgium, Chad, Denmark, France, Japan, and Morocco carried out several conferences aimed at reaching a consensus on global development priorities for the 21<sup>st</sup> century (Peeters, 2010). However, by the end of the 1990s it is reported that governments experienced ‘conference fatigue’ and therefore the United Nations used the year 2000 as an opportunity to re-engage the member governments on the issues of concern globally. There was also recognition of

widespread human deprivation and environmental degradation, and thus the United Nations spurred support to reduce poverty, achieve basic education and health, and promote gender equality (Centre for International Government Innovation, 2012:1).

This engagement led to the birth of the Millennium Declaration which was adopted at the United Nations Millennium Summit by 189 United Nations member states. This Declaration, as the main document of the Summit, contained a statement of values, principles and objectives for the international agenda for the twenty-first century. These ‘time-bound’ targets, with a deadline of 2015, have become known as the eight Millennium Development Goals (MDGs) (United Nations, 2013b).

The eight MDGs are aimed at addressing extreme poverty in its many dimensions, namely income poverty, hunger, disease, lack of adequate shelter, and exclusion, whilst also promoting gender equality, education, and environmental sustainability (United Nations, 2013b). In effect, the goals therefore, also address the issue of basic human rights which can be broadly defined as the rights of each person on the planet to health, education, shelter, and security (United Nations-Millennium Project, 2006).

As stated above, a total of eight goals were adopted from the Declaration. However, for the purposes of this study, the focus will be on Goals 4, 5 and 6 which are directly related to health issues and will be discussed below.

#### **2.2.2. Goal 4: Reduce child mortality.**

Child mortality refers to the probability of dying by the age of five (Bhattacharya and Chikwama, 2011:244). Globally, child mortality has been declining since 1990 due to socioeconomic development and use of child interventions (Black et al. 2010:1969) as evidenced by statistics from WHO (2013c) which report that only 6.6 million deaths occurred among children below the age of five in 2012 as opposed to 12 million in 1990. In the 2013 United Nations report the mortality rate of the less than five years aged children, has declined by forty nine percent since 1990 reducing from 90 to 46 deaths per 1,000 live births worldwide.

However despite this significant progress in reducing the number of child deaths in past years, more needs to be done as reports have shown that only 10 of the 67 countries identified by the United Nations as having high mortality rates are likely to meet the UN target by 2015. The target of the UN MDG4 is to reduce the death of children under the age of five by two thirds between 1990 and 2015 (Black, et al, 1969:2010).

Child mortality has been attributed to many factors. In this regard, neonatal causes, pneumonia, diarrhoea, malaria, measles, and HIV/AIDS, preterm births, sepsis, tetanus, meningitis, pertussis, injuries and noncommunicable diseases have been identified as some of the big contributors to child deaths accounting for over 8 million deaths per year (WHO, 2013c; WHO, 2014a). However, interventions that can reduce mortality rates by half in an effective and affordable manner should be adopted and these include “the care for newborns and their mothers; infant and young child feeding; vaccines; prevention and case management of pneumonia, diarrhoea and sepsis; malaria control; and prevention and care of HIV/AIDS” (WHO, 2013c).

Furthermore, there has been ongoing debate that the achievement of goal 4 depends to a large extent on achieving MDG 5, i.e. to improve maternal health. This is because neglect of mothers during pregnancy and during and after birth increases maternal death, and it is known that motherless newborns are three times more liable to die than others (United Nations Population Fund [UNFPA], 2005:3; WHO, 2013c). It is therefore, imperative to also look at the goal that addresses this very important issue.

### **2.2.3. Goal 5: Improve maternal health.**

Maternal health refers to the health of a pregnant woman, including the period of the birth itself and the postpartum period after birth (WHO, 2013b). United Nations highlights two targets for this goal namely i) “reduce by three-quarters, between 1990 and 2015, the maternal mortality ratio” and ii) “achieve, by 2015, universal access to reproductive health” (United Nations, 2013a; United Nations International Children's Emergency Fund [UNICEF], 2014).

So far, the rate at which mothers are dying has declined by nearly half since 1990, and although this is short of the target for 2015, all countries are making significant progress (United Nations,



2013a). This is evidenced by the prevailing global figures whereby in 1990, 400 women died per 100,000 live births compared to 210 per 100,000 in 2010 (UNFPA, 2012).

These maternal deaths are a result of over bleeding at birth, illnesses during pregnancy, high blood pressure, complications arising from miscarriages and injuries. However, most of these deaths can be avoided if the necessary medical interventions are put in place and people are made aware of their availability (WHO, 2014f). Interventions such as adequate nutrition, proper health care, access to family planning, the presence of skilled birth attendants during delivery, and emergency obstetric care are dire necessities (United Nations, 2013a). Education also plays a major role as a prevention initiative since it has been shown that the risk of maternal death is 2.7 times higher among illiterate women and two times higher in women with one to six years of education, than women with over twelve years of education (United Nations, 2013a). It is therefore important for women and girls to be educated in issues that concern their health and of those that they are directly responsible for.

As already noted above in 2.2.2, a number of diseases such as HIV/AIDS, malaria and other diseases are directly responsible for the increasing mortality rate which is also true for the increasing maternal deaths. In line with this, it been noted that in order to reduce maternal deaths, there is need to slow down the spread of diseases mentioned above (UNICEF, 2014). It is therefore, important to explore MDG 6 that directly seeks to halt the spread of these diseases as explained below.

#### **2.2.4. Goal 6: Combat HIV/AIDS, malaria and other diseases.**

Several diseases such as HIV/AIDS, malaria and other prevalent diseases have become a serious issue of concern in relation to child mortality rates and maternal deaths in the world today. In relation to this, it is important to note that women account for over half of all the HIV infections in the world, and children under five account for the majority of deaths caused by malaria (Action for Global Health, 2013). It is thus necessary to discuss these diseases as covered under MDG 6.

This goal has got three targets: i) “have halted by 2015 and begun to reverse the spread of

HIV/AIDS”; ii) “achieve, by 2015, universal access to treatment for HIV/AIDS for all those who need it” and iii) “have halted by 2015 and begun to reverse the incidence of malaria and other major diseases (United Nations, 2013c).

As per the current United Nations fact sheet (United Nations, 2013c), there has been significant progress in achieving the above targets whereby 9.7 million people received lifesaving medicines for HIV in 2012 and 1.1 million malaria deaths were prevented in a span of 10 years. In spite of these achievements, however, more needs to be done because there are over 2.5 million new HIV infections each year and there is not sufficient knowledge about HIV especially among young people. In addition, according to the 2011 statistics, 7 million people still lacked access to antiretroviral therapy for HIV (United Nations, 2013c). Malaria on the other hand is rampant due to lack of access to efficacious anti-malaria medicines and not using insecticide-treated mosquito nets (United Nations, 2012). It is thus of paramount importance to improve access to specific disease drugs, access to treated mosquito nets as well as access to vital information about prevention and treatment of these diseases.

#### **2.2.5. Current progress report on achieving MDGs 4, 5 and 6**

Achieving MDGs 4, 5 and 6 is of utmost importance just like the other MDGs. However, priority has been given to other goals as clearly reflected in the United Nations-Millennium Project (2006:8) report that, “...*achieving the goals is about making core investments in infrastructure and human capital that enable poor people to join the global economy, while empowering poor people with the economic, political, and social rights that will enable them to make full use of infrastructure and human capital, wherever they choose to live*”. In this statement, there is no mention of health related goals which shows that health is still not prioritized and explains the appalling statistics of deaths of children and mothers.

In relation to the above, the Centre for International Government Innovation (2012:1), in their report which set out to evaluate MDGs’ progress to date, posits that as the deadline for achieving the MDG targets draws nearer, it is imperative to note that overall, attention and resources have been mobilized to address the gaps that hinder human development, and indeed they forecast that poverty levels globally will be halved by 2015.

In regard to the above, it is observed that health related MDGs 4, 5 and 6 are not currently given as much attention as the other MDGs which simply implies that these goals are making uneven and insufficient progress. This is especially true for Africa as pointed out that the continent is lagging far behind the rest of the world in achieving the set development targets by 2015 (United Nations Economic and Social Council, 2013). It is therefore important to gear a campaign towards improving the dire health situation in Africa.

### **2.3. Health situation in Africa**

Africa, the second largest continent in the world comprising about one seventh of the world's population numbering 730 million inhabitants, is reported to be facing more health challenges than anywhere else in the world (AfroCentral, 2013a; Cooke, 2009:1; WHO, 2012c). The main barrier to Africa's attainment of good health is its fragile health systems (WHO, 2007). With such challenges, it is important to explore health related MDGs 4, 5 and 6 in Africa, the most affected continent.

#### **2.3.1. Child Mortality in Africa**

Child mortality rates in Africa are still unbelievably high. This is especially so in Sub-Saharan Africa as noted that this part of the continent has the highest risk of child deaths in the first month of life (United states Agency for International Development, 2012; UNICEF, 2013, WHO, 2014a).

#### **2.3.2. Maternal Health in Africa**

The situation on maternal health in Africa is still poor. It is reported that although Africa has registered a massive drop in maternal deaths of 41 percent from 920 deaths of every 100,000 live births in 1990 to 500 deaths of every 100,000 births in 2010, the rate is still high compared to the rest of the world (UNFPA, 2014). This rate is still puzzling and unacceptable because there are many ways to avoid maternal deaths. On the global scene, statistics show that 287,000 mothers die from maternal related complications and yet 165,000 (57.5 percent) of these deaths occur in Africa (UNFPA, 2014). These statistics show that the figures in Africa alone are unproportionate

to the rest of the world.

More still, it is rather unfortunate to note that 1 in 39 women is likely to die from various complications during pregnancy, during and after birth compared to 1 in 4000 women in the developed world. These sky rocketing figures on the African continent are mainly attributed to child marriages where young girls aged between 15 and 20 are forced into marriage way before they are ready to become parents, as well as the fact that most African countries are not keeping on track to achieve MDG 5 (UNFPA, 2014).

However, Africa can still achieve this goal if the right measures are put in place and followed by different countries. Such measures include sensitising women about maternal health, provision of antenatal services, increase in the number of birth attendants, instituting integrated HIV, reproductive health and family planning services as well as launching campaigns against child marriages (UNFPA, 2014; ).

### **2.3.3. The disease burden in Africa**

The term disease burden is used to “describe the effects of disease on the livelihoods of households and on society” (Chukwuma, 2012). Of this “disease burden” (Chukwuma, 2012), it is estimated that Africa carries 24 percent of the global burden of especially HIV/AIDS, malaria, tuberculosis, diarrhoea and heart disease (AfroCentral, 2013a; Cooke, 2009:1, Baingana & Bos, 2006). Africa is faced with a double burden of both infectious and chronic diseases. Infectious diseases account for over 69 percent deaths on the continent and death rates from chronic diseases are higher in Africa than in any other region of the world (Aikins, Boynton and Atanga, 2010; Agyemang et al, 2010). The infectious diseases being those that spread from one person to another (WHO, 2014d) that continue to ravage the continent include the following:

- HIV/AIDS is one of the disturbing infectious diseases in Africa. Africa accounts for 68 percent of the people infected with HIV/AIDS globally (Fustos, 2011; UNAIDS, 2013:7). According to the World Bank (2012b), across Africa, more than 24.4 million people (two-thirds of the world’s cases) were living with HIV/AIDS at the end of 1999 and that more than 2.2 million people had died of HIV/AIDS in the same year. WHO (2009) observes that the statistics indicating the skewed prevalence of HIV in young women aged 15—24

are particularly disturbing, especially in view of the reports of sexual violence experienced by this group which increases their vulnerability to infection.

More still, the HIV/AIDS epidemic greatly affects the health sector as it strains the budget, with increased demand for health care (Afrocentral, 2013b). The epidemic further strains the health care sector by claiming the lives of doctors and nurses and in so doing, HIV reduces the supply of a given quality of health care at a given price (Tawfik & Kinoti, 2006:8; Kinfu et al. 2009).

- Another infectious disease is Malaria. It is important to note that approximately 80 percent of the world's cases of Malaria occur in Africa and this accounts for 11 percent of the disease burden (WHO, 2012b; UNICEF, 2013). This incidence costs many of the African countries more than 1 percent of their GDP annually (WHO, 2012a; UNICEF, 2013). Of the 3,000 people who die from malaria worldwide every day, three quarters are children.
- Other infectious diseases fall under the category of environmental and vector borne diseases such as tuberculosis which is transmitted through sneezing, coughing, talking or spitting. These account for 2.5 million deaths annually in Africa alone of which 1.5 million deaths are from Sub Saharan Africa only (Ahmed and Cleeve, 2004).

Non- communicable (Chronic) diseases on the other hand, are not infectious and are thus not transferable from one person to another (WHO, 2013d). Some of these are diseases may develop slowly and become chronic in nature while others develop randomly and very rapidly (WHO, 2013d). Some of these diseases include the following

- Diabetes and high blood pressure are on the rise across Africa. This unprecedented rise is attributed to the changing lifestyles among Africa's populations (Mohan, Seedat and Pradeepa, 2013).
- Cancer from smoking cigarettes is common in urban areas, especially slums. Cancers are a crucial part of the disease burden in Africa, and this is due to increased tobacco consumption as well as HIV induced immune suppression. The increased use of alcohol has also led to an increase in especially liver cancer. The top cancers faced by men in

Africa are Kaposi's sarcoma, liver cancer and cancer of the prostate. Among women, cervical cancer is the most widespread, followed by breast cancer and finally Kaposi sarcoma (Baingana and Bos, 2006).

It is believed that the diseases mentioned above have far reaching effects on the population such as the low life expectancy in Africa (UNAIDS, 2013:14). This is evident in most African nations where the average life expectancy rate was only 58 years in 2012 (WHO, 2014c). It is thus a very challenging health situation across the African continent as further explored below.

#### **2.3.4. Challenges to health in Africa**

Africa experiences several health challenges which have contributed to the slow attainment of health related MDGs 4, 5 and 6. The main barrier to Africa's attainment of good health is its fragile health system which is embedded in poverty, underdevelopment, conflict, and weak or ill-managed government institutions (Cooke, 2009:1; Kirigia and Barry, 2008). A number of factors contributing to this situation are as follows

- Poverty and poor health are closely linked. Poverty has greatly contributed to the poor health conditions in Africa as on the whole environmental diseases are more numerous and widespread in poverty stricken areas (Cooke, 2009:1; Ssewanyana and Okidi, 2007). In health matters, poverty translates into lack of access to doctors and clinics, lack of money to pay for medical services and the use of cheap and low quality treatment provided freely by the government and malnutrition which leads to weaker immune systems and increased vulnerability to disease thus causing deaths among children and women.
- Poor infrastructure is another challenge to health in Africa. It is observed that many African countries have poor infrastructure in terms of poor roads connecting to health facilities, limited drug supply, non operational medical equipment, inadequate ICT equipment, poor Internet connectivity and lack of health information systems (Kirigia and Barry, 2008; Issakov, 2010:35). WHO/UNICEF (2010) further note that the poor in underdeveloped countries such as Africa have limited access to safe drinking water and safe waste disposal, a situation that is leading to increased attacks from disease thereby crippling the health system. WHO (2012d) points out that this scenario is reflected in the

statistics that show that 54 percent of people in Africa lack access to safe drinking water while 64 percent have no access to proper sewage disposal. With such poor infrastructure in place, there is a likelihood of increased mortality rate among both children and women.

- Inadequate health personnel is another factor inhibiting the achievement of MDGs 4, 5 and 6. It is reported that Africa records the highest number of countries with limited health personnel as shown by Kirigia and Barry (2008) that of the 57 countries with shortage of health personnel worldwide, 36 are in Africa. Additionally, Naicker et al. (2009:60) report that the human resources for health in Africa presents a growing crisis given that both the number and skill levels of health workers in Sub Saharan Africa are below what is needed to reduce mortality. They note that Africa has 25% of the world's disease burden but only 1.3% of the world's health workforce. In addition, HIV increases the workload for medical workers and reduces the numbers of health workers as some of them die from the disease while others migrate to look for greener pastures (Chelala, 2013; Marchal, De Brouwere and Kegels, 2014).
- Wars and internal conflict adversely affect health infrastructure, services and personnel retention. Mugo (2013) notes that the increase in the number of illnesses and deaths is one of the most obvious effects of wars and conflict and that "rape, torture, post-traumatic stress, sexually transmitted diseases (including HIV/AIDS) and long-term mental health problems are common during and after wars". These effects therefore, can be considered as some of the major setbacks towards achieving MDGs 4, 5 and 6 in African countries that are ravaged by war.
- Similarly, socio economic challenges are a hindrance in the progress of the healthcare system in Africa. There is low level of economic growth in Africa which is characterised by limited allocation of funds to the health sector, weak health financial policies and corruption among medical practitioners (Kirigia and Barry, 2008; Ogunleye, 2012:2). The growth in the GDP per capita in many African countries is low and it is lagging behind many other nations (Sundaram, Schwank and Arnim, 2011). This is cause for worry because low economic growth coupled with the increasing poverty levels consequently can lead to slow progress in health outcomes while in contrast higher incomes lead to use of preventative and curative interventions such as antenatal care, immunization, use of treated bed nets, therapy as well as easy access to medicines. Income also determines

access to nutritious food, leading to lower levels of malnutrition, a key risk factor for many childhood diseases.

- Furthermore, data collection measures in Africa are inadequate. Although data collection efforts have increased over the past decades in African countries, the availability of morbidity and mortality data is far from sufficient (Chetty, 2013). This information is important for monitoring disease outbreaks, impact of incidence and prevalence for most diseases (Chetty, 2013). In addition, routine vital registration is still absent in almost all countries and yet general unavailability or reliability of denominators needed to estimate overall mortality would improve the quality of epidemiological information (WHO, 2011). This lack of access to vital information is in essence crippling the health systems of African countries (WHO, 2011).
- Lack of education and information also contributes to the poor health levels in Africa. The World Confederation for Physical Therapy (2010) points out that “thousands (are) dying every day due to lack of health information”. A number of people fail to seek medical care sometimes not because it is not available but because they are ignorant about its availability and/or are concerned about the cost of such services (Musoke, 2005:3). Moreover, some government centres and Non government organisations offer these services free of charge. Awareness efforts are thus necessary to ensure increased visits to health centres (Afrocentral, 2013b).

In addition to the above challenges, gender inequality and cultural norms, poor leadership in the health sector, non-community participation in healthcare planning in some African countries are also posing risk to the health of the people (Kirigia and Barry, 2008; Paruzzolo et al. 2010:7). In order for Africa to keep on track with the achievement of health related MDGs 4, 5 and 6, there is need to apply solutions to reverse the current situation as presented in below.

### **2.3.5. Some proposed solutions to Africa’s health challenges.**

Africa still faces a number of daunting health challenges. However, these challenges are not irreversible. A number of solutions can be applied to curb such challenges. Baingana and Bos, (2006) observe that home grown solutions have drawn international attention to health in Sub Saharan Africa, a situation which has brought a positive response to decreasing the disease



burden in Africa. These new initiatives and partnerships have provided the impetus for advocacy and increased attention to diseases of the poor. These initiatives include the Bill and Melinda Gates Foundation as well as the Global Fund to fight malaria, HIV/AIDS and tuberculosis (Schocken, 2006 ).

- HIV/AIDS is one of the epidemics on the rise in Africa. However, there are solutions in place to slow down the spread of HIV/AIDS in different African countries. One of the examples of such solutions was the Abuja Declaration on HIV/AIDS, Tuberculosis and other related infectious diseases signed in Abuja, Nigeria, in 2001 (Organisation of African Unity, 2001:3). The same organisation further notes that this was a commitment by African leaders to reduce the burden of disease on the continent given that it was straining their health care systems and impoverishing their populations. The decree pledged to place the fight against HIV as the highest priority issue in all national development goals and enjoined all African Countries to commit 15% of their national budgets to the health sector and drugs. This it hoped would result in affordable prices, medicine and technologies for treatment, care and prevention of HIV/AIDS, tuberculosis and other related diseases.

In addition to the above, they made proposals to develop traditional medicine and enable research into the development of an HIV vaccine relevant to Africa (Organisation of African Unity, 2001:3). Crucial to this research was the decision to scale up the role of education and information in the fight against HIV/AIDS. As reported by the Joint United Nations Programme on HIV/AIDS (United Nations AIDS Support [UNAIDS], 2013: 22): “In the years since, the progress has been incredible, extensive and - sadly - incomplete”.

- Malaria, as part of the disease burden in Africa, should urgently be addressed to reduce child mortality and maternal deaths, thus contributing towards achievement of MDGs 4, 5 and 6 (WHO, 2012a). It is important to follow a systematic approach in addressing the malaria challenge. The first step is to identify the environmental threat that causes malaria namely mosquitoes, which leads to the next step of adoption of practices that lessen the risk of exposure, and finally develop prevention and intervention programmes (WHO, 2014e). In regard to treatment of malaria, DDT was proposed as a solution owing to success elsewhere in the world like the United States of America but was discontinued as the pesticide was found to kill plants and animals (Kirya, 2013).

The other preventive response to malaria is sleeping under treated mosquito nets (Sexton, 2011). This reduces the chances of malaria infections among pregnant women and children (WHO, 2014e). Further still, WHO advocates for the use of Artemisinin-based Contribution Therapy (ACT), a highly effective but very expensive alternative (Kirya, 2013; Uganda Bureau of Statistics [UBOS], 2011).

- Responses to other environmental diseases such as tuberculosis follow a similar plan like malaria where the environmental threat has to be identified, preventive practices adopted and putting in place intervention programmes (WHO, 2012a). In the case of vessel borne diseases such as diarrhoea and dysentery, the key solution is increased access to clean water and sanitation facilities to promote better hygiene. Even without advanced modes of sewage disposal, these key actions can reduce the disease burden.
- The key weapon for fighting against some infectious diseases such as diarrhoea is good households and personal hygiene such as drinking clean water and washing hands (Centres for Disease Control and Prevention [CDC], 2013).

Apart from the above solutions directly related to reducing the disease burden, there are other solutions that can be adopted to address other health challenges such as shortage of health workers, poor medical care, gender inequality and cultural norms, lack of access to health education and health information. These solutions include the following.

- Better access to medical health care services such as antenatal and immunization services especially in rural areas is essential for the reduction of unnecessary deaths (Chelala, 2013, UNAIDS, 2013:18).
- Furthermore, studies have proven that access to health information, health education, health promotion and disease prevention could do a lot to redeem the health crisis in Africa (Chelala, 2013). Health information is particularly important in enabling patients and health workers in discerning the causes of various diseases and thus be able to prevent and respond accordingly (Musoke, 2005:8). This rhymes with Rohde *et al* (2008)'s quotation about Alice in wonderland that "if we do not know where we are going, how will we know if we have arrived there?". In essence, this means that people must know the causes of the diseases in order to prevent and treat them.

- With the aforementioned health challenges in Africa, another probable solution would be having a moderate physician to patient ratio to address the problem of shortage of health workers. However, recent evidence suggests that for every 1,000 people there are only 2.4 physicians available to them which is a small workforce in relation to the disease burden in Africa (Afrocentral, 2013b; Naicker et al, 2009: 60). Although there is noticeable progress in increasing health workers, most African states have not yet lived up to the commitments made during the Abuja declaration of 2001 (UNAIDS, 2013:21).
- Empowering women and removing social barriers that hinder them from accessing medical care is an important strategy in dealing with gender inequality and cultural norms (Chetty, 2013).

The health challenges discussed in 2.3.4 and their corresponding solutions discussed in 2.3.5 are common to African countries including Uganda, which is the focus for this study. The health situation in Uganda is discussed below.

## **2.4. Health situation in Uganda**

### **2.4.1. Introduction**

Uganda comprises an area of 241,039 square kilometres with 197, 323 square kilometres covered by land. While the 2009 population survey Uganda's population was 30.7 million and is estimated to stand at 37.9 million by 2015 (UBOS, 2014:1, 12-13). Of this population, 48.5 percent are males, 51.5 percent females and 88 percent of the total population live in rural areas.

Just like most developing countries "Uganda is among the most hit countries by infectious and parasitic diseases (WHO, 2014d). However, WHO (2014d) asserts that these diseases can easily be prevented and treated. Recent data shows that among these diseases, malaria is the leading cause of morbidity and mortality among all age groups in Uganda, while HIV prevalence is on the increase, and there is re-emergence of viral hemorrhagic fevers and cholera epidemics (Mbonye and Magnussen, 2013; Lanier, 2012).

However, despite the prevalence of preventable diseases, the National Planning Authority (2013)

in its “*Vision 2040*” reports that Uganda has made some progress in improving the health conditions of the population. It adds that the country has registered improvement in some key health indicators for example life expectancy improved from 52 years in 2008 to 54 years in 2011 and the maternal mortality rate decreased from 435 to 325 per 100,000 live births between 2006 and 2011. Furthermore in the same period, the infant mortality rate reduced from 76 to 63.

#### **2.4.2. Factors that impact on health services in Uganda**

In spite of the above-mentioned positive statistics, Uganda’s health care performance is still ranked as one of the worst globally by WHO, taking the position of 186 out of the 191 countries considered worldwide (Phillips Health Care, 2013; Kyetume team, 2011). It is interesting to note that Uganda enjoyed a fairly good health system superior to many other developing countries in the early 1970s, with free access to health services for all citizens in government hospitals, dispensaries and maternity centres (Scheyes and Dunlop cited by Rutakumwa and Krogman, 2007: 106). In addition, there were several Roman Catholic and Anglican missionary hospitals that provided complementary services. However, due to political instability in the 1980s, the health infrastructure was destroyed and government health expenditure dwindled as the funds were used for military operations.

Healthcare provision and infrastructure in Uganda are chronically underfunded and highly variable in quality. Uganda’s government expenditure on the health sector stands at only 7.2 percent of the total national budget which compared to the proposed 15 percent of the Abuja Declaration is still below average (Kiwawulo, 2013). As a result of this underfunding there is irregular supply of vaccines and medicine in health units thereby crippling the overall health system in the country. This situation is worsened by a high level of incompetence and fraud in handling medical supplies (Human Rights Network-Uganda (HURINET-U), 2013:33). The current state of affairs thus makes it hard for Uganda to realise the 15 percent threshold stipulated in the Abuja Declaration and Plan of Action, 2000 to which Uganda is a signatory (Human Rights Network-Uganda, 2012:33). The World Bank Working Paper no. 186, reports that Uganda’s prospects of achieving the necessary funding for health are still very limited (Okwero et al., 2010:xi ).

The most common illnesses suffered by Ugandans are HIV/AIDS, malaria and tuberculosis which hinders the achievement of health related MDGs 4, 5 and 6. Uganda is ranked eighth in the world for HIV/AIDS infections with 1.2 million people infected (Ministry of Finance, Planning and Economic Development, 2013:28-29). HIV/AIDS still accounts for high morbidity and mortality in Uganda, partly because of the high HIV prevalence rate among pregnant women and poor attendance of antenatal care in Uganda (Ministry of Health, Reproductive Health Division, 2010). Furthermore, Malaria and Tuberculosis are termed as killer diseases in Uganda where malaria is considered as the leading cause of death and kills approximately 110,000 people per year, mostly women and children, while the prevalence rate for tuberculosis is 183 per 100,000 people (Lanier, 2012; Ministry of Finance, Planning and Economic Development, 2013).

Despite the high disease burden, only 38 percent of the health posts in the country have been filled by professional physicians, whereby for every 1000 people, there are only 117 physicians available (HURINET-U, 2013:33). In the same report, HURINET-U (2013:45) reports that the shortage of health workers has led to inefficiency in health service delivery leading to deaths that could perhaps have been avoided had there been enough personnel to care for the patients.

The situation is further aggravated by the fact that 70 percent of the total doctor population in Uganda work in urban health facilities, as well as 40 percent of the nurses and midwives. These serve the urban few who make up only 12 percent of the general Ugandan population, thereby leaving 88 percent of the population living in rural areas vulnerable to disease (Mubatsi, 2013). This workforce imbalance between the rural and urban areas needs to be tackled urgently in order to save the lives of Uganda's greater population living in rural areas who are in dire poverty and therefore cannot afford medicine in private units.

Within this context, the health infrastructure is limited in Uganda. In 2006, there were only a total of 3,237 health facilities in the country of which 71 percent were public, 21 percent private but not for profit, and 9 percent as profit making health facilities (Okwero *et al.*, 2010). In these facilities, only 39 hospital beds are available for every 1000 people implying that many of the

patients find themselves on bare floors while hospitalized. The situation in public units is aggravated by the fact that medical supplies and personnel are scarce (Mubatsi, 2013).

Medical facilities are not accessible to the larger population due to transport difficulties and poverty (HURINET-U, 2013:9). It is reported that 52 percent of Uganda's population live below the international poverty line of 1.25 US dollars per day (Okwero et al, 2010). This is an alarming situation whereby people living under the poverty line lack the resources to access health care for themselves and their family members thus increasing death rates. As Maurer (2005:108) argues, "the poorer the country, the more likely its citizens suffer from preventable diseases and early deaths".

In addition to the above, it should be noted that Uganda has limited access to clean water and sanitation. Approximately 64 percent of Uganda's rural population has got access to clean drinking water and only 49 percent have access to improved sanitation facilities (O'Meally, 2011). It is likely that this limited access contributes to the disease burden in Uganda because contaminated water contains countless parasites and diseases which if consumed inevitably lead to disease and if left untreated may cause death.

From all the above factors, it can be noted that Uganda is in the struggle towards achievement of MDGs 4, 5 and 6 although progress towards these goals is still slow. This is particularly true for MDG 5 because it is noted that since women still carry the highest burden of disease and thus death, Uganda is unlikely to meet this goal and its targets by 2015 (Ministry of Finance Planning and Economic Development, 2013). Therefore, it is important to explore the health situation of women in Uganda as discussed below.

### **2.4.3. Women and health in Uganda.**

#### ***2.4.3.1. Introduction***

Women are resourceful citizens of a nation. In this regard, women are considered as the main care takers of their households in Uganda (Coalition for Health Promotion and Development (HEPS) Uganda, 2014). Furthermore, Ntawukuriryayo, as quoted by Desai (2010), emphasises that "a woman is the heart of the house, so if your heart is working well, the whole body... is also

to benefit”. In the case of Uganda, this means that if women are well taken of, the entire nation will benefit. One of the ways of taking care of women is by ensuring that they are in good health. The health situation of women in Uganda is discussed below.

#### **2.4.3.2. General health situation of women in Uganda**

Literature reviewed indicates that Uganda is making slow progress in improving maternal health and therefore has a long way to go in attaining the 2015 target of maternal mortality of 131 to 100,000 live births and 100 percent skilled health personnel attendance at the births (Ministry of Finance Planning and Economic Development, 2013). This is because Uganda has only 42 percent of the births being attended by skilled personnel which explains the deaths of 310 women out of 100,000 live births in 2010 alone (World Bank, 2012). Other factors that contribute to the high maternal mortality include the following:

- HIV/AIDS, malaria and tuberculosis are some of the diseases that have worsened the health situation of women in Uganda thus contributing to high maternal mortality (Ministry of Finance Planning and Economic Development, 2013). For the case of HIV/AIDS, it has been reported by the Reproductive Health Division of the Ministry of Health (2009) that:

*“Females in Uganda are disadvantaged and surrounded by many inequities. This situation has been worsened by the culture, for example: teenage pregnancy is among the highest in sub-Saharan Africa; adolescent girls are four times more vulnerable to HIV infection than their male counterparts; HIV prevalence among women is high (7.5%) compared with 5% among men; married women cannot refuse sex or cannot ask their husbands to use condoms”.*

- Delay in seeking medical health services. It is believed that some women in Uganda do not immediately seek medical care because of three main reasons namely heavy dependence on their male partners, ignorance about health care rights and low self esteem (HEPS Uganda, 2014).
- Inconsistent provision of medical reproductive health services. HEPS Uganda (2014) observes that women in Uganda do not access reproductive health services such as family planning services, antenatal services and post natal services due to inconsistency in providing such services. This can in turn increase maternal mortality.

#### **2.4.3.3. The health situation of rural women in Uganda**

According to Wainer (1998:81) “...rural women, like women everywhere, are given responsibility for mental, emotional and physical health of their families and community. They knit together fabric of family and community, they are the carers and supporters and the volunteers”. This kind of responsibility applies to the rural women in Uganda. However, this responsibility can be affected if the health situation is not favourable. The health situation of rural women in Uganda is poor thus contributing to high maternal deaths (HEPS Uganda, 2014). These deaths can be attributed to the following.

- The traditional attendants lack knowledge and training in modern medical procedures thereby leading to high mortality levels. Only 48 percent of expectant mothers have antenatal care and only 24 percent of people of child bearing-age use contraceptives in Uganda (WHO, 2012c).
- Poverty is one of the causes of maternal deaths in Uganda. In regard to this, National Association of Women Organisations in Uganda (NAWOU, 2011) identifies poverty as a big barrier to rural women attaining medical services because they cannot afford it. The high cost of drugs, transportation to the health facilities make it hard for rural women to access professional health services (Okutu, 2011:4).
- Social cultural norms which are predominant in rural Uganda contribute to poor health of rural women (Okutu, 2011:4). Okutu explains this by pointing out that traditional norms favor male dominance over women where, for instance in some cultures, in order to avoid exposure of their private parts to male health workers, women are not allowed to seek medical help without permission of their husbands.
- Lack of access to health information has also been identified as a significant challenge to the health of women in Uganda which makes them resort to traditional medicine and remedies (World Vision, 2013:2). However, the National Association of Women Organisations in Uganda (NAWOU, 2011:3), stresses that delivery of information to the women through media such as radio programmes, bill boards, charts and through community gatherings will empower the women to seek health advice from hospitals and also create health living awareness.
- Other factors that affect the health of rural women in Uganda include lack of medicine in



hospitals, domestic violence where some women are denied decision making choices in regard to child birth, lack of obstetric care services and forcefully marrying off young girls (Ministry of Health, 2010a; NAWOU, 2011).

## **2.5. Access to health information**

### **2.5.1. Introduction**

In view of the WHO's (2013a) definition of the right to health , where the right to health is not only concerned with timely and appropriate health care but also encompasses access to health information as part and parcel of the determinants of health, rural women should be availed with information to enable them to live healthily. This means that if the rural women are made aware that the government is mandated to provide good health facilities for them, they then have the capacity to task their political leaders to fulfil their obligation. Unfortunately given the limited access to information; rural women are to a great extent living in ignorance of their rights. However, with the right information, such as health information, these women could make the right decisions in regard to their health and that of their families.

### **2.5.2. Access to information as a human right**

According to the United Nations Office of the High Commissioner for Human Rights [OHCHR], 2013), human rights are “rights inherent to all human beings, whatever our nationality, place of residence, sex, national or ethnic origin, colour, religion, language, or any other status”

Access to information is regarded as a fundamental human right according to the 1948 United Nations, Universal Declaration of Human Rights, article 19 which stipulates that “*Everyone has the right to freedom of opinion and expression; this right includes freedom to hold opinions without interference and to seek, receive and impart information and ideas through any media and regardless of frontiers*” (United Nations, 2013d).

The same view is put forward through the African Charter on Human and People's Rights, 1981 article 9, part one, that stipulates that “*Every individual shall have the right to receive information*” (African Charter on Human and People's Rights, 2012:2). Although this does not

directly point out access to information as a human right, it relates to the right of individuals to have access to information.

Mathiesen (2008:1) argues that access to information is necessary so as to allow people to live “a minimally good life”. She adds that human beings are inherently made of a desire to acquire knowledge and if deprived of information, they may end up living improvised lives. Therefore, it is imperative that people gain access to information in order to make future plans, and to effectively protect their rights, such as the right to health, as stipulated in the United Nations’ Universal Declaration of Human Rights. For the sake of this study, health information is the main focus as explained below

### **2.5.3. Need for health information**

United Nations (1995:34) identifies twelve critical areas of concern for the development of women at The Beijing World Conference on Women in 1995. It recognises the right of women to enjoy a high standard of physical and mental health as one of its main components. In order to enjoy the above health status, women have a need for health information. However, according to the World Bank report, one of the common elements of the rural people is “their lack of affordable access to relevant information and knowledge services” (The World Bank, 2007:3) to enable them to live healthy lives.

On the other hand, women as the primary seekers of health care and therefore health information, not only seek information for themselves but also for their family members (Wathen and Harris, 2007:640), although these needs may differ in accordance to what they want the information for (Olorunda and Oyelude, 2003).

In their study of information needs of rural women, Olorunda and Oyelude (2003) and Saleh and Lasisi (2011) put forward five main health information needs of women namely: ante-natal and postnatal care, immunizations especially on the six childhood killer diseases, how to prevent and manage Vascular Virginal Fistula (VVF), how to safely deliver babies, and the need for information on how to prevent and control epidemics especially cholera and meningitis. Overall, however, they argue that the basic health information needs of women are related to family

planning, nutrition and sanitation.

Olorunda (2004:3) goes on to emphasize that women's information needs, whether social or health, political or professional should be treated with utmost importance, since these are the determining factors of the quality of life their families live, therefore mechanisms have to be put in place to satisfy these needs.

Uhegbu (2001) notes that disseminating health information to rural women stimulates them to become active participants in national development, which includes disease control measures. Information distribution empowers women and encourages cooperation, behaviour adjustment, confidence building and elimination of some of the cultural constraints to their awareness and participation. Similarly, Musoke (2005:6) posits that women in rural Uganda need health information to influence change in perceptions towards their health. This means that various sources of information should be availed to rural women.

#### **2.5.4. Health information sources for rural women in general**

The role of health information cannot be overemphasized in the twentieth century. To achieve MDGs 4, 5 and 6, which are considered as the goals of a healthy nation by the year 2015, it is vital to stress the need for the supply of appropriate information to the right people at the right time (Kaniki, 2008). To this end, the role of health information transfer is important.

Rural women acquire information from both formal and informal sources. More often than not, however, the first source of information for rural women are informal in nature. These include their friends, family members, and other relatives, as well as neighbours (Wathen and Harris, 2007:643; Mooko as cited in Coraggio, 2010:7).

Additionally, rural women utilise formal sources of health information which are standardised in nature. For example, in a study carried out by Nwagwu and Ajama (2011), it was revealed that rural women in Western Nigeria, utilise radios, televisions, newspapers and Internet as formal sources of health information. Contrary to this, Coraggio (2010:11) asserts that these formal sources of health information are mostly used by urban women in Malaysia who are facilitated by money. From these two studies, a conclusion can be drawn that the nature of the sources of

health information depends on the level of development in particular communities.

In addition to the above, it is important to identify the challenges related to different sources of health information. According to various sources such as Saleh and Lasisi (2011) and Nwagwu and Ajama (2011) rural women are faced with several drawbacks in using formal sources of information. These drawbacks include low literacy levels, incapacity to access formal channels of information because of high levels of poverty in rural communities, inadequacy in regard to well-organized information delivery channels, lack of awareness of government's role towards its citizens coupled with uncertainty of government and its information agencies in fulfilling this role, limited time to search for information, and lack of skills in locating information (Ikoja-Odongo, 2001; Saleh and Lasisi: 2011; Nwagwu and Ajama: 2011).

The above reasons are precisely why rural women use informal sources of health information. However, the informal sources could have different negative attributes such as being unreliable, inaccurate and out of date (Ikoja-Odongo, 2001; Coraggio, 2010). The above challenges create a gap in accessing health information by rural women. One way of filling this gap is through the use of libraries.

## **2.6. The role of libraries in providing access to information.**

Methods to energize and facilitate community improvement in Third World countries through effective information dissemination has, more than ever before, attracted the attention of local and international bodies and institutions.(Uhegbu, 2001). Community information services for community development have become a contemporary pre-occupation of the library and information profession (Uhegbu, 2001).

The essence of a community information service is to inform (Islam and Mezbah-ul-Islam, 2010). An information service can be defined as services designed to assist individuals and groups with their daily problems through the provision of information or by putting them in touch with a helping agency (Islam and Mezbah-ul-Islam, 2010). One of such helping agencies can be a library. It is noted that libraries serve as intermediaries in delivering health information

to the people as well as helping them make informed decisions about their health (Linnan et al. 2004; Weisen, 2004:14).

In this regard, libraries have the following roles to play in making sure that people have access to health information in order to live healthy lives:

1. Providing access to the most recent published evidence in health. Every day, there are new discoveries in health; information which is accessible in libraries, but unless libraries make it accessible to the public, to the health practitioners and researchers, it will not be useful for making people's lives better.
2. Enhancing health literacy. By providing access to information specifically health information, libraries help people to develop their health literacy.
3. Acquiring knowledge in public health. When libraries provide information directly to the public or local communities, they are well placed with resources, and contacts to encourage local people to acquire knowledge for public health.

By embracing these roles libraries can contribute towards helping people to live healthier lives regardless of their status, race or education levels. Some basic issues are relevant in this regard:

- According to Musoke (quoted by Musoke, 2005:3), “to many African health professionals and librarians, information is available but not accessible; while to some, information is neither available nor accessible”. She thus emphasizes that in Africa, the greatest challenge is not production of more relevant information but ensuring that what is currently available can be accessed. This access can be enhanced through academic libraries.
- Ajayi and Omotayo (2010) refer to the academic library as a central unit that serves to provide knowledge and skills for solving information related problems. In this capacity, libraries have distributed to students, staff and external users health information when they needed it through print, online and other media of information interaction.
- In an attempt to efficiently and effectively carry out health information dissemination, academic libraries have been advised to listen carefully to the various needs of students, develop cultural competences and work with them (Press & Digs-Hobson as cited in Ajayi and Omotayo, 2010).

Drawing from this background, academic libraries have the capacity to identify the health information needs of rural women and availing access to this information through outreach. Academic libraries are perceived as stigma-free places that are easy to access with reliable information in regard to those seeking information on health (Lancaster, 2003). Furthermore, O'Brien (2003) in her report emphasizes that there is no better role the library can play in health information dissemination than making the information available and accessible to those that need it.

Part of the health information that can be accessed through academic libraries is information about HIV/AIDS. Research by Batambuze (2004) recommends library intervention in the fight against HIV/AIDS, this is because, information on the epidemic is found in the library, therefore, the library is well place to distribute such information. This highlights the role of libraries in the dissemination of health information, and availing access to it.

## **2.7. Mobile phones and Broadband**

### **2.7.1. Introduction**

According to Wilson and McCarthy (2009:1) “the mobile revolution is upon us” and organisations are increasingly adopting mobile technologies in daily transactions. Sharples (2005:2) reiterates that this revolution entails accessing services from anywhere be it banking services in banking holes, travelling services in cars, computer games and advertising services.

The mobile revolution is further characterized by hand held, portable mobile devices that improve access to information and enhance our daily lives (Murphy: 2007, Sharples, 2005). Mobile devices thus extend beyond mobile phones to include all handheld devices (Lippincott (2010). In this regard, Albrecht and Pirani (2009:6) emphasizes that “for many users, the mobile device was no longer just a telephone; rather, it was quickly evolving into a handheld information retrieval device”. Mobile technology is thus all encompassing and includes mobile devices such as laptop computers, netbooks, tablets, e-Book readers, audio players like MP3 Players, cameras, among others. One of the most commonly used mobile devices especially in Africa are mobile phones (Melchioly and Saebo 2010). In the following section mobile phone

penetration is discussed in a global perspective, as well as penetration rates in Africa and Uganda. Uganda is discussed because it is the country of focus for this study.

### **2.7.2. Mobile phone penetration globally, in Africa and Uganda**

Mobile phone technology is penetrating the world at a very fast rate. This is shown by the anticipation that by the end of 2014, mobile phone subscribers will reach 7 billion (ITU, 2014b). It is further noted that out of the 7 billion subscribers, 3.6 billion will be in Asia Pacific region because of the developments taking place in these countries as well as the reducing prices of mobile phones which is said to have reached saturation levels (ITU, 2014b). However, the regions of Europe, the Commonwealth of Independent States (CIS), the Arab World and the Americas are said to have reached 100 percent penetration and are anticipated to have a growth rate of less than 2 percent in 2014 (ITU, 2014b).

It is predicted that by 2015, the number of mobile phone subscriptions globally, would have overtaken the human population, since the human population is predicted to be at 7.5 billion in three years and the phone subscriptions are predicted to reach 9 billion (ITU, 2012).

As of July, 2012, there were six billion mobile subscribers worldwide which is equivalent to 75% of the world population and of these; five billion are in developing countries (ITU, 2012). It is further reported that the developing world including Africa and Asia is now more mobile than the developed world (World Bank, 2012a; Grameen Foundation, 2013).

Another continent that is said to have a high level of mobile cellular penetration is Africa. ITU (2014) notes that next to Asia (which is expected to have 89 percent mobile cellular penetration by the end of 2014), Africa has the highest mobile cellular penetration of 69 percent.

For the case of Uganda, mobile phones have transformed the telecommunications industry (Shinyekwa, 2013). This transformation is attributed to an estimated 19.5 million mobile phone subscribers who are shared among the major five telecom operators including MTN Uganda, Airtel Uganda, Uganda Telecom Limited, Warid Telecom and Orange Uganda (UCC, 2014). According to UCC (2014), 52 percent of Ugandan households are reported to have access to

mobile phones, equal to the Sub-Saharan Africa average. It is thus possible for this 52 percent to access mobile broadband through the use of their mobile phone. Mobile broadband penetration will be discussed in the following section.

### **2.7.3. Mobile broadband penetration globally, in Africa and Uganda**

Mobile broadband refers to the use of mobile service providers to provide access to high speed Internet to mobile portable devices (Pinola, 2014). The penetration of mobile broadband globally, in Africa and Uganda is discussed below.

Globally, mobile broadband penetration is promising. It is expected that the global mobile broadband will have reached 32 percent by the end of 2014 of which most penetration will be in the developed countries (ITU, 2014b). It is therefore, expected that mobile broadband will penetrate up to 84 percent in developed countries by the end of 2014 while only 21 percent is expected in developing countries (ITU, 2014b). ITU (2014b) further reveals that by the end of 2014, mobile broadband subscriptions will go up to 2.3 billion of which 55 percent will be in the developed countries. More specifically, Europe has the highest mobile broadband penetration with 64 percent, followed by the Americas with 59 percent, Common Wealth of Independent States (CIS) with 49 percent, United Arab Emirates with 25 percent, Asia Pacific with 23 percent and lastly Africa with only 19 percent.

On a continental level and Africa specifically, broadband penetration is still wanting as seen from above that Africa has only 19 percent which is the lowest in comparison to other continents (ITU, 2014b). In Africa, only one out of ten households will have access to the Internet by the end of 2014 which is incredibly low compared to CIS with more than one out of two households (ITU, 2014b). It's also anticipated that 20 percent of the African population will be online by the end of 2014 which will represent a 50 percent growth from four years ago in 2010 (ITU, 2014b).

At country level, Uganda is one of the countries that is steadily embracing mobile broadband. Wafula (2008) identifies 2008 as the year when Uganda made new developments in the communications industry when one of Uganda's telecommunications companies (Uganda



Telecom) brought to the telecommunications market 3G mobile broadband. This development put Uganda in the limelight as part of broadband mobile operators. Furthermore, Uganda Telecom introduced mobile pocket sized modems with mobile cards that can easily be used by plugging in the computer detectors as USB devices (Wafula, 2008).

From 2008, there has been a tremendous increase in the number of mobile broadband service providers. According to UCC (2014), Uganda had only one provider in 2008 (Uganda Telecom), however these have increased to seven in 2014. These are, Uganda Telecom (UTL), Orange Uganda (HiTs Telecom), MTN Uganda, Airtel Uganda, Smile communications, Sure telecom and Foris telecom (InU). This has contributed to an increase in the total number of mobile broadband subscriptions from 3.6 million in December 2013 to 4.1 million in June 2014 (UCC, 2014). This is a significant increase which shows steady growth in broadband initiatives in the country.

#### **2.7.4. The use of mobile phones**

Mobile phones can be used for a number of functions. Lee (2013) points out that mobile phones have been in existence for over 40 years and have served several uses over time. Some of these uses are noted below.

- Checking time. It is noted that people more frequently use their mobile phones to check time than for making calls or texting (Lee, 2013). This means that most people prefer to check time through their mobile phones than other devices.
- Making phone calls. This is a common function of mobile phones where people use the phones to make voice calls to their friends, teachers, family members (Jones, 2012). Lee (2012) notes from the time that the first phone call was made in 1973, the mobile phone has persisted with this use to date. This persistence is owed to the fact that mobile phones are used most among mobile devices (Lippincott, 2010).
- Taking and sharing pictures and videos. This is one of the many uses of mobile phones where pictures and videos are captured through phone inbuilt cameras and can be shared through media sharing software such as Facebook, Whatsapp and Picasa (Lippincott, 2010; Jones, 2012; Lee, 2013).
- Message texting. Mobile phones create ease in sending and receiving information via text

messages between people in different locations in real time (Murphy, 2007). Mobile phones in particular have a wide coverage (Lippincott, 2010) and have thus been used widely as a communication channel between individuals through text messaging.

- Accessing the Internet. It is noted that mobile phones are used for searching information from the Internet through search engines; chatting; sending and receiving emails; browsing databases; accessing educational multimedia data; downloading and sharing media files as well as video calling (Hey et al., 2007: 447; Lippincott, 2010:1).
- Other uses of mobile phones include gaming, listening to audio books, listening to radio, watching television, organising citations, and mobile banking to monitor account balance and pay bills (Jain, 2005; Lippincott, 2010; Bank of America, 2014).

Based on the above uses of mobile phones, it is almost impossible to imagine the world today without mobile phones. Organisations have thus adopted the use of mobile technology for better service delivery (Sharples, 2005). Among the organisations embracing the use of mobile phones, are academic and public libraries (Murray, 2009; Lippincott, 2010; Vila, Galvez and Campos, 2010).

#### **2.7.5. Mobile phones and access to health information.**

In the World Bank and Infodev report (2012), titled ‘Information and communications for development 2012: Maximizing mobiles’, there is renewed growth in mobile phone ownership due to the new applications for smart phones such as Internet, mobile money, health packages and others. This report highlights that mobile phones are not only being used for communication but also for enhancing lifestyles and as tools for information access especially in developing countries.

The World Bank vice president for sustainable development, Rachel Kyte, rightly puts it that “mobile communications offer major opportunities to advance human and economic development from providing basic access to health information to making cash payments, spurring job creation, and stimulating citizen involvement in democratic processes” (World Bank and Infodev, 2012). This implies that there are already mobile services being offered in different

sectors.

It is important to note that there are over six billion mobile phone users in the world which has made health care providers and researchers alike to gradually realise the potential that mobile technologies have towards health service delivery (Kallander, et al, 2013; Tamrat and Kachnowski, 2012:1092). It is thus important to take note of the uses of mobile phones in provision of access to information as shown below:

- Mobile phones have the capability to “create, store, retrieve and transmit health information” directly and simultaneously between users (Waruingi & Underdahl, 2009:2). They, therefore, noted that mobile devices in general increase the reach and power to deliver health care services to people in rural communities, especially those that would otherwise never have access.
- The Grameen foundation reaffirms that mobile phones are “a powerful tool” to help the rural poor overcome their challenges to accessing information (Grameen foundation, 2013). The Grameen foundation has done this through development of mobile health solutions focused on providing better patient care, helping health care providers become more efficient and making medical information easily accessible and relevant so as to improve health outcomes for the poor in Ghana, Uganda and India.
- Additionally, it is noted that mobile services are being used to disseminate locally-generated and locally-relevant educational and health information, in order to target rural communities, whose populations have typical low levels of education and income and would not otherwise benefit from such information (The World Bank, 2007:19).
- Kallander, et al. (2013) posit that mobile phones have commonly been used in one-way text messaging and phone reminders to encourage follow up appointments, for gathering data and for encouraging healthy behaviours among people. According to Ian Harper, the director of Vodafone group strategy, “mobile epitomizes the essential requirements for transfer of health information: privacy, confidentiality, timeliness and direct personal communication” (Vodafone Group, 2013)

More still, mobile phone texting has been used in the management of diabetes, hypertension, asthma, eating disorders and HIV treatment, body loss, alcohol consumption control, STD prevention and testing. Where by phone reminders and alerts are also configured for people on their forms to help them remember to take medication at home (Lester, et al, 2010; Katz, Mesfin and Barr, 2012; Lv, et al., 2012). Health workers are using these phones for diagnosis and treatment of acute problems such as pneumonia, dehydration, and also malaria (malaria is specifically addressed in the MDGs)

### **2.7.6. Mobile phones and MDGs 4, 5 and 6.**

It can be noted that mobile phones have been used towards the attainment of health related MDGs 4, 5, and 6. This has been done through various efforts and projects in different countries. These efforts and projects are explained below.

- In India, mothers are furnished with information about antenatal services, counseling services, exclusive breastfeeding, safe delivery methods (Marshall, 2011). Such information is in line with reducing child and maternal mortality. According to Dhande as cited in Marshall (2011), there are initiatives in India to encourage mothers to breastfeed their babies in order to boost their immunity and reduce child mortality rates. This is done through the use of daily SMS, text messages and phone calls (Marshall, 2011).
- In another example in Zanzibar, it is hoped that child mortality can be reduced by 80 percent by linking expectant mothers to health units through mobile phones (Marshall, 2011). It is important to note that there is a “wired mothers” project which started in 2009 by Danish International Development Agency (DANIDA) which links pregnant mothers to health care facilities through the use of SMS text reminders and are given some airtime to call the health facilities in case of emergencies (Lund, 2014). As a result of this project, the attendance to antenatal care classes by pregnant mothers has significantly improved (Lund, 2014).
- Similarly in Ghana, messaging is used as a way to improve health of mothers and children (Marshall, 2011). Guyana Upper East Health services offers a programme known as Mobile Technology (MOtech) which seeks to help pregnant mothers to access translated health information materials in local languages about antenatal and prenatal

care as well as immunisation through SMS reminders (Marshall, 2011). This kind of programme is bound to improve maternal health and reduce child mortality.

- Cambodia has geared the use of mobile phones towards reducing infant mortality. This is noted by Moeng (2014) that mothers are registered before they deliver for follow up with postnatal services and information. Moeng notes that mothers after delivery receive vital information about umbilical cord cleaning, keeping the baby warm as well as exclusive breast feeding through pre recorded voice messages. All these efforts are directed towards achieving MDG 4.
- In South Africa, there is project Masiluleke which was launched in 2009. It started out by sending short text messages encouraging residents in Kwazulu Natal to get tested and treated for HIV/AIDS (Frog Design, 2013). This campaign is believed to have tripled the number of calls to the National AIDS Helpline, and it has gradually grown to include treatment and compliance reminders in the form of an SMS-based alert system for HIV and TB patients (Frog Design, 2013). This project is in line with achieving MDG 6.
- In Uganda, there have also been initiatives towards realising MDG 6 for instance, Text To Change (TTC) uses a bulk SMS platform to send out HIV quizzes and information about HIV prevention and testing, as people answer these questions in the hope of winning prizes they are also being sensitized about the HIV epidemic (Aventh-Soul city Africa, 2011). This is done for rural dwellers thus increasing their knowledge about health related matters (Free et al., 2013).
- In relation to malaria and other diseases, Tanzania has made efforts through campaigns such as the Wazazi Nipendeni campaign which supports the achievement of MDG 6 alongside MDG 4 AND 5 (Centres for Disease Control and Prevention, 2014). This campaign aims at promoting access to information about diseases such as malaria as well as other diseases like HIV/ AIDS and tuberculosis (CDC, 2014). This information is availed through free text messaging services to curb the spread of diseases among pregnant women and children (CDC, 2014).

Looking at the above projects, it is evident that mobile phones are being used by phone-owners to access health information. Such information can be used to better the health situation in

relation to child mortality, maternal health and reducing the disease burden.

In a nutshell, mobile phones are linking patients to knowledge, and health workers to each other. Although mobile health information delivery will not erase all health problems, it will enhance the competence of health workers and increase health awareness among people who will endeavour to tap into the opportunities brought about through their use especially in resource limited settings (McCoy, 2013, Lester, et al, 2010). Therefore, it can be concluded that mobile phones are on fast track towards achievement of MDGs 4, 5 and 6 globally.

### **2.7.7. Mobile phones usage in academic libraries**

It is believed that mobile technology has changed all aspects of information delivery in libraries. This is in line with Lippincott's (2010:1) view that mobile technology has had an incremental impact on human behaviour and other areas such as higher education particularly academic libraries. This fits within the description by Vila, Galvez and Campos (2010) who term the current generation as the mobile generation (m-generation) because mobile technology has become the most preferred means of access to information by students in academic institutions.

Academic libraries use mobile phones for different services. These services include the following:

- **Mobile Websites.** Academic libraries have developed mobile versions of their websites which are easy to view on mobile phones (Vollmer, 2010; Barile, 2011). An example of such a library website includes Medline Plus mobile (<http://pubmadehh.nlm.nih.gov/>) which provide information on different diseases, diagnosis, symptoms and treatment as well general health information (Barile, 2011).
- **Circulation of information materials through mobile OPACs.** Academic libraries provide mobile OPACs through customised mobile websites and mobile applications that facilitate access to library OPACs thus allowing users to browse online through their phones (Vollmer, 2010). An example of a library that offers a mobile OPAC is the University of Pretoria Library ([mobiexplore.up.ac.za](http://mobiexplore.up.ac.za)) which makes it easy for users to browse the materials in the comfort of their homes (University of Pretoria, 2014).
- **Mobile User instructions.** Libraries offer materials for user instructions through mobile phones because it is becoming easier to use mobile devices to access library user

materials (Vollmer, 2010). Podcasting is one way to enhance mobile instructions by providing the highly demanded materials through MP3 on mobile phones (Murray, 2010).

- Reference services through SMS. Academic libraries have extended their reference services from traditional face to face services to mobile phone services (Vollmer, 2010). It is noted that libraries provide 'ask the librarian' services where users can receive answers to their queries about availability of materials, information material updates, overdue materials, outstanding fines through SMSs on mobile phones (Murray, 2010; Barile, 2011).
- Mobile access to e-books, e-journals, e-videos and other multimedia content. Academic libraries have mobile collections such as e-books, e-journals and e-videos which are made accessible through mobile because users prefer to access information online (Vollmer, 2010; Murray 2010).
- Mobile databases. Libraries subscribe to mobile applications that provide access to online databases (Vollmer, 2010).
- Mobile audio/ video tours. Murray (2010) notes that academic librarians do not have to personally guide users in the libraries but can instead offer library patrons self service audio and video tours through mobile phones which are more convenient. These services are offered at Duke University, Arizona State, and the University of Southern California (Kroski, 2008).

## 2.8. Conclusion

This chapter puts forward a review of literature related to the achievement of health related Millennium Development Goals through provision of access to health information using mobile phones. The chapter further presents a review of literature about the use of mobile phones for service delivery in academic libraries. However, it is noted that there is no available literature about the use of mobile phones in academic libraries to provide access to health information to rural women which presents a research gap sought to be filled by this study. The next chapter therefore presents the methodology adopted for the study.

## **CHAPTER THREE: RESEARCH METHODOLOGY**

### **3.1. Introduction**

The study was undertaken to investigate the possibility of using mobile phones as tools for delivering real time health information to rural women in Buyengo Sub County in Uganda. The previous chapter reviewed the available literature and provided information on the disease burden in Africa and the proposed solutions. The literature review also analysed the feasibility of using mobile phones to ease the health situation in Africa, particularly Uganda, and how libraries are making use of mobile technologies such as mobile phones to reach out to their users. This chapter gives a description of systematic steps that were employed in solving the research problem. This chapter comprises an overview of the research design, study population, sampling procedures, data collection methods, data presentation and analysis, and ethical considerations.

### **3.2. Research design and approach**

#### **3.2.1. Research design**

Singh (2006:77) describes a research design as a statement that entails what is being investigated, the strategies for collecting data to inform that investigation, how the data will be analysed and lastly how the findings will be reported. It is further described as a plan through which a researcher obtains research participants, how to collect data from them and how to analyse the collected data in a way that is relevant to the research purpose (Welman, Kruger and Mitchell, 2005:52). The purpose of a research design is to provide for the collection of relevant information with minimal expenditure of effort, time and money (Kothari, 2004). It is therefore, a blueprint for the way the research will be built from conception to analysis of data.

The study investigated the use of mobile phones by an academic library to make accessible health information to rural women. It made use of qualitative methods in particular interviews in collecting data from the respondents involved in the study. The collected data was transcribed and put together according to different themes for appropriate analysis.



### **3.2.2. Research philosophy**

A research philosophy is the basis or foundation of the research methodology in relation to the purpose of the research (Bandaranayake, 2012:7). A distinction is commonly made between a positivist research philosophy and an interpretivist philosophy. Positivism relies on observation and reason as a way of understanding human behaviour and the explanation is done by way of scientific description (Campus, 2011:47). The interpretivist philosophy, also known as the anti-positivist stance, argues that reality cannot be measured directly by scientific methods but varies from individual to individual based on their experience (Cohen, Manion & Morrison, 2007).

While the positivist philosophy asserts that research should be limited to what is observable and therefore, can be measured objectively with no regard to the feelings and opinions of individuals, interpretive research deals with more subjective data and more flexible and explorative methods (Welman, Kruger and Mitchell, 2005:6; Creswell, 2009). Interpretivists therefore, focus their research on understanding the behaviour of humans as opposed to treating them like objects. Interpretivist thinking advocates the necessity of the researcher understanding the different ways humans act in their roles as social actors.

This research follows the interpretivist philosophy as it seeks to understand human behaviour, in particular rural woman and their information needs; health professionals and their role in improving the health situation of rural women as well as librarians and their role in fulfilling the information needs of rural women. Such data cannot be collected without regard to the experiences of these women and their perceived understanding of life as well as the professional experiences of health professionals and librarians in serving rural women.

### **3.2.3. Research approach**

In the light of the problem under investigation and the target population, the study employed a qualitative approach to solve the research problem and to find answers to the research questions from the views of the participating respondents. Qualitative research is advantageous as it lends itself well to the study as not much research has been done into rural women's use of mobile phones for health information delivery in Uganda.

Qualitative research also aims to get a better understanding of the subject matter at hand; it deals with subjective data produced by minds of respondents, which is in language form rather than numbers (Silverman, 2013:6). Furthermore, qualitative research investigates the constraints of day to day events and the results are based on daily events and behaviours of people as opposed to a lab setting more common in quantitative research designs. Qualitative research works with the dynamic and changeable nature of reality by talking to or observing subjects in their natural setting.

According to Brikci (2007:3), when a researcher is investigating a phenomenon where little is known, it is recommended to employ qualitative approaches so as to get an understanding of the situation. Furthermore, it's used for purposes of finding answers to questions through the examination of social settings and the people within these settings (Berg, 2009:8). It is further reported that qualitative research is suitable when describing small communities (Berg, 2009:188).

The study sought to find out Ugandan rural women's attitudes towards mobile phones as a device for accessing health information and the use of the same by an academic health library to make health information available to rural women. This study therefore, adopted the qualitative approach owing to the fact that the issue under study is a new phenomenon in Uganda and the chosen sample (rural women within Buyengo sub county) were studied within their homesteads where they were able to exhibit their behaviours and feelings within their natural setting.

#### **3.2.4. Case study**

This study used the case study method. According to Welman, Kruger and Mitchell (2005:25), "case study research is directed at understanding the uniqueness and idiosyncrasy of a particular case in all its complexity." Case studies are thus distinguished from other research methods because of their focus on a bounded situation or system (Bryman and Bell, 2011:60). This study focuses on rural women, in particular women from the village of Buyengo sub-county which is a rural area within Kagoma County in Jinja district, in the eastern region of Uganda.

The case study methodology is furthermore useful when one cannot manipulate the behaviour of

the people involved in the study. The behaviour of rural women in this case cannot be manipulated, especially in regard to their use of mobile phones and their perceptions towards the use of the device in delivery of health information.

Other advantages of case study research include the applicability to real life and contemporary human situations. This research study focuses on women in their real life context which cannot be duplicated or manipulated, thus making a case study the ideal way for conducting this research.

### **3.3. Population and sampling**

#### **3.3.1. Defining the population**

The population refers to the parent group from which a sample is taken (Singh, 2006:82). According to Welman, Kruger and Mitchell (2005:52), “a population encompasses all units of analysis about which the researcher wishes to make specific conclusions.” It may thus consist of people, institutions, events, products or anything that is to be studied. This implies that it is a collection of potential participants from whom the researcher expects to select a sample and then eventually generalise the results of the study to the entire population.

This study looked at three different populations namely the women in Buyengo sub-county, health personnel at Kakaire Health Centre in Buyengo sub-county and health librarians working at Albert Cook Medical library at Makerere University in Kampala, Uganda.

Buyengo sub-county is one of four sub-counties found in Kagoma County within Jinja district located in the eastern region of Uganda. It is a rural community whose people engage mostly in subsistence farming with their women specifically as house wives. This area was chosen for the study because it’s a rural community but it’s also the ancestral home of the researcher. Therefore, the spoken language in this area is well known to the researcher thereby enabling her to conduct productive interviews with the respondents especially the women many of whom are illiterate.

Furthermore, Kakaire health centre is the only health centre in this sub-county and it’s the health

facility used by the women within Buyengo. As a result, the health workers from this centre were the perfect choice for the study since they directly work with the women under investigation.

Albert Cook Medical library was chosen because it's a medical library and therefore has materials that are related to health. It is also a branch library within the University (University of Makerere, Kampala) where the researcher works. This made the health librarians much more accessible for the researcher.

### **3.3.2. Sampling**

A sample refers to a segment of the population that is selected for investigation. Sampling seeks to find this segment/subset of the population to be used in the research (Bryman and Bell, 2011). There are two main methods of sampling, namely, probability and non-probability sampling (Cohen, Manion and Morrison, 2007:110). In probability sampling, also known as random sampling, a random selection is used and as a result, "the selected sample is sufficiently representative of the population" (Keyton, 2006:121).

Non-probability sampling on the other hand does not rely on any form of random selection (Neville, 2007). It carries the advantages of "ease and economy" (Keyton, 2006:125) and is useful for research involving participants with special experiences as is the case with rural women relevant to this research. Convenience sampling, a form of non-probability sampling, was used to select the women who participated in the semi structured interviews. This type of sampling, also known as opportunity sampling, involves choosing the most available and accessible respondent at the time the study is being carried out (Cohen, Manion and Morrison, 2007:113).

For this research, the sampling was done with the help of the Local Council Chairperson who mobilised the women for the interviews. The researcher approached the Local Council Chairperson requesting for an opportunity to interview the women in Buyengo Sub-county, which is his leadership area. It is worth noting that in rural areas, the Local Council meeting is an appropriate place for gathering and is part of the day to day life in villages in Uganda.

When the women gathered for the meeting, they were asked if they wanted to participate in the study or not. Those who consented were given further information about the study and the appropriate time to be interviewed was set between the women and the researcher. Given the fact that women in the village bear the majority of household chores, all of them do not necessarily attend all meetings. As a result, the number of women included in the study was not large – about 50 women were available at the particular meeting. Time would not allow the researcher to wait for another meeting at a later date in order to have more women to interview.

The four health workers (one doctor, 3 nurses) working at the Kakaire health Centre were chosen by virtue of their professional roles and their experience in dealing with rural women. It was deemed that these four people are knowledgeable with regard to the health needs of the rural women they serve and are therefore in a position to give in-depth information about the issue. There was no need for sampling as the whole population, i.e. the staff of the clinic, were selected for the study.

There are only three professional medical librarians at the Albert Cook Medical Library. Therefore the whole population was selected for the study. There was no need for sampling for this category of respondents.

### **3.4. Data collection methods**

#### **3.4.1. Interviews**

In qualitative research one of the most commonly used methods for collecting data is interviews. Interviews in qualitative research redefine data as information that is part of the daily life experience of individuals, not external to them (Cohen, Manion and Morrison, 2007: 349).

Interviews are therefore simply defined as person to person interaction with a specific aim in mind, chiefly to gain information (Berg, 2009; Kumar, 2011).

Interviews are classified depending on the level of flexibility in the structure, content and questions (Kumar, 2011: 144). There are three different types of interview: structured, semi-structured, and unstructured interviews. Structured interviews are those where the researcher

uses predetermined questions for all respondents. Unstructured interviews are the informal type where there are no predetermined questions for use although the interviewer has a clear understanding of the issues he is looking out for from the respondents (Welman, Kruger and Mitchell, 2005:166). Lying in the middle is the semi structured interview which draws from the structured and unstructured interview methods (Kumar, 2011; Creswell, 2009).

Semi-structured interviews were used in this study to collect the needed data. Semi structured interviews involve listing a number of themes and areas to be covered and developing questions pertaining to these (Welman, Kruger and Mitchell, 2005:166). Questions can also be added or omitted depending on the situation with the interviewee. Interviews are conducted in a flexible and sensitive manner in order to allow for follow-up of points raised by the interviewee. Open-ended questions based on the topic area to be covered, are generally also included (Hancock, Windridge and Ockleford, 2007; Patton and Cochran, 2002; Neville, 2007).

Semi structured interviews are suitable for research that probes, explores or seeks new insight into a subject (Welman, Kruger and Mitchell, 2005:167). Semi structured interviews are also ideal for situations in research where analysis of people's motivations and opinions is necessary. These characteristics and benefits are applicable to all three sectors of respondents used in this particular study. In addition, in the case of the rural women, semi-structured interviews were the only practical method of data collection because most of the women are illiterate and therefore cannot read or write in English or the local dialect. The researcher therefore used interviews which enabled her to interpret the questions in the local language commonly spoken by all the targeted rural women.

In addition, due to the nature of the study, it was important to use interviews when collecting data from health personnel and health librarians, so as to enable the researcher to explain the concepts under investigation in person. The use of mobile phones for purposes of acquiring health information by rural women is a fairly new research undertaking; it might not have made sense to the respondents if other (less personal) methods such as questionnaires were used.

### **3.4.1.1. Interview schedule**

As was discussed above, semi-structured face to face interviews were conducted with all three categories of respondents in this study. Interview schedules (see Appendices 1, 2, and 3 ) were used while interviewing the participants. "An interview schedule is a written list of questions, open ended or closed, prepared for use by an interviewer in a person to person interaction" (Kumar, 2011:145).

Firstly the interview schedule contained four sections of questions for each of the three categories of respondents. Health workers and women had the same questions covered in their schedule. The schedule for Librarians excluded the questions on the "information needs of women" but included the one on "the Library's role in making health information accessible by rural women". These covered questions regarding i) health information needs of rural women, ii) the sources of health information for rural women, iii) the use of mobile phones as an information delivery device, iv) questions regarding what partners the library can work with to achieve such a strategy, as well as v) the role of the library in making health information accessible to rural women.

Secondly, a number of general questions were asked. These differed across the different groups of participants. The women were asked about their stay in rural areas and on their literacy levels, the health personnel were asked questions about their interaction with the rural women and the health needs of the women, as well as how long they (the health workers) have been working in the rural setting. The librarians were asked questions regarding the dissemination of health information as well as the health information booklet formally published by the library. Further inquiry was made about their perceptions with regard to the role of libraries in making information available to rural women.

Open ended questions were also included in the schedule as they are generally useful in providing in-depth information especially if the respondents are at ease and are fluent in the language used. The latter was especially applicable in the case of the rural women where the researcher used a language in which the rural women were fluent in order for them to express themselves comfortably. Additionally, because open ended questions encourage the respondents

to express themselves freely, they help to eliminate investigator bias which is a real challenge that can plague interviews methods of collecting data (Kumar, 2011).

### **3.5. Data analysis and interpretation**

According to Creswell (2009: 183), the process of data analysis involves making sense out of text and image data. It involves preparing data for analysis, conducting different analyses, getting a progressively better understanding of the data, representing the data and making an interpretation of the larger meaning of the data.

Creswell (2009) summarises the art of case study analysis into several major steps:

1. Organise and prepare data for analysis
2. Read through all the data
3. Begin detailed analysis with a coding process.
4. Coding the data (this can be done by hand or computer)
5. Finding the themes and their description.
6. Find interrelating themes/descriptions.
7. Interpreting the meaning of themes and descriptions.

These steps were followed in analysing the data obtained from the interviews with the three groups of respondents as is presented in chapter four.

### **3.6. Ethical considerations**

The researcher sought ethical clearance to conduct the study from the Ethics Committee of the Faculty of Engineering, Built environment, and Information Technology (EBIT) at the University of Pretoria. This was to enable the researcher to get *inter alia* approved physical documentation which was to be used for gaining consent from authorities in Uganda and from individual respondents in order to conduct the research project.

Brikci (2007:5) suggests that the main ethical issues to be considered in any given study are consent and confidentiality. Therefore, the researcher was compelled to gain the consent of the respondents before engaging in the interviews by obtaining their signatures on the consent forms.



This process referred to as “informed consent” involves making the respondent aware of the implications of participating in a study, through giving an overview of the research objectives and it’s up to the respondent to consciously and deliberately decide whether they want to participate. The form also acknowledges that the rights of the participants will be protected as the process of data collection takes place (Creswell, 2009:89).

For this particular study, the researcher approached the Local Council leader and explained the objectives of the research and he in turn acted as an intermediary between the researcher and the rural women by signing the consent form. The Local Council chairperson is the closest government authority to the women, as he is in charge of sorting day to day issues concerning citizens in the sub-county.

In addition to community level consent obtained from the local council chairperson, individual consent was sought from the other participants, namely the librarians and health workers through signing the consent form. As a result, a signed consent form was evidence of their willingness to participate in the study without coercion.

In order to ensure that all the respondents’ identities were protected, the researcher made sure that the individual names of respondents were not mentioned in the research findings.

### **3.7. Conclusion**

This chapter outlined the procedures that were used in gathering data which is relevant to answering the research question and how this data will be analysed and interpreted in the later chapters. This covered the research design and approach, the population and sampling, data collection methods, data analysis and interpretation as well as ethical considerations for the study. The next chapter is a presentation of the research findings.

## CHAPTER FOUR: PRESENTATION OF FINDINGS

### 4.1. Introduction

The study sought to explore the use of mobile phones as an information delivery device for extending the borders of Makerere University Library's outreach services to rural communities with specific focus on meeting the health information needs of rural women.

This chapter presents the data which was collected during data collection stages and presents the findings of the study. The results to be discussed in this chapter were obtained from interviews with rural women, health workers and librarians. A total number of fifty seven respondents who included fifty rural women, four health workers and three librarians were interviewed.

The results are presented according to themes derived from the research problems in chapter one and which were subsequently covered in the interviews. In view of the different categories of respondents, findings are presented jointly in a logical way per given theme. The themes covered include health information needs of rural women, sources of health information for rural women, use of mobile phones as information delivery devices, the role of the library in making information accessible to rural women, and partners that the library can work with to ensure information is availed to rural women.

It is important to note that each major theme was further split into sub themes in the interview schedules, therefore in the presentation; sub-themes are discussed where necessary. Since there were three different categories of respondents, certain themes applied to a given category and not to another; as such the findings will be presented jointly. Therefore, given the different characteristics of the respondents, they will be grouped as:

- Women – (W...)
- Health workers – (H...)
- Librarians – (L...)

By so doing, it will be clear to know from which category of respondents the findings (specifically the quotations) have been obtained.

## **4.2. Description of respondents**

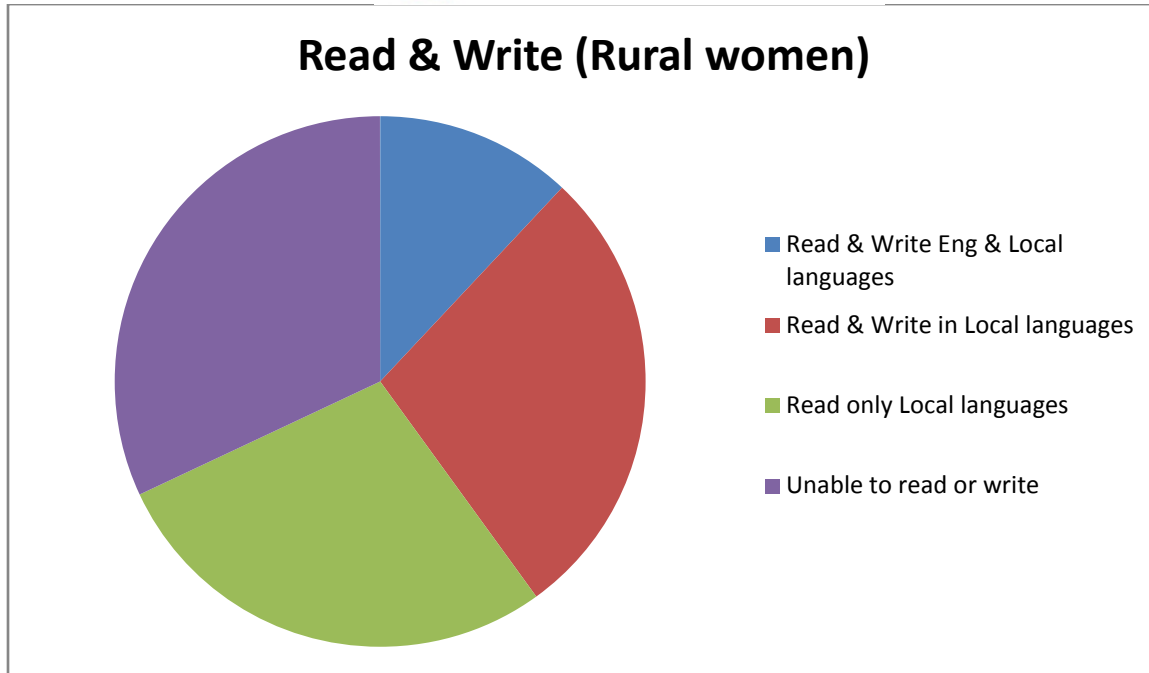
This section is important for purposes of establishing the reason behind the choice of involving those respondents and the role they had to play in the study. As noted above in 4.1, the respondents included rural women from Buyengo sub-county, health workers from Kakaire health centre and librarians from Albert cook medical Library.

### **4.2.1 Rural women**

This study was aimed at rural women, therefore the choice of women from Buyengo sub-county was deemed fit because this is a rural area in Uganda and therefore their health information needs are not unique but can also apply to other women in other rural parts of the country. The women from this area were therefore in a perfect position to act as respondents to inform the study.

The interviews revealed that all the women involved in the study were rural since all of them had stayed in this area for over a year. The average number of years of residence was fifteen years for all women with the highest being 48 and the least 1 year.

Lusoga is the native language in this area. The findings revealed that of the fifty women interviewed, six would write and read in the English language and Lusoga, fourteen were able to write and read in Luganda and Lusoga language, fourteen were able to read Luganda and Lusoga languages and sixteen were unable to read or write in any language. This is illustrated in the pie chart below:



**Fig.1: Reading and writing capabilities of women.** (Source: Field data)

#### 4.2.2 Health workers from Kakaire health centre

Kakaire health centre III is the main and only health centre in Buyengo Sub-county. Uganda's health care system is based on different levels of health care whereby a health centre refers a patient to the next level until they reach the highest level. Kakaire health centre III is therefore the biggest health facility in Buyengo sub-county and the nearest to the women under study.

The health workers who took part in the study were found to have been practicing medicine for an average number of 16 years with the least having been 10 years and the highest 25 years. However, the average number of years they have particularly been at Kakaire health centre was 3 years with the highest being 7 years. Given the years they have been practicing medicine, the health workers were taken to be knowledgeable enough about the health issues of women. In addition, they disclosed that on a daily basis, they have significant interaction with women since these are their main clients.

While talking about the facility, Kakaire health centre was found to be ill-equipped and under staffed. The health workers revealed that it was not sufficiently equipped as they lack enough drugs and medical equipment whereby the health centre is used as a kind of "first aid" centre

before patients are referred to other better equipped health facilities.

There is one mid-wife, two nurses and one senior clinical officer (doctor) as opposed to the mandatory number of “1 Senior Clinical Officer, 1 Clinical Officer, 2 Mid-wives, 1 Nursing Officer Nursing, 3 Enrolled Nurses, 1 Laboratory Technician, 1 Laboratory Assistant, 3 Nursing Assistants, and 1 Health Assistant” (Kamwesiga, 2011) which is provided for under the Uganda Health care system. As a result of being understaffed, the workers disclosed that they are overworked and when they can’t take it, at some times the facility may not have a health worker at hand.

There is also limited drug supply. This being a government aided facility, the government takes close to three months without distributing new stock of drugs, yet the population being served is big. By the time the next consignment comes in, patients would have been given prescriptions but no drugs. It was revealed that due to the irregular supply of drugs in the health centre, patients have to find other private means of getting medication.

Furthermore, the equipment is old and rusty therefore it’s not efficient. It was revealed that there were few beds for expectant mothers and other patients, for example women in labor often times give birth on the floor which is unhygienic for both mother and baby.

There is no housing for the few staff members except for the senior clinical officer. This is risky for the patients, since they stand the chance of finding no health worker to attend to them in case of an emergency.

### **4.2.3 Librarians**

Librarians were chosen as respondents because the study in question involves their participation, specifically ‘implementation’, therefore their views were of utmost value. All the librarians have been in the library profession for over eight years. They have been involved in disseminating health information through the Uganda Health Information Digest (UHID) therefore they are knowledgeable about library outreach activities and were in position to give informed views in this research.

The Uganda Health Information Digest, “aims at improving the accessibility to, utilization of, and ability to share relevant health information by medical and health workers throughout Uganda, particularly those working in isolated and/or of the country with hardly any information support”(Albert Cook Library, 2014: <http://chs.mak.ac.ug/acook/node/22>).

The digest contains special topics of interest to the recipients such as current procedures for diagnosis and local researches done by medical professionals. It is usually distributed to health centres and hospitals within the city and to rural areas all over the country. It is also made available to members of parliament so that they could take them to their constituencies. As a result of outreaches such as the digest, the interviewed librarians indicated that health outreach by the library is not a new activity.

It was also revealed that the digest is still published to date. However, due to financial and human resources limitations, its production is slower than before thereby, affecting dissemination of health information to rural people.

### **4.3. Health information needs of rural women.**

It is important to know the information needs of the people before giving them any kind of information. Therefore, this question was elicited so as to gain an understanding of the health information needs of women. The questions under this section were structured in such a way that information was gathered about the health problems faced by rural women, from which health information needs were drawn. This question was directed at women and health workers only, librarians were not among the respondents to it as they may not know the needs of rural women since they don't work directly with one another. .

#### **4.3.1 Responses from women**

##### ***4.3.1.1 Health problems faced by women.***

In response to this question, a range of health issues were drawn out, however, the most prominent were painful menstrual periods, pregnancy complications during and after birth for example backaches, dizziness, swollen feet and painful backs, family planning complications and

malaria. Others included frequent headaches, salpingitis, sight problems and ulcers. Below are some interviewees' personal accounts of common health problems:

“Whenever I give birth and have to go on family planning pills I get too sick until I stop taking pills, it's too much I am tired of having children but I have no option because with family planning pills I fear that I will die” (Interviewee W25).

“The health issue that affects me is that I am not well informed about family planning. People go on to tell us that family planning is very bad as others tell us that it's good hence having a problem to decide what is false and what is true” (Interviewee W22).

#### ***4.3.1.2 Health information needs of women.***

This question received varied answers however, the most dominant issues upon which information was sought were menstrual periods and family planning. Ten women indicated that they seek advice on how to undertake family planning more so as it pertains to the complications they go through when using family planning methods. Nine women reported to have inquired about painful menstrual periods. Other issues raised were child care, nutrition, malaria and issues of sexually transmitted diseases. Only a handful inquired about headaches, chest pain, sight issues, breast pain and hypertension as was believed amongst the interviewees that such health problems required medicine not just information.

The findings revealed that over fifty percent of the women wanted to receive information on issues of family planning specifically on how to evade the complications associated with using family planning methods. Ten of them disclosed that the health of their children was their utmost concern therefore information on matters of child care, nutrition and upbringing was a major concern to them. Menstrual periods were also another health issue upon which the women wanted to receive information especially in terms of overcoming or controlling painful periods. Malaria and HIV/AIDS were also among the diseases mentioned by the women as being pressing issues.

As one interviewee put it, “I seek information all the time on this bleeding problem I have, I have

taken pills and they have not been helpful therefore I just talk to different people for advise all the time” (Interviewee W21). Whereas another put it this way, “I seek information on malaria, proper child care, nutrition and family planning” (Interviewee W33).

#### **4.3.2. Responses from health workers**

##### ***4.3.2.1 Health problems faced by women.***

A number of issues were identified such as family planning, immunization, antenatal and postnatal care, child care, STDs and HIV. Others were related to domestic violence in their homes.

##### ***4.3.2.2 Health information needs of women.***

A common view amongst the health workers was that women rarely sought information but medication whenever they visited the health centre. They therefore revealed that from the above health problems mentioned (in section 4.3.2.1) *Health problems faced by women*, they draw out the health information needs. Prominent among these were family planning and child care.

#### **4.4. Health information for rural women.**

##### **4.4.1. Sources of health information for women and health workers.**

When the respondents were asked about the sources of health information, a variety of perspectives were expressed. Women and health workers were questioned about their sources of information and librarians were on the other hand asked about the people to whom they provide health information. In so doing, the researcher wanted to compare the responses from the women, health workers and librarians. Whereby, if women and health workers mentioned libraries as sources of information and librarians in turn named women and health workers as some of their users, it could be concluded that libraries are sources of information of these people.

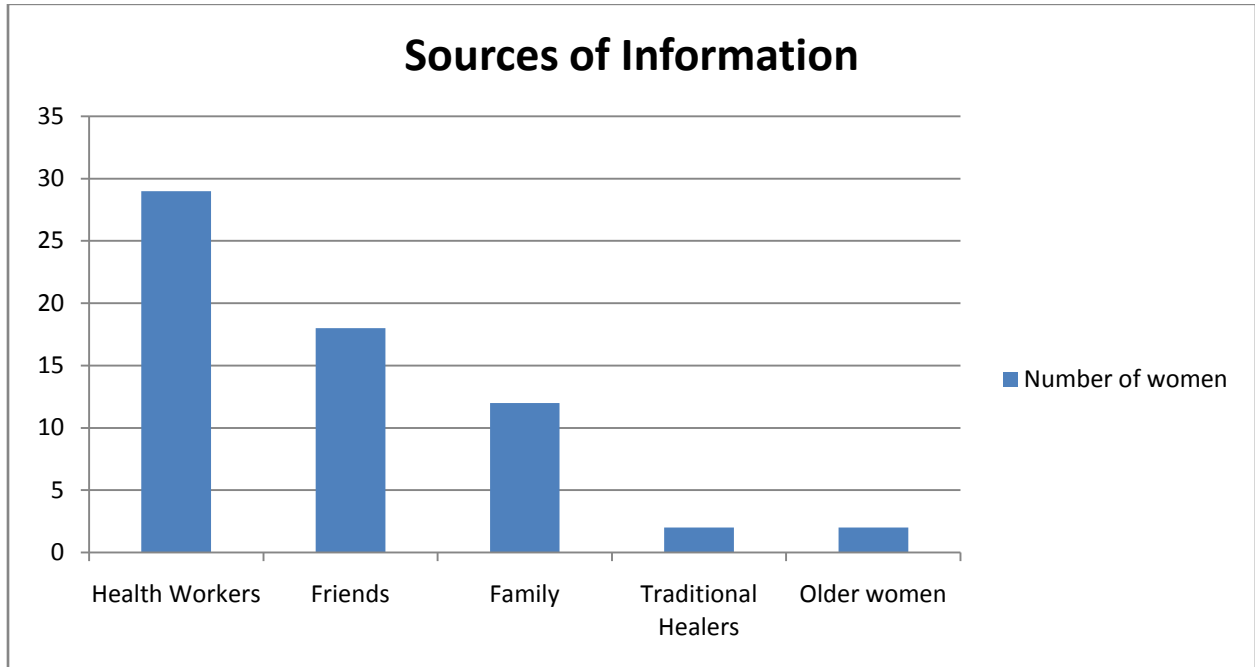
##### ***4.4.1.1 Sources for rural women***

- **Responses from women.**

The majority of women who responded to this item revealed that health workers and friends were the main sources of information. This was evidenced by the fact that twenty nine women



mentioned health workers, eighteen mentioned friends and twelve opted for family members. Only four women made mention of older women and traditional healers as sources of information for their health issues. As illustrated in the chart below, it is apparent that for the women, health workers are their main source of health information.



*Fig.2 Sources of Health information (Responses from women),(Source: Field data)*

- **Responses from health workers.**

Interestingly, there was a slight difference in views between health workers and women because the women mentioned that health workers and friends were their preferred sources of information, while the health workers expressed that rural women mostly sought health information from their friends and family members first before consulting health workers.

As one interviewee put it:

“They seek information from friends who have experienced similar issues who in turn refer them to health centres, otherwise they will not come to the health workers as first choice for information” (Interviewee H4).

- **Responses from Librarians**

Librarians were asked this question, so as to find out whether they were a source of information for rural women.

On the side of librarians, they were all aware of the outreach strategy of the Makerere University where they are mandated to reach out to other communities besides the university or academic community; however, findings revealed that apart from serving Makerere university community, they mainly offered information to paramedical students and staff from other health institutions, researchers and journalists. Women were not among their users although they revealed that the information they may require was available in the Library. Therefore, this revelation implies that the library is not currently being used as a source of information for rural women or for the “rural” health workers who are unable to access it physically. However, it was mentioned that the digest has been used as a source of information to some health workers.

#### **4.4.1.2 Information sources for health workers**

Health workers highlighted colleagues, seminars, workshops, text books and monthly studies called “continuous health education” as their main sources of health information. They disclosed that booklets and trainings are organized by Uganda’s Ministry of Health.. From these sources they are able to get up-to date information on health which has been helping them to keep abreast with emerging trends in health.

However, on this same issue, some health workers expressed their discomfort with other sources from which women sought health information. Majority of them felt that these sources especially friends and family are not credible because they are not knowledgeable enough about health issues therefore often times they mislead the women.

One interviewee commented,

“I am not comfortable with those sources as women always tend to be misled. I actually do not recommend to them to put all information into practice before contacting a health worker as they are prone to making mistakes” (Interviewee H2).

#### **4.4.2. Information media used by women in obtaining health information**

Responses were obtained from women and health workers on this issue. Librarians were left out because they had already declared that they do not offer health information to rural women, therefore, they would not give informed responses on this issue.

#### ***4.4.2.1. Responses from women***

All of the women revealed that they always used verbal communication (face to face) to get information from their sources unless circumstances called for other means. As such, eight women disclosed that they only resorted to phone calls in circumstances of emergency and when the person they sought information from was not readily available. It was discovered that radios, televisions and meetings do provide health information on given occasions, however they are on general topics which may not necessarily apply to the health information needs of the women at that particular time. Therefore there was a general agreement amongst the interviewees that such channels were not always appropriate to their needs.

#### ***4.4.2.2. Responses from health workers***

All the health workers indicated that they offered health information to women verbally unless the situation called for other measures such as a phone call.

Talking about this issue, an interviewee said:

“I talk to the women who seek me out and we discuss their health issues verbally. The facility also has some charts on the walls which carry useful information. For the case of booklets, leaflets and brochures, we don’t have any. I hope in the near future we shall be able to form women groups with funding from TASO, this will help in information dissemination” (Interviewee H3).

As expressed in the above responses, a common view amongst all interviewees was that rural women receive health information through verbal means (face to face) from their sources.

#### **4.4.3. Satisfaction of women’s health information needs**

Responses were sought from women and health workers only. Librarians were excluded from this question because they are not the recipients of the information therefore they are not in position to know if the need is met or not.

##### ***4.4.3.1 Responses from women***

This question was meant to establish whether the information that the women got from whoever they sought it from was indeed helpful in solving their health problems. Through their answers, it is possible to establish whether information is essential when it comes to health.

In response, a total of thirty one women indicated that this issue is relative; it is dependent upon the health information need at hand. They revealed that sometimes the health information need was met but on certain occasions it wasnot. They attributed this to the fact that they referred to the same persons most of the time and as a result, the source may not know everything all the time. Eleven women disclosed that their sources always met their information needs, whereas eight women reported that their sources were not able to provide the information they needed.

This was disclosed through responses such as below,

“At times the information is satisfactory but then a different person will give me contradicting information, imagine about the same thing, then I get all confused!” (Interviewee W27).

“Some information is satisfactory yet the rest may be irrelevant” (Interviewee W43).

“To some extent the information I receive helps but sometimes it just is not enough” (Interviewee W4).

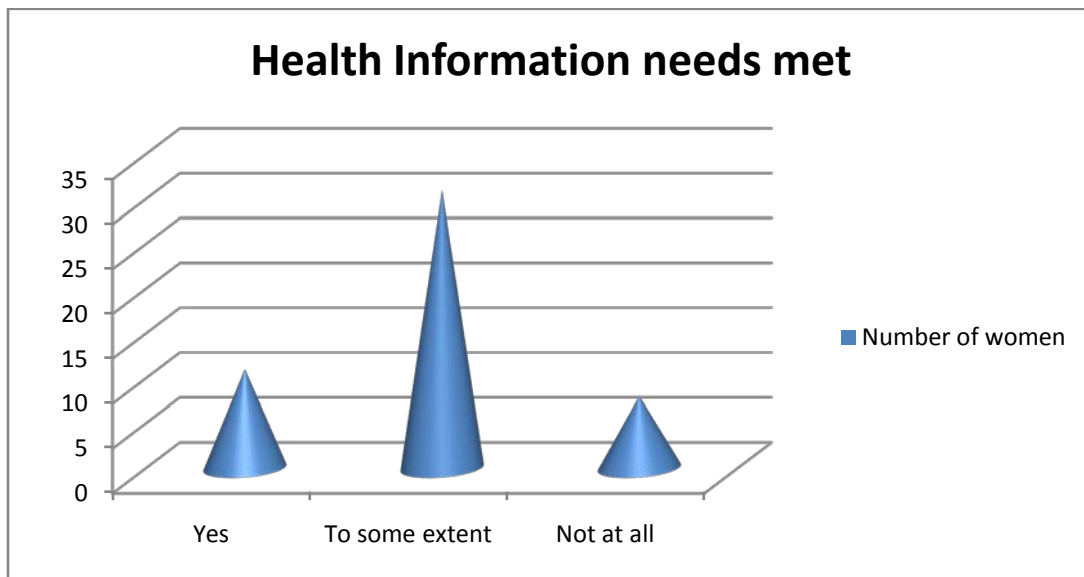


Fig.3: Extent to which health information needs are met (Source: Field data).

#### 4.4.3.2 Responses from health workers

In the case of health workers, the overall answer to this question was positive. Different from the women, health workers were asked whether the information they gave to women was good

enough so as to compare with the responses from women on whether they thought that their sources were satisfactory.

All the health workers felt that the information they render to the women was helpful and that it met their information need. This was evidenced through the fact that the women kept coming back to the centre for further advice.

As stated by one individual, “I have really been helpful in offering health information to the women. Most women seek information on issues to deal with treatment, immunization and family planning. Due to the information given to them and the assurance they receive, they always turn up in large numbers. For example, the stigma that was experienced amongst HIV patients has cleared. People turn up freely and willingly for HIV tests. Therefore, I can confidently affirm that we have satisfactorily offered information to women” (Interviewee H1).

#### **4.5. Academic libraries as a source of health information**

This was meant to establish whether women and health workers were aware that academic libraries could provide them with health information and to know if they were getting information from there or if they would welcome the prospect of receiving health information from academic libraries. Librarians too had to reveal whether they were in position to meet this role as part of their outreach mandate.

##### **4.5.1 Responses from women**

Thirty eight women had no idea that they can get information on health issues from an academic library. Although twelve of the women revealed that they had heard of academic libraries and that people get information there they, however, had never been able to access such libraries or any other library for that matter, given the fact that they are not available in their area.

Through further dialogue, this category of respondents further said that academic libraries may exist but how to gain access to them and even transport to go there was a problem, therefore, despite knowing about their existence they have never accessed materials from such libraries.

Further to the above, when the respondents (women) were asked whether they would welcome

the prospect of getting health information from an academic library, they indicated that they would be happy with the prospect as evidenced in some of the extracted quotations below:

“Yes, the information is really needed because we as village people we have many complications especially finances. We even lack transport fees to access the better hospitals where we can seek more help, therefore, if we can get information on such issues we can then solve them easily” (Interviewee W2).

“I would like to receive such information. Such information transfer reduces the burden of transport to look for wherever the doctors maybe” (Interviewee W7).

“I would like the information to reach the villages because through mere reading some statements many health issues will be understood very clearly” (Interviewee W8).

“I would love to receive health information from a library because it will be like a doctor brought closer to people who can’t easily access him/her” (Interviewee W26).

#### **4.5.2 Responses from health workers**

All the health workers on the other hand were aware of the existence of academic libraries and that they offer health information, but do not use them, however, as there was none in their village. For their part, reasons for not using academic libraries were, time, distance, transport costs, and work load constraints. Furthermore, they revealed that receiving health information from libraries would be such a big achievement on their part as they are always seeking information on emerging health issues.

#### **4.5.3 Responses from librarians**

Librarians revealed that currently, rural women are not part of their audience. They were further asked to point out whether the library was in position to provide health information for rural women. Interestingly, they all revealed that with the required resources in place and a lot of research into the information needs of rural women, this was a possible venture. However they emphasized that the information would need to be repackaged so as to be consumed by the ‘rural women’ audience since rural women would presumably not read text books as is the custom in

the library.

#### **4.6. Use of the mobile phone for delivery of information.**

The question on mobile phone use was directed at all three categories of respondents. Given that the study being undertaken is on the use of the mobile phone as an information delivery device, it was important to get the views of all the categories of respondents on this undertaking.

##### **4.6.1 Women and use of mobile phones.**

For reasons of getting well informed answers about the phone as an information delivery device, the women were asked about both ownership and use of a mobile phone.

###### ***4.6.1.1 Phone ownership by women***

Thirty four women revealed that they had personal mobile phones. However, those that did not have their own phones reported that whenever they needed a phone to use, they could access one from friends or family.

###### ***4.6.1.2. Phone usage by women***

It was important to find out which functionalities of the phone the women used frequently. The first discovery was that most of these rural women possessed ordinary feature phones not smart phones.

It was revealed that most of them use their phones to make and receive calls from family members and friends, checking time, lighting in the dark and for mobile money services. Only two of them used their phones to listen to radio. They further disclosed that they were mostly familiar with the voice functionality than any other function on the phone.

In view of the research questions, it was important to find out if the women are able to read, write and retrieve a text message off their mobile phone. Ten of the interviewed women were able to use the phone to send and receive a text message while twenty made it known that they can be able to retrieve a text message sent to their phone however they are unable to write one in return. Eighteen were completely unable to send or retrieve a text message. A variety of views were expressed such as below:

“I can read a received SMS but I have never tried writing and sending one, but I think if someone teaches me how to then I can do it” (Interviewee W3).

“I am able to read but not able to write an SMS” (Interviewee W10).

“I can only read but in local languages” (Interviewee W17).

In addition, when asked if they received any impersonal information via their mobile phones, they answered in the affirmative saying that they received several voice and text messages especially from the telecom service providers.

Further questioning revealed that these messages were mostly promotional messages about new service packages and other advertisements such as upcoming music shows.

#### **4.6.2. Language used on the phone**

Under this section, women had to reveal the language in which most of the impersonal messages as disclosed in (4.6.1.2) were sent. This is because for the personal messages such as from family members, would most likely be sent in a local language understood by both parties.

As a result the women disclosed that in most cases the text messages are in English which is hard for some of them to understand. However, when they did not understand the text messages whereby they just saw the ‘message icon’ on their phone, and were unable to retrieve and read the message due to the language used or lack of retrieval skills, they always endeavored to ask their family or friends to help in retrieving and reading the message.

However, for impersonal voice calls, the majority of the women disclosed that they listen to the call and can understand it if it’s in a local language such as luganda. Only twelve would understand voice messages in English.

When asked about the preferred language for use, twenty eight women preferred to have information conveyed in Luganda, thirteen in Lusoga, seven in English and one each in Swahili and lutooro. Amazingly twelve women had prior disclosed that they can understand information in English yet only seven preferred for information to be sent in English. Implying that despite



their ability to understand the English language, five of twelve prefer other language to English as a means of communication.

#### **4.6.3 Provision of health information via a mobile phone by the library**

##### **4.6.3.1 Opinions from women**

In the discussion about the Library using the mobile phone to send them health information, all the women answered in the affirmative. They all preferred the voice functionality as opposed to the text function, emphasizing that they would want to have a chat ‘back and forth’ with someone on the other side of the phone, instead of getting information without interaction with the sender as is being done by telecom providers.

They made it clear that with a voice call they would be able to ask questions and get the response immediately.

Only six of them indicated that in addition to voice, they would also like to get text messages. Interesting responses in this regard included:

“I would prefer a voice call because it gives me a chance to discuss my problem clearly”  
(Interviewee W5).

“I prefer a voice call. I get an opportunity to ask my questions properly and receive proper answers” (Interviewee W8).

Among other things, the respondents pointed out that having the library send information via their phones would be very helpful as it would save them from incurring transport costs to visit the doctors and they would be able to get information as and when they needed it.

“If this medium is free of charge then it would be very helpful to us the village women. Talking to someone on phone is almost the same as seeing them face to face therefore, I will get the same information as when I physically talk to someone like a doctor. Another good thing about it would be that instead of always waiting to get money for transport and consultation fee to go visit the doctor, I can communicate via phone as he attends to other issues elsewhere” (Interviewee W18). The same view was echoed by eleven more women.

However interviewee W3 was more enthusiastic saying, “If at all they apply this project and don’t just waste our time it will be very helpful”.

More responses had varied views such as below:

“This method will boost our confidence in the information obtained from health centres and make us know where to go for the right treatment” (Interviewee W7).

“This would be helpful as I shall become more knowledgeable about the health issues by constantly getting information whenever I need it” (Interviewee W38)

“Yes because I believe the information from the experts in libraries will be the best. This will sharpen us as we shall have brand new information from the experts” (Interviewee W40).

“The method is very good as we shall get health guidelines from knowledgeable people, I don’t want to run to the doctor all the time, sometimes the problem is just minor especially when it has to do with my children” (Interviewee W19).

“I think it will be helpful as we shall have the information to pass on to our fellow village women who have lots of questions yet we may also be ignorant about their issues” (Interviewee W26).

“It will help because if a woman fails to access a doctor in person at a health centre, this health information option will now act as a substitute” (Interviewee W27).

“Yes because information on the phone is also good information. In fact the method if implemented would be very helpful to us as we always have a lot of problems but never have where to seek helpful information. This will then provide a solution to our health problems” (Interviewee W10).

“Yes of course, the information would be of help. This is because such a venture is also another source of information, it does not matter how I get the information provided I get the information I need” (Interviewee W12).

“I guess this method would help since most of us live in remote areas where we take days to access a health centre. So if this method is implemented and the information comes in time when needed then it will definitely be of help” (Interviewee W40).

“It will be very helpful as most of us are so ignorant when it comes to health knowledge. We also lack transport to visit bigger hospitals and libraries in towns” (Interviewee W28).

“It will be very helpful because we shall have some prior information on our health issues before we even go to hospital. This prior information helps us to have a productive conversation with doctors as we can also contribute while discussing” (Interviewee W29).

“It will be very helpful as we shall have prior information to guide us and guarding ourselves from fake health workers” (Interviewee W33).

“It will be helpful as we shall be able to receive and also distribute information easily in the shortest time possible. It will even save those women in far areas who find it difficult to access health centres” (Interviewee W48).

“I think this method will be helpful since we village women always lack access to health information. We have had problems with family planning but lack knowledgeable people to consult” (Interviewee W50).

#### ***4.6.3.2 Opinions from health workers***

The overall response by health workers to the question of having women receive health information via a phone was very positive. They all pointed out that most women now owned phones and that such a venture would lessen their workload as rural women would have another

credible source of information. Below are quotations of two remarkable responses:

“It is very good as most people have phones now. Instead of them trekking a long distance they can receive information via phones. Sometimes, its save on time as small problems which may not need physical presence can be solved” (Interviewee H2).

“I have to say it’s a good idea. It will be of much help as some burden will be taken off from the health workers. It will also be of much help to people who stay very deep in the villages and find it difficult to come to these health centres” (Interviewee H3).

In particular, all health workers stated that immunization, family planning and nutritional issues were the most appropriate health issues upon which a mobile phone would be used as an information delivery device. Further pointing out that if the phone were to be adopted, voice calls would be the most suited means for rural women because most of them are unable to read or write and so voice calls would give them an opportunity to speak to people in languages that they understood.

One respondent added that, “just like telecom companies have customer call centres with toll free numbers which their customers use to call in case of a problem, the library or any other facility such as a hospital should have such an arrangement so that whoever needs information calls without being charged. People to answer questions should be on call at all times, 24/7” (Interviewee H4).

They highlighted that such information would be helpful for the women. Reasons for this assertion were that libraries offer current updated information, therefore, it would definitely be useful and that once one woman knows something important such as health information they would be able to pass it on to others within their circles when they meet up to collect water and firewood.

The health workers also revealed that given the remoteness of their hospital, it would be great to also receive health information from a library. They were quick to give examples of places such as Mild May and Baylor centre which they noted as some of those where they can call anytime

for help. As a result, more centres like the two mentioned above would boost their information sources thereby making them more knowledgeable and thus, more competent health workers.

#### **4.6.4. The prevailing use of phones for providing information in the Library**

Findings from Librarians revealed that although other modern libraries were offering mobile services, Albert cook library was only offering the mobile services offered through the Main University Library of which it is a branch. These services include the mobile Online Public Access Catalogue (OPAC) and the texting service offered in carrying out the Document Delivery Service (DDS).

Therefore most of the services offered by the library are through print. It was also revealed that online services such as emails and online journals are being used but that is not Albert Cook Library's initiative. However it depended upon the user's ownership of a mobile phone with the required capabilities.

However, through further dialogue it was disclosed that the library is capable of adopting the use of mobile phones as an information delivery device for its general users. That, with the necessary funding, training, increase in the human resources and through further research into the use of mobile phones, this undertaking would be an option worth trying given the increased ownership of phones in Uganda.

When asked about the prospect of using mobile phones for this purpose, all the librarians said that it was possible in the future not in the current conditions of Albert Cook Library. They highlighted issues of finances, training, human resources, equipment and mobilization of women. One particular interviewee argued that, "Such a venture would be a complete new addition to the work done at Albert Cook Library. Therefore it would require forming a new department within the library for handling such matters. As a result, a lot of money would be required for equipment, repackaging the information and human resources, not forgetting moving to the villages to get the phone numbers of the women and training them on how to retrieve information. Yes its possible but would be very hectic and expensive in my view" (Interviewee L2).

It was further discovered that this would require collecting mobile numbers from the women and preferably send them regular text messages on essential health issues that would have been identified through research. One interviewee suggested that such messages could be just reminders to particular patients about timing and continual taking of their medication. An example given by one of the interviewees was “**Have you taken your ARVs today?**” (Interviewee L1).

#### **4.7. Proposed health Information that can be provided by libraries through a mobile phone**

There was a sense amongst the interviewees that Albert Cook Library can actually make health information accessible to rural women. Two librarians suggested that the library would have to work hand in hand with community leaders such as local council leaders and schedule dates on which to visit specific villages with repackaged information not text books. They suggested that the library would have to come up with animated clips (movies), leaflets and big posters which they would use during these visits. Such information would include family planning, HIV/AIDS, STDs and child feeding messages.

On the other hand one librarian suggested that Albert Cook Library would do the outreach through offering professional support to local health libraries at sub-county level hospitals. The interviewee argued that since Albert Cook Library already had professional expertise at information delivery, it would be in position to offer help such as books, trainings for rural librarians and generally helping in developing such libraries in villages so that women have a place in their neighborhood from where to access health information.

#### **4.8. Challenges as envisioned by librarians**

When the librarians were asked on whether they foresaw any challenges if this strategy were to be taken up, the majority commented that there would be several challenges.

A number of issues were identified such as lack of funding, human resources, equipment, monitoring and evaluation mechanisms, network problems especially in remote areas, and that

repackaging information for timely dissemination is strenuous.

#### **4.9. Partnership in making health information accessible to rural women**

This section of the study had several questions in order to get the respondents to give views on whether the library needed partners or they would work directly with women. This was in terms of packaging and delivery of information to the women.

##### **4.9.1 Opinions of women regarding partnerships**

The women were questioned on whether they would want the library to send them information directly or through third parties. Forty five women disclosed that they would prefer to have information sent directly to them as they are the ones in need. Four of them preferred that it be sent to their sources such as the village health workers and the local leaders especially the women leaders. Of the five that preferred middle persons, two revealed that the health workers were the most appropriate since they would simplify the information for them. Another two said that the information should be given through local leaders as they are the ones that are closest to the people and are easily accessible. One woman preferred for the information to be sent through her friend who would explain the details to her as she is more educated.

The findings revealed that generally the women preferred direct transmission of information and they had several reasons for this choice of information delivery, as evidenced through responses such as below:

- i. Timely delivery of information (Time saving)

“I would prefer this information to come directly to me because in case of a third party I may not receive it in time or even not receive it at all” (Interviewee W2).

- ii. Avoid loss of information

“The reason being that the third party may give me a wrong interpretation since he/she was the one first contacted yet I would have understood it better if it were me being the first contact” (Interviewee W22).

- iii. Confidentiality

“Most times we as women do not want information on our health issues to be known by so

many people so we rather keep it a secret between us and the doctors. Therefore I wouldn't entertain any third parties" (Interviewee W15).

iv. Health problems are better discussed directly by the patient

"The reason why the information should come direct to me is that someone else may not understand very well my situation so he/she will not be of great help in solving my problem" (Interviewee W17).

#### **4.9.2 Opinions of health workers**

The same views were echoed by all the health workers. They agreed that women would benefit better if the information they seek is sent directly to them than passing through a third party.

One respondent commented that, "I would recommend it as people prefer to hear information from different sources in order to believe it. This system can also act as a continuous reminder to the rural women about the health issues that press them in their lives" (Interviewee H2).

However when asked if the library would need partners while packaging the information so as to make it more useful to the women, they agreed that the libraries needed partners for such a project to be efficient.

They highlighted that the best partners would be health workers and community leaders since they are on ground in the villages therefore they understood the health issues of the rural women better than anyone else, as a result they would give valuable input to the libraries when repackaging the information to be sent to the women.

Together with the libraries, health workers would edit the information into simpler forms which is easily understood by rural women.

In addition to the above, they would act as linkages between the women and libraries giving feedback on raised issues from both parties. This is because they as health workers are in better position to understand health issues than any of the other two parties involved.

#### **4.9.3 Opinions of librarians**

The common view amongst the librarians was that the library needed partners to carry out such a venture.

The key partners suggested were the government, particularly the Ministry of Health, to offer the necessary funding in terms of equipment and human resources, local leaders since they are on the



ground and health workers who directly interact with rural women on a daily basis. They argued that health workers were the most knowledgeable group in terms of the health information needs of women and that they had the capacity to offer support in repackaging information so that it can be understood by the rural women who are not so learned.

The Library would play the role of offering up to date information and together with the health workers, they would repackage it for the women. Further noting that this would become a department on its own within the library and would require professional staff not only librarians but other professionals with knowledge in medical matters such as nurses and doctors to be on call in answering questions and sending out texts or voice calls to the women.

From the accounts of the Librarians, it emerged that Albert Cook Library alone cannot do this; however in partnership with other stakeholders, everything would fall into place.

#### **4.10. Conclusion**

This chapter has presented the major findings of the study. The findings were a result of interviews with women, health workers and librarians, all of whom are key stakeholders in the study. The results from this chapter indicate that the use of mobile phones as an information delivery device is a possible venture even for rural women as evidenced through the responses from the three categories of respondents. The next chapter, therefore, gives an analysis of the findings, recommendations and suggests areas for further research.

## CHAPTER FIVE: DISCUSSION OF FINDINGS AND RECOMMENDATIONS

### 5.1. Introduction

This chapter is a discussion of the main findings presented in chapter four derived from interviews obtained from rural women, health workers and librarians. It will further highlight recommendation and a conclusion to the study. The study's main aim was to explore Albert Cook Medical library's use of mobile phones as an information delivery device for delivering health information to rural women with specific focus on meeting the health information needs of rural women.

### 5.2. Discussion of findings

This section discusses some of the main issues that came to the fore after the analysis of the data which was obtained from the interviews with participants in the study. These issues are discussed in juxtaposition with relevant information acquired from a study of the literature as presented in chapter two. The topics to be covered are, i) Health information needs of rural women, ii) Sources of health information for rural women, iii) The library's role in providing health information to rural women, iv) The use of mobile phones to enhance the provision of health information to women, and v) Possible partnership for the library to take on this work.

#### 5.2.1. Health information needs of rural women

The study revealed that the health information needs of rural women encompass several issues. The main information needs brought forward were; family planning, menstrual periods, child care, immunization, pregnancy problems, malaria and problems associated with Sexually Transmitted Diseases (STDs) such as HIV/AIDS among many others.

The above mentioned information needs are in line with the needs reported by Saleh and Lasisi (2011), Olorunda and Oyelude (2003) in *Section 2.5.3*. In their reports they pointed out that women's health information needs were ante-natal and postnatal care, immunizations especially on the six childhood killer diseases, how to prevent and manage Vascular Virginal Fistula (VVF), and how to safely deliver pregnancy, further adding that the basic health information needs are "hygiene, good food, child care, family planning and clean environments".

In light of this consistency, the main areas upon which women in rural areas seek health information are, family planning, menstrual periods, child care, immunization, STDs, malaria and antenatal and postnatal care. Analysis of these outlined information needs confirms that women's information needs are not only limited to their personal needs but also those of their family as reported by Olorunda (2004:3) under *Section 2.5.3*.

### **5.2.2. Sources of health information**

The study revealed that the majority of women referred to health workers, family and friends for information. Other sources less frequently used included older women, traditional healers and local leaders such as local council members who relayed information during meetings. This is in agreement with what was reported by Wathen and Harris, (2007) and Mooko cited in Coraggio (2010) in *Section 2.5.4*, that rural women's main sources for health information were friends, neighbours and relatives.

Furthermore, literacy levels and development in a given area determines the mediums used as sources of information. This is illustrated in the data obtained where rural women in Buyengo sub-county prefer the use of verbal communication to other mediums of communication. Radios and televisions were not used frequently by these women, although they were mentioned by a few respondents.

These findings are contrary to a study done in Western Nigeria by Nwagwu and Ajama (2011) where it was claimed that rural women in that area used radios and televisions more frequently as shown in *section 2.5.4*. The contrast is possibly a result of the difference in levels of literacy and development in these two areas, whereby the oil producing women in Nigeria have more money to afford an education and own radios and televisions as compared to the illiterate and poor women in Buyengo sub-county who have less access and are further hindered by low literacy.

This discovery confirms the findings reported by Saleh and Lasisi (2011) and Nwagwu and Ajama (2011) in *Section 2.5.4*, that rural women's preference for informal sources of information was due to low levels of literacy and high levels of poverty.

In view of the different sources, it should be noted that despite the ready availability of informal sources, they are not the best sources to be used by the women as revealed by health workers. These informal sources are seen as unreliable and outdated therefore they were not to be trusted when in regard to an individual's health. The same view has been coined by Ikoja-Odongo (2001) and Corragio (2011) under *Section 2.5.4.*, that these informal sources are unreliable, inaccurate and out dated.

As per the study findings, rural women use the most available information source (family, friends & health workers) to satisfy their immediate health information needs. This explains why the women did not mention libraries as sources of information because libraries are not available in their area. Furthermore, the given sources are mostly contacted through face to face communication not phone calls. This was attributed to the preference for back and forth dialogue with the person providing the information being sought and the high cost of airtime to make a phone call. It can thus be concluded that the women prefer sources where they can communicate directly in a local language due to their low literacy levels.

As revealed from the findings, the women affirm that sometimes the information obtained from sources met their information needs and as a result they experienced an improvement in their health condition. This declaration serves to confirm what was mentioned by Mathiesen (2008) in *Section 2.5.2* that information is essential for the well-being of people. It is therefore, important that people have access to information whenever they have a need for it.

### **5.2.3. Academic Libraries as sources of health information**

As was noted the majority of the rural women were not aware that they could obtain health information from academic libraries; therefore, the academic library was not being used as a source of health information.

This resonates well with the views of Musoke (2005:3) in *Section 2.6*, “to many African health professionals and librarians, information is available but not accessible; while to some, information is neither available nor accessible”. She accordingly emphasizes that in Africa, the greatest challenge is not production of more relevant information but ensuring that what is

currently available can be accessed. It is evident that Albert Cook Medical Library is in possession of the information needed by rural women. They however, have no knowledge about it and thus have no access to it.

The study thus exposed the fact that the library was not well known or even referred to as primary sources of information for rural women. This reflects negatively on the image of academic libraries as providers of information especially in view of their outreach mandate. In light of this, it should be noted that academic libraries need to extend their services to other people outside of the confines of their University walls.

It should however be noted that despite having no prior access to an academic library, 100 percent of the respondents expressed interest in receiving and accessing health information from academic libraries. Some of the reasons advanced for this interest were:

- It's reliability
- Library information would reduce the number of visits to health centres hence reduced transport costs.
- Information obtained could be the remedy to multiple ailments.
- Having information will bridge the gap between rural and urban areas in terms of quality of life.

The views above are related to Lancaster (2003) under *Section 2.6*, where it's reported that academic libraries "*have reliable information in regard to those seeking health information*"

In view of the importance attached to information accessed from an academic library, it is vital that the academic libraries rise to the occasion and devise ways of providing information to users who need it.

#### **5.2.4. The common uses of the mobile phones by rural women**

Findings show that most women own or have access to a mobile phone within their households. This is in line with the ITU (2014) report where it is estimated that 52 percent of all Ugandan households have access to a mobile phone.

These women use their phones mostly for voice calls, checking time, mobile banking and providing lighting in the dark as opposed to texting, playing games, listening to radio among

many other functions. In addition, it was revealed that women commonly used ‘Lusoga’ as the primary means of communication. This is attributed to it being the local language in the area therefore spoken by all the women.

Based on the discovery above, rural women are under utilizing the functions on their mobile phone as opposed to what is highlighted under *Section 2.7.4.*, where mobile phones are used for various purposes such as taking and sharing pictures and videos (Lippincott, 2010; Jones, 2012; Lee, 2013); connecting to the internet (Hey et al, 2007), watching television (Jain, 2005; Lippincott, 2010; Bank of America, 2014).

The above observation can be attributed to low literacy levels which make them unable to read and write therefore most of them are unable to text, language barrier and their personal perception towards the use of a mobile phone. They perceive the mobile phone as a device for receiving and making phone calls. Furthermore, as noted under *section 4.6.1.2*, rural women own basic feature phones which may lack some of the advanced functions found on smart phones.

## **5.2.5. Mobile phone usage for information delivery to rural women by the Library**

### ***5.2.5.1. Current mobile phone use for information delivery by Albert Cook Library***

Findings indicated that the library only offers mobile services through the mobile OPAC & texting under the Document Delivery Service.

Therefore in view of the limited number and types of mobile services offered at Albert Cook Medical Library, the implication here is that it’s not making optimal use of the opportunities presented by the mobile phones era where phones are being put to use by academic libraries for information delivery as per cited examples listed under *Section 2.7.7* where mobile phones are used for several services such as website services (Vollmer, 2010; Barile, 2011), mobile user instruction (Vollmer, 2010; Murray, 2010), mobile tours (Kroski, 2008).

### ***5.2.5.2. Potential use of mobile phones for health information delivery by academic libraries***

Despite the low adoption of the mobile phone for information delivery by Albert Cook Medical Library, there was unanimous agreement among the respondents that mobile phones are suitable for health information delivery. Health workers and rural women expressed desire to receive information through their mobile phones from the library.

This serves to highlight the potential presented by mobile phone in health information delivery. The above is in agreement with the observation reported by World Bank and Infodev (2012) where it was argued that mobile phones are not only communication devices but also tools for information access.

In view of the possibilities offered by mobile phones in information access and delivery, academic libraries, health workers, government agencies, and other stakeholders have to rise up and adopt initiatives that will enable rural people gain access to health information in a timely and less costly manner.

### ***5.2.5.3. Health information that can be delivered via a mobile phone by an academic library***

The respondents were keen to point out that they would love to get health information for all their health information needs.

The thirst for information displayed by rural women serves to affirm that rural women lack sources from which to receive dependable health information. This echoes the same views by the World Bank (2007) under *Section 2.5.3*, where it's argued that rural people have limited access to relevant information services. To this end, anyone willing to fill this gap is welcome thus their eagerness at the prospect of receiving health information via their mobile phones.

In addition, rural women's desire for information, confirms Mathiesen (2008)'s views in *Section 2.5.2*, that human beings are inherently made with a desire to acquire information. They may acquire information through different channels however they always have an inherent desire to

gain understanding or fill an information need.

Equally important is the fact that people are willing to adapt to change if it enhances their quality of life whereby they are agreeable to taking up any initiative as long as it enhances their life in this case health life. This is illustrated by the fact that the rural women were ready to receive information via their mobile phones despite the fact that they have limited skills in phone use.

Finally, the enthusiasm at the mobile prospect can be attributed to the possibilities offered through the use of a phone as an information delivery device. It is timely and reduces costs of transportation fares for the rural woman who may have to move miles to find a health facility.

#### ***5.2.5.4. Mode of information delivery via mobile phones***

It should be noted that the rural women preferred voice calls to text messaging when asked about the preferred mode of information transmission via a mobile phone. This is in contrast to examples highlighted in *Section 2.7.6.*, from countries such as India (Marshall, 2011), Cambodia (Moeng, 2014) and Uganda (Free et al, 2013) where texting is being used as the main mode of health information delivery as per cited examples.

It was discovered that this mode of communication would allow direct forth and back dialogue with health librarians unlike texting, videos, and pre-recorded audio messages which are majorly one way. This way they have a chance to explain matters at ease, ask questions and gain better understanding in regard to their health information need.

The preference of voice calls could also be attributed to low literacy levels of most of the rural women. Most of them revealed an inability to read and write which limits their use of the texting functions on the mobile phone.

Furthermore, poverty could also be a hindrance. Texting, videos (which require data bundles to download), chatting and so many other phone functions requires one to have a substantial amount of money on their phone, well as voice calls can be made using the ‘missed calls’ method commonly referred to as ‘beeping’ in Uganda. This concurs with an initiative in Zanzibar called



“wired mothers” reported by Lund (2014), *Section 2.7.6*, where rural women beep the centre when they have a health need and the centre personnel call back.

### **5.2.6. Partnerships in health information delivery to rural women**

As was noted respondents revealed that the library cannot solely implement the mobile phone strategy in regard to health information delivery to rural women and as a result several stakeholders were mentioned.

From the above, it’s important to note that despite the fact that health librarians have ample access to health information materials in their libraries they are not medical practitioners by profession. Consequently, as suggested by the respondents they need the input of health personnel in repackaging such health information to meet the health information needs of rural women. Given the health knowledge and experience of health personnel in regard to health problems of women, they are in position to advice accordingly in the process of information packaging be it voice, text, audio, or video.

Furthermore, development of a mobile strategy such as the one under study requires money. Government agencies such Ministry of Health were thus mentioned because of the financial capacity they have to provide the necessary funding to sustain the project once it’s taken up.

In addition, telecom stakeholders are able to provide free calls and free texting services for the rural women therefore they are important partners in that regard. Moreover they would offer valuable input to the librarians, health workers and any other stakeholders involved in setting up a mobile strategy for health information delivery to rural women. This is due to their experience in setting up ‘customer care call centre’.

On the other hand, use of intermediaries in information transmission to women was rejected. This is because of privacy, time and to avoid loss of information if other parties are deployed in information transmission.

### **5.2.7. Implications of the library's adoption of the proposed "mobile phone concept" on the achievement of MDGs 4, 5, and 6.**

Libraries' holdings include a wealth of information on MDGs 4, 5 and 6 and as mentioned in the above discussion, it is not being accessed by the individuals who are most affected by the issues mentioned under the health related MDGs 4, 5 & 6. Therefore with the adoption of mobile phone concept for information delivery, rural women could become more enlightened in the health issues that affect not only them but also their family members.

Child mortality has been attributed to diseases such as malaria, diarrhoea, HIV/AIDS and many others under section 2.2.2 (WHO, 2013) and it should be noted these are some of the areas which rural women desired to receive information on. To this end, women's knowledge on these health issues will increase which will thus contribute to reducing child mortality

Furthermore, under *Section 2.2.3*, the World Bank (2013) put forward interventions such as adequate nutrition, proper health care, access to family planning, attendance of antenatal visits, and education as being necessary in lowering maternal mortality. With the adoption of a mobile services model, there will be proper information flow to elevate rural women out of lack of dependable information on some of the above mentioned issues such as proper health care, family planning, nutrition and the importance of antenatal visits.

The United Nations (2013) (*Section 2.2.3*) also mentions that illiterate women have a 2.7 percent higher chance of death during delivery than educated women. This implies that ignorance is one of the reasons behind the death of rural women.

However, with the mobile concept the women would have access to reliable health information on the relevance of family planning, antenatal visits, reproductive health and many other issues regarded responsible for maternal mortality. Information access for women as noted under *Section 2.7.6* by Marshall (2011) is an appropriate initiative to improve maternal mortality and reduce child mortality.

The same applies to MDG 6, where access to information contributes to combating HIV/AIDS,

malaria and other diseases. As noted in *Section 2.7.6* by Frog Design (2013); text messages were used under Project Masiluleke to encourage residents of Kwazulu Natal to test for HIV and this brought about increased testing for HIV in the area. This example serves to highlight the importance of information to people.

It is therefore clear that with the adoption of a mobile strategy by the library, there will an increased acceleration towards the achievement of MDGs 4, 5 and 6.

### **5.3. Recommendations**

As stated by Wilson and McCarthy (2009:1), the mobile era is here to stay and as a result academic and non-academic organs are making use of the opportunities brought about by this revolution to better the lives of people worldwide. Despite the fact that the study has established that an academic library cannot implement a mobile strategy for providing health information to rural women on its own, there are some important recommendations that can be drawn from the study:

- The Library, in partnership with other health related information providers such clinics, hospitals and government agencies such as the Ministry of Health, can develop a mobile phone strategy suitable for rural women. The library can play the part of “feeding” call centres with updated information and the other stakeholders can assist in whatever may be necessary for the actual development and implementation of the mobile information provision strategy. Libraries should therefore establish good links with external partners in order to have a good working relationship leading to such developmental partnerships.
- Based on rural women’s literacy levels, health information should be repackaged before dissemination into simple and easily understandable packages suitable for rural women. This would include factors such as language preferences, the use of voices calls and toll free services.
- Repackaging health information cannot be implemented by an academic library’s staff alone as they are not medical workers. The importance of partnerships in order to offer a credible service to the rural women is thus emphasised.
- Not only should the University look at increased funding for the library, but government should also increase funding for academic libraries, so that their budgets can enable them

to have current and relevant information materials to inform their users. Only through adequate funding will libraries be able to meet their outreach service mandate towards rural communities.

- Academic libraries should take advantage of the opportunities presented by the mass ownership of mobile phones. As the stewards of information, libraries have a mandate to disseminate their information to communities and as a result they should innovatively use available and less costly means to make available the information to which they are stewards.
- For the mobile phone strategy to be developed there will be need for training for all stakeholders involved in the programme.
- Even though it may not be the mandate of Makerere Library, the establishment of library and information services in rural communities should be looked into. This study revealed that rural areas, and specifically the one under study, do not have access to any library and information services. Libraries are hubs from which people acquire reliable information to better their life. There should be a library at least in each sub-county.

#### **5.4. A note on further research**

This research managed to ascertain the health information needs of rural women and the possibilities offered by the use of the mobile phone in filling this need. Further research could therefore involve the study of the practicalities involved in the actual development and implementation of a mobile strategy by Makerere Library in partnership with other health institutions in order to fulfil their mandate and thus meet the needs revealed by the rural women.

#### **5.6. Conclusion**

Given the vast amount of health information in the stewardship of libraries it is of paramount importance that this is not confined to the University community only. It is imperative that academic libraries rise out of the confines of their walls and extend their services to other users who may not necessarily belong to their primary user group but are in need of the information they hold. For rural communities that can be done through the use of available, timely and cost effective means such as mobile phones.

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## APPENDICES

### Appendix 1: Interview Guide for Rural Women

#### Introduction

My name is Irene Mbawaki, a student at the University of Pretoria carrying out research on the use of mobile phones for health information delivery.

Thank you for consenting to being involved in this study. During this interview, I would appreciate views on your health information needs, the use a mobile phone for delivering health information, the role of the library in making information available to you through the use the mobile phone and other insights that you think will add value to this study.

This study is being carried out as a result of recognizing the limitations rural women face in their quest for information and also as a possible source of information for policy makers in Uganda to better the lives of rural women. The results of this study will be deposited in the University repositories of both Makerere University and the University of Pretoria.

This is going to be a “one on one” interview; however I would appreciate your permission to use a tape recorder for purposes of later reference as I compile my findings.

Opinions given during the interview will be kept confidential and your name or address will not be disclosed to anyone apart from the researcher. I might need to use direct quotations during compilation of the results; however the quotations will not contain any individual identifying information about you.

I therefore appeal to you to freely express your opinions in the best way possible.

Thank you for your time.

*Note: The general questions are being asked in order to ascertain whether the participant is actually a rural person and if they are able to read or write given that the study is about use of the mobile phone which involves having basic skills in reading and writing.*

### **Section A: General Questions**

1. How long have you lived here?
2. If no, would you describe your previous place of residence as rural?
3. Are you able to write and read?

### **Section B: Health information needs of rural women**

1. Which health issues do you frequently face?
2. Sometimes we only need information not medication to solve our health issues, can you please give me examples of health issues where you have only sought information not necessarily medication.
3. Do you always receive the information you seek and are you satisfied with it?

### **Section C: Sources of health information for rural women**

1. Describe in as much detail as possible, the sources from which you have been seeking health information? (Family, friends, local leaders, women groups, health workers, etc)
2. Through which mediums have you been getting this information? (Verbal, phone, written, Radio, television, meetings etc).
3. Have the sources you mentioned been able to meet your health information need?
4. Do you know that you can get this information from an academic health Library?  
*Note: Explanation on what is an academic Library.*
5. Would you like to get health information from an academic health library?  
*(If they say No...I will elaborate on the advantages of getting information from the library)*

### **Section D: Use of the phone as an information delivery device**

1. Do you own a personal phone or do you have access to a phone whenever need arises?
2. What do you use your phone for?
3. What functions of the phone do you use? (Voice, SMS, video, etc.)
4. Are you able to use your phone for writing and retrieving an SMS?
5. Have you ever received information on your phone besides personal information for example, adverts, agricultural information, political information, health information, etc?



6. In what format and language is the information? Do you understand it?
7. Would you like to receive health information in the same way from a library?
8. In what language would you prefer this information to be sent to you?
9. If it is sent in English, would you understand it?
10. On which pressing health issues would you like to receive information?
11. What would you prefer SMS, Voice, Video?
12. Do you think health information sent via a mobile phone would be helpful to you in living a healthier life? Elaborate.

**Section E: Which partners can the library work with to achieve this strategy?**

1. If the library were to send you health information, would you want it directly delivered to you or would you want it sent to your information sources as mentioned earlier?
2. If you prefer 'middle-persons', among them who are the most appropriate?
3. Give reasons as to why you would prefer this information sent directly to you or to your other sources?

## **Appendix 2: Interview Guide for Health Workers**

### **Introduction**

My name is Irene Mbawaki, a student at the University of Pretoria carrying out research on the use of mobile phones for health information delivery to rural women.

Thank you for consenting to being involved in this study. During this interview, I would appreciate your views on the health information needs of women, the use a mobile phone for information delivery, the role of the library in making information available to rural women through the use the mobile phone and other insights that you think will add value to this study.

This study is being carried out not only as part of my study requirements but also as a possible source of information for policy makers in Uganda to better the lives of rural women. The results of this study will be deposited in the University repositories of both Makerere University and the University of Pretoria.

This is going to be a “one on one” interview; however I would appreciate your permission to use a tape recorder for purposes of later reference as I compile my findings.

Opinions given during the interview will be kept confidential and your name or address will not be disclosed to anyone apart from the researcher. I might need to use direct quotations during compilation of the results; however the quotations will not contain any individual identifying information about you.

I therefore appeal to you to freely express your opinions in the best way possible.

Thank you for your time.

### **Section A: General Questions**

1. How long have you been a practicing nurse/doctor?
2. For how long have you been working at Kakaire Health Centre?
3. Is it right for me to assume that as you carry out your work duties, you have had significant interaction with the women in this area?

4. Would you therefore rate yourself as someone who is knowledgeable about the health issues affecting women in Buyengo sub-county? Please elaborate.
5. As a government aided health centre, would you say you have a fully equipped facility? Explain your answer please.
6. Have you had any other challenges that you would like to discuss?

### **Section B: Health information needs of rural women**

1. In your experience of working with rural women, on which health issues do they seek information and not necessarily medication?
2. Among these health issues, which are the most prominent?
3. Where do you think they get health information from?

### **Section C: Sources of health information for rural women**

1. Being the health worker in the area, how have you been helping the women in their quest for information?
2. Through which mediums have you been giving information to women?
3. Do you think you have been successful in offering information to women? How?
4. Other than from you, do you know of any sources through which women get health information?
5. In view of the health issues upon which they seek information, are you as a health worker comfortable with their sources? Please elaborate.
6. Give a detailed outline of your own sources of information as a health worker?
7. How have the sources from which you get information been helpful to you?
8. Do you know that you can get information from an academic library such as Albert Cook Library at Makerere University, Kampala?

### **Section D: Use of the phone as an information delivery device**

1. In your opinion, do you think that health information can be sent via a mobile phone to rural women? Explain.
2. On which health issues do you think information should be sent through this medium?

3. How do you suggest this information be sent (i.e., SMS, Voice, etc).
4. Would you personally want to receive health information via your mobile phone from a library? Give reasons for your answer.
5. Do you think this information would be useful to the rural women and to you? How?

**Section E: Which partners can the library work with to achieve this strategy?**

1. As an experienced health worker, would you recommend that a library sends health information directly to women? Explain why.
2. Would you be comfortable with this information flow (From the Library directly to women?)
3. Do you think the Library needs partners to work with if this strategy is to be undertaken?
4. In your view, who are the most suited partners? Give reasons for your choice.
5. What roles would the partners you have mentioned above to play?
6. If health workers were part of this partnership, what role would they play?

## **Appendix 3: Interview Guide for Health Librarians**

### **Introduction**

My name is Irene Mbawaki, a student at the University of Pretoria carrying out research on the use of mobile phones for health information delivery to rural women.

Thank you for consenting to being involved in this study. During this interview, I would appreciate your views on the health information needs of women, the use a mobile phone for information delivery, the role of the library in making information available to rural women through the use the mobile phone and other insights that you think will add value to this study.

This study is being carried out not only as part of my study requirements but also as a possible source of information for policy makers in Uganda to better the lives of rural women. The results of this study will be deposited in the University repositories of both Makerere University and the University of Pretoria.

This is going to be a “one on one” interview; however I would appreciate your permission to use a tape recorder for purposes of later reference as I compile my findings.

Opinions given during the interview will be kept confidential and your name or address will not be disclosed to anyone apart from the researcher. I might need to use direct quotations during compilation of the results; however the quotations will not contain any individual identifying information about you.

I therefore appeal to you to freely express your opinions in the best way possible.

Thank you for your time.

### **Section A: General Questions**

1. How long have you been working as a librarian with Albert Cook Medical Library?
2. Albert Cook Medical Library has engaged in several community projects; however I would like you to specifically tell me about the health information digest project. What was it about and who were the beneficiaries?

3. I have learnt that digest is no longer under publication, why was its publication stopped? Do you think it had an impact on the community? Explain.

### **Section B: Sources of health information for rural women**

1. Apart from students, Makerere University staff members and Mulago hospital staff, who else do you, offer your services to?
2. What services do you offer as a library?
3. Are you aware of the community outreach strategy of Makerere University? Yes/No (If no, I will explain)
4. In your opinion as a Librarian, is Albert Cook Library in position to offer health information to rural women? (Yes: Explain how this would be done & No: Why do you think so?)

### **Section C: Use of Mobile phones as an information delivery device**

1. In which ways is the library currently offering its information? (Print, online, mobile, etc).
2. How are you currently making information accessible to your users who are not physically able to come to the library?
3. There are some libraries that are offering services through mobile devices; do you think Albert Cook Library can adopt the same strategy for its users who are remotely located?

### **Section D: The role of the Library in making information accessible to rural women**

1. In your opinion, can you suggest ways in which Albert cook library can make accessible information to rural women as a way of outreach as per Makerere University's outreach mandate?
2. As already mentioned mobile phones are now being used for information delivery, do you think mobile phones can be used for this purpose? Give reasons for your answer?
3. How would the Library carry out this role?
4. As someone who has carried out several community outreach projects before, do you foresee any challenges if this strategy were to be taken up?

### **Section E: Partners for library for the strategy**

1. Do you think Albert Cook Medical Library is in position to solely take up this strategy or do you think there is need for partnerships with other stakeholders?
2. According to you, who are the most appropriate partners?
3. How would the partnership work?
4. What would be the roles of each of the partners you have mentioned?
5. In this partnership, what would be the preferred role of the library?
6. Why this particular role?
7. Do you have anything else you would like to discuss with me that you think would enrich this study?