FACTORS INFLUENCING UPTAKE OF MALE CIRCUMCISION AMONG THE LUO COMMUNITY IN NYANDO DISTRICT, KENYA

BY

OUMA EMMANUEL GRIFFINS

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DECLARATION

This Research project is my own original work and has not been submitted for any award in any university.

Signature..... Date 28/Aug/2010

Ouma Emmanuel Griffins
L50/72402/2009

This Research project is submitted for examination with our approval as University supervisors:-

Signature..... Date 03/09/2010

Dr. Raphael Nyonje
Lecturer
Department of Extra- mural studies
University Of Nairobi

Signature..... Date 04/09/2010

Dr. Samwel Mwanda
Lecturer
Department of Extra- mural studies
University Of Nairobi

DEDICATION

I dedicate this research project to my late parents. It could have been my uttermost joy to have you share this pride with me of furthering my education. Thanks for making me the person I am today.

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LIST OF ABBREVIATTIONS AND ACRONYMS

MC	Male circumcision
UNAIDS	United Nations Program on HIV/AIDS
WHO	World Health Organization
UNICEF	United Nations Children's Fund
UNFPA	United Nations Fund for Population Activities
HIV	Human Immunodeficiency Virus
CDC	Centre for Disease Control and Prevention
JHPIEGO	John Hopkins Program for International Educational in Gynecology and Obstetrics
NGO	Non Government Organization
FGD	Focus Group Discussions
STI	Sexually Transmitted Infection
NCM	Newly circumcised men
MoH	Ministry of Health
Ibid	Ion beam induced deposition
AD	Anno Domini
BC	Before Christ
KNBS	Kenya National Bureau of Statistics
IC	Informed consent

ABSTRACT

Male circumcision has been carried out globally for many thousands of years, and is likely to be the most common surgical procedure, with an estimated 30% of men getting circumcised (UNAIDS, 2008). In many places circumcision has an important symbolic, cultural and religious meaning. For example, in certain communities of Eastern and Southern Africa young men are circumcised as a rite of passage that marks their transition from boyhood to manhood. However, studies done on male circumcision by Auvert *et al*, (2006) ; Gray *et al*, (2007) and Bailey *et al*, (2007) indicate that the practice has potential of partially reducing HIV infection. This has led to increased advocacy among communities that were traditionally non- circumcising such as the Luo in Nyanza province resulting to high demand for male circumcision among men from this region. Apart from the above reason, no study has been conducted to determine other factors that influence uptake of male circumcision among men in non-circumcising communities.

The purpose of this study was therefore to investigate factors that influenced uptake of male circumcision (MC) among the Luo community in Nyando district in Kenya. Among the objectives that the study investigated included; determining the extent to which demographic factors influence uptake of male circumcision, investigating the socio-cultural factors that influence uptake of male circumcision among the Luo community in Nyando district and examining the relationship between perceived benefits of male circumcision and uptake of male circumcision among the Luo community in Nyando district. The study employed descriptive survey design and the target population were mainly men aged between 15- 49 years. Multi-stage random sampling technique was used to sample a total of 128 men and 64 women at household level. 58 elderly people, MC mobilizers and providers were conveniently sampled. Data was organized and presented using both qualitative and quantitative methods and analyzed using SAS statistical package that applied Chi-square testing.

The study found out that demographic characteristics such as age, marital status and religion influenced uptake of male circumcision (MC) among the Luo community in Nyando. It also established that attitudes and perceptions are among socio- cultural factors that influenced uptake of MC. The study established that perceived benefits of male circumcision influenced uptake of male circumcision. From these findings, the study concluded that preference for male circumcision generally decreases with increase in age and that MC is more popular among the younger people. It was also concluded that socio-cultural factors and perceived benefits of male circumcision (MC) positively influence uptake of MC among men in Nyando district.

The study therefore recommended that more public awareness should be raised on the benefits of male circumcision especially to the elderly people in Nyando district. It also recommended that a model of male circumcision program be rolled out in Nyando district which involves a sensitization process in which men who undergo circumcision are taken through an informal training before undergoing circumcision. From the findings, the study suggested that future studies should focus on the sustainability of uptake of male circumcision in Nyando district. It has also recommended that future research should look at the risk compensation effect that is sparked by potential for increase in risky behaviour as a result of MC partially reducing HIV infection.

CHAPTER ONE

INTRODUCTION

1.1 Background of the study

Male circumcision is one of the oldest and most common surgical procedures known, traditionally undertaken as a mark of cultural identity or religious importance. Historically, male circumcision was practiced among ancient Semitic people including Egyptians and those of Jewish faith, with the earliest records depicting circumcision on Egyptian temple and wall paintings dating from around 2300 BC (Badaway, 1978). With advances in surgery in the 19th century, and increased mobility in the 20th century, the procedure was introduced into some previously non-circumcising cultures for both health-related and social reasons. According to current estimations, approximately 30% of all males across the world representing a total of approximately 670 million men are circumcised. Of this number, about 68% are of Islamic faith, less than 1% of Jewish faith and 13% are non-Muslim, non-Jewish Americans (UNAIDS *et al*, 2008).

Globally, male circumcision has been practiced in the United States, Australia and the English speaking parts of Canada, New Zealand and the United Kingdom. Male circumcision is also common in the Middle East and Central Asia, and in Muslim Asian countries, such as Indonesia, Pakistan and Bangladesh. In addition, there is a large circumcised Muslim population in India. There is generally little non-religious circumcision in Asia, with the exceptions of the Republic of Korea and the Philippines, where circumcision is routine. The practice is also common in many African countries and is almost universal in North Africa and most of West Africa. In Kenya, it is mainly practiced by the Bantu Speaking communities such as Abaluyha, Abagusii, Gikuyu and other Kalenjin communities among others.

Male circumcision can be defined as the removal of the foreskin. The foreskin is the fold of skin that covers the head of the penis. In many places circumcision has an important symbolic,

cultural and religious meaning. For example, in certain communities of Eastern and Southern Africa young men are circumcised in their early to late teens as a rite of passage that marks their transition from boyhood to manhood. As mention above, male circumcision is carried out for a number of reasons; social, cultural, religious and more rarely, for medical reasons. Circumcision is common within the Jewish and Islamic faith communities. Worldwide circumcisions are carried out by people ranging from tribal healers, religious leaders, to surgeons.

In the Jewish religion, male infants are traditionally circumcised on their eighth day of life and the justification in the Jewish holy book, Torah, is that a covenant was made between Abraham and God, the outward sign of which is circumcision for all Jewish males. Male circumcision continues to be almost universally practiced among Jewish people (Hankins, 2007). Islam is the largest religious group to practice male circumcision. As an Abrahamic faith, Islamic people practice circumcision as a confirmation of their relationship with God. With the global spread of Islam from the 7th century AD, male circumcision was widely adopted among previously non-circumcising peoples. Looking at Christianity, the Coptic Christians in Egypt and the Ethiopian Orthodox Christians, two of the oldest surviving forms of Christianity also perform male circumcision (Hankins, 2007).

Circumcision has been practiced for non-religious reasons for many years in sub-Saharan Africa, and in many ethnic groups around the world, including aboriginal Australasians, the Aztecs and Mayas in the Americas, inhabitants of the Philippines and Eastern Indonesia and of various Pacific Islands, including Fiji and the Polynesian islands. In the majority of these cultures, circumcision is an integral part of a rite-of-passage to manhood, although originally it may have been a test of bravery and endurance. In this context, circumcision is also associated with factors such as masculinity, social cohesion with boys of the same age who become circumcised at the same time, self-identity and spirituality. According to Gennep (1909), the rites of passage describe

various initiation rites which are present in many circumcision rituals. These include a three stage process: separation from normal society; a period during which the neophyte undergoes transformation; and finally reintegration into society in a new social role (Hankins, 2007).

Social reasons behind male circumcision are becoming even more common. The desire to conform is an important motivation for circumcision in places where the majority of boys are circumcised. The desire to belong is also likely to be the main social factor behind the high rate of adult male circumcisions among immigrants to Israel from non-circumcising countries (predominantly the former Soviet Union). A survey in Denver, US where circumcision occurs shortly after birth, found that parents, especially fathers, of newborn boys cited social reasons as the main determinant for choosing circumcision for their sons. In a number of countries, socio-economic factors also influence circumcision prevalence, especially in countries with more recent uptake of the practice such as English-speaking industrialized countries. When male circumcision was first practiced in the United Kingdom in the late 19th and early 20th century, it was most prevalent among the upper classes. In the US, a review of 4.7 million newborn male circumcisions nationwide between 1988 and 2000 also found a significant association between circumcision and private insurance and higher socio-economic status (Hankins, 2007).

In Kenya, current statistics describe 84% of male population as circumcised. Of the circumcised men, about 85 % had the operation done by a traditional service provider. The practice is mainly done by Bantu communities in Kenya. In these communities male circumcision (MC) is mainly carried out for reasons such as a rite of passage into adulthood, a religious obligation and way of identification with or belonging to a community. As a social and community responsibility young boys are subjected to MC performed by traditional providers in rural non-clinical settings. This practice is more seen among the Abaluhya community in Kenya (Orago *et al*, 2006).

While the current practices concerning age at circumcision vary greatly between different populations, most of the practicing communities such the Kikuyu, Masaai, Luhya, Abagusii and Kalenjin perform MC as a rite of passage targeting pre-adolescent and adolescent boys. A non-circumcising community like the Luo in Kenya have been known to traditionally practice removal of the six lower front teeth as rite of initiation (passage) from boyhood to manhood. Therefore men who undergo MC in this community are likely to experience problems such discrimination, rejection and stigma. Such men are likely to device ways to cope with their new circumcision status in the face of non-circumcising community such as hiding their circumcision identity. However, among the traditionally non-circumcising communities advocacy about the practice has always been spearheaded by proponents of the notion that male circumcision offers partial protection against HIV infection. Studies especially those done in Luo Nyanza in Kenya, a region predominantly inhabited by the Luo community have always focused on male circumcision reducing chances of HIV. This has led to increased uptake and advocacy of male circumcision among the Luo community. It is for this reason that this study seek to investigate factors influencing uptake of male circumcision among the Luo community in Nyando district.

This study was done in Nyando, a rural district in Nyanza province located 15 kilometers south of Kisumu town. Nyando district is made up of six divisions namely Awasi, Kakola, East Kano, Kochogo, Onjiko and Wawidhi. According to MoH Nyando (2009), a total population of approximately 10,000 men has been circumcised by private organizations advocating for the practice since its initiation in the district and it is predicted that the rate of circumcision is about 3% per month (MoH Nyando, 2009).

The rationale of choosing this district as the main area of study was because it is not under the influence of other communities known to practice male circumcision. It is also one of the districts that has seen a lot of increased advocacy and uptake of the practice in Nyanza province and

is therefore ideal for investigating factors influencing uptake of MC among the Luo community. The district is also ethnically homogenous (Luo) and insulated from interferences from other tribes like Kisii, Abaluyha, Masaai and Kalenjins who are the neighbouring ethnic groups of the Luos.

1.2 Statement of problem

Male circumcision has been carried out globally for many years, and is likely to be the most common surgical procedure, with an estimated 30% of men circumcised (UNAIDS, 2008). In many areas male circumcision has been practiced for religious, social, ethnic reasons and socio-economic factors. For example among the Jewish people, circumcision was practiced as a confirmation for their relationship with God while among the Bantu speaking communities in Kenya such as Bukusu, Kisii, Maasai and Kalenjin, it was practiced as a rite of passage form boyhood to manhood (Weiss *et al* 2007 and Orago *et al*, 2006). But among the Luo communities who were previously non- circumcising and are now taking up the practice, one is left to wonder for what purposes do they attribute the practice to. Also in Europe, circumcision was prevalent among the higher socio-economic status. It was also associated with men of higher levels of education and income (Coulter *et al*, 1985). Therefore it would be of interest to find out whether the feeling is the same among the Luo community.

Most Studies done on male circumcision indicate that the practice has potential of partially reducing HIV infection. For instance, in a study that was done by Auvert *et al*, (2006) in Orange farm, South Africa which investigated whether and to what extent male circumcision (MC) might have a protective effect against HIV infection, found out that the practice has more than 60% potential of reducing chances of HIV infection. Similar studies done in Rakai, Uganda by Gray *et al*, (2007) and Nyanza province in Kenya by Bailey *et al*, (2007) gave corresponding results with a very similar percentage. This has led to increased advocacy among communities that were

traditionally non- circumcising such as the Luo in Nyanza province resulting to high demand for male circumcision among men from this region. According to MoH Nyando (2009), a total population of approximately 10,000 men has been circumcised by private organizations advocating for the practice since its initiation in the district in 2008 and it is predicted that the rate of circumcision is about 3% per month (MoH Nyando, 2009). Yet advocacy as a campaign strategy is known to take time to achieve a significant impact. Thus with this large number of men in non-circumcising communities going for circumcision in a short period of time, one is left to wonder whether it is because of perceived benefits of male circumcision (MC) which include partially reducing HIV infection that is driving the urge for the practice or there are other factors that motivate uptake of MC. This study therefore seeks to investigate factors influencing uptake of male circumcision among the Luo community in Nyando district in Nyanza province.

1.3 Purpose of the study

The purpose of this study was to investigate factors influencing uptake of male circumcision among the Luo community in Nyando district in Kenya.

1.4 Objectives of the study

The study was guided by the following objectives:-

1. To determine the extent to which demographic factors influence uptake of male circumcision among the Luo community in Nyando district.
2. To investigate the socio- cultural factors that influence uptake of male circumcision among the Luo community in Nyando district.
3. To explore the relationship between perceived benefits of male circumcision and uptake of male circumcision among the Luo community in Nyando district.

4. To examine socio-economic factors that influence uptake of male circumcision among the Luo community in Nyando district.

1.5 Research questions

From the above objectives, following research questions were developed:-

1. What is the extent to which demographic factors influence uptake of male circumcision among the Luo community in Nyando district?
2. What are the socio- cultural factors that influence uptake of male circumcision among Luo community in Nyando district?
3. What is the relationship between perceived benefits of male circumcision and uptake of male circumcision among the Luo community in Nyando district?
4. What are the socio- economic factors that influence uptake of male circumcision among the Luo community in Nyando district?

1.6 Research hypothesis

In order to further understand the research question one above, the following null hypotheses were developed:-

1. There is no significant difference between uptake of male circumcision and age among male respondents.
2. There is no significant difference between uptake of male circumcision and marital status among male respondents.
3. There is no significant difference between uptake of male circumcision and level of education among male respondents.
4. There is no significant difference between uptake of male circumcision and

religion among male respondents

1.7 Significance of the study

It is hoped that the results of this study provided more insights to NGOs dealing with male circumcision (MC) on other factors (such as demographic, socio-cultural and socio- economic factors) that influence uptake of the practice that can be incorporated into their campaign to enable proper advocacy that comes with informal education such as acquisition of high social roles and responsibilities as is the case in circumcising communities. It is also hoped that the findings of this study would educate the Luo community about proper mechanisms of adopting male circumcision given the fact that they had their own different cultural ways of initiating young men into adulthood. It was also hoped that the results of this study provided more information to the Kenya government through the ministry of health (MoH) in developing policies that can be used to improve uptake of male circumcision (MC) in the country.

1.8 Basic assumptions of the study

In this study, it is assumed that the sample size chosen was representative of the population in Nyando district. It is also assumed that the information given by participants were true and accurate. It is assumed that most of residents of Nyando district came from Luo community.

1.9 Limitations of the study

Some of the limitations that were encountered during the study included bad terrain and unwillingness by the study participants to give accurate information. Other difficulties that were encountered included access to the relevant documents because male circumcision is still a sensitive area among the Luo community. The study overcame bad terrain by using motor cycles incases

where the road was bad. In order to overcome the problem of unwillingness of participants to give accurate information, the study sought permission from relevant authorities that enabled the locals to easily co-operate with the researcher. The research permits also enabled the researcher to access information from the Kenya National Bureau of Statistics (KNBS), Nyando district.

1.10 Delimitations of the study

This study was carried out in Nyando, a rural district in Nyanza province in Kenya, located 15 kilometers south of Kisumu town. The rationale of choosing this district as the main area of study was because it is relatively insulated from other tribal- cultural practices of other communities known to practice male circumcision. The study was also delimited to young men as the main target group. Other people who the study focused its scope on included women, elder members of this community and MC mobilizers, providers and NGOs dealing with MC who have extensively involved participants from Nyando district.

1.11 Definitions of significant terms used in the study

The following terms were defined as applied in the study:-

Factors influencing uptake of male circumcision: - These are factors that motivate or drive men to undergo male circumcision (MC). In this study, they included demographic factors (such as age, marital status and religion), socio-cultural factors (such as perceptions, ethnicity and attitude), perceived benefits (such as penile hygiene and male circumcision with HIV reduction) and socio-economic factors (that include level of education, income and social status).

Uptake of male circumcision: - In this study uptake of male circumcision refers to the process of taking up male circumcision by a community that was previously non- circumcising.

Perceived benefits: - refers to gainful outcomes brought about by undergoing male circumcision. Such benefits included improved penile hygiene, MC partially reducing HIV infection and sexual attraction and performance for circumcised men by women.

The level of campaign of male circumcision: - This refers to the level of advocacy, crusade or education by private organizations to encourage non- circumcising communities to embrace male circumcision given its perceived benefits.

Policies on male circumcision: - refers to deliberate plans of action by the government of Kenya and WHO for men in non-circumcising communities to practice MC as a strategy to be integrated in HIV prevention programs.

Methods of circumcision: - refers to ways of performing circumcision that influence uptake of male circumcision. In this study, these methods included traditional methods that are done in non-clinical settings by untrained personnel and modern methods that carried out in clinical settings by trained professionals.

1.12 Organization of the study

The study was organized into five chapters each covering different aspects. Chapter one provided background information to the study, statement of the problem, study objectives, research questions and hypotheses. It also covered purpose and significance of the study, critical assumptions

to the study, limitations, delimitations and definitions of terms. Chapter two reviewed literature on related studies to the study topic. It starts by discussing global prevalence of male circumcision and gradually but consistently narrows down to the Kenyan context and finally to the district of study. It also described factors that influence uptake of male circumcision (MC). It discussed methods of MC, theoretical and conceptual framework and the relationships between the variables.

Chapter three described the research methodology that was employed to carry out the study. This section talked about research design, target population, sample size, sampling procedure and selection. It also highlighted the research instruments and how they were used to collect, analyze, validate and report data.

Chapter four presented data analysis, interpretation and discussions while chapter five provided a summary of findings, conclusions and recommendations.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This section extensively reviews literature on the previous related studies relevant to the study topic. It describes global and regional prevalence of male circumcision and also discusses in detail the main factors influencing uptake of male circumcision (MC). It also talks about the methods of circumcision, theoretical and conceptual framework and the relationship between the variables influencing uptake of MC.

2.2 The Concept of Circumcision

Male circumcision is the removal of some or all of the foreskin (prepuce) from the penis. It is the act of cutting off the prepuce or foreskin of males. The word "circumcision" comes from the Latin *circumcidere* meaning "to cut around" (Webster's Revised Unabridged Dictionary, 2006). The concept of circumcision varies mostly with religious afflictions and cultural identity. For example in the Jewish faith, circumcision was seen as a justification for a biblical covenant between Abraham and God and from there on most Jew men continue to be circumcised (Genesis17:10). Rizvi (1999) asserts that the concept of circumcision among the Muslims was seen as a confirmation for their relationship with God. Other religious groups such as the Coptic Christians, Orthodox Christians and Nomiya Church in Kenya require circumcision for membership (Mattson *et al*, 2005). Therefore religion can be seen as a factor influencing uptake of male circumcision in a community. The concept of circumcision also varies depending on culture. For example in the African context; circumcision is majorly seen as a rite of passage or transition from boyhood to manhood associated with test of bravery, endurance and masculinity. In the western communities, the concept was associated with social status. One was regarded to belong to a higher social class

after undergoing the cut. Therefore, it is possible that circumcision arose independently in different cultures for different reasons.

In modern times, the concept has raised controversies with advocates of circumcision arguing that it provides important health advantages which outweigh the risks especially if performed by an experienced physician. Opponents of circumcision argue that it is a practice which has historically been, and continues to be, defended through the use of various myths; that it interferes with normal sexual function; is extremely painful; and when performed on infants and children violates the individual's human rights (Schoen, 2007).

The World Health Organization (WHO,2007), the Joint United Nations Programme on HIV/AIDS (UNAIDS, 2007), and the Centers for Disease Control and Prevention (CDC, 2008) state that evidence indicates male circumcision significantly reduces the risk of HIV acquisition by men during penile-vaginal sex, but also state that circumcision only provides partial protection and should not replace other interventions to prevent transmission of HIV. This factor has lead to increased uptake of male circumcision to communities that were traditionally non- circumcising like the Luo community in Kenya.

2.3 Global prevalence of Male Circumcision

Globally, male circumcision has been performed in many English speaking countries in Europe and the United States such as Canada, New Zealand, Australia and the United Kingdom. In these countries circumcision has been carried out at the infancy stage of childhood. The global prevalence of circumcision among males aged 15 years or over is common among Muslim and Jewish men. Male circumcision is also common in the Middle East and Central Asia, and in Muslim Asian countries, such as Indonesia, Pakistan and Bangladesh. In addition, there is a large circumcised Muslim population in India. There is generally little non-religious circumcision in

Asia, with the exceptions of the Republic of Korea and the Philippines, where circumcision is routine. Although, a substantial prevalence of non-religious circumcision has also been seen in countries such as Angola, Australia, Canada, Democratic Republic of Congo, Ethiopia, Ghana, Indonesia, Kenya, Madagascar, Nigeria, Philippines, Republic of Korea, South Africa, Uganda, United Kingdom, United Republic of Tanzania and United States of America, it is currently estimated that approximately 30% of the world's males aged 15 years or older are circumcised (Weiss *et al*, 2007).

Despite the fact that in many African countries male circumcision is common, and is almost universal in North Africa and most of West Africa, it is less common in southern Africa, where self-reported prevalence is around 15% in several countries (Botswana, Namibia, Swaziland, Zambia and Zimbabwe), although higher in others (Malawi 21%, South Africa 35%, Lesotho 48%, Mozambique 60%, and Angola and Madagascar > 80%) (http://www.measuredhs.com, 2006). Prevalence in Central and East Africa varies from approximately 15% in Burundi and Rwanda to 70% in the United Republic of Tanzania, 84% in Kenya and 93% in Ethiopia (ibid).This variation is partly due to some groups (mainly Nilotic or Sudanic speakers) who are traditionally non-circumcising, and also to different ethnic traditions among Bantu-speaking populations which include over 400 different ethnic groups in Africa (Marck, 1997). In Kenya, it's mainly practiced by the Bantu Speaking communities such as Abaluyha, Gusii, Gikuyu and Kalenjin communities.

2.4 Factors influencing uptake of male circumcision

Historically, male circumcision has been associated with religious practice and ethnic identity. These factors that drive or motivate individuals to undergo the practice can be said to be factors that influence uptake of male circumcision (MC) among a non- circumcising community.

These factors include demographic characteristics; socio- cultural factors, perceived benefits and socio-economic factors.

2.4.1 Demographic characteristics and uptake of male circumcision

Some of demographic factors that may influence uptake of male circumcision could include age, marital status and level of education of an individual among others. Age at circumcision varies by country. Neonatal circumcision is common in Ghana (Owusu *et al*, 2006), but in other countries median age at circumcision varies from boyhood (median age 5–7 years in Burkina Faso) age 7–10 years in Zambia (Weiss *et al*, 2007), and age 8–16 years in Kenya (Agot *et al*, 2006) to the late teens or twenties, for example in parts of the United Republic of Tanzania and South Africa (Nnko *et al*, 2001; Auvert, 2001). Acceptability of male circumcision also varies with age and according to Bailey *et al* (2002), acceptability of MC was common among young men compared to old people in traditionally non circumcising community. Further, circumcision that is done at an early age has been associated with few complications and is likely to be safer unlike when it is performed at a later age.

Marital status of individual has also been shown to have influence of one's decision to undergo circumcision. For instance, many younger men from traditionally non-circumcising communities in Nyanza province, Kenya cited being accepted as a sexual or marriage partner by women from other ethnic groups as an important reason to be circumcised (Bailey *et al*, 2002). In Burkina Faso, families of higher socioeconomic status and education level or living in urban areas usually prefer to circumcise their sons at a young age (http://www.measuredhs.com, 2006). From the above literature, it can be said that demographic characteristics also influence uptake of male circumcision.

2.4.2 Socio- cultural factors influencing uptake of male circumcision

Some of the socio- cultural factors that influence uptake of male circumcision include religion, ethnicity and social reasons. These factors are discussed below in details.

2.4.2.1 Religion and uptake of male circumcision

Circumcision has been practiced for religious reasons for example in the Jewish religion; male infants are traditionally circumcised on their eighth day of life. The justification, in the Jewish holy book (the Torah), is that a covenant was made between Abraham and God, the outward sign of which was circumcision for all Jewish males (Genesis 17:10). Male circumcision continues to be almost universally practiced among Jewish people. For example, almost all newborn Jewish males in Israel, an estimated 99% of Jewish men in the United Kingdom of Great Britain and Northern Ireland (Dave *et al*, 2003) and 98% of Jewish men in the United States of America are circumcised (Laumann *et al*, 1997). Therefore religion especially the Jewish faith is a factor that is likely to influence adoption of male circumcision in any community including those that do not traditionally circumcise their men like the Luo in Kenya.

Muslims are the largest religious group to practice male circumcision. As part of their Abrahamic faith, Muslims practice circumcision as a confirmation of their relationship with God; the practice is also known as *tahera*, meaning "purification". There is no specific mention of circumcision in the Qur'an (Rizvi, 1999), and it is only obligatory (*wajib*) among one of the six Islamic schools of law (the Shafi'ite school). It is also essential for a man to be circumcised to lawfully make the hajj (Pilgrimage) to Mecca, one of the five pillars of Islamic belief. Therefore, with such restrictions the Muslim religion is likely to be a factor that can increase uptake of circumcision in a community. With the global spread of Islam from the 7th century AD, male circumcision was widely adopted among previously non-circumcising people (Kelly *et al*, 1999).

With the major exceptions of Islam and Judaism, religion tends not to be a major determinant factor for uptake of male circumcision and many religions, including Hinduism and Buddhism, appear to have a neutral stance towards it. The Coptic Christians in Egypt and the Ethiopian Orthodox Christians also practice male circumcision (97% of Orthodox men in Ethiopia are circumcised) (http://www.measuredhs.com, 2006). Other religious groups such as the Nomiya Church in Kenya, which is in a region predominantly inhabited by the Luo community requires circumcision for membership, and therefore Luo men who belong to this church are likely to be prevailed upon by the requirement of this church to undergo circumcision (Mattson *et al*, 2005). Participants in focus group discussions in Malawi and Zambia mentioned similar beliefs that Christians should practice circumcision since Jesus was circumcised and the Bible teaches the practice (Lukobo and Bailey, 2007; Ngalande *et al*, 2006).

2.4.2.2 Ethnicity and uptake of male circumcision

Circumcision has been practiced for non-religious reasons for many years in sub-Saharan Africa, and in many ethnic groups around the world, including aboriginal Australasians, the Aztecs and Mayans in the Americas and inhabitants of the Philippines and eastern Indonesia and of various Pacific islands, including Fiji and the Polynesian islands (Dunsmuir *et al*, 1999). Therefore ethnicity is a likely factor that will influence uptake of male circumcision in such ethnic groups. In the majority of cultures in Africa, circumcision is an integral part of a rite of passage to manhood, although originally it may have been a test of bravery and endurance (Doyle *et al*, 2005). Circumcision is also associated with factors such as masculinity, social cohesion with boys of the same age who become circumcised at the same time, self-identity and spirituality (Niang *et al*, 2006). The association with initiation to manhood is not universal, however, with some ethnic groups, such as the Yoruba and Igbo in Nigeria, circumcising in infancy. Gennep (1909) describes

various initiation rites that are present in many circumcision rituals. These include a three-stage process: separation from normal society; a period during which the neophyte undergoes transformation; and, finally, reintegration into society in new social role. A psychological explanation for this process is that ambiguity in social roles creates tension, and a symbolic reclassification is necessary as individuals approach the transition from being defined as a child to being defined as an adult. This is supported by the fact that many rituals attach specific meaning to circumcision that justifies its purpose within this context. For example, certain ethnic groups, including the Dogon and Dowayo of West Africa and the Xhosa of South Africa, view the foreskin as the feminine element of the penis, the removal of which (along with passing certain tests) makes a man out of the child (Crowley *et al*, 1990 and Silverman, 2004).

Prevalence of circumcision within a country can vary dramatically by ethnicity. For example, although an estimated 84% of all Kenyan men are circumcised, the percentage is much lower among the Luo and Turkana ethnic groups (17% and 40%, respectively) (http://www.measuredhs.com) and focus group discussions among adult Luo men and women found no knowledge of any history of male circumcision among the Luo in Kenya. A point that has made coping among circumcised men in the Luo community to be very difficult. Instead, in the Luo community, children traditionally had their six lower front teeth removed at initiation. Similarly, male circumcision is not practiced among the Jopadhola, Acholi and other Luo-speaking River-Lake Nilotic groups in Uganda and southern Sudan, from where the Luo migrated (Bailey *et al*, 2002).

Ethnicity is thus a major factor that influence uptake of circumcision worldwide for example, in ethnic groups of Bendel State in southern Nigeria, 43% of men stated that their motivation for circumcision was to maintain their tradition (Myers, 1985). In some settings where circumcision is the norm there is discrimination against non-circumcised men. In some cultures,

such as the Yao in Malawi, the Lunda and Luvale in Zambia, or the Bagisu in Uganda, it is unacceptable to remain uncircumcised, to the extent that forced circumcisions of older boys are not uncommon (Lokobo 2007, Ngalande *et al*, 2006 and Bailey *et al*, 1999). Among the Xhosa in South Africa men who have not been circumcised can suffer extreme forms of punishment, including bullying and beatings. This discrimination also been seen in ethnic groups in Kenya such as the Luo in Nyanza who do not traditionally practice circumcision and have reported that they are often discriminated against by other Kenyans because of this (even at the political level) (Daily Nation, 2007). From the above text, ethnicity or cultural identity is a major factor that influences uptake of male circumcision in a community.

2.4.2.3 Social factors influencing uptake of male circumcision

Today, male circumcision is performed for a range of reasons, mainly social or health related, in addition to religion and ethnicity. The desire to conform is an important motivation for circumcision in places where the majority of boys are circumcised. In such communities men who undergo circumcision will find it easy to cope and belong compared to those who are not circumcised. Thus social factors are also likely to influence uptake of circumcision in a community that is traditionally non-circumcising like the Luo. A survey in Denver, United States of America, where circumcision occurs shortly after birth, found that parents, especially fathers, of newborn boys cited social reasons as the main determinant for choosing circumcision so that their children do not look different to them (Brown *et al*, 1987). In the Philippines, where circumcision is almost universal, a survey of boys found strong evidence of social determinants, with two thirds of boys choosing to be circumcised simply to avoid being uncircumcised, and 41% stating that it was part of the tradition (Lee, 2005). Social concerns were also the primary reason for circumcision in the Republic of Korea with two third of respondents in one study believing they would be ridiculed by

their peer group unless they were circumcised (Oh *et al*, 2004). Social desirability may also contribute to the relatively recent uptake of circumcision among the Akan ethnic group in Ghana, which traditionally did not elect circumcised men as chiefs. This scenario has also been seen in Kenya when members of other circumcising communities said that they could not elect a luo to be a president simply because they were not circumcised (Sunday nation daily newspaper, 2007).

A further example of recent changing practice comes from the Sukuma ethnic group in the North-west of the United Republic of Tanzania, which is also traditionally non-circumcising. The word for circumcision in the Sukuma language is derogatory (*njilwa*); however, now that boys mix with other ethnic groups at school, the practice is more acceptable, with an estimated prevalence of 21% (Nnko *et al*, 2001). The desire to belong is also likely to be the main factor behind the high rate of adult male ci rcumcisions among immigrants to Israel from non-circumcising countries (predominantly the former Soviet Union) (Schenker, 2006). Therefore the desire to confirm as a social factor is likely to influence uptake of male circumcision in a given region.

2.4.3 Socio-economic status and uptake of male circumcision

Socioeconomic factors also influence circumcision prevalence and by extension may influence uptake of male circumcision (MC) especially in English-speaking industrialized countries and modern societies. When male circumcision was first practiced in the United Kingdom in the late 19th and early 20th century, it was most prevalent among the upper classes (Coulter *et al*, 1985). A similar association was seen in a recent nationwide survey in Australia, which found that the proportion of men circumcised was significantly associated with higher levels of education and income. Thus men who undergo the cut and are from high social class will most likely find it easy to cope well with members of their elite groups as this would be seen as modern way of life as opposed to uncircumcised men. Such uncircumcised men are likely to suffer from discrimination

and rejection from their people and will therefore be forced to device ways of coping such as hiding their circumcision status in order to avoid such psychological trauma (Richters *et al*, 2006).

In contrast, the Demographic and Health Surveys in sub-Saharan African countries show no consistent association with socioeconomic status. For example, in the United Republic of Tanzania, higher rates of circumcision are seen among men with higher levels of education, of higher socioeconomic status and living in urban areas, whereas in Lesotho, circumcision is most common among men with no education, in the lowest wealth quintile and living in rural areas (http://www.measuredhs.com, 2006).

2.4.4 Perceived health and sexual benefits of male circumcision

In more recent times, perceptions of improved hygiene and lower risk of infections through male circumcision have driven the spread of circumcision practices in the industrialized world. This has led to increased uptake of male circumcision in regions that were traditionally non-circumcising. In a study of US newborns in 1983, mothers cited hygiene as the most important determinant of choosing to circumcise their sons, and in Ghana, male circumcision is seen as cleansing the boy after birth (Brown, 1987). Improved hygiene was also cited by 23% of 110 boys circumcised in the Philippines and in South Korea, the principal reasons given for circumcision were 'to improve penile hygiene' (71% and 78% respectively) and to prevent conditions such as penile cancer, sexually transmitted diseases and HIV (Lee *et al*, 2005; Ku *et al*, 2003). Also in studies conducted in Zambia, Malawi and Uganda penile hygiene was widely recognized as being extremely important and was perceived as a major benefit of circumcision by both men and women. Participants also thought that it was easier for a circumcised man to maintain cleanliness (Lukobo *et al*, 2007; Ngalande *et al*, 2006; Bailey *et al*, 1999). In Nyanza Province, Kenya, 96% of

uncircumcised men and 97% of women irrespective of their preference for male circumcision stated their opinion that it was easier for circumcised men to maintain cleanliness (Bailey *et al*, 2002).

Perceived improvement of sexual attraction and performance can also motivate circumcision and this by extension will likely increase uptake of MC in non- circumcising communities. In a survey of boys in the Philippines, 11% stated that a determinant of becoming circumcised was that women like to have sexual intercourse with a circumcised man, and 18% of men in the study in South Korea stated that circumcision could enhance sexual pleasure (Lee *et al*, 2005; Ku *et al*, 2003). In addition, many younger men from traditionally non-circumcising communities cited being accepted as a sexual or marriage partner by women from other ethnic groups as an important reason to be circumcised (Bailey *et al*, 2002). In Nyanza Province, Kenya, 55% of uncircumcised men believed that women enjoyed sex more with circumcised men. Similarly, the majority of women believe that women enjoyed sex more with circumcised men, even though it is likely that most women in Nyanza have never experienced sexual relations with a circumcised man (Mattson *et al*, 2005). In northwest Tanzania, younger men associated circumcision with enhanced sexual pleasure for both men and women, and in Westonaria district, South Africa, about half of men said that women preferred circumcised partners (Nnko *et al*, 2001; Lagarde *et al*, 2003).

Male circumcision and its links to HIV is one of the most talked about issues within the AIDS response over the last years, with latest research findings driving potential change in the way male circumcision is practiced and implemented for the future in relation to HIV prevention. For years, AIDS researchers have observed that many African tribes that circumcise boys or young men had lower HIV rates than those that do not, and that Africa's Islamic nations, where circumcision is near universal, had far fewer AIDS cases than predominantly Christian ones. The prevalence of circumcised men varies greatly, from as low as 15% in parts of Southern Africa, to more than 70% in parts of Eastern Africa (Bailey *et al*, 2007). Randomized clinical trials that were conducted in

Kenya, Uganda and South Africa have all shown that male circumcision significantly reduces a man's risk of acquiring HIV. The three sets of trials have shown circumcised men are up 50 to 60% less likely to acquire HIV during heterosexual intercourse (Bailey *et al*, 2007; Gray *et al*, 2007; Auvert *et al*, 2005). This factor has lead to increased uptake and demand for male circumcision to communities that were previously non-circumcising like the Luo in Nyanza province, Kenya. In Nyando district, the motive behind MC is to control over HIV/AIDS. Thus from the above studies, perceived health and sexual benefits are likely factors that may influence increased uptake of male circumcision to traditionally non circumcising community like the Luo in Nyanza province, Kenya.

2.5 Circumcision methods that influence uptake of male circumcision

There are two main methods of performing circumcision, that is the traditional method and the modern method.

2.5.1 Traditional methods of male circumcision

Male circumcision for religious or traditional reasons frequently takes place in a non-clinical setting. This method of circumcision has been associated with complications such as infection, excessive bleeding, excessive pain, too much skin removed, anesthetic complications, penile damage or amputation, cosmetic complications, erectile dysfunction, psycho-behavioral complications, problems with urination, problems with appearance, HIV infection from non-sterilized instruments, and possible death if appropriate treatment of complications is not provided. Such complications usually occur either during or after circumcision especially if performed under unhygienic conditions. Some of the men in region that performed traditional circumcision were often forced (Christakis *et al*, 2003). Although this method of circumcision has many disadvantages as explained above it also has some positive values. For example in the Maasai community, men

who underwent circumcision were seen as brave men since the practice was associated with in-tense training in the bush, a period during which such men where separated from the society and taught good social morals. Despite these positive attributes of traditional methods of circumcision, the high risk and complications that it is associated with it may likely discourage men who have not undergone the practice to undertake the act. Thus traditional methods of circumcision can reduce uptake of male circumcision in a previously non-circumcising communities.

2.5.2 Modern methods of male circumcision

As compared to traditional methods, circumcision done in clinical setup is usually safe and would most probably involve minimal complications making men who undergo the cut to easily cope with the situation following circumcision. In Nyando district, almost all male circumcision has been done by trained professional in clinical set up. This is a fact that is likely to have led to increased uptake of the practice to a community that was previously non- circumcising. The use of local anaesthesia during the procedure has led to reduced pain resulting in to most men feeling encouraged to take part in the practice. A follow- up visit should occur within seven days of surgery to assess the progress of healing and to look for signs of infection. This makes this method preferable as many men who are circumcised by this method will experience few difficulties and therefore would find it easy to cope with the pain and healing process following circumcision (WHO/UNAIDS/JHPIEGO, 2008). This is therefore likely to lead to increase uptake of male circumcision in non- circumcising communities. One main drawback of this method that is usually advocated for, by most NGOs dealing with MC is that, it does not offer the informal education that comes with the traditional methods. This fact leaves such men with no feeling of any social roles and responsibilities in the community. This is because with this method circumcision process ends

immediately after the circumcised man is healed as opposed to the traditional methods where the circumcision process is followed by a host of many social responsibilities.

2.6 Theoretical framework

The study was informed by the theory of behavioural change which was compounded by Ivan Pavlov (1849- 1936). According to this theory, individuals tend to adjust their behaviour, habit or culture in response to perceived changes in risk. This theory cites environmental, personal, and behavioural characteristics as the major factors in behavioural determination. This theory is evident in communities like Maasai and Bukusu where men change their status after undergoing circumcision. Environmental factors that come with this exercise include a change in the way they are perceived by the general community after undergoing the cut. Most of them are seen as brave respected members of the community and are even allowed to sit in the elders' baraza. Personal changes that follow after circumcision are also seen in men in such communities as having a general feeling of responsibility with defined social roles in the society. Such men usually see themselves as brave men and would want to be associated with many sexual partners. From the above citation with regard to the different circumcising communities, this theory was used to inform the study on behavioural changes of a non- circumcising community like the Luo and how they adjust their tradition or culture following circumcision.

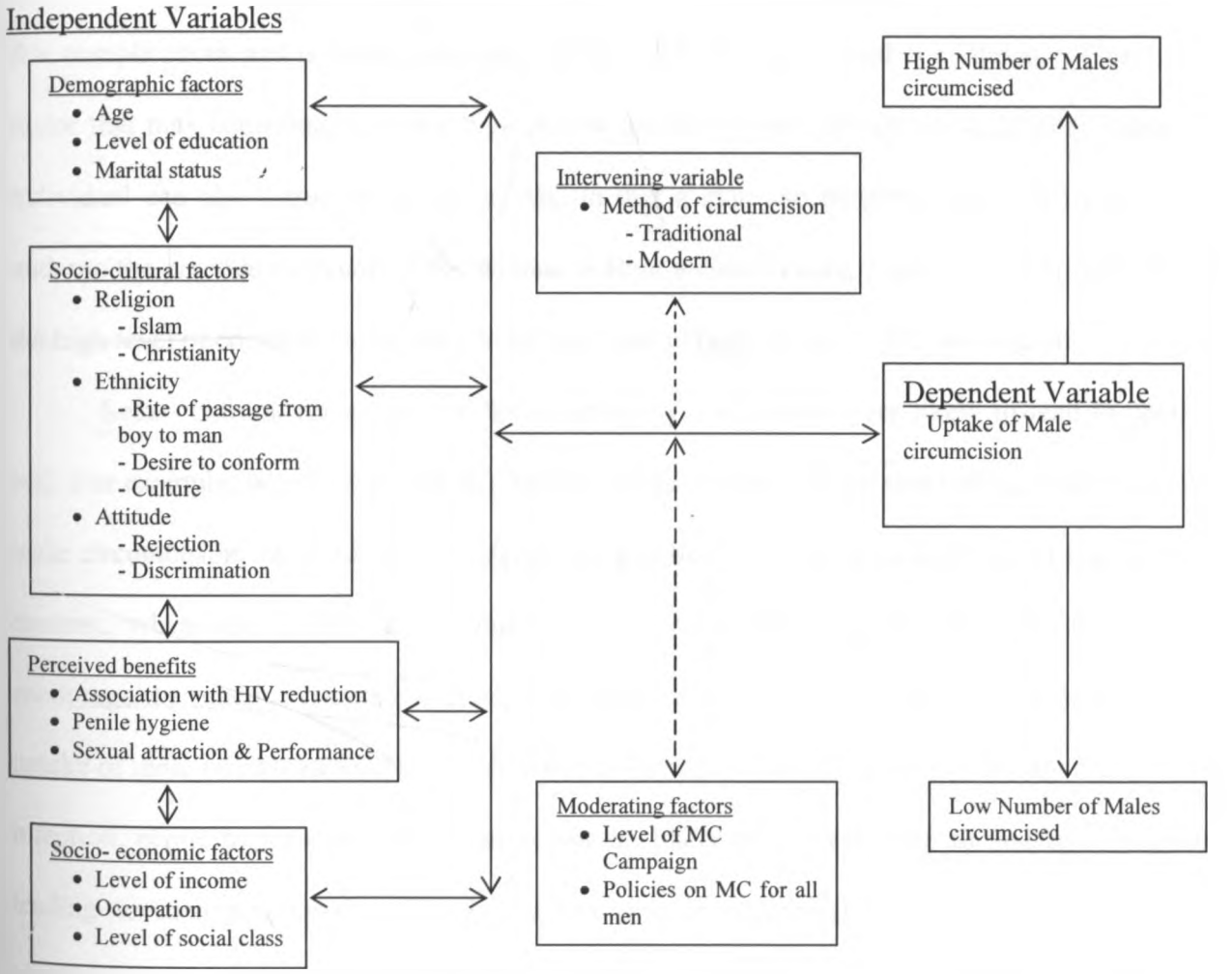
This is also similar in majority of cultures, where circumcision has always been seen as a test of bravery and endurance with circumcised boys turning into adults with more social roles and identity. This behaviour change following circumcision has also been associated with factors such as masculinity, social cohesion with boys of the same age who become circumcised at the same time, self identity and spirituality with most circumcised men going for more sexual partners as way to prove their bravery (Doyle *et al*, 2005 & Niang *et al*, 2006). Therefore this study would want to

find out whether this is the case with the Luo community who has been currently undergoing circumcision.

2.7 Conceptual framework

The study was guided by the following conceptual framework.

Figure 2.1 Interactions between the variables under conceptual framework



2.7.1 Relationships between the variables in conceptual framework

In this study the dependent variable being investigated was uptake of male circumcision and the independent variables were the factors that influence uptake of male circumcision. These factors included demographic factors, socio- cultural factors, perceived benefits and socio- economic factors. Demographic factors such as age at which circumcision is performed and marital status can have positive or negative effect on uptake of male circumcision (MC). Bailey *et al* (2002) urges that acceptability of MC was common among young men compared to old people in traditionally non circumcising community. Further, circumcision that is done at an early age has been associated with few complications and is likely to be safer unlike when it is performed at a later age. Thus age is a factor that may contribute to either high or low uptake of male circumcision. Marital status of an individual can also influence uptake of MC in that a man can be prevailed upon by his wife to undergo the practice especially if the woman is from a circumcising community. This coupled with the high level of education of an individual may lead to high uptake of MC in a region.

Socio- cultural factors such religion; ethnicity and attitudes are likely to lead to uptake of MC. For example, when a man belongs to a religious or ethnic group that embraces the practice of male circumcision, he is likely to undergo the practice as a desire to conform to that group. In contrast, when one is from a community or group whether religious or ethnic that does not encourage the practice coupled with negative attitudes about MC, this is likely to lead to reduced uptake of male circumcision. Perceived health and sexual benefits such MC partially reducing HIV infection, penile hygiene and sexual attraction are likely to motivate men to undergo the practice leading to increased uptake of male circumcision in communities that were previously non-circumcising. Socio-economic factors such as the level of education, income and occupation of a man which are factors that have been associated high elite class and modern ways of life are likely to increase uptake of male circumcision as opposed to people from low social class. Moderating

factors such as level of campaign and advocacy for performance of male circumcision and policies on MC for all men as a strategy for HIV prevention are factors that even though are not directly linked to main reasons for uptake of MC can moderate circumcision decision and when coupled with other factors lead to high uptake of MC. Intervening variables such as the method of performing circumcision can also influence uptake of MC. Given the fact that traditional methods have been associated with high risks and complications, most men would be discouraged to undergo circumcision for this reason. This would likely reduce uptake of MC in non- circumcising communities as opposed to modern methods of circumcision that are performed by trained professionals that are generally safer with very few complications if any.

2.8 Summary of Literature review

This chapter has reviewed literature on various studies that have been done on male circumcision (MC). First, the chapter has provided the concept of circumcision in different areas in which it has highlighted that MC was performed for different reasons ranging from traditional, cultural, religious and social. On the global and regional perspective, it has outlined prevalence of male circumcision (MC) in different areas. The chapter also talks about the factors that influence uptake of MC which include demographic characteristics, socio-cultural (religion and ethnicity), perceived benefits (health and sexual benefits) of MC, and socio-economic factors. It has also explained circumcision methods that are currently in use and how these methods influence uptake of MC. These include traditional and modern methods of performing MC.

The chapter has also provided the theory that was used to guide the study under theoretical framework. On conceptual framework, it has discussed the various variables that were investigated and described the relationships and interactions between these variables as used in the study under conceptual framework.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This section describes how the study was conducted in order to achieve the desired objectives. It includes research design, target population, sample size and sample selection; description of research instruments, validity and reliability of the instruments. It also contains procedures of data collection and analysis and finally analyses ethical issues that were considered in the study.

3.2 Research design

The research design that was employed in this study was a descriptive survey which involved both quantitative and qualitative approaches. A survey can be defined as a research strategy or method used to collect information about items from a large population (Taylor *et al*, 2008). Since this is a large study that used questionnaires and interviews to collect information, descriptive survey was a suitable design that allowed many variables to be collected. Some of the features that make survey a good choice of research design relevant to this study were as follows. First, it is an efficient way of collecting information from a large number of respondents of which this study targeted. Secondly, surveys are flexible in the sense that a wide range of information (such as attitudes, perceptions, values, beliefs and past behavior) can be collected. Given the nature of this study a lot of information was collected ranging from the background information of the targeted population, factors influencing uptake of male circumcision among the Luo community and behaviour change following circumcision, therefore survey was more appropriate for this study.

3.3 Target population

This study was done in Nyando, a rural district in Nyanza province located 15 kilometers south of Kisumu town covering an area of approximately 249 sq. Kms. It is made up of six divisions namely; Awasi, Kakola, East Kano, Kochogo, Onjiko and Wawidhi. It has a total population of 79,129 people of which 52 % are females and 48% are males leaving in a total of about 14, 029 households (KNBS Nyando, 2007). However in this study, households were targeted because the study focused on the residents of Nyando district who can be best found in households as opposed to meeting people on the street. Households were also chosen because this is a traditional- cultural study which requires a household survey.

3.4 Sample size and sample selection

This section describes the sample size, sampling technique and selection that was employed by the study.

3.4.1 Sample size

A sample size of about 128 households took part in the study. At each of these households a man aged between 15-49 yrs was voluntarily asked to participate in the study. This gave a total of 128 men. 64 women in the first 64 households also took part in the study. 29 elders and 29 MC providers dealing with male circumcision in Nyando district also formed part of the study. This gave a total sample size of 250.

3.4.2 Sample selection

Multi-stage random sampling method was mainly used to sample the men and women in the chosen households in Nyando district. Mugenda (2008) describes multi-stage sampling as a

complex form of cluster sampling in which instead of using the entire selected cluster, the researcher randomly selects elements from each cluster at different stages. This method of sampling was preferred by the researcher because sampling the entire district could have been prohibitively expensive and time consuming. The elders and MC providers were purposefully sampled using convenient sampling.

Out of 14,029 households in Nyando district, 128 households were sampled to be used in the study. This number was arrived at through a multi-stage random sampling process. According to Mugenda (2008), 30 % sample size is sufficient to represent a population to be used in a social science research. Based on this theory, 30% of the total 6 divisions in Nyando were sampled to determine the number of divisions to be used in the study. From this 2 (30% of 6) divisions were randomly selected through a ruffle method containing names of the above divisions of which the first two divisions were picked. The divisions that were picked were Kokola and Kochogo which have 3 locations each.

In the second stage of sampling also 30% of the locations in each of the divisions were sampled. This gave a total of 2 locations one from each division (that is Kakola - 30% of 3 = 1 and Kochogo – 30% of 3 =1). These 2 locations were selected randomly using a ruffle method containing all the names of the locations in the two divisions. From this, Kakola-Ombaka location in Kakola division and Kochogo-South location in Kochogo division were picked to determine the number of households to be used in the study. According to KNBS Nyando district (2007), these locations have 642 and 636 households respectively. Given the large number of households, the third stage of sampling used 10% of the households in each of these selected locations to get the number of household to participate in the study (that is 10% of 642 = 64.2 and 10% of 636 = 63.6, totaling to about 128 households). A man aged between 15- 49 from each household was asked to voluntarily give respondence to the study. Thus a total of about 128 men was sampled as the main

target group but since the women's opinions about uptake of MC was also sort after, the researcher sampled half (that is ½ of 128= 64) the number of men for women representation from each of the first 64 households. This gave a total of 192 participants (128 men and 64 women) sampled by multi-stage sampling method.

In case a woman was the one heading the household and there was no man, in such a scenario the woman was asked to take part in the study only if she fell within the first 64 women at household level. Otherwise the researcher skipped such households with no men. To choose the first location with which to start the survey from among the two locations, the researcher again used a ruffle method containing the names of two locations. The one that was picked first was chosen to start the survey. The actual survey started by the researcher going at the centre of the first randomly chosen location after which he spun a bottle on the ground to determine the first household to start the survey. The household at which the bottle stopped spinning while facing was sampled first. After this the subsequent households followed a similar routine of spinning the bottle at the end of each sample. Apart from these two groups (men and women), the opinions of the elders and MC providers in Nyando district on uptake of male circumcision (MC) were purposefully sampled where recruitment was based on availability and convenience of the respondents. This brought the total respondents to approximately 250 (i.e. 58 elders and MC providers).

Table 3.1 Showing multi- stage sampling method used to determine number of households sample size

Location	1st Stage 30% randomly selected	Divisions	2nd Stage 30% randomly selected	# of households	3rd stage 10% randomly selected	# of household in study
Awasi Kakola East Kano	Kakola	Kakola- Ahero Tura Kakola Ombaka	Kakola-Ombaka	642	64.2	128
Kochogo Onjiko Wawidhi	Kochogo	Kochogo C Kochogo North Kochogo South	Kochogo-South	636	63.6	

Source of Data: Kenya National Bureau of Statistics (KNBS), Nyando district, 2007

3.5 Research Instruments

The study used questionnaires and interview as instruments for data collection. These research instruments are discussed below in details. This section also described piloting testing, validity and reliability of the instruments.

Questionnaires for men aged 15- 49 years

A questionnaire consists of a set of structured questions that respondents are expected to respond to appropriately. It is usually used to collect information from a substantial number of people (Kothari, 1990). This method of data collection was used to collect information from men aged between 15-49 yrs and it was administered by both the researcher and his research assistants. The questionnaires had four sections that included background information, circumcision, perception about factors influencing uptake of MC, sexual activity and behaviour change following circumcision. The content of these questionnaires mainly captured questions addressing factors that influenced men to be circumcised and how they were perceived by the wider community after undergoing circumcision. These questions also sought responses on discrimination, stigma or rejection experienced by these men following circumcision. They also included questions on sexual behaviour following circumcision. Since questionnaires are quantitative measurement tools, the data collected using this method was mostly quantitative in nature. Given the sensitive nature of the study, the questions in questionnaires were carefully structured to ensure that the rights of the respondents were protected. Each questionnaire administered had an informed consent which respondents were expected to consent before taking part in the study.

Interview schedule for women, elders and MC providers

Interviews are interpersonal, face to face conversation method of data collection which involves the interviewer asking certain questions to the interviewee who in turn responds to them. In this study, structured interviews which involve the use of a set of predetermined and highly standardized questions was used to collect information from the other groups targeted in the study such as women, elder people and MC mobilizers, providers and NGO representatives. These interview schedules were administered by the researcher and his trained research assistants. They were used to collect qualitative information from respondents in a structured ordered manner.

In this study, there were three interviews, namely that for the women, the elder people and MC mobilizers, providers and NGO representatives dealing with male circumcision (MC) in Nyando district. The interview schedule for women was made up of three sections which included background information, perceptions about MC and factors influencing uptake of MC among the Luo community and sexual preference to circumcised men. The questions in the interview schedule were mainly focused on attitude or opinions towards preference of circumcised men with relation to sexual attraction and performance. The interview schedule for the elderly people was made up of two sections which consisted of questions seeking their perceptions and attitudes towards circumcised men and factors that have influenced uptake of MC in Nyando district. The content of interview schedule for MC providers, mobilizers and representatives from the local NGO was made up of three sections and included questions on how they help the circumcised men cope with difficulties such as discrimination, delayed healing and monitoring after circumcision. This also included questions on follow ups conducted by these providers to assess the healing process of these circumcised men.

Given the sensitive nature of the study, the questions in interview schedules were structured in a careful format not to hurt the feeling of the interviewee. Before administration of each

interview schedule an informed consent was given out to each respondent who consented before taking part in the interview session. These measurement tools were drafted and written in English and translated into vernacular language (*Dholuo*) in case of need. In general, the interview schedules were designed to collect information about factors influencing uptake of male circumcision (MC) among Luo community in Nyando district.

3.5.1 Pilot testing

A pilot test is a preliminary study conducted before the final study begins to ensure that research instruments are working properly. Pilot-testing of the tools was also done immediately after training research assistants in order to make the instruments reliable. The pilot study was conducted in Kisumu town within a period of one week. It involved 40 participants who included 10 men aged between 15-49, 10 women, 10 elders and 10 MC providers. These respondents were not part of the selected sample to be used in the main study but had the same characteristics. The pilot study adopted the procedures and sampling techniques outlined in the main study. Problems in the research instruments that were noticed during pilot testing such as vague questions and unclear instructions enabled the researcher to adjust or redesign the questions in manner that made the instruments to be clear and free from vagueness. The corrected instruments were then retested to ensure that they were now working properly before proceeding to the main study. This improved the efficiency of the tools and maximized response rate from respondents because respondents were now able to answer the questions without difficulties.

3.5.2 Validity of the instruments

According to Kothari (1990), validity is a measurement characteristic that describes the ability of a research instrument or tool to measure what it was intended to measure. In this study,

validity of instruments was ensured by using simple language when constructing instruments for respondents to understand easily. Use of side notes to guide the respondents was also used to improve the validity of the instruments. As another way of checking validity, the research instruments were given to two experts in the area for review. The university supervisors as well, also reviewed the instruments to see whether they were answering the research objectives or questions that were being investigated. After data collection process, all the interview schedules and questionnaire forms were verified by the researcher to check whether all the questions were properly answered to completion. This exercise ensured further validity of collected data.

3.5.3 Reliability of research instruments

Reliability can be defined as the extent to which a measurement instrument yields consistent, stable, and uniform results over repeated observations or measurements under the same conditions each time (Bowling, 1997). From the above definition, research instruments were pre-tested under similar conditions to different individuals who voluntarily accept. During this exercises, reliability was checked from the consistency and uniformity of test results that come out of this testing.

Among the methods used for instrument reliability, split - half method was used to ensure reliability of the instruments in the study. In the split-half method, the total number of items was divided into halves, and a correlation was taken between the responses of the two halves. In relation to this study, the questions in the instruments were separated in to two sets, using the odd-numbered questions for one set and the even- numbered questions for the other. Each of the two sets of questions were treated separately and scored accordingly. The two set were then correlated, and this was taken as an estimate of reliability. To adjust the correlation co-efficient obtained between the two halves, the following formula; known as the spearman- Brown formula was applied.

$$r_{xx'} = \frac{2\, r_{oe}}{1 + r_{oe}}$$

Where $r_{xx'}$ = the reliability of the original test

r_{oe} = the reliability co-efficient obtained by correlating the scores of the odd statements with the scores of the even statements

The value of r_{xx} should range between $-1 \geq r_{xx} \leq 1$. A reliability value (r_{oe}) of above 0.5 was considered to be of average reliability while an r_{xx} value of 0.65 and above was considered to be of good reliability while a value of less than 0.5 was a weak reliability (Nachmias and Nachmus, 1999). Based on this, the r_{xx} was calculated for each category of research instrument to determine its reliability as described above. For the questionnaire for men aged 15- 49 years, a reliability co-efficient (r_{oe}) value of 0.6 was calculated while interview schedules for women, elders and MC providers had the reliability co-efficient of 0.5, 0.56 and 0.65 respectively. These reliability co-efficient values were calculated using the SAS statistical package. From these values, the reliability of each instrument was calculated using the above formula. This gave a reliability value of 0.75 for the questionnaire for men, 0.67 for the interview schedule for the women, 0.72 for the interview schedule for the elders and 0.79 for MC providers. Since these values of reliability are above 0.65, the study therefore considered the research instruments as having good reliability.

3.6 Data collection procedure

The procedure for data collection started by the researcher being given a letter of approval by the university to go to the field. Using the letter of approval, a permit to conduct the study was acquired from the Ministry of Science and Technology. This was followed by arrangement of meetings with key informants who include chiefs, male circumcision (MC) providers and mobilizers and representatives from the local NGOs dealing with circumcision on the logistics of

data collection and how to reach the target population. Interview schedules and questionnaire sessions were set and target groups who included mainly men aged between 15-49yrs were mobilized and informed in advance on the logistics about the interview by the MC mobilizers.

Data was collected within a period of two weeks in the field from the locations in Nyando district. Data collection process was done by the researcher and two trained research assistants. These research assistants were trained by the researcher on the purpose and objectives of the study to equip them with the relevant information on male circumcision that the researcher was investigating. All the measurement tools were pre-tested before they were subjected to the real study.

3.7 Data analysis technique

Since the data used in this study was in both qualitative and quantitative form, organization, presentation and analysis took different forms depending on the nature of the data. Data entry was done immediately after collection from the field. Qualitative data was descriptively presented explaining the variables being investigated while quantitative data was classified into a frequency distribution tables after which analysis was done using SAS statistical package and appropriate statistical inference was drawn. Chi – square testing was performed at 95% level of significance. An error margin of 5% was used to test the null hypothesis. For a demo graphic variable whose calculated p-value (Chi- square value) was less than 0.05, the null hypothesis that corresponds to it was accepted otherwise rejected.

3.8 Ethical considerations

These are principles or standards that protect the rights of participants in a research study. They are actions taken to assure safety and rights of participants are not violated whatsoever. These

considerations are therefore usually made to ensure that research work involving human or animal subjects are carried out in accordance with high ethical standards. These standards include voluntary participation, informed consent, confidentiality of information, anonymity to research participants and approval from relevant authorities such as independent review boards (IRBs) to conduct the research study (Resnik, 2005).

In this study, participants were voluntarily allowed to participate and prospective research participants were fully informed about the procedures, benefits and risks involved in the research after which they were voluntarily asked to fill informed consent (IC) forms to participate. They were also guaranteed confidentiality of the information and to ensure this was achieved participants were not asked to give their names or indicate anything on the research instruments that could be used to identify or link them to the study documents or reports. This assured their privacy.

Apart from the above ethical standards and principles, permissions from relevant authorities were sought after at all level to ensure that the research was conducted ethically. First of all, the relevant government ministry (Ministry of Science and Technology) was approached to issue research permission, after which the chiefs and assistant chiefs were approached to issue a permit to conduct the study in their jurisdictions. The research student was also accompanied by a letter of approval from the university allowing the student to conduct the study. The instruments used were also subjected to high scrutiny by peer reviews and two experts in the area. This ensured that the item involved in the study were free from violation of rights of respondents and did not affect them psychologically.

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION, INTERPRETATION AND DISCUSSION

4.1 Introduction

This chapter presents analysis, interpretation and discussion of the findings in the following themes; the extent to which demographic factors influence uptake of male circumcision (MC), socio-cultural factors that influence uptake of male circumcision, exploring the relationship between perceived benefits of MC and uptake of male circumcision and examining socio-economic factors that influence uptake of male circumcision among the Luo community in Nyando district.

4.2 Response return rate

A total of 250 research instruments were developed for data collection from different study participants within two (Kakola- Ombaka and Kochogo- south) locations in Nyando district. These instruments included 128 questionnaires for men aged between 15-49 years, 64 interview schedules for women, 29 interview schedules for elderly people and 29 interview schedules for MC providers, mobilizers and representatives of NGOs dealing with MC in Nyando district. Among these, all questionnaires for men were appropriately filled and returned for analysis which gave a questionnaire return rate of 100% which the study considered adequate for analysis. For the female respondents, 55 interview schedules were returned among the 64 that were developed. This gave a return rate of approximately 86% which was also considered adequate for analysis. Among the elderly people, 100 % response rate was found since all responded and 100 % response rate was also found from the interview schedules for MC mobilisers and providers. In total, this gave a response return rate of 96.4 % of all the 241 research instruments that were returned. The high response rate among the respondents was attributed to the fact that the research instruments were collected from the respondents as soon as they finished answering the questions. This reduced

chances of misplacement or loss of the instruments. Another strategy that was employed to ensure high return rate was that the instruments were distributed to respondents after which the researcher and his assistants went round to pick them. The researcher also followed up with the research assistants on the progress of data collection to determine the number of instruments issued and those already filled and returned.

4.3 Demographic characteristics of the respondents

The study sought to establish demographic distribution of the respondents in terms of age, marital status, education and religious affiliations. The sub-sections discuss some of these demographic characteristics in order to understand the participants who took part in the study.

4.3.1 Distribution of respondents by Age

The study sought to establish the age of respondents who participated in the study. This was considered important as it could reveal information on the age bracket of men and women who largely took part in the study. The responses were captured in Table 4.1.

Table 4.1 Distribution of men and women respondents by Age

Age group	MALE		FEMALE	
	Frequency	Percent	Frequency	Percent
15-19	21	16.4	8	14.5
20-24	42	32.8	12	21.8
25-29	33	25.8	13	23.6
30-34	19	14.8	11	20
35-39	4	3.1	6	10.9
40-44	3	2.3	2	3.6
45-49	4	3.1	3	5.5
Missing	2	1.6	-	-
Total	**128**	**100**	**55**	**100**

Table 4.1 shows that 42 (32.8 %) of male respondents were within age bracket 20-24, followed by 33 (25.8 %) of them in the age bracket of 25-29, 21 (16.4 %) of the male respondents were of the age bracket 15-19 while 19 (14.8 %) of them were in the age group 30-34. About 11 (10 %) of male respondents were of age 35 years and above. On the other hand 13 (23.6 %) of female respondents reached by the study were between ages 25-29 followed by ages 20-24 years represented by 12 (21.8 %) while 11 (20 %) of women were within age group 30-34. Based on the two statistics displayed by both male and female respondents, it appears that majority of those who participated in the study were of a relatively young age. This was considered a suitable age group in the analysis of factors influencing uptake of male circumcision among the Luo community in Nyando district.

4.3.2 Distribution of respondents by marital status

The study also analyzed the marital status of the respondents to determine whether marital status influenced uptake of male circumcision. This is shown in table 4.2.

Table 4.2 Distribution of respondents by marital status

Marital status	MALE		FEMALE	
	Frequency	Percent	Frequency	Percent
Married	53	41.1	32	58.2
Single	70	54.7	20	36.4
Separated	1	0.8	1	1.8
Divorced	3	2.3	1	1.8
Widow/ widower	-	-	1	1.8
Missing	1	0.8	0	0
Total	**128**	**100**	**55**	**100**

Table 4.2 shows that slightly more than half 70 (54.7 %) of male respondents were single, 53 (41.1 %) were married while those who were either separated or divorced constituted 1 (0.8%) and 3 (2.3 %) respectively. However, the table also shows that 32 (58.2 %) of the female

respondents were married followed by 20 (36.4 %) who said that they were single while about 5.4 % were divorced, separated or widowed in total. From the above results in table 4.2, it is clear that most men and women who participated in the study were either married or single. This proportion of male and females respondents was considered suitable in the analysis of factors influencing uptake of male circumcision among the Luo community.

4.3.3 Distribution of respondents by level of education

The study sought to establish the level of education of the respondents to determine whether it influenced uptake of male circumcision and the results were recorded in table 4.3.

Table 4.3 Distribution of respondents by level of education

Level of Education	MALE		FEMALE		ELDERS	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Primary	24	18.8	11	20	8	27.6
Secondary	52	40.6	20	36.4	7	24.1
Tertiary	33	25.8	16	29.1	5	17.2
University	12	9.4	6	10.9	1	3.5
None	6	4.7	2	3.6	8	27.6
Missing	1	0.7	0	0	0	0
Total	**128**	**100**	**55**	**100**	**29**	**100**

In Table 4.3, a total of 52 (40.6 %) of male respondents had secondary education followed by those with tertiary education at 33 (25.8 %) and then 24 (18.8 %) had primary education while 12 (9.4%) had university education and 6 (4.7 %) had no education. Similar trend was also seen among the female respondents with 20 (36.4 %) having secondary education, 16 (29.1 %) having tertiary education, 11 (20%) of them having primary education while 6 (10.9%) and 2 (3.6 %) had university and no education respectively. However, the table also shows that 8 (27.6 %) of elders who were involved in the study had either primary or no education. This was closely followed by 7 (24.1 %) who had secondary education and 5 (17.2 %) of them had tertiary education. The results of

this table generally show that most of the respondents (male and female) had moderate level of education. The data on level of education among the male and female respondents was appropriate for the study as it would enable the researcher to establish whether the level of education was a factor that influenced uptake of male circumcision.

4.3.4 Religious affiliations of the respondents

Circumcision has been practiced for religious reasons in many parts of the world and especially among the Jew and Muslims. The study wanted to find out if religion was a factor that influenced uptake of male circumcision among the Luo community in Nyando district. The study therefore sought to establish the religious affiliations of the participants. Table 4.4 represents data on responses that respondents gave with regards to their religion.

Table 4.4 Distribution of respondents by religious affiliation

Religion	MALE		FEMALE		ELDERS	
	Freq	Percent	Freq	Percent	Freq	Percent
Catholic	61	47.7	10	18.2	8	27.6
Muslim	10	7.8	4	7.3	5	17.2
Protestant	47	36.7	39	70.9	16	55.2
Other	9	7	-	-	-	-
Missing	1	0.8	2	3.6	-	-
Total	**128**	**100**	**55**	**100**	**29**	**100**

From Table 4.4, it can be seen that 61 (47.7 %) of males who took part in the study were from the Catholic religion, 47 (36.7 %) were from protestant churches while 10 (7.8 %) and 7 (7%) of males were from the Muslims religion and other religious group r espectively. These other religious group included Nomiya church and Lego Maria. On the other hand, 39 (70.9 %) of female respondents were from the protestant churches followed by 10 (18.2 %) from the Catholic religion and 4 (7.3 %) of the women were Muslims. The table also shows that a similar trend was seen

among the elders with 16 (55.2 %) coming from protestant churches, 8 (27.6 %) were catholic while 5 (17.2 %) were from the Muslim faith. These results show that most people who took part in the study were generally from Christian community (Catholic and Protestants). The low number of respondent coming from the Muslim religion was actually expected since Nyando is a district that is inhabited predominately by people from the Christian community.

4.4 Demographic characteristics and uptake of male circumcision

In this section, the study sought to establish the extent to which demographic characteristics such as age, marital status, level of education and religion influence uptake of male circumcision among the Luo community in Nyando district. The male respondents were asked to state their circumcision status while the female respondents were asked if they would prefer their partners circumcised (preference for male circumcision). On the other hand, the elderly people were also asked if they would prefer their sons circumcised. The responses derived were then cross tabulated with demographic characteristics. The results were as below.

4.4.1 Age distribution of respondents against circumcision status

The study sought to establish how the age of men and women would compare with their circumcision status or preference. This was useful to the study since it could provide data that would reveal the extent to which age influenced uptake of male circumcision. The male respondents were asked to state whether they were circumcised or not while the female respondents were asked to state whether they would prefer their partners circumcised. The study therefore analyzed the age group of men and women against their responses and this was recorded in Table 4.5.

Table 4.5 Age distribution against circumcision status

Age group	MALE Circumcision status			FEMALE Circumcision preference	
	Yes (n/%)	No (n/%)	pvalue(x^2)	Yes (n/%)	No (n/%)
15-19	12(9.4)	9(7.0)		7(12.7)	1(1.8)
20-24	29(22.7)	13(10.2)		11(20.0)	1(1.8)
25-29	16(12.5)	17(13.3)		12(21.8)	1(1.8)
30-34	8(6.3)	11(8.6)	0.02186	9(16.4)	2(3.6)
35-39	5(3.2)	0(0.0)		4(7.4)	2(3.6)
40-44	1(0.8)	2(1.6)		1(1.8)	1(1.8)
45-49	0(0.0)	4(3.0)		3(5.5)	0(0.0)
Missing	0(0.0)	2(1.6)		-	-
Total	**70(54.7)**	**58(45.3)**		**47(85.6)**	**8(14.4)**

* p-value (X^2) standard was analyzed at 0.05 level of significance and for a demographic variable whose p- value was less than 0.05, then hypothesis was accepted otherwise rejected. n* represents the frequency.

Table 4.5 shows that 29 (22.7 %) of male respondents aged 20-24 admitted that they were circumcised followed by 16 (12.5 %) of those aged 25-29 while 12 (9.4 %) of males aged 15-19 years also admitted to be circumcised. About 6 (4 %) of men aged 35 years and above were circumcised. On the other hand, 12 (21.8 %) of female respondents aged 25-29 years preferred their partners to be circumcised followed by 11 (20 %) of those who were aged 20-24 and 9 (16.4 %) of women within age group 30-34 years also preferred their partners circumcised.

These results generally show that male circumcision is more popular among the younger age group of 34 years and below (50.9 %). These results can be supported by 70.9 % of the females aged 34 years and below who preferred circumcision for their partners compared to 9 % of women within the same age group who did not. Therefore, it can be seen that a younger age group could be a contributing demographic factor that may influence uptake of male circumcision among the Luo community in Nyando district with circumcision preference or status decreasing as age increases. These results are similar to those of a study that was done in Luo Nyanza province by Bailey et al, (2002) that found out that male circumcision (MC) was generally more popular and acceptable among the younger people as compared to the elderly people.

Null Hypothesis One

The study also sought to establish the relationship between uptake of male circumcision and age of male respondents. This was made possible by the hypothesis that stated *"There is no significant difference between uptake of male circumcision and age among male respondents"*. Chi-square test was employed to test for significance. Table 4.5 shows a chi- square p-value (x^2) of 0.02186. When this value was compared with a standard chi square p- value of 0.05 level of significance, it was found to be less and thus the null hypothesis was accepted. This implies that there is a significant relationship between uptake of male circumcision and age among men in Nyando district.

4.4.2 Marital status against circumcision status

The study also sought to determine whether marital status of the respondents influenced uptake of male circumcision. The study analyzed circumcision status or preference verses marital status. This could be useful to the study since it could provide insights on the extent to which marital status influenced uptake of male circumcision. Table 4.6 summarizes data that was generated following this analysis.

Table 4.6 Marital status against circumcision status

Marital status	MALE Circumcision status			FEMALE Circumcision preference	
	Yes (n/%)	No (n/%)	p-value (x^2)	Yes (n/%)	No (n/%)
Married	21(16.4)	32(25)		26(47.4)	6(10.8)
Single	46(35.9)	24(18.7)		19(34.6)	1(1.8)
Separated	0(0.0)	1(0.8)	0.03283	1(1.8)	0(0.0)
Divorced	2(1.6)	1(0.8)		0(0.0)	1(1.8)
Widow/widower	-	-		1(1.8)	0(0.0)
Missing	1(0.8)	0(0.0)		-	-
Total	**70(54.7)**	**58(45.3)**		**47(85.6)**	**8(14.4)**

* p-value (X^2) standard was analyzed at 0.05 level of significance and for a demographic variable whose p- value was less than 0.05, then hypothesis was accepted otherwise rejected. n* represents the frequency.

Table 4.6 shows that 46 (35.9 %) of single men admitted that they were circumcised when they were asked what their circumcision status was followed by 21 (16.4 %) of married men while 2 (1.6 %) of male respondents who said that they were separated from their wives were circumcised. On the other hand, 26 (47.4 %) of female respondents who were married preferred their partners circumcised followed by 19 (34.6 %) of those who were single. These results generally show that most men and women who were married or single were either circumcised or preferred circumcision for their sons or partners. From the fact that there were a good number (82 %) of female respondents both married and single who preferred their men circumcised, it is possible that there could be a chance that men (both single and married) were under pressure from women to undergo circumcision. Thus marital status may be a factor influencing uptake of MC among the Luo. This is in line with a study that was done in Malawi by Weiss et al, (2007) that found out most married men were circumcised.

Null Hypothesis Two

The study also sought to establish the relationship between uptake of male circumcision and marital status of male respondents. This was made possible by the hypothesis that stated *"There is no significant difference between uptake of male circumcision and marital status among male respondents"*. Chi-square test was employed to test for significance. Table 4.6 shows a chi- square p-value (x^2) of 0.03283. When this value was compared with a standard chi square p- value of 0.05 level of significance, it was found to be less and thus the null hypothesis was not rejected. This shows that there is a significant relationship between uptake of male circumcision (MC) and marital status among the men.

4.4.3 Level of education against circumcision status

The study sought to establish whether level of education of respondents influenced uptake of male circumcision among the Luo community in Nyando district. To be able to investigate this, the study analyzed the level of education verses circumcision status or preference of respondents. Table 4.7 summarizes data of the results got from this analysis.

Table 4.7 Level of education against circumcision status

Level of education	MALE Circumcision status			FEMALE Circumcision preference	
	Yes (n/%)	No (n/%)	p-value	Yes (n/%)	No (n/%)
Primary	10(7.8)	14(10.9)		7(12.7)	4(7.2)
Secondary	32(25)	20(15.6)		18(32.9)	2(3.6)
Tertiary	19(14.8)	14(10.9)	0.4022	15(27.3)	1(1.8)
University	7(5.5)	5(3.9)		5(9.1)	1(1.8)
None	2(1.6)	4(3.2)		2(3.6)	0(0.0)
Missing	0(0.0)	1(0.8)		-	-
Total	**70(54.7)**	**58(45.3)**		**47(85.6)**	**8(14.4)**

* p-value (X^2) standard was analyzed at 0.05 level of significance and for a demographic variable whose p- value was less than 0.05, then hypothesis was accepted otherwise rejected. n* represents the frequency.

Table 4.7 shows that 32 (25 %) of male respondents who had secondary education admitted being circumcised followed by 19 (14.8 %) of those who had tertiary education and 10 (7.8 %) who had primary education. A similar trend was seen among the female respondent with 18 (32.9 %) of them who had secondary education preferring circumcision for their sons or partners followed by 15 (27.3) % of those who had tertiary education and 7(12.7 %) who had primary education. These results generally show that most men and women who were either circumcised or preferred circumcision were from low to moderate levels of education in Nyando district. This is in contradiction with a study that was done in the United Kingdom by Coulter et al, (1985) that found out that circumcision was more prevalent among people with higher level of education. From the

result, it can be interpreted that level of education may not be significantly influencing uptake of MC among the Luo community in Nyando district.

Null Hypothesis Three

The study also sought to establish the relationship between uptake of male circumcision and level of education of male respondents. This was made possible by the hypothesis that stated *"There is no significant difference between uptake of male circumcision and level of education among male respondents"*. Chi-square test was employed to test for significance. Table 4.7 provides chi- square p-value (x^2) of 0.4022. Since this value is greater than the standard value of 0.05 level of significance, the null hypothesis was rejected. This analysis therefore shows that there is no significant association between uptake of male circumcision (MC) and level of education among men in Nyando district and implying that level of education may not be influencing uptake of MC.

4.4.4 Religion against circumcision status or preference

The study analyzed the religious affiliations of respondents against their circumcision status or preference. This was useful to the study because there are certain religions that have been associated with prevalence of male circumcision. Table 4.8 provides statistical data on cross tabulation of religion against circumcision status or preference.

Table 4.8 Religion against circumcision status

Religion	MALE		FEMALE		ELDERS	
	Circumcision status		Circumcision preference		Circumcision preference	
	Yes (n/%)	No (n/%)	Yes (n/%)	No (n/%)	Yes (n/%)	No (n/%)
Catholic	30(23.4)	31(24.1)	7(12.7)	3(5.5)	2(6.9)	20.7
Muslim	8(6.3)	2(1.6)	3(5.5)	1(1.8)	0(0)	0
Protestant	23(18)	24(18.8)	9(45.5)	3(5.5)	6(20.7)	34.5
Other	9(7.0)	0(0.0)	25(16.4)	1(1.8)	2(6.9)	10.3
Missing	0(0.0)	1(0.8)	3(5.5)	0(0.0)	-	-
Total	**70(54.7)**	**58(45.3)**	**47(85.6)**	**8(14.4)**	**10(34.5)**	**19(65.5)**

p value of 0.01327 was calculated when religion was analyzed against circumcision status for male respondents using chi- square test at 0.05 level of significance. n represents the frequency.

Table 4.8 shows that, 30 (23.4 %) of male respondents who said they were circumcised were Catholics. This was closely followed by 23 (18 %) who were from protestant churches. Despite the small number of Muslims who took part in the study, 8 (6.3 %) out 10 admitted that they were circumcised. 9 (7 %) of those who said they were from other religious groups were mainly from Nomiya church. Among the female respondents, 9 (45.5 %) of those who preferred circumcision were from protestant churches followed by 25 (16.4 %) from other religious groups who preferred circumcision for their sons and partners. It can also be noted that men who were from other religious groups that mainly included Nomiya church which require circumcision for membership were all circumcised. This result mimics a study that was done in Luo Nyanza where most participants who were circumcised were from Nomiya church (Mattson et al, 2005). Table 4.8 also shows that 10 (34.5 %) of elders from the protestant church did not prefer circumcision; followed by 6 (20.7 %) from the catholic faith. This further confirms that circumcision preference generally decreases as one grows older regardless of religion. From these facts, it may be possible that religion may be a factor that influenced uptake of male circumcision in Nyando district.

Null Hypothesis Four

The study also sought to establish the relationship between uptake of male circumcision and religion of male respondents. This was made possible by the hypothesis that stated *"There is no significant difference between uptake of male circumcision and religion among male respondents"*. Chi-square test was employed to test for significance. Table 4.8 also provides a chi- square p-value (x^2) of 0.01327 and since this value is less than the standard 0.05 level of confidence, the null hypothesis was accepted as it was. This shows that there is a significant association between uptake of male circumcision (MC) and religion among men in Nyando district.

4.5 Socio-cultural factors that influence uptake of male circumcision

This theme sought to investigate socio- cultural factors such as perceptions, attitudes, rejection and discrimination that may influence uptake of male circumcision (MC). It also investigated forces that motivate people to undergo MC as well as whether there was any history of MC that has been associated with the Luo community.

4.5.1 Perceptions and attitudes about male circumcision

Male circumcision has been associated with many perceptions and attitudes. These attitudes or opinions about male circumcision have often influenced uptake of male circumcision either negatively or positively. This study therefore sought to establish some of these perceptions that are likely to influence uptake of male circumcision (MC) among Luo community in Nyando district. To be able to determine this, the male respondent who formed the main target group of the study were asked certain questions that highlighted their perceptions on MC. Table 4.10 summarizes some of their responses.

Table 4.9 Perceptions of respondents on male circumcision

Question	Responses	MALE (n/%)	WOMEN (n/%)
Why have you not considered circumcision?	Not a Luo culture	22(17.5)	-
	Painful	14(11.1)	-
	Still thiking about it	19(15.1)	-
	N/A	70(55.5)	-
	Missing	1(0.8)	-
What do you think about circumcised men?	Going against Luo culture	19(14.8)	-
	Modern way of life	34(26.6)	-
	Show off	1(0.8)	-
	Not normal	5(3.9)	-
	Good practice	67(52.3)	-
	Missing	2(1.6)	-
Should MC be encouraged among the Luo?	Yes	100(78.1)	48(87.3)
	No	26(20.3)	5(9.1)
	Missing	2(1.6)	2(3.6)
Do you think women push men to undergo MC?	Yes	39(30.5)	-
	No	75(58.6)	-
	Don't	9(7.0)	-
	Missing	5(3.9)	-
Do you think the Luo community should support MC?	Yes	73(57)	-
	No	51(39.8)	-
	Missing	4(3.2)	-
Recent uptake of MC is due to advocacy and will soon be rejected by the Luo community	Yes	32(25)	5(9.1)
	No	87(68)	45(81.8)
	Missing	9(7)	5(9.1)
Increased uptake of MC will dilute the Luo culture	Yes	33(26)	13(23.6)
	No	84(66.1)	37(67.3)
	Missing	10(7.9)	5(9.1)

From Table 4.9 above, it can be seen that when uncircumcised men were asked why they have not considered circumcision, 22 (17.5 %) said that it is not a Luo culture, 19 (15.1 %) said that they were still thinking about it and 14 (11.1%) said that it was a painful experience. Since this question was only asked to men who have not undergone circumcision, the number 70 (55.5%) in the table represents the circumcised men and therefore this question was not applicable (N/A) to them. In reference to the results in Table 4.9, it can be interpreted that culture and tradition are

socio- cultural factors that may negatively influence uptake of male circumcision (MC) among the Luo community in Nyando district. This was further seen in the responses of uncircumcised men when asked how they considered circumcised men. 19 (14.8 %) stated that they were going against the Luo culture while a good number of circumcised men said that male circumcision is a good practice and modern way of life. This was represented by 67 (52.3 %) and 34 (26.6 %) respectively.

Table 4.9 also shows that among the men and women who took part in the study, most of them representing 100 (78.1%) and 48 (87.3%) respectively responded positively when they were asked whether male circumcision (MC) should be encouraged among the Luo community. The Table also shows that a similar result was recorded when male respondents were asked if they thought the Luo community should support MC. These attitudes among most male and female respondents who participated in the study generally show that most of them supported male circumcision (MC). Such positive attitude and perceptions may positively influence uptake of MC in the district. The study also sought to establish whether there was pressure from women for men to undergo circumcision and from Table 4.9, the results shows that 75 (58.6%) denied this saying that women do not push them to undergo circumcision while 39 (30.5 %) admitted to being pushed by women to perform circumcision. The above Table (4.9) also shows that when male and female respondents were asked if recent uptake of MC was due to advocacy and will soon be rejected by the Luo, 87 (68 %) of men and 45 (81.8 %) of women said that this is not true since they had been educated about the benefits of male circumcision. A similar result was also recorded when male and female respondents were asked if increased uptake of male circumcision will dilute the Luo culture. The results were that 84 (66.1 %) of male respondent and 37 (67.3 %) of female respondents denied this saying that the Luos will always have their culture and circumcision to the Luos has nothing to do with culture instead it is done on medical grounds.

4.5.2 Forces motivating men to undergo male circumcision

The study also sought to establish some of the forces that motivate men to undergo circumcision. Therefore circumcised male respondents were asked to rate the forces that motivated them to undergo circumcision as had been outlined in the questionnaire. Rating was in the order of priority ranging from highest to lowest. The Table 4.10 summarizes the responses on rating that were given by the respondents.

Table 4.10 Rating forces that motivate men to undergo circumcision

Forces for motivation	Rating in percent					
	Highest (n/%)	High (n/%)	Moderate (n/%)	Low (n/%)	Lower (n/%)	Lowes (n/%)
Tradition	2(1.6)	7(5.5)	11(8.6)	29(22.7)	21(16.4)	58(45.
Advocacy about MC	80(62.5)	33(25.8)	6(4.7)	2(1.6)	7(5.5)	0(0)
Political pressure from leaders	13(10.2)	45(35.2)	41(32.1)	12(9.4)	14(10.9)	3(2.3)
Transition from boyhood to manhood	5(3.9)	4(3.1)	8(6.3)	9(7)	41(32.0)	60(46.
Desire to belong to a social class (social status)	11(8.6)	2(1.6)	12(9.4)	58(45.3)	22(17.2)	23(18.

Table 4.10 shows that among the forces that motivate men to undergo circumcision, advocacy about benefits of male circumcision (MC) by local NGOs was rated the highest at 62.5 % representing 80 male respondents, followed by pressure from political leaders rated high at 35.2 % representing 45 men, while tradition on MC and transition from boyhood to manhood were rated at 45.3 % lower (representing 58 men) and 46.9 % lowest (representing 60 men) respectively. This results show that a good number of men in Nyando district are being driven to undergo circumcision as a result increased advocacy and campaign on benefits of MC by local NGOs dealing MC in the district. The low rating of transition from boyhood to manhood as a force that motivates Luo men to undergo circumcision is in line with studies that were conducted in Luo Nyanza by Orago et al, (2007) and Weiss et al, (2007) that found out that the Luo had their own initiation (removal of the six lower front teeth) of rite passage and that circumcision was not part of

it. From the above ratings, it can be stated that advocacy about benefits of male circumcision (MC) by local NGOs could be a force that is influencing uptake of MC in Nyando district.

4.5.3 Acceptance and rejection of male circumcision as a socio- cultural factor

Acceptability of male circumcision in some places has been shown to influence its uptake while its rejection has been shown to decrease the uptake. The study had therefore sought to know the reactions of the female partners, family members and elders of circumcised men in the community and how such reactions may influence uptake of MC in Nyando district. This was determined by asking circumcised men whether their partners, family members and elders liked or disliked their new circumcision status in order to gauge their acceptance or dislike (rejection) of the practice. Table 4.11 provides details on responses that were given on acceptance of male circumcision.

Table 4.11 Reactions of respondents on circumcision status of circumcised men

Question	Responses		
	Liked it (n/%)	**Disliked it (n/%)**	**Didn't care (n/%)**
Did your female partner like your MC status?	107(83.6)	18(14.1)	3(2.3)
Did your family like your MC status?	60(46.9)	55(43.9)	13(10.1)
Did the elders in community like your MC status?	39(30.5)	84(66.4)	4(3.1)
	Responses		
	Yes	**No**	
Have you been discriminated against due to your MC status?	31(24.2)	97(75.8)	

Table 4.11 shows responses that were recorded when circumcised men were asked whether their female partners, family or elders liked their decision to undergo circumcision. From the table (4.11), 107 circumcised men out of 128 (83.6 %) said that their female partners liked their circumcision status. This was in line with the study's previous finding (in Table 4.4) that established

that marital status of men may be influencing them to undergo circumcision. An almost equal number of circumcised men said that some of their family members liked it (60 men representing 46.9 %) while others did not (55 men representing 43.9 %). The results also show that when these male respondents were asked if the elders in their community liked their circumcision status, 84 (66.4%) of them confirmed that the elders disliked their decision to undergo circumcision. This results about elders' dislike for MC was actually expected since studies done in the neighboring districts like Siaya and Rachuonyo in Luo Nyanza have found out that male circumcision (MC) is less popular among the elderly people (Obure et al, 2009 and Bailey et al, 2002). Also from the above results, despite the fact that 97 circumcised men (75.8 %) said that they have not been discriminated against due to their circumcision status, 31 (24.2 %) admitted being discriminated for abandoning the Luo culture. This may imply that fear of discrimination may be a factor that may hinder uptake of male circumcision among the Luo.

The above results (Table 4.11) were also seen in table 4.12 which describes responses given by the elderly people when they were asked whether there was any history of male circumcision associated with the Luo community alongside other questions. The responses are outlined in table 4.12.

Table 4.12 Response of elders on questions on male circumcision

Question	Responses	
	Yes (n/%)	No (n/%)
Is there any history of MC associated with the Luo?	2(6.9)	27(93.1)
Recent uptake of MC will soon be rejected by the Luo	20(69.0)	9(31.0)
Uptake of MC will dilute the Luo culture	17(58.6)	12(41.4)

Table 4.12 shows that almost all elders representing 27(93.1 %) of 29 of them who were interviewed overwhelmingly responded that the Luo had no history of male circumcision (MC). In the same table, it can also be seen that 20 (69 %) of the elders said that the recent uptake of MC will

soon be rejected by the Luo community since it is being imposed on Luos by political leaders and local NGOs. This according to 17 of them (58.6 %) may dilute the Luo culture. Therefore such attitudes and opinions by the elderly people in Nyando district may negatively influence uptake of male circumcision.

4.6 Relationship between perceived benefits of male circumcision and its uptake

This theme had sought to establish the relationship of perceived benefits of male circumcision (MC) such as health and sexual benefits and how these benefits influence uptake of male circumcision among the Luo community in Nyando district. Some of the perceived health benefits of male circumcision include partial reduction of HIV infection, penile cancer and other sexually transmitted diseases. Male circumcision also improves penile hygiene (WHO, 2007). It is said that it improves sexual performance of a man as a sexual benefit. Table 4.13 summarizes data on responses given by men and women on the above benefits.

Table 4.13 Responses on perceived benefits of male circumcision

Statements	MALE			FEMALE		
	True (n/%)	False (n/%)	Don't Know (n/%)	True (n/%)	False (n/%)	Don't Know (n/%)
MC offers partial protection against HIV	96(75)	21(16.4)	11(8.6)	43(78.2)	9(16.4)	3(5.5)
It is easy for circumcised men to maintain penile hygiene	98(76.6)	16(12.5)	14(10.9)	49(89.1)	3(5.5)	3(5.5)
MC enhances a man's sexual performance and activity	65(50.8)	36(28.1)	27(21.1)	24(43.6)	13(23.6)	18(32.8
When circumcised one becomes respected	35(27.6)	68(53.5)	24(18.9)	-	-	-

Table 4.13 shows responses of male and female respondents who participated in the study when they were asked to state either true or false on statements that were targeted to gauge their

knowledge on health and sexual benefits of male circumcision (MC). From the table, 96 men and 43 women (75 % and 78.2 % respectively) said that it is true that MC offers partial protection against HIV infection and other sexually transmitted diseases while few of them (21 men and 9 women representing 16.4 % in each case) recorded that it was false saying that they do not believe that MC offers protection at all against HIV/AIDS. From the results of this table, it can be interpreted that most men and women are aware that male circumcision offer partial protection against HIV and this could be a reason that is influencing increase in uptake of MC in this district. This result is in line with a study which was done in South Korea that cited that 78% of participants said that the principal reasons for them going for circumcision was to partially prevent conditions such as HIV infection, penile cancer and other sexually transmitted diseases (Ku et al, 2003). The table (4.13) also shows that 35 (76.6 %) of men and 49 (89.1 %) of women said that it was easy for circumcised men to maintain penile hygiene (cleanliness). This is also in line with a study that was done in the US by Brown et al, (1985), where mothers cited penile hygiene as the most important determinant for choosing to circumcise their sons.

It can also be seen from the table that 65 male and 24 female respondents (50.8 % and 43.6 % respectively) admitted that male circumcision (MC) enhances a man's sexual performance and activity. This is similar with the results of a study that was done in Philippines by Lee et al, (2005) that found out that MC improves sexual attraction and performance of men. Therefore from the above discussion, it can be interpreted that perceived health and sexual benefits may be factors that are driving men from the Luo community to undergo male circumcision (MC) and by extension positively influence uptake of MC in Nyando district. The table also shows that when male respondents were asked whether MC makes a man to be respected in the Luo community, 68 (53.5 %) said no, followed by 35 (27.6 %) who said yes and 24 (18.9 %) who responded that they did not know. This is contrary to other traditionally circumcising communities (Maasai, Kalenjin,

Abaluhya e.t.c.) in Kenya that associate MC with factors such as bravery, masculinity, self respect and identity (Doyle et al, 2005 and Orago et al, 2007).

The data above on Table 4.13 can be further confirmed in table 4.14 when 70 circumcised men who took part in the study were asked what reasons made them to choose circumcision.

Table 4.14 Reasons for circumcision by circumcised men

What reason made you to decide circumcision	Responses	
	Yes (n/%)	No (n/%)
Perceived health benefits	59(84.3)	11(15.7)
Perceived sexual benefits	34(48.6)	36(51.4)

From the above Table (4.14) it can be seen that majority of circumcised men (59 out of 70 representing 84.3%) cited perceived health reasons as the main reason for deciding to undergo circumcision compared to 11 (15.7 %) who said that perceived health benefits was not the reason that made them undergo circumcision. The table also shows that 34 (48.6 %) of circumcised men cited perceived sexual benefits as a reason for undergoing circumcision while 36 (51.4 %) said otherwise. These results generally show that perceived health benefits of MC could be a major factor that is influencing uptake of male circumcision among Luo men in Nyando district.

4.7 Examining socio- economic factors that influence uptake of male circumcision

The study had sought to examine this theme because in English speaking countries and modern societies male circumcision (MC) has been associated with socio- cultural factors. For example when MC was first practiced in the United Kingdom, it was most prevalent among the higher social class. Therefore the study wanted to establish whether this is the case in Nyando district. When male participants were asked whether most circumcised men are people from higher social class, 106 out of the total 128 (82.8 %) men who took part in the study said that this is false

since circumcised men were just ordinary people in their community. 8.6 % (11 out of 128) said it may be true while a similar percentage (8.6 %) said they do not know. These results were further confirmed when circumcised men were asked whether their decision to undergo circumcision was influenced by socio- economic factors. Only 8 (11.4 %) out of 70 circumcised men said that they had decided to undergo circumcision because of socio-economic reasons but majority of them (62 out of 70 which is approximately 88.6 %) said that it was not socio- economic reasons that influenced their decision.

Similar results were recorded when women were asked to state whether circumcision changes the social status of a man in their community. 39 of them (71 %) said that circumcision does not change the social status of a man and that whether one is circumcised or not his social status remains the same. From the above discussion, it can be interpreted that socio-economic factors do not significantly influence uptake of male circumcision among the Luo community in Nyando district. This is contrary to the above study that was done in the United Kingdom by Coulter et al, (1985) that found an association between socio- economic factors and male circumcision.

4.8 Methods of male circumcision and their influence on uptake of male circumcision

There are two main methods of performing male circumcision; traditional and modern methods. Traditional methods have often been associated with complications such as excessive pain, excessive bleeding, penile damage or amputation, erectile dysfunction, problems with urination and problems with genital appearance among others. The modern methods which are usually done in hospital settings by trained personnel have been associated with few cases of these complications. The study therefore found it useful to determine which one among these two methods is used in Nyando district and whether the method used had any influence on uptake of

male circumcision in the district. To be able to establish this, circumcised men who took part in the study were asked where they were circumcised and the results were that majority (122 out of 128 representing 95.3%) said that they were circumcised in a hospital setting compared to 6 (4.7 %) who said they were circumcised using traditional methods. When they were asked why they preferred to be circumcised in the hospital setting, 106 (83 %) said that in the hospital there were trained professionals and so the operation could most likely be successful and safe. This observation was also seen when these men were asked whether they liked the way the circumcision was performed with 119 (92.7 %) saying that they liked it while 9 (7.3 %) said they did not. Moreover, when these circumcised men were asked where they would recommend someone to go for circumcision, all of them said that they would recommend hospital settings (modern methods). The reasons they gave for recommending modern methods of circumcision included reduced pain, use of anaesthesia during circumcision to suppress pain, little bleeding, follow up to assess healing progress among others. This response of recommending modern method of performing circumcision was also given by those who had been previously circumcised by traditional methods.

Female participants also gave similar comments when they were asked where they would prefer their son to be circumcised with a large number (50 out of 55, approximately 90.9 %) saying they preferred the hospital method since it was hygienic and the healing process was fast. Despite the fact that most circumcision procedures done in the hospital setting have few complications, there were 15 (21.3 %) men who were circumcised in the hospital who admitted experiencing minor complications such as pain, delayed healing, swelling and problems with urination especially during or immediately after the operation. These complications were confirmed by MC providers and trained personnel who are members of the local NGOs dealing with male circumcision (MC).These trained personnel said that the few men who had complications after circumcision in a hospital are

those who have not been following their instructions like going for weekly follow - ups to assess the progress of healing.

From the above discussion, it was clear to the study that 67 circumcisions representing 95.7 % that were performed in Nyando district were done in hospital by trained personnel. The study also found out that all local NGOs providing these services offer it free of charge and this could be a reason why a large number of men are going for circumcision as opposed to when it was provided at a fee. Given the fact that modern method of performing circumcision which is the main method of circumcision in Nyando has few complications associated with it and it's generally safe, it may be interpreted that method of circumcision can be a contributing factor that may be influencing uptake of male circumcision among Luo men in this district alongside other factors.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATION

5.1 Introduction

This chapter summarizes the major findings, conclusions and recommendations of the study on the themes that were discussed in chapter four.

5.2 Summary of findings

From the data analysis, interpretation and discussion in chapter four, the study came up with a number of findings. These findings are discussed below according to their themes.

From the demographic data, it was found out that majority of men (85.2 %) and women (85.5%) had moderate to low level of education. Looking at religion as a demographic characteristic, it was established that more than 80 % of respondents were generally from the Christian community (Catholic and Protestants).

On object one that investigated the extent to which demographic factors influence uptake of male circumcision (MC), the study established that there are certain selected demographic characteristics of male respondents such as age, marital status, and their religion that influenced uptake of male circumcision in Nyando district significantly. However, the level of education of the respondent was not a key determinant of circumcision uptake. For instance, the study found out that male circumcision is generally more popular and acceptable among the young people as compared to the elderly i.e. circumcision preference decreases with increase in age.

On objective two that investigated socio-cultural factors influencing uptake of MC, it was established that culture and tradition are among the socio-cultural factors that negatively influenced uptake of male circumcision (MC) among the Luo community. This was evident when uncircumcised men were asked why they haven't considered circumcision. A good number of them

(74.3 %) said that it's not a Luo culture and that those who were going for it were going against the Luo culture. It was also established that there are certain attitude and perceptions among men and women that can increase uptake of male circumcision especially with reference to their responses when they were asked whether MC should be encouraged among the Luo community. This was evident when majority of them (78.1 % and 87.3 % respectively) responded that male circumcision (MC) should be encouraged among the Luo.

The study also found out that among the forces that motivate men to undergo circumcision, advocacy about benefits of male circumcision by local NGOs was rated the highest, while tradition such as circumcision being a rite of passage from boyhood to manhood was rated the lowest. This implied that to the Luo community, male circumcision (MC) is not a rite of passage from childhood to adulthood as is practiced among many African communities. It was also established that majority (83 %) of the elders disliked male circumcision for their sons saying that it's being imposed on the Luo community by the political elite group of the community. From this finding, the study established further that negative attitude and opinions among the elderly people in the Luo community may be negatively influencing uptake of male circumcision in the district. The study also established that the fear of being discriminated against following these negative attitudes may be a factor that may hinder uptake of male circumcision. This was evident when 45.3 % of the circumcised men admitted being discriminated against at one point or another.

On the third objective that explored the relationship between perceived benefits of male circumcision (MC) and uptake of MC, the study found out that among circumcised men, 84.3 % gave perceived health reasons as the main reason for undergoing male circumcision (MC) while 48.6 % cited perceived sexual benefits. Some of the perceived health benefits that they gave included partially reduction of HIV infection and penile hygiene with 75 % of male and 78.2 % of female respondents admitting that it is true MC does reduce HIV infection. It was also established

that penile hygiene among men could be a health benefit that may be influencing uptake of male circumcision in Nyando district. This is because 76.6 % of male and 89.1 % of female who participated in the study admitted that circumcision enables a man to easily maintain penile cleanliness. The study also found out that 50.8 % men in Nyando district who took part in the study went for MC to enhance their sexual performance and activity. From these findings it can be established that there could be a relationship between perceived benefits of male circumcision and uptake of male circumcision among the Luo community in Nyando district.

One the fourth objective that investigated socio-economic factors influencing uptake of MC, the study established that among the Luo community, socio- economic factors such as social status do not determine ones decision to undergo circumcision. This was evident when 82.8 % of male respondent who took part in the study said that circumcised men were just ordinary people and they were not from a higher social class. This was further confirmed when 88.6 % of circumcised men denied that they considered circumcision due to socio- economic reasons.

The study also established that 95.7 % of circumcisions performed in Nyando district were done in hospital and most participants cited presence of trained personnel, safety and hygiene as some of the reasons for choosing circumcision in a hospital setting. The study also found out that among circumcised men, 92.7 % preferred hospital circumcision and would recommend it to any one because it's done by trained professionals and few complications are expected if any. From this, the study established that fear of complications during and after circumcision could be a factor that may negatively influence uptake of male circumcision in Nyando district.

5.3 Conclusions of the study

From the above findings, the study came up with some conclusions. One, the study concluded that age, marital status, and religion of respondents influenced uptake of male

circumcision significantly in Nyando district. However, it was concluded that level of education of respondents was not a key determinant of the uptake.

Two, the study concluded that socio- cultural factors that influenced uptake of male circumcision include culture and tradition, advocacy about benefits of male circumcision by local NGOs and perceptions and attitude on circumcision among the Luos. From this it was concluded that culture and tradition of the Luo community which does not embrace male circumcision (MC) may be negatively influencing uptake of male circumcision in Nyando. It was also concluded that positive attitude and perceptions about MC among the young people in Nyando district may have lead to increased uptake of male circumcision in the region while negative attitude among the elders may have lead to decreased uptake of the practice. Such negative attitude includes discrimination and stigma. It was also concluded that advocacy about benefits of male circumcision by local NGOs is a strong force that is motivating men to undergo circumcision in Nyando district. The study also concluded that male circumcision among the Luo is not done as a rite of passage as is the case with most traditionally circumcising communities.

Three, the study concluded that there is a significant association between the uptake of male circumcision (MC) and its perceived benefits with many respondents admitting that perceived health benefits such as MC partially reducing HIV infection and improving penile hygiene are major reasons for deciding to undergo or preferring circumcision. Four, the study concluded that male circumcision among the Luo was done by people from all social classes and that it was not done by persons from higher social class as is the case in other parts of the world. Lastly, the study concluded that modern methods (hospital setting) of performing circumcision could be a contributing factor in increased uptake of male circumcision in Nyando district. This was because 95.7 % of circumcised men admitted to deciding to undergo circumcision due to the fact that it was being done in a hospital where there were trained personnel and therefore there could be fewer

complications as opposed to traditional methods which are prone to many complications (WHO, 2007).

5.4 Recommendations of the study

From the findings of the study, it was recommended that more public awareness should be raised on the benefits of male circumcision to the people of Nyando district by other parties such as the government apart from the current advocacy by local NGOs. This will enable more people to be reached so as to ensure increased uptake of male circumcision especially to non- circumcising communities. The study also recommended that NGOs dealing with male circumcision should embrace other factors that influence uptake of male circumcision besides perceived health benefits such as demographic characteristics and socio- cultural factors. It was also recommended that male circumcision should be performed at early stages in life among the Luo community in order to avoid the pain and complications that are usually associated with adult circumcision. Since male circumcision is less popular among elderly people, the study has therefore recommended that the local NGOs dealing with MC should focus more and involve the elderly in their activities of sensitization and raising awareness on the benefits of male circumcision (MC) to this group of people to change their negative opinions about MC and make it easy for their circumcised sons not to feel that they are going against culture.

The study also recommended that a model of male circumcision program should be rolled out in Nyando district. This model should involve a sensitization process in which men who would prefer to undergo circumcision are taken through a vigorous three day training or workshop on the various benefits of male circumcision, importance of follow up services after undergoing circumcision and their behaviour after circumcision. The training should also incorporate informal education such as social responsibility, test of bravery, masculinity, social cohesion and other

circumcision initiation rites that usually accompany any circumcision ritual as is the case in other circumcising communities like the Bukusu community in Kenya. This is to avoid the current way in which Luo men just go to the hospital to get circumcised blindly without learning anything from it.

5.5 Contribution to body of knowledge

From the findings and conclusions above, it was said that the study contributed to the existing body of knowledge. Table 5.1 provides more details about the study's contribution to existing literature.

Table 5.1 Contribution to body of knowledge

Objective	Contribution to body of knowledge
1. To determine the extent to which demographic factors influence uptake of male circumcision among the Luo community in Nyando district.	The study established that age of respondent was significantly associated with uptake of male circumcision. This finding is in line with the results of a study that was conducted in Luo Nyanza that found out that male circumcision (MC) was generally more popular and acceptable among the younger people (Bailey et al, 2002).
2. To investigate the socio-cultural factors that influence uptake of male circumcision among the Luo community in Nyando district.	The study found out that there are certain attitudes and perception among the Luo community in Nyando that may negatively or positively influence uptake of MC depending on whether they are positive or negative. This finding is in agreement with studies that have been done on acceptability of male circumcision among non-circumcising community in Africa that found out that negative opinions hindered acceptability of MC (Weiss et al, 2007).
3. To explore the relationship between perceived benefits of male circumcision and uptake of male circumcision among the Luo community in Nyando district.	The study established that there was a significant relationship between the two variables with majority (84.3 %) of male respondents who were circumcised citing perceived health benefits such as MC partially reducing infection as the main reason for them deciding to undergo circumcision. This finding is similar with those of a study that was conducted in South Africa that indicated that male circumcision has potential of partially reducing HIV infection which encouraged more men to undergo circumcision (Auvert et al, 2006).
4. To examine socio-economic factors that influence uptake of male circumcision among the Luo community in Nyando district.	The study found out that there was no association between socio-economic factors and uptake of MC among the Luo community in Nyando. This was evidenced when 82.8 % of male respondents denied that circumcised men in their community were not persons from higher social classes. This was contrary to a study that was done in Europe that established that male circumcision was most prevalent among members of the higher social class (Coulter et al, 1985).

5.6 Suggestions for further research

The study has further recommended that future studies should focus on the sustainability of uptake of male circumcision in Nyando district. This is because from the findings it was clear that some men went for circumcision only because it was being provided free of charge. Therefore, it would be of interest to know how the intervention can be sustained once the support is withdrawn by the funding organizations.

From the findings of the study, an average number (50.8 %) of circumcised men cited perceived sexual performance and attraction as the main reason for undergoing circumcision and for this reason such men may have more partners. Therefore based on this, the study has also recommended that future studies should look at the risk compensation effect that is sparked by potential for increase in risky behaviours as a result of MC partially reducing HIV infection i.e. will circumcised men feel they are protected and engage in more risky behaviour or will women assume circumcised men are protected and not negotiate condom use.

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APPENDICES

APPENDIX I: Informed Consent form

A study investigating factors influencing uptake of male circumcision (MC) among the Luo community in Nyando district, Kenya.

Emmanuel Ouma[1]
Raphael Nyonje[1]
Samwel Mwanda[1]

[1]University of Nairobi
Department of Extra mural studies- Kisumu Campus

Today's date	.....
Respondent study ID	.....

My name is..... and I am a student at the University of Nairobi, Department of extra- mural studies, Kisumu, campus, pursuing a master of arts in project planning and management. I am conducting a study to determine factors influencing uptake of male circumcision in your community.

If you agree to take part in this study, I will ask you questions about your perception about male circumcision. Participation in this study is completely voluntary. Whatever information you provide will be kept strictly confidential and will not be shown to any unauthorized person(s).Your name will not be used on any study reports. Participating in this study will take approximately 20 minutes. I would very much appreciate your participation in this study.

This study is a social science and therefore it is not associated with any pain (such as those associated with sample donation) what so ever. There may be certain sensitive questions that may be asked. However, the questions have been structured in such a careful format that makes this possibility very unlikely and as well if you don't like any question you are free not to respond or withdraw from the study any time you want.

You and your community will benefits from the facts and results from this study as it will provide information about the perceptions about male circumcision and factors that have influenced

uptake of MC among the Luo community. The study to be undertaken will also be used for academic purposes.

If you have any questions about this study, you can contact Dr. Raphael Nyonje (call 0722 982964) or Dr. Samwel Mwanda (call 0722 751208) or if you want to talk about this study with someone who is not part of this research project, please contact the resident lecturer, University of Nairobi, Kisumu campus P.O.BOX 31970
Kisumu; Tel...0721 276663...

Before I begin the interview, I need to ask you the following question:-

1. Have you been continuously living in the Nyando district for the past 12 months?

Yes □

No □

2. What tribe do you belong to?

3. Are both of your parents' Luo?

Yes □

No □ (specify)_____

Today's study: The consent form has been explained to me and I agree to take part in the study. I understand that I am free to choose for myself to be in this study and that saying "NO" will have no effect on me whatsoever.	If you agree, circle "YES" YES

Signature..... Date.....

If unable to write, please indicate consent with fingerprint

QUESTIONNAIRE AND INTERVIEW SCHEDULES

APPENDIX II: QUESTIONNAIRE FOR MEN AGED BETWEEN 15-49 YRS

Section 1: Background information

1. What is your age?
   15-19 yrs [ ] 20-24 yrs [ ] 25-29 yrs [ ] 30-34 yrs [ ] 35-39 yr [ ] 40-44yrs [ ]
   45-49yrs [ ]

2. What is your marital status?
   Married [ ] Single [ ] Divorced [ ] Separated [ ]

3. What is your level of education?
   Primary [ ] Secondary [ ] Tertiary college [ ]
   University [ ] None [ ]

4. What is your occupation?
   Farmer [ ] Boda boda [ ] Teacher [ ] Small scale business [ ]
   Other (*specify*) _____

5. What is your religious affiliation?
   Catholic [ ] Protestant [ ] Muslims [ ] Other (*specify*) _____

Section 2: Circumcision status

8. What is your circumcision status?
   Circumcised [ ] Not circumcised [ ] (If not circumcised ask questions 9 to 11)

9. Why haven't you considered circumcision?
   Not a Luo culture [ ] Painful [ ] Still thinking about it [ ]
   Any other (specify_____

10. How do you consider circumcised men?
    Going against tradition [ ] Modern way of life [ ] Show off [ ]
    Not Normal [ ] Good practice [ ] Any other (specify)_____

11. Should male circumcision (MC) be encouraged among the Luo?
    Yes [ ] No [ ] Give reasons to your answer_____
    _____

12. In your own opinion, do you think women are the ones pushing men to undergo circumcision?
    Yes [ ] No [ ] Don't Know [ ]
    Give reasons to your answer_____

13. Kindly rate the forces that motivate men to go for circumcision (rate in order of priority (1) being high priority and (6) being low priority i.e 1= Highest, 2=High, 3= Moderate, 4= Low, 5= Lower & 6= Lowest)

Tradition [ ] To be appreciated by women [ ] Advocacy about MC [ ] Political pressure [ ] Transition from boyhood to manhood [ ] To belong to social class (status) [ ]

To be answered by men who are circumcised

14. When were you circumcised?

Less than 3 month [ ] Less than 6 months [ ] 1 yrs ago [ ] 1-2 yrs ago [ ]
2- 4ys ago [ ] More than 5 [ ]

15. What reasons made you to decide to get circumcised? (the respondent should only tick the one(s) that are appropriate to him)

Religious reasons [ ] Ethnic reasons [ ] Perceived health benefits [ ]
Social reasons [ ] Perceived sexual benefits [ ] Socio-economic reasons [ ]
Other (*specify*) _____

16. Where were you circumcised?

Hospital setting [ ] Traditional setting [ ]

17. Who performed the circumcision?

Trained personnel [ ] Untrained personnel [ ]

18. Did you like the way the circumcision was performed?

Yes [ ] No [ ]
Give reasons to your answer (whether yes or no) _____

19. Where would you recommend someone to be circumcised?

Hospital setting [ ] Traditional setting [ ] (If hospital setting, ask No. 20 otherwise, skip it)

20. What reasons can make you recommend male circumcision to another person to be circumcised in hospital setting? (the participant can pick more than one reason)

Reduced pain [ ]
Using of anaesthesia during circumcision to suppress pain [ ]
Little bleeding [ ]
Dressing or bandaging after circumcision [ ]
Follow up to assess healing progress [ ]
To be appreciated by their spouse [ ]
Other specify_____

21. How long did you take to heal following circumcision?

6 weeks [ ] 1 month [ ] 2- 4 months [ ] 5- 6 months [ ]
More than 6 months [ ]

22. What reasons do you attribute to the duration in healing?_____

23. Did you experience any complication during or after performance of male circumcision?
Pain [ ] Swelling [ ] Wound infection [ ] Anaesthesia-related events [ ]
Delayed wound healing [ ] Problems with urination [ ] Problems with appearance [ ]
Erectile dysfunction [ ]

Perceptions about factors influencing uptake of MC

24. Did your female partner like your circumcision status?
Yes [ ] No [ ] N/A [ ]
Give reasons to your answer (whether yes or no) _____

25. Did your family member (father, mother, brothers, sister etc) like your decision to undergo circumcision?
Yes [ ] No [ ] N/A [ ]
Give reasons to your answer_____

26. How were you perceived by the elders in your community following circumcision?
Liked it [ ] , Disliked it [ ] Didn't care [ ] Other (specify) _____
Give reasons to your answer_____

27. In your opinion, do you think the Luo community supports male circumcision?
Yes [ ] No [ ]
Give reasons to your answer_____

28. Did your social status in the community change as a result of undergoing circumcision?
Yes [ ] No [ ] Don't Know [ ]
Explain your answer if yes_____

29. Are the following statement about circumcision True or false?
(i) Circumcised men ar e likely to have more partners.
›True [ ] False [ ] Don't Know [ ]

(ii) When circumcised, one becomes a respected man.
True [ ] False [ ] Don't Know [ ]

(iii) Circumcision is a rite of passage from boyhood to manhood among the Luo
True [ ] False [ ] Don't Know [ ]

(iv)MC offers partial protection against HIV infection
True [ ] False [ ] Don't Know [ ]

(v) Advocacy about MC by NGOs dealing has influenced uptake of MC in your community

True [ ] False [ ] Don't Know [ ]

(vi)Male circumcision enhances sexual activity and performance

True [ ] False [ ] Don't Know [ ]

(vii) Circumcised men are able to maintain penile hygiene
True [ ] False [ ] Don't Know [ ]

(vii) Most circumcised men are people from higher social class
True [ ] False [ ] Don't Know [ ]

30. Have you ever been stigmatized or discriminated against in any way because of your circumcision status?
Yes [ ] No [ ] (if yes give an explanation for your answer_____

31. If yes in Q, 30 above how did you cope with this situation? (Otherwise, skip if No),
_____

32. With your new circumcision status, do you find it easy to mingle with your peers who are not currently circumcised as compared to pre- circumcision period? (to be answered by circumcised men)
Yes [ ] , No [ ] (if yes or no ask him to explain)
_____
_____

33. How did the members of other tribes that are known to circumcise their men (like luhya, Kisii, Kalenjin e.t.c) perceive you? (to be answered by circumcised men)
Positive [ ] Negative [ ] Didn't care [ ]
_____

34. What is your opinion on the following statements?

(i) Recent uptake of circumcision is due to advocacy and will soon be rejected by the Luo community
Yes [ ] No [ ]
Give reasons for your answer_____

(ii) More men will continue to be circumcised since women are asking men to do so
Yes [ ] No [ ]
Give reasons for your answer_____

(iii) Increased uptake of circumcision will dilute the Luo culture
Yes [ ] No [ ]
Give reasons for your answer_____

35. The Luo people had their own method of initiating me into adulthood ; what do you recommend to be done so that circumcision can be embraced by the Luo people as part of their culture?
_____
_____

APPENDIX III: INTERVIEW SCHEDULE FOR WOMEN

Section 1: Background information

1. What is your age? _____

2. What is your marital status? _____

3. What is your level of education? _____

4. What is your occupation? _____

5. What is your religious affiliation? _____

Section 2 Circumcision and Sexuality

8. Would you prefer for your partner to be circumcised? Give reason(s) to your answer. Yes [ ]
No [ ] Give reasons to your answer_____
_____
_____

9. Where would you prefer your partner or son to be circumcised? In each case the respondent should explain his answer.
Hospital setting [ ] Traditional setting [ ] Give reasons to your answer_____
_____
_____

10. What is the age that you would prefer circumcision for your son? Explain.
Less than 6 months [ ] 6-12 months [ ] 1- 2 yrs [ ] 5yrs [ ] More 5 yrs [ ]
Give reasons for answer_____
_____

11. How do you perceive circumcised men in your community? Explain.
Liked it [ ] Disliked it [ ] Didn't care [ ] Other (specify) _____
Give reasons to your answer_____

12. Does circumcision change the social status of a circumcised man in your community?
Yes [ ] No [ ] Don't Know [ ]
Give reasons to your answer _____
_____

13. Should male circumcision (MC) be encouraged among the Luo community? Yes [ ] No [ ]
Give reasons to your answer_____
_____

14. In your own opinion,
Does circumcision enhance a man's sexual activity or performance?

Yes [ ] No [ ] Don't Know [ ] (give an explanation for your answer) _____

_____

Circumcised men are likely to have more sexual partners

Yes [ ] No [ ] Don't Know [ ] (give an explanation for your answer)_____

_____

It is easy for circumcised men to maintain cleanliness

Yes [ ] No [ ] Don't Know [ ] (give an explanation for your answer) _____

_____

MC offer partial protection against HIV infection

Yes [ ] No [ ] Don't Know [ ] (give an explanation for your answer)

_____

_____

15. What is your opinion on the following statements?

(i) Recent uptake of circumcision is due to advocacy and will soon be rejected by the Luo community

_____

_____

(ii) More men will continue to be circumcised since women are asking men to do so_____

_____

(iii) Increased uptake of circumcision will dilute the Luo culture

_____

_____

16. The Luo people had their own method of initiating me into adulthood ; what do you recommend to be done so that circumcision can be embraced by the Luo people as part of their culture?

_____

_____

_____

APPENDIX IV: INTERVIEW SCHEDULE FOR THE ELDERLY PEOPLE

Section 1: Background information

1. What is your age? _____

2. What is your level of education? _____

3. What is your occupation? _____

4. What is your religious affiliation? _____

Section 2: Perceptions about factors influencing uptake of MC

1. Is there any history of male circumcision associated with the Luo community? Explain your answer. Yes [ ] No [ ] Give reasons to your answer_____
_____
_____

2. What other rites are the Luos known to traditionally practice?
_____
_____

3. Would you prefer for your son to be circumcised? If yes, go to question 4. If the respondent's answer is no, ask the respondent to explain why and skip to 6.
Yes [ ] No [ ] Give reasons to your answer _____
_____

4. Any reason why you would prefer your son to be circumcised?
_____
_____

5. Where would you prefer your son to be circumcised in? Give reasons for your answer.
_____
_____

6. How do you perceive men who are circumcised in your community?
Liked it [ ] Disliked it [ ] Didn't care [ ] Other (specify) Give reason you're your answer_____
_____

7. Do you find it easy or difficult to interact with circumcised men in your community?
Yes [ ] No [ ] Give reasons to your answer _____
_____

8. Does male circumcision has certain benefit associated to it? If the respondent knows any benefits, he should give reason to his answer.

Yes [ ] No [ ] Don't Know [ ] Give reasons to your answer

_____

_____

9. Should male circumcision be encouraged or embraced in the luo community?

Yes [ ] No [ ] Give reasons to your answer.

_____

_____

10. Does circumcision change the social status of circumcised men in your community?

Yes [ ] No [ ] Don't Know [ ] Give reasons to your answer_____

_____

11. Does male circumcision offer partial protection against HIV infection?

Yes [ ] No [ ] Don't Know [ ] Give reasons to your answer_____

_____

12. What factors do you think are influencing uptake of male circumcision (MC) in your community?

The fact that it is freely offered by local NGO [ ] the fact that the MC services has been brought closer to the people [ ] Increased advocacy about MC [ ] Other_____

_____

13. What is your opinion on the following statements?

(i) Recent uptake of circumcision is due to advocacy and will soon be rejected by the Luo community

Yes [ ] No [ ] Don't Know [ ] Give reasons to your answer_____

_____

(ii) More men will continue to be circumcised since women are asking men to do so

Yes [ ] No [ ] Don't Know [ ] Give reasons to your answer_____

_____

(iii) Increased uptake of circumcision will dilute the Luo culture

Yes [ ] No [ ] Don't Know [ ] Give reasons to your answer _____

_____

14. The Luo people had their own method of initiating me into adulthood ; what do you recommend to be done so that circumcision can be embraced by the Luo people as part of their culture?_____

APPENDIX V: INTERVIEW SCHEDULE FOR THE MC PROVIDER, MOBILIZERS & REPRESENTATIVE FROM THE LOCAL NGOs DEA LING MC

Section 1: Background information

1. How old are you? _____

2. Which organization are you working for? _____

Section 2: Performance of male circumcision and factors influencing uptake of MC

1. Are you a trained person in performing MC? (Ignore this question if respondent doesn't perform MC) If yes above, ask 2 to 5, otherwise ignore
   Yes [ ] No [ ]

2. Where did you get your training on performing male circumcision?
_____

3. During circumcision, do you use anaesthesia?
   Yes [ ] No [ ]

4. Do you bandage your clients after circumcision? Yes [ ] No [ ]

5. Do you provide monitoring services/ follow- up exercises to your clients after circumcision?
   Yes [ ] No [ ]

6. If yes to 6 above, ask what follow-up services do you provide? (Otherwise ignore)
_____
_____

7. Why do you think some circumcised men have complications after circumcision?
_____
_____

8. What do you think should be done to avoid these complications?
_____
_____

9. Has any of your clients complained to you of being discriminated against by any member of the community?
   Yes [ ] No [ ] If yes ask him /her to expound _____
_____

10. If yes to 9 above, ask how did you help your client cope with this situation?
_____
_____

11. Are you aware that MC does not offer full protection against HIV infection?

Yes [ ] No [ ] Don't Know [ ]

12. If yes to 2 above ask, do you make this information very clear to your clients?
Yes [ ] No [ ] Give reasons to your answer _____
_____
_____

13. If yes, what safer sex practices and behaviour change do you encourage the men you have circumcised to do? _____
_____
_____

14. Apart from your campaign of perceived benefit of MC reducing partially reducing HIV infection, do you have any other reason for encouraging men in non-circumcising communities like the Luo to undergo MC? _____
_____
_____

15. Do you think policies on integration of MC to non- circumcising communities as a HIV prevention strategy is influencing uptake of MC among the Luo community?
_____
_____

16. What other factors do you think influence uptake of MC in Nyando district?
_____
_____

17. Now that the Luo community is increasing uptake of MC, what do you suggest should be done to incorporate it as one of their tradition?
_____
_____
_____

REPUBLIC OF KENYA

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Date: 19th April, 2010

Mr. Emmanuel Ouma Griffins
University of Nairobi
P. O. Box 30197
NAIROBI

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on ***"Factors influencing uptake of male circumcision among the Luo Community in Nyando District, Kenya"*** I am pleased to inform you that you have been authorized to undertake your research in *Nyando District* for a period ending *31st May, 2010.*

You are advised to report to **the District Commissioner, Nyando District and the District Education Officer, Nyando District** before embarking on your research project.

Upon completion of your research project, you are expected to submit two copies of your research report/thesis to our office.

P. N. NYAKUNDI
FOR: SECRETARY/CEO

Copy to:

The District Commissioner
Nyando District

PAGE 2

THIS IS TO CERTIFY THAT:

Prof./Dr./Mr./Mrs./Miss EMMANUEL OUMA GRIFFINS

of (Address) UNIVERSITY OF NAIROBI P.O. BOX 30197 NBI

has been permitted to conduct research in

.....**Location,**

NYANDO **District,**

NYANZA **Province,**

on the topic FACTORS INFLUENCING UPTAKE OF MALE CIRUMCISION AMONG THE LUO COMMUNITY IN NYANDO DISTRICT, KENYA.

for a period ending 31ST MAY **20** 10

PAGE 3

Research Permit No. NCST/RRI/12/1/SS/2

Date of issue 19/04/2010

Fee received SHS 1,000

Applicant's Signature

Secretary National Council for Science and Technology

APPENDIX VI

NYANDO DISTRICT POPULATION AND HOUSEHOLD BY KNBS

	Male	PROJECT 2006	PROJECT 2007	Female	PROJECT 2006	PROJECT 2007	Total	PROJECT	TOTALS 07	Households (2007)	Area in SqKms	Density
NYANDO	**30,571**	**36,265**	**37,498**	**33,940**	**40,262**	**41,631**	**64,511**	**76,527**	**79,129**	**14,029**	**249**	**259**
Locations			0			0			0			
Awasi	6,931	**8,222**	**8,502**	8,310	**9,858**	**10,193**	15,241	**18,080**	**18,695**	3,144	70	217
Ayucha	1,550	**1,839**	**1,901**	2,251	**2,670**	**2,761**	3,801	**4,509**	**4,662**	719	8	507
Border I	1,893	**2,246**	**2,322**	2,309	**2,739**	**2,832**	4,202	**4,985**	**5,154**	1,012	24	177
Border II	2,443	**2,898**	**2,997**	2,634	**3,125**	**3,231**	5,077	**6,023**	**6,227**	898	18	276
Wanganga	1,045	**1,240**	**1,282**	1,116	**1,324**	**1,369**	2,161	**2,564**	**2,651**	515	21	105
		0	0		0	0		0	0			
Kakola	8,858	**10,508**	**10,865**	9,776	**11,597**	**11,991**	18,634	**22,105**	**22,857**	4,273	23	800
Kakola-ahero	4,212	**4,997**	**5,166**	4,614	**5,473**	**5,660**	8,826	**10,470**	**10,826**	2,174	10	865
Kakola-ombaka	1,326	**1,573**	**1,626**	1,520	**1,803**	**1,864**	2,846	**3,376**	**3,491**	642	6	459
Tura	3,320	**3,938**	**4,072**	3,642	**4,320**	**4,467**	6,962	**8,259**	**8,540**	1,457	7	1,009
			0			0			0			
Kikolo/E.Kano	3,361	**3,987**	**4,123**	3,309	**3,925**	**4,059**	6,670	**7,912**	**8,181**	1,483	49	137
Achego	1,002	**1,189**	**1,229**	1,065	**1,263**	**1,306**	2,067	**2,452**	**2,535**	527	9	225
Katolo	2,359	**2,798**	**2,894**	2,244	**2,662**	**2,752**	4,603	**5,460**	**5,646**	956	40	116
			0			0			0			
Kochogo	3,850	**4,567**	**4,722**	4,020	**4,769**	**4,931**	7,870	**9,336**	**9,653**	1,636	18	440
Kochogo C	581	**689**	**713**	621	**737**	**762**	1,202	**1,426**	**1,474**	265	1	859
Kochogo North	1,746	**2,071**	**2,142**	1,957	**2,322**	**2,400**	3,703	**4,393**	**4,542**	735	7	514
Kochogo South	1,523	**1,807**	**1,868**	1,442	**1,711**	**1,769**	2,965	**3,517**	**3,637**	636	9	319
			0			0			0			
Onjiko	3,960	**4,698**	**4,857**	4,522	**5,364**	**5,547**	8,482	**10,062**	**10,404**	1,835	36	234
Kakmie	2,179	**2,585**	**2,673**	2,579	**3,059**	**3,163**	4,758	**5,644**	**5,836**	1,026	24	198
Kabongo	1,781	**2,113**	**2,185**	1,943	**2,305**	**2,383**	3,724	**4,418**	**4,568**	809	12	303
			0			0			0			
Wawidhi	3,611	**4,284**	**4,429**	4,003	**4,749**	**4,910**	7,614	**9,032**	**9,339**	1,658	53	144
Ayweyo	1,997	**2,369**	**2,450**	2,162	**2,565**	**2,652**	4,159	**4,934**	**5,101**	893	33	126
Magina	1,072	**1,272**	**1,315**	1,184	**1,405**	**1,452**	2,256	**2,676**	**2,767**	444	10	235
Nyakongo	542	**643**	**665**	657	**779**	**806**	1,199	**1,422**	**1,471**	321	10	116
			0			0			0			