MALE CIRCUMCISION AS AN HIV REDUCTION STRATEGY: IMPLICATIONS FOR MEN AND WOMEN IN ZIMBABWE

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MALE CIRCUMCISION AS AN HIV REDUCTION STRATEGY: IMPLICATIONS FOR MEN AND WOMEN IN ZIMBABWE

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By

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COLLEGE OF HUMANITIES

DECLARATION-PLAGIARISM

I Antony Chikutsa declare that:

1. The research reported in this thesis, except where otherwise indicated, is my original research.

2. This thesis has not been submitted for any degree or examination at any other university.

3. This thesis does not contain other persons' data, pictures, graphs or other information, unless specifically acknowledged as being sourced from other persons.

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Signed

26 SEPTEMBER 2016

ANTONY CHIKUTSA **DATE**

DEDICATION

To you whose name may never be mentioned
And whose face may forever remain a shadow
I dedicate this as an acknowledgement
That I know you were there with me

You will not be there when they call out my name
To bestow on me a new title
And even add new abbreviations to my name
Yet I know you were there with me

I may not mention your name when I receive the honours
Neither will those that will cheer for my success
But always know this in your heart
That I know you were there for me

I know you will not be there on that day
And I will not look for your face in the crowd
Yet I will always know in my heart
That you were there with me

(c) A. Chikutsa

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To my parents and siblings,

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ABSTRACT

Male circumcision is not a common practice in Zimbabwe except among a few ethnic groups who circumcise as a rite of passage or for religious reasons. Recent scientific research has shown evidence that male circumcision is efficacious in preventing the transmission of HIV from women to men. In response to this, Zimbabwe introduced voluntary medical male circumcision as an additional HIV prevention strategy in 2009. Prior to this, HIV prevention strategies in Zimbabwe focused on the promotion of abstinence, faithfulness and correct and consistent condom use, popularly known as the ABC approach. The purpose of this study was to evaluate the acceptability of medical male circumcision as an additional approach to preventing the acquisition of HIV. The study also intended to understand the factors which may influence the uptake of medical male circumcision for HIV reduction. In addition, the study also sought to find out the role of women in the promotion of circumcision and the implications on men's sexual behaviour.

The study adopted a mixed methods approach using the convergent parallel design in which both qualitative and quantitative data were collected simultaneously and were then merged during analysis and interpretation. A sample of 681 respondents was determined using a statistical formula and selected using random sampling. One hundred and eighty two female respondents were included in the sample because it was felt that women have a significant role to play in the promotion of medical male circumcision. Thus, it was felt important to assess their knowledge, attitudes and beliefs about circumcision in the study. In addition to the 681 individual interviews, five key informants drawn from the Ministry of Health and Child Care and other stakeholders were interviewed. Furthermore, five focus group discussions were also done to complement the data collected using individual and key informant interviews. Participants in focus group discussions were aged between 18 and 49 years.

The prevalence of male circumcision among men in the study sample was found to be 15.8 percent. Of these, 40 percent were circumcised as part of the on-going HIV prevention campaign while 33 percent were circumcised for religious or cultural reasons. A further 12 percent were circumcised for medical reasons. The study also established that about 97 percent of both men and women had heard about male circumcision for HIV prevention. The findings show that men were generally more knowledgeable about voluntary medical male circumcision than women. Also, circumcised men had significantly better understanding of

circumcision than uncircumcised men. Fifty-seven percent of men compared to 54 percent of women reported that they believe that circumcision works for HIV prevention.

The study also established that there is general acceptability of the promotion of medical male circumcision for HIV prevention (76 percent for men and 84 percent for women). However, 43 percent of uncircumcised men reported that they are willing to get circumcised for HIV reduction. On risky behaviour after circumcision, 84 percent of respondents reported that they are willing to abstain for 6 weeks to allow complete healing of the wound while 75 percent reported willingness to use condoms after getting circumcised.

The study concluded that knowledge and acceptability about medical male circumcision are generally high. The study also concluded that the level of willingness to get circumcised is not corresponding to the levels of knowledge and acceptability. The study attributed this gap to the embedded fear and uncertainties that people have about circumcision. The study thus recommends that there is a need to continue with promotional campaigns that target increasing knowledge in the population. There is also a need to design specific campaigns that target women in order to address the knowledge gap between men and women.

TABLE OF CONTENTS

LIST OF FIGURES

Figure **Page**

LIST OF TABLES

Table **Page**

PUBLICATIONS

Chikutsa, A., & Maharaj, P. (2015).Social representations of male circumcision as prophylaxis against HIV/AIDS in Zimbabwe. *BMC Public Health*, *15*(1), 603.DOI:http://dx.doi.org/10.1186/s12889-015-1967-z

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LIST OF ABBREVIATIONS

ABC	Abstinence, Be faithful, Consistent condom use
ART	Anti-Retroviral Therapy
ARVs	Anti-Retroviral drugs
CSO	Central Statistical Office
EFZ	Evangelical Fellowship of Zimbabwe
FGM	Female Genital Mutilation
HBM	Health Belief Model
HIV	Human Immunodeficiency Virus
MMC	Medical Male Circumcision
MOHCW	Ministry of Health and Child Welfare
MOHCC	Ministry of Health and Child Care (formerly MOHCW)
NAC	National AIDS Council of Zimbabwe
PEPFAR	The United States President's Emergency Plan for AIDS Relief
PMTCT	Prevention of Mother to Child Transmission of HIV
PSI	Population Services International
RCTs	Randomised Controlled Trials
UNAIDS	Joint United Nations Programme on HIV/AIDS
USAID	United States Agency for International Development
VMMC	Voluntary Medical Male Circumcision
WHO	World Health Organisation
ZCC	Zimbabwe Council of Churches
ZDHS	Zimbabwe Demographic and Health Survey
ZIMSTAT	Zimbabwe National Statistics Agency
ZINATHA	Zimbabwe National Traditional Healers Association

CHAPTER ONE: INTRODUCTION

1.1 Introduction

The promotion of voluntary medical male circumcision (VMMC) as prophylaxis is not new. In 19th century medicine, male circumcision was believed to cure a wide range of ailments including alcoholism, masturbation, and orthopaedic problems among others (Miller, 2002). While many of these claims were subsequently dismissed, medical male circumcision remained a routine procedure in countries such as the United States of America, Britain, Canada and Australia. In recent years, medical male circumcision has been linked to diminished chances of getting urinary tract infections, sexually transmitted infections, and HIV. Studies carried out in South Africa, Uganda and Kenya show that medical male circumcision reduces the chance of getting infected by HIV for men (see Auvert et al., 2005; Gray et al., 2007; and Bailey et al., 2007). These findings were followed by studies which examined the acceptability of male circumcision for HIV prevention in communities that do not practice traditional male circumcision. Acceptability studies have been carried out in many African countries including Tanzania (see Wambura et al., 2011), South Africa (see Scott, Weiss and Viljoen, 2005), Kenya (see Herman-Roloff et al., 2011), and in Zimbabwe (see Halperin et al., 2005; Mavhu et al., 2011). These studies seem to suggest that acceptability of male circumcision is relatively good in areas that do not traditionally circumcise.

In 2009, Zimbabwe adopted medical male circumcision as an additional HIV prevention strategy following the findings of the randomised controlled trials (RCTs) in South Africa and Uganda and predictions by mathematical models which estimated that the country would avert 750 000 adult HIV infections between 2009 and 2025 if 1.1 million males are circumcised by

2012. It was also estimated that up-scaling male circumcision to about 80 percent of the male population would result in net savings of USD3.8 billion (USAID, 2009). However, only 11.2 percent of the male population is currently circumcised (ZIMSTAT, 2015). While mathematical models predicted a great impact of voluntary medical male circumcision on HIV infection rates and acceptability studies showed strong support for the roll-out of MC, little is known about the meanings that people attach to circumcision and the implications of rolling out VMMC for HIV prevention. There is thus an urgent need to interrogate the socio-cultural dynamics underlying the adoption of male circumcision as an HIV prevention strategy and its subsequent uptake.

1.2 Defining male circumcision

In a recent study by Hewett et al. (2012) in Zambia and Swaziland, it was established that there is over-reporting of male circumcision as a result of varying understanding of the concept. The findings by Hewett et al. (2012) are not surprising given the controversy surrounding the definition and classification of male circumcision. A study by Niang and Boiro (2007) in West Africa noted that among most of the ethnic groups they studied, male circumcision means removal of the whole foreskin of the penis except among the Balante of Senegal who distinguishes between “small circumcision” and “large circumcision”. Small circumcision among the Balante refers to an incision made on the foreskin in preparation for the full circumcision. A study by Brown et al. (2001) in Kenya concluded that there is no universal definition of male circumcision.

In defining male circumcision, some scholars have sought to distinguish medical and traditional male circumcision. A common characteristic of the two is that both involve the removal of all or part of the foreskin. However, in traditional male circumcision, not only are foreskins removed, but this is also accompanied by religious or customary rituals which vary from one culture to another. All circumcisions done in modern medical settings for therapeutic or non-therapeutic purposes are generally classified as medical (Gollaher, 1994). Medical non-therapeutic male circumcision is practiced in many western countries at birth, particularly in the United States, Britain and Canada. Traditional circumcision on the other hand is done under varied but non-clinical settings depending on the socio-cultural and religious customs of the ethnic group performing the surgery. Most circumcisions in 'traditional' settings are done without anaesthesia (Gollaher, 2000). Another clear distinction between medical and traditional circumcision is that the latter is done as a rite of passage from childhood to adulthood. Traditional male circumcision is at times associated with many complications due to the non-hygienic settings under which the surgery is done (WHO and UNAIDS, 2007) and the inexperience of the service providers (Weiss et al., 2010).The major complications that have been associated with traditional male circumcision include severe haemorrhage, gangrene of the penis, penile amputations, torture and assault resulting in severe injuries, disabilities and even death (Peltzer, Nqeketo, Petros and Kanta, 2008). Some of these complications may lead to death or amputation of the penis depending on the degree of harm. There are several ethnic groups around the world that still practise traditional circumcisions as a rite of passage for example the Xhosa of South Africa, the Balante of Senegal and the Aborigines of Australia.

1.3 Classification of male circumcision

Male circumcision is classified according to several dimensions. It has been grouped depending on the age of those being circumcised, the setting under which the surgery is done, and recently there have attempts to classify it in terms of the amount of skin removed. The following types are most common:

Classification by age of circumcision

Neonatal circumcision- this is circumcision done at an early age. Among Jews, for example, circumcision is done on the eighth day after birth. Neonatal circumcision is most prevalent in Jewish communities and in the United States of America (Gollaher, 1994; Abu-Sahlieh, 2001).

Adolescent/Adult circumcision- adolescent or adult male circumcision is done at adolescence or early adulthood. Socio-cultural and religious customs determine the age or age group within which circumcision can be done. Among the Xhosa, the aborigines and many other ethnic groups for example, circumcision is done at puberty in preparation for adulthood (see Vincent, 2008; Lawlor, 1991).

Classification by indication/setting of surgery

Medical circumcision- all circumcisions done in modern medical settings are put in this category irrespective of the age category of the person being circumcised. In the past, some medical circumcisions were done without anaesthesia but that has changed significantly with the changing perceptions of pain in medical circles (Gollaher, 1994).

Traditional circumcision- traditional circumcision is done under varied but non-clinical settings depending on the socio-cultural and religious customs of the ethnic group performing the surgery. Most circumcisions done in 'traditional' settings are without anaesthesia. Another

clear distinction between medical and traditional circumcision is that the latter is done as a rite of passage from childhood to adulthood. Traditional male circumcision is associated with many complications due to the non-hygienic settings under which the surgery is done (WHO and UNAIDS, 2007). Some of these complications may lead to death or amputation of the penis depending on the degree of harm.

Classification by type of surgery

This category is not really a separate grouping from those given above but rather represents attempts by scholars to separate male circumcision by the amount of skin removed or by the perceived severity of the surgery. One such attempt was made by Abu-Sahlieh (2001) who identified four main types of male circumcision as follows:

Type 1- this type consists of cutting away a part or the whole of the foreskin of the penis.

Type 2- this type of circumcision is practiced mainly by Jews and it involves removal of the foreskin in two stages. Firstly, the outer skin is cut exposing the inner membrane which is then removed by the sharpened fingernails of the person performing the procedure.

Type 3- in this type, the skin of the penis is completely peeled. This peeling may sometimes include the skin covering the scrotum and the pubis. This is a rare type of circumcision and according to Abu-Sahlieh (2001) it existed among some tribes of South Arabia and among the Namshi of Africa.

Type 4- this is a rare type of circumcision practiced among some groups of the Aborigines in Australia. The urinary tube is cut open from the scrotum to the glands so that the opening resembles the female vagina.

In Papua New Guinea, Hill et al. (2011) studied the types of circumcision and came up with the following typology:

Category 1: circumcision

Category 2: variants of longitudinal incisions of the foreskin

(1) Dorsal slit incision

(2) Variants of the dorsal slit

(a) Classic V cut (or classic dorsal slit)

(b) Alternative dorsal procedures

(c) Incomplete V cut (or incomplete dorsal slit)

(3) Multiple longitudinal incisions of foreskin

(4) 'Cowboy' cut

Category 3: incisions that result in no loss of foreskin or change in the profile of the skin

(1) Superficial incisions of foreskin

(2) Urethral incisions

In Kenya, Brown et al. (2001) classified the observed circumcisions into three categories. In the first category, approximately four centimetres of the foreskin is cut off. In the second category, about a centimetre or two of the foreskin are cut and some of the inner surface is removed. Circumcisions in the first two categories result in generally the same physical appearance. The last category is similar to category two except that the remaining foreskin is cut open and left suspended below the shaft of the penis.

1.4 Prevalence of male circumcision

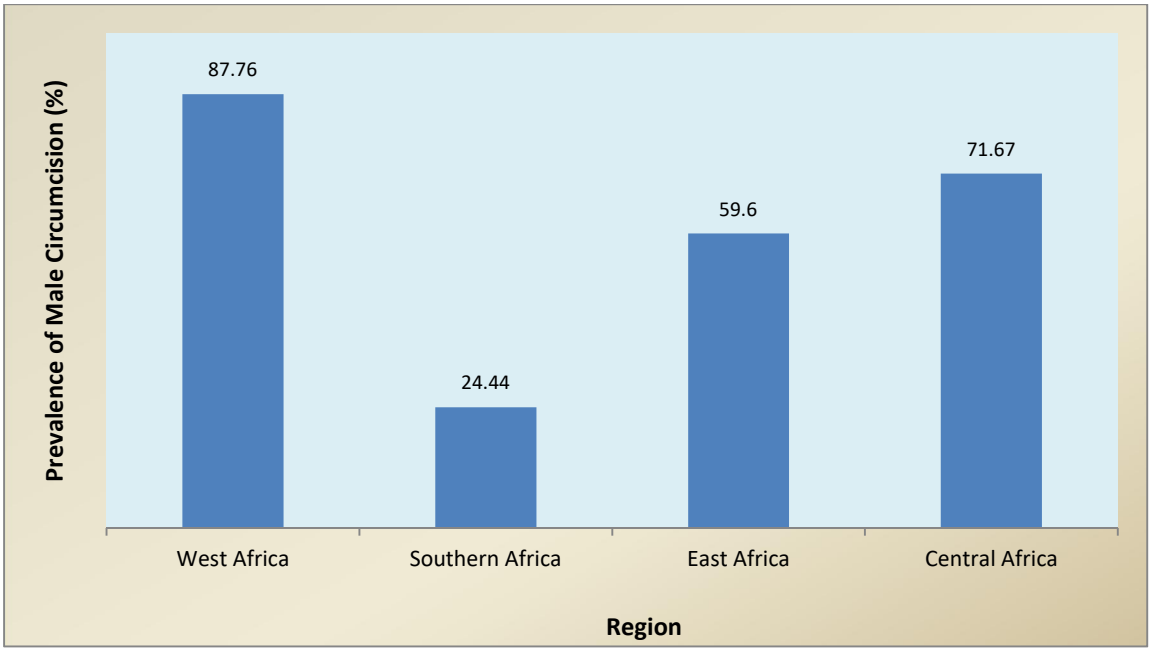
The actual prevalence of male circumcision is difficult to estimate owing to several factors. Firstly, the available data is several decades old and secondly, no studies to date have been carried out with the main objective of determining the prevalence of male circumcision (Williams et al., 2006). Williams et al. (2006) further note that some of the studies that attempted to capture prevalence tended to rely on self-reported circumcision and this may overestimate the actual rates. Despite this gap, researchers have relied on Demographic and Health Surveys for data on the prevalence of male circumcision.

Globally, the World Health Organisation and UNAIDS (2007) estimate that 30 percent of all males aged 15 years and above are circumcised. More than 69 percent of these are Jews and Muslims. They further note that neonatal circumcision is most common in the United States of America, Canada, Israel, West Africa and much of the Middle East while in East and Southern Africa most circumcisions take place in boyhood, adolescence or early adulthood. The WHO/UNAIDS report cite several factors that influence the geographical and spatial distribution of male circumcision and these include religion, ethnicity and social factors such as the desire to conform, socio-economic status and the perceived health and sexual benefits of circumcision.

The prevalence of male circumcision in much of Africa is well above 80 percent, particularly in North and West Africa. Parts of Central and Southern Africa have a prevalence between 20 and 80 percent. Within Southern Africa, Namibia, Botswana, Zimbabwe, Zambia and Malawi have prevalence less than 20 percent. Williams et al. (2006) computed prevalence for several African countries based on different sources of data. These estimates were taken by region and

a regional average was computed. The male circumcision prevalence based on the study by Williams et al. (2006) are shown in Figure 1.1.

Figure 1.1: Male circumcision prevalence in Africa by Region

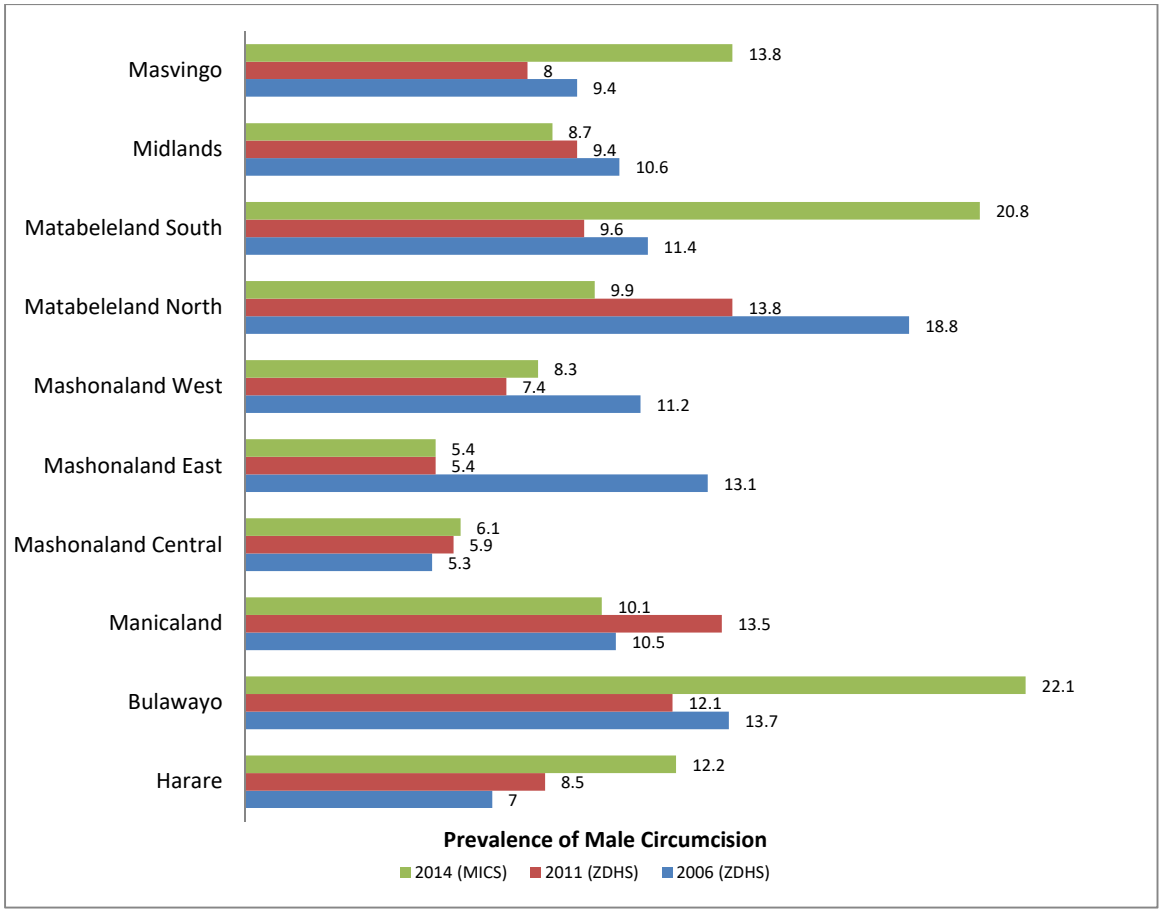


Source: Computed from Table 1 in Williams et al. (2006)

In Zimbabwe, studies that have attempted to estimate the prevalence of male circumcision are limited except the 2006 and the 2011 Demographic and Health Surveys and the 2014 Multiple Indicator and Cluster Survey which have estimated the national male circumcision prevalence between 9 and 11 percent. A study by Mavhu et al. (2011) in rural Zimbabwe found a prevalence of 20 percent. The latter estimate cannot be relied on because it was based on a small sample (n=203) compared to the national surveys referred to earlier.

The majority of ethnic groups in Zimbabwe do not traditionally circumcise except for a few such as the Chewa and the Vamwenye. Consequently, the male circumcision prevalence is generally low with variations in provinces that have ethnic groups which practice circumcision. The male circumcision prevalence by province are presented in Figure 1.2. Generally, the existing data on male circumcision prevalence do not point to any established pattern.

Figure 1.2: Prevalence of male circumcision in Zimbabwe by province



Sources: 2005-06 ZDHS, 2010-11 ZDHS and 2014 MICS

1.5 Background of the study

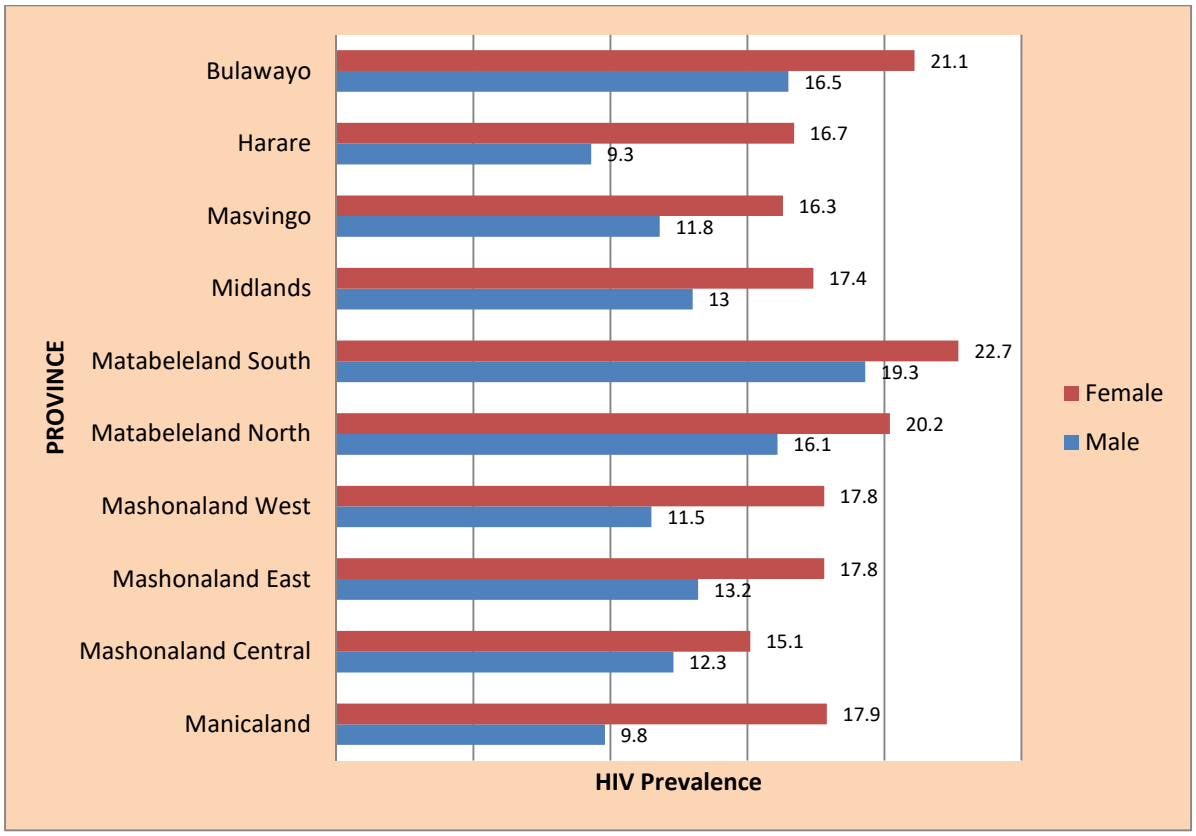
Zimbabwe is a landlocked country located north of the Tropic of Capricorn between the Zambezi River to the north and the Limpopo River to the south. Among her neighbours are Zambia to the north, South Africa to the south, Mozambique to the East and Botswana to the west. Zimbabwe has an area of 390757 square kilometres and a population of 13.1 million. There are 10 provinces, of which two, Harare and Bulawayo, are predominantly urban. The population density is 33 persons per square kilometre (ZIMSTAT, 2013). Sixty seven percent of this population reside in rural areas while the remainder live in urban areas. The sex ratio of Zimbabwe was 93 males per 100 females in the 2012 census. In terms of age composition, the population of Zimbabwe is fairly young with 41 percent of the population under 15 years while only four percent is above 65 years. The average household size is 4.2 and 65 percent of all households are male headed (ZIMSTAT, 2013). The literacy rate for males and females in Zimbabwe are 97 and 95 percent respectively. In terms of exposure to mass media (radio, television and newspaper), 63.2 percent of women and 73.8 percent of men have access to at least a newspaper, a radio or a television (ZIMSTAT, 2015). In terms of the economy, Zimbabwe relies mainly on agriculture and mining which support major industries in food processing, construction, chemicals, textiles, wood and furniture, and transport (ZIMSTAT and ICF International, 2012). The economy of Zimbabwe has suffered some major setbacks in recent years due to depressed mineral prices on the world market, inefficient agriculture, erratic rainfall patterns, unpredictable economic policies, political uncertainty and skills flight. These factors have contributed to the deindustrialisation of the manufacturing sector (ZIMSTAT and ICF International, 2012). Due to the myriad challenges facing the economy in Zimbabwe, a significant proportion of the population relies on self-employment. The proportion of economically active persons who are own account workers/self-employed increased from 44

percent to 50 percent between 2002 and 2012 (CSO, 2004 and ZIMSTAT, 2013). The proportion of own account workers increased by 10 percentage points among men and by 2 percentage points among women between 2002 and 2012.

Zimbabwe has one of the highest HIV prevalence in the world. In the late 1990s, the HIV prevalence for adults 15-49 years was estimated at 33.5 percent, and recent estimates from the Ministry of Health and Child Care put the figure at about 14.9 percent (MOHCC, 2014). The latter is a revision from the previously published estimate of 13.7 percent in 2009. The Zimbabwe Demographic and Health Survey of 2011 estimated the HIV prevalence at 15 percent (ZIMSTAT and ICF Int., 2012). The general trend over the past ten years has been one of plummeting HIV prevalence driven by high adult mortality and behaviour change (Gregson et al., 2010). Evidence from epidemiological studies indicate that as mortality increases surpassing the rate of new infections, the overall prevalence tend to plummet.

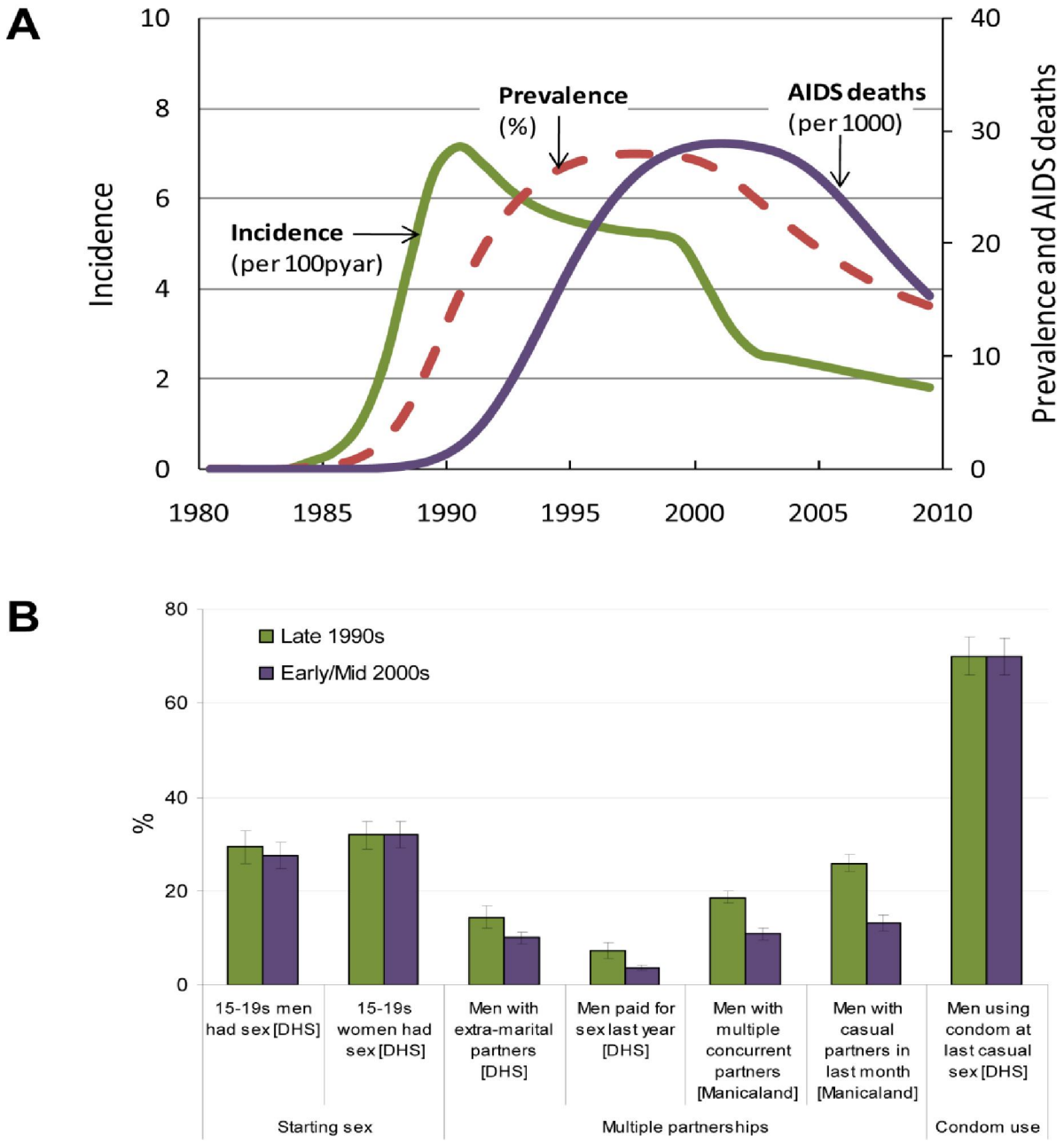
An analysis of HIV prevalence by province and gender show a consistently higher prevalence for females than males in all the provinces (Figure 1.3). This can partly be explained by arguments put forward by scholars such as Watts, Keogh, Ndlovu and Kwaramba (1998) who suggested that females suffer the most from the HIV pandemic for many reasons including their compromised position in society. They argue that women cannot negotiate for safe sex and are side-lined on matters that affect their health. The pattern of HIV prevalence is shown in Figure 1.4.

Figure 1.3: HIV Prevalence by Province and Gender, Zimbabwe 2011



Source: ZDHS Report, 2012

Figure 1.4: HIV/AIDS Patterns in Zimbabwe, 1980-2010



Source: Halperin et al. (2011)

Over the years, research findings to explain the factors behind the observed HIV prevalence have mounted. These studies can generally be grouped into those that focussed on individual

behaviours and dispositions and those that focussed on structural causes of high HIV prevalence. Some of the structural causes cited in literature include colonialism and poverty. It has been argued that the colonial administration system transformed local institutions and ethos through the imposition of laws, practices and new value systems. One result of this social reengineering was the creation of a dual home syndrome through forced labour migration which exposed the African population to an increased risk of HIV infection by separating families (Bryceson, 2006). In Zimbabwe, research studies also established a link between culture and the spread of HIV. Chitando (2004) highlighted that through a culture of silence, woman are disempowered from discussing sexual intercourse with their husbands openly thus increasing their vulnerability to HIV infection. Watts, Keogh, Ndlovu and Kwaramba (1998) focused on gender disparities and concluded that women are generally subjugated through patriarchy and rendered powerless to negotiate for safe sex. These gender disparities explain the gender differentials in HIV infection rates in Zimbabwe (Watts et al., 1998). At an individual level, the spread of HIV has been linked to multiple concurrent sexual partners and the lack of male circumcision (Halperin and Epstein, 2007; Moses et al., 1990; Bongaarts et al., 1989).

Poverty has also been cited as a major driver of HIV in many developing countries (Gillespie, Greener, Whitworth and Whiteside, 2007). In May 2000, the then President of the Republic of South Africa, Thabo Mbeki, convened a meeting of experts to discuss the AIDS pandemic. At this conference, President Mbeki questioned the scientific paradigms on HIV/AIDS and argued that HIV/AIDS is a result of poverty. This argument attracted negative responses from experts and the media alike (Mbali, 2004).

While there are many channels through which HIV spreads, research concluded that 92 percent of all infections in Zimbabwe are through heterosexual contact followed by vertical transmission from mother-to-child (CSO and Macro International, 2007). Recognising the negative impacts of HIV/AIDS on national development, the government of Zimbabwe through the Ministry of Health and Child Care, the National AIDS Council and other implementing partners adopted a national behaviour change strategy for the period 2006-2010 (NAC, 2006). This strategy adopted a three-pronged approach based on the ABC model of behaviour change which integrates the following components:

A- abstinence

B- faithfulness to one uninfected partner, and

C- correct and consistent use of condoms

The ABC approach targeted increasing the age at sexual debut, increasing correct condom use, and reducing the average number of sexual partners. The approach also encouraged individuals and couples to get tested for HIV. In addition to targeting behaviour modification, the government also put in place strategies to cater for those already infected. Firstly, HIV screening was introduced for all pregnant women and those found HIV positive are encouraged to take a single dose of Nevirapine to prevent the transmission of HIV to the unborn child. This prevention of mother-to-child transmission programme (PMTCT) was launched simultaneously with the anti-retroviral therapy (ART) programme which sought to increase availability of ARVs for everyone despite socio-economic background. Several New Start Centres were opened to increase access to free HIV testing and counselling services.

The above initiatives seem to have enjoyed relative success if measured by the pattern of HIV prevalence and other indicators. According to the results of the Zimbabwe Demographic and Health Survey of 2011, knowledge of HIV is universal. The age at sexual debut remain fairly

high, 20 years for males and 18 years for females. However, there appears to be gaps in some of the indicators, for example, the number of lifetime sexual partners remain high for males at 5.8 compared to 2.2 for females. While the number of people who have never been tested for HIV has declined significantly between 2006 and 2011, it remains high at 61 percent for males and 58 percent for females (ZIMSTAT and ICF Int., 2012).

The ABC approach has received considerable attention from scholars with some questioning its effectiveness on behaviour change (Mulwo, 2008). Mulwo (2008) noted that many scholars agree that individual-centred approaches such as the ABC model are effective in changing beliefs, attitudes and behaviour but erroneously assume that individuals are autonomous and have power to change their behaviour. Kerwin et al. (2011) argue that the ABC model had limited success in much of sub-Saharan African. This could be partly because the ABC model, like the Health Belief Model and the other theories of behaviour modification from which it is derived, undermines the power of structural forces such as culture that grip individual decision-making processes, particularly in Asia and Africa where societal norms override individual decisions and choices (Airhihenbuwa and Obregon, 2000).

1.6 Statement of the problem

In 2009 Zimbabwe adopted voluntary medical male circumcision as an additional measure for HIV prevention. In order to facilitate the smooth roll-out of VMMC, a policy framework was developed to guide players and stakeholders, known as the Zimbabwe Policy Guidelines on Safe and Voluntary Male Circumcision (MOHCC, 2014). The policy acknowledges that demand for circumcision services in Zimbabwe is not known but is projected to increase as information on the prophylactic nature of male circumcision becomes widely known. In

addition to outlining the objectives of the policy guidelines and roles of stakeholders, the policy guidelines focus on eight key areas for the up-scaling of VMMC services in Zimbabwe. The first area is that of increasing people's knowledge on VMMC. Increasing people's knowledge on VMMC is projected to positively influence attitudes hence create demand for VMMC services. In line with information provision, the policy guidelines empower parents, teachers, church leaders, youth friendly centres, doctors, nurses, community health workers and other stakeholders such as non-governmental organisations to communicate basic information on VMMC such as its advantages and availability of VMMC and other sexual and reproductive health services. Policy guidelines emphasises the communication of the partial protective nature of male circumcision. A key feature of the communication strategy is that all communications should be approved by the Ministry of Health and Child Care and other stakeholders to avoid the dissemination of false or confusing information.

The policy guidelines on the promotion of male circumcision in Zimbabwe accentuates that circumcision must be viewed as an additional entry point for male sexual and reproductive health instead of a standalone programme. In line with this, circumcision services must be presented alongside other sexual and reproductive health and HIV prevention services such as the provision of information and counselling on sexual intercourse, safer sexual health behaviours, diagnosis and management of sexually transmitted infections, HIV testing and counselling, family planning services, and cervical cancer screening for partners. These services must be offered to all persons willing to take up circumcision. While the policy does not force men to accept these other services as a precondition for the provision of male circumcision services, it requires all men to get counselling and diagnosis and management of sexually transmitted infections (including HIV) before they proceed with circumcision.

In order to improve access to VMMC services, the policy guidelines on the provision of VMMC services in Zimbabwe designated all health centres from rural health centres to central hospitals as centres where VMMC services can be provided on condition that there is sufficient personnel and equipment to carry out the procedure. The policy also allows nurses and midwives to do circumcisions provided they have successfully completed a requisite course. The policy further directed that circumcisions at public institutions be done for free or at minimum cost and also that medical aid societies should provide medical cover for members who wish to get circumcised.

The policy on the promotion of VMMC emphasised the setting up of a protocol to establish and monitor minimum standards for the provision of VMMC services in order to ensure the safety of circumcision. This protocol ensures the availability of approved and well trained personnel, minimum equipment requirements, post-operative care and management procedures and the establishment of a management and referral system for complications.

The policy guidelines on the promotion of VMMC for HIV reduction also attempts to integrate traditional male circumcision service providers by recognising the existence of cultural and religious male circumcision practices. The aim is not to stop them but ensure that complications and deaths resulting from traditional male circumcision are minimised. This is done through a system of dialogue between the Ministry of Health and Child Care and traditional leaders in circumcising communities which enables the integration of traditional circumcision practices with medical best practices.

In promoting the scaling up of VMMC for HIV reduction, a human rights approach is encouraged in the policy guidelines. This approach ensures that there is voluntary and informed

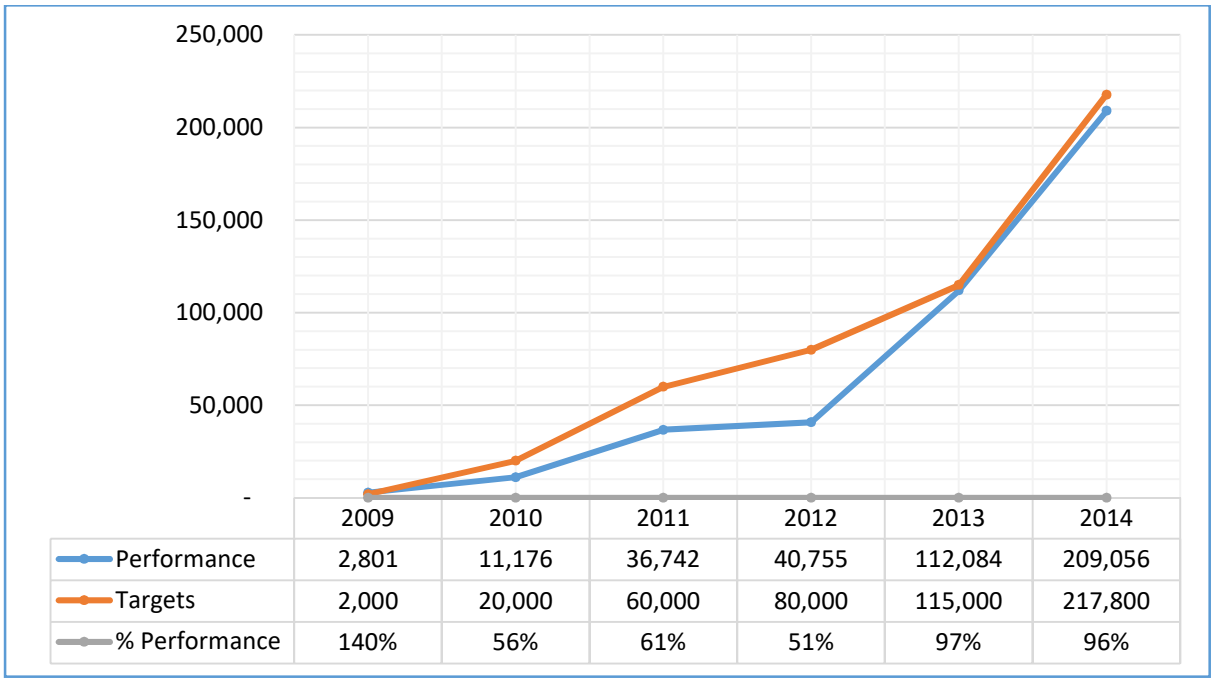
consent, confidentiality and non-discrimination or withholding of VMMC services on the grounds of ethnicity, language, race, religion or sexual orientation. Males below the age of 18 can agree to have a circumcision but their parents must sign a consent form. The human rights approach also stresses that the promotion of VMMC must not endanger women through sexual violence or unsafe sex during the healing stage of the operation. In line with this, HIV positive men are discouraged from getting circumcised because of the risk of transmitting HIV to women especially if the circumcised man resumes sexual intercourse before complete healing of the wound (Wawer et al., 2009).

Programmes promoting VMMC have largely been funded by donors due to the general financial resources constraints on health programmes. The policy guidelines on the promotion of VMMC for HIV reduction have noted that in view of these shortages, financial resources must not be diverted from existing primary health care programmes to fund VMMC programmes. Furthermore, the guidelines warn against an overdependence on donor funds as this would expose the programme in the event of donors withdrawing their funding.

Finally, the policy guidelines encourages the setting up of a monitoring, evaluation, documentation and research system to ensure that processes and progress in the provision of VMMC services are regularly monitored and evaluated.

Since the launch of the roll-out campaign of voluntary medical male circumcision in 2009, just above 400,000 men have undergone circumcision representing 31 percent of the target (NAC, 2015). The year-on-year targets and number of circumcisions are shown in Figure 1.5. There is thus a need to understand the underlying factors that influence the uptake of VMMC for HIV prevention.

Figure 1.5: Uptake of VMMC in Zimbabwe, 2009-2014



	2009	2010	2011	2012	2013	2014
Performance	2,801	11,176	36,742	40,755	112,084	209,056
Targets	2,000	20,000	60,000	80,000	115,000	217,800
% Performance	140%	56%	61%	51%	97%	96%

Source: Zimbabwe National AIDS Council (2015)

1.7 Objectives of the study

The present thesis is motivated by two broad objectives. Firstly, the present study intends to explore the acceptability of male circumcision as an HIV prevention strategy in Zimbabwe. While two earlier studies by Halperin et al. (2005) and Mavhu et al. (2011) concluded that there is a general acceptability of circumcision for HIV prevention, the number of men who have undergone circumcision is far below expectations (Hatzold et al., 2014). This makes it imperative that the issue of acceptability be explored further. The second broad objective of the thesis was to evaluate the implications of promoting medical male circumcision as an additional HIV prevention strategy among women and men in Zimbabwe. The specific study objectives and research questions are as follows:

- ✓ To ascertain the acceptability of male circumcision among men and women
- ✓ To investigate the factors influencing the uptake of male circumcision in Zimbabwe
- ✓ To evaluate the possible implications of male circumcision on men's sexual behaviour
- ✓ To evaluate the role of women in the conceptualisation and uptake of male circumcision.

The present study was guided by the following questions:

- ✓ What is the prevalence of both traditional and medical male circumcision?
- ✓ What factors influence the uptake of male circumcision?
- ✓ What are the implications of promoting voluntary medical male circumcision for HIV prevention on men's sexual behaviour?
- ✓ What is the perceived impact of VMMC on men and women's sexual pleasure and satisfaction?

1.8 Theoretical frameworks

A theoretical framework guides the way a research is conducted and how the results are interpreted. This study used the theory of social representations, the health belief model and the social behaviour model of health services utilisation. These models attempt to explain health related decisions. The theory of social representations emphasises the role of context and social interpretations and meanings and how they influence individual decision-making processes while the health belief model focuses on the role of personal beliefs and cognitive processes. On the other hand, the adoption of the social behaviour model of health services Utilisation for this study is premised on the understanding that it is not enough to recognise cognitive and social factors that may influence men to get circumcised or women to encourage

their sons and partners to get circumcised without a clear comprehension of other factors that may lead to the actual utilisation of health care services. While the primary focus of these models appears different, they all recognise the role of information in the shaping of beliefs and the ultimate decision to seek medical assistance. Thus, the use of these theories in this study is an acknowledgement that health-related decisions are influenced by factors that are both internal and external to the individual.

1.8.1 The Theory of Social Representations

The theory of social representations is a revision of Durkheim's concept of collective representations, which in Moscovici's view, were inadequate to capture the plurality of representations (Moscovici, 1988). Winskell et al. (2011) defined social representations as culturally shared mental phenomena that communicate norms and values in symbolic form. They further elaborate that social representations are often pre-conscious and therefore less subject to informant bias than conscious evaluative judgements like attitudes. Maurya (2009) defined social representations simply as common sense theories generated by people to understand everyday reality. According to Moscovici (1988), social representations have two main functions. Firstly, they enable individuals to have a good understanding of themselves and their surrounding world, and secondly, social representations facilitate the communication process by establishing a common way of identification and classifying among community members.

The main assumptions of the theory of social representations are that:

- ✓ The social construction of societal life is shaped by an exchange and interaction process among individual society members.

- ✓ There is plurality and diversity of representations within the same society.
- ✓ Social representations are dynamic and constantly changing over time and space. The evolution of social representations is influenced by the complexity and speed of communication as well as the available communication media.

In elaborating the formation of social representations, Moscovici (1988) assumed that there exist a reified universe in which scientific or expert thinking is generated and discussed. The discourses in the reified universe are then transferred to the consensual universe in which the laymen interact. For example, the discourse of the potential of male circumcision is first discussed in the reified universe of 'experts' on epidemiology and HIV/AIDS, then these discussions are 'repackaged' for the consumption of the consensual world. However, the theory does not assume that the reified universe is the only source of knowledge. The eventual formation of social representations involves three major processes; transformation, anchoring and objectification (Joffe, 1998). Transformation involves the transmission of expert ideas from the reified universe, via communication, into lay thinking. During this process, the media plays an important role in the dissemination of information, a process that involves the reinterpretation of scientific knowledge into common language for ease of comprehension in the consensual universe. According to Joffe (1998), the mass media simplifies subjects being debated among experts. However, the process of transmission is not one in which the lay persons in the consensual universe are passive recipients of expert knowledge. Lay people give their own meaning to the information that they receive, and this may even involve the challenging of the expert notions.

The process of anchoring involves the interpretation of new phenomenon through assimilating the object being represented into existing worldviews (Moscovici, 1976). In this way, the

process of anchoring is similar to the concept of cognitive schemas. The latter involves the storage of mental schemas of past events which are then used as referral points to derive meaning to new and unfamiliar circumstances. Similarly, anchoring may involve using existing conceptualisations or ideas to derive meaning for new events or phenomenon. For example, in the early days of AIDS in Zimbabwe, HIV/AIDS was conceptualised as a more severe form of an ailment called *runyoka* which is believed to be caused supernaturally by men who intend to protect their spouses from adulterous suitors. It is believed that a man who sleeps with a woman protected by *runyoka* may become seriously ill with symptoms resembling those of AIDS and may die if the act of infidelity is not confessed and paid for (Simmons, 2000). Because of the similarities in symptoms with *runyoka,* many traditional healers claimed that they could cure AIDS.

Finally, the process of objectification involves the transformation of an abstract concept into something concrete through the use of familiar images which become associated with the new phenomenon, for example, images of coffins and tombstones became associated with the fear that accompanied early messages of HIV/AIDS in Britain and South Africa (Joffe, 1998). According to Moscovici (1976), this produces a domestication of the unfamiliar through saturation of unfamiliarity with everyday experiences (in Joffe, 1998). The processes of anchoring and objectification take place simultaneously.

1.8.2 The Health Belief Model

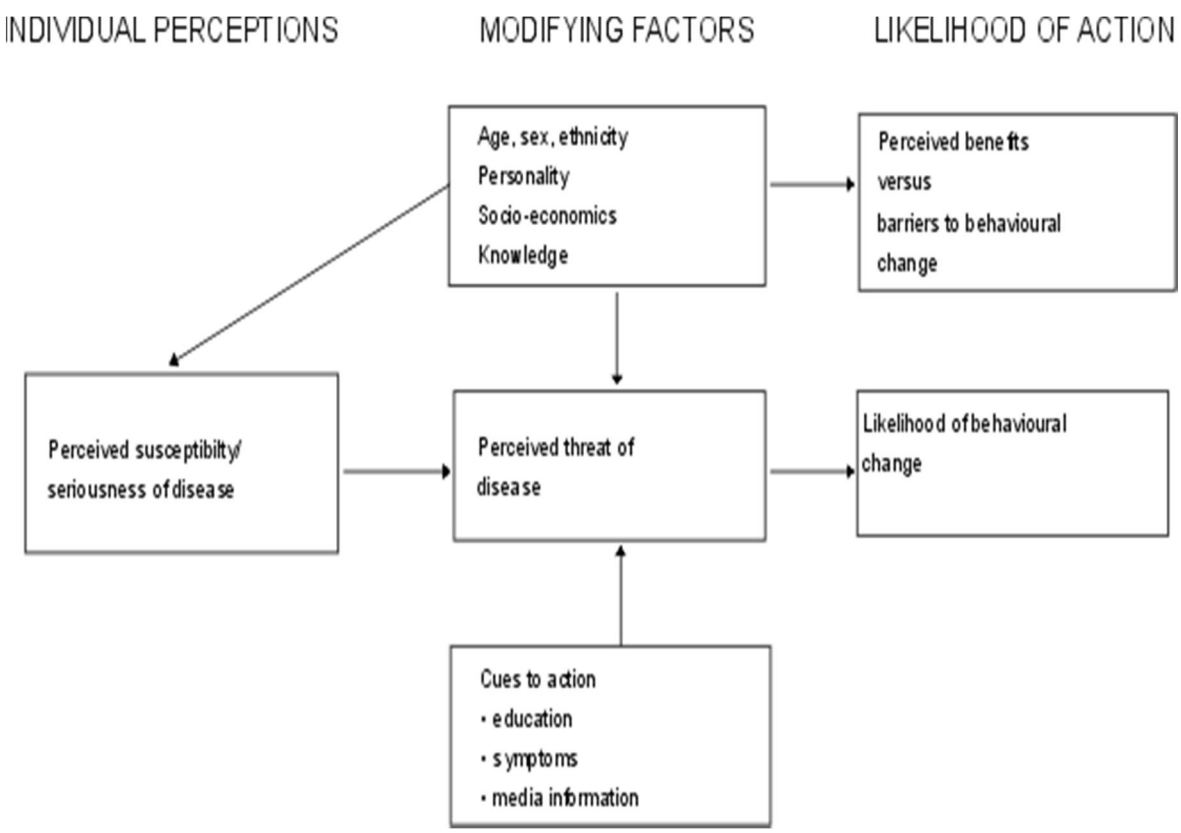
The health belief model (HBM) is a cognitive model that focuses on individual beliefs to predict health behaviour (Glanz, 2002). The model was developed in the 1950s by Hochbaum, Rosenstock and Kegels in an attempt to understand the failure of a free tuberculosis screening

programme. The original model had four theoretical constructs but was revised by Becker and Rosenstock in 1988. The model has been used to understand health behaviour in the context of HIV and AIDS. The health belief model is based on the premise that a person is a rational being and will take a health-related action if the following conditions are present:

- ✓ the person must feel that a negative health condition can be avoided,
- ✓ the person has to believe that a negative health condition can be avoided by taking a recommended action, and
- ✓ the person must also believe that s/he is capable of taking the recommended action.

The health belief model is premised on six main theoretical precepts. Firstly, *perceived susceptibility* refers to an individual's self-assessment of the possibility of getting a condition, for example, an individual assesses their chance of getting infected with HIV. Furthermore, a person also assesses the severity of the condition (*perceived severity)* and the perceived effectiveness of the recommended action to minimise risk or severity of consequences *(perceived benefits)*. After those evaluations, the health belief model also presupposes that a person evaluates the tangible and psychological costs of the recommended action *(perceived barriers)*. The model assumes that after the evaluations, there exist *cues to action* or factors that may trigger a person to start changing behaviour. The final theoretical precept put forward by the model is *self-efficacy* in which a person evaluates their ability to execute the recommended action. The linkages between these concepts are shown in Figure 1.6.

Figure 1.6: Conceptual Model of the Health Belief Model



Source: Glanz et al., 2002, p. 52

1.8.3 The Social Behaviour Model of Health Services Utilisation

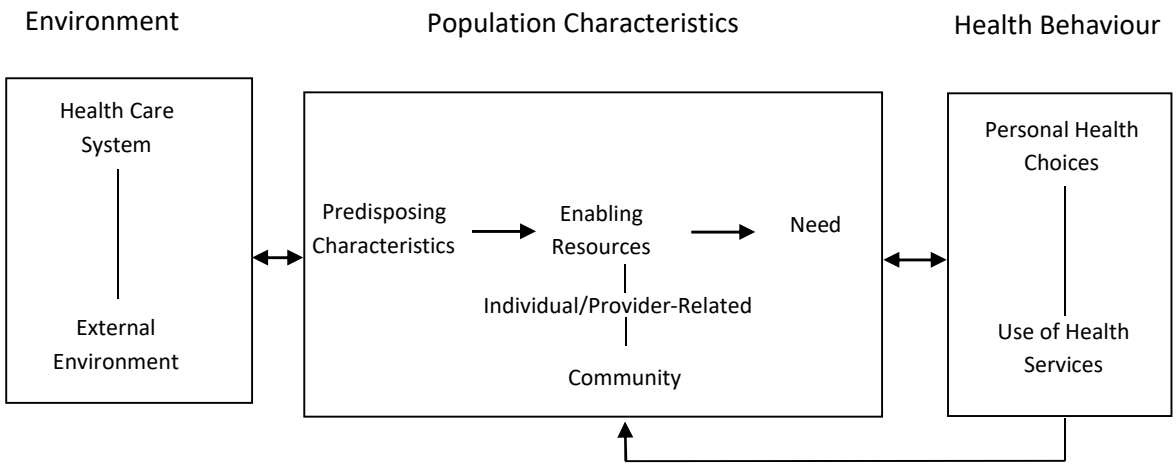
The social behaviour model of health services utilisation was developed by Andersen and Newman in the 1960s and has been modified four times to accommodate emerging research findings on the factors that influence health services utilisation. The goal of the model is to provide measures of access to medical care. An individual's access to and utilisation of health care services is determined by three dynamics: predisposing factors, enabling factors and need. *Predisposing factors* are socio-cultural characteristics of individuals that exist prior to the

illness and these include demographic factors such as age and gender, health beliefs such as attitudes, values and knowledge that people have concerning the health care system, and social structure factors such as education, ethnicity, culture, social networks and social interactions. *Enabling factors* are the logistical aspects of getting help including the means and know-how to access health services, travel, income, health insurance, availability of health personnel and facilities and waiting time. Finally, the model identifies *need factors* as the most immediate cause of health services utilisation. Andersen (1995) distinguished between perceived need and evaluated need. The former determines whether a person will seek medical help or not depending on their personal judgement of their health as well as their experience of symptoms of illness, pain and worries whereas the latter determines the quality of services a person will get after they present themselves to a health practitioner. While the model focuses on the individual as the unit of analysis, it culminates in health outcomes as the endpoint of interest.

Phillips et al. (1998) elaborated on the Andersen framework (in Figure 1.7) by defining environmental variables as consisting of three components: healthcare delivery system characteristics, external environmental factors, and community level enabling variables. They defined health care delivery system characteristics as "policies, resources, organization and financial arrangements influencing the accessibility, availability, and acceptability of medical care services" (page 574). External environmental factors were defined as a reflection of the socio-economic and political climate within which health-seeking takes place. These may also include the level of stress and violence and the existing customs of a community (Phillips et al., 1998). On the other hand, community-related variables may include factors such as the availability of doctors which enable the individual to obtain care. Phillips et al. (1998) further defined provider-related variables as outside the environmental factors discussed above. They point out that provider-related variables measure the context within which health services

utilisation occurs. They further noted that these variables contain patient factors such as previous utilisation of services and a regular source of care, and provider characteristics such as the gender of the practitioner (pg. 576). The conceptual model is shown in Figure 1.7.

Figure 1.7: Health Services Utilisation Model



Source: Andersen, R M (1995)

The behavioural model by Andersen generated a lot of research and has been used in several studies that attempted to validate its constructs. The model was used, for example, by Willis et al.(2010) to understand informal support among Britain's ethnic minorities, by Girma et al. (2011) to investigate health service utilisation in south west ethiopia, and by Luseno et al. (2010) in South Africa. Willis et al. (2010) concluded that the behavioural model is very flexible and useful for gerontological research. However, after an analysis of several studies that utilised the Behavioural Model, Babitsch et al. (2012) concluded that while the model has been used extensively in studies investigating the use of health services, there is evidence of substantial differences in the variables used.

The Andersen framework and the elaborations by Phillips et al. (1998) have serious implications for this study and the promotion of voluntary medical male circumcision in general. While many scholars have focussed on the acceptability and knowledge levels of would-be recipients of medical circumcision, they have often overlooked the other equally important factors in the promotion of VMMC that are well articulated in the above framework.

1.9 Relevance and limitations of the selected theoretical frameworks

The contribution of the health belief model to the understanding of individual decision-making processes and behaviour change cannot be overemphasised. However, it has received criticism on the grounds that many of its constructs have not been tested thoroughly because studies based on the model have incorporated selected components of the model (Champion and Skinner, 2008). Secondly, the relationship between the various components of the model has not been clearly spelt out. In addition, the model overlooks the role of social influence and cultural beliefs on behaviour (Munro et al., 2007). Other critics such as Joffe (1996a) have argued that the role of individual volition in health behaviour is restricted by others who may subtly or coercively exercise their control, for example, women may find it difficult to request the use of a condom even if they want to (pg. 172). These assumptions on which the model is based have little relevance for communicating HIV/AIDS related messages in most of Africa, Asia, Latin America and the Caribbean where social norms take precedence and are more reliable predictors of behaviour (Airhihenbuwa and Obregon, 2000). This is particularly the case with male circumcision which is practised as a social norm to mark the transformation of boys into men in many African societies.

While the strength of the health belief model lies in its ability to predict individual health seeking behaviour, the theory of social representations focuses on factors external to the individual. According to Joffe (1998), the theory of social representations is superior to the current paradigms in HIV/AIDS research such as the theory of reasoned action and the health belief model. In the final analysis, no theory or model is without deficits. In attempting to explain human behaviour, the health belief model and the theory of social representations overemphasised the role of one factor at the expense of the other attracting sharp criticism in the process. The former places emphasis on individual cognitive processes in decision making while the latter puts social factors at the fore. On the other hand, the social behaviour model of health service utilisation attempts to predict factors that may lead to the use of health care services. This was important for this study which sought to understand factors that may attract or impede men from undergoing voluntary medical male circumcision for HIV prevention. Thus, in selecting these models as theoretical frameworks for this study, it was felt that the weaknesses inherent with one model would be complemented by the strengths of the others.

1.10 Structure of the dissertation

The dissertation is organised into seven chapters. The first chapter outlines the purpose of the study, the background information on the importance of the study, justification of the study, and the research questions and objectives that the study intends to fulfil. Also included in the first chapter are the definitions of male circumcision and the theoretical frameworks that were used in the study. The second chapter discusses the main scholarly debates on male circumcision, its origins, symbolic significance, and its role in aetiology and as prophylaxis against HIV. The chapter also evaluates the current debates on medical male circumcision and HIV/AIDS. Chapter 3 provides a description and justification of the research methods used for

sampling, data collection and data analysis. The fourth chapter presents the study findings on the prevalence of male circumcision and sexual behaviour while the fifth chapter presents findings on the knowledge and acceptability of voluntary medical male circumcision. Results on the qualitative analysis of data including meanings associated with voluntary medical male circumcision are presented in chapter six. The last chapter of the thesis examines the study findings in light of the study objectives and presents conclusions on the key findings of the study. The chapter also presents policy recommendations and recommendations for future studies.

CHAPTER TWO: A REVIEW OF RELATED LITERATURE

2.1 Introduction

The study of male circumcision is not entirely new. Explorers such as Herodotus and Christopher Columbus found the practice amazing and wrote extensively attempting to attach meaning to what they had seen. It is not surprising that the practice still attracts attention from many fields of specialisation including anthropology, history, medicine, biology, psychology, nursing, sociology, law, philosophy, economics and demography. Until recently, there was a lot of focus on the cultural diversity of male circumcision specifically focussing on the cultural significance of the practice in cultures outside western civilisation. In the latter, debate and literature focussed on routine neonatal male circumcision, its medical significance and the legal/moral justifications. Given the diversity of the literature on male circumcision, a review that overlooks debates in the various fields of study would be insufficient. Thus, the present literature review looks at the dominant perspectives and debates on the practice from various disciplines. The chapter is organised in sections that focus on the historical dimensions of male circumcision and the recent proclamations in medicine about the prophylactic nature of male circumcision on HIV. While there has been debate on the issue of female circumcision, generally referred to as female genital mutilation (FGM), it is beyond the scope of this literature review.

2.2 The origins of male circumcision

The origins of male circumcision are difficult to separate from the socio-cultural and religious significance of the practice. This is partly because the actual origins of circumcision are lost in antiquity (Warren and Bigelow, 1994). Sporadic evidence seems to suggest that male circumcision has a long history in different parts of the world, for example, Gairdner (1949) reported that Christopher Columbus found that the inhabitants on the American continent were circumcised. He also noted that Egyptian mummies dated back to 2300BC were circumcised and wall paintings show that it was customary thousands of years earlier. Gairdner (1949) concluded that the practice must have arisen independently among different peoples.

While the origins of male circumcision are unknown, there is literature suggesting that male (and female) circumcision started as a sacrificial rite (Warren and Bigelow, 1994; Morse, 2002). According to this perspective, human sacrifices were widespread and at some point they were stopped for moral reasons. However, it was felt that equally valuable substitutes to human sacrifices (such as domestic animals and mutilations of the human body) had to be found. Since making a sacrifice involves the shedding of blood, circumcision was considered ideal because one would shed blood and lose the prepuce simultaneously. According to Warren and Bigelow (1994), the foreskin became an ideal sacrificial object because a man would sacrifice sexual enjoyment but yet still function normally in society.

Among the Jews and Muslims, the origins of male circumcision have been attributed to a covenant made between Abraham, the father of both Jews and Muslims, and God. Although the issue of circumcision is not mentioned in the Holy Koran, the covenant between God and Abraham can be found in the Bible on Genesis 17 (verses 9-14). The call to observe the

covenant is called for again in the book of Joshua (chapter 5: 1-9). In these verses, Israelites had migrated out of Egypt and all males born in the wilderness had not been circumcised. Because of this covenant, all Jewish males are supposed to be circumcised on the eighth day after birth by a *Mohel*. The actual traditional ceremony is called *brit milah*.

Historians such as Herodotus have attributed the practice of circumcision to the Colchians, Ethiopians, Phoenicians, Syrians, and Macrones, as well as to the Egyptian priestly class. Doyle (2005) however notes that male circumcision did not originate with Abraham or the prophet Mohammed as some scholars have argued or as outlined in the Bible, but that it was common practice in the Arabian Peninsula among the Sumerians and the Semites. It is suggested that one of these groups migrated and established a city known as Ur of the Chaldees, 160 miles from the then capital Babylon. The immigrants brought with them their produce and their customs. Doyle (2005) refuted a suggestion by the historian Herodotus that the children of Israel could have introduced male circumcision during their captivity around 1200BCE arguing that evidence as early as 2300BCE points to the existence of male circumcision in Egypt. Historians now believe that the Egyptians must have adopted the practice from ethnic groups who lived further south in Sudan and Ethiopia who are believed to be related to the Sumerians and Semites and who are thought to have been in constant contact with the Egyptians (Doyle, 2005).

In other parts of Africa other than Egypt, literature on the origins of male circumcision is difficult to find and most of it is derived from writings of early explorers and anthropologists. For example, Doyle (2005) mentions the writings of a sixteenth century Muslim explorer, Hassan ibn Mohammed El Wazzan Es Zayyati who toured much of North Africa, the Sahara and Mali. Hassan wrote of many ethnic groups in Africa observing Jewish Law including

circumcision. It is not clear how the practice might have reached Africa but anthropologists have suggested that many of the inhabitants of Somalia, Sudan, Ethiopia and Abyssinia came from Arabia and have a Semitic and Sumerian origin (Doyle, 2005).

The spread of circumcision has also been linked to the Bantu migration which is assumed to have taken place between 500 and 1000 CE (Caldwell, Orubuloye and Caldwell, 1997; Doyle, 2005). According to Doyle (2005), a group of people comprising of migrants from Arabia, the Middle East and some from West Africa moved south to become today's Bantu. It is believed some speakers reached Cameroon then Angola and other countries in the south while other groups moved toward the east. In the process, it is argued, male circumcision was adopted. Marck (1997) analysed the geographic distribution of male circumcision in sub-Saharan Africa to establish the etymological roots of circumcision and circumcision schools among the Bantu people. He concluded that male circumcision and initiation schools are likely to be borrowed practices from various neighbouring groups or foreign cultures which they came into contact with. Marck (1997) also noted that the distribution of circumcision and initiation practices among Bantu-speaking peoples seem to suggest that those who do not practice the traditions either never adopted them or have abandoned them altogether.

2.3 Religious and cultural significance of male circumcision

While the origins of male circumcision can no longer be traced with accuracy, Aggleton (2007) contend that there is a need to understand societal structures and forces that have kept the practice alive. Several scholars have written on the various symbolic meanings attached to circumcision. Mbiti (1997), for example, noted that male circumcision rituals, like all other rituals in traditional African religion that involve the public shedding of blood and sacrifice,

were designed to bring oneness between the individual, his ancestral land and hence the ancestors. In this context, male circumcision is not viewed as a mere act involving the removal of the prepuce, but is seen as symbolic of a deep religious connection between the self, the community and the ancestors.

Rituals accompanying male circumcision vary from one ethnic group to the other. However, these rituals have almost similar symbolic significance across the groups. Among the Kurya of Tanzania, Mshana et al. (2011) noted that male circumcision is a rite of passage from childhood to adulthood. When a boy is ushered into adulthood through circumcision, he is then allowed to assume family responsibilities and to be a 'guardian' of tribal secrets. Over and above the power that the ritual confers on individuals, circumcision is important for social organisation and cultural identity. In addition, the practice gives Kurya leaders symbolic power and recognition.

Among the Xhosa of South Africa, male circumcision has strong symbolism attached to its rituals. It is the only recognised way that a boy is transformed into a man thus gaining access to resources and other responsibilities. An uncircumcised man among the Xhosa is treated like a child and is not allowed to marry or to sacrifice to ancestral spirits (Meissner and Buso, 2007). Also, a man who obtains a circumcision through other means other than through the traditional ceremony is considered as a social outcast. According to Vincent (2008), male circumcision among the Xhosa is also entrenched with a strong desire for identity with kinsmen. Vincent (2008) also noted that male circumcision and the ceremonies accompanying it serve other purposes other than just to initiate boys into manhood, for example, because of the attacks the practice received from the apartheid government and from Christianity, circumcision rituals became a symbol of resistance to conquest.

Among the Aborigines of Australia, Lawlor (1991) noted that male circumcision rituals symbolise the separation of a boy from maternal care thus ushering him into a world of adult self-reliance. In other words, initiation symbolises death and resurrection. Circumcision among the Aborigines is believed to break the boy's connection with the feminine world and introduce him to an expanded consciousness and a new awareness of the spiritual realm. This view of separating feminine tendencies is also supported by Hosken (1994) who postulated that the prepuce of the penis represents femininity in a boy while the clitoris represents a male aspect in a girl. Thus, circumcision (both male and female) serve to establish the correct gender of a person in society.

In Cameroun among the Nso, circumcision rituals are associated with fertility and sexuality (Hellsten, 2004). It is believed that circumcision prepares the penis for coitus and reproduction. An uncircumcised man is viewed as immature and inclined to poor sexual and reproduction performance. Hellsten (2004) also observed that circumcision among this ethnic group is viewed as a way of taming and restraining sexual desires thus helping men to act more responsibly (see also Aggleton, 2007). The connections between circumcision and reproduction were also reported by Kennedy (1970) who noted that among the Egyptian Nubians, fears related to fertility, sexuality and gender identity perpetuated the practice. Over and above these fears, circumcision rituals and the accompanying ceremonies also served not only as a way of showing wealth and status, but also as a means through which communal solidarity and continuity, male dominance and gender separation could be achieved.

Despite the recurring theme in literature of initiation and circumcision rituals being symbolic of social and religious transformation of a boy into a man, feminist scholars have argued that

these rituals are used to assert male dominance over women. According to Bourdieu (2001), circumcision rituals are a socially constructed means of asserting masculine dominance orders characterised by phallocentrism. Violence is a central aspect of this masculine domination and a part of the social construction of manhood (Vincent, 2008). Through this violence and public acts of bravery, men are exalted as superior to women thus creating exclusive monopoly of spiritual or cultural secrets since women have no foreskin to sacrifice (Sev′er, 2012). Another perspective put forward by Block (1992) views circumcision as a political tool through which men demonstrate loyalty to elder kinsmen by entrusting the reproductive potential of their sons to the status quo. This view is also supported by Aggleton (2007) who note that during the Turkish occupation of Armenia in 1915, men and boys were forcibly circumcised perhaps as a sign of conquest. Similarly, circumcision was banned in Bulgaria in the 1980s because of its sad reminder of Turkish occupation of that country.

In concluding this section on the religious and cultural significance of male circumcision, it is important to note that not all ethnic groups that conduct initiation schools circumcise. This is particularly so among the Zaramo, the Luguru, the Sagara and the Bali of Tanzania (Marck, 1997). There are also ethnic groups such as the Kwere and the Kuria who circumcise but do not have initiation schools. The Zigula of Tanzania and the Sotho of South Africa circumcise and have initiation schools but the two are not necessarily held together (Marck, 1997).

From the above it can be concluded that circumcision rituals have significant religious and cultural meaning among those that partake in these ceremonies. This is particularly significant in the current discourse on male circumcision as prophylaxis against HIV.

2.4 History of male circumcision as prophylaxis

The history of male circumcision in medicine cannot be separated from its history in the religious and socio-cultural contexts within which it took place. In ancient societies male circumcision could have been started to thwart the negative effects of phimosis (difficulty in retraction of the foreskin) which was believed to interfere with fertilisation (Morse, 2002). However, the practice of routine male circumcision was perpetuated because of a generalised fear of an intangible danger which constantly changed over time (Henerey, 2004).

Several authors have traced the medical history of male circumcision, particularly in the United States of America, to Dr. Lewis Sayre, an orthopaedic physician (Gollaher, 1994; Henerey, 2004). In 1870, Dr. Sayre attended to a 5-year old boy who was suffering from partial paralysis. Although the cause of the paralysis was unknown, the boy recovered after undergoing circumcision. Again, a paralysed teenager recovered after getting circumcised. Based on these, Dr. Sayre hypothesised that irritation of the genitals was the source of many types of paralysis and hip-joint diseases which resisted conventional treatment protocol (Gollaher, 1994). Elsewhere, Dr. McGee replicated Sayre's experiments but did not get similarly encouraging results. Despite this disappointment, McGee concluded that whether circumcision is curative or not, its promotion would help deal with problems of hygiene, masturbation and known conditions such as phimosis and paraphimosis in addition to its ability to promote chastity through diminishing lustful thoughts (in Gollaher, 1994).

According to Miller (2002), circumcision became a standard cure for many ailments including alcoholism, epilepsy, asthma, gout, rheumatism, curvature of the spine, headache, paralysis, malnutrition, night terrors, clubfoot, eczema, convulsions, mental retardation, promiscuity,

syphilis and cancer. This was despite the fact that many patients in mental asylums did not improve sufficiently to warrant discharge after circumcision (Gollaher, 1994). The cause for routine circumcision was further supported by another physician, Peter Charles Remondino. Based on Charles Darwin's Theory of Evolution, Dr Remondino, who was also a disciple of Sayre, argued that the prepuce had become a 'nefarious superfluity' (Gollaher, 1994).

Other factors that promoted the widespread use of male circumcision in medicine in Europe and the United States of America include what Darby (2003) has termed the masturbation phobia and the obsession with cleanliness which characterised Europe and the United States in the late nineteenth century. It was widely believed that masturbation was the root cause of neurosis and insanity. These beliefs were strengthened by Claude-Francois Lallemand, a Professor of Medicine, who published the existence of a condition known as spermatorrhoea which he attributed to masturbation (Darby, 2003). Although the use of circumcision to treat various ailments was largely ineffective, it caused a marked decline in masturbation (Henerey, 2004). On the other hand, cleanliness was perceived to show control, spiritual refinement and procreation (Bushman and Bushman, 1988).

In attempting to explain the continued existence of routine medical male circumcision in modern day America, Waldeck (2003) proposed that parents are motivated to have their children circumcised not because of the medical benefits of the procedure, but by the desire to comply with societal norms. Waldeck (2003) argues that failure to comply with norms may result in self-imposed guilt, experiences of shame and a loss of esteem among peers. Men who are not circumcised may simply be viewed as being of inferior type.

2.5 Male circumcision and the law

There is growing opposition to routine neonatal circumcision in the United States of America and in other western countries such as Britain, Canada and Australia. Silverman (2004) provided a partial list of anti-male circumcision groups which includes NOCIRC (National Organization of Circumcision Resources), INTACT (Infants Need to Avoid Circumcision Trauma), UNCIRC (Uncircumcising Information and Resources Center), D.O.C. (Doctors Opposing Circumcision), NOHARMM (National Organization to Halt the Abuse and Routine Mutilation of Males), MUSIC (Musicians United to Stop Involuntary Circumcision), Boys Too (as in "Boys Too Deserve the Same Protection as Girls"), Mothers Against Circumcision, OUCH (Outlaw Unnecessary Circumcision in Hospitals), S.I.C. Society (Stop Infant Circumcision Society), Nurses for the Rights of the Child, ARC (Attorneys for the Rights of the Child), and In Memory of the Sexually Mutilated Child. These groups argue that the promotion of routine male circumcision lacks scientific merit and is morally unjustifiable.

Routine neonatal male circumcision has also been opposed on moral grounds. Benatar and Benatar (2003) noted that circumcision in adulthood is never a moral issue, nor is therapeutic male circumcision. Legal and moral/ethical debates about routine medical non-therapeutic male circumcision in infancy centre on the legality of neonatal circumcision, informed consent, child abuse and sexual pleasure. Six fundamental questions have been at the centre of the ethico-legal debate:

1. Is routine medical male circumcision legal?
2. Does this circumcision constitute genital mutilation?
3. Is routine non-therapeutic male circumcision child abuse?
4. Are parents morally justified to give consent on behalf of their children?

5. Is it ethical and morally justifiable to deprive children of potential sexual enjoyment in adulthood?
6. Is it morally acceptable to do potentially harmful elective surgery based on benefits whose evidence is equivocal?

2.5.1 Is male circumcision legal?

There is limited literature on the legality of male circumcision in many African countries south of the Sahara except South Africa where the Children's Act of 2005 prohibits the circumcision of children under the age of 16 except for religious or medical reasons. In developed countries where ethical and legal debates about circumcision have been raging, male circumcision is assumed to be lawful. In the United Kingdom, the legality of male circumcision is beyond doubt despite its potential to cause permanent bodily harm (Fox and Thomson, 2005). In a landmark case *R. v Brown* in England, Lord Templeman noted in an *obiter dicta* that despite the fact that male circumcision may involve serious bodily harm being inflicted on a person, it is in fact lawful to the extent that the injured person was a willing participant. The British Medical Association (2004) published guidelines for doctors on the legality of male circumcision and noted that circumcision is considered lawful if it is performed competently, if it is believed to be in the child's best interest, and if there is valid consent.

2.5.2 Is male circumcision genital mutilation?

The arguments on whether circumcision is mutilation are usually related to that of whether it constitutes child abuse. According to Darby and Svoboda (2007), the debate on whether circumcision is mutilation arises from the definitions of the two concepts and as a result of that

problem, the objective discussion of the risks and benefits of both are lost. They noted that the controversy is a result of the compartmentalisation of male and female circumcision into two categories, the first known as male circumcision while the second is known as female genital mutilation. WHO (2014) classifies female genital mutilation as a violation of human rights and defines it in terms of the following characteristics:

- ✓ Intentionally altering the female genital organs for non-medical purposes.
- ✓ The procedure has no health benefits for girls and women.
- ✓ Procedures can cause severe bleeding and problems urinating, and later cysts, infections, infertility as well as complications in childbirth and increased risk of new-born deaths.

Based on the above for female genital mutilation (FGM), some scholars such as Fox and Thomson (2005) have argued that there is no objective difference between the characteristics of female genital mutilation and those of male circumcision. However, Benatar and Benatar (2003) argue that not all body altering surgery is considered to be mutilation. They argued that procedures such as breast reduction, liposuction and rhinoplasty alter bodily appearances but those who opt for them do not consider them as mutilation. They further argued that where mutilation has some benefits, it can be morally justifiable. In their argument, they further contend that even if male circumcision is considered to be mutilation, it does not make it morally unacceptable.

2.5.3 Is male circumcision child abuse?

The World Health Organisation (2015) defines child abuse or maltreatment as "all forms of physical and/or emotional ill-treatment, sexual abuse, neglect or negligent treatment or commercial or other exploitation, resulting in actual or potential harm to the child's health,

survival, development or dignity in the context of a relationship of responsibility, trust or power." Hampton (2010) noted that neonatal circumcision fits very well into the definition of child abuse arguing further that the current practice of not classifying it as such constitutes selective application of the law in favour of girls.

2.5.4 Is parental consent to neonatal MC morally justifiable?

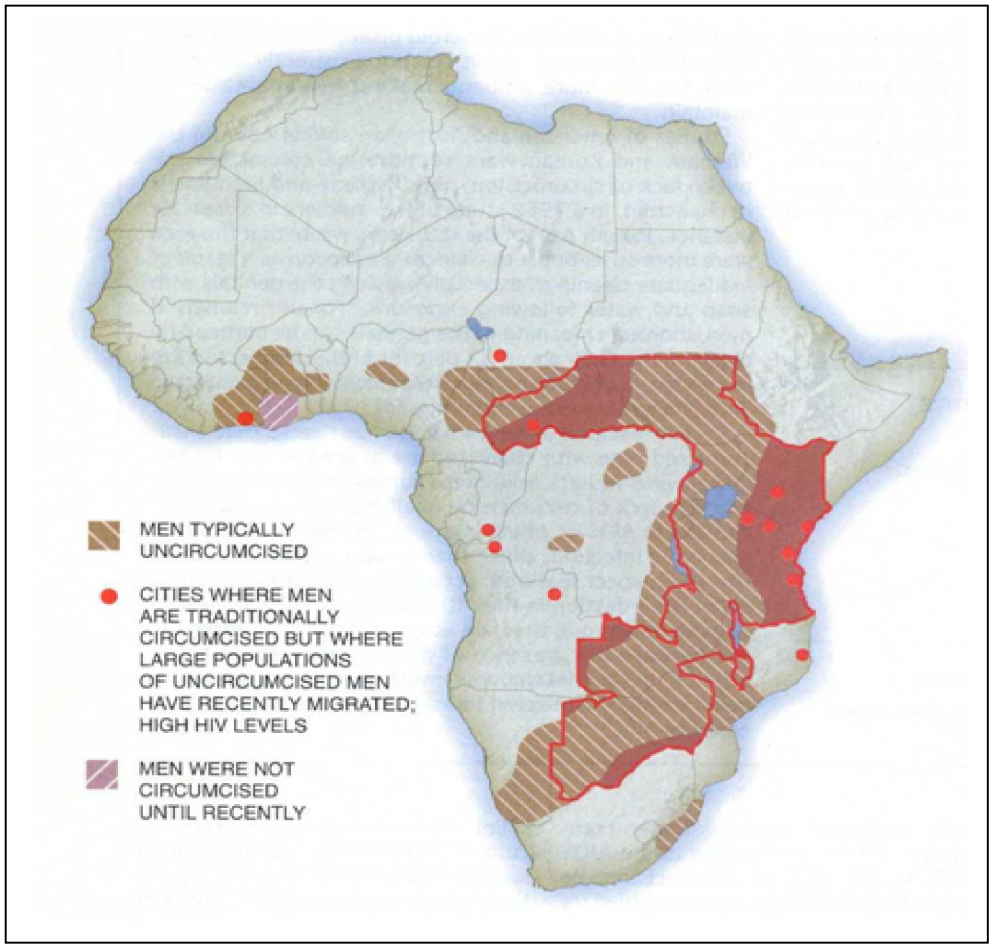
In the absence of appropriate consent or exceptional circumstances, male circumcision is considered as a form of assault (Benatar and Benatar, 2003). Levine (1991) identified four attributes of consent from the Nuremberg Code without which consent cannot be considered valid: it must be voluntary, informed, comprehending and made by a legally competent person. The legality of parental consent in male circumcision cases has never been in question but opponents of the procedure argue that parents are not justified in giving that consent because circumcision is neither a medical emergence nor medically necessary (Slosar and O'Brien, 2003). In many legal systems, children are considered to be legally incompetent to make decisions. However, the British Medical Association (2004) recommends that competent children may decide for themselves and that their wishes must be taken into account. Where parents disagree on whether their child should be circumcised or not, the BMA advises doctors to get leave of a court before surgery and that all consent must be confirmed in writing.

2.6 Medical male circumcision as prophylaxis against HIV

Recent ecological studies in South Africa, Uganda and Kenya have linked medical male circumcision with diminished chances of getting infected with HIV among men (Auvert et al., 2005; Gray et al., 2007; Bailey et al., 2007). An earlier study in the 1990s attempted to establish

a link between the geographic incidence of male circumcision and the sero-prevalence of HIV (Moses et al.., 1990). In this study, the researchers took ethnographic data on circumcision practices of over 700 ethnic groups in Africa and used this to construct a map showing the geographic distribution of male circumcision. They also took data on sero-prevalence and juxtaposed it on the map of circumcision prevalence. They noticed that there were large differences in HIV sero-positive prevalence between the populations practising male circumcision and those who were not (Figure 2.1). The researchers attributed the variations in HIV prevalence to the observed differences in the prevalence of male circumcision.

Figure 2.1: Linkages between male circumcision and HIV prevalence



Source: Moses et al. (1990)

2.7 The randomised controlled trials (RCTs)

Three randomised controlled trials were carried out and concluded that medical male circumcision can reduce the risk of getting infection with HIV for men by between 51 and 64 percent. In the first RCT at Orange Farm in South Africa carried out between 2002 and 2005, three thousand two hundred and seventy four (3 274) men between 18 and 24 years were selected and screened for HIV (Auvert, et al., 2005). Those assigned for immediate circumcision were advised to wait for complete healing of the wound before resumption of sexual intercourse. Information on HIV prevention and other STIs was continually provided to participants throughout the study. Within 18 months, results showed that medical male circumcision provided a 61 percent reduction in the risk of getting infected with HIV. In Kenya and Uganda, Bailey et al. (2007) and Gray et al. (2007) respectively designed similar studies and their results supported the findings of Auvert et al. (2005).

While the evidence provided by the three RCTs has been widely accepted as justification for the continued circumcision of neonates in developed countries and for up-scaling non-therapeutic medical male circumcision for AIDS-hit Africa, critics have questioned the methodological plausibility of the famous RCTs. Boyle and Hill (2011) have argued that the RCTs did not sufficiently control for biases such as the researcher expectation, selection and sampling biases. Medical associations in the United States of America and in Australia have pointed out in statements that the protection against HIV and other infections was not sufficient to justify the up-scaling of the procedure. Darby and Van Howe (2011) noted that the adoption of medical male circumcision as a prophylaxis against HIV ignores the doubts about the robustness of the RCTs, underestimates the risks and harm of male circumcision, and ignores questions about medical ethics and human rights. They further note that the 60 percent efficacy provided by medical male circumcision is an overestimation given that a meta-analysis by

Siegfried et al. (2009) in the Cochrane Review put the efficacy at between 38 and 66 percent. Talbott (2007) also noted that cross-country regression data do not support advocacy to up-scale medical male circumcision as fundamental in the fight to slow down the AIDS epidemic. Despite some of these concerns, the World Health Organisation (WHO) endorsed the procedure for HIV prevention in 2007.

2.8 Emerging debates on VMMC for HIV Prevention

The findings of the RCTs had a profound impact on the drive to scale up medical male circumcision for HIV prevention. They also led to debate on safety, accessibility, the involved costs and acceptability of the procedure to non-circumcised communities. However, Williams et al. (2006) noted that the impact of medical male circumcision would be very limited in sub-Saharan Africa. They argued that even if the whole population of males in sub-Saharan Africa was circumcised; HIV cases would be reduced by a mere eight percent while the number of deaths would decline by only one percent. Findings from the Zimbabwe Demographic and Health Surveys of 2006 and 2011 also cast a shadow on the efficacy of male circumcision in reducing the risk of getting infected with HIV. Findings of the 2010-11 Zimbabwe Demographic and Health Survey (ZDHS) showed that circumcised men had a higher HIV prevalence when compared to uncircumcised men (ZIMSTAT and ICF International, 2012; page 227). In particular, the promotion of voluntary medical male circumcision has raised concern on the following areas:

- ✓ The mechanism through which medical male circumcision provides protection against HIV;
- ✓ Complications and safety outcomes;
- ✓ The economics of promoting voluntary medical male circumcision for HIV prevention;

- ✓ Acceptability of voluntary medical male circumcision in traditionally non-circumcising areas;
- ✓ Risk compensation or behavioural disinhibition;
- ✓ The possible impact of male circumcision on sexual pleasure; and
- ✓ Possible contribution and implications of rolling out voluntary medical male circumcision on women.

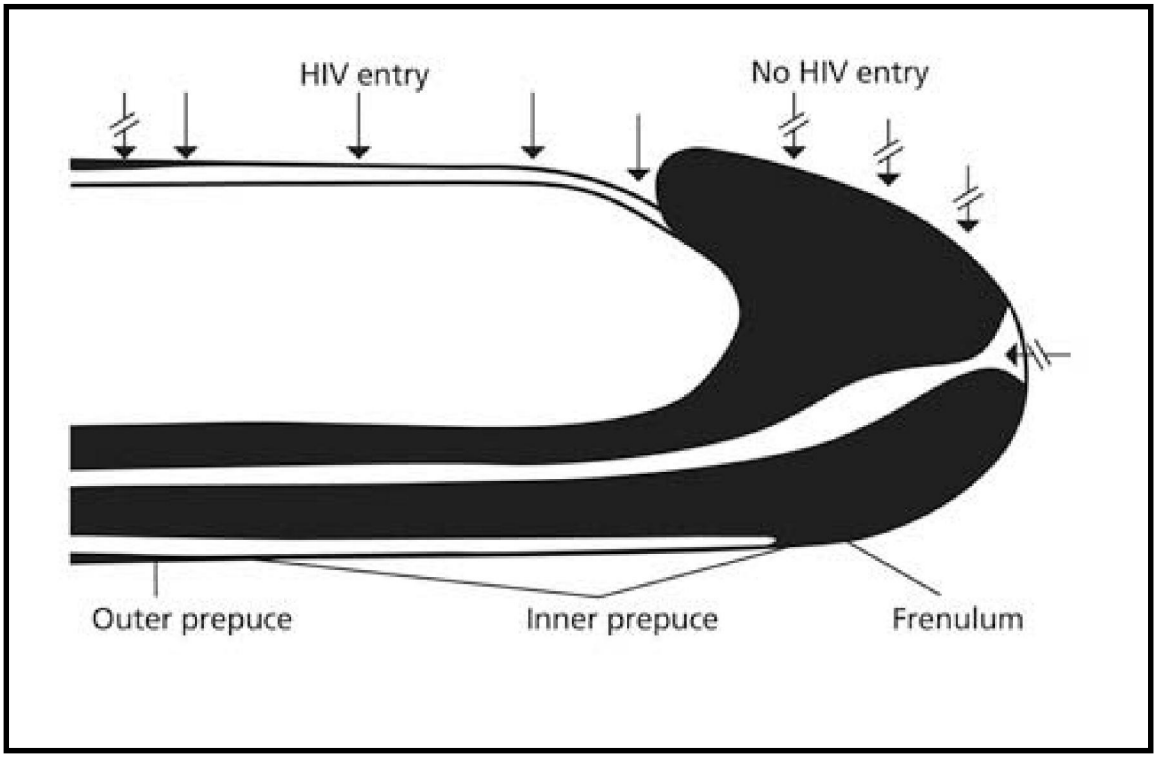
The on-going debates around the areas highlighted above are elaborated in the following sections.

2.8.1 Mechanisms of protection

Following the RCTs, a biologically plausible explanation for the observed efficacy of medical male circumcision against HIV was sought. It was suggested that the removal of the foreskin may help reduce the chance of getting infected with HIV in several ways. First, it was noted that the presence of the foreskin leaves the inner surface soft thus rendering it vulnerable to cuts and grazes. This in turn would aid the entry of infections (McCoombe and Short, 2006; Szabo and Short, 2000). Furthermore, the presence of Langerhans cells and CD4 cells close to the epithelium of the foreskin makes it an easy target of the HIV virus (Donoval et al., 2006; McCoombe and Short, 2006; Patterson et al., 2002). This is further worsened by the conditions underneath the foreskin which favour the multiplication of infectious agents. Price et al. (2010) observed that men who had undergone male circumcision had fewer harmful bacteria. It has also been suggested that the presence of the foreskin increases the surface area of the foreskin which is exposed to the HIV virus. This makes uncircumcised men more vulnerable to HIV infection when compared to circumcised men (Kigozi et al., 2009). The vulnerable portions of the human uncircumcised penis through which HIV is believed to enter are shown in Figure

2.2. In short, the removal of the prepuce hardens the vulnerable portions of the penis thus making it difficult for the virus to enter the human body.

Figure 2.2: Possible HIV entry points



Source: McCoombe and Short (2006)

2.8.2 Complications and safety outcomes of MC

Male circumcision, traditional or medical, has been associated with different types of complications. However, studies that specifically focus on the prevalence and severity of male circumcision have been limited. According to Muula et al. (2007), there is limited published literature on the complications of male circumcision in sub-Saharan Africa and the available evidence is conflicting. This was also supported by Weiss et al. (2010) who noted that the study of complications resulting from male circumcision is difficult owing to methodological

variations, for example, in the duration of follow-ups, the epidemiological design and the definition of a complication. Despite the reported scarcity of literature on complications, a few studies have been done and these have focused on the prevalence of adverse events arising from male circumcision. These studies concentrated on the types of complications that arise as a result of the instrument used, the circumciser or whether the circumcision is done in a medical or traditional set up.

Complications associated with male circumcision have been categorised by the onset of complications (e.g. see Muula et al., 2007; Peltzer et al., 2008) or by their severity (see Weiss et al., 2010). Some complications show immediately after circumcision while others show after a prolonged period of time. Williams, Chell and Kapila (1993) categorised complications into operative and non-operative. Common complications of male circumcision include skin bridges, skin tags, scarring, hairy shaft, wound dehiscence, haemorrhage, ablation, loss of glans, deformity, priapism, gastric rapture, necrotising fasciitis, penoscrotal webbing, neuroma, urethrocutaneous fistula, meatal stenosis, buried penis, infections (for example staphylococcus, hepatitis B, tetanus, bladder infections, and septic arthritis), and death. Although cases of mortality related to male circumcision have been reported, for example by Wilcken, Keil and Dick (2010), these are very few. In a systematic review of prevalence and complications of male circumcision, mortality related to circumcision was found to be only 0.2 percent in Eastern and Southern Africa (Wilcken et al., 2010). Largely, complications arising from circumcision are minor and can be easily treated (Muula et al., 2007).

Country-specific studies have been done in Africa and these show a complications rate ranging from 0 to 50.1 percent (Muula et al., 2007). In Kenya, Bailey, Egesah and Rosenberg (2008) compared the prevalence of complications arising from traditional and medical circumcision.

They found the rates at 35.2 percent and 17.7 percent respectively. Bleeding and infection were the most common complications while others included excessive pain, lacerations, torsion and erectile dysfunction. Still in Kenya, Bailey and Egesah (2006) found that the rate of complications was higher among those circumcised in traditional settings (34.3 percent) compared to 22.5 percent for private facilities and 11.1 percent for public facilities. In Nigeria, Okeke, Asinobi and Ikuerowo (2006) reported an overall prevalence of 20.2 percent and that 53.8 percent of those who experienced an adverse event had redundant skin, 24.6 percent had excessive loss of the foreskin, 16.9 percent had skin bridges, 3.1 percent had their glans-penis amputated, and 1.5 percent had a buried penis. In South Africa, Peltzer et al. (2008) studied the rate of complications among 192 initiates in the Eastern Cape 14 days after circumcision. They found that 20.8 percent had mild delayed wound healing, 16.2 percent had mild wound infection, 10.5 percent had mild pain and 10.4 percent had insufficient skin removed.

In other studies out of Africa, Ahmed et al. (1999) studied complications of traditional male circumcision among children between 3 months of age and 7 years in the Comoros Islands. They reported that 52 percent experienced haemorrhage, 4.8 percent had an infection and that one case resulted in the amputation of the penis. Other complications they observed were meatal stenosis and urethrocutaneous fistula. In Iran, Yegane et al. (2006) studied late complications of circumcision and reported a rate of 7.3 percent. The most common complications included excessive residual foreskin (3.6 percent), excessive removal of the foreskin (1.3 percent), meatal stenosis (0.9 percent) and granoloma (0.7 percent). Ben et al. (2005) studied complication rates in Israel where nearly all men are circumcised as a religious ritual. The overall complication rate was 0.34 percent and they found no significant difference in complication rates and type of complications between medical and ritual circumcisions done by a Mohel.

After a systematic review of literature on complications, Weiss et al. (2010) concluded that adverse events after circumcision are directly related to factors such as the age at circumcision, the training and experience of the provider, the sterility of the conditions during circumcision, and the indication (medical/cultural).

Perera et al. (2010) did a systematic review of literature on randomised controlled trials specifically focussing on safety and efficacy of non-therapeutic medical male circumcision. They observed that medical male circumcision is generally safe with few studies reporting adverse events after the procedure. Only three studies reported a 4.8 percent prevalence of adverse events after circumcision, while another study reported adverse events such as problems with urinating, mild erectile dysfunction and dissatisfaction with the appearance of the penis. Weiss et al. (2010) also did a systematic review of literature on complications associated with neonatal medical male circumcision and concluded that studies report very few severe complications except in cases where the procedure is undertaken at older ages, by inexperienced providers or in non-sterile conditions.

Kigozi et al. (2008) analysed the occurrence of adverse events among HIV positive and HIV negative men in Uganda and observed that infections were the most common adverse events in both groups. They concluded that risks of complications were similar among HIV positive and negative men and that these are more prevalent in men who resume sexual intercourse before the wound is healed completely. An earlier study by Muula et al. (2007) on the prevalence of complications concluded that there is insufficient data to enable an objective assessment of the occurrence of complications of male circumcision in sub-Saharan Africa.

Generally, available literature on the safety of medical male circumcision suggests that the procedure is relatively safe and associated with few severe complications.

2.8.3 The economics of medical male circumcision for HIV prevention

The savings arising from non-therapeutic male circumcision have been used to justify the roll-out of the procedure for HIV prevention. There are two main schools of thought on the economic implications of rolling out male circumcision. The first school of thought argues that the adoption of medical male circumcision would avert costs associated with future medication and related incidental expenditure. On the other hand, there are some who suggest that adopting medical male circumcision is costly and that those who make estimates of the costs of rolling out circumcision often overlook the hidden costs of training staff and upgrading dilapidated medical facilities. McAllister et al. (2008) pointed out that there are a number of competing strategies hence the need to analyse the funding and cost-effectiveness of proposed methods to fight HIV. They argue that in light of the severity of the AIDS epidemic in sub-Saharan Africa, behaviour change programmes accompanied by the provision of free condoms are more efficient and cost-effective measures than promoting a surgical procedure such as male circumcision.

The World Health Organisation (2012) estimated that if 20 million males from high HIV prevalence countries are circumcised, representing about 80 percent coverage, it would cost US$1.5 billion and thus result in savings of US$16.5 billion by 2025 from treatment and care costs. Furthermore, coverage of 80 percent would avert about 3.4 million new infections. A study by Kahn et al. (2006) examining the cost-effectiveness of rolling out medical male circumcision in South Africa concluded that the procedure is in fact a cost-effective approach.

However, other researchers such as Kalichman (2008) have questioned the conclusions reached in that study arguing that it was based on a limited scale of analysis. They argue that a continental study which takes into account all the factors would be more appreciated. McAllister et al. (2008) suggested that there is a need to critically examine the findings of the Kahn et al. (2006) study before any applications can be implemented on a continental scale.

Despite the arguments about the comparative costs of rolling out medical male circumcision against the continued promotion of condoms, WHO states that both methods should be promoted simultaneously because firstly, condom use is not as consistent as it should be to achieve maximum protection due to a number of factors such as religion and power dynamics in a relationship which may diminish the ability of a sexual partner to insist on consistent condom use (Odutolu, 2005) and secondly, because medical male circumcision on its own does not provide 100 percent protection against HIV.

2.8.4 Acceptability of medical male circumcision

Several acceptability studies have been done to verify support for the rolling-out of medical male circumcision for HIV prevention. These studies mostly targeted areas where circumcision is not traditionally practiced. In addition to assessing the acceptability of medical male circumcision, these studies also attempted to document possible barriers to the promotion of the procedure as a prophylaxis against HIV. In a study to assess the acceptability of male circumcision among the Luo in Kenya, Bailey, Muga, Poulussen and Abicht (2002) observed that acceptability of voluntary medical male circumcision for HIV prevention is high. They however noted that the primary barriers to male circumcision were cultural identification, fear of pain and excessive bleeding and costs. They also noted that the clinicians lacked the

knowledge and the resources to offer safe circumcision counselling and services. Generally, they concluded that acceptability was higher than was previously suspected.

In Kenya, Herman-Roloff et al. (2011) conducted a study on the acceptability of voluntary medical male circumcision a year after the launch of the male circumcision roll-out programme. The study conducted 12 focus group discussions with uncircumcised men and one of the primary objectives was to find out some of the barriers and facilitating factors for VMMC uptake. The findings of the study were consistent with other acceptability studies which showed high acceptability levels for VMMC (see for example, Mattson et al., 2005). However, the study observed that the primary barriers to VMMC uptake include time away from work, fear of pain and adverse outcomes, the 6-weeks abstinence period, fear that circumcision may lead to promiscuity and culture and religion. Herman-Roloff et al. (2011) recommended the involvement of religious leaders, women's groups, and making circumcision relevant to men who are already practicing an HIV prevention method.

Acceptability studies were also done in South Africa by Scott, Weiss and Viljoen (2005) and by Lissouba, Taljaard et al. (2011). Both studies reported fairly high acceptability levels for both infant and adult male circumcision for HIV prevention. One salient outcome of the study by Scott et al. (2005) is that the promotion of medical male circumcision could be hampered by logistical barriers particularly the fact that only trained medical doctors could do the procedure. On the other hand, Lissouba et al. (2011) reported on the possible contribution that ethnicity, partners and family could play in the promotion of medical male circumcision. Similarly supportive findings were reported by Lukobo and Bailey (2007) in Zambia, by Mavhu et al. (2011) in Zimbabwe, Kebaabetswe et al. (2003) in Botswana, Brito et al. (2009) in the Dominican Republic, Albert et al. (2011) in Uganda and Tieu et al. (2010) in Thailand.

In Papua New Guinea, Kelly et al. (2012) reported that there is general acceptability of voluntary medical male circumcision for HIV prevention. However, they also noted that circumcision for HIV prevention was viewed as going against existing cultural and religious beliefs, a gender-biased HIV prevention method, and that it might be a burden to the public health system. Overall, studies across different settings have suggested varying levels of acceptability ranging from 29 percent to 87 percent (Westercamp and Bailey, 2006).

2.8.5 Risk compensation after circumcision

It has been suggested that one of the concomitant effects of medical male circumcision could be risk compensation or behavioural disinhibition (Westercamp et al., 2014). This could be a result of the decline in the perception of risk that accompanies circumcision. Studies to ascertain this phenomenon have been carried out mostly in Kenya. Mattson et al. (2008) did a study on respondents in a randomised controlled trial and concluded that circumcision did not result in an increase in HIV risk behaviour. Another study by Westercamp et al. (2014) in the same country followed up circumcised men after 24 months and compared their perception of risk and sexual behaviour to uncircumcised males. Their findings supported the earlier findings by Mattson et al. (2008). They also observed that perception of risk among circumcised men decreased compared to uncircumcised men but that there is no evidence to suggest significant differences in behaviour between the two groups. Westercamp et al. (2014) concluded that fears of risk compensation should not impede the rollout of VMMC for HIV prevention. In Malawi, Godlonton et al. (2011) concluded that circumcised men did not engage in riskier behaviour after learning about the partial protective effect of VMMC. Generally, studies on behavioural disinhibition are still limited to make a conclusive argument, but those available suggest that circumcision does not lead to risk compensation.

2.8.6 Male circumcision, penile sensitivity and sexual pleasure

The removal of the foreskin has been argued to lead to a loss of sensitivity of the penis due to keratinisation (formation of a leathery layer on the glans penis) (Bensley and Boyle, 2000). Garcia (1995) postulated that the circumcised penis loses sensitivity in three main ways. Firstly, circumcision leads to a loss of the foreskin nerves themselves. Secondly, the removal of the prepuce leaves the glans permanently exposed and it becomes artificially keratinized (dry, hardened, discoloured, and wrinkled). Finally, the removal of the foreskin robs the penis of a natural massaging system known as the gliding mechanism. This mechanism helps achieve optimal stimulation of the glans and the removal of the foreskin leaves direct friction as the primary means of stimulation hence a loss of sensitivity. Another explanation of the loss of penile sensitivity after circumcision was offered by Immerman and Mackey (1998) who argued that when the foreskin is removed, the sensory pathways from the penis to the brain are severed. Consequently, atrophy of neurons in the brain may occur due to a loss of erogenous sensory input. However, other scholars such as Collins et al. (2002) have argued that the claimed loss of sensitivity is a myth rather than reality.

A number of studies have been carried out to evaluate the effect of male circumcision on the sexual performance of circumcised men. Such studies focused on three main aspects of sexuality: sexual performance and sexual satisfaction of circumcised men and that of the spouses/partners. A review of these studies shows the great divide and the controversies surrounding the procedure. As early as 1998, Moses, Bailey and Ronald concluded after a review of the available studies then that they could not find adequate scientific evidence to support the notion that male circumcision has adverse effects on sexual, psychological or emotional health. From Australia, Bensley and Boyle (2001) reported completely different

findings. They reported that circumcised men were more likely to cite significantly reduced penile sensitivity, increased ejaculatory problems and greater dissatisfaction with their sex lives than their uncircumcised counterparts. O'hara and O'hara (1999) also reported that partners of circumcised men were more likely to report vaginal dryness and difficulty reaching orgasm than women with intact partners. In Korea, Kim and Pang (2006) studied the sexuality of men before and after circumcision to ascertain any changes and they reported that masturbatory pleasure decreased in 48 percent of the men and masturbatory difficulty increased in 63 percent of the respondents. They concluded that adult male circumcision has negative effects on sexual function in many men possibly because of the loss of nerve endings and complications associated with the surgery.

In Africa, follow-up studies on the RCTs in Kenya have dominated the subject on the effects of medical male circumcision on sexual function. Two such studies by Kigozi et al. (2008 and 2009) followed up participants and their partners 24 months after circumcision. They reported that circumcised men did not experience difficulty during penetration or pain on intercourse. The majority of the women who participated in the study (97 percent) reported either no change or improved sexual satisfaction after the circumcision of their partner. Kigozi et al. (2008 and 2009) concluded in both studies that they did not find sufficient evidence to suggest that circumcision has deleterious effects on sexual function or satisfaction. Krieger et al. (2008) also reported similar findings from the same country and reiterated the conclusion that male circumcision is unlikely to adversely affect sexual performance. A recent newspaper report from Alebtong District in Uganda alleged that women were not happy with the sexual performance of their spouses after undergoing medical circumcision to a point of threatening to abandon them (Oketch, 2014). Similar concerns were also reported from Gulu, another district in Uganda (Nakabugo, 2014).

Given the conflicting findings from the studies cited above, it is difficult to reach a conclusive position on the extent to which male circumcision affects sexual performance and satisfaction in both men and women. It is reasonable to suggest that there is need for further research on the subject particularly from other geographical locations in Africa other than Kenya.

2.8.7 Gender debates on the promotion of VMMC for HIV prevention

In spite of women having the highest HIV prevalence in most countries, a review of literature on medical male circumcision show a glaring absence of studies that specifically analysed the role of women and what they stand to benefit from medical male circumcision (Krieger et al., 2008). Few studies have analysed the potential role of women in the decision-making processes related to male circumcision. A study by Scott, Weiss and Viljoen (2005) suggests that women have an indirect influence on the decision to get circumcised while another study by Rain-Taljaard et al. (2003) suggests a very strong influence. Peltzer et al. (2008) noted that in some traditional settings women play an important decision-making role during preparations for circumcision rituals and in post-operative processes. Studies have tended to focus on sexual enjoyment of women after their partner has been circumcised (for example, Kigozi et al., 2009; Kim and Pang, 2006). Other studies have focussed on the medical benefits of having a circumcised partner and these seem to suggest that women with circumcised partners are at a lower risk of developing cervical cancer and contracting HIV and other sexually transmitted infections among others (Moses, Bailey and Ronald, 1998).

Despite the benefits of having a circumcised partner that have been discussed above, a number of concerns have been raised concerning the promotion of VMMC for HIV prevention among

men. Firstly, it has been noted that VMMC for HIV prevention is only partially protective for HIV negative men but not for their partners unless they use condoms (Berer, 2008). Given that women were finding it difficult to negotiate condom use in a sexual relationship, Berer (2007) has questioned how VMMC would help women in this regard. There has also been concern about the uptake of voluntary medical male circumcision for HIV prevention. Drawing from lessons on the promotion of vasectomy as a family planning method, Berer (2007) has questioned whether men will actually get a circumcision for HIV prevention. She has argued whether it is ethical to encourage certain countries to prioritise the promotion of an HIV prevention method that gives partial protection only to men while women have to wait for 10-20 years before enjoying the public health benefits whose accrual rests on the probability of circumcising the majority of men.

Lastly, there are fears that the promotion of medical male circumcision, if not handled well may conflate with female genital mutilation, unsafe sex and gender based violence. Hankins (2007) noted that there is a real danger that unsafe sex and/or violence against women may increase as a result of the promotion of voluntary medical male circumcision for HIV prevention. Berer (2007) supported this notion by noting that some men may feel entitled to have sex with whomever and wherever they want; thus creating a conducive environment for rape and violence against women.

2.9 Masculinity and men's health-seeking behaviour

It has already been noted above that one of the elements in traditional male circumcision is the induction of 'boys' into manhood. It was noted that among the Aborigines, traditional male circumcision is characterised by wailing women who are symbolically mourning separation

from their sons and celebrating men symbolically welcoming the boys into manhood (Emery, 2005). It has also been noted that among some Xhosa tribes, male circumcision transforms a boy into a man and qualifies him to marry and be given land (Vincent, 2008). The significance of these events cannot be overemphasized in the context of traditional male circumcision. However, the same enthusiasm about men looking forward to getting a circumcision for HIV prevention cannot be assumed without contextualising men's health-seeking behaviour.

There is a general absence of literature on medical male circumcision and men's health-seeking behaviour. However, there is literature to suggest that men are not always forthcoming when it comes to matters that affect their health (Galdas et al., 2005; Smith et al., 2006; Garfield et al., 2008). It has been observed that men across all age groups are likely to experience cancer, suffer from heart disease and die younger than their female counterparts (Rich and Ro, 2005). A similar study suggested that men are likely to die younger than women and have higher death rates for all the known leading causes of death (Felix-Aaron et al., 2005). In Malawi, Parrott et al. (2011) observed that while the roll-out of free antiretroviral therapy (ART) had caused significant improvement in the prospects of life among HIV positive persons, men sometimes present themselves for ART with advanced HIV disease. Similarly, in Uganda men were found to be reluctant to participate in couple HIV testing during antenatal care despite them having complete knowledge of the availability of this service (Larsson et al., 2010). Given these statistics, it is important to look at literature on masculinity and men's health-seeking behaviour.

Several researchers have focused on the construct of masculinity in an attempt to explain men's health-seeking behaviour (for example, Courtenay, 2000; O'Loughlin et al., 2011; Chapple et al., 2004). They generally concluded that masculinity is a significant factor when attempting

to understand men's health seeking behaviour. Gutmann (1997) identified four distinct ways in which the concept of masculinity is defined by anthropologists. Firstly, masculinity is defined as anything that men think and do. A second definition extends the above by pointing out that masculinity is defined by what men think and do to be recognised as men. The last two definitions of masculinity bring in a comparative dimension. In the first dimension, men are compared amongst themselves thus making some men "more manly" than others, and secondly men are compared with women. In the latter, masculinity is thus defined as anything that women are not (p. 386). These definitions are very important in the context of health-seeking because they define what men do and cannot do in relation to their health.

The construction of masculinity involves several culturally prescribed norms or expectations about what makes a man. According to Courtenay (2000), men are in constant struggle to acquire power and recognition in a very competitive society. This struggle for power demands that men must suppress their pain and refuse to admit their need for help. At the same time, they must exhibit emotional and physical control, maintain an appearance of robustness and insatiable interest for sex, display aggressive behaviour and physical dominance (Courtenay, 2000). Thus, in constructing masculinity, men expose themselves to risk by ignoring their health-care needs, health care utilisation, and positive health beliefs and behaviours which are generally perceived as feminine characteristics (Courtenay, 2000). In other words, succumbing to an illness and consequently complying with certain positive health behaviours may have serious implications on a man's social standing in masculine hierarchies and on his power relations with women (Charmaz, 1995).

The arguments put forward by Courtenay (2000) have been supported by research findings on different illnesses and in different contexts. In a study on testicular cancer among men in the

United Kingdom, Chapple et al. (2004) noted that men delayed seeking treatment because, firstly, they did not recognise the symptoms and secondly, they feared appearing weak among their peers. O'Loughlin et al. (2011) also reported of men who delayed seeking treatment for depression and even preferring a wait-and-watch approach after diagnosis. In a study on perceptions and experiences of breast and prostate cancer among African-Canadian men and women in Nova Scotia, Evans et al. (2005) discovered that men avoided digital rectal examinations for prostate cancer screening because they associated penetration of the man's body with homosexuality and diminished masculinity. They also noted that men preferred ignorance of their condition instead of knowing which leads to treatments that diminish their image of masculinity. Similarly, men expressed shock and embarrassment when they were diagnosed with breast cancer, a condition that has been socially constructed as feminine.

In relation to the promotion of VMMC for HIV prevention, men's health-seeking behaviour cannot be over-emphasised. According to Berer (2007), the promotion of male circumcision for HIV prevention might suffer the same fate as the promotion of vasectomy for birth control because men are not used to being the centre of the public health discourse. While masculinity is an important variable in the discourse of VMMC for HIV prevention, it may not be sufficient to explain how males may ultimately fail to get a circumcision. It is important to note that the context within which health services utilisation occurs is a function of the conceptualisation of disease, its causes, manifesting symptoms and the prognosis (Olenja, 2003).

2.10 Summary

The literature presented in this chapter can be grouped into three main sections. The first part looked at the origins and socio-cultural significance of male circumcision in religion, in

traditional rituals and in medicine. The significance of the practice in religion and culture were included to show that circumcision in many parts of Africa and elsewhere is accompanied by cultural rituals which give the practice meaning beyond the mere laceration of the foreskin. It was felt that the history of circumcision in Europe and the United States of America is relevant to this discussion because it gives a background to the argument that medical practitioners have been justifying the continuance of neonatal male circumcision without an objective analysis of the evidence. The second part of the literature focussed on the current discourses on male circumcision and HIV prevention. What is clear from the literature is that there are various meanings attached to traditional male circumcision but little research has been done to understand the meanings that people attach to medical male circumcision for HIV prevention in communities that do not traditionally circumcise. Thirdly, the review of literature looked at men's health-seeking behaviour and health services utilisation. The review on health-seeking behaviour among men provides us with an understanding of how well informed individuals may choose not to access a service because accessing it would amount to redefining their understanding of being a man.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

The main objective of this study was to explore the implications of rolling out voluntary medical male circumcision for HIV prevention for men and women in Zimbabwe. The last chapter presented literature on the socio-cultural and religious significance of male circumcision and the contemporary debates surrounding male circumcision for HIV reduction. This chapter outlines the methodological approaches that were adopted in order to answer the research questions outlined in the first chapter. The present chapter is organised into several sections. The first section looks at the research design that was used in this study. Subsequent sections present information on sampling and sample size determination, qualitative and quantitative data collection methods and analysis approaches, and ethical considerations. The chapter concludes by looking at some of the limitations of this study.

3.2 Study design

For many years researchers have been caught in the paradigm wars between qualitative and quantitative approaches. The quantitative paradigm emphasizes that social science inquiry should be objective and that the observer is separate from the entities that are being observed (Johnson and Onwuegbuzie, 2004). The major strengths of the quantitative approach are that findings can be generalised where the sample was randomly selected and confounding variables can be controlled. The major weakness of this approach is that it has weak external validity (Johnson and Onwuegbuzie, 2004). Johnson and Onwuegbuzie (2004) also note that it is not always possible to objectively measure much of what happens in social contexts. On the

other hand, advocates of the qualitative approach argue that generalisations are neither desirable nor possible (Johnson and Onwuegbuzie, 2004). The investigator is viewed as part of the research process and brings in valuable subjective viewpoints to the subject under investigation. To overcome the inherent weaknesses in both the quantitative and the qualitative approaches and to benefit from the strengths that each approach has, the present study adopted the mixed methods design. According to Creswell (2006, p. 5), the mixed methods design collects both qualitative and quantitative data in a single study in order to have a holistic picture of a problem being studied.

The mixed methods design is a fairly recent approach in research methodology and as a result varying definitions of the approach have appeared in literature. Greene, Caracelli and Graham (1989) emphasised that mixed methods involve the use of at least one quantitative and one qualitative method which is not inherently linked to any particular paradigm. However, recent definitions of the approach focus on the methods, philosophy and research design (Creswell and Plano Clark, 2011). According to this approach, the mixed methods design is defined as a research methodology which focuses on questions that demand practical approaches and multi-dimensional perspectives with a view to quantifying the magnitude and frequency of constructs through the use of quantitative techniques and using qualitative techniques to gain understanding of the meanings associated with those constructs (Creswell, Klassen, Clark and Smith, 2011). In choosing the mixed methods design, it was felt that neither the quantitative nor the qualitative designs was sufficient on its own to enable this study to meet its objectives and answer the research questions. The mixed methods design therefore offered an opportunity to develop multiple perspectives on the promotion of voluntary medical male circumcision for HIV prevention in Zimbabwe.

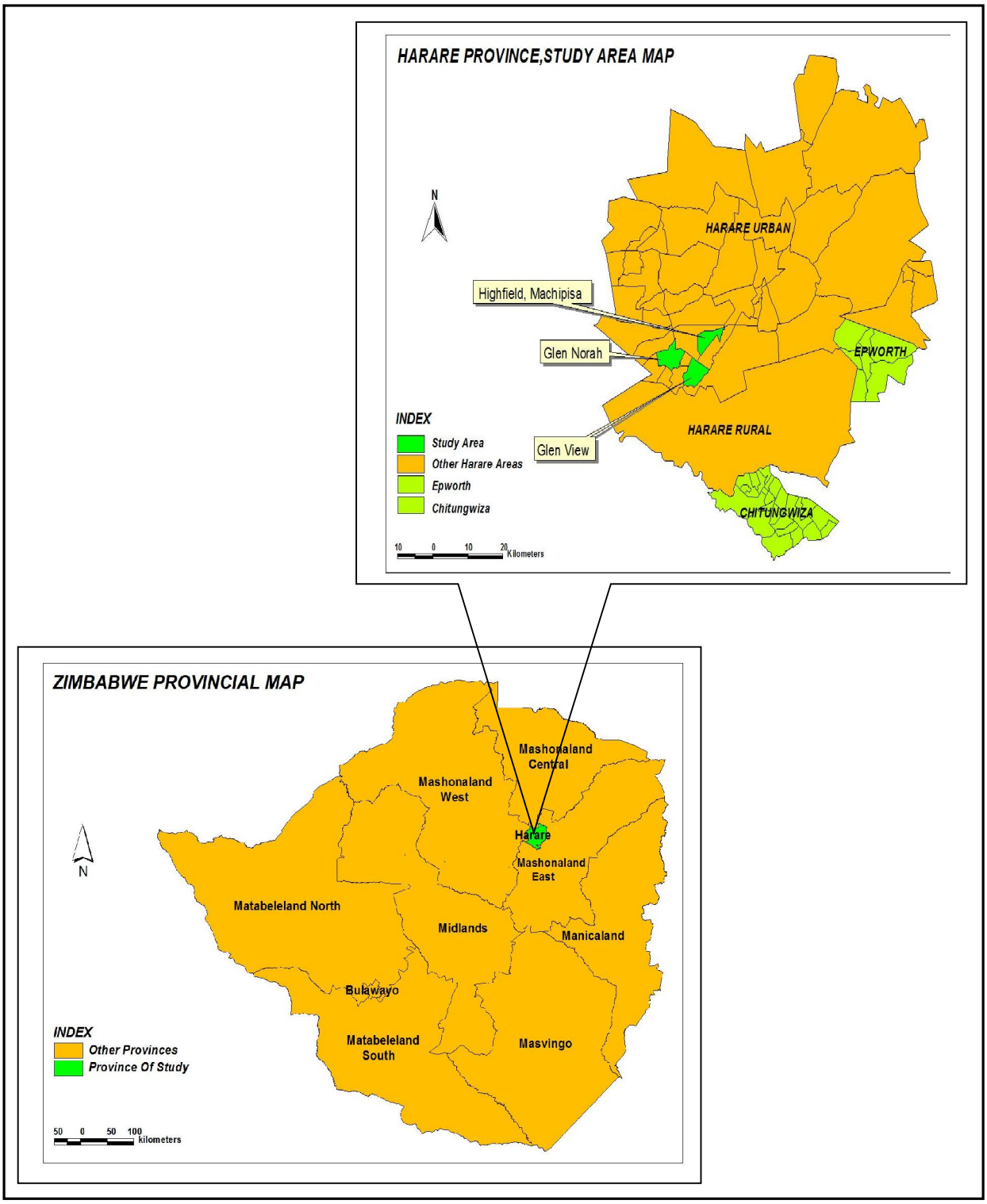
There are several designs within the mixed methods approach. These include the convergent design; the exploratory design; the explanatory design; the embedded design; the transformative design and the multiphase design (see Creswell and Plano Clark, 2011). The selection of any of these designs is guided by the objectives of the research and the relative value given to either qualitative or quantitative data that will be collected in the study. This study chose the convergent parallel design. In this design, two data sets of quantitative and qualitative data are collected independently then merged during analysis or interpretation. This design was selected because of its efficiency in data collection given the limited time and the potential risk that was associated with prolonged data collection in the run up to the general elections. In addition to its efficiency, the design was also chosen because it gives equal weight to both qualitative and quantitative data. The merging of the two data sets was done during the overall interpretation of the study findings.

3.3 Study setting

The present study was done in the suburbs of Highfield, Glen View and Glen Norah in Harare urban, Zimbabwe. The three locations are high density suburbs and are some of the oldest in Harare. The population in these locations is made up of people of mixed socio-economic backgrounds. The selection of these study sites was based on accessibility given that the country was heading for general elections and there were fears of politically motivated violence in some areas. The original sampling design for this study envisaged the comparison of rural and urban respondents in terms of their knowledge and acceptability of male circumcision for HIV prevention. It was felt that this comparison was necessary given the differential exposure to information between rural and urban residents. This design was however modified owing to political uncertainty and fears of alleged politically motivated violence in rural areas. In the

end, the study focused on Harare urban residents only instead of Harare and Mazowe as earlier planned. This change necessitated an upward review of the originally intended sample size for Harare urban. In spite of the political climate that existed during the data collection phase, there is no reason to suspect that this might have affected the quality of data that was eventually collected for this study. The study sites are shown in Figure 3.1.

Figure 3.1: Study areas



3.4 Sampling design and sample size determination

The sampling design used for this study was guided by the fact that the study adopted a mixed methods research design. In line with the mixed methods research design, a mixture of random and non-random sampling methods was adopted. Consequently, convenience sampling was used to select study areas while systematic sampling was used to select households from which individual respondents were drawn. Key informants were selected using purposive sampling. The sampling frame for individual respondents consisted of men and women aged 18 years and above living in households in purposively selected enumeration areas (EAs) mapped during the 2012 Zimbabwe National Census in Highfield, Glen View and Glen Norah in Harare. These enumeration areas were selected because of their proximity and accessibility.

A sample size of 499 males and 182 females was determined using a statistical formula for proportions. The formula used a maximum variability of 0.089 which represents the male circumcision prevalence in Harare according to the findings of the 2010-11 Zimbabwe Demographic and Health Survey (ZIMSTAT and ICF International, 2012). The sample size of female respondents was determined as a proportion, approximately 35 percent, of the male sample. Based on these sample sizes, this study did not attempt to generalise its findings to the entire population.

The nature of this study deliberately targeted men to gather information on their support for voluntary medical male circumcision for HIV prevention. It is therefore not surprising that men constituted 73 percent of the sample. Generally, the whole sample was young with a combined mean age of 29.9 years. The average age for men and women was 30.5 years and 28.2 years respectively. Fifty four percent of the entire sample was in the age category of 18-29 years.

The majority of respondents (60 percent) reported that they are married or living together while 33 percent had never married. In terms of education, 96 percent of the respondents had at least a secondary education.

Respondents were also categorised according to their religion and employment status. While there were several categories for the variable "religion", these were later collapsed into only two because the majority of respondents (83 percent) reported that they belong to a Christian denomination while the remainder reported to be Muslims (0.6 percent), atheists (8 percent), traditionalists (0.6 percent) or "other" (7 percent). In terms of employment, the majority of respondents (56 percent) reported that they were self-employed while 28 percent reported to be in formal employment. The characteristics of respondents are summarised in Table 3.1.

Table 3.1: Sample Characteristics

Background Characteristic		Percent (%)	Number (n=681)
Age			
	18-29	54.0	368
	30-39	32.9	224
	40-49	13.1	89
Gender			
	Male	73.3	499
	Female	26.7	182
Marital Status			
	Never married	33.8	230
	Married/Living together	60.2	410
	Formerly married	6.0	41
Level of Education			
	Primary	4.0	27
	Secondary	80.6	549
	Tertiary	15.4	105
Religion			
	Christian	83.3	567
	Other	16.7	114
Employment Status			
	Formally employed	28.6	195
	Self-employed	56.8	387
	Unemployed	11.6	79
	Dependant	2.9	20
Total		**100.0**	**681**

3.5 Quantitative data

Quantitative research involves the collection of numerical data which is then analysed using mathematically based approaches, in particular statistics (Aliaga and Gunderson, 2000). There are several reasons for collecting quantitative data in a research study. Muijs (2011) identified four main types of research questions that can be answered using quantitative data. Firstly, quantitative research is most suitable when attempting to answer a numerical question such as the number of people who report to be circumcised. Also, quantitative methods can be used where there is need to ascertain numerical change, for example whether or not there is a rise or

fall in circumcision prevalence. Thirdly, quantitative research can be used when attempting to understand the state of something, for example factors associated with being circumcised. Finally, quantitative research is used when there is need to test hypotheses. In selecting a mixed methods research design that collects quantitative data, the present study was motivated by the desire to answer numerical questions on the prevalence of both traditional and medical male circumcision. The study also sought to find out among circumcised men the median age at circumcision. In addition to that, quantitative data was collected so that there is a better understanding of factors associated firstly with circumcision and secondly with support for voluntary medical male circumcision.

3.5.1 Data collection instrument

Quantitative data in this study was collected using a standard questionnaire. Questionnaires are generally known for their swiftness in gathering information in survey research. In adopting the questionnaire as a method of data collection, several considerations were taken into account. Firstly, the method of administering a questionnaire can have a significant impact on the outcome of a study. An obvious option would be to let selected respondents self-administer the questionnaires on their own. This could have made data collection relatively cheaper, quick and convenient for respondents, and free of interviewer variability. However, it was felt that this approach would deprive the study the opportunity to clarify items in the questionnaire thus affecting the quality of data. It was feared that letting respondents self-administer the instrument could lead to some items on the questionnaire being interpreted differently. Furthermore, response rates for self-administered questionnaires are known to be generally low. Given the above, the present study chose to administer the questionnaire to respondents through an interview. Four research assistants were employed to conduct the interviews. The

selected assistants were university students. To overcome interviewer variability which is inherent in this approach, all interviewers were thoroughly trained on the objectives of the study, the methodology and how to conduct a successful interview. In addition and as part of the training, the interviewers were afforded the opportunity to carry out real-life interviews during a pre-test that was conducted prior to the main data collection.

The second major consideration in adopting the questionnaire was the structure of the instrument. A structured questionnaire has predetermined responses hence is very fast in collecting data. However, it was felt that this alone would deprive the study of valuable insights that may be gathered through open-ended questionnaire items. Thus, items on the known and perceived advantages and disadvantages of male circumcision were left as open-ended items whose responses were then coded before data analysis.

The questionnaire itself consisted of four sections. The first section collected basic demographic and socio-economic data about the respondent. These included a respondent's age, gender, marital status, religion, level of education and employment status. These background characteristics were used in bivariate and logistic regression analysis as independent variables. The second section of the questionnaire solicited information about a respondent's knowledge of HIV, its transmission and prevention modalities. Also in this section, information was sought about a person's perceived risk to contracting HIV and a person's sexual behaviour. The latter items consisted of proxies of risky sexual behaviour such as condom use, number of sexual partners, drunkenness during sex and HIV testing. These indicators were used to test if there are significant variations in support for medical male circumcision among men who are circumcised and those who are not. The third section of the questionnaire sought information about a respondent's sources of information on male

circumcision. This is important because it was used to determine the extent to which information on medical male circumcision has been distributed under the current promotion of the procedure for HIV prevention. Respondents were also asked to give information on what they understood from advertisements of medical male circumcision and on whether they believe the procedure works for HIV prevention. In addition to that, items on perceived/known advantages and disadvantages of male circumcision, knowledge of a place where someone can get a circumcision, the cumulative costs of getting to a place offering VMMC were also included. Finally, the questionnaire consisted of twenty Likert-scale items which solicited respondents' opinions on various items on the subject of medical male circumcision.

3.5.2 Quantitative data analysis

After data collection, all open-ended items in the questionnaires were coded according to the main themes. For example, responses to an open-ended item on the perceived disadvantages of medical male circumcision were coded into six categories. Many responses to this item mentioned pain as a disadvantage of VMMC, some mentioned complications associated either with the procedure or the healing process, and yet others mentioned that the promotion of VMMC might lead to behavioural disinhibition. Responses which could not fit into these broad themes were categorised as "other". After coding, data was entered into SPSS for statistical analysis. The latter involved descriptive statistics to determine the prevalence of both traditional and medical male circumcision and other variables of interest such as the median age at circumcision, bivariate analysis to determine the association between two variables, for example between male circumcision status and background factors such as education, religion and/or marital status. In addition to the two techniques, binary logistic regression analysis was

also carried out to determine factors associated with having a circumcision, and those associated with supporting the promotion of VMMC for HIV prevention.

3.6 Qualitative data

There are varying definitions in the literature on what constitutes qualitative research. Denzin and Lincoln (1994) defined qualitative research as a multi-method approach that involves an interpretive and naturalist approach to its subject matter. On the other hand, Gall, Borg, and Gall (1996) defined qualitative research as an inquiry based on the assumption that individuals construct social reality in the form of momentary and contextual meanings and interpretations. Another definition by Creswell (2006) focuses on the methodological processes involved by highlighting that qualitative research "builds a complex, holistic pictures, analyzes words, reports detailed views of informants, and conducted the study in natural setting." Despite the wide array of definitions of qualitative research that is in literature, four key characteristics of this approach emerge. Firstly, qualitative research is locally situated in that it studies human behaviour in its natural setting. Secondly, qualitative research pays much attention to the perspectives of the participants, and thirdly, it pays attention to the context within which the studied behaviour takes place. Finally, qualitative research is inductive. Given the above understanding of qualitative research, the present study collected qualitative data as part of a mixed methods research design in order to gain an understanding of the reasons and motivations behind the practice and adoption of male circumcision in the context of HIV. It was felt that the adoption of the qualitative approach would help unravel the prevailing trends in thoughts and opinions about medical male circumcision for HIV prevention. The present study collected qualitative data using in-depth interviews and focus group discussions.

3.6.1 Key Informant Interviews

Key informant interviews are qualitative in-depth discussions with people who are knowledgeable about a subject, in this case, male circumcision. Six organisations from which key informants came were selected based on their involvement in the roll-out of VMMC for HIV prevention. However, it was the prerogative of the said organisations to identify the best person who would participate in the in-depth discussion. Of the six organisations, the focal person from the Ministry of Health and Child Welfare preferred responding to the questions in writing with the option of making follow-ups for clarity while another from Population Services International (PSI) was difficult to get hold of until the data collection phase had lapsed. The Ministry of Health and Child Welfare was selected because it is the custodian of all health-related programmes in Zimbabwe while PSI is the key implementing partner in the roll-out of VMMC for HIV prevention responsible for resource mobilisation and marketing among others. The other implementing partners in the roll-out of VMMC for HIV prevention who took part in the in-depth interviews included the National AIDS Council which is responsible for policy and implementation of all HIV/AIDS related programming and the Zimbabwe National Family Planning Council which is responsible for reproductive health programmes. Also included in the sample of key informants were two church organisations, the Zimbabwe Council of Churches (ZCC) and the Evangelical Fellowship of Zimbabwe (EFZ). The organisations are umbrella bodies which represent both mainline churches and Pentecostal churches in Zimbabwe. The in-depth interviews solicited information about the role of the informant's respective organisation in the promotion of VMMC for HIV prevention, the challenges they were facing and their perception of the success of the roll-out campaign. In conducting the interviews, an interview guide was used to direct the discussion. All in-depth interviews were digitally recorded.

3.6.2 Focus Group Discussions

A focus group discussion takes the form of a group interview with the general aim of group interaction and a joint construction of meaning (Bryman, 2008). This approach to data collection encourages people to converse in a typical social environment and thus generate valuable information with a lot of external validity. It allows the researcher to have a clear understanding of why people feel the way they do, and also give participants an opportunity to interrogate each other's perspective (Bryman, 2008). Focus groups have also been known to generate normative information about attitudes, beliefs and practices in a society and have high face validity (Krueger, 1994).

There is no agreement among qualitative researchers on the number of group discussions that are considered sufficient within a single study. What is known is that a single FGD is not sufficient. Bryman (2008) suggests that in the absence of a consensus on the appropriate number of FGDs in a single study, it is noble to conduct group discussions until the researcher can accurately predict the responses of the next group. He also suggests that the number of FGDs that are conducted within a single study is a function of the available human, time, and financial resources. It is also suggested that the number of FGDs can be influenced by whether the researcher feels that the range of views are likely to be affected by socio-demographic characteristics such as age and gender. In determining the number of FGDs that were conducted during this study, the researcher took into account the available time and financial resources and also the political climate that existed during data collection. As a result of these considerations, five FGDs were done; three with men, one with women and one with mixed groups of men and women. These FGDs generated the primary qualitative data on people's

views on the promotion of medical male circumcision for HIV prevention, support for the promotion of VMMC for HIV prevention, acceptability of VMMC and the fears and misconceptions of the procedure.

In collecting qualitative data through FGDs, this study also considered the issue of the ideal group size. Again, there seems to be no general agreement among scholars on the actual size of focus groups. In a selection of different studies that had utilised focus groups, Bryman (2008) found that the size of these groups ranged from 3-9 people. Babbie (2007) recommends a group size of 12-15 people while Morgan (1998) suggests a group size of between 6-10 people. Morgan (1998) recommends a smaller group when participants are likely to have a lot to say or when the topic under discussion is likely to generate a lot of debate due to the emotional nature of the topic and a large group when debate is likely to be low or when the researcher is interested in numerous but brief contributions. A smaller group is convenient in terms of transcribing data but has a shortcoming in that it may not generate a lively discussion. A larger group on the other hand may stimulate a lot of debate but there is a danger of getting the discussion derailed. Thus, larger groups demand that the moderator must have exceptional skills. Furthermore, large groups may make transcribing the data a daunting task. Given these considerations, the FGDs for this study had moderately sized groups of between 9 and 11 people. Details of the FGDs for the study are summarised in Table 3.2. All participants in FGDs were aged between 18 and 49 years. This broad age group was selected because it was felt that the majority of them would be sexually active and thus are likely to make meaningful contributions to the discussions. Furthermore, this age group allowed the collection of views from a wide spectrum of age categories.

Another consideration was the length of each FGD. There is no agreement on the recommended length of a focus group discussion. Suggestions range from 30 minutes to two and a half hours (NOAA Coastal Services Centre, 2009). The FGDs in this study ranged in length from 40 minutes to one hour.

Table 3.2: Summary Table of the Focus Group Discussions

FGD Number	Gender of Participants	Number of Participants	Age Range of Participants
1	Male	11	18-40 years
2	Male	10	22-48 years
3	Male	9	19-34 years
4	Female	9	28-47 years
5	Mixed	10	23-34 years

In conducting the focus group discussions, an interview guide was used to give direction to the discussion. The guide had several key questions and follow-up questions. The questions were designed around themes thus making the discussion more adaptable. The themes covered by the discussions centred on items that could not be explored in detail in the individual questionnaire discussed earlier in this chapter. In general, the FGD guide solicited information from participants on concepts such as the acceptability of voluntary medical male circumcision (including infant male circumcision) for HIV prevention, perceived and known advantages and disadvantages of VMMC, factors that may influence the uptake of VMMC for HIV prevention, condom use by circumcised men, behavioural disinhibition after circumcision, and the role of women in the promotion of VMMC for HIV prevention.

3.6.3 Management and analysis of qualitative data

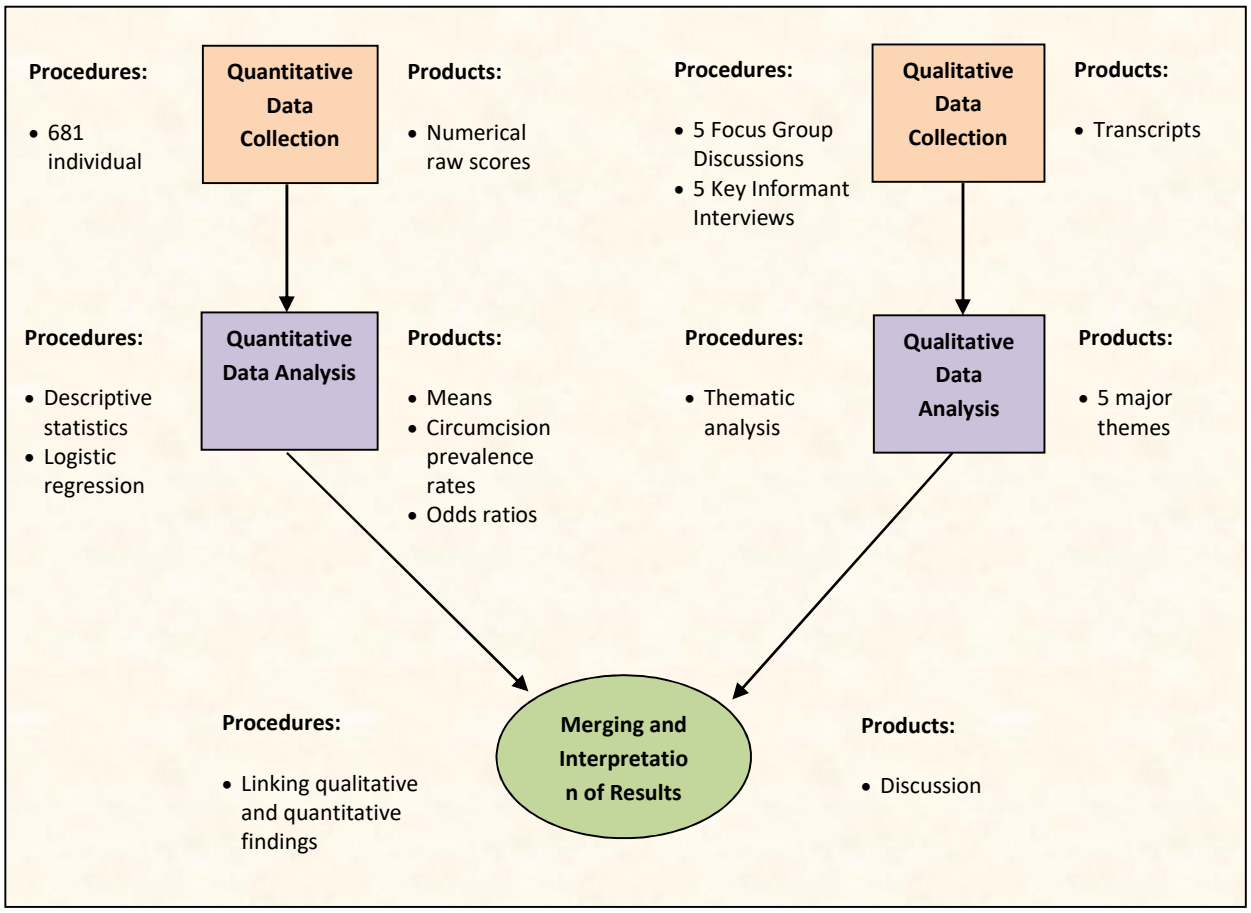
The management and analysis of qualitative data was done in three stages. The first stage involved the transcribing of all key informant interviews and focus group discussions. The transcribing stage was necessary because transcribing facilitates further analysis using specialised software for qualitative data analysis. Furthermore, it produces a permanent record that can be stored for future use or be shared by other interested parties (Stewart, Shamdasani and Rook, 2007). The final stage of analyses involved the identification and interpretation of recurrent themes. According to Ryan and Bernard (2003), the process of thematic content analysis involves searching for repetitions, indigenous typologies, metaphors and analogies, similarities and differences.

In doing this process, two epistemological orientations most relevant to qualitative analyses of FGDs data were taken into account namely the social constructivism and the phenomenological approaches (Sayre, 2001). The former argues that much of the 'reality' and the meanings attached thereto are social creations while the latter emphasises an individual's perspective to their social reality. The social constructivism perspective was useful in the analyses for this study because it guided the identification of themes that are a result of social creations on the subject of circumcision in line with the tenets of the theory of social representations. On the other hand, the phenomenological perspective guided the present analyses to pay particular attention to the subjective and eccentric perceptions of individual respondents on male circumcision because they represent the sentiments of a fragment of the population.

3.7 Merging of data

The integration of quantitative and qualitative data sets has been identified as one of the key challenges of using the mixed methods approach. Woolley (2009) has attributed some of these challenges to a general lack of exemplars on how qualitative and quantitative data can be merged. This is generally true because the mixed methods approach is fairly young in epistemological terms. However, a number of significant improvements to the mixed methods approach have been witnessed in the last five years owing to the refinement of concepts and the key designs in the approach. What is apparent is that merging of data in the mixed methods approach occurs at varying points in the research cycle depending on the mixed methods design that one selects (Creswell and Plano Clark, 2011). In the present study, datasets were integrated during the interpretation stage. This approach made it possible to explain some quantitative findings using qualitative results. The methodology flow chart is presented in Figure 3.2.

Figure 3.2: Methodology flowchart



Adapted from Creswell and Plano Clark (2011, p. 118)

3.8 Ethical considerations

The conduct of any research study that involves human participants is subject to ethical scrutiny. This is because studies may take advantage of vulnerable populations and exploit this vulnerability in the name of advancing human knowledge. In order to control and balance the desire to gain knowledge on one hand and ensure that research participants are not taken advantage of on the other, many research institutions are guided by a code of ethics when conducting research. For purposes of enforcement of this code, research institutions have

committees that are designed to ensure that all research studies that involve human subjects are approved. This study was subjected to this scrutiny and was cleared by the Research Ethics Committee of the Faculty of Humanities and Social Sciences of the University of KwaZulu-Natal. In line with ethical guidelines, all studies that involve minors or children are required to seek authority from the parents or guardians of the minor. It was felt that this could be time consuming due the various bureaucratic hurdles. In order to save time, this study used participants who were 18 years and above. According to the Legal Age of Majority Act in Zimbabwe, these persons are considered to be adults and therefore do not need parental consent in order to take part in a study. Be that as it may, research ethics require that participants must be free to make an informed consent before taking part in a study. In this study, selected participants were furnished with the objectives of the study in order for them to make a reasoned decision on whether or not to participate in the study. It was also pointed out to all participants that their participation was voluntary and that they could withdraw at any point during the study. Furthermore, this study ensured that all research materials could not be traced back to the individual respondents by not recording their names. There was an exception to this, however, with the key informants who voluntarily represented their organisations. All participants, including key informants, were asked to sign a consent form which guaranteed their anonymity and their voluntary participation. They were assured that their names would not be published without their written consent.

3.9 Limitations of the study

The original intention of this study was to make a comparison of rural and urban population's perceptions and acceptability of VMMC. However, this was not possible owing to the prevailing political climate which made it impossible to conduct research in rural areas. This

absence of a comparative approach to the study of implications of the promotion of VMMC robbed the study of valuable insights into the differences in perceptions between rural and urban populations. Furthermore, studies that have looked at the acceptability of VMMC have not developed a rigorously tested scale to measure this concept. In the absence of such a reliable scale, many studies, including this one, have had to come up with their own items to measure acceptability. This is likely to make it difficult to make a comparison of acceptability studies. In addition to the above limitations, this study had no external funding which made it difficult to have a larger sample. The effect of this is that it limited the generalizability of the findings.

Two significant changes took place after data collection and analysis for this study. Firstly, the Ministry of Health and Child Care introduced the PrePex device for male circumcision. This is a non-surgical male circumcision device that was developed after the roll-out of VMMC in the 14 priority countries with the aim of making VMMC more accessible. This device does not need specialised medical personnel. Furthermore, the Ministry of Health and Child Care also revised its male circumcision roll-out policy, firstly, to allow nurses to provide VMMC services, and secondly, to emphasize the place of VMMC in the spectrum of other HIV prevention strategies. According to the revised policy (outlined in Chapter 2), voluntary medical male circumcision is to be offered as an additional entry point to men's sexual and reproductive health services. The introduction of the PrePex device may influence how people perceive pain associated with male circumcision which will in turn reduce lost time at work. In short, the changes outlined here may affect the external validity of some of the findings reported in this study.

3.10 Summary

The purpose of the present chapter was to give a detailed account of the methodology that was used in this study. It has already been highlighted that the study selected the convergent design within the mixed methods research approach. This approach was chosen because of its ability to collect and synthesize quantitative and qualitative datasets within the same study. This chapter also detailed how research participants were selected and how data was collected and analysed. The findings of this study are presented in two chapters. The next chapter will focus on the presentation of quantitative findings while Chapter 5 will present findings from qualitative data.

CHAPTER FOUR: MALE CIRCUMCISION AND SEXUAL BEHAVIOUR

4.1 Introduction

This study collected qualitative and quantitative data simultaneously in line with the guidelines of the convergent parallel mixed methods design described in Chapter 3. Quantitative data was collected using a standard questionnaire which was administered to randomly selected male and female participants. A sample size of 681 was determined using a statistical formula and it comprised 499 men and 182 women aged between 18 and 49 years. This chapter presents findings on the prevalence of male circumcision and indicators of sexual behaviour.

4.2 Prevalence of male circumcision

The present study attempted to answer the question on the prevalence of both medical and traditional circumcision. It was felt that answering this question would provide a baseline on which future studies can evaluate the progress of the current promotion of voluntary medical male circumcision for HIV reduction. The measurement of the prevalence of male circumcision was also motivated by the need to contribute to literature on prevalence which, according to Williams et al. (2006), has been lagging in the contemporary male circumcision discourse. There are two main ways of assessing male circumcision prevalence. The first approach is to do a physical examination of the male organ of participants. This approach is too intrusive and is likely to face resistance from participants. The second and most commonly used approach is to simply ask participants if they are circumcised or not. The latter can yield mixed results owing to several factors. Firstly, a universal conceptualisation of male circumcision does not exist. Circumcision means different things to different people depending on their religious,

cultural or ethnic background. This in itself poses a challenge in the assessment of male circumcision prevalence as noted by Hewett et al. (2012) who observed that there is over reporting of male circumcision due to different understanding of the concept. Williams et al. (2006) also argued that self-reported male circumcision is not entirely reliable. Secondly, the measurement of prevalence of male circumcision can be prone to variations that emanate from sampling. Despite these shortcomings, the second approach remains the most feasible and was therefore used in the assessment of prevalence in this study.

In assessing the prevalence of male circumcision, male respondents (n=499) were asked whether they are circumcised or not. The number of ever circumcised men is shown in Table 4.1. The overall prevalence of male circumcision in the study sample was found to be 15.8 percent.

Table 4.1: Number of ever circumcised men (n=499)

Circumcision status	**N**	**%**
Yes	79	15.8
No	420	84.2
N	499	100.0

In order to obtain the overall prevalence of each type of circumcision, the number of circumcised respondents classified in a particular category was divided by the total number of male respondents. The findings are presented in Table 4.2. The prevalence of medical male circumcision in the study sample was found to be 8.2 percent. The category of "medical male

circumcision" includes all circumcisions done for therapeutic reasons such as the correction of a non-retracting foreskin and non-therapeutic reasons such as HIV prevention. The prevalence of traditional/cultural male circumcision was found to be 3.6 percent. Religious male circumcision had a prevalence of 1.6 percent while 2.4 percent of the reported circumcisions were classified as other/unknown.

Table 4.2: Types of male circumcision

Type of circumcision	**N**	**%**
Religious	8	1.6
Traditional/Cultural	18	3.6
Medical	41	8.2
Other/Unknown	12	2.4
N	79	15.8

The male circumcision prevalence in this study was also calculated by background characteristics and the results are shown in Tables 4.3. Findings on the prevalence by age group show a trend of rising prevalence with increasing age. Prevalence increased from 12.7 percent among men in the 18-29 years age group to 17.7 percent among men between 30 and 39 years. The male circumcision prevalence among men aged between 40-49 years was found to be 21.9 percent. A chi-square test done to establish if there are statistically significant differences in circumcision prevalence among the different age categories showed that the observed differences are not significant (χ^2=5.20, p>0.05). Circumcision prevalence by level of education does not seem to have any clear pattern. It increases from 8.3 percent among men

with a primary education to 16.2 percent among men with a secondary education. However, it drops slightly to 15.2 percent among men with tertiary education. No statistically significant differences were also observed (χ^2=4.99, p>0.05).

An analysis of circumcision by religion was made difficult by the small numbers of circumcised men in each category. As a result, the eight religion categories were combined to remain with only two, “Christians” and “other”. Male circumcision prevalence was found to be 14.9 percent among Christians and 19.2 percent among men belonging to “other” religions and these differences were not statistically significant (χ^2=1.14, p>0.05). Male circumcision prevalence by marital status was found to be highest among married men at 19.1 percent compared to never married (11.3 percent) or divorced/separated men (13.3 percent).There were however no statistically significant differences on male circumcision prevalence by marital status (χ^2=4.81, p>0.05).

Regression analysis was done to find out if there are any factors associated with male circumcision. Findings seem to confirm results from the chi-square test analysis which showed no significant association between male circumcision status and background characteristics of respondents such as age group, marital status, level of education, employment status, and religion (see Table 4.3).

Table 4.3: Percentage of men who are circumcised by background characteristics

Characteristic		N	%	Unadjusted Odds Ratios	Adjusted Odds Ratios
Education	Primary	12	8.3	1.00	1.00
	Secondary	395	16.2	1.97 [0.24-16.5]	2.68 [0.31-23.4]
	Tertiary	92	15.2	0.93 [0.49-1.74]	1.04 [0.54-2.01]
Age group	18-29 years	251	12.7	1.00	1.00
	30-39 years	175	17.7	1.92 [0.99-3.74]	1.49 [0.66-3.34]
	40-49 years	73	21.9	1.30 [0.66-2.57]	1.36 [0.68-2.72]
Employment status	Employed	150	14.7	1.00	1.00
	Self-employed	295	16.9	0.87 [0.35-2.16]	1.11 [0.43-2.88]
	Unemployed	54	13.0	0.73 [0.31-1.71]	0.95 [0.39-2.34]
Marital status	Never married	186	11.3	1.00	1.00
	Married	296	19.1	1.05 [0.22-4.91]	0.96 [0.19-4.73]
	Formerly married	17	13.3	0.57 [0.13-2.57]	0.60 [0.13-2.74]
Religion	Christians	395	14.9	1.00	1.00
	Other	104	19.2	1.36 [0.77-2.38]	1.26 [0.71-2.23]

Figures in parenthesis are 95 percent Confidence Intervals and those outside are Odds Ratios.

The reference category is identifiable by an odds ratio of 1.00†.

**P<0.05, ** P < 0.01, *** P < 0.001.*

4.3 Reasons for getting a circumcision

Respondents in the study were asked to give a reason why they got circumcised. All responses were put into five broad categories namely “religion”, “culture”, “medical”, “HIV prevention”, and “other/unknown”. The category of “religion” covered all men who reported to have been circumcised for religious reasons or as part of their religious beliefs while the “culture” category covered those responses which indicated circumcision linked to ethnic or cultural identity. On the other hand, medical circumcision in this instance was separated in order to identify respondents who were circumcised as part of the on-going promotion of voluntary medical male circumcision. Findings show that the majority of respondents (39.2 percent) among those who reported to have undergone circumcision were circumcised under the current promotion of VMMC for HIV prevention while 32.9 percent were circumcised for religious or cultural reasons. The remaining respondents were not sure of the reasons they were circumcised. It is most likely that these respondents were circumcised when they were still young, and it is also likely that they were circumcised for medical or cultural reasons. Findings on the reasons for getting circumcised are presented in Table 4.4. It is important to note that the reasons for getting a circumcision (presented in Table 4.4) may have some correspondents with the type of circumcision presented earlier in Table 4.2. The major difference however is that the category “medical” in Table 4.2 includes those who were circumcised because of a medical condition and those who were circumcised for non-therapeutic reasons such as voluntary medical male circumcision. This difference is clarified in Table 4.4.

Table 4.4: Reasons for getting circumcised

Reason for getting circumcised	N	%
Religion	8	10.1
Traditional/Cultural	18	22.8
Medical	10	12.7
HIV prevention	31	39.2
Other/Unknown	12	15.2
N	79	100

4.4 Place of circumcision

Male circumcision is a very risky procedure which may result in serious complications if done by an untrained/inexperienced person or in unhygienic conditions. Some of these complications include infections, amputation of glands penis or incomplete removal of the foreskin. In order to ascertain or eliminate such possibilities, men who reported to have ever been circumcised were asked the place where the circumcision was done and the person who did the circumcision. The findings on the place of circumcision are presented in Table 4.5 and they show that more than 60 percent of all circumcisions were done in a medical facility while 22.8 percent were done at home. The remainder were done at a church/mosque (7.6 percent), at an initiation school (7.6 percent) or elsewhere (1.3 percent).

Table 4.5: Place of circumcision

Place of circumcision	N	%
Home	18	22.8
Church/Mosque	6	7.6
Medical facility	48	60.8
Initiation school	6	7.6
Other/Unknown	1	1.3
N	79	100.0

The findings on the person who performed the circumcision are presented in Table 4.6 and they show that 62 percent of all the circumcisions reported in this study were done by a qualified medical professional. Nearly 30 percent of the reported circumcisions were done by a family member or church elder/mohel. Of the 18 circumcisions that were reportedly done at home, the majority (72.2 percent) were done by a family member while all the circumcisions that were done at church/mosque were done by a church elder/mohel. Similarly, all the circumcisions that were reportedly done at a medical facility were done by a medical professional.

Table 4.6: Person who performed the circumcision

Person	N	%
Family elder	13	16.5
Church elder/Mohel	9	11.4
Village elder/initiation instructor	7	8.8
Health professional	49	62.0
Other/Unknown	1	1.3
N	79	100.0

The possible relationship between the reasons for getting a circumcision and the place at which the circumcision was done was examined with a view to cross checking the consistency of our data with literature. The findings presented in Table 4.7 show that the majority of respondents who reported to have been circumcised for cultural reasons (15.2 percent) had the procedure done at home while a sizeable percentage (5.1 percent) were done at an initiation school. The remainder were done at a clinic/hospital (2.5 percent) or at a Church/Mosque (1.3 percent). All respondents who reported to have had a circumcision for HIV prevention had the procedure done at a clinic or hospital. Overall, 60.8 percent of all reported circumcisions were done at a clinic or hospital while 22.7 percent were done at home. The Cramer's V test used to test the significance of the association between place and reason for getting a circumcision showed a strong association between the two ($V=0.586$, $p<0.001$).

Table 4.7: Relationship between place and reason for circumcision

Place of circumcision	Reason for circumcision (%)				
	Religion (n=8)	Culture (18)	Medical (n=10)	HIV prevention (n=31)	Other/Unknown (n=12)
Home	1.3	15.2	-	-	6.2
Church/Mosque	6.3	1.3	-	-	-
Medical facility	-	2.5	12.7	38.0	7.6
Initiation school	2.5	5.1	-	-	-
Other/unknown	-	-	-	-	1.3

4.5 Age at circumcision

Respondents were also asked their age at circumcision. It was felt that the age would separate those who were circumcised for traditional/cultural reasons from those who were circumcised for HIV prevention. The mean age at circumcision was 18.9 years with a standard deviation of 11.48 years. The wide standard deviation is a reflection of the wide range between the minimum age at circumcision and the reported maximum age at circumcision. A further analysis of the age at circumcision by age group shows that 5 percent of respondents were circumcised when they were less than a year old, while 17.7 percent were circumcised between ages 1 and 9 years. About a quarter of the circumcised respondents (25.3 percent) had the procedure between ages 10 and 17 years whiles more than half (51.9 percent) of respondents who reported that they were circumcised had the procedure when they were 18 years or above. These results are not surprising given that the study population does not traditionally circumcise. The distribution of ever circumcised men by age at circumcision is shown in Table 4.8.

Table 4.8: Age at circumcision

Age	N	%
0-9 years	18	22.8
10-19 years	24	30.4
20-29 years	21	26.6
30-39 years	15	19.0
40+ years	1	1.3
N	79	100.0

This study also examined the relationship between age at circumcision and the reason for getting circumcised. Generally, literature on male circumcision shows that communities that circumcise males as a rite of passage or for religious reasons have specifically recommended age groups at which the procedure is done. For example, the Jewish communities perform male circumcision on the eighth day after birth while most communities which perform male circumcision as a rite of passage recommend that the ritual be done in adolescence or among older males (Glass, 1999; Marck, 1997). The findings of this study on the relationship between age at circumcision and the reason for the circumcision show that the majority of men who reported to have been circumcised for religious or cultural reasons had the procedure done before the age of 19 years (see Table 4.9). On the other hand, those who reported having had circumcision for HIV prevention had the procedure done between the age of 10 and 39 years. This finding is in line with recommendations of the up scaling of voluntary medical male circumcision for HIV prevention which is targeting men between the ages of 13 and 27 years.

The relationship between age at circumcision and reason for getting circumcised was found to be statistically significant (χ^2=55.57, p<0.001).

Table 4.9: Relationship between age at circumcision and reason for circumcision

Age at circumcision	Reason for getting circumcised (%)				
	Religion (n=8)	Culture (n=18)	Medical (n=10)	HIV prevention (n=31)	Other/Unknown (n=12)
0-9 years	3.8	6.3	5.1	-	7.6
10-19 years	5.1	13.9	1.3	7.6	2.4
20-29 years	1.3	3.9	3.8	16.4	1.3
30-39 years	-	-	2.5	14.0	2.5
40+ years	-	-	-	-	1.3
N	10.1	24.1	12.7	38.0	15.1

4.6 Sexual behaviour and risky sex

Sexual behaviour has several dimensions which include age at first sex, number of sexual partners, condom use, having sex while intoxicated, and the type of sexual partner among others. These interact in a complex way to produce different risk profiles for each individual (Slaymaker, 2004). Respondents in this study were asked questions concerning their sexual behaviour. The intention of collecting data on sexual behaviour was to attempt to assess whether there could be a link between sexual behaviour and support for voluntary medical male circumcision. A study in Botswana by Keetile and Rakgoasi (2014) showed a strong association between support for male circumcision and risky sexual behaviour. Using data from the Zimbabwe Demographic and Health Survey of 2010-11, Chikutsa, Ncube and Mutsau

(2014) also found a strong association between wanting circumcision and engaging in risky sexual behaviour. It was therefore felt that it is important to understand the sexual behaviour characteristics of respondents in the present study in order to correlate it with their support of male circumcision. Variables of particular interest included condom use, drunkenness during sex, knowledge of one's HIV status and number of sexual partners.

4.6.1 Age at first sexual intercourse

Respondents in this study were asked the age at which they had their first sexual intercourse. Those who had never had sex were recorded as "99". Of the 681 respondents, 89 percent had had sexual intercourse as shown in Table 4.10. More men than women reported having had sex.

Table 4.10: Respondents who ever had sex

Ever had sex	Male		Female	
	N	%	N	%
Yes	454	91.0	152	83.5
No	45	9.0	30	16.5
N	499	100.0	182	100.0

The mean age at first sexual intercourse was 19.1 years for men and 19.4 years for women, while the median age at first sex was19 years for men and 20 years for women. Nearly eight percent of men had their first sexual intercourse when they were less than 15 years of age compared to only two percent of women. However, by the age of 19 years, 57.9 percent of females compared to 56.2 percent of males had had sexual intercourse.

4.6.2 Multiple sexual partners

The average number of sexual partners in the 12 months preceding the survey was 2.27 for men with a standard deviation of 3.58 while that for women was 1.23 with a standard deviation of 2.77. The total number of lifetime partners was 10.87 for men with a standard deviation of 14.91 while the number of lifetime partners for women was 2.76 with a standard deviation of 4.28. The occurrence of multiple sexual partners was more pronounced among male respondents. However, the number of lifetime sex partners of male respondents must be interpreted with caution because it is likely that the average number of lifetime partners for men was affected by outliers or could in fact be exaggerated. Among men and women who reported to have had sex in the study sample, about 20 percent of male respondents reported having had at least 2 sexual partners in the 12 months before the survey while only 3.8 percent of female respondents had at least 2 sexual partners during the same period.

In terms of the frequency of having multiple sex partners, 37.6 percent (n=454) of sexually active men reported that they had two or more sexual partners in the 12 months before the survey. This is much higher when compared to the 11.8 percent of women (n=152) who reported having had two or more sexual partners in the same period. No significant association was found between having had multiple sex partners and the level of education of respondents (χ^2=3.22, p>0.05 for men, and χ^2=1.6, p>0.05 for women). Similarly, no significant association was found between having had multiple sex partners and other background characteristics such as religion (χ^2=2.72, p>0.05 for men, and χ^2=0.01, p>0.05 for women) and employment status (χ^2=0.57, p>0.05 for men, and χ^2=1.45, p>0.05 for women). The age group of respondents was found to have a significant association with having had multiple sex partners for men but no significant association was found for women on the same variables (χ^2=32.9, p<0.001 for men,

and χ^2=4.94, p>0.05 for women). Marital status was found to have a statistically significant association with having had multiple sex partners for both men and women (χ^2=29.7, p<0.001 for men, and χ^2=65.9, p<0.001 for women). Less than two percent of married women reported that they have two or more sexual partners compared to 62.2 percent of never married women and 50 percent of formerly married women. Among men, 30.5 percent of married men had two or more sexual partners compared to nearly 58 percent of never married men and 61.5 percent of formerly married men. The percentage distribution of men and women who had multiple sex partners by background characteristics are presented in Table 4.11.

Table 4.11: Percentage of respondents who had multiple sex partners in the 12 months before the survey by background characteristics

Characteristic		Male		Female	
		N	%	N	%
Education	Primary	11	18.2	13	-
	Secondary	370	40.9	130	13.9
	Tertiary	73	33.8	9	14.3
Age group	18-29 years	208	54.5	89	17.9
	30-39 years	173	26.8	48	7.0
	40-49 years	73	28.8	15	-
Employment status	Employed	139	41.4	30	18.5
	Self-employed	276	37.8	80	9.9
	Unemployed	39	41.9	42	14.6
Marital status	Never married	141	57.9	15	62.2
	Married	296	30.5	113	1.8
	Formerly married	17	61.5	24	50.0
Religion	Christian	353	37.1	144	12.9
	Other	101	46.4	8	14.3

4.6.3 Condom use

Condoms have been promoted as an effective way of preventing HIV infection. In this study, sexually active respondents were asked if they had used condoms during their first and their most recent sexual intercourse. The study also analysed condom use among those respondents who reported that they had more than one sexual partner in the last 12 months. The results show that only 29.5 percent of males and 11 percent of females had used a condom during their first sexual encounter (χ^2=27.51, p<0.001). The results also show that condom use during the last sexual intercourse stood at 33.9 percent among men and 22.4 percent among women. The frequency of condom use during the last sexual intercourse by background characteristics for males and females is presented in Table 4.12.

Generally, no significant variations in condom use at last sexual encounter were observed by the level of education of research respondents (χ^2=0.82, p>0.05 for men and χ^2=2.94, p>0.05 for women). Condom use at last sexual intercourse varied significantly among males in different employment statuses (χ^2=14.52, p<0.01) but was not significantly different among women in the four employment status categories (χ^2=5.62, p>0.05).

Similar results were observed in the relationship between condom use at last sex and age group. There were statistically significant differences in condom use at last sex by age group among men (χ^2=30.72, p<0.001) while no significant differences in condom use at last sex were observed by age group among women (χ^2=0.59, p>0.05). Marital status was also found to be significantly associated with condom use at last sex for both males and females (χ^2=87.38, p<0.001 for men and χ^2=59.91, p<0.001 for women).

This study also analysed condom use at last sex by the religion of the respondents. For ease of analysis, the various religious categories were regrouped into “Christians” and “Others”. Among Christian men, 35.1 percent reported having used a condom during their last sexual intercourse compared to 21.5 percent of Christian women. On the other hand, 29.7 percent of men belonging to other religious categories reported having used a condom during their last sex compared to 37.5 percent of women in the same category. Generally, Christian men reported a higher percentage of condom use at last sex compared to men who belong to other religions. Inversely, women who belong to other religions reported higher condom use at last sex compared to Christian women. However, results of the chi-square test that was used to test the relationship between religion and condom use at last sex did not show statistically significant results for both men and women (χ^2=1.03, p>0.05 for men and χ^2=1.11, p>0.05 for women).

Table 4.12: Percentage of respondents who used a condom at last sex by background characteristics

Characteristic		Male		Female	
		N	%	N	%
Education	Primary	11	36.4	13	15.4
	Secondary	370	33.0	130	21.5
	Tertiary	73	38.4	9	44.4
Age group	18-29 years	208	46.6	89	23.6
	30-39 years	173	26.6	48	18.8
	40-49 years	73	15.1	15	26.7
Employment status	Employed	139	32.4	30	33.3
	Self-employed	276	31.5	80	23.8
	Unemployed	39	50.0	42	14.7
Marital status	Never married	141	64.5	15	73.3
	Married	296	19.3	113	7.1
	Formerly married	17	35.3	24	62.5
Religion	Christian	353	35.1	144	21.5
	Other	101	29.7	8	37.5

Condom use at last sex is generally a good measure of use in the population (Younge et al., 2008). However, it is crude in that it does not take into account men and women who have one stable and consistent sexual partner. In order to eliminate the possible inclusion of partners in the above stated scenario, this study analysed condom use at last sexual encounter for men and

women who reported having had more than one sexual partner in the 12 months before the survey. The results presented in Table 4.13 show that 171 men and 18 women representing 37.6 percent and 11.8 percent of sexually active men and women respectively reported having had more than one sexual partner in the 12 months before the survey. Of these, 44.4 percent of men and 66.7 percent of women reported that they used a condom at their last sexual intercourse. Condom use at last sex among men and women who had more than one sexual partner did not significantly vary by religion, level of education, employment status, and age group. However, the chi-square test showed that there are statistically significant differences among men by marital status (χ^2=14.76, p<0.01) but not among women (χ^2=4.57, p>0.05).

Table 4.13: Condom use at last sex among respondents with multiple sex partners

Condom use at last sex	Male		Female	
	N	%	N	%
Yes	76	44.4	12	66.7
No	95	55.6	6	33.3
N	171	100.0	18	100.0

4.6.4 Drunkenness during sex

In addition to collecting data on multiple sexual partners and condom use, this study also collected data on drunkenness during sex as an indicator of high risk sexual behaviour. Respondents were asked if they or their partner was drunk during their last sexual intercourse. Results presented in Table 4.14 show that 11.2 percent of men and 7.9 percent of women reported that they or their partner was drunk during their last sexual intercourse.

Table 4.14: Number of men and women who were drunk during last sex

Intoxication during last sex	Male		Female	
	N	%	N	%
Yes	51	11.2	12	7.9
No	403	88.8	140	92.1
N	454	100.0	152	100.0

The percentage of respondents who reported to have been drunk during their last sexual intercourse by background characteristics are presented in Table 4.15. Generally, more males than females were drunk at their last sex (11.2 percent compared to 7.9 percent). The difference is however not statistically significant (χ^2=1.26, p>0.05). Also, no significant variations were observed by level of education (χ^2=3.07, p>0.05), age group (χ^2=1.28, p>0.05), marital status (χ^2=0.01, p>0.05), and employment status (χ^2=0.67, p>0.05). Religion however was found to have a significant association with having had sex while drunk (χ^2=12.9, p<0.001). Only 8.2 percent of Christians reported having had sex while drunk compared to 20.2 percent of respondents who belong to other religions.

Table 4.15: Percentage of respondents who were drunk during their last sex by background characteristics

Characteristic		**N**	**%**
Gender	Male	454	11.2
	Female	152	7.9
Education	Primary	24	4.8
	Secondary	500	11.4
	Tertiary	82	5.6
Age group	18-29 years	297	9.2
	30-39 years	221	12.3
	40-49 years	88	9.6
Employment status	Employed	169	9.7
	Self-employed	356	11.2
	Unemployed	81	8.3
Marital status	Never married	156	10.4
	Married	409	10.4
	Formerly married	41	11.1
Religion	Christian	497	8.2
	Other	109	20.2

4.6.5 HIV testing

HIV testing and knowledge of one's HIV status are key indicators of sexual behaviour. In this study, all respondents were asked if they had ever been tested irrespective of whether they have ever had sex or not. They were also asked if they know their current HIV status. Knowledge of current HIV status meant that the respondent had gone for HIV testing and received their results within the 12 months prior to this study. Results show that 70.3 percent of men and 81.9 percent of women reported that they had ever been tested for HIV (see Table 4.16). Overall, 73.4 percent of the sample reported having ever been tested for HIV. More women than men reported having ever been tested for HIV in the study sample.

Table 4.16: Number of respondents ever been tested for HIV

Ever been tested for HIV	Male		Female	
	N	%	N	%
Yes	351	70.3	149	81.9
No	148	29.7	33	18.1
N	499	100.0	182	100.0

The percentage of men and women ever tested for HIV by background characteristics is presented in Table 4.17. Among both men and women, the number of respondents who reported to have ever been tested for HIV increases with increasing level of education. Only 41.7 percent of men with a primary level education were ever tested for HIV compared to 70.9 percent of men with a secondary level education and 71.7 percent of men with a tertiary level education. Among women, the number of respondents who had ever been tested for HIV increases from

73.3 percent among those with a primary level education to 84.6 percent among those with a tertiary level education. Differences in having ever been tested for HIV among women and men with different levels of education were not statistically significant (χ^2=4.87, p>0.05 for men, and χ^2=0.84, p>0.05 for women).

Among men in the different employment status categories, statistically significant differences in having ever been tested for HIV were observed (χ^2=9.28, p<0.05). Having ever been tested for HIV was 77.3 percent among men in formal employment compared to 69.5 percent among men in self-employment and 55.6 percent among unemployed men. It is likely that men in formal employment could have been tested at their respective places of employment since most formal organisations have standing HIV policies which encourage employees to get tested for HIV. No significant differences were observed among women in the different employment status categories (χ^2=3.65, p>0.05).

Having ever been tested for HIV was highest among men and women in the 30-39 years age category with 78.9 percent of men and 81.6 percent of women having been tested. Analysis using the chi-square test showed statistically significant differences in having ever been tested for HIV among men by age group (χ^2=9.71, p<0.01) while no significant differences were observed among women (χ^2=0.59, p>0.05).

Having ever been tested for HIV was highest among men and women who are currently in a marital union or are living together. Among men, 76.4 percent of those in a marital union reported having ever been tested for HIV compared to 60.8 percent of never married men and 70.6 percent of formerly married men. Similarly, 90.4 percent of women in a marital union

were ever tested for HIV compared to 61.4 percent of never married women and 79.2 percent of formerly married women. Differences in having ever been tested for HIV by marital status were statistically significant using the chi-square (χ^2=13.32, $p<0.01$ for men, and χ^2=18.11, $p<0.001$ for women). No significant association was found between having ever been tested for HIV and religion (χ^2=0.27, $p>0.05$ for men, and χ^2=0.03, $p>0.05$ for women).

Table 4.17: Percentage of respondents ever tested for HIV by background characteristics

Characteristic		Male		Female	
		N	%	N	%
Education	Primary	12	41.7	15	73.3
	Secondary	395	70.9	154	82.5
	Tertiary	92	71.7	13	84.6
Age group	18-29 years	251	64.9	117	82.9
	30-39 years	175	78.9	49	81.6
	40-49 years	73	68.5	16	75.0
Employment status	Employed	150	77.3	45	75.6
	Self-employed	295	69.5	92	81.5
	Unemployed	54	55.6	45	88.9
Marital status	Never married	186	60.8	44	61.4
	Married	296	76.4	114	90.4
	Formerly married	17	70.6	24	79.2
Religion	Christian	395	70.9	172	82.0
	Other	104	68.3	10	80.0

While having ever been tested for HIV is a good sign that a person is interested in their health, it was felt in this study that it is not enough. Consequently, respondents in the study were asked if they know their current HIV status. The results show that only 47.5 percent of men and 42.9 percent of women knew their current HIV status (see Table 4.18). It is significant to observe that while more women than men reported having ever been tested for HIV (see Table 4.17),

fewer women than men knew their current HIV status (Table 4.18). The number of men and women who know their current HIV status by background characteristics is presented in Table 4.19. The association between knowledge of one's HIV status and other background variables was examined using the chi-square test. The results show that there is no statistically significant association between knowledge of one's current HIV status and the level of education, employment status, age group, marital status, and religion.

Table 4.18: Number of respondents who know their current HIV status

Know current HIV status	**Male**		**Female**	
	N	%	N	%
Yes	237	47.5	78	42.9
No	262	52.5	104	57.1
N	499	100.0	182	100.0

Table 4.19: Percentage of respondents who know their current HIV status by background characteristics

Characteristic		Male		Female	
		N	%	N	%
Education	Primary	12	41.7	15	26.7
	Secondary	395	46.8	154	42.9
	Tertiary	92	51.1	13	61.5
Age group	18-29 years	251	43.8	117	46.2
	30-39 years	175	52.0	49	34.7
	40-49 years	73	49.3	16	43.8
Employment status	Employed	150	49.3	45	42.2
	Self-employed	295	48.1	92	42.4
	Unemployed	43	41.9	36	44.4
	Dependent	11	27.3	9	44.4
Marital status	Never married	186	42.5	44	43.2
	Married	296	49.7	114	43.9
	Formerly married	17	64.7	24	37.5
Religion	Christian	395	48.4	172	41.3
	Other	104	44.2	10	70.0

4.7 Perception of risk

Perception of risk is very subjective and may depend on the level of information that a person has about him/herself and a perceived situation. When applied to the adoption of voluntary medical male circumcision, perception of risk may refer to how one feels susceptible to contracting HIV which in turn may encourage them to adopt additional HIV prevention strategies depending on their perceived risk. In this study, respondents were asked to rate their perceived risk of getting HIV infection as low, medium-high or no risk. This is particularly significant to this study because there is an arguably good chance that those who perceive themselves to have a higher risk of getting infected with HIV would want to get circumcised (if they are men) or would encourage their male partners to get circumcised to lower that risk. Of the 681 respondents in the study, 23.9 percent reported that they have no risk at all, 39.3 reported that they have low risk of contracting HIV, while 36.8 percent reported a medium-high risk of getting HIV infection. Results on perception of risk by gender are presented in Table 4.20.

Table 4.20: Percentage of respondents with medium-high risk of HIV infection

Perception of risk	**Male**		**Female**	
	N	%	N	%
No risk	121	24.2	42	23.1
Low risk	210	42.1	58	31.9
Medium risk	113	22.6	67	36.8
High risk	55	11.0	15	8.2

An analysis of perceived risk of getting infected with HIV by gender shows that 66.3 percent of men compared to 55 percent of women reported having no risk at all or low risk. On the other extreme, more women (45.1 percent) compare to men (33.7 percent) reported that they have medium-high risk of getting infected with HIV. A chi-square test showed that the observed differences between men and women are statistically significant (χ^2=8.32, p<0.05).

The marital status of respondents was also found to be significantly related to perception of risk of getting infected with HIV (χ^2=23.9, p<0.05). Never married respondents had the highest frequency among those who reported to have no risk of getting infected with HIV (31.7 percent) while widowed respondents had the highest frequency among those who reported a low risk. Married respondents had the highest frequency among those who reported a medium-high risk of getting infected with HIV.

The relationship between a medium-high perception of risk of getting infected with HIV and the age group of respondents was also assessed in this study. The results of a chi-square test showed a statistically significant association between age group and perception of risk (χ^2=17.4, p<0.01). Respondents in the 18-29 years age category had the highest frequency among those who reported that they had no risk at all while those in the 40-49 years age category had the highest frequency among those who reported low risk. Respondents in the 30-39 years age category had the highest frequency among those who reported medium-high risk of getting infected. Other findings show that perception of risk of getting infected with HIV was not significantly associated with the level of education of respondents (χ^2=7.8, p>0.05), employment status (χ^2=7.1, p>0.05), and religion (χ^2=11.4, p>0.05).

Having a perception that one has a low or no risk of getting infected with HIV deserves further attention because it may actually increase one's chances of getting infected. In this study, respondents who reported that they have no risk at all or have a low risk of contracting HIV were asked to give a reason why they thought their risk is low. The findings show that the majority of respondents (55.7 percent) felt that they are faithful to their sexual partners thus have low or no risk of getting infected with HIV. A further 21.8 percent of respondents reported that they abstain while 17.8 percent reported that they use condoms. About 3.7 percent of men reported that they have low risk because they are circumcised. An analysis of the reasons of having low or no risk by gender generally show that more men than women (57.4 percent compared to 52.0 percent) cited faithfulness as a reason for their low risk while more women than men (32.7 percent compared to 18.7 percent) reported that they abstain. Men (19.3 percent) were more likely to report condom use as a reason for their perceived low risk compared to women (10.2 percent).

In addition to analysing having a perception of low or no risk of getting infected with HIV, this study also attempted to understand the characteristics of those who perceived themselves to have medium-high risk. The characteristics of respondents who perceived themselves to have a medium-high risk of getting infected with HIV are presented in Table 4.21. Generally, statistically significant differences in risk perception were observed among men by level of education (χ^2=6.11, p<0.05), among women by age group (χ^2=21.95, p<0.001), and among women by marital status (χ^2=19.98, p<0.001).

This study also explored the possible relationship between having a medium-high risk of HIV infection and engaging in risky sexual behaviours. Analysis was done using two indicators of

risky sex. The first indicator was having multiple sex partners in one's lifetime. All men and women who reported to have had two or more sexual partners were included in the analysis. The second variable that was included as an indicator of risky sexual behaviour was condom use at last sex among those who reported having had more than one sexual partner in the 12 months preceding the survey. The results presented in Table 4.21 seem to suggest that men who engaged in a risky sexual behaviour were significantly more likely to report having a medium-high risk of HIV infection compared to their counterparts who had not engaged in a risky sexual behaviour. However, it is even more significant to note that there are men and women who engaged in risky sexual behaviours but who do not perceive themselves to be at high risk of getting HIV infection.

Table 4.21 shows that among the 454 men who reported having ever had sex, 387 (85.2 percent) had had more than one sexual partner in their lifetime. Among these, 38.8 percent reported that they have a medium-high risk of HIV infection compared to 22.4 percent of those who had one sexual partner in their lifetime. However, no statistically significant association was found between risky sexual behaviours and having medium-high risk of HIV infection among women. This is possibly because women who engage in risky sexual behaviours and those who do not both perceive themselves as having medium-high risk of HIV infection.

Table 4.21: Percentage of respondents with medium-high risk of HIV infection by background characteristics

Characteristic		Male		Female	
		N	%	N	%
Education	Primary	12	8.3	15	33.3
	Secondary	395	35.9	154	46.8
	Tertiary	92	27.2	13	38.5
Age group	18-29 years	251	31.5	117	35.0
	30-39 years	175	38.9	49	73.5
	40-49 years	73	28.8	16	31.2
Employment status	Employed	150	32.7	45	33.3
	Self-employed	295	35.6	92	51.1
	Unemployed	43	27.9	36	47.2
	Dependent	11	18.2	9	33.3
Marital status	Never married	186	28.5	44	18.2
	Married	296	36.5	114	57.0
	Formerly married	17	41.2	24	37.5
Religion	Christian	395	32.7	172	46.5
	Other	104	37.5	10	20.0
Multiple sex partners	Yes	387	38.8	47	44.7
	No	67	22.4	105	56.2
Condom use at last sex	Yes	76	39.5	12	66.7
	No	95	56.8	6	66.7

In order to identify the characteristics or factors associated with having a medium to high risk perception, regression analysis was done using the background and sexual behaviour characteristics presented in Table 4.21 as the independent variables. The unadjusted and adjusted odds ratios of having a medium to high risk perception are presented in Table 4.22. The results show that women in the 30-39 years age category were significantly more likely to perceive themselves as having a higher risk of getting infected with HIV when compared to women in the 18-29 years category [unadjusted odds ratio=5.13, 95% C.I: 2.45-10.7]. This result remained significant even after adjusting for other background variables [adjusted odds ratio=4.77, 95% C.I: 1.81-12.6].

An analysis of the relationship between level of education and having a medium to high risk perception shows that men with a secondary or higher level of education are four times more likely to report having a medium to high risk perception when compared to their counterparts with a primary level of education. A similar pattern can also be observed among women. However, these variations in perception of risk are not statistically significant. The results also show that religion and employment status are not significantly related to having a medium to high perception of risk before and after adjusting for other variables.

Marital status was found to have predictive power among women. Results indicate that married women are significantly more likely to report a medium to high risk perception when compared to their never married counterparts even after adjusting for other variables [unadjusted odds ratio=5.97, 95% C.I: 2.55-13.9, and adjusted odds ratio=68.8, 95% C.I: 3.10-152]. This result can possibly be explained by the relatively low condom use in marital unions and high possibility of male infidelity. Among both men and women, having had multiple sex partners was a strong predictor of having a medium to high risk perception.

Table 4.22: The unadjusted and adjusted odds ratios of having medium-high risk perception among women and men by background characteristics

Characteristic		Male		Female	
		Unadjusted odds ratios	Adjusted odds ratios	Unadjusted odds ratios	Adjusted odds ratios
Education	Primary	1.00	1.00	1.00	1.00
	Secondary	6.17 [0.79-48.3]	4.39 [0.53-36.4]	1.76 [0.57-5.38]	1.69 [0.34-8.59]
	Tertiary	4.10 [0.50-33.5]	4.59 [0.53-40.0]	1.25 [0.26-5.89]	16.8 [0.87-325]
Age group	18-29 years	1.00	1.00	1.00	1.00
	30-39 years	1.38 [0.92-2.07]	1.35 [0.78-2.33]	5.13*** [2.45-10.7]	4.77** [1.81-12.6]
	40-49 years	0.88 [0.49-1.56]	0.88 [0.43-1.78]	0.84 [0.27-2.59]	0.86 [0.19-3.95]
Marital status	Never married	1.00	1.00	1.00	1.00
	Married	1.44 [0.97-2.14]	1.21 [0.66-2.24]	5.97*** [2.55-13.9]	68.8** [3.10-152]
	Formerly married	1.76 [0.64-4.86]	1.49 [0.43-5.17]	2.70 [0.87-8.33]	0.52 [0.06-4.35]
Employment status	Employed	1.00	1.00	1.00	1.00
	Self-employed	1.14 [0.75-1.73]	1.07 [0.67-1.70]	2.09 [0.99-4.39]	1.66 [0.54-5.13]
	Unemployed	0.72 [0.36-1.45]	1.17 [0.49-2.76]	1.60 [0.68-3.76]	1.19 [0.37-3.79]
Religion	Christians	1.00	1.00	1.00	1.00
	Other	1.24 [0.79-1.94]	0.95 [0.58-1.55]	0.29 [0.06-1.39]	0.24 [0.02-2.42]
Condom use	Yes	1.00	1.00	1.00	1.00
	No	1.04 [0.69-1.56]	1.14 [0.70-1.85]	0.98 [0.46-2.11]	0.07* [0.01-0.59]
Multiple sex partners	No	1.00	1.00	1.00	1.00
	Yes	2.59*** [1.73-3.89]	2.87*** [1.84-4.48]	1.78 [0.63-5.06]	23.9** [2.83-203]

Figures in parenthesis are 95 percent Confidence Intervals and those outside are Odds Ratios.

The reference category is identifiable by an odds ratio of 1.00†.

**P<0.05, ** P < 0.01, *** P < 0.001.*

4.8 Summary

This chapter presented findings of this study on the prevalence of male circumcision. The study of the prevalence of male circumcision has been central to the discourse of medical male circumcision for HIV prevention. Early studies in this area attempted to link the prevalence of male circumcision to the incidence of HIV in a population. Bongaarts et al. (1989) concluded that male circumcision is significantly associated with lower incidence of HIV. Moses et al. (1990) juxtaposed data on circumcision prevalence and HIV incidence and concluded that the two are related. Similar conclusions were made by Weiss et al. (2000). However, Van Howe (1999) concluded after a meta-analysis of 29 studies that circumcision is actually associated with an increased risk of infection contrary to other findings. Given this interest on the relationship between male circumcision prevalence and the risk of HIV infection, this study undertook to add literature on the prevalence of male circumcision in Zimbabwe.

The prevalence of male circumcision in this study was found to be 15.8 percent. This prevalence is comparable to those found in similar studies. For example, Mavhu et al. (2011) found a prevalence of 20 percent in rural Zimbabwe. The 2005-06 and the 2010-11 Zimbabwe Demographic and Health Survey (ZDHS) both found male circumcision prevalence of between 9 and 10 percent (CSO and Macro Inc., 2007; ZIMSTAT and ICF International, 2012). A recent Multiple Indicator Cluster Survey (MICS) found a prevalence of 11.2 percent (ZIMSTAT, 2015). The obvious discrepancies in the male circumcision prevalence from these different sources can be explained by variations in sampling methods and sample characteristics.

Another significant dimension to the study of the prevalence of male circumcision in the literature has been the distinction between traditional and medical male circumcision.

Traditional male circumcision is done in many cultures as a rite of passage from childhood to adulthood. In South Africa, for example, traditional male circumcision is practiced by the Xhosa, the Sotho, the Pedi, the Venda, and the Tsonga as a rite of passage (Mavhundla et al., 2009). According to Mavhundla et al. (2009), traditional male circumcision is a closely guarded ceremony whose information is only known and shared among men. It is believed that those who disclose information about circumcision rituals to women or to strangers attract the wrath of the ancestors and can have perpetual misfortune in life. The actual ritual among the Xhosa, like in many other ethnic groups, involves separation, transition and reintegration (Mavhundla et al., 2009). If an initiate fails to finish the laid down processes, or opt for hospital treatment, they would never be considered men by their peers and by the community. In this way, traditional male circumcision is considered as a test of bravery and endurance because the circumcision is done without anaesthesia and the wound must heal without getting assistance from the hospital (Mavhundla et al., 2009).

While studies have generally concluded that male circumcision is efficacious against HIV infection among heterosexual men, researchers have also focused on the incidence of adverse events during and after circumcision. A study by Bailey, Egesah and Rosenburg (2008) concluded that traditional male circumcision has significantly higher incidences of complications when compared to medical male circumcision. These differences were attributed to variations in the level of expertise and hygienic conditions associated with each type of circumcision. Generally, medical male circumcision has been found to be safe (Perera et al., 2010). In view of these considerations, this study sought to distinguish the prevalence of traditional and medical male circumcision. Respondents were asked the main reason they got circumcised. Responses classified under “religion” and “culture” were considered to be part of traditional circumcision while those categorised as “medical” and “HIV prevention” were

considered to be medical circumcisions. The overall prevalence of traditional male circumcision in this study was found to be 5.2 percent while the prevalence of medical male circumcision was found to be 8.2 percent. On the whole, 60.8 percent of all circumcisions were done in a medical setting. A similar study in South Africa by Peltzer and Mlambo (2012) found a prevalence of 15.3 percent for tradition circumcision and 23.8 percent for medical male circumcision. The general similarity between this study and that by Peltzer and Mlambo (2012) is that both studies found a higher prevalence of medical male circumcision compared to traditional circumcision. The difference in the overall prevalence between the two studies can be explained by the fact that South Africa has more pronounced ethnic groups that traditionally circumcise compared to Zimbabwe.

An important finding on the prevalence of circumcision in the study sample is that 39.2 percent of all circumcisions were done for HIV prevention compared to 32.9 percent circumcisions for religious and cultural reasons. This finding is very encouraging because it shows that while uptake of VMMC has not been to expectation (Hatzold et al., 2014), it dominates other types of circumcision. Secondly, the fact that about sixty percent of all circumcisions were done by trained medical personnel in a medical environment is also encouraging particularly in the face of findings that have associated male circumcisions that are done outside of medical settings with severe complications due to unhygienic conditions and inexperienced service providers (Weiss et al., 2010).

Studies on the prevalence of male circumcision have also attempted to identify factors that are associated with male circumcision. WHO and UNAIDS (2007) noted that male circumcision has been associated with factors such as religion, culture, ethnicity, conformity, social status and the desire to achieve a certain state of health or sexual performance. In rural Zimbabwe,

Mavhu et al. (2011) found that sexually active men were more likely to be circumcised than sexually inactive men. They also found that married or divorced men were more likely to be circumcised. Chikutsa, Ncube and Mutsau (2014) found religion and province of residence to be significantly associated with circumcision. Unlike in the studies cited above, this study did not find any statistically significant association between male circumcision status and background factors such as marital status, level of education and employment status. However, religion was found to be a significant factor in the circumcision status of respondents. The finding of this study on the association between religion and circumcision status is consistent with earlier studies. Differences in findings on the factors associated with circumcision status between this study and earlier studies may also be due to sampling variations. It is also possible that this lack of association is an indication that voluntary medical male circumcision, which was the predominant type of circumcision in the study sample, transcends demographic and socio-cultural variables.

In addition to presenting findings on the prevalence of traditional and medical male circumcision, this chapter also presented results on sexual behaviour and perception of risk of getting infected with HIV among research respondents. This study asked questions about condom use at first and most recent sexual intercourse, age at first sex, number of lifetime sex partners and in the 12 months before the survey, drunkenness during sex and HIV testing. The purpose of collecting data on sexual behaviour and risk perception was to assess the relationship between sexual behaviour and risk perception on one hand and acceptability of voluntary medical male circumcision on the other.

Findings on risky sexual behaviour show that condom use in the first and the last sexual encounters is generally low among men and women. Condom use during first sex was 29.5

percent among men and 11 percent among women while condom use at last sex was 31 percent and 19 percent among men and women respectively. Condom use at last sexual intercourse among those who reported having had 2 or more sexual partners in the 12 months prior to the survey was found to be at 48 percent for men and 57 percent for women. The results on condom use obtained in this study are in line with those obtained in the 2010-11 Zimbabwe Demographic and health Survey. For example, the 2010-11 ZDHS found that among men age 15-24 years who reported having multiple sex partners in the 12 months prior to the survey, 50.5 percent used a condom. Hendriksen et al. (2007) found that condom use at sexual debut is usually very low and is a determinant of future condom use. They also reported that condom use is very low among people in a marital union or among people who have been in a relationship for six months or more. In another study, Maharaj and Cleland (2005) found that condom use may not be related with knowledge about condoms. They however noted that condom use is related to one's perception of risk of getting infected with HIV. Foss et al. (2007) observed that patterns of condom use are affected by partnership type and perception of risk.

The present study also collected data on drunkenness during sex as a measure of risky sexual behaviours. Drunkenness during sex in the study sample was generally very low at 11.2 percent among men and 7.9 percent among women. Despite the low prevalence of drunkenness in the study sample, previous studies have found a strong association between drunkenness during sex and increased chances of getting infected with sexually transmitted infections including HIV (Rehm et al., 2012; Fisher et al., 2007; Kalichman et al., 2007; Cook et al., 2005; Baliunas et al., 2010). Similarly, the present study found the number of respondents who had sex before the age of 15 years to be very small at 6.1 percent (less than 2 percent among women) to allow any further analysis. Age at first sex was used as a measure of risky sexual behaviour because

a study by Wellings et al. (2006) reported that having sexual intercourse at an early age predisposes a person to engage in other risky sexual behaviours later in life.

The number of lifetime sexual partners and in the last 12 months was also investigated as an indicator of risky sexual behaviour. The findings of this study show that generally men reported significantly higher numbers of sexual partners compared to women. The average number of sexual partners for men in the 12 months before the survey was found to be at 2.2 compared to 1.2 for women while the number of lifetime partners was found to be 10.9 for men and 2.7 for women. The number of lifetime partners found in this study compares reasonable well with that from the 2010-11 ZDHS which found the average number of lifetime partners among women to be at 2.2 while that for men was reported at 6.0 (ZIMSTAT and ICF International, 2012). A major limitation of self-reported number of sexual partners is that men tend to exaggerate while women underreport the number of sexual partners they have had (Nnko et al., 2004).

Testing for HIV is another important indicator of risky sexual behaviour (WHO, 2004). HIV testing is very important in the fight against HIV because studies have shown that early detection of HIV can help in the treatment of opportunistic infections, in reducing possible spreading of HIV, in the timely implementation of anti-retroviral therapy (ART) and in fostering positive behavioural change whether the test results are positive or negative (Girardi et al., 2007; Weiser et al., 2006; Denison et al., 2008). In this study, respondents were asked if they have ever been tested and if they know their current HIV status. Current HIV status referred to having gone for testing and collected results. Generally, the findings of this study show that the number of women who had ever gone for HIV testing is greater than that for men while the number of men who know their current HIV status is greater than that of women.

Overall, 47.5 percent of men compared to 42.9 percent of women reported that they know their current HIV status. This is in contrast to findings of the Zimbabwe 2014 Multiple Indicator Cluster Survey which showed that the number of women who know their current HIV status is at 50.6 percent compared to 40.3 percent for men (ZIMSTAT, 2015). A study by Weiser et al. (2006) found that key barriers to voluntary HIV counselling and testing include fear of learning one's HIV status, lack of perceived HIV risk, and the behavioural changes associated with an HIV positive result.

Another significant finding of this study related to risky sexual behaviour is that of perception of risk of getting infected with HIV. The findings of this study suggest that the majority of respondents perceive themselves as having low risk or no risk at all of getting infected with HIV. This finding is in line with similar findings from other countries. For example, Prata et al. (2006) found that there is an incorrect perception about risk among adolescents in Mozambique, while Nunn et al. (2011) found that more than 80 percent of those who were found with an HIV positive result in a study in Philadelphia actually thought that they had no risk of getting an HIV infection. In South Africa, Johnston et al. (2010) found that men who had not used a condom and those who had multiple sex partners were likely to see themselves as at risk. They concluded that perception of risk is a key factor in HIV testing. In southern India, Jain et al. (2011) observed that perception of risk among mobile commercial sex workers was associated with patterns of condom use. Participants in their study only perceived themselves to be at risk if they had unprotected sex with non-regular clients. Do and Meekers (2009) observed that while men were more likely to have multiple sex partners, they were however less likely to consider themselves to be at risk of getting infected with HIV.

In short, the relationship between high risk sexual behaviour and perception of risk is at best very complex. What is important to note at the moment is that several studies have established that sexual behaviour and perception of risk do not always go in the same direction. Adefuye et al (2009), for example, found that those who reported high risk sexual behaviours were also likely to report low levels of perceived risk. Similarly, Khawcharoenporn et al (2012) concluded that despite the high levels of knowledge about HIV in their study sample, respondents who engaged in high risk sexual behaviours did not recognise their risk. These findings are particularly significant for this study because they have implications on whether engaging in risky sex and one's perception of risk of getting infected with HIV are related to willingness to get circumcised for HIV prevention. The understanding of the relationship between male circumcision and perception of risk on one hand and male circumcision and risky sexual behaviour on the other is particularly critical during the up scaling of VMMC for HIV prevention (Mkandawire et al., 2014). A study by Westercamp et al. (2014) concluded that men who sought voluntary medical male circumcision for HIV prevention perceived themselves to have a higher risk of getting infected with HIV while those who had undergone circumcision were likely to view themselves to have reduced their chance of getting infected. The attenuation of risk perception after circumcision may inadvertently increase risky sexual behaviours and thus cancel out the protective effect of voluntary medical male circumcision (Kibira et al., 2016).

CHAPTER FIVE: KNOWLEDGE AND ACCEPTABILITY OF VMMC

5.1 Introduction

Studies suggest that knowledge is critical in influencing individuals' cognitive processes which in turn affect attitudes and the ultimate adoption of behaviour, for example, a new public health intervention (Fishbein and Ajzen, 1975; Ajzen and Madden, 1986; Prochaska and Velicer, 1997; Sharma and Romas, 2012). Thus, the measurement of people's knowledge and attitudes about a novel public health intervention is not a new phenomenon in studies that attempt to evaluate attitudes and the adoption of new interventions. Furthermore, assessing the level of knowledge about a public health intervention gives an indication of how well information has been disseminated and understood by the target population (Measure Evaluation PRH, online). According to WHO/UNAIDS (2009) the level of knowledge is a good indicator of the probability of adoption of an intervention, in this case, voluntary medical male circumcision for HIV prevention. In addition, the level of knowledge also provides an opportunity to measure myths and misunderstandings which are then counteracted through effective communication strategies.

A number of indicators have been developed to measure people's knowledge of voluntary medical male circumcision for HIV prevention. WHO/UNAIDS (2009) published a comprehensive list of such indicators. They proposed that in assessing the level of knowledge about voluntary medical male circumcision, it is important to measure the extent to which people know that VMMC is not 100 percent effective and that it does not protect women from getting infected with HIV. Several studies (for example, Mugwanya et al., 2010; Mavhu et al., 2011) have also been conducted which used such measures to test people's knowledge about

VMMC. In a study to measure knowledge and attitudes on voluntary medical male circumcision in South Africa, Hoffman et al. (2015) developed an aggregate measure of knowledge by assessing whether respondents in their study had ever heard about VMMC, their knowledge of specific health benefits of VMMC and also their knowledge about the relationship between VMMC and HIV infection. In this study, knowledge about voluntary medical male circumcision was measured using four key indicators. Respondents were asked if they know that circumcision does not provide 100 percent protection; that a circumcised man still has to use condoms; that there is a 6 weeks waiting period before resumption of sexual activity to allow the complete healing of the wound; and if they know of a place where circumcision is done. These four indicators were then computed into a single variable "comprehensive knowledge".

This study also collected data on several other indicators related to knowledge about voluntary medical male circumcision. Respondents in this study were also asked if they had ever heard about voluntary medical male circumcision and the main sources from which they had heard about it. Exposure to different types of media was disaggregated by the gender of respondents. In addition to presenting findings on respondents' exposure to information and knowledge about voluntary medical male circumcision, this chapter also presents findings on the acceptability of male circumcision for HIV prevention.

5.2Exposure to information about VMMC

The present study collected data on respondents' exposure to information on voluntary medical male circumcision. Respondents in the study were asked if they had ever heard of voluntary medical male circumcision and their sources of information. It was felt that accessing

respondents' exposure to information could be used as an indication of how informed people are about voluntary medical male circumcision. This in turn would be used in examining the determinants of support and willingness to get circumcised. Data on the main sources of information on VMMC was collected and cross-tabulated with data on socio-economic and demographic variables so that we could establish differentials in exposure to information on voluntary medical male circumcision by background variables. The findings on whether respondents had ever heard about voluntary medical male circumcision show that 97 percent of men and 96.7 percent of women had ever heard about voluntary medical male circumcision for HIV reduction. There was no statistically significant difference between men and women on having ever heard about circumcision (χ^2=0.38, p>0.05). No further analysis by background variables was done because the results show that information on exposure to information on voluntary medical male circumcision is almost universal.

This study also collected data on the sources of information about voluntary medical male circumcision. Respondents in the study were asked to confirm if they had ever heard anything about voluntary medical male circumcision from a list of sources. During analysis of data on sources of information, the present study focused on the number of respondents who reported having ever heard about voluntary medical male circumcision from each source. Furthermore, the study also examined whether exposure to information about voluntary medical male circumcision from each source varied significantly between men and women. A summary of the findings on the percentage of men and women who reported to have heard about voluntary medical male circumcision from the given sources of information is presented in Table 5.1. An interesting finding is that fewer women than men reported having come across information on voluntary medical male circumcision from all the sources except those classified as "other". These include friends, acquaintances and family members.

Table 5.1: Percentage of men and women who reported having heard about VMMC by sources

Source of information	% Males (n=499)	% Females (n=182)
Radio	92	87
TV	87	78
Newspaper	88	60
Pamphlet	71	42
Billboard	87	80
NGO	42	26
Medical Centre	78	69
Church	25	20
Other	49	60

**This was a multiple response question*

5.3 Knowledge about VMMC

One of the aims of this study was to examine knowledge of male circumcision among respondents. In assessing respondents' knowledge of voluntary medical male circumcision as an additional method of HIV prevention, this study assumed that acceptance of voluntary medical male circumcision is related to one's knowledge of the method. In addition to a question on having ever heard about voluntary medical male circumcision, respondents were also asked to answer the following four questions related to their knowledge of VMMC:

(a) That male circumcision does not provide 100 percent protection against HIV;

(b) That a circumcised man has to use a condom;

(c) That a circumcised man has to abstain from sex for 6 weeks to allow complete healing of the wound; and

(d) A place where a man can get circumcised if they wanted to.

5.3.1 Knowledge about condom use after VMMC

One of the key indicators of knowledge about voluntary medical male circumcision was on the use of protection after circumcision. This is particularly important in the wake of fears that circumcised men may choose not use condoms in the false belief that they are fully protected against getting infected with HIV. While 82.8 percent of all respondents reported that they know about the need to use condoms after circumcision, this study further examined differentials by socio-demographic characteristics. Statistically significant differences were observed by gender (χ^2=22.65, p<0.001), by level of education (χ^2=26.88, p<0.001), and by age group (χ^2=6.39, p<0.05). No significant differences in knowledge were observed by employment status (χ^2=7.24, p>0.05), religion (χ^2=1.49, p>0.05), and by marital status (χ^2=6.19, p>0.05).

Further analysis of the factors associated with knowledge about condom use after circumcision using logistic regression seems to confirm findings from the chi-square test (see Table 5.2). Men were observed to have significantly better knowledge about condom use after circumcision than women as seen by an unadjusted and adjusted odds ratios of 0.37 [95% C.I.: 0.25-0.57] and 0.54 [95% C.I.: 0.29-0.99] for women respectively. Similarly, knowledge about condom use after circumcision was significantly higher among respondents in the 30-39 years age category when compared to those in the 18-29 years age group with an unadjusted odds ratio of 1.84 [95% C.I.: 1.14-2.96] and an adjusted odds ratio of 1.83 [95% C.I.: 1.01-3.35]. Results of the logistic regression also confirmed the chi-square finding that level of education is an important predictor of knowledge. Respondents with a secondary level of education were twice as likely to know about condom use after male circumcision when compared to those with a primary level of education [unadjusted odds ratio=2.97. 95% C.I.: 1.34-6.61]. After

adjusting for other factors, the odds of having knowledge about condom use after circumcision were found to be at 32.3 [95% C.I.: 3.49-298] for respondents with a tertiary level of education when compared to those with a primary level of education.

In addition to background variables, the logistic regression analysis took into account other variables such as one's perception of risk. Findings show that having a medium-high perception of risk is not significantly associated with knowledge about condom use after circumcision. However, the results show that knowledge of one's HIV status is a significant predictor of knowledge about condom use after circumcision. Respondents who reported that they know their current HIV status had higher odds of having knowledge about condom use after circumcision compared to their counterparts who did not know their HIV status after adjusting for other factors [adjusted odds ratio=2.76, 95% C.I.: 1.65-4.62].

Table 5.2: Unadjusted and adjusted odds ratios of having knowledge about condom use after circumcision

Characteristic		N	%	Unadjusted Odds Ratios	Adjusted Odds Ratios
Gender***	Male	499	87.0	1.00	1.00
	Female	182	71.4	0.37*** [0.25-0.57]	0.54* [0.29-0.99]
Education***	Primary	27	59.3	1.00	1.00
	Secondary	549	81.2	2.97** [1.34-6.61]	2.49 [0.89-7.01]
	Tertiary	105	97.1	23.4*** [5.87-93.0]	32.3** [3.49-298]
Age group*	18-29 years	368	79.9	1.00	1.00
	30-39 years	224	87.9	1.84* [1.14-2.96]	1.83* [1.01-3.35]
	40-49 years	89	82.0	1.15 [0.63-2.09]	1.36 [0.62-3.02]
Religion	Christians	567	82.7	1.00	1.00
	Other	114	83.3	1.04 [0.61-1.79]	0.93 [0.48-1.80]
Marital status	Never married	230	84.3	1.00	1.00
	Married	410	82.2	0.86 [0.55-1.33]	0.58 [0.26-1.31]
	Formerly married	41	80.5	0.77 [0.33-1.79]	0.77 [0.22-2.65]
Employment status	Employed	195	81.5	1.00	1.00
	Self-employed	385	85.5	1.34 [0.85-2.12]	1.29 [0.73-2.28]
	Unemployed	99	74.7	0.67 [0.37-1.19]	0.58 [0.27-1.25]
Know HIV status***	No	366	90.2	1.00	1.00
	Yes	315	76.5	2.81*** [1.81-4.38]	2.76*** [1.65-4.62]
Medium-High Perception of risk	No	431	84.0	1.00	1.00
	Yes	250	82.1	1.14 [0.75-1.74]	1.56 [0.69-1.94]

Figures in parenthesis are 95 percent Confidence Intervals and those outside are Odds Ratios.
The reference category is identifiable by an odds ratio of 1.00[†].
**P<0.05, ** P < 0.01, *** P < 0.001.*

5.3.2 Knowledge about the partial protective effect of VMMC

Respondents in the study were asked if they know that male circumcision provides partial protection against HIV. Results show that significantly more males (92.2 percent) than females (83.0 percent) know that VMMC does not provide complete protection against HIV infection (χ^2=12.29, p<0.001). The results also indicate significant differences in knowledge about the partial protective effect of voluntary medical male circumcision by age group (χ^2=6.28, p<0.05). Knowledge about the partial protective effect of VMMC was highest among respondents in the 30-39 years age category at 93.3 percent followed by those in the 18-29 years age group at 88.9 percent.

Results also highlight significant differences in knowledge by level of education (χ^2=17.68, p<0.001). It appears that knowledge about the partial protective effect of VMMC increases with increasing education. Among respondents with a primary level education, only 74.1 percent knew about the partial protective effect of VMMC compared to 88.7 percent of respondents with a secondary level education and 99 percent of those with a tertiary level qualification. No significant differences were observed by other background characteristics such as marital status (χ^2=2.38, p>0.05), employment status (χ^2=2.99, p>0.05), and religion (χ^2=2.09, p>0.05).

Among measures of risky sexual behaviour, knowledge of one's HIV status and having had multiple sexual partners were significantly associated with knowledge about the partial protective effect of male circumcision (χ^2=9.81, p<0.01; and χ^2=9.16, p<0.01, respectively).

Perception of risk and condom use were not associated with knowledge (χ^2=0.03, p>0.05; and χ^2=1.31, p>0.05, respectively).

Results from logistic regression analysis show that women have significantly lower odds of knowing about the partial protective effect of voluntary medical male circumcision when compared to men [unadjusted odds ratio=0.41, 95% C.I.: 0.25-0.69]. However, the association between gender and knowledge is not significant after adjusting for other characteristics (see Table 5.3). Results also show that respondents who know their HIV status and those who have had multiple sex partners are more likely to have knowledge about the partial protective effect of circumcision. For example, respondents who know their HIV status are twice as likely to know about the partial protective effect of VMMC even after adjusting for other factors [adjusted odds ratio=2.04, 95% C.I.: 1.09-3.85]. Perhaps this can be explained by differentials in health-seeking behaviours between the two categories. On the other hand, men and women who reported having had multiple sex partners were significantly more likely to have knowledge about the partial protective effect of VMMC compared to those who did not have multiple sex partners after adjusting for other factors [adjusted odds ratio=3.12, 95% C.I.: 1.29-7.55].

Table 5.3: Unadjusted and adjusted odds ratios of having knowledge about the partial protective effect of VMMC

Characteristic		N	%	Unadjusted Odds Ratios	Adjusted Odds Ratios
Gender***	Male	499	92.2	1.00	1.00
	Female	182	83.0	0.41** [0.25-0.69]	0.77 [0.35-1.68]
Education***	Primary	27	74.1	1.00	1.00
	Secondary	549	88.7	2.75* [1.12-6.76]	1.86 [0.58-5.98]
	Tertiary	105	99.0	36.4** [4.24-312]	3.06 [0.91-93.1]
Age group*	18-29 years	368	88.9	1.00	1.00
	30-39 years	224	93.3	1.75 [0.94-3.24]	2.07 [0.94-4.53]
	40-49 years	89	84.3	0.67 [0.35-1.29]	0.79 [0.32-1.96]
Religion	Christians	567	90.5	1.00	1.00
	Other	114	86.0	0.64 [0.35-1.17]	0.52 [0.25-1.09]
Marital status	Never married	230	90.9	1.00	1.00
	Married	410	89.8	0.88 [0.51-1.53]	1.25 [0.44-3.56]
	Formerly married	41	82.9	0.49 [0.19-1.24]	0.91 [0.19-4.34]
Employment status	Employed	195	90.8	1.00	1.00
	Self-employed	385	90.4	0.96 [0.53-1.74]	0.66 [0.29-1.48]
	Unemployed	99	84.8	0.57 [0.27-1.18]	0.31 [0.11-1.84]
Know HIV status*	No	366	86.3	1.00	1.00
	Yes	315	93.7	2.33** [1.36-4.01]	2.04* [1.09-3.85]
Had multiple sex partners**	No	380	87.6	1.00	1.00
	Yes	185	95.7	3.12** [1.44-6.75]	3.12* [1.29-7.55]

Figures in parenthesis are 95 percent Confidence Intervals and those outside are Odds Ratios.
The reference category is identifiable by an odds ratio of 1.00†.
**P<0.05, ** P < 0.01, *** P < 0.001.*

5.3.3 Knowledge about the 6-weeks abstaining period after VMMC

The effectiveness of voluntary medical male circumcision partly depends on the ability of those who are circumcised to wait for 6 weeks before resumption of sexual activities. This is a critical period because it allows complete healing of the wound. The risk of getting infected with HIV is particularly high in this period because of the open wound. In assessing knowledge about voluntary medical male circumcision, respondents were asked if they know that a circumcised man must wait for 6 weeks before resumption of sexual intercourse. Differentials by background factors in that aspect of knowledge about voluntary medical male circumcision were analysed using the chi-square. The results of this analysis show that the gender of respondents is significantly associated with knowledge that a circumcised man must abstain from sex for 6 weeks (χ^2=6.19, p<0.05). In addition to the gender of respondents, knowledge that a circumcised man must abstain for 6 weeks was also significantly associated with their employment status (χ^2=8.64, p<0.05). Eighty-three percent of respondents in formal employment reported that they know about the 6-weeks waiting period compared to 72.1 percent of those who reported to be self-employed and 73.7 percent of those who were classified as unemployed. However, knowledge about the 6-weeks waiting period was not significantly associated with marital status (χ^2=1.59, p>0.05), level of education (χ^2=4.38, p>0.05), age group (χ^2=2.46, p>0.05) nor religion (χ^2=0.24, p>0.05).No significant association was found between perception of risk and knowledge about the waiting period after circumcision. Similarly, having had multiple sex partners and condom use were also not associated with knowledge about the 6 weeks waiting period after circumcision. These variables were thus not included in the logistic regression analysis. Results of the regression analysis show that being a woman, being self-employed and not knowing one's current HIV

status were significantly associated with less knowledge about the 6 weeks abstaining period after undergoing voluntary medical male circumcision (see Table 5.4).

Table 5.4: Unadjusted and adjusted odds ratios of having knowledge about the 6 weeks abstaining period after circumcision

Characteristic		N	%	Unadjusted Odds Ratios	Adjusted Odds Ratios
Gender*	Male	499	78.0	1.00	1.00
	Female	182	68.7	0.62* [0.43-0.91]	0.55* [0.32-0.95]
Education	Primary	27	63.0	1.00	1.00
	Secondary	549	75.0	1.77 [0.79-3.95]	1.69 [0.63-4.57]
	Tertiary	105	81.0	2.50 [0.99-6.28]	2.50 [0.76-8.20]
Age group	18-29 years	368	77.7	1.00	1.00
	30-39 years	224	73.7	0.80 [0.54-1.78]	0.77 [0.46-1.30]
	40-49 years	89	70.8	0.69 [0.41-1.17]	0.63 [0.32-1.22]
Religion	Christians	567	75.8	1.00	1.00
	Other	114	73.7	0.89 [0.56-1.41]	0.83 [0.49-1.41]
Marital status	Never married	230	77.0	1.00	1.00
	Married	410	74.4	0.87 [0.59-1.27]	0.87 [0.43-1.73]
	Formerly married	41	78.0	1.07 [0.48-2.37]	1.49 [0.46-4.87]
Employment status*	Employed	195	83.1	1.00	1.00
	Self-employed	385	72.1	0.53** [0.34-0.81]	0.45** [0.26-0.76]
	Unemployed	99	73.7	0.57 [0.32-1.03]	0.58 [0.27-1.25]
Know HIV status**	No	366	70.2	1.00	1.00
	Yes	315	81.6	1.88** [1.31-2.70]	1.81** [1.19-2.74]

Figures in parenthesis are 95 percent Confidence Intervals and those outside are Odds Ratios. The reference category is identifiable by an odds ratio of 1.00†.
**P<0.05, ** P < 0.01, *** P < 0.001.*

5.3.4 Knowledge about a place offering VMMC services

As part of assessing respondents' knowledge about voluntary medical male circumcision, all respondents in the study were asked if they know a place offering VMMC services. It was felt that this is an important indicator of knowledge because it has the potential to limit uptake. Overall, 56.8 percent of respondents knew of a place offering voluntary medical male circumcision services. Further analysis of knowledge by background characteristics was done using the chi-square. Gender of the respondents was the only variables which was significantly associated with knowledge of a place offering voluntary medical male circumcision services (χ^2=26.47, p<0.001). This finding is not surprising given that only 40.7 percent of women compared to 62.7 percent of men reported having knowledge about a place offering VMMC services. It is possible that women feel that the promotion of voluntary medical male circumcision is a male programme and that they have nothing to gain from having detailed knowledge about VMMC. No significant association was observed between knowledge of a place offering voluntary medical male circumcision services and age group of respondents (χ^2=0.152, p>0.05), marital status (χ^2=3.749, p>0.05), level of education (χ^2=7.758, p>0.05), employment status (χ^2=3.396, p>0.05), and religion (χ^2=7.578, p>0.05). Knowing one's HIV status was also found to be significantly associated with knowledge of a place offering VMMC services. Results of logistic regression analysis show that being a man, knowing your HIV status and being married were significantly associated with knowing a place offering VMMC services (see Table 5.5).

Table 5.5: Unadjusted and adjusted odds ratios of having knowledge about a place offering VMMC services

Characteristic		N	%	Unadjusted Odds Ratios	Adjusted Odds Ratios
Gender***	Male	499	62.7	1.00	1.00
	Female	182	40.7	0.41*** [0.29-0.58]	0.39*** [0.24-0.63]
Education	Primary	27	33.3	1.00	1.00
	Secondary	549	57.6	2.71* [1.20-6.14]	2.31 [0.84-6.30]
	Tertiary	105	59.0	2.88* [1.18-7.02]	2.36 [0.78-7.13]
Age group	18-29 years	368	56.2	1.00	1.00
	30-39 years	224	57.1	1.04 [0.74-1.45]	0.84 [0.53-1.33]
	40-49 years	89	58.4	1.09 [0.68-1.75]	0.86 [0.47-1.58]
Religion	Christians	567	57.0	1.00	1.00
	Other	114	56.1	0.97 [0.64-1.45]	0.78 [0.49-1.23]
Marital status	Never married	230	54.3	1.00	1.00
	Married	410	58.5	1.19 [0.86-1.64]	1.89* [1.08-3.29]
	Formerly married	41	53.7	0.97 [0.49-1.89]	1.24 [0.49-3.13]
Employment status	Employed	195	56.4	1.00	1.00
	Self-employed	385	57.9	1.06 [0.75-1.50]	1.06 [0.70-1.59]
	Unemployed	99	53.5	0.89 [0.55-1.45]	0.87 [0.47-1.61]
Know HIV status**	No	366	50.0	1.00	1.00
	Yes	315	64.8	1.84*** [1.35-2.50]	1.78** [1.25-2.53]

Figures in parenthesis are 95 percent Confidence Intervals and those outside are Odds Ratios.

The reference category is identifiable by an odds ratio of 1.00[†].

**P<0.05, ** P < 0.01, *** P < 0.001.*

5.4 Comprehensive Knowledge about VMMC

In assessing comprehensive knowledge about voluntary medical male circumcision, four indicators of knowledge discussed above were used. These include knowledge that male circumcision does not provide 100 percent protection against HIV infection; that circumcised men must use condoms; that there is a 6-weeks waiting period before resumption of sexual intercourse; and finally, knowledge of a place to get circumcised. New variables on knowledge based on the four above were generated with new response codes, 1 for "yes" and 0 for "no". The variable "comprehensive knowledge" was computed by adding responses to the four indicators of knowledge. Respondents who gave a "no" to all the four questions got a "0" on comprehensive knowledge. Scores on each measure of knowledge were summed together and respondents' knowledge was classified as "good" or "poor". Respondents who got a score of between 0 and 2 were categorised as having "poor" comprehensive knowledge while those who got a score of between 3 and 4 were classified as having "good" knowledge of voluntary medical male circumcision. The percentage of men and women with good comprehensive knowledge by background characteristics are presented in Table 5.6 and Table 5.7 respectively, together with the odds ratios of having good comprehensive knowledge by background characteristics.

Among men, good comprehensive knowledge of voluntary medical male circumcision was found to be significantly associated with education. Men with a tertiary level of education had significantly higher odds of having good knowledge of VMMC when compared to men with a primary level education [unadjusted odds ratio=5.86, 95% C.I.: 1.56-21.9]. This result remained significant after adjusting for other factors [adjusted odds ratio=5.39, 95% C.I.: 1.08-26.8]. Also, men who know their HIV status had significantly higher odds of having good

comprehensive knowledge of VMMC even after adjusting for other factors [adjusted odds ratio=2.49, 95% C.I.: 1.46-4.23]. The rest of the findings for men are presented in Table 5.6.

Table 5.6: Unadjusted and adjusted odds ratios of having good comprehensive knowledge of VMMC among men

Characteristic		N	%	Unadjusted odds Ratios	Adjusted odds Ratios
Education*	Primary	12	58.3	1.00	1.00
	Secondary	395	77.7	2.48 [0.77-8.02]	2.26 [0.56-9.08]
	Tertiary	92	89.1	5.86** [1.56-21.9]	5.39* [1.08-26.8]
Age group	18-29 years	251	76.5	1.00	1.00
	30-39 years	175	82.3	1.43 [0.88-2.32]	1.66 [0.85-3.24]
	40-49 years	73	81.9	1.39 [0.71-2.72]	1.54 [0.65-3.63]
Employment status	Employed	150	80.0	1.00	1.00
	Self-employed	295	78.6	0.92 [0.56-1.49]	0.78 [0.44-1.41]
	Unemployed	54	81.4	1.10 [0.49-2.44]	0.60 [0.21-1.68]
Marital status	Never married	186	76.3	1.00	1.00
	Married	296	81.8	1.39 [0.89-2.18]	0.79 [0.38-1.69]
	Formerly married	17	68.8	0.68 [0.22-2.07]	0.42 [0.11-1.65]
Religion	Christians	395	81.5	1.00	1.00
	Other	104	71.2	0.56* [0.34-0.92]	0.59 [0.33-1.04]
Know HIV status**	No	263	71.4	1.00	1.00
	Yes	236	88.1	2.98*** [1.85-4.80]	2.49** [1.46-4.23]
Had multiple sex partners	No	283	73.1	1.00	1.00
	Yes	171	81.4	0.94 [0.58-1.54]	1.04 [0.59-1.85]
Used condom at last sex	No	95	82.3	1.00	1.00
	Yes	76	76.0	0.68 [0.42-1.09]	0.69 [0.38-1.25]

Figures in parenthesis are 95 percent Confidence Intervals and those outside are Odds Ratios.

The reference category is identifiable by an odds ratio of 1.00†.

**P<0.05, ** P < 0.01, *** P < 0.001.*

Among women, 26.7 percent of women in the 40-49 years age group had good comprehensive knowledge of voluntary medical male circumcision. When compared to women in the 18-29 years age group, women in the 40-49 years age category had significantly lower knowledge [unadjusted odds ratio=0.19, 95% C.I.: 0.06-0.64]. Similarly, married women had significantly lower odds of having good comprehensive knowledge of VMMC when compared to never married women [unadjusted odds ratio=0.46, 95% C.I.: 0.22-0.97]. After adjusting for other factors, age and marital status did not retain their predictive power on comprehensive knowledge of voluntary medical male circumcision.

Education was also found to be significantly associated with comprehensive knowledge of voluntary medical male circumcision (see Table 5.7). When compared to women with primary education, the unadjusted odds ratio of having good knowledge about VMMC increases to 5.38 [95% C.I.: 1.44-20.1] among women with a secondary level education and to 44.0 [95% C.I.: 3.97-488] among women with tertiary education. Other variables that had predictive power in the bivariate logistic regression model were knowledge of one's HIV status [unadjusted odds ratio=3.14, 95% C.I.: 1.66-5.95], having had multiple sex partners [unadjusted odds ratio=14.9, 95% C.I.: 1.92-115] and condom use at last sex [unadjusted odds ratio=7.25, 95% C.I.: 2.40-21.9]. In the multiple regression model, knowledge of one's HIV status was the only variable that retained its predictive power on good knowledge of VMMC [adjusted odds ratio=3.80, 95% C.I.: 1.62-8.93].

Table 5.7: Unadjusted and adjusted odds ratios of having good comprehensive knowledge of VMMC among women

Characteristic		N	%	Unadjusted odds Ratios	Adjusted odds Ratios
Education	Primary	15	21.4	1.00	1.00
	Secondary	154	59.5	5.38** [1.44-20.1]	4.07 [0.63-26.4]
	Tertiary	13	92.3	44.4** [3.97-488]	21.4 [0.95-103]
Age group	18-29 years	117	65.5	1.00	1.00
	30-39 years	49	53.1	0.59 [0.30-1.17]	0.72 [0.27-1.89]
	40-49 years	16	26.7	0.19** [0.06-0.64]	0.26 [0.51-1.31]
Employment status	Employed	45	68.2	1.00	1.00
	Self-employed	92	57.1	0.62 [0.29-1.33]	0.76 [0.21-2.74]
	Unemployed	45	52.8	0.53 [0.22-1.27]	0.47 [0.12-1.85]
Marital status	Never married	44	70.5	1.00	1.00
	Married	114	52.2	0.46* [0.22-0.97]	0.64 [0.36-1.93]
	Formerly married	24	69.6	0.96 [0.32-2.89]	0.99 [0.51-2.79]
Religion	Christians	172	58.8	1.00	1.00
	Other	10	60.0	1.05 [0.29-3.86]	1.52 [0.20-11.2]
Know HIV status**	No	103	47.6	1.00	1.00
	Yes	78	74.0	3.14*** [1.66-5.95]	3.80** [1.62-8.93]
Had multiple sex partners	No	134	50.0	1.00	1.00
	Yes	18	80.9	14.9* [1.92-115]	8.54 [0.59-123]
Used condom at last sex	No	6	50.9	1.00	1.00
	Yes	12	88.2	7.25*** [2.40-21.9]	5.28 [0.65-42.8]

Figures in parenthesis are 95 percent Confidence Intervals and those outside are Odds Ratios.

The reference category is identifiable by an odds ratio of 1.00†.

**P<0.05, ** P < 0.01, *** P < 0.001.*

5.5 Attitudes toward VMMC for HIV Reduction

The present study sought information on respondents' degree of agreement with twenty given statements. These statements represented attitudes and perceptions toward different aspects of male circumcision such as perceptions of pain, women's involvement, condom use after circumcision and perceptions on service providers. The degree of agreement was measured using a Likert scale. Strong agreement or agreement with a given statement was represented by "1" and "2" respectively while "4"and "5" represented disagreement and strong disagreement respectively. A "3" represented a "don't know". For analysis purposes, the Likert-scale scores were initially treated as continuous data. Consequently, a mean and standard deviation for each statement was computed with a view to establishing the pattern of responses. A mean score of 1 or 2 indicates agreement with a given statement while a mean score of 4 or 5 indicates disagreement. A mean score of 3 indicates that the majority of respondents did not know whether to agree or disagree with a statement. The obtained means were rounded of the nearest whole number for ease of interpretation.

An analysis of the mean scores show that respondents generally agreed with six of the twenty statements. They agreed that circumcision is painful; that it improves genital cleanliness; that it reduces the chances of getting STIs and HIV; and that women should be involved in the decision to get a circumcision for HIV prevention. There also seems to be consensus among respondents that voluntary medical male circumcision may lead to a false sense of security thus promote promiscuity. Respondents disagreed with five of the statements, that is, that circumcised men are stigmatised in the community; that abstaining for 6 weeks after undergoing VMMC is not achievable; that women should not talk about circumcision for HIV prevention; that circumcised men should not be expected or be forced to use condoms; and that

the government should focus on existing methods of HIV prevention than promote voluntary medical male circumcision. The percentage of men and women who agree with the attitude statements are presented in Table 5.8.

Table 5.8: Percentage of men and women who agree with particular attitude statements

Statement	Men	Women
Male circumcision is painful	79.6	86.8
Circumcised males are stigmatised in the community	22.6	25.3
Male circumcision may lower sex drive	27.7	7.1
Male circumcision may increase sexual pleasure	49.7	30.8
Male circumcision improves genital cleanliness	93.0	90.1
Male circumcision may reduce the risk of getting an STI	85.8	86.3
Male circumcision may reduce the risk of getting HIV	74.3	75.3
Abstaining for 6 weeks after circumcision is unrealistic	22.6	15.4
Male circumcision may lower risk perception thus promote promiscuity	67.1	81.9
Women should be involved in the decision to get circumcised	78.6	97.8
Women should not talk about male circumcision for HIV prevention	16.8	3.3
Circumcised men should not be expected/forced to use condoms	18.6	9.3
A circumcised penis is more appealing than an uncircumcised one	44.9	36.3
Information on VMMC is difficult to understand	32.3	36.3
Service providers are generally rude and unwelcoming	10.6	50.5
The benefits of VMMC are worth the time and effort	29.3	40.1
Employers won't give men off days to get circumcised	61.1	75.8
The procedures involved to get circumcised at hospitals are cumbersome	63.5	17.0
I would pay for quality service than get circumcised for free	38.7	46.7
Government should focus on existing HIV prevention methods	20.6	9.3

In the second stage of analysing perceptions and attitudes on voluntary medical male circumcision for HIV prevention, responses were transformed in SPSS by generating dummy variables and regrouping the observed responses into 2 categories of "positive attitudes" and "negative attitudes" to build a composite measure of "attitudes". Statements which related to opinions about the appearance of a circumcised penis and sexual pleasure were excluded from the composite measure of attitudes because it was felt that they were more personal preferences than measures of attitudes. The generated variable on attitudes was computed by summing all the scores on the attitude's statements.

Attitudes toward voluntary medical male circumcision were cross-tabulated with background factors such as the gender of respondents, level of education; marital status and comprehensive knowledge of VMMC (see Table 5.9). Using the chi-square test, no statistically significant differences in the reporting of positive attitudes toward voluntary medical male circumcision were observed by all background variables except comprehensive knowledge of VMMC. Similarly, having positive attitudes toward voluntary medical male circumcision was not associated with any of the indicators of risky sexual behaviour.

Table 5.9: Percentage of men and women with positive attitudes toward VMMC by background characteristics

Characteristic		Male		Female	
		Number	Percentage	Number	Percentage
Education	Primary	12	91.7	15	86.7
	Secondary	395	90.9	154	92.9
	Tertiary	92	92.4	13	92.3
Age group	18-29 years	251	90.8	117	92.3
	30-39 years	175	92.0	49	93.9
	40-49 years	73	90.4	16	87.5
Employment status	Employed	150	86.0	45	97.8
	Self-employed	295	93.2	92	89.1
	Unemployed	43	93.0	36	91.7
	Dependent	11	100.0	9	100.0
Marital status	Never married	186	90.3	44	88.6
	Married	296	91.9	114	94.7
	Formerly married	17	88.2	24	87.5
Religion	Christian	395	91.6	172	92.4
	Other	104	89.4	10	90.0
Comprehensive knowledge of VMMC**	Good	396	93.2	108	93.4
	Poor	103	84.5	74	90.5

5.6 Perceived Efficacy of VMMC

The study investigated respondents' perceptions about the efficacy of male circumcision as a method of preventing HIV infection. This was necessary because the uptake of any public health intervention hinges on people's perceptions about their ability to adopt the intervention and also the perceived effectiveness of the intervention. More females than males (73.7 percent compared to 62.8 percent) reported that they believe that male circumcision works for HIV prevention. The percentages of men and women who believe that voluntary medical male circumcision works for HIV prevention by background characteristics are presented in Table 5.10 and Table 5.11 respectively. Results from the chi-square test show that only comprehensive knowledge of VMMC among men (χ^2=6.82, p<0.01) and positive attitudes toward VMMC among both men and women (χ^2=21.91, p<0.001 for men, and χ^2=9.87, p<0.01 for women) were significantly associated with believing that circumcision works for HIV prevention. No statistically significant differences were observed in perceived efficacy of voluntary medical male circumcision for HIV prevention by marital status (χ^2=3.39, p>0.05), employment status (χ^2=4.43, p>0.05), religion (χ^2=15.31, p>0.05), and age group (χ^2=3.06, p>0.05).

In order to further investigate the factors that can predict men and women's perceived efficacy of VMMC for HIV prevention, multivariate logistic regression analysis was done and the findings are also presented in Table 5.10 and Table 5.11 respectively. The results show that having good comprehensive knowledge of voluntary medical male circumcision has predictive power on the perceived efficacy of VMMC among both men and women even after adjusting for other factors [adjusted odds ratios=1.74, 95% C.I.:1.10-2.76 for men, and adjusted odds ratios=3.01, 95% C.I.:1.45-6.26 for women]. Among women, respondents who were

categorised as unemployed had significantly higher odds of perceiving male circumcision as efficacious against the acquisition of HIV [unadjusted odds ratios=2.74, 95% C.I.:1.16-6.45, and adjusted odds ratios=2.97, 95% C.I.:1.09-8.04].

Table 5.10: Unadjusted and adjusted odds ratios of believing that VMMC works for HIV prevention among men

Characteristic		N	%	Unadjusted odds Ratios	Adjusted odds Ratios
Education	Primary	12	66.7	1.00	1.00
	Secondary	395	63.0	0.67 [0.19-2.26]	0.61 [0.17-2.21]
	Tertiary	92	61.0	0.59 [0.17-2.12]	0.47 [0.12-1.83]
Age group	18-29 years	251	62.1	1.00	1.00
	30-39 years	175	64.3	1.06 [0.72-1.57]	1.13 [0.68-1.88]
	40-49 years	73	60.9	1.06 [0.62-1.79]	1.13 [0.59-2.18]
Employment status	Employed	150	61.7	1.00	1.00
	Self-employed	295	63.1	1.11 [0.75-1.65]	0.98 [0.64-1.50]
	Unemployed	54	61.9	1.30 [0.69-2.46]	1.19 [0.60-2.36]
Marital status	Never married	186	63.7	1.00	1.00
	Married	296	62.2	0.97 [0.67-1.40]	0.82 [0.49-1.38]
	Formerly married	17	60.0	0.83 [0.31-2.25]	0.81 [0.27-2.44]
Religion	Christians	395	61.9	1.00	1.00
	Other	104	65.6	1.21 [0.78-1.88]	1.34 [0.84-2.14]
Knowledge of VMMC**	Poor	103	51.1	1.00	1.00
	Good	396	65.8	1.79** [1.16-2.77]	1.74* [1.10-2.76]

Figures in parenthesis are 95 percent Confidence Intervals and those outside are Odds Ratios.

The reference category is identifiable by an odds ratio of 1.00†.

**P<0.05, ** P < 0.01, *** P < 0.001.*

Table 5.11: Unadjusted and adjusted odds ratios of believing that VMMC works for HIV prevention among women

Characteristic		N	%	Unadjusted odds Ratios	Adjusted odds Ratios
Education	Primary	15	72.7	1.00	1.00
	Secondary	154	74.1	1.11 [0.38-3.20]	0.82 [0.19-3.47]
	Tertiary	13	50.0	0.39 [0.08-1.84]	0.24 [0.03-1.74]
Age group	18-29 years	117	74.7	1.00	1.00
	30-39 years	49	62.9	0.65 [0.33-1.27]	0.49 [0.22-1.11]
	40-49 years	16	84.6	1.76 [0.57-5.38]	3.21 [0.61-16.9]
Employment status	Employed	45	61.3	1.00	1.00
	Self-employed	92	72.1	1.56 [0.76-3.20]	1.73 [0.72-4.16]
	Unemployed	45	82.1	2.74* [1.16-6.45]	2.97* [1.09-8.04]
Marital status	Never married	44	71.4	1.00	1.00
	Married	114	73.3	1.65 [0.82-3.32]	1.52 [0.61-3.77]
	Formerly married	24	70.6	1.20 [0.44-3.25]	1.10 [0.32-3.81]
Religion	Christians	172	72.1	1.00	1.00
	Other	10	83.3	0.85 [0.24-3.04]	0.78 [0.16-3.82]
Knowledge of VMMC	Poor	74	70.2	1.00	1.00
	Good	108	75.6	1.97* [1.08-3.59]	3.01** [1.45-6.26]

Figures in parenthesis are 95 percent Confidence Intervals and those outside are Odds Ratios.

The reference category is identifiable by an odds ratio of 1.00[†].

**P<0.05, ** P < 0.01, *** P < 0.001.*

5.7 Acceptability of VMMC for HIV Reduction

Research on the acceptability of medical male circumcision began in the early 1990s following studies which had suggested that circumcision has a prophylactic effect against the spread of HIV. Moses et al. (1990), for example, discovered that the geography of HIV incidence in Africa corresponded to the prevalence of circumcision, that is, areas with low prevalence of male circumcision had a higher incidence of HIV. These suspicions were later confirmed by the randomised controlled trials in South Africa, Uganda and Kenya which showed that circumcision indeed can reduce the acquisition of HIV in heterosexual men. An immediate concern about the roll-out of voluntary medical male circumcision was that men and women may not accept circumcision as a method of reducing the spread of HIV. Several studies on acceptability were thus conducted to measure this concept. These studies varied greatly in methodology, for example, Bailey et al. (2002) did 30 focus group discussions, Mattson et al. (2005) interviewed 107 men and 110 women, while Halperin et al. (2005) interviewed 200 men in Zimbabwe. These variations in methodology make it difficult to make meaningful comparison of acceptability of voluntary medical male circumcision. A report by WHO/UNAIDS (2007) noted that studies on acceptability of voluntary medical male circumcision yielded varying levels of acceptability depending on how the questions were asked. Be that as it may, studies on acceptability suggest that both men and women find male circumcision to be an acceptable method of reducing the spread of HIV.

One of the key objectives of this study was to evaluate the acceptability of voluntary medical male circumcision for HIV reduction. This study came at a time when information on voluntary medical male circumcision had become widely available. Acceptability in this study was measured on four main dimensions. Firstly, respondents were asked if circumcision should be

generally promoted for HIV reduction. Secondly, respondents were asked if they personally felt that circumcision is acceptable and should be promoted. Thirdly, respondents were asked if they thought men would accept circumcision as a method of reducing chances of getting infected with HIV. The final dimension of acceptability sought information on willingness of male respondents to get circumcised and of all respondents to have their son(s) circumcised for HIV prevention.

This section presents findings on the acceptability of voluntary medical male circumcision for HIV prevention and on men's willingness to undergo circumcision for HIV prevention. Possible linkages between acceptability and willingness on one hand and socio-demographic factors on the other were explored. The section also presents findings on the possible relationship between acceptability/willingness and knowledge and perception of risk of getting infected with HIV.

5.7.1 Support for the Promotion of VMMC

General support for voluntary medical male circumcision was measured using the question "Do you think voluntary medical male circumcision should be promoted for HIV prevention?" Respondents were supposed to give either a "yes" or a "no". A "yes" response was taken to mean that the respondent was in general support for the promotion of voluntary medical male circumcision. Results show that 76 percent of men and 84.1 percent of women reported that they support the promotion of voluntary medical male circumcision for HIV reduction in Zimbabwe (see Table 5.12 and Table 5.13).

Further analysis of differences in general support for the promotion of voluntary medical male circumcision was done using the chi-square test. Results show that support for the promotion of voluntary medical male circumcision among men and women did not vary significantly by the level of education (χ^2=3.29, p>0.05 for men; and χ^2=4.99, p>0.05 for women), by employment status (χ^2=1.04, p>0.05 for men; and χ^2=3.27, p>0.05 for women), by age group (χ^2=2.01, p>0.05 for men; and χ^2=1.88, p>0.05 for women), by religion (χ^2=0.07, p>0.05 for men; and χ^2=0.28, p>0.05 for women), by marital status (χ^2=1.27, p>0.05 for men; and χ^2=2.64, p>0.05 for women), and by perception of risk (χ^2=3.47, p>0.05 for men; and χ^2=0.71, p>0.05 for women). Similarly, support for the promotion of voluntary medical male circumcision did not significantly vary by whether a respondent had multiple sex partners or not (χ^2=0.33, p>0.05 for men; and χ^2=1.00, p>0.05 for women). However, statistically significant differences in the support for the promotion of VMMC were observed by the level of comprehensive knowledge of VMMC among men while no significant differences were observed on the same variables among women (χ^2=8.73, p<0.01 for men; and χ^2=1.08, p>0.05 for women). This means that differences in the level of knowledge of VMMC among men are associated with whether they support the promotion of circumcision for HIV or not but the same does not apply for women. Furthermore, believing that male circumcision works for HIV prevention was also found to be significantly associated with support for the promotion of VMMC (χ^2=23.1, p<0.001 for men; and χ^2=42.5, p<0.001 for women). Results of the multiple logistic regression analysis seem to support findings obtained from the chi-square test (see Table 5.12 and Table 5.13).

Table 5.12: Factors associated with support for the promotion of VMMC among men

Characteristic		N	%	Unadjusted odds Ratios	Adjusted odds Ratios
Education	Primary	12	66.7	1.00	1.00
	Secondary	395	77.7	1.03 [0.42-2.49]	1.99 [0.46-8.63]
	Tertiary	92	69.6	1.34 [0.37-2.17]	1.04 [0.22-4.87]
Age group	18-29 years	251	76.1	1.00	1.00
	30-39 years	175	78.3	0.81 [0.59-1.27]	1.07 [0.55-2.08]
	40-49 years	73	69.9	0.87 [0.53-1.46]	0.63 [0.28-1.43]
Employment status	Employed	150	76.0	1.00	1.00
	Self-employed	295	76.6	1.19 [0.81-1.76]	0.74 [0.42-1.29]
	Unemployed	54	74.4	0.93 [0.56-1.94]	0.51 [0.22-1.22]
Marital status	Never married	186	75.8	1.00	1.00
	Married	296	76.7	0.96 [0.64-1.36]	0.89 [0.45-1.78]
	Formerly married	17	64.7	0.82 [0.37-1.64]	0.48 [0.12-1.82]
Religion	Christians	395	75.7	1.00	1.00
	Other	104	76.9	0.86 [0.55-1.35]	1.06 [0.58-1.92]
Knowledge of VMMC**	Poor	103	65.0	1.00	1.00
	Good	396	79.0	1.42 [0.97-2.08]	1.64 [0.94-2.87]
Believe VMMC works for HIV prevention***	No	186	49.1	1.00	1.00
	Yes	313	91.2	10.1*** [5.84-17.3]	7.34*** [4.39-12.3]

Figures in parenthesis are 95 percent Confidence Intervals and those outside are Odds Ratios.

The reference category is identifiable by an odds ratio of 1.00†.

**P<0.05, ** P < 0.01, *** P < 0.001.*

Table 5.13: Factors associated with support for the promotion of VMMC among women

Characteristic		N	%	Unadjusted odds Ratios	Adjusted odds Ratios
Education	Primary	15	100.0	1.00	1.00
	Secondary	154	83.8	1.28 [0.43-3.59]	1.08 [0.29-2.35]
	Tertiary	13	69.2	1.06 [0.32-3.44]	0.62 [0.29-2.17]
Age group	18-29 years	117	84.6	1.00	1.00
	30-39 years	49	79.6	0.82 [0.46-1.48]	0.39 [0.11-1.41]
	40-49 years	16	93.8	0.97 [0.44-2.11]	0.83 [0.05-14.4]
Employment status	Employed	45	77.8	1.00	1.00
	Self-employed	92	85.9	1.19 [0.76-1.86]	1.47 [0.39-5.47]
	Unemployed	45	83.3	1.42 [0.69-2.47]	1.46 [0.36-5.98]
Marital status	Never married	44	77.3	1.00	1.00
	Married	114	85.1	0.65 [0.36-1.41]	1.41 [0.39-5.10]
	Formerly married	24	91.7	0.31 [0.08-1.47]	4.14 [0.44-39.1]
Religion	Christians	172	83.7	1.00	1.00
	Other	10	90.0	1.04 [0.52-1.96]	2.30 [0.18-29.6]
Knowledge of VMMC	Poor	74	81.1	1.00	1.00
	Good	108	86.6	1.37 [0.54-2.55]	1.37 [0.50-3.72]
Believe that VMMC works for HIV prevention***	No	48	86.0	1.00	1.00
	Yes	134	94.4	24.7*** [5.37-113]	8.68** [2.31-32.6]

Figures in parenthesis are 95 percent Confidence Intervals and those outside are Odds Ratios.

The reference category is identifiable by an odds ratio of 1.00†.

**P<0.05, ** P < 0.01, *** P < 0.001.*

5.7.2 Support for infant and child circumcision

While the promotion of voluntary medical male circumcision in Zimbabwe has primarily targeted men between 18 and 27 years, there has been some discussion on the implementation of infant and child circumcision as is the custom in many countries that practice routine infant circumcision. This study sought to find out the level of support for infant and child circumcision among respondents. Specifically, respondents in this study were asked if they have a surviving son. Those with a surviving son were asked if they would want their son to be circumcised for HIV prevention. The exclusion of those without surviving sons was done because it was felt that having a son would likely induce more realistic responses on support for infant and child circumcision. After excluding respondents who had no surviving sons, the remaining sample was 323, 231 males and 92 females.

Generally, support for infant and child circumcision is fairly high at 66percent. Among males, support was reported at 65.8 percent (n=231) compared to 66.3 percent among females (n=92). No statistically significant difference in support for infant and child circumcision was observed between men and women (χ^2=0.01, p>0.05).

Support for infant and child medical male circumcision by marital status of respondents was lowest among never married respondents at 44.4 percent (n=9) compared to 68.2 percent among formerly married (widowed, divorced, separated) respondents (n=22) and 66.4 percent among married respondents (n=292). However, a chi-square test to examine the degree of variation did not show any significant difference in support for infant and child circumcision by marital status (χ^2=1.93, p>0.05).

An analysis of support for infant and child circumcision for HIV prevention by level of education of respondents show that support was highest among respondents with a secondary level education at 67.4 percent (n=264) compared to 61.5 percent among respondents with a tertiary level education (n=39). As expected support for infant and child circumcision was lowest among respondents with a primary level education at 55 percent (n=20). However these differences were found to be statistically insignificant (χ^2=1.66, p>0.05).

Similarly, findings of this study show that support for infant and child medical male circumcision for HIV prevention did not differ significant by religion of respondents (χ^2=0.74, p>0.05), by employment status (χ^2=4.42, p>0.05), and by the age group of respondents (χ^2=1.63, p>0.05). Perception of risk of getting infected with HIV was also not significantly associated with support for infant and child medical male circumcision for HIV prevention (χ^2=3.27, p>0.05).

This study also attempted to link support for infant and child circumcision for HIV prevention to the level of comprehensive knowledge of VMMC. Results indicate that support was highest among respondents with "good" comprehensive knowledge of VMMC at 70.7 percent (n=232) compared to 54.5 percent among respondents with "poor" comprehensive knowledge of voluntary medical male circumcision. This variation was also confirmed by further statistical analysis which showed significant differences in support for infant and child circumcision by level of comprehensive knowledge of VMMC (χ^2=7.44, p<0.01).

Respondents in this study were also asked to suggest the best age at which circumcision should be done. The median age at circumcision suggested by respondents was found to be 10 years

while the modal age was 0 years. Male respondents suggested a mean age of 9.65 years compared to 9.88 years by females. Overall, there seem to be a general consensus among respondents that circumcision should be done at a tender age.

In order to understand factors that predict support for infant and child male circumcision for HIV prevention, bivariate and multivariate logistic regression models were developed. Seven variables were included in the regression analysis and two were found to have predictive power in the bivariate logistic regression model. It was found that respondents with "good" comprehensive knowledge of voluntary medical male circumcision have significantly higher odds of supporting infant and child male circumcision when compared to those with "poor" comprehensive knowledge [unadjusted odds ratio=1.98, 95% C.I.: 1.20-3.25]. This means that having good knowledge of VMMC is a significant predictor of support for infant and child male circumcision. However, comprehensive knowledge of voluntary medical male circumcision did not have predictive power in the multivariate regression model.

Belief in the efficacious nature of voluntary medical male circumcision was found to have predictive power in both the bivariate and multivariate regression models. Respondents who believe that VMMC works for HIV prevention have significantly higher odds of supporting infant and child male circumcision [unadjusted odds ratio=5.35, 95% C.I.: 3.17-9.03 and adjusted odds ratio=4.81, 95% C.I.: 2.72-8.51] when compared to those who do not believe in the efficacious nature of circumcision. The results are presented in Table 5.14.

Table 5.14: Factors associated with support for infant and child male circumcision by background characteristics

Characteristic		N	%	Unadjusted odds Ratios	Adjusted odds Ratios
Gender	Male	231	65.8	1.00	1.00
	Female	92	66.3	1.02 [0.62-1.67]	1.16 [0.54-2.47]
Education	Primary	20	55.0	1.00	1.00
	Secondary	264	67.4	1.73 [0.69-4.31]	3.76* [1.12-12.6]
	Tertiary	39	61.5	1.33 [0.45-3.91]	2.69 [0.66-11.0]
Age group	18-29 years	83	60.2	1.00	1.00
	30-39 years	161	67.7	1.31 [0.78-2.19]	1.83 [0.88-3.77]
	40-49 years	79	68.4	1.34 [0.71-2.48]	2.63* [1.06-6.48]
Employment status	Employed	87	62.1	1.00	1.00
	Self-employed	204	65.2	1.31 [0.67-2.33]	1.27 [0.75-3.26]
	Unemployed	32	81.2	1.74 [0.69-3.41]	1.79 [0.76-5.14]
Marital status	Never married	9	44.4	1.00	1.00
	Married	292	66.4	1.04 [0.43-2.54]	0.46 [0.13-1.63]
	Formerly married	22	68.2	1.29 [0.39-4.43]	0.75 [0.12-4.75]
Religion	Christians	261	67.0	1.00	1.00
	Other	62	61.3	0.75 [0.43-1.31]	0.56 [0.27-1.13]
Knowledge of VMMC**	Poor	88	54.5	1.00	1.00
	Good	232	70.7	1.98** [1.20-3.25]	1.42 [0.74-2.73]
Believe VMMC works***	No	99	41.4	1.00	1.00
	Yes	179	81.0	5.53*** [3.17-9.03]	4.81*** [2.72-8.51]

Figures in parenthesis are 95 percent Confidence Intervals and those outside are Odds Ratios.

The reference category is identifiable by an odds ratio of 1.00†.

**P<0.05, ** P < 0.01, *** P < 0.001.*

5.7.3 Acceptability of VMMC for HIV prevention

In addition to the general support for voluntary medical male circumcision as an additional method for HIV reduction, respondents were asked if they would personally accept voluntary medical male circumcision for HIV prevention. This should not be interpreted to have meant willingness to get circumcised but rather having a personal conviction that voluntary medical male circumcision is an acceptable way for HIV prevention. Results show that acceptability for voluntary medical male circumcision is very high at 72.4 percent. The number of males who reported acceptance of male circumcision for HIV prevention was lower at 68.9 percent compared to 80.8 percent of females. A chi-square test was done to assess the relationship between gender and acceptability of voluntary medical male circumcision and it showed significant differences in acceptability between men and women (χ^2=9.28, p<0.01).

Statistical analysis has also showed a significant association between acceptability of voluntary medical male circumcision and perceived efficacy of VMMC (χ^2=1.847, p<0.001). Acceptability of male circumcision was at 90.8 percent among respondents who believe that the procedure works for HIV prevention compared to 48.2 percent among those who do not. Similarly, acceptability of male circumcision for HIV prevention was found to be significantly higher among respondents with positive attitudes toward VMMC at 76.8 percent compared to 30.4 percent among those with negative attitudes (χ^2=66.2, p<0.001).

The relationship between acceptability of male circumcision for HIV prevention and comprehensive knowledge was also examined in this study. It was hypothesised that acceptability of VMMC for HIV prevention would be higher among respondents with “good” comprehensive knowledge of VMMC. Results obtained from bivariate analysis show that

acceptability of VMMC was at 65.5 percent among respondents with “poor” comprehensive knowledge compared to 74.5 percent among respondents with “good” comprehensive knowledge. A chi-square test confirmed that there is a significant difference in acceptability by level of comprehensive knowledge of VMMC (χ^2=5.17, p<0.05).

Findings obtained using the chi-square test were further confirmed using logistic regression analysis (see Table 5.15). Of the eight variables that were entered in the bivariate and multivariate regression models, level of education, religion, employment status, age group, and marital status did not have predictive power of acceptability of voluntary medical male circumcision for HIV prevention. The results from logistic regression analysis showed that the unadjusted odds ratio of acceptability of VMMC for HIV prevention for women is 1.89 [95% C.I.: 1.25-2.87] compared to that of men who were the reference category. After adjusting for other factors, the odds ratio of acceptability of male circumcision for HIV prevention for women remained significantly higher at 2.43 [95% C.I.: 1.18-5.01] compared to that of men. This means that acceptability of voluntary medical male circumcision for HIV prevention is higher among women than among men. This is particularly significant given that the promotion of VMMC is targeting men.

Bivariate regression analysis also showed an odds ratio of 0.06 [95% C.I.: 0.04-0.09] for those who do not perceive VMMC as efficacious. After adjusting for other factors, this relationship remained statistically significant with an odds ratio of 0.08 [95% C.I.: 0.05-0.14] for those who do not believe in the prophylactic nature of voluntary medical male circumcision. This means that acceptability of male circumcision for HIV prevention is affected by whether one believes the procedure works or does not.

Furthermore, logistic regression analysis found a positive association between good comprehensive knowledge of VMMC and acceptability of male circumcision for HIV reduction. Respondents with “good” comprehensive knowledge of voluntary medical male circumcision had an unadjusted odds ratio of 1.53 [95% C.I.: 1.06-2.22] compared to those with “poor” knowledge of VMMC. However, after adjusting for other variables in the multivariate regression model, the relation between comprehensive knowledge and acceptability of voluntary medical male circumcision was not statistically significant.

Table 5.15: Factors associated with acceptability of VMMC for HIV prevention by background characteristics

Characteristic		N	%	Unadjusted odds Ratios	Adjusted odds Ratios
Gender**	Male	499	68.9	1.00	1.00
	Female	182	80.8	1.89** [1.25-2.87]	2.43* [1.18-5.01]
Education	Primary	27	74.1	1.00	1.00
	Secondary	549	73.0	1.05 [0.44-2.55]	0.74 [0.21-2.59]
	Tertiary	105	66.7	1.43 [0.55-3.70]	0.86 [0.21-3.47]
Age group	18-29 years	368	73.1	1.00	1.00
	30-39 years	224	70.5	1.14 [0.78-1.64]	1.07 [0.60-1.94]
	40-49 years	89	71.9	1.06 [0.63-1.77]	0.78 [0.35-1.70]
Employment status	Employed	195	67.7	1.00	1.00
	Self-employed	387	72.6	1.29 [0.65-2.25]	1.11 [0.61-1.99]
	Unemployed	99	78.8	1.79 [0.57-3.21]	2.31 [0.59-2.98]
Marital status	Never married	230	72.6	1.00	1.00
	Married	410	72.2	1.02 [0.71-1.46]	1.53 [0.76-3.07]
	Formerly married	41	68.3	1.23 [0.60-2.52]	3.02 [0.89-10.2]
Religion	Christians	567	72.5	1.00	1.00
	Other	114	70.2	2.17 [0.97-4.84]	2.02 [0.67-6.08]
Knowledge of VMMC*	Poor	177	65.5	1.00	1.00
	Good	501	74.5	1.53* [1.06-2.22]	1.31 [0.74-2.31]
Believe VMMC works***	Yes	382	90.8	1.00	1.00
	No	299	48.2	0.06*** [0.04-0.09]	0.08*** [0.05-0.14]

Figures in parenthesis are 95 percent Confidence Intervals and those outside are Odds Ratios.
The reference category is identifiable by an odds ratio of 1.000†.
**P<0.05, ** P < 0.01, *** P < 0.001.*

5.8 Willingness to get circumcised

In assessing respondents' willingness to get circumcised, female respondents were excluded from the analysis because men are the primary target of the up scaling of voluntary medical male circumcision. Also excluded from the analysis were all men who reported that they were already circumcised. This left a sample of 420 men in the final analysis. Overall, only 42.4 percent of men reported that they are willing to get circumcised for HIV prevention. This is a huge decline from 76 percent of men who reported general support for the promotion of voluntary medical male circumcision for HIV prevention and the 68.9 percent who reported that they accept voluntary medical male circumcision for HIV prevention.

Willingness to get circumcised was analysed by marital status of respondents and the results show that 46.1 percent of never married men (n=165) reported that they were willing to get circumcised for HIV prevention. Forty percent of married men (n=240) and 46.7 percent of formerly married men (divorced, widowed, separated) (n=15) were willing to get circumcised for HIV prevention. There were no statistically significant variations on willingness to get circumcised by marital status (χ^2=1.79, p>0.05).

Among men with a primary level education (n=11), 36.4 percent reported willingness to get circumcised for HIV prevention compared to 41.7 percent of men with a secondary level education (n=331). Willingness to get circumcised was highest among men with a tertiary level education at 46.2 percent (n=78). While willingness appear to be increasing with increasing level of education, statistical analysis did not confirm any statistically significant differences in willingness to get circumcised by level of education (χ^2=0.68, p>0.05).

Religion is a significant factor in considerations to get circumcised. Analysis of willingness to get circumcised by religion of respondent showed that 42.9 percent of Christians (n=336) were willing to get circumcised for HIV prevention compared to 40.5 percent of men from other religions (n=84). Statistical analysis showed no significant variations in willingness to get circumcised by religion (χ^2=0.16, p>0.05).

Of the 420 men who were included in the sample for analysis, 128 reported that they were formally employed and 43.8 percent of these were willing to get circumcised for HIV prevention. Self-employed men formed the bulk of respondents (n=245) and of these 41.6 percent were willing to get circumcised for HIV prevention compared to 42.6 percent of men who were categorised as unemployed (n=47). No significant differences were observed in willingness to get circumcised for HIV prevention by employment status (χ^2=0.16, p>0.05).

Results on willingness to get circumcised by age group show that willingness is highest among men in the 30-39 years age category at 46.5 percent (n=144) followed by men in the 18-29 years age group at 42 percent (n=219). Only 33.3 percent of men in the 40-49 years age group reported willingness to get circumcised for HIV prevention (n=57). Again, there were no statistically significant differences in willingness to get circumcised by age group (χ^2=2.94, p>0.05).

The present study examined the possible relationship between comprehensive knowledge of voluntary medical male circumcision and willingness to get circumcised for HIV prevention among men. Willingness to get circumcised was 44.1 percent (n=322) among men with “good” comprehensive knowledge compared to 43.8 percent (n=64) among men with “poor” comprehensive knowledge of VMMC. Data on willingness to get circumcised for HIV

prevention and comprehensive knowledge of VMMC were subjected to further statistical analysis with the purpose of assessing whether there are any statistically significant differences. Results of this analysis did not yield any significant differences (χ^2=1.49, p>0.05).

Furthermore, this study assessed the relationship between men's perception of risk of getting infected with HIV and their willingness to get circumcised. It was hypothesised that men who perceived themselves to be at high risk would be willing to get circumcised for HIV prevention. The results did not establish any consistent pattern. Only 42.0 percent of men who perceived themselves to be at medium-high risk of getting infected with HIV were willing to get circumcised (n=139) compared to 46.3 percent of men who perceived themselves to have no risk at all (n=108). As a result, statistical analysis did not find any significant association between willingness to get circumcised for HIV prevention and one's perception of risk of getting infected with HIV (χ^2=3.48, p>0.05). Similarly, results on the relationship between knowledge of one's HIV status and willingness to get circumcised for HIV prevention did not show a significant association between the two (χ^2=3.43, p>0.05).

Analysis on the relationship between willingness to get circumcised and attitudes toward voluntary medical male circumcision show that 44.1 percent of respondents with positive attitudes (n=376) were willing to get circumcised compared to 27.3 percent of those with negative attitudes. Similarly, belief in the prophylactic nature of VMMC was found to be significantly associated with willingness to get circumcised for HIV prevention (χ^2=20.6, p<0.001). About 53percent of respondents who believe that male circumcision works for HIV prevention reported willingness to get circumcised compared to 29.7 percent who did not believe in the efficacious nature of male circumcision against HIV.

Logistic regression analysis was done to identify factors that can predict willingness to get circumcised for HIV prevention. Ten variables were entered in the regression analysis models and the results are presented in Table 5.16. In the bivariate regression model, men who believe that male circumcision is efficacious against circumcision had significantly higher odds of willingness to get circumcised for HIV prevention compared to men who do not believe in the effectiveness of male circumcision [unadjusted odds ratio=2.65, 95% C.I.: 1.72-4.09]. After adjusting for other factors in the multivariate logistic regression model, believing in the prophylactic nature of VMMC remained with predictive power on willingness to get circumcised. Men who believe in the prophylactic nature of voluntary medical male circumcision have significantly higher odds of willingness to get circumcised when compared to men who do not believe in male circumcision for HIV prevention [adjusted odds ratio=2.72, 95% C.I.: 1.61-4.59]. This means that men who believe in male circumcision are twice more likely to be willing to get circumcised for HIV prevention that men who do not believe in the prophylactic nature of medical male circumcision for HIV reduction. Besides perceived efficacy of voluntary medical male circumcision, no other variable in the regression model had predictive power on willingness to get circumcised.

Table 5.16: Unadjusted and adjusted odds ratios of willingness to get circumcised for HIV prevention among men

Characteristic		N	%	Unadjusted odds Ratios	Adjusted odds Ratios
Education	Primary	11	36.4	1.00	1.00
	Secondary	331	41.7	1.54 [0.42-5.68]	1.59 [0.36-7.09]
	Tertiary	78	46.2	1.20 [0.73-1.98]	1.19 [0.24-5.93]
Age group	18-29 years	219	42.0	1.00	1.00
	30-39 years	144	46.5	1.49 [0.81-2.76]	1.21 [0.51-2.88]
	40-49 years	57	33.3	0.85 [0.55-1.29]	0.65 [0.33-1.26]
Employment status	Employed	128	43.8	1.00	1.00
	Self-employed	245	41.6	1.03 [0.29-3.54]	1.51 [0.87-2.61]
	Unemployed	47	42.6	1.61 [0.43-2.98]	1.13 [0.64-4.18]
Marital status	Never Married	165	46.1	1.00	1.00
	Married	240	39.6	1.02 [0.35-2.95]	0.75 [0.16-3.48]
	Formerly Married	15	46.7	1.35 [0.91-2.03]	1.58 [0.80-3.14]
Religion	Christians	336	42.9	1.00	1.00
	Other	84	40.5	1.64 [0.67-4.00]	1.99 [0.67-5.88]
Knowledge of VMMC	Good	322	44.1	1.00	1.00
	Poor	97	37.1	0.78 [0.48-1.25]	0.91 [0.49-1.67]
Believe VMMC works***	Yes	224	53.1	1.00	1.00
	No	158	29.7	2.6*** [1.75-4.12]	2.7*** [1.63-4.61]

Figures in parenthesis are 95 percent Confidence Intervals and those outside are Odds Ratios.
The reference category is identifiable by an odds ratio of 1.000†.
**P<0.05, ** P < 0.01, *** P < 0.001.*

5.9 Risky sexual behaviour after circumcision

One of the main concerns among proponents of voluntary medical male circumcision for HIV prevention and those who oppose the promotion of VMMC alike is that there are fears that men may engage in risky sexual behaviour after undergoing circumcision due to a false sense of protection, a concept known as behavioural disinhibition. A study among Zambian and Swazi men by Hewett et al. (2012) observed that one in four of the circumcised men resumed sexual activity before the recommended 6 weeks healing period. In Uganda, Kibira et al. (2014) observed that circumcised men were more likely than uncircumcised men to engage in risky sexual behaviour. Other studies, for example by Westercamp et al. (2014) have found no evidence to suggest that men will engage in risky sex after undergoing medical male circumcision. In line with these fears of risky sexual behaviour after circumcision, this study attempted to measure the likelihood of men (and women where applicable) engaging in risky sex after circumcision by asking them two questions. The first question solicited information on men's willingness to use condoms after circumcision while the second question asked both men and women if they were willing to abstain from intercourse for 6 weeks to allow complete healing of the wound.

Overall, 76.4 percent of men reported that they would be willing to use condoms after undergoing voluntary medical male circumcision (n=499). The percentages of men who are willing to use condoms after circumcision are presented in Table 5.17 together with the adjusted and unadjusted odds ratios of willingness to use condoms. An analysis of willingness to use condoms after voluntary medical male circumcision by background variables show that willingness to use condoms was not significantly associated with marital status of respondents (χ^2=5.02, p>0.05), religion (χ^2=6.99, p>0.05), and age group of respondents (χ^2=0.88, p>0.05).

Analysis of willingness to use condoms after VMMC by level of education shows that willingness to use condoms increase with increasing level of knowledge of respondents. Only 50 percent of respondents with a primary level education reported willing to use condoms compared to 76.7 percent of respondents with a secondary level education and 78.3 percent among those with a tertiary level education. Despite these variations, statistical analysis did not show significant differences in willingness to use condoms after circumcision by level of education (χ^2=5.07, p>0.05). Similarly, no significant differences in willingness to use condoms after circumcision were observed by employment status (χ^2=3.59, p>0.05).

The relationship between willingness to use condoms after voluntary medical male circumcision and comprehensive knowledge of VMMC was also examined. Results seem to suggest that willingness to use condoms after circumcision increases with increasing comprehensive knowledge of voluntary medical male circumcision. Willingness to use condoms after circumcision was reported at 59.2 percent among respondents with "poor" comprehensive knowledge and this increased to 80.8 percent among respondents with "good" comprehensive knowledge. This variation was also confirmed by further statistical analysis which showed a significant association between the two variables (χ^2=30.31, p<0.001).

Logistic regression analysis was also done in order to have an understanding of the factors associated with willingness to use condoms after voluntary medical male circumcision. The results of both are presented in Table 5.17. In the bivariate regression model, results showed that willingness to use condoms after circumcision increases with increasing level of education. When compared to men with a primary level of education, men with a secondary level education were three times more likely to report willingness to use condoms as evidenced by an odds ratio of 3.4 [95% C.I.: 1.08-10.9]. Men with tertiary level education had an odds ratio

of 3.6 [95% C.I.: 1.05-12.4] when compared to men with a primary level education. In the multivariate logistic regression model, level of education was not found to have predictive power on willingness to use condoms after circumcision.

Perception of risk of getting infected with HIV was found to have predictive power of using condoms after circumcision in both the bivariate and the multivariate logistic regression models. In the bivariate regression model, men who perceived themselves as having a medium-high risk of getting infected with HIV had an unadjusted odds ratio of 1.9 [95% C.I.: 1.37-5.10] when compared to men who perceived themselves as having no risk at all. This means that men who saw themselves as having medium-high risk of getting infected with HIV had significantly higher odds of using condoms after circumcision than those with no risk at all. This result remained significant in the multivariate regression model with an adjusted odds ratio of 2.8 [95% C.I.: 1.97-9.99] compared to the reference category.

Men with good comprehensive knowledge of voluntary medical male circumcision had significantly higher odds of using condoms after circumcision when compared to those with poor knowledge of VMMC. Men with good comprehensive knowledge of VMMC had an unadjusted odds ratio of 2.8 [95% C.I.: 1.76-4.53] compared to the reference category. This result remained significant in the multivariate regression model after adjusting for other factors with an odds ratio of 2.5 [95% C.I.: 1.38-4.65].

Results also show that believing in the efficacious nature of medical male circumcision had predictive power on condom use after circumcision in both the bivariate and the multivariate regression models. In the bivariate regression model, men who did not believe in the efficacious nature of VMMC had significantly lower odds of using condoms after circumcision

[unadjusted odds ratio=0.46, 95% C.I.: 0.29-0.72] compared to those who believe in VMMC. After adjusting for other variables, believing in the efficacious nature of medical male circumcision remained with predictive power [adjusted odds ratio=0.51, 95% C.I.: 0.30-0.87].

Table 5.17: Unadjusted and adjusted odds ratios of willingness to use condoms after VMMC for HIV prevention among men

Characteristic		N	%	Unadjusted odds Ratios	Adjusted odds Ratios
Education	Primary	12	50.0	1.00	1.00
	Secondary	395	76.7	3.44* [1.08-10.9]	2.74 [0.68-11.1]
	Tertiary	92	78.3	3.60 [1.05-12.4]	1.68 [0.36-7.68]
Age group	18-29 years	251	74.5	1.00	1.00
	30-39 years	175	78.9	1.25 [0.78-1.99]	1.85 [0.95-3.56]
	40-49 years	73	76.7	1.07 [0.58-1.98]	1.63 [0.71-3.74]
Employment status	Employed	150	81.3	1.00	1.00
	Self-employed	295	74.6	0.63 [0.38-1.04]	0.51 [0.28-1.92]
	Unemployed	54	72.2	0.60 [0.27-1.35]	0.59 [0.20-1.78]
Marital status	Never married	186	78.5	1.00	1.00
	Married	296	75.0	0.77 [0.49-1.21]	0.52 [0.25-1.06]
	Formerly married	17	76.5	0.82 [0.25-2.67]	0.55 [0.12-2.58]
Religion	Christians	395	77.2	1.00	1.00
	Other	104	73.1	0.76 [0.47-1.26]	0.82 [0.45-1.48]
Knowledge of VMMC***	Poor	103	59.2	1.00	1.00
	Good	395	80.8	2.83*** [1.76-4.53]	2.53** [1.38-4.65]
Believe VMMC works	Yes	284	81.3	1.00	1.00
	No	215	69.8	0.46** [0.29-0.72]	0.51* [0.30-0.87]
Perception of risk	No risk	121	68.6	1.00	1.00
	Low risk	210	77.6	1.58 [0.95-2.62]	1.86 [0.99-3.48]
	Medium-high risk	168	77.4	1.94* [1.37-5.10]	2.8*** [1.97-9.99]

Figures in parenthesis are 95 percent Confidence Intervals and those outside are Odds Ratios. The reference category is identifiable by an odds ratio of 1.000[†].

**P<0.05, ** P < 0.01, *** P < 0.001.*

In addition to asking men their willingness to use condoms after undergoing voluntary medical male circumcision for HIV prevention, both male and female respondents were asked if they would be willing to abstain from sexual intercourse for 6 weeks to allow the circumcision wound to heal. The results on willingness to abstain for 6 weeks by background characteristics together with the unadjusted and adjusted odds ratios of willingness are presented in Table 5.18. Overall, 83.8 percent of all respondents reported that they were willing to abstain from sex for 6 weeks to allow complete healing of the wound. However, there was a significant difference between men and women (χ^2=23.04, p<0.001). Significantly more females (95.1 percent) reported willingness to abstain from sex compared to 79.8 percent of males. This result was confirmed by logistic regression analysis which showed an unadjusted odds ratio of 4.88 [95% C.I.: 2.41-9.87] and an adjusted odds ratio of 4.31 [95% C.I.: 1.44-12.9] for women compared to men (see Table 5.18).

Willingness to abstain for 6 weeks was also analysed by the marital status of respondents and it was found to be highest among formerly married respondents at 92.7 percent followed by never married respondents at 87 percent. It was lowest among married respondents at 81.2 percent. These differences were found to be statistically significant (χ^2=6.10, p<0.05). Being married was found to have significantly lower odds of wanting to abstain from sex after circumcision with an adjusted odds ratio of 0.3 [95% C.I.: 0.16-0.61]. This means that married respondents in the study were less likely to report willingness to abstain from sex for 6 weeks after circumcision when compared to the reference category of never married respondents.

Another significant finding on willingness to abstain after circumcision is that willingness to abstain appears to vary by employment status (χ^2=13.3, p<0.01). Self-employed respondents reported the least willingness to abstain at 79.6 percent compared to 87.7 percent among

respondents in formal employment. More than 90 percent of unemployed respondents reported that they are willing to abstain from sex for 6 weeks to allow complete healing of the wound. During logistic regression analysis, self-employed respondents had significantly lower odds of reporting willingness to abstain after undergoing circumcision compared to their formally employed counterparts [unadjusted odd ratio=0.55, 95% C.I.: 0.33-0.89 and adjusted odds ratio=0.31, 95% C.I.: 0.14-0.61 respectively].

Similarly significant variations on willingness to abstain from sex after circumcision were observed by age group (χ^2=6.53, p<0.05). Willingness to abstain was found to be lowest among respondents in the 40-49 years age category at 75.3 percent compared to 84 percent among the 18-29 years age group and 87.1 percent among the 30-39 years age group. Although the bivariate regression model did not show a significant association between willingness to abstain from sex after circumcision and age group, the multivariate regression model showed that respondents in the 30-39 years age group were significantly more likely to report willingness to abstain when compared to the reference group of the 18-29 years age category [adjusted odds ratio=2.22, 95% C.I.: 1.09-4.50].

Willingness to abstain from sex after circumcision and comprehensive knowledge of voluntary medical male circumcision were found to be significantly associated (χ^2=10.4, p<0.01). Willingness to abstain from sex for 6 weeks was found to be at 76.3 percent among respondents with “poor” comprehensive knowledge of voluntary medical male circumcision compared to 86.6 percent among respondents with “good” comprehensive knowledge of VMMC. Having good comprehensive knowledge was associated with significantly higher odds of willingness to abstain from sex in the bivariate regression model [unadjusted odds ratio=2.01, C.I.: 1.31-3.10] and in the multivariate regression model [adjusted odds ratio=3.05, C.I.: 1.63-5.69].

Perception of risk of getting infected with HIV was found to have predictive power of willingness to abstain in the bivariate and multivariate regression models. The odds of willingness to abstain from sex after circumcision were significantly higher among those who thought they have low risk [unadjusted odds ratio=1.78, C.I.: 1.08-2.93, and adjusted odds ratio=3.01, C.I.: 1.49-6.02]. The odds ratios of willingness to abstain from sex after circumcision increase with increasing risk perception as evidenced by an increase in odds ratios in the bivariate model from 1.78 among those with low risk to 2.18 among those with medium-high risk before adjusting for other factors. A similar pattern was observed in the multivariate regression model where respondents with low risk had an odds ratio of 3.0 compared to 3.5 among those with a medium-high risk after adjusting for other variables.

Results from regression analysis also show that respondents who did not believe in the efficacious nature of medical male circumcision for HIV prevention had significantly lower odds of willingness to abstain in the bivariate regression model [unadjusted odds ratio=0.34, C.I.: 0.22-0.53] and in the multivariate regression model [adjusted odds ratio=0.43, C.I.: 0.25-0.76] when compared to those who believe.

The present study also investigated the predictive power of having had multiple sexual partners on willingness to abstain from sex after circumcision. The results indicate that respondents who reported that they did not have multiple sexual partners in the 12 months prior to the study had significantly higher odds of willingness to abstain compared to those who had multiple sex partners. In the bivariate regression model, not having had multiple sexual partners was associated with an unadjusted odds ratio of 1.87 [95% C.I.: 1.19-2.92] and an adjusted odds ratio of 2.74 [95% C.I.: 1.47-5.11] in the multivariate regression model.

Other variables in the regression models such as level of education, knowledge of one's HIV status, and religion were not significantly associated with willingness to abstain from sex after circumcision.

Table 5.18: Unadjusted and adjusted odds ratios of willingness to abstain after VMMC for HIV prevention

Characteristic		N	%	Unadjusted odds Ratios	Adjusted odds Ratios
Gender	Male	499	79.8	1.00	1.00
	Female	182	95.1	4.88*** [2.41-9.87]	4.31** [1.43-12.9]
Education	Primary	27	81.5	1.00	1.00
	Secondary	549	83.6	1.16 [0.43-3.14]	1.53 [0.36-6.44]
	Tertiary	105	85.7	1.36 [0.45-4.16]	0.82 [0.16-4.05]
Age group	18-29 years	368	84.0	1.00	1.00
	30-39 years	224	87.1	1.28 [0.79-2.07]	2.22* [1.09-4.50]
	40-49 years	89	75.3	0.58 [0.33-1.01]	0.96 [0.42-2.19]
Employment status	Employed	195	87.7	1.00	1.00
	Self-employed	387	79.6	0.55* [0.33-0.89]	0.31** [0.14-0.61]
	Unemployed	99	92.9	1.71 [0.67-4.35]	0.72 [0.21-2.45]
Marital status	Never married	230	87.0	1.00	1.00
	Married	410	81.2	0.65 [0.41-1.02]	0.31** [0.16-0.61]
	Formerly married	41	92.7	1.90 [0.55-6.54]	0.68 [0.12-3.78]
Religion	Christians	567	85.0	1.00	1.00
	Other	114	78.1	0.63 [0.38-1.03]	0.92 [0.48-1.76]
Had multiple sex partners	Yes	185	81.4	1.00	1.00
	No	380	90.2	1.87** [1.19-2.92]	2.74** [1.47-5.11]
Knowledge of VMMC***	Poor	177	76.3	1.00	1.00
	Good	501	86.6	2.02** [1.31-3.10]	3.05*** [1.63-5.69]
Perception of risk	No risk	163	76.7	1.00	1.00
	Low risk	268	85.4	1.79* [1.08-2.93]	3.01** [1.49-6.02]
	Medium-high risk	250	86.1	2.18** [1.23-3.88]	3.54** [1.61-7.81]

Figures in parenthesis are 95 percent Confidence Intervals and those outside are Odds Ratios.
The reference category is identifiable by an odds ratio of 1.000[†].
**P<0.05, ** P < 0.01, *** P <0.001.*

5.10 Summary

One of the main objectives of this chapter was to present findings on knowledge and exposure of respondents to information on voluntary medical male circumcision. The findings of this study suggest that the majority of respondents had ever heard about voluntary medical male circumcision for HIV prevention. Ninety seven percent of both male and female respondents confirmed having ever heard about voluntary medical male circumcision. No statistically significant differences in exposure to VMMC information were observed by gender, level of education, age group, marital status and employment status. This is particularly significant because it implies that dissemination of information on voluntary medical male circumcision has been happening. In rural Uganda, Wilcken et al. (2010) reported having observed high levels of awareness of voluntary medical male circumcision. In Zimbabwe, Hatzold et al. (2014) found that about 68 percent of men and 54 percent of women reported having ever heard about VMMC. This is strikingly lower than findings of this study and this can be attributed to the sample characteristics. The sample of this study was predominantly urban while that study by Hatzold et al. (2014) study had 60 percent respondents from rural settings.

Exposure to sources of information is critical in ensuring the most effective dissemination of public health information. A study by Zaw et al. (2013) showed that differentials in exposure to reproductive health information among the youth in Mynmar had implications on risky sexual behaviour. This study sought to investigate the main sources of information about voluntary medical male circumcision. Findings show that the radio was reported as the main source of information about voluntary medical male circumcision for both men and women. Other sources that were highly mentioned by both men and women include the television and billboards. The findings of this study are similar to those obtained by Hatzold et al. (2014). The

radio and the television are very effective media for dissemination information because of their entertainment role in general life. Billboards on the other hand are also effective because they are difficult to miss by virtue of their size and placement. Sources of information on voluntary medical male circumcision such as the newspaper and pamphlets were reported more frequently by men than by women. The lack of popularity of newspapers and other print media among women should be understood in the context of how men and women organise their lives. In Zimbabwe, a recent survey found that 36.9 percent of urban women compared to 61.2 percent of urban men aged 15-49 years had read a newspaper at least once a week (ZIMSTAT, 2015). Men are likely to read newspapers as they peruse news on sports, business and political affairs. It is also likely that men will read newspapers as they relax at home while women are preparing food. Given the differentials to exposure to information on various media, the use of multiple media to disseminate information on voluntary medical male circumcision can be said to have been very effective.

Understanding the levels of knowledge about voluntary medical male circumcision is critical in designing and implementing communication strategies for the promotion of VMMC for HIV prevention. It has already been indicated that knowledge can be used as a proxy of probable level of demand for an intervention. Four indicators of knowledge were used in this study and a composite indicator was created in order to measure comprehensive knowledge. Overall, the findings of this study suggest that the level of knowledge about voluntary medical male circumcision is very good. This is in line with another study conducted in Zimbabwe by Hatzold et al. (2014) which showed relatively very good levels of knowledge about voluntary medical male circumcision, for example, they observed that among men who had heard about VMMC, 89.1 percent knew about its partial protection against HIV infection. An earlier study by Mavhu et al. (2011) in rural Zimbabwe had observed very low levels of knowledge. The

differences in results on knowledge between these three studies can be explained by a number of factors. Mavhu et al. (2011) conducted their study at a time when the promotion of voluntary medical male circumcision was still in its infancy because the programme had been launched hardly two years earlier. This was further confounded by the fact that knowledge levels are generally lower in rural areas than in urban areas due to differentials in infrastructure and socio-economic variables between rural and urban areas. In another study on knowledge that was conducted in Kenya, L'Engle et al. (2014) also observed very high levels of knowledge about the partial protection afforded by medical male circumcision.

One of the key findings of this study in terms of the level of knowledge about voluntary medical male circumcision is that nearly half of the study respondents (43.2 percent) did not know a place where men could get a circumcision. This is critical because it has serious implications for the overall uptake of VMMC for HIV prevention. Unfortunately, few studies (if any) on VMMC uptake in Zimbabwe have measured knowledge of a place as one of the indicators of knowledge. This is in sharp contrast to surveys that measure HIV testing such as the DHS and the MICS which ask respondents about their knowledge about a place offering such services. The challenge with such a scenario is that people become very knowledgeable about an intervention but do not know where to access services. The result is that the service is only accessed by those who are really determined to have the procedure done. This in turn affects the overall uptake of VMMC for HIV prevention. Perhaps this level of ignorance about a place offering voluntary medical male circumcision services can partly explain the observed low levels of VMMC uptake. Hatzold et al. (2014) note that despite the rapid expansion of service provision, uptake of VMMC has not kept up with expectations. They note that Zimbabwe intended to circumcise 1.9 million men between 2010 and 2015 but about 170,000 had been circumcised by September 2013.

The analysis of attitudes toward a novel public health intervention strategy such as medical male circumcision is critical because it can be used as a measure of the extent to which people have understood communications about the intervention. Understanding people's attitudes is also important because it can give an impression on the possible demand for a service. Farrar (2013) noted that attitudes toward the use of the condom had contributed to its unpopularity particularly among couples in marital unions. Szabo and Short (2000) noted that cultural and religious attitudes toward male circumcision as a method of HIV prevention may actually be more pronounced than anticipated. Given this importance on attitudes, this study attempted to complement existing knowledge on attitudes toward voluntary medical male circumcision. Items on attitudes were designed firstly, to establish whether respondents are knowledgeable about VMMC or not, and, secondly, to ascertain possible barriers to the uptake of VMMC for HIV prevention. The findings of the present study show that people have generally positive attitudes about the promotion of voluntary medical male circumcision for HIV prevention. The findings also show that fear of pain and complications may negatively affect uptake of VMMC. These findings are also supported by results from similar studies in Zimbabwe and elsewhere (Moyo et al., 2015; Wambura et al., 2011; Jung, 2012; Hatzold et al., 2014; Macintyre et al., 2014).

The results of this study on the acceptability of voluntary medical male circumcision and willingness to get circumcised for HIV prevention show that there is a general support for the promotion of male circumcision. Acceptability of infant and child male circumcision for HIV prevention was also found to be high. These results confirm earlier studies on acceptability of male circumcision from other countries. Albert et al. (2011) found that between 40 and 62 percent of men in Uganda would consider male circumcision for HIV prevention. These

findings are also within the range of acceptability and willingness observed by Westercamp and Bailey (2007) from 13 studies across Sub-Saharan Africa. They observed that the willingness to circumcise in the sub-region is 65 percent with a range between 29 percent and 87 percent while support for circumcision of sons range between 50 and 90 percent among men and 70 and 90 percent among women. Despite the relatively high acceptability levels of voluntary medical male circumcision, willingness to get circumcised was found to be very low among men in the study sample. In a longitudinal study in Malawi, Pierotti and Thornton (2012) made similar observations with a willingness rate of about 50 percent. In a follow-up survey, very few respondents who had indicated willingness to get circumcised had actually gone for circumcision. Similarly, in Thailand Tieu et al. (2010) found that only one participant had gone to get circumcised 3 months after the survey. Pierotti and Thornton (2012) hypothesised that the discrepancy between willingness and actual uptake could be a result of respondents' overestimation of their willingness to get circumcised due to social desirability.

On the factors associated with support, acceptability and willingness to get circumcised for HIV prevention, this study found that comprehensive knowledge and having the belief that circumcision works for HIV prevention were consistently significant predictors. This finding is consistent with other findings which have pointed to the need for education to improve the uptake of male circumcision. For example, in the Dominican Republic, Brito et al. (2009) noted that acceptability of male circumcision was at 29 percent but increased to 67 percent after an educational session on the advantages and health benefits of circumcision. Similarly, in Thailand Tieu et al. (2010) reported an increase in willingness from 14.2 percent to 24.9 percent after an educational session on the benefits of circumcision. In Botswana, Kebaabetswe et al. (2003) found that acceptability of adult male circumcision increased from 61 percent to 81 percent while support for child circumcision increased from 68 percent to 89 percent after an

educational session. Perceived risk of getting infected with HIV, knowledge of one's HIV status, and having had multiple sexual partners were not significant predictors of support, acceptability or willingness to get circumcised.

Risk compensation also known as behavioural disinhibition has been identified as one of the biggest threats to the promotion of medical male circumcision for HIV prevention (Cassell et al., 2006). Consequently, a number of research studies have focused on understanding this concept and its potential implications on the promotion of voluntary medical male circumcision for HIV prevention. In the present study, respondents were asked if they would be willing to use condoms after circumcision and if they would be able to abstain for 6 weeks to allow complete healing of the wound. The major finding of this study in that regard is that both men and women reported willingness to use protection and to wait until complete healing. This finding confirms earlier studies which concluded that there is insufficient evidence to support fears of risk compensation after circumcision (Godlonton et al., 2014; Mattson et al., 2008; Agot et al., 2007; Riess et al., 2010; Peltzer et al., 2012). The study results also showed that respondents who perceived themselves as having medium-high risk of getting infected with HIV were significantly more likely to report willingness to use condoms and to abstain. This finding is in line with Cassell et al. (2006) who argued that the success of public health innovations such as the condom and medical male circumcision hinges on maintaining high levels of personal risk perception in the population.

In summary, the findings of this study presented in this chapter show that knowledge about voluntary medical male circumcision is generally very high. Furthermore, the findings showed that acceptability of both infant and adult male circumcision for HIV prevention is also very high. Moreover, the findings of this study suggest that both men and women have overall

positive attitudes toward the promotion of voluntary medical male circumcision for HIV prevention. A key finding of this study is that despite the high levels of knowledge about VMMC, the high levels of acceptability, and the generally positive attitudes toward male circumcision, willingness to get circumcised was found to be very low. The gap between the high levels of knowledge and acceptability of VMMC on one hand and the generally low willingness to get circumcised on the other hand points to the fact that knowledge and acceptability of voluntary medical male circumcision on their own are not sufficient to guarantee the uptake of male circumcision for HIV prevention. This paradox can thus be best understood in the context of the social meanings and interpretations that society attaches to the act of getting circumcised. The findings of the qualitative dimension of this study are presented in the next chapter.

CHAPTER SIX: FINDINGS FROM QUALITATIVE ANALYSIS OF DATA

6.1 Introduction

The purpose of this chapter is to present findings from the qualitative data that was collected using focus group discussions and in-depth interviews. Studies on medical male circumcision have mainly focused on assessing acceptability of circumcision as an HIV prevention method in communities that do not traditionally circumcise. In addition to assessing the acceptability of medical male circumcision, these studies also attempted to document possible barriers to the promotion of the procedure as a prophylaxis against HIV (Mavhu et al., 2011; Bailey et al., 2002; Scott et al., 2005; Lissouba et al., 2011; Lukobo et al., 2007; Halperin et al., 2005). Despite these advances in knowledge about male circumcision for HIV prevention, a limited number of studies have been done that focus on meanings that people attach to circumcision. As programme evaluation evidence on male circumcision roll-out campaigns trickle in, it is becoming clearer that knowledge and acceptability alone are not sufficient to trigger demand for voluntary medical male circumcision (VMMC) services. In Zimbabwe, for example, Hatzold et al. (2014) reported that despite rapid scale-up of service provision, uptake of VMMC has been slower than anticipated. This therefore calls for a shift in perspective on the roll-out of VMMC for HIV prevention to focus on the symbols and socially constructed meanings that are attached to circumcision. The study of symbolic meanings of circumcision is not entirely new as many scholars over the centuries have attempted to understand the religious and cultural meanings of circumcision. Mbiti (1997), for example, noted that male circumcision rituals, like all other rituals in traditional African religion that involve the public shedding of blood and sacrifice, were designed to bring oneness between the individual, his ancestral land and hence the ancestors. In short, research has consistently shown that where male circumcision is

practiced, it has very deep symbolic meanings beyond the removal of the prepuce (Mshana et al., 2011; Kelly et al., 2012; Vincent, 2008; Meissner and Buso, 2007; Hellsten, 2004). Despite the detailed literature on symbolism in religious and traditional circumcision, studies that focus on meanings of voluntary medical male circumcision for HIV prevention, particularly in communities that do not traditionally circumcise, are still very limited.

The analysis of qualitative data for this study was guided by the social representations approach to understand the social and cultural meaning of male circumcision as an HIV prevention method. Moscovici (1988) defined social representations as a contemporary version of common sense while Maurya (2009) defined social representations simply as common sense theories generated by people to understand everyday reality.

6.2 Meanings of circumcision

The promotion of voluntary medical male circumcision (VMMC) has been emphasizing cleanliness as one of the reasons for men to consider getting a circumcision. In a society where the practice of circumcision or discussions surrounding the practice was virtually non-existing prior to the roll-out campaign, the understanding of circumcision in terms of cleanliness is not surprising. For some participants, their definition and understanding of circumcision was synonymous to that of cleanliness. One participant defined circumcision as “getting men cleaned” while another viewed circumcision as the removal of a body part that keeps dirt making it difficult for men to remain clean. These responses can be attributed to the promotion of VMMC for HIV prevention.

[Circumcision] is getting men cleaned because a circumcised penis gets "fresh air" compared to an uncircumcised one. (Female FGD)

[Circumcision] is the removal of the foreskin which keeps dirt and without the skin there is no room to keep dirt and it reduces the breeding of bacteria. (Male FGD)

Circumcision was also defined in terms of its protective effect against STIs and HIV. A male participant equated circumcision to wearing gloves when handling fire. It was noted that while you would eventually get burnt while wearing the gloves, the gloves would delay that process. What this means is that circumcision is viewed as affording temporary protection against HIV infection. The general interpretation here is that a circumcised man has the advantage of delayed vulnerability compared to an uncircumcised man. A more radical understanding of VMMC's protective effect was expressed by other participants who equated circumcision to an *"invisible condom."*

[Circumcision] is wearing gloves while handling fire. You will get burnt definitely but that would take time. Sixty percent of the time you will be protected but the other 40 percent you will hold direct fire. (Male FGD)

The notion that circumcision is similar to wearing gloves or to having an invisible condom gives the impression that messages of the 60 percent protective effect afforded by VMMC toward HIV and other STIs have not been well understood by some. On the other hand, there are indications that some people seem to have a clearer understanding of the protective effect of VMMC. Some participants mentioned that circumcision reduces the risk of getting infected with sexually transmitted infections. VMMC was perceived as *'second protection"* in the event

of a condom breaking. The view of circumcision as second protection supports earlier assertions that circumcision is like a pair of gloves which protects from fire.

> *Some are doing it [circumcision] because doctors say it works [for HIV prevention]*. (Male FGD)

6.3 Beliefs associated with circumcision

The views expressed by some FGD participants portrayed circumcision as an alien culture or part of a foreign religion. Participants noted that circumcision is not a common practice in Zimbabwe, except among the Tonga, the Vamwenye and the Chewa. They also pointed out that the practice is done by Muslims and Jewish people as part of their religion. A male participant in the 22-48 years male only FGD remarked that:

> *Some people believe that it's [circumcision] not part of the culture and ancestors don't like it that is why there are no rains coming down in Zimbabwe.*

In addition to circumcision being viewed as an alien culture, participants in the FGDs also expressed fears that the removed foreskin may be used in satanic rituals. Participants mentioned that there are entrenched fears of unwillingly and/or unwittingly joining satanic cults by getting circumcised. These fears seem to emanate from endless rumours and stories about Satanism that circulate within the community. Owing to these fears, it was mentioned that people are not sure of what will happen to their foreskins once they are circumcised.

Another point associated with the disposal of foreskins that came out during the focus group discussions is that there are stories circulating in the community that removed foreskins are sold at exorbitant prices and exported to South Africa. It is believed that the foreskins are sold to companies which manufacture skin lotions for a high price which explains why circumcision is being offered for free. A participant remarked that:

> *We hear that the removed foreskins are exported to South Africa where they are used in money rituals or to make skin lotions for women.* (Male FGD)

6.4 Circumcision and sexuality

Participants in this study were asked to consider some of the factors which may encourage men to get circumcised. Some male participants, while not doubting the prophylactic nature of VMMC, noted that there are men who would seriously consider getting a circumcision because of the belief that circumcision improves sexual performance. There is a belief among men that a circumcised man is more likely than an uncircumcised one to satisfy a woman. It is not clear where this belief emanates from but it appears to be strong among men. Some participants expressed the view that a circumcised penis is likely to have a stronger erection than an uncircumcised one because the foreskin hinders a full erection. The strong erection was then associated with multiple orgasms for female partners.

> *A circumcised penis is more satisfying.* (Female FGD)

> *It [circumcision] helps the penis to be more erect than when it has the foreskin and leads to more orgasms for women.* (Male FGD)

The sex motive was also mentioned by other participants who noted that the promotion of VMMC has unveiled an opportunity for some 'adventurous' men to explore different sexual experiences with a circumcised penis. It was mentioned that some men may just get circumcised out of curiosity to feel the difference between sex with an uncircumcised and a circumcised penis. In addition to the curiosity to experience a different sex, it was highlighted that some men may get circumcised in order to appear more appealing to potential sexual partners. It was highlighted that some men were simply following advice from an earlier advertisement which implored men to get circumcised because 'beautiful girls love circumcised men'.

> *They [some men] are just experimenting on how it [sex] feels after circumcision.... The message on the advert says beautiful girls love men who are circumcised so men are doing it [getting circumcised] to be the ladies' target.* (Key Informant)

There are evidently divergent views from the participants in this study on why men may consider getting a circumcision. What is clear though is that HIV prevention is only one among a plethora of justifications for getting circumcised. Some of these reasons may actually be at odds with the actual reasons behind the promotion of VMMC. There were participants who felt that this ability of circumcision to give men 'more power' in bed was not good because it would lead to promiscuity thus defeating the purpose for which VMMC is being promoted- HIV prevention.

> *It's [circumcision] not right because it is giving a person desire and courage to sleep around thus increasing the chances of spreading HIV.* (Male FGD)

It [circumcision] is said to increase sexual desire so much that a single woman won't satisfy you so you have to hit here and there. (Male FGD)

Some participants disagreed with the view that circumcision increases sexual desire. They noted that circumcision in fact causes a loss of sexual desire as illustrated by references to the penis becoming "cold" because its "warming cover" would have been removed. The reference to a 'cold' penis implies a loss of sexual desire or ability to achieve an erection. Fears of losing fertility due to circumcision were also mentioned. There were also fears that getting circumcised might lead to marriage breakdown due to the prolonged healing period before resumption of intercourse. Because of this, some suggested that circumcision be promoted among young children who do not yet have sexual obligations to fulfil.

A married man cannot get circumcised because he risks losing his wife, she will run away. It is difficult to sleep next to each other then not have sex...circumcise children below 12 years who haven't 'tasted' sex at all, that way it will work. (Male FGD)

6.5Condom use after circumcision

The issue of condom use after circumcision is a topical issue in the current discourse on VMMC promotion for HIV prevention. This study asked participants to give their views or what they hear people say when they talk about condom use after getting a circumcision. Several participants expressed the view that it would be unnecessary to use a condom after getting circumcised. One male participant in a focus group discussion remarked that a circumcised penis would tear a condom therefore there is no need to wear one. This notion that a

circumcised penis 'tears' a condom seem to emanate from a misunderstanding of the keratinisation process that takes place after circumcision. Some participants felt that the hardening of the surface skin of the penis reduced sensitivity during intercourse and thus using a condom would further reduce the pleasure for a man. Another participant expressed similar sentiments by noting that a circumcised penis is exposed so putting a condom will make one feel pain while another male participant likened wearing a condom to being *"over-dressed for the party",* that is, getting circumcised and then using a condom all for HIV prevention. Another participant highlighted that messages promoting voluntary medical male circumcision had given the impression that your chances of getting infected with HIV during unprotected sex are only 40 percent and this has led to more people opting for unprotected sex. Some participants even questioned the efficacy of male circumcision given that one has to use condoms even after getting a circumcision.

> *The message that male circumcision reduces the chances of not getting infected with HIV has led to more unprotected sex because people pay less attention to condoms. Why would someone wear gumboots (condoms) when you are already 'sorted' [protected]?* (Male FGD)

> *The advantages [of male circumcision] are not clear and convincing. Why get cut and still need condoms afterwards, what's the point?* (Male FGD)

6.6 Circumcision, stigma and disability

In addition to the association of circumcision to ritualistic ceremonies and Satanism, participants also highlighted that circumcision is associated with illness and disability which

may lead to ridicule in a society where the practice is still relatively new. The concomitant stigma in the community was highlighted as deterrent to the eventual uptake of VMMC. A circumcised man in the discussion highlighted that when he got circumcised he was unable to put on a trousers for some days and his friends ridiculed him because they assumed that he had a sexual transmitted infection.

> *When you get circumcised, it will be painful to wear underclothes and sometimes you have to wear a dress like a woman to avoid that pain. Sometimes your friends might laugh at you when they see you walking slowly to avoid hurting the wound and they say you have "sick" [a sexually transmitted infection]*. (Male FGD)

Another source of stigma that was expressed by a few of the participants is that in some circles circumcised men are viewed as disabled or as having a disability. This view appears to emanate from a likening of circumcision to a condition in which a person is born with a retracted foreskin (*"nzvonyo"* in some Shona dialects) which was viewed by some as a form of disability.

> *Men are shy. Circumcision is still a new practice and also uncommon and might attract ridicule among peers in some circles.* (Female Key Informant)

During one of the FGD with men aged between 19 and 34 years, it was noted that hospitals are not the ideal place to do the circumcisions because of their association with sickness and death. One of the centres offering VMMC services is at Spilhouse which is adjacent to Harare Hospital, one of the largest public referral hospitals in the country. Some participants felt that circumcising men at hospitals gives the impression that you are already ill and therefore need medical attention. It was also highlighted that when you get to that hospital site, you get

memories of friends and relatives who walked into the hospital looking healthy but were carried away dead. Respondents further noted that the association between circumcision and illness is further compounded by the requirement to undergo HIV testing before getting circumcised. In a country with a high HIV prevalence, it has become routine practice for medical personnel to request patients to undergo HIV testing in order to eliminate HIV as a possible cause of illness.

6.7 Women's involvement in VMMC

This study sought participants' views on the role that women can play in the promotion of VMMC for HIV prevention. One view that was presented during the discussions is that women have persuasive power and thus can influence their sons and husbands to get circumcised. In addition to women having the power to persuade men to get circumcised, it was also felt that women should take an active role in promoting VMMC because they are direct beneficiaries of the programme through reduced chances of getting cervical cancer and through improved sexual satisfaction.

Other participants, particularly women, were sceptical about their active involvement in the promotion of circumcision citing fear and communication challenges. Women participants expressed fear that the promotion of VMMC may transmit the wrong signals thus leading some men to become reckless and promiscuous. They also noted that because of the belief that circumcision boosts a man's sexual appetite, they feared that they would not be able to satisfy their partners thus increasing the likelihood of them seeking sexual gratification elsewhere. A female participant noted the following:

Women fear that if their husbands are circumcised they will behave like bulls and the women will not be able to satisfy them sexually, it's inviting problems for yourself. (Female FGD)

Women also pointed out that they could not encourage their partners to get circumcised on the pretext that circumcision improves sexual performance because they feared that men would accuse them of infidelity. In particular, a man would demand to know how the female partner got to know that a circumcised man performs better in bed. A female participant in the mixed FGD remarked that:

Some men will be problematic because they would want to know how their wives got to know that a circumcised penis is better than an uncircumcised one. (Female FGD)

Besides encouraging men to get circumcised, it was suggested that women can also help in the process by going away from home to allow the man to heal without a possibility of engaging in sexual intercourse before the recommended healing time of six weeks. It was mentioned that 6 weeks is a very long time to spend without having sex and thus the temptation is greater when a woman is readily available.

For men to heal better and faster women should leave the house to avoid sharing the same bed so that men are not [sexually] aroused. (Male FGD)

6.8 Other barriers to VMMC uptake

The previous sections have highlighted some of the key factors which may negatively affect the uptake of VMMC such as beliefs that associate circumcision with witchcraft and satanic rituals. Communication between a man and a woman in a sexual relationship was also discussed as a major issue affecting the open discussion of VMMC uptake. Both men and women felt that suggesting circumcision for HIV prevention may arouse suspicion and bring to question the trust that exist in the relationship. In this section, other factors that may act as barriers to the uptake of VMMC are discussed.

Participants in FGDs and key informants mentioned the issue of pain and complications as impeding the uptake of VMMC. For some people this fear extends beyond pain to include a fear of dying due to complications.

> *People are afraid of dying during or after the operation because the organ being operated on is very sensitive and the operation is risky itself, take the case of South Africans who died.* (Male FGD)

However, a key informant who is also a medical doctor dispelled fears of complications and/or death.

> *Zimbabwe has an adverse events rate of less than 2 percent, and is ranked as one of the lowest in Africa. The adverse events we have attended to are very minor, for example swelling and bleeding.* (Key Informant)

In addition to pain and complications as barriers to VMMC uptake, some men expressed reservations about the lengthy healing period noting that it affects their sexual routine while others feared that their partners will seek sexual gratification elsewhere while they waited for the 42 days healing period.

Abstinence for 42 days is too long. You will burn with sexual desire. (Male FGD)

Still on the issue of the lengthy healing period, participants in this study also pointed out that in the current economic environment in which most men are self-employed, it is unimaginable to suggest that they lose time going for circumcision. Participants even doubted that those who are in formal employment would be allowed time off to get a circumcision.

6.9 VMMC implementation challenges

The promotion of VMMC in Zimbabwe has been met with various challenges as expressed by stakeholder representatives who participated in this study. These challenges can be grouped into two using the demand-supply dichotomy. Key informants who participated in the study noted that the demand for VMMC services has been very low. According to targets set by the Ministry of Health and other stakeholders, Zimbabwe is supposed to have achieved a target of 1.9 million circumcisions during the period 2010-2015. However, statistics obtained from the Ministry of Health representative showed that about 100,000 men had been circumcised by the end of 2012. As of September 2013, 170,000 men had been circumcised (Hatzold et al., 2014). A key informant was not sure why men were not taking up voluntary medical male circumcision. It was suggested that perhaps men were busy at work or were afraid of mandatory HIV testing before the circumcision.

Older men are simply not coming, maybe they are at work, or do not want HIV testing, we don't know. However, younger boys have been forthcoming. (Key Informant)

Another key informant noted that male circumcision is a new phenomenon and people are still sceptical about its recent promotion for HIV prevention.

People are just scared. They say if it's not 100 percent protective against HIV after going through all that, what's the point! (Key Informant)

Key informants also noted that demand creation strategies in the promotion of VMMC for HIV prevention have been faced by severe resource limitations and sometimes have limited appeal from the target audience. As part of the campaigns to increase demand for VMMC services, several popular artists were recruited to champion the VMMC "Be Smart" campaigns. This has its own limitations.

The localisation of campaigns to increase demand for medical male circumcision has been lagging behind, for example, when you use a celebrity such as Winky D to champion circumcision might not have the same impact everywhere in the country because we are not sure if he [Winky D] is seen as a celebrity, for example in rural areas or in farms where they may have their own champions. (Key Informant)

On the supply side, the implementation of VMMC campaigns has been affected by a general shortage of manpower and other resources. For example, the law in Zimbabwe does not allow any health professional other than a medical doctor to perform a surgical procedure. Given the

high emigration of medical doctors to other countries for better financial prospects, the number of medical doctors who are available to carry out the procedure is very limited. This shortage is further compounded by the fact that doctors working in public health institutions are faced with a difficult choice everyday of prioritising the allocation of attention and medication to deserving cases only.

> *Circumcision is not a medical emergency so a doctor who is faced with choosing between doing a Caesarean Section, for example and performing a circumcision will choose to operate the woman in labour because that's an emergency.* (Key Informant)

In addition to human resource shortages, key informants also highlighted that there has been a shortage of devices to do the circumcisions over and above the fact that many hospitals may need to upgrade their surgical theatres in order for them to be able to effectively respond to the envisaged demand for VMMC services. Furthermore, the need to mobilise financial resources locally was emphasised to ensure the sustainability of the VMMC campaigns.

> *The programme is currently being wholly funded by strategic partners, particularly the Bill and Melinda Gates Foundation and PEPFAR, through USAID and PSI.* (Key Informant)

6.10 Summary

This chapter presented findings from the qualitative data of this study which focused on meanings and socially constructed realities about the promotion of voluntary medical male circumcision for HIV prevention in Zimbabwe. The findings have uncovered representations

which are critical in understanding some of the factors influencing the uptake of VMMC such as stigma, negative perceptions about circumcision and implementation challenges.

The issue of stigma is not a new phenomenon in studies that have attempted to understand male circumcision. For example, among ethnic groups that circumcise men as a rite of passage into adulthood, those who are not circumcised are viewed as lacking and undeserving of respect and may not be allowed to enjoy certain privileges reserved for circumcised males (Lawlor, 1991; Vincent, 2008; Mshana et al., 2011). Males in this study however expressed fear of stigmatization if they get circumcised because circumcision is the exception rather than the norm. This finding is supported by earlier studies from Zimbabwe and elsewhere which highlighted the issue of stigma as a major barrier to the uptake of voluntary medical male circumcision. In a study by Moyo et al. (2015) in rural Zimbabwe, men reported they would even be afraid of going into public spaces due to fear of stigmatization. Macintyre et al. (2013) also reported that men in Turkana County, Kenya expressed reservations about taking up circumcision because it is viewed as nakedness. Again in rural Zimbabwe, Khumalo-Sakutukwa et al. (2013) observed that getting circumcised was associated with name-calling such as “nzvonyo”, “red-head” and “small-head”. Related to the issue of stigma, the results of this study also show that male circumcision is viewed as a form of disability. This is also in line with findings by Khumalo-Sakutukwa et al. (2013) who noted that circumcised men are perceived as being “halved” because not having a foreskin is seen as abnormal.

Culture, religion and ethnic identity are a major concern in male circumcision because those who circumcise males perpetuate the practice as a form of ethnic identity (Vincent, 2008). On the other hand, those who do not circumcise males also do that to maintain their ethnic identity. In this study, participants noted that circumcision is a foreign culture in Zimbabwe belonging

to some ‘isolated’ ethnic groups such as the Tonga and the Chewa. Similar findings were observed in rural Zimbabwe by Moyo et al. (2015) and Khumalo-Sakutukwa et al. (2013). Studies from elsewhere have also identified the issue of cultural identity as a major barrier to the uptake of medical male circumcision for HIV prevention (Bailey et al., 2002; Ngalande et al., 2006; Lukobo and Bailey, 2007; Kelly et al., 2012; Goicochea and Montoya, 2014; Chinkhumba et al., 2014). Also related to culture and beliefs is the finding that some participants fear that male circumcision can be related to Satanism and witchcraft. In particular, there are fears that the foreskins maybe used for witchcraft or satanic rituals if not disposed of carefully. An earlier study by Mavhu et al. (2012) concurred with these findings and further observed that Zimbabweans were, in general, very worried about the disposal of bodily fluids, nails, and any other human tissue including foreskins and umbilical cords.

Risk compensation or behavioural disinhibition is one of the major concerns in the promotion of voluntary medical male circumcision for HIV prevention. Several quantitative studies have found insufficient evidence to suggest that circumcision will lead to risky sexual behaviour (Godlonton et al., 2014; Mattson et al., 2008; Agot et al., 2007). However, this study has found that the fear of risk compensation and infidelity among men after circumcision is a real fear among both men and women alike. Qualitative studies in Tanzania and Papua New Guinea have also found that participants were very concerned about the possible escalation of risky sexual behaviour after circumcision (Plotkin et al., 2013; Kelly et al., 2012). Women in particular were very concerned about possible partner infidelity after circumcision (Plotkin et al., 2013). These fears emanate from two main sources. Firstly, there are fears that some men will misunderstand the partial protective effect of circumcision to mean that they will not get infected with HIV thus increasing their number of sexual partners. Secondly, there are also fears that circumcision may make men sexually insatiable thus driving them to seek satisfaction

from several partners. This may be further confounded by a decline in the use of condoms. In this study, some men felt that the use of condoms after getting circumcised is synonymous with being over-protected and they wondered why one would then want to get circumcised and still be required to use condoms. In Papua New Guinea, Kelly et al. (2012) found that men were reluctant to get circumcised because they argued that there are more effective HIV prevention methods such as the condom. Meanwhile, in Malawi Pierotti and Thornton (2012) found that some men suggested that circumcision is better because men will always cheat and will not use condoms. In Tanzania, women expressed fear that men will not be able to abstain from sex for 6 weeks thus increasing the risk of HIV infection (Plotkin et al., 2013).

The association between circumcision and sexual pleasure was highlighted as a major point of discussion. This issue has also been raised in literature but it appears that there is no general agreement between scholars. It has been reported that circumcised men are more likely to cite significantly reduced penile sensitivity, increased ejaculatory problems and greater dissatisfaction with their sex lives than their uncircumcised counterparts (Bensley and Boyle, 2001). It has also been reported that partners of circumcised men are more likely to report vaginal dryness and difficulty reaching orgasm than women with intact partners (O'hara and O'hara, 1999). Other studies have concluded that male circumcision is unlikely to adversely affect sexual performance (Krieger et al., 2008). Participants in this study did not have a clear position on the effect of male circumcision on sexual performance and satisfaction because neither the man nor the women were very familiar with the subject. However, a circumcised man in a study in rural Zimbabwe expressed that uncircumcised men perform better (Khumalo-Sakutukwa et al., 2013).

The role of women in the promotion of voluntary medical male circumcision has not been fully understood. However, the available studies suggest that women have a significant role to play either through supporting their spouses/partners or coercing them to get circumcised (Cook et al., 2015; Osaki et al., 2015). Lanham et al. (2012) discovered that while women were generally in support of the roll-out of voluntary medical male circumcision, they perceived male circumcision as a "male thing" thus limiting their participation in the programme. This study also explored the possible contribution of women in the roll-out of voluntary male circumcision. There seems to be consensus that women should be involved in the decision to get circumcised. However, findings also suggest that the discussion of circumcision as an HIV prevention strategy within intimate relationships may lead to suspicions of infidelity. On one hand, men may be suspicious of a woman's suggestion that he be circumcised because that may be interpreted as suggesting that man is not good in bed or that the woman has had intercourse with a circumcised man and has thus developed preference for a circumcised penis. On the other hand, men cannot also raise the issue for discussion because the woman would suspect that the man intends to get HIV protection from extra marital unions. Because of the sensitivities surrounding the decision to get circumcised, circumcision among men in long-term intimate relationships may suffer the same fate as that of the condom which became a symbol of mistrust and infidelity in marital unions.

Other findings of this study show that fear of getting an HIV test is one of the major challenges facing the roll-out programme of male circumcision for HIV prevention. Research shows that being HIV positive attracts a lot of stigma from relatives, friends and society in general and this complicates health seeking and adherence to treatment regimes (Lee et al., 2002; Rankin et al., 2005; Steward et al., 2008; Rao et al., 2007). Given the concomitant stigma following an HIV diagnosis, several studies have found that men are reluctant to go and get tested before

getting circumcised (George et al., 2014; Hatzold et al., 2014; Skolnik et al., 2014). That fear was also expressed by research participants in this study. Other factors that were reported as limiting men's willingness to get circumcised include fear of pain and fear of loss of income. The latter is not surprising because most male participants in this study reported that they are self-employed. This finding is in line with findings by Plotnik et al. (2013).

The factors that have so far been presented above as influencing the uptake of voluntary medical male circumcision are personal and influence the demand for male circumcision services. The results presented in this chapter have also shown that there are also supply factors that may negatively impact the provision of male circumcision services. These factors include the general scarcity of human, financial and logistical requirements. Zimbabwe has a limited number of doctors and these may be forced to prioritise emergency cases instead of male circumcision. Furthermore, not all public health facilities have the requisite equipment to carry out male circumcision procedures. The study also found that the bulk of the roll-out campaign is funded through donor agencies and this may have negative repercussions on the sustainability of the programme should the donors decide to withhold funding. In Papua New Guinea, Kelly et al. (2012) found that participants were concerned that the promotion of voluntary medical male circumcision would prove to be a burden on the health system. In response to the human resources challenge cited above, Curran et al. (2011) have suggested that governments in the 14 priority countries (which include Zimbabwe) should consider moving manpower to high volume campaign sites and empowering nurses to carry out the circumcisions.

The findings from the qualitative data presented in this chapter show that there are demand and supply challenges which may affect the uptake and the supply of voluntary medical male

circumcision. On the supply side, the findings of this study have highlighted that there are challenges in creating demand due to a number of factors among them limited human and financial resources. It was pointed out that not all health care facilities have the requisite equipment and personnel to offer VMMC services. On the demand side, the findings of this study presented in this chapter suggest that while people have a general acceptance of voluntary medical male circumcision for HIV prevention, a number of factors may limit its uptake. Firstly, it was pointed out that circumcision is viewed as an alien culture and those who opt to get circumcised may experience stigma from friends. Secondly, it was highlighted that people are generally sceptical about how their foreskins will be disposed of. There are fears that the foreskins may be used for satanic rituals or are being sold to lotion manufacturing companies in South Africa for a huge profit. Thirdly, there are fears that the promotion of voluntary medical male circumcision may lead to a decline in condom usage and an increase in promiscuity. Some women in this study expressed concern that circumcision may make it difficult for them to please their partners thus leading to promiscuous behaviour.

CHAPTER SEVEN: CONCLUSIONS AND RECOMMENDATIONS

7.1 Introduction

Voluntary medical male circumcision has become an important feature in the prevention of HIV acquisition for men. This follows evidence that circumcision is efficacious against the transmission of HIV from women to men. In light of that, many research studies have been conducted to ascertain beliefs surrounding male circumcision for HIV prevention and whether men and women would accept the procedure. This study attempted to add to the growing body of literature on voluntary medical male circumcision for HIV reduction. The conduct of this study was guided by four major research objectives as follows:

- ✓ To ascertain the acceptability of male circumcision among men and women
- ✓ To investigate the factors influencing the uptake of male circumcision in Zimbabwe
- ✓ To evaluate the possible implications of male circumcision on men's sexual behaviour
- ✓ To evaluate the role of women in the conceptualisation and uptake of male circumcision.

In addition to the above stated research objectives, the study also sought to answer the following research questions:

- ✓ What is the prevalence of both traditional and medical male circumcision?
- ✓ What factors influence the uptake of male circumcision?
- ✓ What are the implications of MC on men's sexual behaviour?
- ✓ What is the perceived impact of MC on men and women's sexual pleasure and satisfaction?

The study adopted a mixed methods approach in which both qualitative and quantitative data were collected simultaneously then merged during interpretation. In total, 681 individual questionnaires were completed as well as five focus group discussions and four in-depth interviews with key informants.

7.2 Prevalence of male circumcision

Data on the prevalence of male circumcision is important because it gives a benchmark on which to assess the progress of the on-going promotion of voluntary medical male circumcision. However, data on the prevalence of male circumcision is difficult to interpret owing to the different conceptualisations of circumcision (Hewett et al., 2012). Williams et al. (2006) have also noted that data on self-reported circumcision is not entirely reliable in the absence of intrusive physical examination of research participants. Despite the methodological short-comings of the data on prevalence, this study found a male circumcision prevalence of 15.8 percent in the study sample. This is comparable to the male circumcision prevalence observed in other studies. For example, Mavhu et al. (2011) observed a prevalence of 20 percent in rural Zimbabwe while the 2015 Zimbabwe Multiple Indicator Cluster Survey found a male circumcision prevalence of 11.2 percent (ZIMSTAT, 2015). A significant contribution of this study in the measurement of prevalence of male circumcision in Zimbabwe is that it collected data on the prevalence of various types of male circumcision. The prevalence of voluntary medical male circumcision for HIV reduction was found to be 6.2 percent while that of traditional male circumcision was found to be 5.2 percent. Another significant finding of this study is that 60.8 percent of all circumcisions were done in a medical facility and were done by a qualified medical doctor. This is significant because it allays fears of complications associated with circumcision done in non-medical settings (Weiss et al., 2010).

7.3 Knowledge about VMMC for HIV prevention

One of the expected outcomes of the policy on VMMC promotion in Zimbabwe is increased awareness of male circumcision as an additional strategy for HIV reduction (MOHCC, 2014). According to the Health Belief Model information about a health condition can empower an individual to assess their risk, barriers and benefits of adopting a recommended method and the individual's ability to execute the recommended preventive action (Glanz et al., 2002). It is therefore not surprising that many studies on VMMC have incorporated items to measure knowledge and attitudes. Most of these items have been derived from WHO/UNAIDS (2009) guidelines, from demographic and health surveys and from behaviour change frameworks (see for example Hatzold et al., 2014). The measurement of knowledge and attitudes in this study was guided by previous studies and by standardised items mentioned above. Items that measured knowledge about voluntary medical male circumcision in this study focussed on a person's exposure to circumcision messages, on whether a person knows that there is a 6-weeks abstinence period to allow complete healing, that male circumcision reduces the chances of getting infected with HIV and other STIs, and that the protection afforded by circumcision is only partial. Perceived advantages and disadvantages of male circumcision were also assessed. Comparable studies on knowledge in Zimbabwe are still limited possibly because this area is still being explored.

The findings of this study show that about 97 percent of both male and female respondents had heard about male circumcision for HIV prevention. This finding is significantly higher than that obtained by Hatzold et al. (2014) who reported that 68 percent of men and about 54 percent of women in their sample had heard about VMMC for HIV prevention. This difference can be attributed to sample characteristics of the two studies. While this study interviewed men and

women in urban Harare, Hatzold et al. (2014) had a sample with respondents drawn from both urban and rural settings. While there appears to be an improvement in the general knowledge about voluntary medical male circumcision in Zimbabwe since the study by Mavhu et al. (2011), the findings of this study suggest that there is still need to address the issue of knowledge of voluntary medical male circumcision in the general population. For example, while 97 percent of the study participants had heard about voluntary medical male circumcision, almost half did not know a place offering VMMC services. Given that this study used an entirely urban sample, knowledge gaps about places offering VMMC are likely to widen as one moves further into the rural areas where information dissemination can be limited by less developed infrastructure.

7.4 Acceptability of VMMC for HIV prevention

Following evidence that male circumcision provides protection against HIV, an immediate concern among public health researchers was whether men and women would accept voluntary medical male circumcision for HIV reduction. Several studies were thus conducted to evaluate the acceptability of male circumcision for HIV reduction in populations that did not practice traditional male circumcision. The findings of this study support earlier studies which concluded that acceptability of voluntary medical male circumcision is high (Halperin et al., 2005; Lukobo and Bailey, 2007). This study also observed that acceptability of VMMC is significantly associated with comprehensive knowledge about male circumcision and attitudes, in particularly, having a belief that circumcision works for HIV prevention. This relationship between acceptability and knowledge has been reported in earlier studies (see Brito et al., 2009; Albert et al., 2011; Tieu et al., 2010; Kebaabetswe et al., 2003).

An important finding of this study is that acceptability per se does not translate to willingness to get circumcised. While acceptability among men in this study was found to be fairly high at 68.9 percent, willingness to get circumcised was low at 42.4 percent. Other studies have found that even those who report willingness may not necessarily get circumcised (Tieu et al., 2010; Pierotti and Thornton, 2012). This poses a methodological dilemma about the predictive power of acceptability as a construct on the uptake of voluntary medical male circumcision for HIV prevention.

7.5 Factors influencing VMMC uptake

The promotion of voluntary medical male circumcision was recommended as an additional HIV reduction strategy by the World Health Organisation in 14 countries with HIV prevalence. These countries include Botswana, Ethiopia, Kenya, Lesotho, Malawi, Mozambique, Namibia, Rwanda, South Africa, Swaziland, Tanzania, Uganda, Zambia and Zimbabwe. Implementation of the voluntary medical male circumcision programmes in the priority countries, including Zimbabwe, has centred on creating demand for VMMC services and capacitating existing health institutions to be able to supply the services (Macintyre et al., 2014). This study has established that there are a number of obstacles that have hindered the creation of demand and supply of voluntary medical male circumcision services. Firstly, there is lack of capacity in government and its partners to effectively market male circumcision due to financial limitations. It was observed that the roll-out campaign of VMMC is wholly funded by donor organisations such as the Bill and Melinda Gates Foundation and PEPFAR (The United States President's Emergency Plan for AIDS Relief). Secondly, the findings of this study also suggest that there is still limited capacity to supply VMMC services due to a shortage of manpower and health facilities. These findings are in line with results from other studies which highlighted

the lack of capacity and resources to offer VMMC services (Bailey et al., 2002; Kelly et al., 2012).

In addition to the demand creation and supply challenges outlined above, the findings of the present study also suggest that there are other individual and societal factors influencing the uptake of voluntary medical male circumcision. While quantitative data from this study has shown a significant association between willingness to get circumcised and individual knowledge and attitudes toward male circumcision, qualitative findings show that there are a number of factors beyond the individual control that may influence individual decisions to get circumcised or not. Firstly, circumcision is viewed as alien to the general cultural practices of the local people. Secondly, some participants in this study expressed fear of stigmatisation after undergoing male circumcision. This stigma may emanate from views which associated male circumcision to disability. Similar findings have also been reported in studies conducted in and outside of Zimbabwe (Moyo et al., 2015; Macintyre et al., 2014; Chinkhumba et al., 2012; Khumalo-Sakutukwa et al., 2013).This is in sharp contrast to other studies from countries such as South Africa and Tanzania where male circumcision is seen as a sign of manhood among traditionally circumcising communities such as the Xhosa in South Africa and the Kurya in Tanzania (Vincent, 2008; Mshana et al., 2011). Other factors that have been identified as affecting uptake of male circumcision include fear of HIV testing and the concomitant stigma if one is found to be HIV positive. It has also been reported that the mandatory 6 weeks waiting period is perceived as too long (George et al., 2014; Skolnik et al., 2014). In addition to these factors, results also indicate that there is a general fear of pain associated with male circumcision and fear of loss of income (Plotnik et al., 2013).

In short, findings of this study suggest that cultural and societal factors are equally significant when attempting to understand factors associated with the uptake of voluntary medical male circumcision. The theoretical significance of this finding is that public health interventions that emphasize individual factors as proposed by individual-centred theories such as the health belief model may fail to achieve anticipated results because of their inability to take into account socio-cultural factors and beliefs that influences individual behaviour. According to the health belief model, the adoption of health behaviours is influenced by individual factors such as their exposure to information about the health condition, attitudes toward the condition and the recommended action, perceived susceptibility to the condition, perceived efficacy of the recommended behaviour and one's perceived ability do the recommended behaviour. By emphasising individual characteristics, beliefs and attitudes as key to the adoption of health behaviours, the health belief model underestimates the significance of social norms, peer pressure and culture on individual decision making about health. This is in line with observations by Airhihenbuwa and Obregon (2000) who noted that social norms take precedence in health related matters and are more reliable predictors of health behaviour in many parts of Latin American, Asia, the Caribbean and Africa.

7.6 Role of women in the promotion of VMMC for HIV reduction

The role of women in the promotion of voluntary medical male circumcision has not been well explored. Scholars such as Berer (2007) and Kelly et al. (2012) have noted that male circumcision is not a gender sensitive method of HIV prevention because it provides partial protection to men but leaving the woman vulnerable to possible HIV infection. This study sought to understand the role of women in the promotion of VMMC for HIV prevention in Zimbabwe. Generally, findings of this study suggest that both men and women believe that

women have a role to play. However, such a role seems to be confined to one where women are perceived as giving moral support and mere encouragement to their sons and partners. This is in line with findings by Osaki et al. (2015) and Cook et al. (2015). Findings of this study also point to the fact that men perceive women as a great temptation which may make it difficult for men to abstain from sex for the recommended six week period. This finding is similar to that observed by Plotkin et al. (2013) in Tanzania. Lanham et al. (2012) observed that some women perceive male circumcision as a programme designed for men thus take little interest when the VMMC is being discussed. This may perhaps explain the disparities in knowledge about VMMC between men and women that were observed in this study. Beyond being consulted before undergoing circumcision and providing encouragement and moral support, the role of women in the promotion of voluntary medical male circumcision is still an unexplored area of research.

7.7 Implications of VMMC for men and women in Zimbabwe

The promotion of voluntary medical male circumcision has significant implications for both men and women in Zimbabwe. Firstly, there is the issue of risk compensation after circumcision. This is a phenomenon where circumcised men may engage in riskier sexual behaviour because they believe that they are protected (Lagarde et al., 2003). Risk compensation or behavioural disinhibition can take the form of reduced use of condoms or increased number of sexual partners. Studies in other settings have found no evidence of this phenomenon (Mattson et al., 2008; Agot et al., 2007; Godlonton et al., 2014). This study found mixed results on the issue of condom use because on one hand, some men who reported willingness to get circumcised also reported a willingness to use condoms after circumcision while others questioned the logic of using condoms after getting circumcised. The latter view

may have serious implications for the safety of women with circumcised partners. This is particularly so in view of the fact that condom use in marital or semi-permanent unions has been a challenge (Berer, 2007; Farrar, 2013).

Related to the above, the promotion of voluntary medical male circumcision may also have implications on gender relations within intimate unions. The findings of this study suggest that on one hand men may have challenges discussing circumcision with their partners due to fear of accusations bordering on infidelity. The reason for this is that female partners may question the need for circumcision for HIV prevention if both partners are supposedly faithful. Similarly, women may also find it difficult to suggest that their male partner be circumcised. This challenge emanates from some male circumcision promotional advertisements which seem to suggest that circumcised men perform better sexually when compared to their uncircumcised counterparts. Thus a woman suggesting that her male partner gets circumcised may be construed to be indirectly suggesting that the male partner is not performing well during intercourse.

The implications of voluntary medical male circumcision on gender relations may also be exacerbated by beliefs surrounding sexual pleasure and desire after male circumcision. Several studies have attempted to document evidence surrounding circumcision and sexual pleasure and performance. Bensley and Boyle (2001) suggested that circumcision results in the loss of sensitivity thus adversely affecting sexual pleasure. However, Collins et al. (2002) disputed this and concluded that the loss of sensitivity is a myth rather than fact. Conflicting results have also been reported in other studies (see Kim and Pang, 2006; Krieger et al., 2008). Women in this study felt that circumcised men have an unquenchable sexual desire and they feared that they would seek sexual gratification elsewhere thus increasing the risk of HIV infection.

Consequently, some women reported that they are reluctant to openly encourage their partners to get circumcised. On the other hand, men also believe that getting circumcised will significantly enhance their sexual performance and this belief, together with a false sense of protection against HIV, may inadvertently promote sexual experimentation at the detriment of HIV prevention. Beliefs surrounding sexual desire and pleasure after circumcision must be attended to urgently.

7.8 Recommendations for future studies

This study examined the prevalence of circumcision, knowledge and acceptability of male circumcision for HIV prevention and the implications of promoting VMMC among men and women in Zimbabwe. The study was carried out entirely in Harare and this presents some challenges in that the findings cannot be generalised to the entire population. It is therefore recommended that future studies should investigate these concepts in different settings, for example, in other urban centres. It is also recommended that future studies should endeavour to make a comparison of rural and urban populations.

The findings of this study suggest that men have good knowledge of VMMC and have reasonable acceptability levels but are reluctant to get circumcised. This finding suggests that knowledge and acceptability alone are not sufficient predictors of uptake of VMMC. There is thus an urgent need for research to investigate factors that influence VMMC uptake beyond knowledge and acceptability.

Related to the above, future studies should look at men's health seeking behaviours in relation to VMMC uptake. Previous studies on the adoption of health behaviours has shown that men

are generally slow to adopting innovative methods (see for example Rich and Ro, 2005). There is thus a need to investigate how such behaviour and attitudes among men can help explain the slow uptake of VMMC for HIV prevention.

The role and place of women in the promotion of VMMC is still not well understood. Women can play a key role in encouraging men to get circumcised but if they do not perceive the benefits of doing so then the opportunity for their involvement would be lost.

In addition, many of the existing studies on VMMC have focused much attention on quantitative approaches to the understanding of factors that may promote or hinder uptake of VMMC. This is justifiable given the exigencies surrounding the adoption and promotion of VMMC by many governments in HIV-hit countries. However, quantitative studies have so far not been able to explain the disparities between acceptability of VMMC and the actual uptake of the procedure. This study used a mixed methods approach which helped in uncovering discrepancies between acceptability and uptake of voluntary medical male circumcision. Future studies should therefore come with rigorous mixed methods approaches to explain differences in acceptability and uptake of VMMC.

The findings of this study showed that fear of pain and loss of income are some of the factors preventing men from presenting themselves for VMMC. This is particularly critical in the wake of the crippling economic environment which has forced many men and women into the informal sector. However, the recent adoption of the Prepex circumcision device is likely to eliminate the above concerns. Despite this, there is still a need for research to investigate people knowledge and attitudes toward the new device.

Finally, there is need for studies that evaluate policies on VMMC roll-out in line with the responses that the procedure has elicited from the target population. This assessment is critical given the fact that VMMC is still relatively young therefore policies need to adapt to changes as they happen on the ground.

7.9 Conclusions and policy recommendations

The purpose of this study was to investigate the implications of the promotion of VMMC on men and women in Zimbabwe. Specifically, the study sought to assess the knowledge and acceptability of male circumcision as an additional method of HIV prevention. The factors that may influence VMMC uptake among men were also investigated. The study also sought to find out the prevalence of circumcision among the study population. In addition to that, the study also investigated the role of women in the promotion of VMMC for HIV prevention.

The study's findings suggest that knowledge about circumcision is high. It was also found that acceptability of voluntary medical male circumcision for HIV prevention is also high. This can be attributed to the massive roll-out of communications that explain the procedure. However, knowledge of VMMC among men was found to be significantly higher than among women. Given the role that women can play in the promotion of voluntary medical male circumcision, there is an urgent need to design programmes that target women. The recommendation to design programmes that specifically target women is also supported by the finding that women are reluctant to support the promotion of medical male circumcision because they do not see how it will benefit them beyond having reduced chances of getting cervical cancer. In fact, women see the promotion of VMMC as tantamount to allowing men to have unprotected sex with multiple sexual partners.

While knowledge and acceptability of VMMC among men is higher than among women, the findings of this study suggest that men are not willing to undergo circumcision for HIV prevention. There are several reasons why men are not willing to undergo circumcision for HIV prevention. Firstly, men do not see the need for undergoing the procedure in the name of HIV prevention and still be expected to use condoms. In light of this, there is a need to continue emphasising condom use after getting a circumcision. Secondly, some men reported that they were not aware of a place where they can go or refer someone to get circumcised. This finding points to an urgent need to fill that void of information. This lack of knowledge has also been compounded by the fact that centres with the capacity to offer VMMC services are still concentrated in urban spaces and may not be easily accessible to many men who are in need of that service.

Myths and beliefs were also highlighted as another reason why men are afraid to get circumcised for HIV prevention. It was noted that there are beliefs that foreskins were being sold for use in rituals. Also linked to beliefs is that some men who reported to be willing to undergo circumcision believe that the procedure will heighten their sexual appetite and also improve their sexual performance. A review of literature showed that rituals associated with human body parts or with circumcision are not uncommon but are rarely done in modern medical set ups. There is thus a need to develop communication strategies that dispel these misconceptions. There is also a need to engage stakeholders such as ZINATHA to help inform the Ministry of Health and Child Care on the sources of these beliefs.

Finally, the study also found that due to the prevailing economic situation in Zimbabwe where formal employment has become difficult to come by, a significant proportion of men are now

surviving on informal economic activities or are self-employed. This poses a challenge to the promotion of VMMC in that men would be forced to make a choice between getting circumcised and fending for their families. Among these men, getting a circumcision is likely to cost them financially in lost business. Therefore, getting a circumcision for HIV prevention is not a priority. It is therefore recommended that promotions of VMMC services should target younger men who are not yet married and have no responsibilities to support their families.

In conclusion, the promotion of VMMC for HIV prevention has had a significant impact judged by how circumcision has been adopted in daily discourse. However, there are still a lot of misconceptions surrounding circumcision that need to be addressed given that men do not traditionally circumcise in Zimbabwe. In the meantime, the government and stakeholders need to work with realistic targets while they address the information gaps observed in this study.

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APPENDICES

APPENDIX 1: INFORMED CONSENT FORM

(To be read out by researcher before the beginning of the interview. One copy of the form to be left with the respondent; one copy to be signed by the respondent and kept by the researcher.)

My name is Antony Chikutsa (student number 211530220). I am doing research on a project entitled 'Male circumcision for HIV reduction in Zimbabwe: Implications for men and women' for my doctoral studies. This project is supervised by Professor Pranitha Maharaj at the School of Built Environment and Development Studies, University of KwaZulu-Natal. I am managing the project and should you have any questions my contact details are:
School of Development Studies, University of KwaZulu-Natal, Durban OR Zimbabwe Open University- Harare, Zimbabwe. Cell: +263 773 268 983 Tel: +263 4 770744. Email: antony.chikutsa@gmail.com or chikutsaa@zou.ac.zw.

Thank you for agreeing to take part in the project. Before we start I would like to emphasize that:
-your participation is entirely voluntary;
-you are free to refuse to answer any question;
-you are free to withdraw at any time.

The interview will be kept strictly confidential and will be available only to members of the research team. Excerpts from the interview may be made part of the final research report. Do you give your consent for: *(please tick one of the options below)*

Your name, position and organisation, or	
Your position and organisation, or	
Your organisation or type of organisation *(please specify),* or	
None of the above	

to be used in the report?
Please sign this form to show that I have read the contents to you.

---------- (signed) ---------- (date)

---------- (print name)

Write your address below if you wish to receive a copy of the research report.

APPENDIX 2: INFORMED CONSENT FORM (SHONA VERSION)

(To be read out by researcher before the beginning of the interview. One copy of the form to be left with the respondent; one copy to be signed by the respondent and kept by the researcher.)

Zita rangu ndinonzi Antony Chikutsa (student number 211530220). Ndiri kuita tsvakiridzo ine chekuita nezvekuchecheudzwa kwevarume senzira yekudzivirira kutapukira kwechirwere cheHIV ine musoro unoti 'Male circumcision for HIV reduction in Zimbabwe: Implications for men and women' sechikamu chezvidzidzo zvangu. Mutsvakiridzo iyi ndiri kubatsirwa namuzvinafundo Pranitha Maharaj weSchool of Built Environment and Development Studies, paUniversity yeKwaZulu-Natal. Kana paine zvimwe zvamungazode kubvunza nezvetsvakurudzo iyi munokwanisa kundiwana patsvimbo dzakanyorwa kana kufona panumber dzinotevera:
School of Development Studies, University of KwaZulu-Natal, Durban OR Zimbabwe Open University- Harare, Zimbabwe. Cell: +263 773 268 983 Tel: +263 4 770744. Email: antony.chikutsa@gmail.com or chikutsaa@zou.ac.zw.

Ndatenda nekubvuma kwamaita kubatsira asi tisati tatanga ndinoda kuti muzive kuti:
-hamumanikidzwe kubatsira mutsvakiridzo iyi;
-mune kodzero yekuramba kupindura mibvunzo yamunenge musina kusununguka nayo;
-mune kodzero yekuramba kubatsira mutsvakiridzo iyi chero nguva yamunenge manzwa kuti hamuchakwanisa.
Hurukuro yatichaita ichachengetedzwa muchivande uye hakuna mumwe munhu achaziva zvamunenge manditaurira kunze kweavo vandiri kushanda navo.Mamwe mashoko ezvamuchataura achabuditswa akadaro mureport yandichanyora. Munobvuma here kuti zvinotevera zvigonyorwa mureport yandareva :*(maka zvinotevera)*

Zita renyu, chinzvimbo nekambani, kana kuti	
chinzvimbo nekambani, kana kuti	
Zita kana mhando yekambani yenyu *(jekesai),* kana kuti	
Hapana chamunoda kuti chibude	

Ndinokumbirawo musaine pasi apa sechiratidzo chekuti ndakuverengerai zviri mugwaro rino.

---------- (signed) ---------- (date)

---------- (print name)

Nyorai address yepamunogara kana muchida kuzopihwa report iyi:

APPENDIX 3: FOCUS GROUP DISCUSSION GUIDE FOR WOMEN AND MEN

1. **What do you understand by "male circumcision"?**
   Probe: *[What are the definitions of male circumcision?]*
   Probe: *[What are the types of male circumcision?]*
2. **What is the practice in this area around Male Circumcision*?*** *[By male circumcision I mean surgical removal of the entire foreskin of the penis (the skin that can be rolled forward or back over the head of the penis)]*.
   Probe: *[What are the reasons behind any traditions – why is it done or not done?]*
   Probe: *[Who does most circumcisions in this community?]*
   Probe: *[Where are most circumcision done in this community?]*
3. **What meanings are attached to getting a circumcision?**
   Probe: *[What could be the history behind these meanings?]*
4. **What do people in the community say when they talk about circumcision?**
   Probe: *[What impact does that have on those who are or are not circumcised?]*
5. **Who makes the decision about whether a male is to be circumcised?**
   Probe*: [Has that changed in recent times?]*
6. **What do you think are the advantages and disadvantages of male circumcision?**
   Probe: *[What are possible benefits/advantages related to health, culture, religion, etc.?]*
7. **What do you think are the disadvantages of male circumcision?**
   Probe*: [What are possible disadvantages related to health, culture, religion, etc.?]*
8. **What do you know about the relationship between HIV and Male Circumcision?**
   Probe*:* [*What is the protective effect in percentage of male circumcision against HIV infection*]
9. **Do you believe that MMC works for HIV prevention?**
   Probe*:* [*What are the mechanisms through which MMC prevents HIV?*]
10. **What might encourage men/parents to get male circumcision for their sons or themselves?**
    Probe*:* [*If you wanted to tell your son about MMC what would you say?*]

11. **What might discourage parents from getting male circumcision for their sons or themselves?**
12. **Would people prefer to have their sons circumcised?**

Probe: at what age? *[As infants (less than 1 year old); as under fives (between 1-5 years old), as young children (between 6-10 years old; as adolescents (between11-17 years old) or as adults (between 18 years old and above)? Why?]*

13. **If a man is circumcised, he has a much reduced risk of being infected with HIV. What are your views about this?**
14. **Do you think circumcised men would seriously consider using condoms for HIV prevention?**
15. **What are your views on the claim that circumcision will lead men to have more sexual partners?**
16. **What do you think should be the role of women in the promotion of MMC for HIV prevention?**

    Probe: *[what social, economic, political or cultural-religious factors can facilitate or hinder the performance of these roles?]*
17. **Do you think conditions at designated places for MMC encourage people to seek the procedure? By conditions I mean things such as distance to the place, the costs of getting there, the staff who circumcise, and the treatment you receive from staff.**
18. **Looking at what most men do to earn a living in this area, do you think they will have time to go and get circumcised?**

    Probe: *[What could prevent them?]*
19. **Do you think promoting MMC for HIV reduction is a good idea?**

    Probe: *[If so why? If not, why not?]*

Conclusion

Thank you very much for your time and contributions. It has been a very interesting and useful discussion. Please remember that everything discussed here will be held in strict confidence and that nothing will be linked back to you. This information will be very helpful. Do you have any other comments or questions for me regarding male circumcision?

Thank you once again and goodbye.

APPENDIX 4: MINISTRY OF HEALTH AND CHILD CARE INTERVIEW GUIDE

1. The Ministry of Health and Child Welfare (MOHCW) adopted medical male circumcision as part of a comprehensive package to prevent the spread of HIV in 2009, what compelled the ministry to adopt this procedure?
2. Is there a policy which guides the roll-out of MMC? IF YES, what does it say in summary?
3. What do you think are some of the gaps in the existing policy?
4. Who are your partners in this campaign and what are their specific roles?
5. I understand the procedure is currently being offered for free, who is funding the roll-out of MMC for HIV reduction?
6. From a financial point of view, do you think that the current roll-out campaign is sustainable?
7. To date, how many men have come for voluntary MMC (IF POSSIBLE PROVIDE YEAR-ON-YEAR STATISTICS)?
8. In your opinion, do you think men's response to the roll-out campaign has been to your expectation judging by the set targets and the current number of those circumcised?
9. What factors may account for the observed behaviour?
10. Since the inception of the campaign, what challenges have you faced and how have you set to overcome some of them?
11. What do you think is the role of women in the MMC for HIV reduction campaign?
12. As a Ministry, how have you involved women?
13. There are ethical debates about promoting neonatal MMC in many western countries, is there a specific age that you recommend for MMC as a Ministry?
14. There are fears that promoting MMC may unwittingly promote promiscuity, what do you think about that?
15. One can argue that MMC campaigns have overshadowed the promotion of other HIV prevention strategies and Family Planning in general, what is your response to this assertion?

THANK YOU VERY MUCH FOR YOUR COOPERATION

APPENDIX 5: VMMC PARTNERS INTERVIEW GUIDE

1. The Ministry of Health and Child Welfare (MOHCW) adopted medical male circumcision as part of a comprehensive package to prevent the spread of HIV in 2009, what was your role in adopting MMC for HIV reduction?
2. Is there a policy which guides the roll-out of MMC? IF YES, what does it say in summary?
3. What do you think are some of the gaps in the existing policy?
4. As a partner organisation in the roll-out of MMC for HIV reduction, what is/are your specific role(s)?
5. I understand the procedure is currently being offered for free, do you think this is financially sustainable?
6. In your opinion, do you think men's response to the roll-out campaign has been to your expectation judging by the set targets and the current number of those circumcised?
7. What factors may account for the observed behaviour?
8. Since the inception of the campaign, what challenges have you faced and how have you set to overcome some of them?
9. What do you think is the role of women in the MMC for HIV reduction campaign?
10. How have you involved women in the roll-out campaign?
11. There are fears that promoting MMC may unwittingly promote promiscuity, what do you think about that?
12. One can argue that MMC campaigns have overshadowed the promotion of other HIV prevention strategies and Family Planning in general, what is your response to this assertion?

THANK YOU VERY MUCH FOR YOUR COOPERATION

APPENDIX 6: INDIVIDUAL QUESTIONNAIRE

Male circumcision as an HIV reduction strategy: Implications for men and women in Zimbabwe

SECTION 1: RESPONDENT'S BACKGROUND

NO.	QUESTIONS AND FILTERS	RESPONSE CATEGORIES	SKIP
101	How old were you at your last birthday?	Age [ ][ ]	
102	Sex	Male……. 1 Female…… 2	
103	What is your current marital status?	Never married…. 1 Living together…. 2 Married…… 3 Divorced……. 4 Widowed……. 5	→Q105
104	How long were/have you been married/living together?	YEARS [ ][ ]	
105	Have you ever been to school?	Yes…… 1 No…… 2	→Q107
106	What is the highest level and grade you completed? LEVEL: 1=Primary 2=Secondary 3=Tertiary GRADE: NUMBER OF YEARS SPENT	Level [ ] Grade [ ]	
107	What is your religion?	Catholic……. 1 Protestant……. 2 Apostolic……. 3 Pentecostal…….. 4 Traditionalist…… 5 Islam…….. 6 Atheist…….. 7 Other…… 8	
108	What do you do for a living?	Employed…… 1 Self-employed… 2 Unemployed…… 3 Dependant…….. 4	Q201
109	What is your occupation?	_____	
110	On average, how much do you earn per week/per month?	$_____	

SECTION 2: KNOWLEDGE ABOUT HIV AND HIGH RISK SEXUAL BEHAVIOUR

NO.	QUESTIONS AND FILTERS	RESPONSE CATEGORIES	SKIP
201	*Now I would like us to talk about HIV/AIDS.* Have you ever heard about HIV/AIDS?	Yes……. 1 No…… 2	→ Q206
202	How is HIV transmitted?	Mother-to-child..... 1 Sharing blades/injections... 2 Unprotected intercourse.... 3 Sharing food/utensils..... 4 Mosquito bites..... 5 Witchcraft/Supernatural..... 6	
203	What can a person do to reduce chances of getting HIV? IF "OTHER", PROBE AND SPECIFY IN SPACE BELOW _____ _____ _____ _____	Abstain from sex..... 1 Stay faithful..... 2 Limit number of partners... 3 Avoid sex with CSW..... 4 Avoid sex with people who have many sexual partners..... 5 Avoid sex with homosexuals...6 Avoid sex with people who inject drugs..... 7 Avoid blood transfusion..... 8 Avoid injections..... 9 Avoid sharing blades.....10 Avoid kissing.....11 Avoid mosquito bites..... 12 OTHER..... 13	
204	Do you think your risk of getting infected with HIV is low, medium or high, or do you have no risk at all?	No risk……. 1 Low…… 2 Medium……. 3 High……. 4	Q206
205	Why do you think you do not have a risk of getting HIV/your risk of getting HIV is low?	I am faithful…….. 1 I abstain…… 2 I use condoms…. 3 I pray……. 4 I have traditional protection….. 5 I'm circumcised.. 6 Other……. 7	
206	Now I would like to ask you some questions about your sexual activity. How old were you when you had sexual intercourse for the first time?	Never had sex..... 00 ☐☐ Years	→ Q212
207	Did you use a condom the first time you had intercourse?	Yes……. 1 No…… 2	
208	Are you currently sexually active?	Yes……. 1 No…… 2	

209	Did you use a condom the last time you had sexual intercourse?	Yes……. 1 No…… 2	
210	Were you or your partner drunk when you last had intercourse?	Yes……. 1 No…… 2	
211	In total, how many different people have you had sexual intercourse with in (a) the last 12 months? (b) in your life time?	 ☐☐ ☐☐	
212	Have you ever been tested for HIV?	Yes……. 1 No…… 2	
213	What methods of HIV prevention are available to you?	_____	
214	Do you know your current HIV status?	Yes……. 1 No…… 2	

SECTION 3: ACCESS TO INFORMATION ON HIV AND MALE CIRCUMCISION

NO.	QUESTIONS AND FILTERS	RESPONSE CATEGORIES	SKIP
301	In the last few months, have you ever come across any information about male circumcision from any of the following? READ ALL LISTED SOURCES AND TICK APPROPRIATELY	Radio Television Newspaper/Magazine Pamphlet Billboard NGO Hospital/Clinic Church OTHER	
302	Have you ever heard about male circumcision for HIV prevention?	Yes……. 1 No…… 2	→ Q305
303	From where did you hear about male circumcision for HIV prevention?	_____ _____ _____	
304	What did you hear about male circumcision for HIV prevention?	_____ _____ _____	
305	Do you believe that MC works for the prevention of HIV?	Yes……. 1 No…… 2 Don't know…. 3	Q307
306	IF "YES" on Q305, do you know how MC reduces the chance of getting infected with EPLAIN_____	Yes……. 1 No…… 2 Don't know…. 3	
307	Do you think there are advantages of male circumcision for HIV prevention?	Yes……. 1 No…… 2 Don't know…. 3	
308	What do you think are the advantages of male circumcision?	_____ _____ _____	
309	What do you think are the disadvantages of male circumcision?		

310	Do you think male circumcision should be promoted for HIV prevention? EXPLAIN	Yes……. 1 No…… 2	
311	Do you think men would accept male circumcision for HIV prevention? EXPLAIN	Yes……. 1 No…… 2	
312	Would you accept male circumcision for HIV prevention? EXPLAIN	Yes……. 1 No…… 2 Don't know…. 3	
313	Have you ever fathered/given birth to a son(s) who is/are still alive?	Yes……. 1 No…… 2	→ Q315
314	Would you want your son(s) to be circumcised for HIV prevention? EXPLAIN	Yes……. 1 No…… 2 Don't know…. 3	
315	Do you think fathers have a role to play in the promotion of MC for HIV prevention? EXPLAIN	Yes……. 1 No…… 2	
316	Do you think mothers have a role to play in the promotion of MC for HIV prevention? EXPLAIN	Yes……. 1 No…… 2	
317	What do you think is the best age to get circumcised?		
318	CHECK Q102 IF MALE ASK: Are you circumcised? IF FEMALE ASK: Is your partner circumcised?	Yes……. 1 No…… 2 Don't know…. 3	} Q323
319	**CHECK: QUESTIONS 319-Q322 ARE FOR MALES ONLY** Why were you circumcised?	Religion…… 1 Culture…….. 2 Medical…… 3 HIV Prev……. 4 Other…… 5 Don't know…. 6	**FOR MEN**
320	At what age were you circumcised?	[ ][ ]	**FOR MEN**
321	Where were you circumcised?	Home…… 1 Church/Mosque… 2 Clinic/Hospital…. 3 Initiation school.. 4 Other…….. 5	**FOR MEN**
322	Who circumcised you?	Family elder…… 1 Church elder/Mohel.. 2 Village elder……. 3 Initiation instructor…. 4 Other…… 5	**FOR MEN**

323	Are you aware that: (a) A circumcised man still has to use condoms for HIV prevention? (b) Male circumcision does not provide 100% protection against HIV? (c) Men need to abstain from sex for 6 weeks after circumcision to allow full healing?	Yes / No 1 / 2 1 / 2 1 / 2	
324	What questions would you like answered about male circumcision for HIV prevention?		
325	Supposing you want yourself/son to get circumcised, do you know of a place where circumcisions are done?	Yes……. 1 No…… 2	→ Q329
326	How far away is that place?	Less than a km……. 1 Within 5 km…… 2 Btwn 5 and 10km…. 3 More than 10km…… 4	
327	Approximately how much time would you need to prepare, travel there, and get a circumcision done (on you /your son) and back?	About an hour…… 1 Less than 5 hours…. 2 Btwn 5 and 8 hours… 3 More than 8 hours 4	
328	Approximately how much money would you require (a) For transportation (b) For food and contingency (c) For the circumcision		
329	**CHECK: QUESTIONS 329-Q332 ARE FOR MALES ONLY** Would you be willing to take 6 weeks off from work to get circumcised for HIV prevention?	Yes……. 1 No…… 2	**FOR MEN**
330	Do you think your employer/work would allow you to take 6 weeks off to get circumcised and allow the wound to heal?	Yes……. 1 No…… 2	**FOR MEN**
331	Would you be willing to have a female health professional perform the circumcision?	Yes……. 1 No…… 2	**FOR MEN**
332	After circumcision, would you be willing to use a condom during intercourse if your partner asked you to?	Yes……. 1 No…… 2	**FOR MEN**
333	Would you be willing to abstain from sexual intercourse for 6 weeks after circumcision to allow the wound to heal?	Yes……. 1 No…… 2	
334	Would you be willing to take some time away from work to accompany your son to get circumcised for HIV prevention?	Yes……. 1 No…… 2	
335	Do you think women are able to ask a circumcised man to use a condom during sexual intercourse?	Yes……. 1 No…… 2	

SECTION 4: ATTITUDES AND PERCEPTIONS ABOUT RISKS AND BENEFITS OF MALE CIRCUMCISION

NO.	PERCEPTION/ATTITUDE	STRONGLY AGREE	AGREE	DON'T KNOW	DISAGREE	STRONGLY DISAGREE
401	Male circumcision is very painful					
402	Circumcised males are stigmatised in the community					
403	Male circumcision may lower sexual drive					
404	Male circumcision may increase sexual pleasure					
405	Male circumcision improves genital cleanliness					
406	Male circumcision may reduce the risk of getting an STI					
407	Male circumcision may reduce the risk of getting HIV					
408	Abstaining sex for six weeks after circumcision is unrealistic					
409	Male circumcision may lower risk perception thus promote promiscuity					
410	Woman should be involved in the decision about men getting circumcised for HIV prevention					
411	Women should not talk about male circumcision for HIV prevention					
412	Circumcised men should not be expected or forced to use condoms					
413	A circumcised penis is more appealing than an uncircumcised one					
414	Information on male circumcision for HIV prevention is difficult to understand					
415	Service providers are generally rude and unwelcoming					
416	The benefits of MC are not worth the time and effort you put when trying to get circumcised					
417	Generally, employers would not allow their employees to take time away from work for circumcision					
418	The procedures involved to get a circumcision at the designated hospitals are time consuming					
419	I would rather pay for a circumcision and be guaranteed of quality service than get a poor service for free					
420	The government should concentrate on existing methods of HIV prevention than promote male circumcision					

THANK YOU VERY MUCH FOR PARTICIPATING