UNIVERSITY RWANDA

College of Medicine and Health Sciences

Assessment of Factors associated with Low uptake of Voluntary Medical Male Circomcision for HIV Prevention among adult married men in Kibogora District Hospital catchment area

A research project report submitted to the University of Rwanda ,School of Public Health in partial fulfillment for the requirements for the award of the degree of Master of Science in Field Epidemiology and Laboratory Management Program**(FELTP)**

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Declaration

I,Esperance NIRAGIRE,do hereby declare that this is a final report of my own and orginal work of a research project on the topic titled " **Assessment of Factors associated with Low uptake of Voluntary Medical Male Circomcision for HIV Prevention among adult married men in Kibogora District Hospital catchment area, *a Cross Sectional Study***" ,and that it has been realized by myself under the supervion of Mr. Associate Professor Manassé NZAYIRAMBAHO and Dr Angèle MUSABYIMANA,MD,MPH as co-supervisor.

This research report is my original work and has not been presented for a degree or any award in any other University.

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This research report has been submitted for examination with my approval as the University Supervisor.

Signature _____ Date _____

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This research report has been submitted for examination with my approval as the FELTP Director.

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DEDICATION

This study is dedicated firstly to Jehovah my God from whom my overall success comes from; to all my lovely family members, my mother,brothers and sisters from whom the moral support has been sufficient; to all my friends , my classmates, my workmates and my lovely children with the hope that this will encourage them to go higher in their studies.

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List of acronyms and Abbreviations

AIDS: Acquired Immunodeficiency Syndrome

AOR: Adjusted odd ratio

BCC: Behaviours Change Communication

CI: Confidence Interval

CHWS: Community health workers

DH: District Hospital

FGDs: Focus Group Discussions

GOR: Government of Rwanda

HC: Health center

HFs: Health Facilities

HIV: Human Immunodeficiency Virus

HMIS: Health Management Information system

IDHS: Intermediate Demographic Health Survey

INSR: Institut National de Statistique du Rwanda

MC: Male Circumcision

MINISANTE: Ministry of Health of the Republic of Rwanda

NA: Not applicable

NISR: National Institute of Statistics of Rwanda

OR: Odds Ratio

RAIHIS: Rwanda Aids Indicator and HIV Incidence Survey

RBC: Rwanda Biomedical Center

RDHS: Rwandan Demographic Health Survey

RGPH: General Census of Population and Habitat

STI: Sexually Transmitted Infections

UNAIDS: United Nations Joint Program on HIV/AIDS

VCT: Voluntary Counseling and Testing

VMMC: Voluntary Medical male Circumcision

WHO: World Health Organization

Abstract

Factors associated with Low uptake of Voluntary Medical Male Circoncision for HIV Prevention Among adult married men in Kibogora District Hospital cachment area, A Cross Sectional Study, 2019

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Background: While prevalence of voluntary medical male circoncision (VMMC) in Rwanda is 30% at national level, its uptake level is still unknown in Kibogora DH area and a noted low demand among married men. This study aimed to determine the uptake level of VMMC in this rural area, and assessed possible reasons behind its low demand among older married men in various contexts for evidence based decision making of its improvement.

Methods: A health facilities-based cross sectional study with qualitative and quantitative components targeting adult married men aged from 20-59 years old was conducted in 7 health centers of Kibogora DH, in Nyamasheke district, western province of country from March to July 2019. The sample was done of 483 participants including 446 married men presented at antenatal care service at HFs, 16 healthcare providers and 21 community health workers. In deph interviewed using structured open ended questionnaire; and seven Focus Group discussions were conducted. The univariate, bivariate and multivariate full and reduced logistic regression analysis were performed for quantitative data using stata MP13. The Chi square, the Pearson's R test and Wald chi-square test-based p-values equal to or less than 0.05 , Wald test and associated p-value (chi-square = 9.4 , $p<0.05$), the Lilelihood Ratio Chi Square test (LR Chi2 = 10.46, p-value <0.05) and McFadden's Pseudo R-Square were used for testing for significance and colinearity.The odds ratio (OR) was computed and results set at 95% Confidence Interval and the P value <0.05.The thematic analysis around main thematic area comprising barriers ,cultures and possible solutions for qualitative data and presented using text, with some quotations noted in order to reproduce keys messages obtained during FGDs. Results were presents into tables, figures and texts.

Results: The study found that only 43,5% of adult married men aged 20-59 years old have undergone VMMC, and found it a bit high at Nyamasheke (10.54%) and lowest at Ruheru HC (2.47%).The profession [OR=299;PV=0.000], having information on VMMC[OR=2.53;PV=0.043],having the information on Protection against HIV by VMMC[OR=2.27;PV=0.022] and distance from to achieve VMMC services[OR=1.78;PV=0.040] were found statistically associated low uptake of VMMC in Kibogora DH in logistic regression model analysis.Thematic analysis underlined the misconceptions, inadéquate community sensitization and the limited quality of VMMC service delivery at health facility level. The Cultural beliefs and practices, personal and societal beliefs and perceptions including family conflicts were noted, as well as the breach of Culture, and misconceptions. The financial accessibility and limited involvement of religious and local authorities were also outlined by this study.

Conclusion: A signifiant proportion of adult married men have not opted for circumcision in the area of Kibogora DH. Most of identified factors and barriers for its low uptake may be handled through conjugated efforts of community, Health staff, local and religious authorities at all levels. There is a need to improve VMMC services delivery, outreaches and campaigns, by offering VMMC services for free, trainings and reflesher's activities also to be reinforced for health staff and community health workers. This should contribute in increasing of VMMC among married men in Kibogora DH cachment area.

Key words: VMMC uptake, adult men, MC, VMMC, Kibogora DH.

CHAP I: INTODUCTION

1.1. Background to the study

The voluntary medical male circumcision (VMMC) is the surgical removal of the skin the tip of the penis. It is a biomedical intervention with proven efficacy in reducing HIV transmission **(1,2)**. It is one of the oldest and most common surgical procedures worldwide, and is undertaken for many reasons: religious, cultural, social and medical. There is strong evidence showing that male circumcision (MC) reduces HIV infection and other sexually transmitted infections (STIs) **(3**). For this reason,MC is a controversal intervation in some settings, and it has showed that it may reduce HIV prevalence.

Sciences has provided good evidence through,especially in settings where MC is low,and HIV prevalence is high(**Poul Rohleder et al.,**).

Recent studies have shown that VMMC reduces males' risk of HIV infection from vaginal intercourse by at least 60 percent. A randomized controled trial study done on Male circumcision for HIV prevention in young men in Kisumu,in Kenya showed that Male circumcision significantly reduces the risk of HIV acquisition in young men in Africa where appropriate, voluntary, safe, and affordable circumcision services should be integrated with other HIV preventive interventions and provided as expeditiously as possible (**Prof Robert C Bailey et al,.2006)**.Thus,it has prompted the World Health Organization (WHO) and UNAIDS to call for scale-up of circumcision in high HIV prevalence countries in Eastern and Southern Africa(4,5). Consequently, WHO recommends male circumcision as an HIV prevention method.

VMMC involves a single surgical intervention and offers men substantial lifelong partial protection against the acquisition of HIV and a number of other sexually transmitted diseases. VMMC also offers direct protection against cervical cancer to women.

In 2007, the World Health Organization (WHO) estimated that globally, the vast majority of men who are circumcised are Muslims. They estimated 33% of adult males worldwide (aged 15+) are circumcised, with almost 70% of those being Muslims.(6)

Actually, the World Health Organization estimated that ***25% to 33%*** of males have been circumcised wordwide , 2/3 of whom are Muslim by various sources.The VMMc 's rate vary widely by country, from 1% in Japan, to 2% in Spain and Sweden, to 58% in the United States, to more than 80% in Muslim-majority countries.

According the World Health Organization reports in its annual progress brief report 2018, nearly 18.6 million men and boys were circumcised from 2008 to 2017, by HIV prevention programmes implementing voluntary medical male circumcision (VMMC) as part of a combination prevention package in 14 priority countries in eastern and southern Africa. Those voluntary medical male circumcisions (VMMCs) had already averted an estimated 230,000 new HIV infections by 2017 and were projected to prevent more than 1 million HIV infections by 2030—an estimate that does not include the additional HIV infections that will be averted by VMMCs performed after 2017. The number of men and boys receiving VMMC services increased in all but two of the priority countries, and four countries surpassed or nearly achieved their goals for VMMC set in 2011(4) , and it is estimated that the 14.54 million male circumcisions performed by the end of 2016 will avert more than half a million HIV infections by 2030(4,7) .

Considering the WHO and UNAIDS recommendation on VMMC for HIV prevention, these programmes have demonstrated that this one-time efficacious intervention is feasible to scale up and is reaching men with VMMC and other HIV prevention services.

Recent study showed that the estimated percentage of circumcised males in each country and territory varies considerably. Using figures for total males from 2015 US Central Intelligence Agency (CIA) data for sex ratio and total population in all 237 countries and territories globally and 2015 United Nations (UN) figures for males aged 15–64 years, global MC prevalence was 38.7 % in 2016(8)

In Africa, studies indicate that about 62% of African males are circumcised. However, the rate varies widely between different regions, and among ethnic and religious groups, with Muslim(**Williams, B.G. *et al.)***

In Rwanda, where adult HIV prevalence is 3%, MC is not a traditional practice and the Rwanda National AIDS Commission modelled cost and effects of MC at different ages to inform policy and programmatic decisions in relation to introducing VMMC .

Since 2009, the Ministry of Health of Rwanda included male circumcision in the National Strategic Plans against HIV and AIDS. According RDHS 2014-2015 results, 30 percent of men age 15-49 have been circumcised in Rwanda. However, the largest proportion of circumcised men said that the procedure took place when they were age 20 or older (9)**,**and 86 % of circumcised men were circumcised by a health professional and eight percent of circumcisions were performed by a traditional practitioner or family friend**.**Therefore, there are large geographic differentials, with the practice occurring more frequently in urban areas than in rural areas **(9–12)**.

The world has an unprecedented opportunity in the next 15 years to prevent an estimated 3 and 1/2 million new HIV infections in Southern and Eastern African countries with high HIV prevalence and low male circumcision prevalence.Even if USAID report showed that HIV prevalence has been stable since 2005 and remains at 3 percent among adults age 15-49 (4 percent among women and 2 percent among men(9);specifically for VMMC,UNAID target to reach 25 million men with medical male circumuncision in high incidence countries by 2020 ,and through the"Globally,2020 Fast-Track commitments and expanded targets to end AIDS strategies" wich are put in place in order of HIV prevention and to ensure the reduction of the number of people dying from AIDS-related,and ensuring the elimination of HIV-related stigma and discrimination by 2020(13)as it sis described in it's the third commitiment which stipulate to ensure access to combination prevention options, including pre-exposure prophylaxis, voluntary medical male circumcision, harm reduction and condoms, to at least 90% of people by 2020, especially young women and adolescent girls in high-prevalence countries and key populations—gay men and other men who have sex with men, transgender people, sex workers and their clients, people who inject drugs and prisoners (13)**.**

Scale-up of voluntary medical male circumcision (VMMC) is critically important to reduce the future burden of HIV in eastern and southern Africa.While access to HIV treatment has increased significantly in this region over the past 5 years, the number of new infections continues to outpace the expansion of treatment (14)

Secondly, to effectively reducing the risk of heterosexual transmission of HIV from females to males, VMMC has also been shown to reduce the risk of other sexually transmitted infections (STIs) that affect either or both sexes, cause significant morbidity, and enhance the risk of acquiring HIV;and it gave shown that the impact of VMMC on reducing HIV transmission rates is directly proportionate to the pace of implementation scale-up(15–18)**.**

Therefore, the problem of low demand among older men is persistent across programs. In many communities, older men (i.e., over 25 years of age) have not come forward for Voluntary Medical Male Circumcision (VMMC) services. Reasons for low demand among this group of men are not well understood, and may vary across geographic and cultural contexts. Initial VMMC roll-out attracted mostly boys and men under 25, yet men between 25 and 50 have higher rates of HIV infection ;and thus need the protection of circumcision as much as the younger generation. Increasing demand among these older clients is a priority in many settings(19,20),and it is very necessary to improve the quality and effectiveness of high-impact, evidence-based, HIV interventions, such as voluntary medical male circumcision (VMMC), to meet country-specific goals and objectives globally. In order to

achieve this goal ,effort must dramatically be increased for VMMC uptake among males 15 to 49 years old, especially among males who are married or who are older than 25 years.

The reports showed that Reaching HIV-negative adult men and those males at higher risk of HIV and STI infection with combination prevention and testing remains a challenge. Countries, with technical and donor support, are identifying approaches to enhance uptake among these groups**(7)**. Pelpex , Non-surgical circumcision involving a plastic device called PrePex comprising two rings and an elastic band that cuts off blood supply to the foreskin, which shrivels and is removed with the band after a week is one the best approaches used in Rwanda since March 2012 .In November 2013, Rwanda became the first country in the world to launch a national drive to "non-surgically" circumcise 700,000 men in a bid to cut rates of HIV infection. Around 210,000 people are living with HIV in this East African country(**Col Dr Bitega,Rwanda Military Hospital,21 november 2017**). It have moved from 15% in 2010 up to 30% in 2015 of male circumcised and the national target of Mc is 66% by 2018 as the demand has increased.

1.2. Problem statment

While the prevalence of voluntary medical male circumcision (VMMC) in Rwanda is 30% at national level, it is still unknown in Kibogora DH area. Since 2014 up 2017, VMMC campaigns activities were organized in Kibogora DH cachment area each year in order of HIV prevention. Even if such as strategies to achieve scale up of VMMC have been envisaged, the problem of low demand among older men over 20 years is persistent across programs.

A regular monitoring of core Health indicators including VMMC indicators in Prevention of HIV/SIDA in Kibogora DH cachment area showed that amomg 11064 men circumcised between 2014-2017, 6752 among them(61.0%) were of aged from 10-19 years older; then 24682(22,4%) were aged of 20-24 years old; while 1487 representing13,4% are aged of 25-59 year old and 31 men representing 0.3% are aver 60 years old.

Similarly between 2014-2017; a total number of 879 new cases of HIV infection has been registered in area of Kibogora DH. Among them 611(59.51%) were over 20 years old ,especially including 296 men over 24 years new HIV infected according Kibogora DH HMIS data 2014-2017.

Thus, the HIV new infection is higher in adults over 20 years old more than others, and the number of adult men of who get VMMC in order to prevent HIV transmission decreases

steadily with age-category over 20 years old according to Kibogora DH health management information system(HMIS) data 2014-2017.

Thereafter, there is until now no study cconducted in Kibogora DH area to explore factors behind a low uptake of VMMC among adult married men over 20 years old(20-59 years old) in Kibogora DH area as well as this categories is sexually active. Thus ,it is understood that there is a much need for HIV new infection protection through voluntary medical male circumcision uptake as well in younger generation as to increasing its demand among older clients is a priority in many settings.

This study established some of the reasons for the VMMC low uptake among married men in this area.The results of this study are useful and will help to decision makers and Kibogora DH authority to orient effective interventions in order to reduce HIV new infection trough increasing the uptake of VMMC among adult married men from 20-59 years old in Kibogora DH area.

1.3. Rationale/justification of the project

Male circumcision (MC) is an effective strategy to prevent HIV infection in heterosexual men. To our knowledge, there are no studies of the acceptability of this procedure among adult married men in the Kibogora DH area.This study was envisaged that the information which obtained , are be useful and will help to decision makers and Kibogora DH authority to orient effective interventions in order to reduce HIV new infection trough increasing the uptake of VMMC among adult married men from 20-59 years old in Kibogora DH area.

1.4 Objectives of the study

1.4.1. General objective:

To contribute in HIV/SIDA incidence reduction by documenting VMMC uptake among adult married men aged of 20-59 years old in Kibogora DH area.

1.4.2. Specific Objectives

- To describe socio-demographic characteristics of men using VMMC services in Kibogora DH area.
- To determine the uptake level of VMMC in Kibogora District Hospital area.
- To determine factors associated with VMMC low uptake among adult married men aged of 20-59 years old in Kibogora DH area.

– To assess possible barriers in relation to VMMC low uptake among adult married men aged of 20-59 years old in Kibogora DH Cachment area.

1.5 Research questions

Considering our study objectives, following research questions are asked:

- What are the socio-demographic characteristics of men using VMMC services in Kibogora DH area?
- What is the uptake level of VMMC in Kibogora DH area?
- What are the factors associated with VMMC low uptake among married men in in Kibogora DH catchment area?
- What are posible barriers in relation to VMMC uptake?

1.6 Significance of the study

This study established the reasons for the trend of low uptake among adult men of 20 years and above. This study is therefore significant as it revealed some important gaps that will be helpful to the relevant bodies, both governmental and NGOs in their effort to implement and to scale up this program. Consequently the Kibogora DH area community which will benefit the program, will help reduce the rate of new HIV infection through the increasing of VMMC practice among adultes men who are sexually active. Findings will also help to the Ministry of Health and its partenrs in developping a VMMC awareness programme; and results of the study provided baseline information that will assist health planners to design effective strategies directed towards dealing with factors that are lowering uptake of VMMC among adults married men in this rural area.

CHAPTER TWO: LITERATURE REVIEW

2.1. Key definition of terms:

For the purposes of the study the following definitions will be used:

- **Voluntary Medical Male Circumcision (VMMC)**:refers to the surgical removal of all or part of the foreskin from the penis circumcision done by a medical clinician, based on men volunteering.
- **Male Circumcision** (MC) refers to the removal of the foreskin of the penis at a medical facility (Wambura et al., 2011).
- **Medical Male Circumcision (VMMC) and Medical Male Circumcision** (MMC/MC): the two abbreviations will be used interchangeably; VMMC refers to the fact that the services to circumcise men are based on men volunteering ,while MC refers to the actual procedure of removing the foreskin using qualified health personnel
- **Old married men**'' to mean elderly, and over 20 years old and married, as the target age of this study.
- **Uptake** : in this study uptake refers to the level to undergo VMMC for HIV prevention(as the same meaning as plevalence,unless the plevalence is said for health issue/disease)
- **Factor(s) associated**: in this study those factos may be motivators or barriers to VMMC practice uptake.
- **A Cross sectional study**: is a type of study which describes a phenomenon at one point in time.

2.2. Overview on Voluntary Medical Male Circumcision (VMMC)

Male circumcision is reported to be one of the most efficient ways of preventing female to male heterosexual HIV transmission among sexually active men(**1**)and has been shown to reduce the risk of heterosexually acquired HIV infection in men. The World Health Organization (WHO) and the Joint United Nations Programme on HIV/AIDS (UNAIDS) recommended male circumcision as a priority intervention in countries and settings with a high incidence of HIV and a low prevalence of male circumcision**(2,3).**

A study conducted on causes of low uptake of Voluntary Medical Male Circumcision (VMMC) as an HIV prevention measure among men aged between 18 and 49 years at Mazowe District in Zimbabwe showed that Male circumcision (MC) status and genital infection risk are interlinked and MC is now part of HIV prevention programs worldwide**(3).**

According results of recent trials studies, Male circumcision reduces the risk of HIV transmission from women to men **(*Krieger JN, May 2011*; *Siegfried N, et al,.2009).***Voluntary medical male circumcision (VMMC) has emerged as one of the most effective means of preventing HIV transmission in countries of Eastern and Southern Africa.

In March 2007, the World Health Organization (WHO) and the Joint United Nations Programme on HIV/AIDS (UNAIDS) recommended male circumcision (MC) as an additional method of HIV prevention, and urged countries with low MC prevalence and generalized HIV epidemics to rapidly scale up voluntary medical male circumcision (VMMC) programs in the context of combination prevention.**(4)**

Three randomized controlled trials studies (RCTs) showed that MC can reduce the heterosexual acquisition of HIV infection in men by approximately 60 %. Following this evidence, the World Health Organization (WHO) recommended MC to be considered as part of comprehensive HIV prevention strategies in countries with high HIV and low MC prevalence. Fourteen countries in sub-Saharan Africa, including Uganda, were identified as priority countries that could benefit from a MC program for HIV prevention **(5)**.

And in 2011, it has been stated that male circumcision is an efficacious intervention for HIV prevention if carried out by medical professionals under safe conditions (6),then UNAIDS prioritized 14 high HIV prevalence countries in eastern and southern Africa, with a goal of circumcising 80% of men (20.8 million) by the end of 2016(7)

Also, WHO developed a Framework for evaluating new, simple circumcision techniques, which gave impetus to the development of two new devices (Perplex and Shang Ring) that are currently being scaled-up in the 14 high HIV prevalence countries**(2,8)**

Acting on this recommendation, several countries set up programs that offered VMMC to males requesting the procedure. These programs included promotion of condoms and safe sexual practices, treatment for sexually transmitted infections, and HIV testing and counseling with linkage to HIV care and treatment for those diagnosed with HIV.

As current statistics, nearly 18.6 million men and boys were circumcised from 2008 to 2017 in the 14 priority countries in eastern and southern Africa (**WHO, annual progress reports July 2018**).Those voluntary medical male circumcisions had already averted an estimated

230,000 new HIV infections by 2017 and were projected to prevent more than 1 million HIV infections by 2030—an estimate that does not include the additional HIV infections that will be averted by VMMCs performed after 2017(**idem**).

A meta-analysis of data from fifteen observational studies of men who have sex with men conducted in 2008 found "insufficient evidence that male circumcision protects against HIV infection or other STIs **(Gregorio A. et al,2008**)

2.3. Methods and Package of VMMC

VMMC is the voluntary removal of the prepuce (foreskin) of the penis. There are three surgical techniques for VMMC: the forceps-guided method, the dorsal slit method, and the sleeve resection method, each of which requires local anesthesia.

The annual number of VMMCs exceeded 4 million in 2017, as men accepted and acted to benefit from a package of male circumcision services that also includes safe sex education, condom provision and promotion, and the offer of HIV testing and counselling.

WHO/UNAIDS Recommendation WHO minimum Package of VMMC Services include:

HIV testing and Counseling(HTC),Referral for HIV care and treatment services for new cases of HIV infections found, sexually transmitted infections(STI) diagnosis and treatment, education and counseling on sexual risk-reduction counseling, including recommendations for abstinence during wound healing, , about the benefits and risks of VMMC, and sexual and reproductive health education including healthy male norms and gender-based violence,Promotion of safer sex practices, male circumcision and related clinical care in order to ensure client safety and high quality services, the following should be considered for each client before, during and following circumcision and follow-up .

This also include VMMC eligibility assessment where all clients seeking circumcision should undergo appropriate screening before they receive circumcision to reduce adverse events and to ensure a good outcome of circumcision. Then, Circumcision methods are provided using age-appropriate, WHO approved VMMC methods and Competency of providers and their assistants. Tetanus risk is mitigated in VMMC programs. Since 2014, issues of tetanus risk among VMMC clients and strategies to mitigate this risk have garnered increased attention. WHO convened experts to provide recommendations to national programs in defining tetanus risk mitigation strategies, including the clean care approach and options for vaccination. Clients must receive written instructions on recommended post-procedure wound care that explicitly address the risk of wound infection and specifically tetanus risk mitigation including the danger of using traditional remedies for wound care. Written informed consent

must be retained for clients or parental/guardian consent for minor clients. Post-procedure follow-up is also done. This includes systematic assessment and management of adverse events. And explanation on condoms use(**9).**

In addition, it is important as part of the WHO minimum package of services to develop strong linkages to HIV care and treatment for clients who test HIV-positive. QA (quality assurance) systems for HTC components should be in place to ensure high-quality HTC services in these settings, including systematic laboratory-based HTC results validation procedures.

2.4. The Public Health Benefit of VMMC for HIV Prevention

VMMC refers to the complete removal of the penile foreskin under aseptic (clinically clean) conditions. It has emerged as one of the most effective interventions for preventing new HIV infections in males. VMMC has been proven to reduce HIV transmission to males exposed to the virus through vaginal intercourse with HIV-infected females. It is also likely to indirectly reduce infection in females by reducing their chances of encountering an HIV-infected male sexual partner. For this reason, VMMC benefits are noted twice: firstly as functional benefits of VMMC and then, the emotional benefits of VMMC.

While most prominent emotional benefits concerns the gaining acceptance from friends, demonstrating that he is masculine, and focusing on pleasing his sexual partner (acceptance among peers; appealing to women, feeling of masculinity), males who choose VMMC show concern for their health and that of others. In addition, females find such males attractive and desirable. Therefore, functional Benefits of VMMC are related to reduced risk of HIV, reduced risk of *human papillomavirus* (HPV) and improved hygiene for men.

Recent studies shows a he protective effect that VMMC has in relation to HIV and cervical cancer. Randomized evidence that suggests that VMMC may have a protective effect in relation to herpes simplex virus type 2,trichomonas vaginalis, and HPV in men (which may sometimes lead to cancers of the penis, anus, and oropharynx (back of the throat).However, that evidence has ot been carefully reviewed .

Otherwise, several countries have investigated barriers and motivators to VMMC uptake among older or married males. By the way, some barriers and motivators align with those reported by younger males. The most common barriers described in previous studies are: beliefs that the procedure is not appropriate for older males (those past the age of puberty); shame in seeking services alongside much younger males (under age 15); fear of partner infidelity during the 6-week healing period; fear that partner will assume the man seeks

VMMC because he cannot be trusted, has been unfaithful, or is engaging in behavior that will bring HIV into the family; loss of income due to lost work post-VMMC, or fear of pain.

For other hand, some of the most common VMMC motivators are also noted such as beliefs that circumcised males are more "desirable" to women(because of increased virility, sexual performance, and/or hygiene); beliefs that circumcision improves penis appearance; Belief that circumcised males are cleaner and more hygienic; beliefs that circumcision increases sexual satisfaction and endurance,etc.

Knowing barriers and motivators to VMMC undergo, specific VMMC workplace programs are undertaken by several health facilities as **a**n effective strategy to reach older and married men. Mines, universities, sugar plantations, and transport companies are all examples of workplaces that employ large numbers of men and are appropriate candidates for VMMC programs. It has been noted that the key to a successful program is to work closely with the employer and taking into account of availability due to the seasonality (e.g., fishing communities, agricultural workers, students during their leave period). In addition, implementers must ensure all aspects of confidentiality and volunteerism in workplace programs, reassuring employees that HIV test results will not be shared with employers.

2.5. VMMC Conceptual Framework and Situation analysis

From the diagram of conceptual framework analysis described here below, it is described the barriers and motivators factors that may influence both the increase of VMMC by men or low uptake of VMMC among adult men. Those determinants are divided into personal, social/cultural and health system and service delivery factors which include cultural beliefs and practices, partner influence, use of other HIV preventive measures, MC misconceptions, and fear of pain or complications while the other category (and health system and service delivery factors) include staff attitude, inadequate operational facility, inadequate community sensitization, and lack of an MC program design for the facility. Therefore, the aim of this research is to establish how the mentioned factors are affecting the low or high use of VMMC service in HIV Prevention among married men aged 20-59 years old.

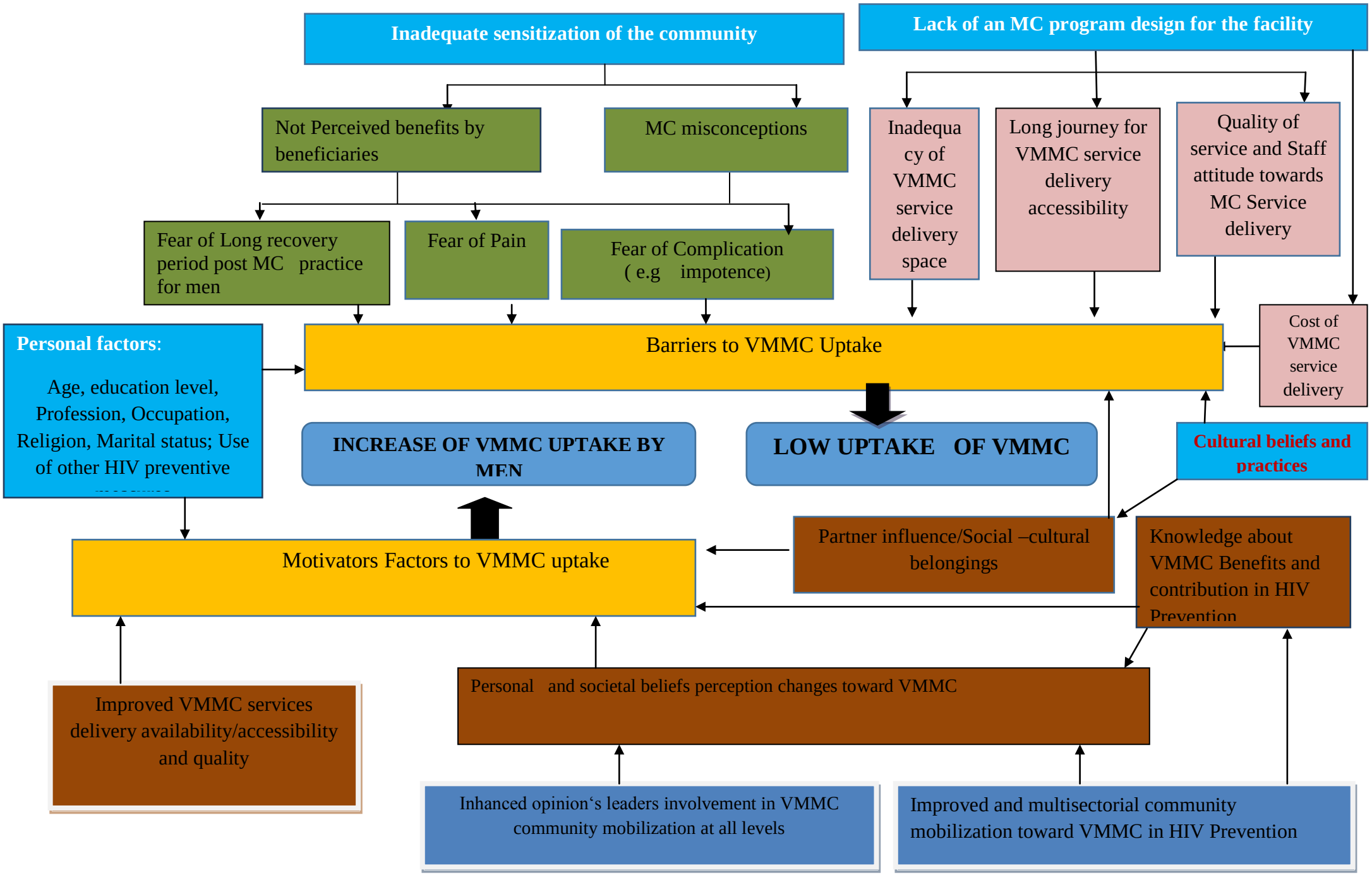

Figure 1: VMMC Conceptual Framework and Situation analysis toward its possible barriers and motivators factors

2.6. Rwanda achievement to ward the VMMC for HIV prevention

Despite government's efforts at scaling up voluntary medical male circumcision (VMMC) services in Rwanda as part for HIV intervention, challenges remain with respect to changing the mindset of adult men in the rural areas of the East African nation to undergo the procedure(**A.Twahirwa,24 May 2017**).

While some men believe that circumcision would increase sexual pleasure, the Government and health experts state that the acceptability of male circumcision as a strategy for HIV prevention and sexually transmitted diseases is key. Rwandan health officials argue that the most interesting benefit for men in undergoing the procedure was not about sexual performance, but instead as an important barrier to HIV infection where by it can reduce by 70 per cent, the riskof men getting HIV.

Since 2013, male circumcision has been added to existing national priorities, after the Rwandan government and partners allocated funds to ensure the procedure is carried out hygienically. Before then male circumcision was associated with Muslims in this East African country of 11.3 million people, where the majority of people are Christians.

As well as PrePex was developed to enable global HIV prevention stakeholders to achieve country wide coverage of Voluntary Medical Male Circumcision (VMMC), safely and efficiently, as part of a combination HIV prevention strategy; alongside counseling, condom dissemination and other WHO recommended methods.(***Prepex, Features & Benefits, UNAIDS Executive Director, March 2011Prepex,);***and though military medical insurance in collaboration with Head of Clinical Affairs & Principal Investigator, ***Rwanda*** government undergoes "Medical devices like PrePex as that may change the landscape of ***VMMC*** scale-up in the whole country.

However, while adult men in Rwanda continue to view circumcision, as a desirable procedure, some health experts stress the need to address barriers to services among this particular group. These include the establishment of health facilities that will be segregated by age to ensure the provision of high quality Voluntary Medical Male Circumcision (VMMC) services.

According to the Head of HIV, STI and Other Blood Borne Infections division at Rwanda Biomedical Centre (RBC), currently, the major challenge is the mindset of the communities living in remote rural areas; and for this reason, efforts have been put on behavior change communication initiatives to address concerns of adult men in rural areas, by encouraging their partners' support for circumcision.

However, in the Rwandan context, health experts are also convinced that the situation for male circumcision in the country still varies from place to place whereby in rural areas, communities' awareness of the

importance and purpose of male circumcision is still significantly low. Even if through a long term government target to conduct safe circumcision to 66% of male adults aged between 15 and 49 by 2018, across the nation, results of DHS 2014-2015 showed that VMMC coverage in Rwanda was 30%. Rwanda has also circumcised an additional 700,000 men whose majority are from rural areas using a new "non-surgical" plastic device commonly known as PrePex, comprising two rings and an elastic band that cuts off blood supply to the foreskin, which loses sensation and shrivels.

Rwanda Country offers VMMC free of charge or at the lowest possible cost to the client though VMMC massive campaigns, as well as for other HIV services. Experts have also stressed the need for: culturally appropriate strategies; well-trained practitioners working in sanitary conditions; informed consent, confidentiality and absence of coercion; counselling for men and their sexual partners to prevent them developing a false sense of security.

CHAP III.METHODOLOGY

3.1. Geographic scope/study area

Kibogora DH cachment area has 13 health centers, one DH and 14 health posts with a population of **253218** in 2018 which is dispatched into 9 sectors.

The study was conducted in seven health centers (representing 54% of all health centers of Kibogora DH) randomly selected among 13 health centers of Kibogora district hospital catchment area from March to July 2019(**appendix 8).** The selected health centers are Nyamasheke,Kibogora,Ruheru,yove, Karengera,Kibingo, Hanika and Kibogora DH is located in Nyamasheke District, in western province, in Rwanda.

3.2. Study design

A cross-sectional study (which describes a phenomenon at one point in time) was conducted . Both qualitative and quantitative methods using in deep interview and focus group discussion (FGD) were applied in order to bringing out the factors contributing to the low uptake of VMMC in HIV prevention among adult married men in this rural area.

3.3 Target Population

The target population of this study was adults married male both circumcised and uncircumcised aged 20 – 59 who were presented at Ante natal care (ANC) unity in Kibogora DH area (DH and its HCs) during the period of study with their pregnant women . Health care managers,Healthcare providers VMMC focal points, staff in charge of community at HCs levels and community health workers(CHWs) from the selected HCs were also targeted as keys informants of the study.

3.4. Sample size and Sampling Procedure.

3.4.1. Sampling strategy

A multi-stage probability sampling strategy was used. Selection of study participants was health facility based. Seven out of threeteen HC of Kibogora DH were randomly selected randomly. The HC of Kibogora DH were numbered from one to threeteen and the HCs which correspond to the computer generated numbers were selected. A total of 446 married men were interviewed in seven selected HFs out of 13.

Then the purposive samplinling strategy were used for qualitative componentof this study.

3.4.2. Sample size calculation

Considering the quantitative and descriptive side,the sample size of married men was considered among a targeted study population male aged 20 -59 years old from 54047 and proportionnaly to the targeted population of each of seven HC.This population was found on basis of Rwanda Fourth Population and Housing Census 2012, which described the male population of Nyamasheke district 's age group,and showed that male between 20-24 years old was 9.1%; those between 25-29 years old was 7.6%, while those between 30-34 was 6.3%;those between 35-3 was 4.1% ;those between 40-44 years old was 3.5%;and at last the age group from 45-59 were 2.9% of general population **(9,12,21).**

This allowed to obtain a study population of male adults aged 20 -59 years old of 54047 (**table 1**). Consequently,the sample size was proportionnal to specific study popupaltion of each heath center selected for the study(for a total population of 123694, at 95% confidence level with a margin error of 5.0% according the formula here below:

$$n = \frac{(z_{1-\alpha/2})^2 \; P(1-p)}{d^2}$$

Where:

- **n:** Sample size
- $\mathbf{Z_{1-\alpha/2}}$**:** For a=0.05 (2-sided tail), this equals **1.96**
- **P:** Estimated Proportion **= 0.3** (as well as VMMC is 30% at national level)
- **d:** Margin of error =**0.05**
- Probable no respondents will be estimated at 5% of the total sample

This formula gave a sample size of 340 married men. However, when calculating proportional sample in order to know the number of men to be surveyed in each health center.The final sample size was increased to 446. This sample was drowned proportionally to the size of each selected HC : total number of sample size divided by the number of target population (male 20-59 years old) in each HC. Therefore, the HC with more men had a larger number of sample population.

Table 1:Study population distribution proportionnally by selected health center

Health Facilities	Population 2018	Target Population(Male 20-59 Years Old)	Proportional Sample Size	% of sample size
Nyamasheke HC	37640	12609	104	23
Kibogora HC	22546	7553	62	14
Ruheru HC	14543	4872	40	9
Yove HC	19407	6501	54	12
Hanika HC	13912	4661	38	9
Karengera HC	25300	8476	70	16
Kibingo HC	27986	9375	77	17
Total	**123694**	**54047**	**446**	**100**

The study also included 16 health staff considering two for each HC;and 21 community health workers(CHWs) considering three health community health workers for each health center.

Consequently, a total sample size was 483 people selected from 7 health centers and 1 district hospital comprising 446 adult married men, 16 health workers and 21 community health workers.

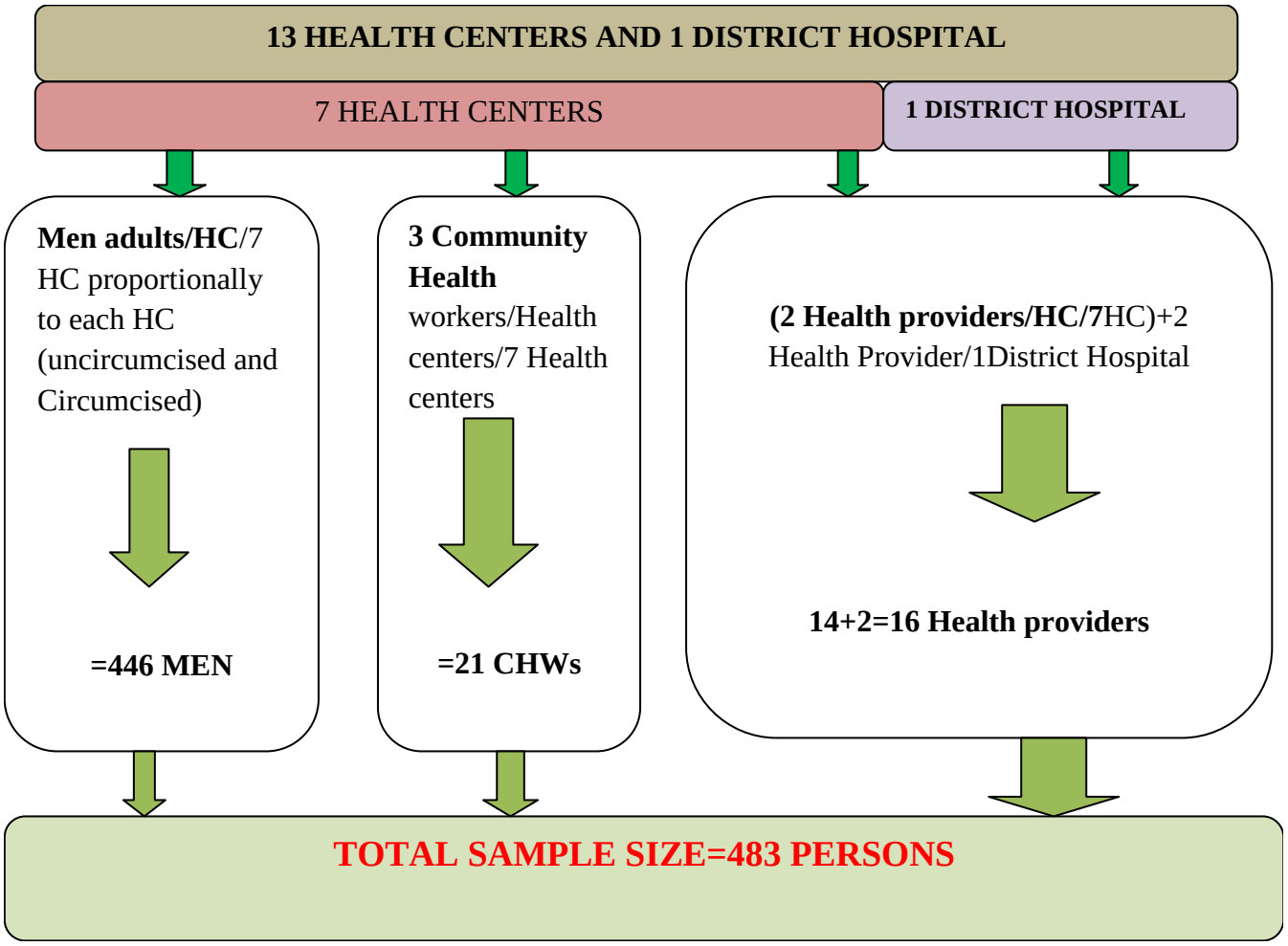

Figure 2: Derivation of sample and its structure

3.4.3. Sampling and data collection procedures

3.4.3.1 Quantitative Component

For 446 married men;they were interviewed using a standardized questionnaire comprised of semi-structured and close-ended questions predesigned and pre-tested by the researcher.

For each HC , married men aged between 20-59 years were selected randomly among those who were present at HC for antenatal care (ANC) session with their pregnant women .In collaboration with staff of HC, a quite room was prepared and equiped ,reserved for interview of participants .An exit interview was conducted for men coming from ANC service room after its own agreement.For each health center,the start point sampling of our interviewees was the second man coming out of the ANC service.Then,we considered every 3rd man coming out of ANC unity until reaching expected number for each health center. The interview timing was between 15-20 minutes for each respondent.Each HC was visited more than twice to reach the expected number of respondents.

3.4.3.2 Qualitative Component

Respondents were recruited using a purposive sampling strategy for Focus Group Discussion (FGD) and deep interviews.In collaboration with staff of HC, a quite room was prepared and equiped ,reserved for interview of participants and FGD.

The interview timing was between 15-20 minutes for each respondent. Three data sources were considered: informations for adults men,from health staff from HFs and from CHWs.
in depth exit interview was conducted for married men coming from ANC unit; then an interview conducted for each selected health provider at his/her own HC,and for , three CHWs selected randomly among others for each HC.

For FGDs,Seven FGDs were organised at all selected HCs. Each FGD was composed of 7 persons, purposively sampled :1HC manager,1 staff in charge of community at HC level, CHWs, nurse VMMC focal point at HF and two men randomly selected at HF regardress they are circumcised or not in order to approximate a more 'natural' interaction than individual interviews, thus providing the researcher with access to how people talk to each other about particular topics" (Green and Thorogood (2004:134) .
We assumed also that This hetetogene FGDs members,circumuncised or not, have different views on VMMC uptake. Informations were collected until the saturation point was reached.

3.5. Inclusion and exclusion criteria

3.5.1. Inclusion criteria

Married men aged 20-59 accompaining their pregnant women for ANC visits at selected HC and who agree voluntarly to participate to the study were included in this study.HC managers,staff in charge of community at HC level, CHWs, nurse VMMC focal point at HF and two men randomly selected at HF regardress they are circumcised were included in keys informants of this study.

3.5.2. Exclusion criteria

Men coming out of Kibogora DH cachment area,even if they come to ANC vists with their women,were excluded from this study. Male under 20 years ,over 59 or unmarried (single) so that those who refused to voluntary paticipate to the study were also excluded of the sample.

3.6. Research instruments

The study used both quantitative and qualitative research instruments especially in depth interview guide and a guide for FGD ((**appendix 5,6,7**).For qualitative instruments especialy in deep interview guide and a guide for FGD were used to identify barriers related to culture and others factors associated with VMMC low uptake among men adult in Kibogora DH area. Quantitative instrument were used only on married men, while qualitative one were used on both men, CHWs, health care providers and for others key informants.

An interview guide contained quantitative questionnaire which focused on socio-demographic characteristics of respondents,HIV and VMMC, possible factors that may be associated with VMMC uptake (Information on VMMC,HIV protection by VMMC,Period of VMMC uptake,Source of VMMC services, Post VMMC complications,distance to VMMC services delivery point,type of post VMMC complication),Constrains for not undergoing VMMC and possible proposed strategies to increase VMMC uptake),and was used only on married men.

Some questions w related to role Played in VMMC implementation, the availability and quality of VMMC services, experience with VMMC, the appreciation of VMMC uptake and barriers,and Strategies for improvement were adressed to Health staff.Thereafter, some others related to trainings on VMMC, role Played in VMMC implementation ,Chalenges met by CHWs in community mobilization for VMMC and barriers towards uptake of VMMC by married men were also adressed to CHWs.

A guide for FGD were composed of both open ended and close ended questions to identify barriers related to culture and others factors associated with VMMC low uptake among adult married men in Kibogora DH area.7 FGDs were conducted accordingly the HCs involved in the study.

Peceptions and barriers to MC were assessed by asking participants the following open ended questions " How do you see the awareness of the community about VMMC?How do you see the availability and quality of VMMC services in Kibogora district catchment area and your HC? What do you think are the barriers in community against VMMC uptake among adult men 20-59 in this area?/Do you think there is any barrier related particularly to the culture vis a vis VMMC uptake among adult men 20-59 in this area?/What do you think should be done to increase VMMC uptake among adult married men 20-59 in this area?" .

Such questions aimed to allow to find out possible barriers to VMMC uptke among adult married men related to community awareness,availability and quality of VMMC services,culture and others possible barriers to VMMC uptake among adult married men.

These instruments were elaborated in English language according the variable needed and translated in Kinyarwanda language. The notebooks were prepared in advance.

3.7. Instruments Pre-testing and validation

A pilot data collection activity was conducted two weeks before the beginning of in deep data collection ,in March 2019 at Gatare HC; which was selected randomly and which offers similar characteristics of a population as in the study area, in order to validate and standardize the data collection instruments . This Gatare HC was excluded in the final sample of HCs. In deep data collection process on VMMC in Kibogora DH cachment area was conducted since April up July 2019.

3.8. Variables of study

Data were collected on the following dependante and independant variables:

- **Independent variables** especially on :

- Social demographic informations: HC and sector of provenance,age,religion,level of deducation ,Occupation; on self reported HIV and VMMC status;
- General knowledge on VMMC and HIV Prevention(VMMC services availability at health facilities, general information on VMMC services in new infection HIV prevention);
- experiences with VMMC services, willingness to undergo VMMC and constraints to undergo VMMC
- perception and barriers on VMMC practices which may conduct to low uptake .

-Dependent variables: Uptake of VMMC .

3.9. Data Analysis *and statistic tools*

3.9.1. Data analysis plan

The data analysis plan included the process and all steps toward collected data during this study have been managed from data cleaning up interpretation of results and conclusion **(Figure 3).** Data analysis plan included data cleaning and triangulation,data transformation through summarizing and examining relationships,results presentations and discussion. Once the data collected, the editing step was done to limit the errors ;then the coding was also done where each category of variables was assigned a code. Data entry was then been proccessed, followed by transformation, analysis and finally interpretation of the data.This was proceed for both quantitative and qualitative data;and this has been performed for both quantitative and qualitative data.

Data analysis plan

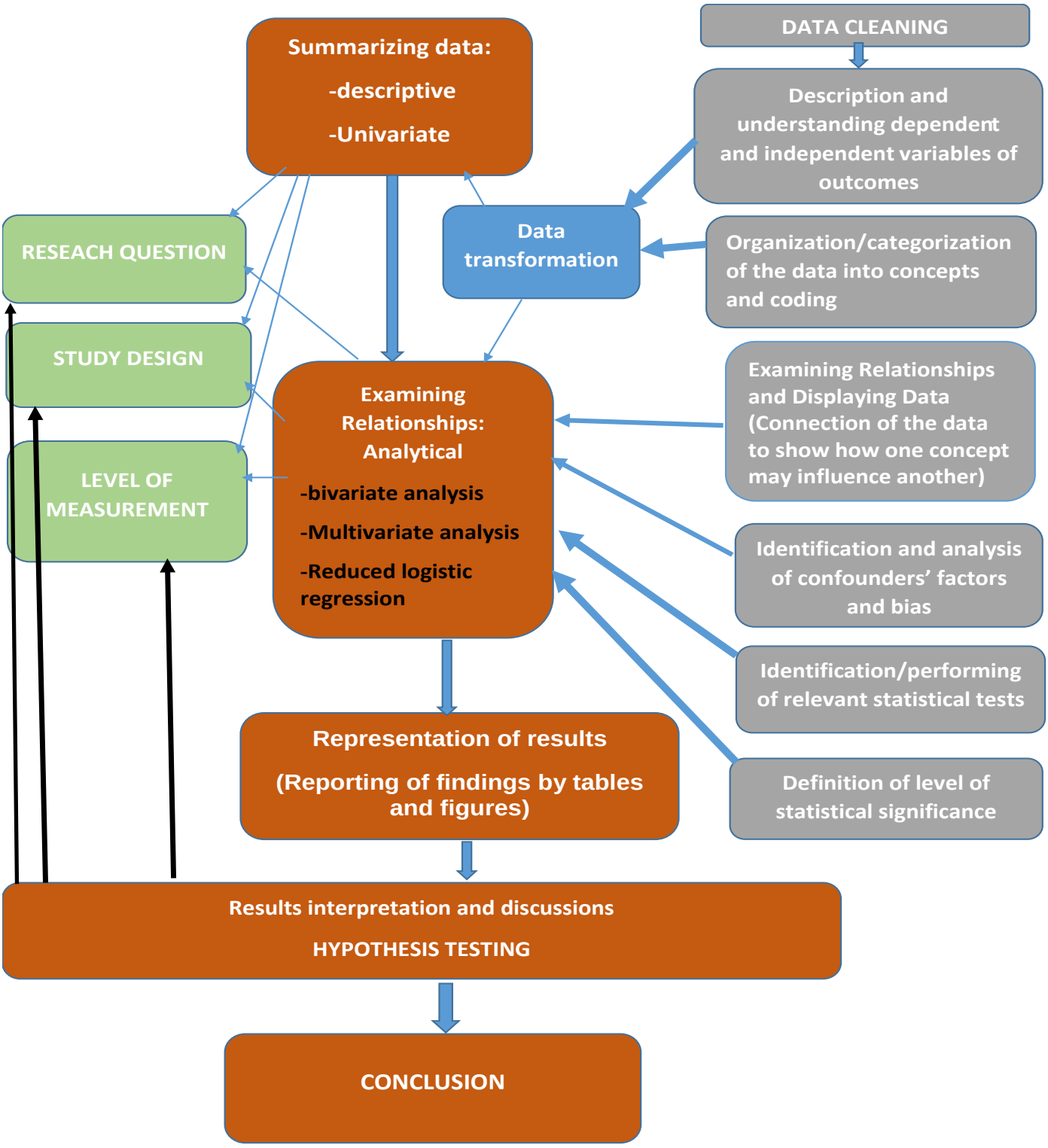

Figure 3: Data analysis plan

3.9.2. Quantitative data analysis

After the data collection, quantitative data obtained from each study questionnaire was entered ,arranged , compliled in a single database and recorded using Microsoft Excel ,then exported into stata MP13.0 software for statistical analysis. Each questionnaire was pre-coded using numerical anonymous IDs and recorded using Microsoft Excel (2010) in which each of these sub study datasets was organized . The database was screened for data entry errors and cleaned (e.g. tracking missing values and validating the appropriate responses) using variable check code (codebook) in order to maximize the consistency of responses. The final database was exported into stata and tabulation for data summary and statistics calculations were performed in Stata (StataCorp.2017 *Stata Statistical Software: Release 15. College Station, TX: StataCorp LP. and;* inferences were drawn from the study findings, reported and interpreted.

Based on the conceptual framework, we have generated 12 variables that might be associated with Voluntary Medical Male Circumcision (VMMC) based on a literature review, common sense, and our own experiences. These include Age category,religion, profession, education level, Information on VMMC, HIV protection by VMMC, Period of VMMC uptake, Source of VMMC services, Post VMMC complications, Distance to VMMC services delivery point, Type of post VMMC complication, Constraints for not undergoing VMMC. We generated frequency and proportions distributions to describe categorical variables, means and standard deviations for continuous variables.

We used bivariate analysis to assess individual statistical significance of association between explanatory variables (factors). This was completed using chi-square statistics to test whether each covariate is associated with the outcome (VMMC). Any chi-square test based p-value equal to or less than 0.05 were deemed indicative of a significant association.

11 variables found significantly associated with the outcome were advanced in the multivariate regression model to adjust for associations with other factors, while 3 (i.e. religion, HIV status of participants and awareness in the community on VMMC) were not independently associated to VMMMC and were dropped from the analysis workflow. With the covariates that remain, we use the Pearson's R test for collinearity to ensure that each variable in the analysis represents a unique concept, and that our multivariate model will be stable;so that collinear covariates ($r>0.5$) were dropped (i.e.education level; Profession ;general information on VMMC, having the information that VMMC protects against HIV, Source of VMMC services and distance to achieve VMMC service delivery); and 6 variables were retained in the Model. After step-wise deletions of non significant covariates, the Wald chi-square test-based *p*-values equal to or less than 0.05 were deemed indicative of a significant association in the multivariable model.

In summary, no model assumption was violated as the tested dependent variable is dichotomous (i.e. VMMC Status: circumcised versus uncircumcised.) and were mutually exhaustive; the independent variables included more than two continuous or nominal variables (e.g. gender, profession, education levels, etc.); the independence of the observations was verified, no multicolineality was found, no significant outliers were found and the need to be a linealrelationship between any continuous independent variable and the logit transformation of the dependent variable was plausible. A test of the full model against a constant only model was statistically significant, indicating that the predictors as a set reliably distinguished between circumcised and uncircumcised. Using the Wald test and associated p-value (chi-square = 9.4 , $p<0.05$), the Lilelihood Ratio Chi Square test (LR Chi2 = 10.46, *p-value* <0.05) and McFadden's Pseudo R-Square (Pseudo R2 = 0.505, *p-value* <0.05 were able to reject the null hypothesis again indicating that the coefficients for age category and profession are not simultaneously equal to zero, meaning that including those variables creates statistical significant improvement in the fit of the model. Pv <0.05 in bivariate analysis were transferred to reduced logistic regression model analysis calculation to identify statistically associated variables to our outcome variable;and presented into tables.

3.9.3. Qualitative analysis

For qualitative analysis, data from in depth interview questions and FGDs were used to identify barriers related to culture and; others factors associated with VMMC low uptake among men adult in Kibogora DH area. Thematic analysis was peformed around main thematic area comprising barriers,cultures and possible solutions. Firstly, the text was read through several time to capture a sens of whole,and identify content thematic area of the transcription.The comprehensive data exploratory step (familiarization with the data), coding (to describe the content), searching for patterns in data or theme accross diffrent interviews, reviweing, defining and renaming themes was completed and; by applying qualitative thematic analysis,differences and similarity were highlited in text,and these war organized into codes,subcategories,categories and themes.Thereafter,words,sentences and paragraphs(meanings,units) related to each other bt theme/content and aim of the study were identified. Qualitative findings were presented using text,with some quotations noted in order to reproduce keys messages obtained during FGDs and the final report was produced.

3.10. Ethical considerations

We obtained the permission to conduct this research from UR Institutional Review Board(IRB) and local leaders of Kibogora DH area ; and all study procedures were reviewed and approved by UR Institutional Review Board (**appendix 1,2,3**).

The confidentiality of the collected information was highly ensured. The informed consent form was elaborated and availed to repondents for their agreement or not on the study participation (**appendix 4**). Informed consent was obtained and consent forms were signed by respondents.

All collected information were coded and kept into password protected computers; and the hard copies checklist used were kept in a locked cupboard.Then, privacy of data were maintained during the study process; and should be used during the eventual next researches. Nobody should have access on these without permission.

3.11. Utilization and Potential implications

.This study was envisaged that the information which obtained are useful ;and will help to decision makers and Kibogora DH authority to orient effective interventions in order to reduce HIV new infection trough increasing the uptake of VMMC among adult married men from 20-59 years old in Kibogora DH areawho are sexually active.

This study established the factors assocoated and reasons for the trend of low uptake among adult men of 20 years and above. This study is therefore significant as it revealed some important gaps that will be helpful to the relevant bodies, both governmental and NGOs in their effort to implement and to scale up this program. Consequently the Kibogora DH area community which will benefit the program, will help reduce the rate of new HIV infection through the increasing of VMMC practice among adultes men who are sexually active. Findings will also help to the Ministry of Health and its partenrs in developping a VMMC awareness programme; and results of the study provided baseline information that will assist health planners to design effective strategies directed towards dealing with factors that are lowering uptake of VMMC among adults married men in this rural area.

CHAP IV. RESULTS

4.1. Quantitative Results

4.1.1. Socio-demographic characteristics of adult married men using VMMC service in Kibogora DH Cachment area

The majority of married men respondents were aged over 35 years with themean age of 37.7 years old. They accounted for 57.40%; belonged to protestant and catholic religions with 41.9 and 24.2 of respondents respectively; they are overall farmers [75.34] and predominantly hold primary level education l [70.18%]. The overall proportion of participants were HIV negative [92.15] and uncircumcised [56.50].

Table 2. Socio-demographic profile of the study participants (n=446)

Characteristics	description	Freq.	Percent
Age category	Less than 25 years	14	3.14
	26 – 35 years	153	34.30
	Over 35 years	279	62.56
	Total	**446**	**100**
Religion	Catholic	108	24.22
	Methodist	75	16.82
	Protestant/ADEPR	187	41.93
	Adventist	64	14.35
	Muslim	7	1.57
	Traditional	1	0.22
	Others	2	0.45
	No religion	2	0.45
	Total	**446**	**100.00**
Education level	Primary	313	70.18
	Secondary	47	10.54
	University	10	2.24
	None	76	17.04
	Total	**446**	**100**
Profession	Farmer	336	75.34
	Business	59	13.23
	Employed	36	8.07
	Student	2	0.45
	Others	11	2.47
	Jobless	2	0.45
	Total	**446**	**100**
Health facility of provenance	Nyamasheke HC	104	23.32
	Kibogora HC	62	13.90
	Ruheru HC	40	8.97
	Yove HC	54	12.11
	Hanika HC	39	8.74

	Karengera HC	70	17.70
	Kibingo HC	77	17.26
	Total	**446**	**100**
HIV Status (self declaration)	Negative	411	92.15
	Positive	25	5.61
	Unknown	10	2.24
	Total	**446**	**100**
VMMC Status (self declaration)	Circumcised	194	43.50
	Uncircumcised	252	56.50
	Total	**446**	**100**

4.1. 2. Level of VMMC uptake in Kibogora DH Cachment area

The overall uptake of voluntary medical male circumcision in Kibogora District Hospital catchment area is 43.50 % The high proportion of adult maried circumcised men are from Nyamasheke HC (10.54%)while lower proportions were found in Ruheru HC(2.47%) (**Table 3 and Figure 4**).

Table 3: VMMC status across the Study sites in Kibigora DH**,**,2019

	Health Center							
VMMC Status	Nyamashek	Kibogora	Ruheru	Yove	Hanika	Karengera	Kibingo	Total
Circumcized	47	26	11	27	19	40	24	194
	10.54	5.83	2.47	6.05	4.26	8.97	5.38	43.50
Uncircumcized	57	36	29	27	20	30	53	252
	12.78	8.07	6.50	6.05	4.48	6.73	11.88	56.50
Total	104	62	40	54	39	70	77	446
	23.32	13.90	8.97	12.11	8.74	15.70	17.26	100.00

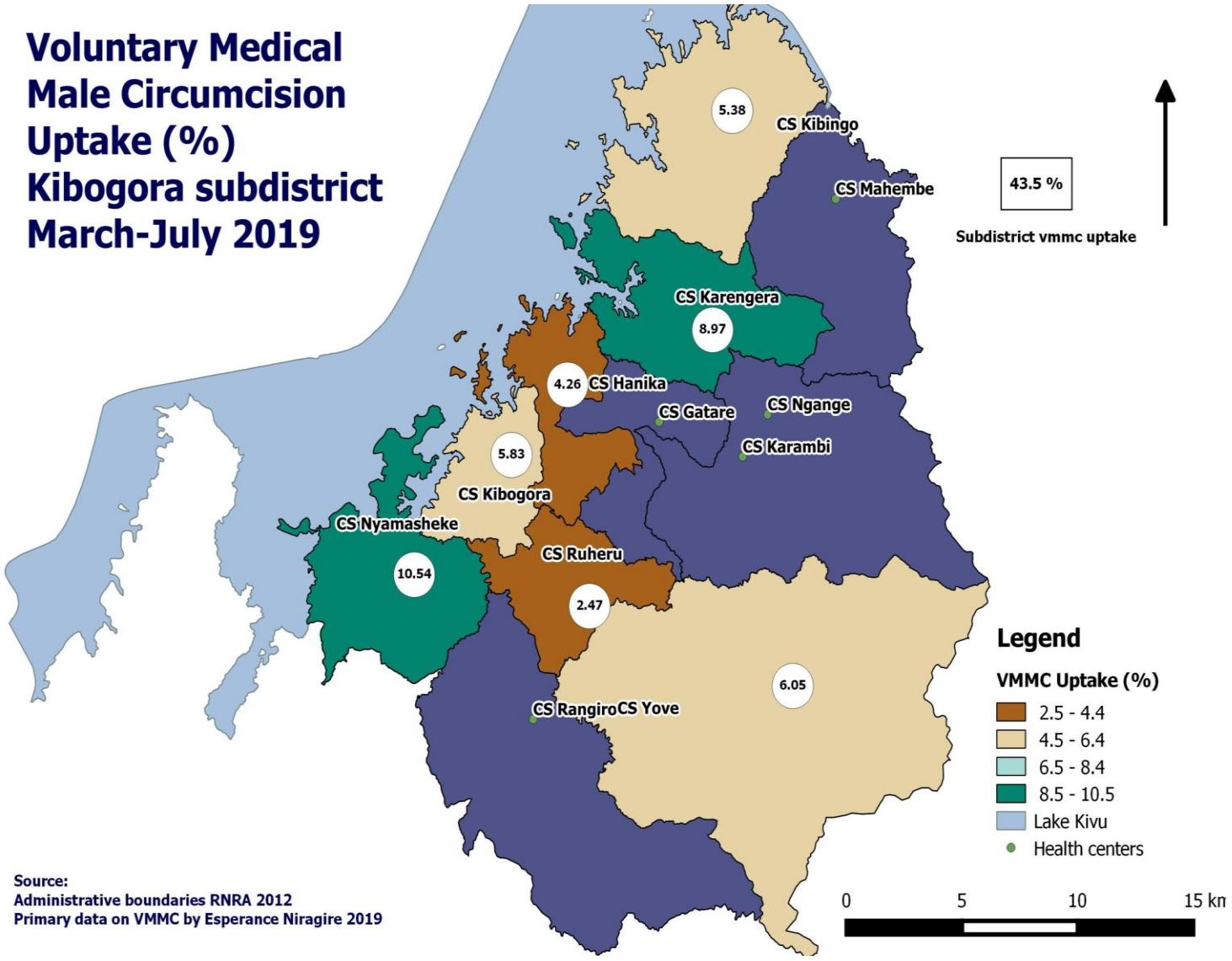

Figure 4: **% of VMMC Uptake among married me by selected HFs of Kibogora DH,2019**

4.1. 3. Factors associated with VMMC Low Uptake among married adult men in Kibogora DH

4.1.3.1. Bivariate Analysis for independant variables associated to low VMMC uptake in Kibogora DH area

A bivariate analysis was computed for all independent variables to VMMC services in order to identify those that should be significantly associatated to VMMC uptake or not.In perfoming a bivariate analysis for all independent variables to VMMC,the Odd ratio and P-value calculated showed the almost independent variables set for our study was to look for association of low uptake of VMMC with identified possible risk factors.

The pvalue ≤0.05 at 95% confidence interval were considered as cut point to declare that there was as possible risk factors to low uptake of VMMC ,considering p value ≤0.05 set at 95% confidence interval .For this,only dependant variables such as the education level [OR=0.32;Pv=0.001];Profession [OR=0.34,Pv=0.000]; having information on VMMC[OR=7.63,Pv=0.001],having the information that VMMC protects against HIV[OR=11.8,Pv=0.000],source of information on VMMC especially during VMMC campaigns and distance from to achieve VMMC services [OR=2.2,Pv=0.000] were statistically significant in bivariate analysis to be considered as factors associated to VMMC low uptake in Kibogora DH area (**table 4)**

Table 4: Bivariate analysis of independant dependant Factors associated with VMMC low uptake among adult men aged of 20-59 years old in Kibogora DH area

Factor and Characterization	VMMC self reported Status /Outcome						Unadjusted Odds Ratio (OR) 95% confidence interval (CI)	P value
	Circumcised		Uncircumcised		Total			
	Frequency	%	Frequency	%	Frequency	%		
Age –Category								
Less than 25	8	1.8%	6	1.35%	14	3.1%	**Reference**	
26 – 35	90	20.1%	63	14.1%	153	34.3%	0.93 [0.30 – 2.82]	0.09
35 and Over	96	21.5%	183	41.3%	279	62.5%	2.54 [0.85 – 7.53]	0.09
Total	**194**	**43.5%**	**252**	**56.5%**	**446**	**100%**		
Education level								
Primary	129	28.9%	184	41.2%	313	70.1%	**Reference**	
Secondary	32	7.1%	15	3.3%	47	10.5%	0.32 [0.17 – 0.63]	**0.001**
University	6	1.5%	4	0.9%	10	2.2%	0.46 [0.12 – 1.68]	0.24
none	27	6.0%	49	10.9%	76	17.0%	1.27 [0.75 – 2.14]	0.36
Total	**194**	**43.5%**	**252**	**56.5%**	**446**	**100%**		
Profession								
Farmer	123	27.5%	213	47.5%	336	75.55	**Reference**	
Business	37	8.3%	22	4.9%	59	13.2%	0.34 [0.19 – 0.60]	**0.000**
Employed	27	6.0%	9	2.0%	36	8.0%	0.19 [0.08 – 0.42]	**0.000**
Student	2	0.45%	0	0%	2	0.45%	1 [empty]	-
Other	4	0.9%	7	1.57	11	2.4%	1.01 [0.29 – 3.52]	0.97
Jobless	1	0.2%	1	0.2%	2	0.45%	0.57 [0.03 – 9.2]	0.69
Total	**194**	**43.5%**	**252**	**56.5%**	**446**	**100%**		
HIV Status								
Negative	184	41.2%	227	50.9%	411	92.1%	**Reference**	
Positive	10	2.2%	15	3.3%	25	5.6%	1.21 [0.53 – 2.7]	0.64
Do not know	0	0.00%	10	2.2%	10	2.2%	1 [empty]	-

Total	**194**	**43.5%**	**252**	**56.5%**	**446**	**100%**		
Having information on VMMC								
Yes	187	41.9%	7	1.57%	194	43.5%	**Reference**	
No	196	43.9%	56	12.5%	252	56.5%	7.63 [3.39 – 17.1]	**0.000**
Total	383	85.8%	63	14.2%	446	100%		
Information on Protection against HIV by VMMC								
Strongly agree	124	27.8%	82	18.3%	206	46.1%	**Reference**	
Agree	46	10.3%	47	10.5%	93	20.8%	1.54 [0.94 – 2.52]	0.08
Disagree	17	3.8%	29	6.5%	46	10.3%	2.58 [1.33 – 4.99]	**0.005**
Strongly disagree	0	0.00%	39	8.7%	39	8.7%	1 [empty]	-
Do not know	7	1.57%	55	12.3%	62	13.9%	11.8 [5.1 – 27.3]	**0.000**
Total	**194**	**43.5%**	**252**	**56.5%**	**446**	**100%**		
Main source of information on VMMC								
Media(radio/ TV/news papers)	10	2.24%	19	4.26%	29	6.50%	**Reference**	
Health staff	29	6.50%	31	6.95%	60	13.45%	0.56 [0.22 - 1.40]	0.219
Community health workers	**21**	4.71%	25	5.61%	46	10.31%	0.62 [0.23 - 1.63]	0.340
radio, from health staff, community health workers	**91**	20.40	107	23.9%	198	44.39%	0.61 [0. 27 - 1.39]	0.249
during VMMC campaigns	**33**	7.40%	10	2.24%	43	9.64%	0.15 [0.05 - 0 .45]	**0.001**
traditional Leaders	**1**	0.22%	**1**	0.22%	**2**	0.45%	0.52 [0. 02 - 3.26]	0.662
At work place/ Friends/Peers / Relatives / School/ College teacher)	**2**	0.45%	**1**	0.22%	**3**	0.67%	0.26 [0.02 – 3.26]	0.299
in my family	**0**	0.00%	**1**	0.22%	**1**	0.22%	-	-
religious	**7**	1.57 %	56	12.56%	63	14.13%	4.21 [1.4 - 12.6]	**0.01**

leaders								
	194	43.50%	252	56.50%	446	100%		
Community awareness on VMMC services availability at HF								
Yes	83	18.6%	83	18.6%	166	37.2%	**Reference**	
No	111	24.9%	167	37.4%	278	62.3%	1.5[1.02 – 2.21]	0.039
NA	0	0.00%	2	0.45%	2	0.45%	1 [empty]	-
Total	194	43.5%	252	56.5%	446	100%		
Community awareness on VMMC in HIV prevention								
Yes	74	16.5%	79	17.7%	153	34.3%	**Reference**	
No	120	26.9%	171	38.3%	291	65.2%	1.3[0.9 – 1.97]	0.151
NA	0	0.00%	2	0.45%	2	0.25%	1 [empty]	
Total	194	43.5%	252	56.5%	446	100%		
Distance from to achieve VMMC services(n=446)								
less than 5 km	123	27.5%	127	28.4%	250	56.0%	**Reference**	
between 5 to 10 km	37	8.3%	81	18.1%	118	26.4%	2.1 [1.33 – 3.36]	**0.001**
beyond 10 km	34	7.6%	44	9.8%	78	17.4%	1.25 [0.75 – 2.09]	0.38
Total	194	43.5%	252	56.5%	446	100%		

4.1.3.2. Logistic regression analysis for dependants variables

All independent variables which had p value ≤0.05 in bivariate analysis were tranfered in multiple logistic regression model analysis and then a **reduced logistic regression model** analysis with adjusted OR computing allowed to identify that the profession [OR=299;PV=0.000], having information on VMMC[OR=2.53;PV=0.043],having the information on Protection against HIV by VMMC[OR=2.27;PV=0.022] and distance from to achieve VMMC services[OR=1.78;PV=0.040] were found statistically associated low uptake of VMMC in Kibogora DH area(**table 5**).

Counfounding factors in this study include the age,education level and source of information of VMMC which with p value less than 0.05 in bivariate analysis,but analyzed in reduced logistic regression,those variables are not shown associated(**table 5)**

Table 5: Multivariate Logistic regression analysis for dependant variables associated to low uptake of VMMC in Kibogora DH area,2019

Variables	Circumcised	Uncircumcised	Unadjusted OR and reference(=1)	P.V	95%CI
Profession					
Farmer	123	213	1(=reference)		
Business	37	22	-299	**0.000**	[-1531-583901]
Employed	27	9	-268	0.057	[-0.694-1.0400]
Student	2	0	1		
Other	4	7	1.25	0.741	[-3291-4.7740]
Jobless	1	1	-597	0.740	[-0.287-12.436]
Education level					
Primary	129	184	1(=reference)		
Secondary	32	15	-931	0.899	[-3152-2.75511]
University	6	4	2.42	0.331	[-4064-14.4512]
none	27	49	-859	0.638	[-4582-1.61351]
Distance to VMMC service delivery					
less than 5 km	123	127	1(=reference)		
between 5 to 10 km	37	81	1.783	**0.040**	[1.0621-3.0997]
beyond 10 km	34	44	-948	0.865	[-51321-1.7519]
Having information onVMMC					
yes	187	196	1(=reference)		
No	7	56	2.53	**0.043**	[-88469-7.2603]
Information on Protection against HIV by VMMC					
Strongly agree	124	82	1(=reference)		
Agree	46	47	1.237	0.435	[-72447-2.1144]
Disagree	17	29	2.271	**0.022**	[1.1279-4.5744]
Strongly disagree	0	39	1		
Do not know	7	55	6.368	**0.000**	[2.3452-17.2920]

4.1.4. Possible Barriers in Relation to VMMC Uptake

During this study,we looked for knowlegde or general information on VMMC services availability at health facilities, general information on VMMC services in new infection HIV prevention;experiences with VMMC services,willingness to undergo VMMC and constraints to undergo VMMC (**Table 6**).

4.1.4.1. General information on VMMC and Perception of VMMC by the community

According the knowlegde or general information on VMMC services availability at health facilities,85.8% have information on VMMC service.Therefore,only 36.5% of our repondents said that the community is aware of VMMCavailability at nearest health facilty unless during VMMC campains session organised by others(during RBC,Army week).

Main VMMC sources of information toward VMMC services cited by our respondents are mainly health staff, community health workers(74.9%), and during VMMC campains activiies (16.2%) and media (6.3%)respectively(74.5%.By the way, local leaders and religious implications in community mobilisation toward VMMC in HIV new infection prevention were almost absent(0.26% for religious).Indeed,discussions on VMMC services among friends,peers ,relatives or at daily workplace or in family are also found limited(0.78% and 1.30%respectively).While the community of Kibogora DH area is less aware of the availability or VMMC services at nearest HFs,a great number is not aware of the role of VMMC services in HIV new infection prevention.34.16% only have this information.This has been supported by the results that showed that the VMMC services information sharing in the community assessed during this study were found low(32.9%)

Table 6. General information on VMMC and Perception of VMMC by the community

Characteristics	Description	Freq.	Percent
Having information on VMMC	Yes	383	85.8
	No	63	14.2
	Total	**446**	**100**
Main source of information on VMMC (n=383)	radio/tv /print media (newspapers/ Magazines	24	6.3
	from health staff, community health workers	287	74.9
	during vmmc campaigns	62	16.2
	traditional Leaders	1	0.26
	at work place(/ Friends/Peers / Relatives / School/ College teacher)	3	0.78
	my family(through my wife/chridren,brothers/sister)	5	1.30
	religious leaders/Umusigiti	1	0.26
	Local leaders	0	0.00

	Total	**383**	**100**
Community awareness about the Male Circumcision services availability	Yes	163	36.5%
	No	278	62.3%
	Na	5	1.2%
	Total	**446**	**100**
Community awareness about the Male Circumcision services reduces the chance of getting HIV infection	Yes	152	34.16
	No	292	65.40
	Na	2	0.44
	Total	446	100
VMMC information sharing in the community	Yes	147	32.97
	No	297	66.59
	Na	2	0.44
	Total	446	100

The attitudes of the community toward VMMC services was assessed as well during FGDs sessions , as toward in deth interview with men participants and also were in deep discussed during focus group discussions sessions conducted.

According the perception and attitudes of the community toward VMMC uptake,the majority of the respondents said that VMMC uptake is considered as an individual choice where everyone (man) may do od not do it voluntary(18%,n=76).Respondents said also that men adults married are ashamed to do it at old age; and they are not interessted by or to hear or to discuss about VMMC(18,2%;n=81).This is due to,normally in the community,adult male who are not circumcised are normally riduculized or stigmatized.So,they are not want to to revelate that they are not circumcised.

At other hand,some men circumcised are not well accepted by their wommen after VMMC undergo.This stiggma due to either to undergo or not undergo VMMC was assed and found at 4.7%(n=21).The resistence of wives toward undergo VMMC among adulte married men were alwys underlined at 4.4%(n=22).Therefore,17% of respondents (n=76) said that married men are not interested by VMMC undergo,and 2.2%(n=10)revelated that this is due to fear of unfavorable sexual relation or (sexual insatisfaction in post VMMC uptake period. Therefore 35.4% of respondents (n=158) were coded as NA(NA=non applicable) in their responses.This is jusfied that they do not given their view about the VMMC services are perceived by the community.(**Figure 5**).

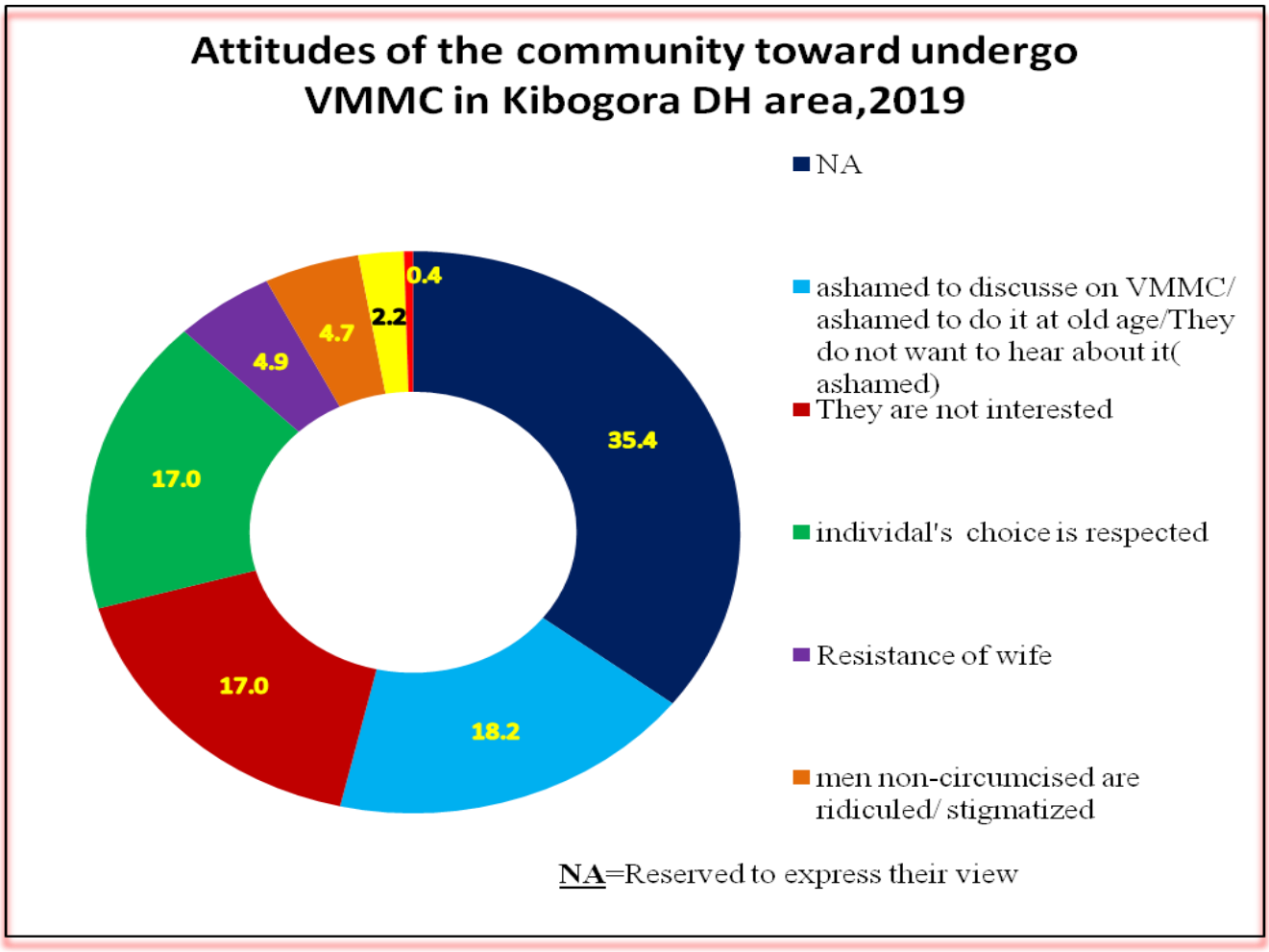

Figure 5:**Attitudes of the community toward undergo VMMC in Kibogora DH area**

4.1.4.2. Experience and geographical accessibility of study participants with VMMC services

The experience and accessibility of study participants with VMMC services assessed were related toVMMC self status;age of VMMC undergo,source of VMMC services, and experience of complications post VMMC, willingness to underg VMMCand the constraints for not undergo VMMC as well as the geographical accesibility toward VMMC services**.(Table 6&7)**

According VMMC self status,only 43.%(n=194%) of all respondents were self reported circumcised.According the age of VMMC undergo,source of VMMC services, and experience of complications post VMMC ,willingness to underg VMMC and the constraints for not undergo VMMC as well as the geographical accesibility toward VMMC services**.(Table 6&7).**

Talking the source of VMMC service/VMMC Uptake among those self reported circumcised,61.3% of them (=119/194) explained that the service took place at HC level;16%(31/194),20.1% or 39/194 took place

during VMMC campains activities ,while 31 over 194 (15.9%) took place at DH level.By the way ,we noted also some respondents who have been provided male circumcision service either from traditionnal experts

(2.4%),or from private clinics (0.5%). According the distance distance from source of VMMC service,63,6% of all respondents said that the distance is less 5 km to achieve the area of VMMC service; and 19.1% for the distance between 5-10km, and 17,5% for over 10km from VMMC service delivery.

According side effects experienced among those who were self reported circumcised,Side effects and VMMC uptake,8.8% were experienced side effects post VMMC including delay of healing=(29.4%)excessive bleeding and woounds infections,as well as sesual disfunction(hyperlibido self reported)=5/17(29.4%) as described in table 7.

Table 7. Experience s with VMMC services

Characteristics	Description	Freq.	Percent
Period of VMMC uptake	Infant	6	3.2
	Adolescent	41	**21.1**
	Adult	147	**75.7**
	TOTAL	**194**	**100**
Source of VMMC services	VMMC campains/Outreach site during VMMC campaign	52	26.8
	Health Center	119	61.3
	District Hospital	18	9.8
	Traditional expert	4	2.1
	private clinic	1	0.5
	Total	**194**	**100**
Experience of any complications post VMMC(n=194)	No	177	91.2
	Yes	17	8.8%
	Total	**194**	**100**
Type of complications post VMMC(n=17)	Excessive bleedings	4	23.5
	Delayed healing	5	29.5
	Wound infections	6	35.2
	sexual hyper excitation	2	11.8
	Total	**17**	**100**
Willingness to undergo VMMC(n=252)	Yes	53	21.1
	No	199	78.9
	Total	**252**	**100**
Distance from VMMC service delivery	Less than 5 km	250	56
	From 5 to 10 Km	118	26.5
	Beyond 10 km	78	17.5
	Total	**446**	**100**

Toward the willingness for undergo VMMC among those who were self reported uncircumcised(n=252); 21.1% of them are willing to undergo VMMC, rather than a great number of our respondents (78.9%) are not.Therefore constraints for not undergo VMMC were outlined as were for those men with willingness to undergo VMMC,as for those who are not willing for doing it.

4.1.4.3 Constraints for not undergo VMMC

Among 252 over 446 men interviewed during this study(56.5%) were not circumcised .Only 53of them (21%) suggest to undergo VMMC but they meet some of constraints ,while others 199 respondents(79%) said that they did not interested to undergo VMMC, and gave the reasons why they dit not suggested to undergo VMMC . A great number among uncircumcised interviewed respondents in this study outlined the fear of pain or possible complications (30.6%),not manifested interest (29%) and being ashamed to it at old age (18%) as the most constraints meet by adult married men to not undergo VMMC(**figure 6)**

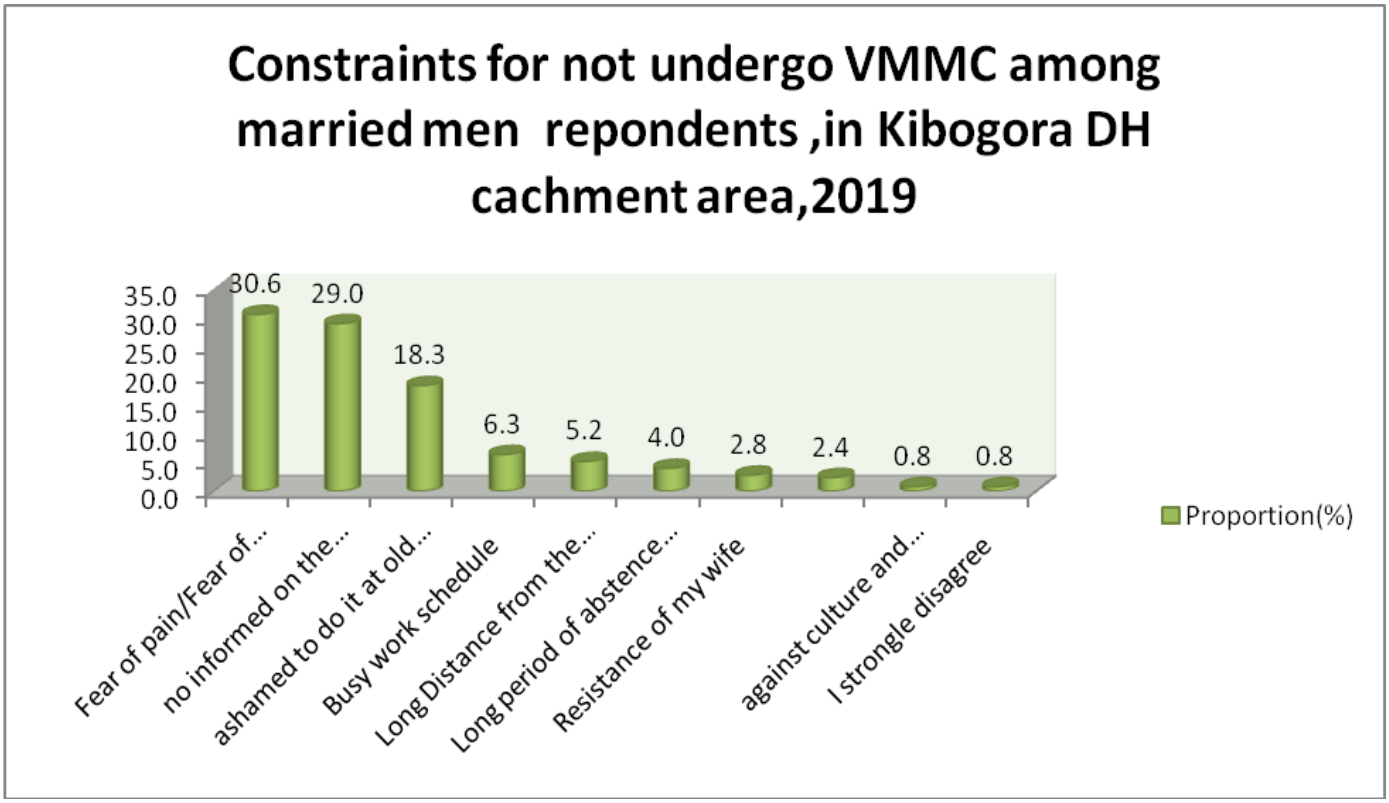

Figure 6 :Constraints and constraints for not undergo VMMC

Main constraints highlited by self reported uncircumcised men for not undergo VMMC are almost common with the attitudes of community toward VMMC services described in figure 5. Keys constraints reported by our respondents include non information or lack of motivation,a long period of abstence post VMMC, long distance from the VMMC service delivery points, a long distance from health center,VMMC package that are not available at Health posts; Shame of doing it in old age alongside youths or to do it at old age with little

children,busy work schedule,fear of pain and possible complications(experienced by others or rumors); financial cost and personal perception(personal not agreement with VMMC practice and culture issue.The resistance of wives occured laso amongself reported uncircumucised repondents men of this study (2.8% even if it is minor**.(Figure 6)**

4.2. Findings from Qualitative data analysis.

Results presented in this section are obtained from seven focus group discussions from 7 study site findings emphasize on four thematic components which summarize the barriers undermining the uptake of VMMC including the perceptions on VMMC services in the community ,awareness of VMMC services and information related to VMMC clinical operations, the availability and quality of VMMC services, and the strategies to improve (**Figure no 7**).

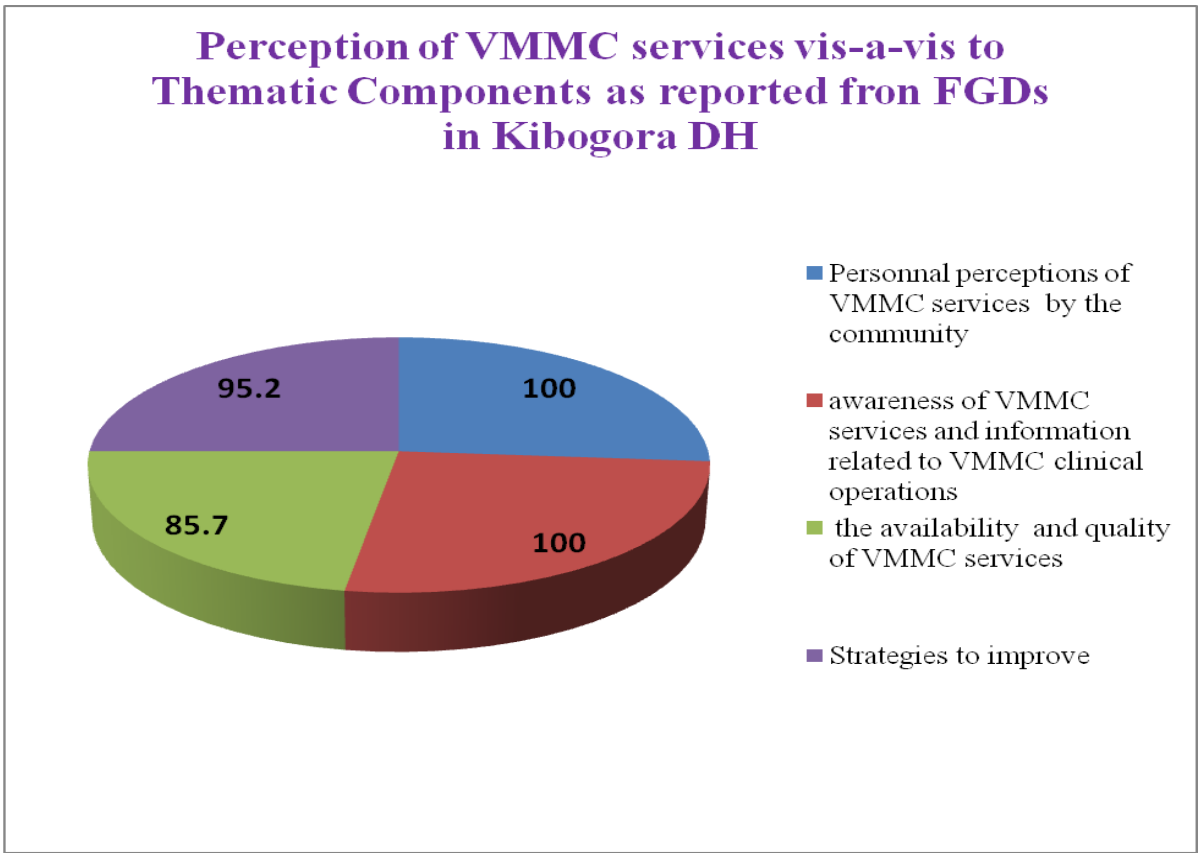

Figure 7:**Proportions of Narrative Pinpoints of keywords within the 4 Thematic Components reported across Focus Group Discussions**

The number indicates the proportions of the key words within a given thematic area reported the same way accounting for difference in answers within all seven FGDs. For instance, all respondents across the FGDs unanimously (100%) responded or discussed the same way (no differences in answers) on the theme ***"Personal perceptions of VMMC services by the community and awareness of VMMC services and information related to VMMC clinical operations*** ".

4.2.1. Perception of VMMC services toward thematic components as reported from Focus Group Discussions in selected HFs of Kibogora DH Cachment area.

Various response given were: (1) ”They(married men) have fear of e pain. ’The operation is painful especially for no surgical male circumcision using prepex”; (2)”The MC opeation exige the delayed healing.”It is difficult to get a few days off from work to heal up”,(3)” they are not sure of the benefits of VMMC in HIVprevention”.’They are not aware of its advantages”,”They are not interested”. (4)” They have fear of the first sexual intercourse activity after circumcision uptake called”Kwikuzamo inzembe” which will lead to constant desire for women”(5),” Low perception of the population”.the community is not sensitized effectively and is not aware enough toward male circumcision” .(6)” we heard that circomcision cause negative consequences like physical pain,Sexual hyperexitation and disfunction issues),delayed healing, Wound infections, Sexual dysfunction”.”The oss of penile sensitivity Sexual dysfunction and lack of erection for men after VMMC uptake may occur!”. ”Sexual activity are not good af before for women”, ’There is an xcessive ans insupportable needs of sex for men”,”circumcision cause sex size reduction”;”they are fear of unfaithfulness of their wives during the healing period.” Withe think that their men perform MC because they want to leave them and go outside to look for others wives because they are nowe ensured that they(circumcised men) arenow protected to HIV by the circumcision practice”.(7)” Adult married men are ashamed of circumcision uptake at their late age”.” Adult men are ashamed of doing it in old age alongside youths”,(8)” long period of sexual activity abstinence post VMMC”,”You will have to do without sex until the penis heals”.(9)” MC service delivery is too expensive(it is not offered freely as others HIV prevention packages”;”male circumcision is not paid by MUSA)”.(10)”you have to do a long distance from the service delivery points with pain of wound post poeration”;”VMMC Services are delivered far from where we live”.(11)” VMMC Service are not well delivered’.’Nurses gives poor services;they are not enoughand they have many things to do”.” MC services is not regulary available at health centers”,” There is no specific campains organised only for adult men.””.”There is no specific day at HFs reserved to VMMC and communicated to the population”,” Adult men are mixed with children, shame (they think circumcision could have been secret not in mass people)”.” No specific VMMMC service or VMMC campaigns for old people”.” ”No continuous service delivery/Circumcision is done during VMMC campaign, when you need it at any given time you do not get it easily”.(12)”Wife do not accept that their men perform MC.And if you are a manand you perform MC without agreement of your wife,this cause conflicts in your family.”” Wife do not accept the sexual activity with their men after performing MC by fear of”inzembe.and they do not also allow to their husbands to go outside for the 1st sexual intercours post VMMC practice” 13)” .” Churches do not give it its value”.”You do not believe a man should change the way God made the penis”.(14)” Practice reserved only for young and children” .(15)” Lack involvement of religious and local authorities”.(16)”

Ashamed to get MC during campaigns alongside their children (as well for VMMC activity as in post VMMC wound care)".(17)" Breach of Culture".

4.2.2. Community awareness of VMMC

4.2.2.1.General information and understanding

The lack of information related to the benefits of VMMC services to individual was amongst the mainly reported missing information in the community. "There is low /poor and no effective community sensitization and awareness toward male circumcision", the respondents said. The respondents were however informed on possible existence of VMMC programme. "There are no focused campaigns on VMMC specific for adult males; and there are no specific days dedicated to VMMC at health faculties and corresponding plans for communication to the population", concluded by all FGDS' the respondents.

4.2.2.2. General perceptions of clinical circumcision operations

The respondents revealed a rather limited awareness on circumcision operation. Fear of pain and post VMMC complications as well as healing timeline were emphasized. "Circumcision operation is painful especially for no surgical/ male circumcision using prepex; and it is associated to delay healing", said all the FGD respondents.

The fear of related to possible complications from the operation (experienced by others) was reported as driving factors that undermine the uptake of circumcision. " Others have experienced physical pain, feat to perform in first sexual relations after healing 'Gukuzamo inzembe', wound infection and sexual dysfunction", All FGDs respondents revealed.

4.2.3. Availability of VMMC service

The respondents underlined loopholes in the package design, delivery mechanisms and timelines. For package design: "There no specific VMMMC service or VMMC campaigns for old people and VMMC, Service are not well delivered and those delivered are of poor quality", reported the FDG-D members. The delivery mechanisms and timelines are inappropriate: " MC services is not regularly available at health centers; the existing practice is reserved only for young and children; and one must complete long distance from the service delivery points and simply services are delivered far from the clients", revealed all FGDs. In addition: "No continuous service delivery/Circumcision is done during VMMC campaign, when you need it at any given time you do not get it easily", confirmed FGD-A members.

4.2.4. Barriers to VMMC uptake in the community

All 7 Focus group conducted (100%) ,in their discussions reported the mains barriers to VMMC uptake among married men are the following: Fear of phyisical pain, Fear of possible complications, The delayed healing Period., Community unawareness toward the benefits of VMMC in HIV prevention; No interested, Fear negative consequences du to VMMC undergo, Late age for undergo VMMC, shamed of doing it in old age and alongside youths(their children); Long distance from the service delivery points; Poor quality of VMMC services delivered by HFs, Family conflicts/resistance of wive and Ashamed to get MC during campaigns alongside their children. By the way, in 6 FGDs out of 7(85.7%) reported that MC service delivery is too expensive, are not offered freely as others package of HIV prevention and they are not covered by Community Health insurance(not paid by MUSA).Therefore,71,4% reported the religious beliefs issues due to Churches do not give it its value, and 57,1% talked that there is a lack involvement of religious and local authorities ,while 14,3% only revealed the culture issue as barriers to VMMC uptake among married men**(figure no 8)**.

Several barriers were underlined by FGD members to hinder the uptake of VMMC services in community: the most frequently reported were about the appreciation of sexual activity after undergoing VMMC. “Sexual activity is not good ". Fear of size reduction and attitude of the wife were also reported in majority: "We have fear that penile size can reduce and that the wife may become unfaithful during the healing period" and " there is a long period of sexual activity abstinence post VMMC", reported in all FDGs, FGD-B and FGD-C respectively.

In addition, all the respondents said that: "Circumcision is associated to excessive needs of sex for men" and they confirmed that: " Circumcision is linked to loss of penile sensitivity, sexual dysfunction, lack of erection for men after VMMC uptake", they believe that: " Circumcision removes the erectile component of male’s organ", said respondents from all FDGs A, C, D and E.

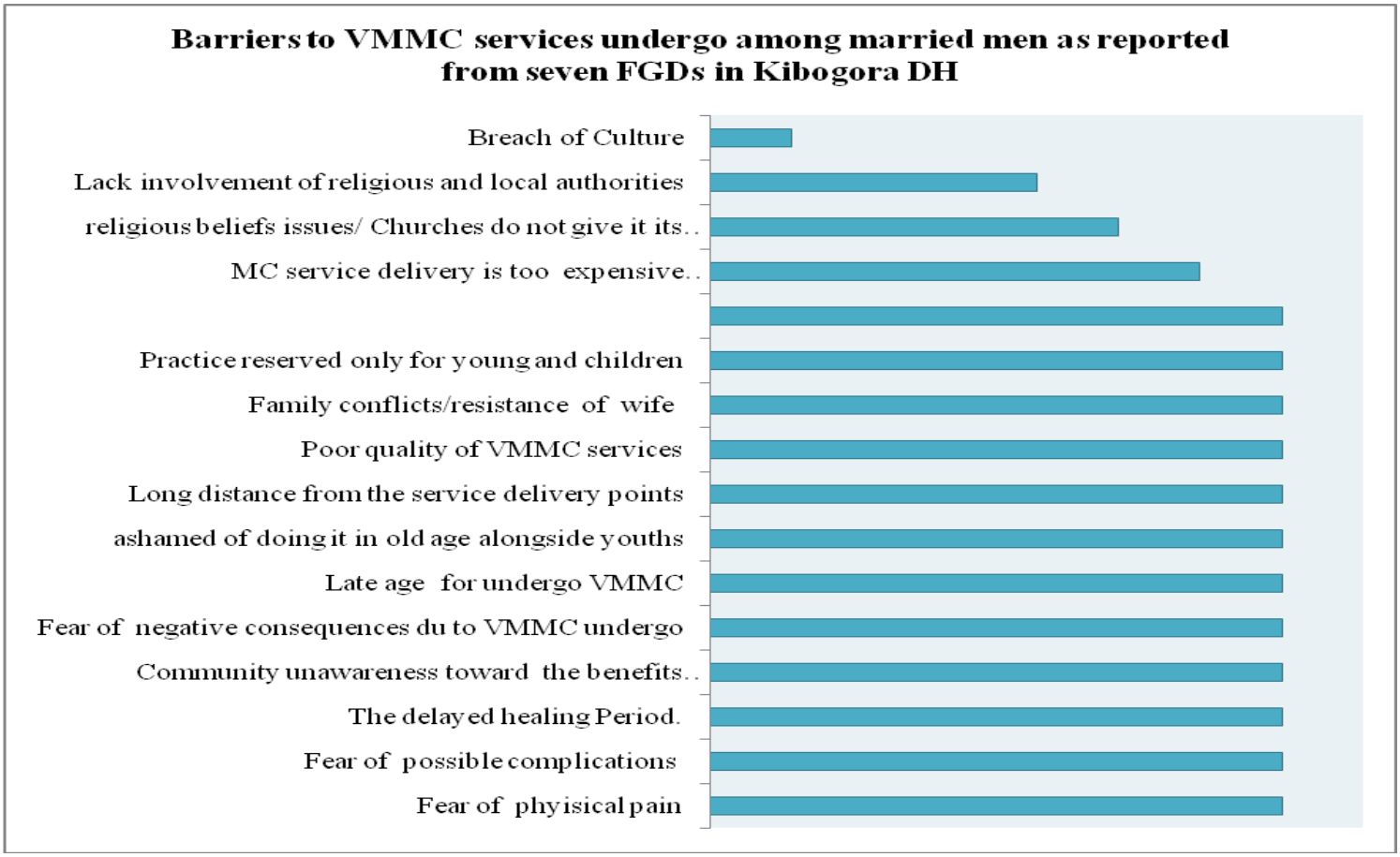

Figure 8:**Barriers to VMMC uptake among adult married men as discussed across Focus Group Discussions in Kibogora DH area**

According the barriers related to fear of negative consequences that may come after VMMC uptake by married men;almost focus groups discussions revetated the main following as represented in **figure no 9.** This similar observation is also shown among men respondents interviewed (**figure 6**).A great number among uncircumcised interviewed respondents in this study outlined the fear of pain or possible complications (30.6%),not manifested interest (29%) and being ashamed to it at old age (18%) as the most constraints meet by adult married men to not undergo VMMC(**figure 5)**

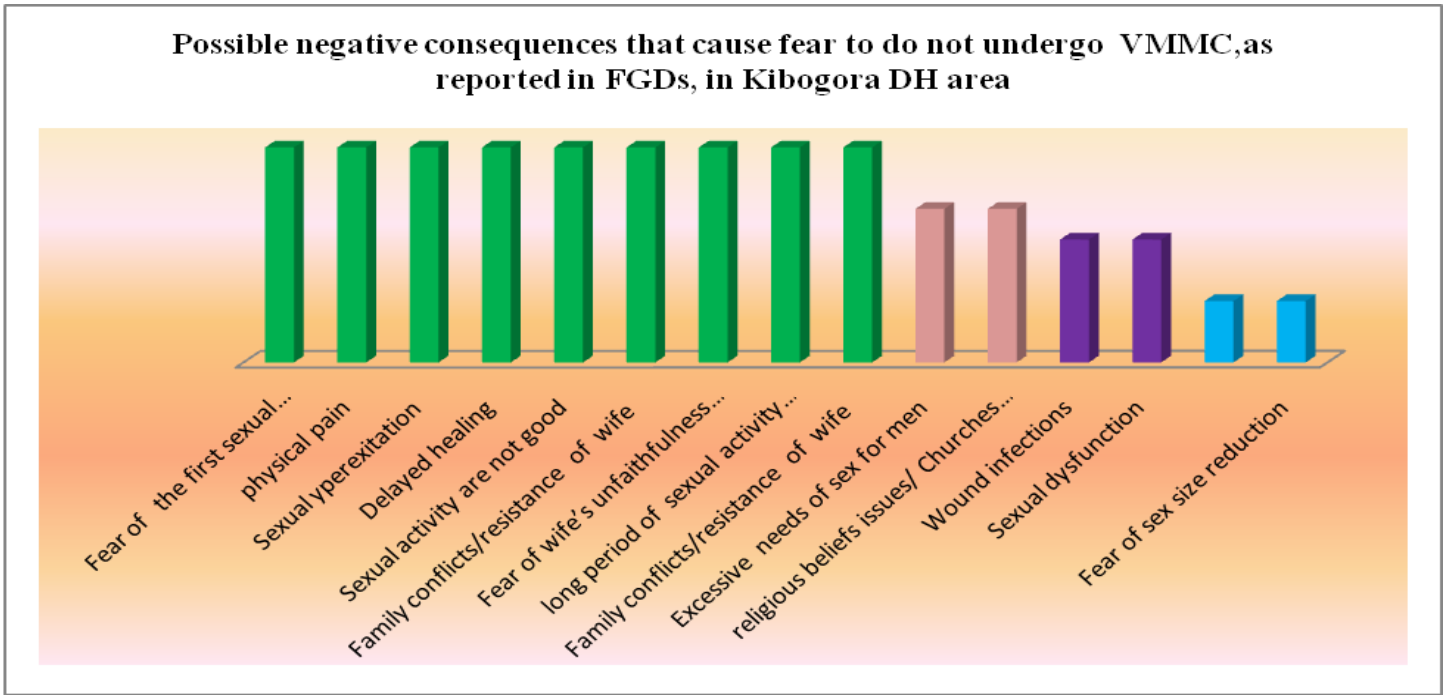

Figure 9:**Possible negative consequences that cause fear to do not undergo VMMV among adult married men as discussed across Focus Group Discussions in Kibogora DH area**

4.2.5. Strategies to improve VMMC uptake

From all FGDs, the respondents emphasized on the potential of the socio-demographic and economic aspects to influence circumcision uptake. " Male circumcision service delivery is too expensive , not offered freely and not covered my Community Based Health Insurance (MUSA)", reported all FGDs. They highlight the needs to design a specific package for adult married men who are often ashamed of circumcision uptake at their late age. "Adult men are mixed with children, shame; and adult men ashamed to get MC during campaigns alongside their children (as well for VMMC activity as in post VMMC wound care)"", they think circumcision could have been secret not in mass people, remarked all FGDs.

Community culture and traditions were also reported as the gaps that can be solved to support VMMC uptake by the community:"There is lack involvement of religious and local authorities" and, "religious beliefs issues/ Churches do not give circumcision its value". They believe that if such was changed, circumsion uptake would increase. In addition, the role of their wives plays an important limiting factor and can be an asset if they support their husbands: "If no resistance from my wife and no eventual stigma, more men would undergo circumcision" said FGD – A, C&E. Finally, some men considered circumcision a breach of the traditions and cultural norms. "If more sensitization is conducted and the authorities in charge of culture protection, then this barrier would be overcome, and uptake could increase"

CHAP V. DISCUSSION

The Study findings showed that the overall level of VMMC uptake among adults married men in Kibogora DH area in 2019 was 43,5%.while the specific uptake level is variable according the study site,high at Nyamasheke HC and low at Ruheru HC(**figure 3**).

According the religion and VMMC uptake in Rwanda , Muslim men are much more likely to be circumcised (85 percent) than men of other religions as showed trough an in depth Analysis of RAIHIS 2013-2014 conducted in 2016 on factors associated with Male Circumcision as HIV prevention in adolescents and adults in Rwanda **(33).** An other study conducted in Kenya in 2014 on factors associated with uptake of voluntary medical male circumcision among men aged 18-50 years in kibera sub-county, nairobi county in 2014 established that the preferred age group for circumcision was during adolescence, and Participant understanding of HIV and VMMC was also high (**22).**It showed also that Negative consequences of male circumcision that were reported included excessive bleeding, pain, loss of penile sensitivity and long recovery period after operation. (**22).**

The role of the education level in uptake of VMMC is highlited in various previsouses studies. Among men aged 18-50 years in kibera sub-county, nairobi county interviewed in in 2014 ,respondents who had attained secondary and tertiary level of education were more likely to have been circumcised as compared to those who had only completed primary education level. This may be due to the fact that they were more knowledgeable about voluntary medical male circumcision,having financial possibility for payment and aware of the protection it confers against HIV(**22**).Findings related to the source of VMMC services showed that most of the respondents would circumcise a male child if this service were offered for free in the hospital. The preferred period for circumcision was adolescence ;and an other study showed that 66.2% of adult uncircumcised men prefer more to perform MC by doctors in Public hospital **(22,23)**

Therefore ,among most consistent barriers to uptake of VMMC in kibogora DH cachment area include the fear of pain, fera of complications either accordingof experiences occured or rumors.The simalar findings were shown in previous Jamaica and Kenya considered long recovery or healing period after and fear of pain or others complications;a study conducted on “Factors Associated with the Acceptability of Male Circumcision among Men in Jamaica”showed that greatest concern about MC according the acceptance of MC among uncircumcised men are that Surgery may damage penis(55.3%) and and a gr eat number of respondents (30%)said “MC may change how God made penis “(**Melonie M. Walcott et al.,2013).**

Therafter,it has been shown that married men are fear that intercouse activities among couple may be afected when a married men undergo VMMC.The similar findings was shown where they showed also that women enjoy sex more if man is uncircumcised (52.6%;P value=0.004).

The personnal perceptions and concerns about how male circumcision positively or negatively affects sexual function/performance and pleasure in men and for women:A study done on Acceptability of medical male circumcision among uncircumcised young men at Mansa College of Education, Zambia: influence of perceptions about effects on male sexuality showed that uncircumcised men have specific perceptions and concerns about how male circumcision positively or negatively affects sexual function/performance and pleasure in men and for women. These perceptions were found to be important considerations for accepting circumcision among the majority of male respondents. Circumcision preference among female respondents was because of the perception that it protects men against HIV and women against cervical cancer**.(27)**.

According to Sengwayo, 'it is a deterrent as most men want to keep it private and personal'**.(32)**The Misconceptions and myths on VMMC remain high especially in rural areas as indicated in the study; therefore, provision of accurate information is of paramount importance in order to educate people on the benefits and risks associated with MMC. **(22)**. A qualitative study conducted among Older Men in Turkana County, Kenya in2014 on "Attitudes, Perceptions and Potential Uptake of Male Circumcision among Older Men,showed that many of the older men, while expressing positive beliefs about circumcision, often doubted that they would go for the procedure because they were ''old'' or because they were married and thus felt that it was no longer necessary. The word for ''old'' in Turkana was used in the interview guides for those over 25 years old. Though interviewers directed respondents to refer to men 25–49 years of age, interpretation of results must consider the possibility that several respondents may have understood the word ''old'' to mean elderly, and over the target age of this study.(2). Respondents repeatedly said that older men did not need to undergo circumcision ''because they were no longer having sex''; and old men also said that 'Lokwakel' (HIV/AIDS) was not there before. According to them it is the new generation that has brought 'Lokwakel'. Thus, circumcision should be for the young, as they are the ones most at risk.**(2**).

A study conducted on "Factors associated with uptake of voluntary medical male circumcision, Mazowe District, Zimbabwe" outlined that **r**easons for not getting circumcised given by the uncircumcised respondents were fear of pain (42.1%), long abstinence period (30.3%), being too old for circumcision (14.9%), possibility of partner infidelity during the abstinence period (6.3%) and fear of reduced sexual performance post circumcision (4.3%) and one hundred and seventeen (46.1%) of the uncircumcised respondents did not have a reason for not getting circumcised or were just procrastinating**.(24)**

Previous studies showed that, 34.2% knew that MC reduces the risk of HIV infection. One in eleven respondents (9.1%) believed that circumcised men felt more intense sexual pleasure. More than half of the

respondents (54.8%) declared that they would recommend MC to adult patients at risk for HIV. The belief that circumcised men felt more intense**(30).**

Lastly,religious affiliation has an influence on one's decision to undergo circumcision or not. However, Christians retain many of the features of early Christianity, of not opting for male circumcision based on the scripture by St Paul in (Galatians 5:6): 'in Christ Jesus neither circumcision nor uncircumcision count for anything'.(31). Circumcision is a sociocultural issue and needs concerted effort in improving its uptake as majority of participants held different views that prevented them from using circumcision services .A study conducted in Rwadna in 2016 on Factors associated with Male Circumcision as HIV prevention in adolescents and adults in Rwanda through In depth Analysis of RAIHIS 2013-2014 showed that there are also socioeconomic differences in the prevalence of circumcision, with the highest proportions among men who have a secondary education or higher (59 percent) and those in the richest wealth quintile **(31,33)**.

Study Limitations

Neverthheless this study was the primary data analysis of the data collected , some limitations have been noted:

- An interviewer bias during data collection process may occur and may also have a modification effect on our findings especially for results related to those variables.
- Participants at this study were adult married men who accompanied their men at ANC(HF based)

we couldn't visit the community in order to be ascertain of the full information from the whole community. Therefore,it is difficult of generalization of findings at community level(some informations for community level were not capcured).

- VMMC status information was based on self reporting.

Despite those limitations,this study provide the important information that will guide decision makers obtained data was from realiable sources.

CHAP.VI. CONCLUSION AND RECOMMENDATIONS

6.1. CONCLUSION

The uptake of VMMC in Kibogora DH cachment area is 43.5%. Most of identified factors associated to low uptake of VMMC personnal factors(profession;having information on VMMC;having the information on Protection against HIV by VMMC; and distance from to achieve VMMC services were found statistically associated low uptake of VMMC in Kibogora DH in logistic regression model analysis.Thematic analysis underlined the misconceptions, inadéquate community sensitization and the limited quality of VMMC service delivery at health facility level.

The Cultural beliefs and practices, personal and societal beliefs and perceptions including family conflicts were noted, as well as the breach of Culture, and misconceptions. The financial accessibility and limited involvement of religious and local authorities were also outlined by this study as main barriers to uptake of VMMC service among adult married men in Kibogora DH cachment area.

Somme identified factors and barriers may be handeled. Conjugated efforts of community, Health staff, local authorities and others leaders of opinion is needed in increase the VMMC uptake among adult married men in this remote area.The inhanced opinion‘s leaders involvement in VMMC community mobilization at all levels are highly needed to leave out Personal and societal beliefs perception changes toward VMMC.

The improved and multisectorial community mobilization toward VMMC in HIV prevention is also crucial to improve the knowledge of the population about VMMC Benefits and contribution in HIV Prevention and to increase positive Personal and societal beliefs perception changes toward VMMC.

Lastly, there is a need to improved vmmc services delivery availability/accessibility and quality toward VMMC service delivery.Trainings and reflesher’s activities need also to be reinforced for health staff and community health workers. This should increase the need to undergo VMMC among married men adults, of Nyamasheke district, especially in those of Kibogora DH cachment area.

6.2. RECOMMANDATIONS

The study recommended to Kibogora DH staff and HC of its catchment area and Ministry of Health authorities that there is need for more educational programmes in the community as well as in chucrhes , fundamentally designed to conscientize the expected programme beneficiaries about the goals and expected achievements. There is a need to increase community mobilization toward VMMC Practice in its specific aspects (gestion of pain,management of complication and rumors,positve personnal perception toward VMMC,etc); to improve VMMC quality and services delivery as well as the geographical and financial accessibility in all dimensions highlited during this study.

Community culture and traditions were also reported as the gaps that can be solved to support VMMC uptake by the community: so, there is a need the needs to design a specific package for adult married men who are often ashamed of circumcision uptake at their late age.

The necessity of religious and local authorities involvement is highly recommended in order to give circumcision its value. In addition, the role of the wives is highly recommended and can be an asset if they support their husbands.

Lastly,given that Male circumcision service delivery is too expensive, not offered freely as other HIV prevention components and not covered my Community Based Health Insurance (MUSA) ,the advocacy for a policy which provides voluntary medical male circumcision for free of payment as it is done for others components of HIV prevention package needs to be considered.

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APPENDICES

UNIVERSITY OF RWANDA

COLLEGE OF MEDICINE AND HEALTH SCIENCES

CMHS INSTITUTIONAL REVIEW BOARD (IRB)

Kigali, 13th /11/2018

NIRAGIRE Espérance
School of Public Health, CMHS, UR

Approval Notice: No 384/CMHS IRB/2018

Your project Title ***"Assessing Factors Associated to Low Update of Voluntary Medical Male Circumcision (VMMC) Among Adults Men in Kibogora DH Catchment Area, Nyamasheke District in Western Province –Rwanda, A Cross Sectional Study"*** has been evaluated by CMHS Institutional Review Board.

		Involved in the decision		
			No (Reason)	
Name of Members	**Institute**	Yes	**Absent**	**Withdrawn from the proceeding**
Prof Kato J. Njunwa	UR-CMHS	X		
Prof Jean Bosco Gahutu	UR-CMHS	X		
Dr Brenda Asiimwe-Kateera	UR-CMHS	X		
Prof Ntaganira Joseph	UR-CMHS	X		
Dr Tumusiime K. David	UR-CMHS	X		
Dr Kayonga N. Egide	UR-CMHS	X		
Mr Kanyoni Maurice	UR-CMHS	X		
Prof Munyanshongore Cyprien	UR-CMHS	X		
Mrs Ruzindana Landrine	Kicukiro district		X	
Dr Gishoma Darius	UR-CMHS			X
Dr Donatilla Mukamana	UR-CMHS	X		
Prof Kyamanywa Patrick	UR-CMHS		X	
Prof Condo Umutesi Jeannine	UR-CMHS		X	
Dr Nyirazinyoye Laetitia	UR-CMHS	X		
Dr Nkeramihigo Emmanuel	UR-CMHS		X	
Sr Maliboli Marie Josee	CHUK	X		
Dr Mudenge Charles	Centre Psycho-Social	X		

After reviewing your protocol during the IRB meeting of where quorum was met and revisions made on the advice of the CMHS IRB submitted on 26th October 2018, **Approval has been granted to your study.**

Please note that approval of the protocol and consent form is valid for **12 months**.

You are responsible for fulfilling the following requirements:

1. Changes, amendments, and addenda to the protocol or consent form must be submitted to the committee for review and approval, prior to activation of the changes.
2. Only approved consent forms are to be used in the enrolment of participants.
3. All consent forms signed by subjects should be retained on file. The IRB may conduct audits of all study records, and consent documentation may be part of such audits.
4. A continuing review application must be submitted to the IRB in a timely fashion and before expiry of this approval
5. Failure to submit a continuing review application will result in termination of the study
6. Notify the IRB committee once the study is finished

Sincerely,

Date of Approval: The 13th November 2018

Expiration date: The 13th November 2019

Professor Kato J. NJUNWA
Chairperson Institutional Review Board,
College of Medicine and Health Sciences, UR

Cc:
- Principal College of Medicine and Health Sciences, UR
- University Director of Research and Postgraduate Studies, UR

NIRAGIRE Espérance
Resident at University National du Rwanda
SPH/College of Medicine and Health Sciences
Department of Epidemiology and Laboratory (**FELTP**)
Telephone: **0788842371**
Mail:esperanceniragire@gmail.com

February on 8th, 2019

DG of Kibogora District Hospital,

NYAMASHEKE DISTRICT

Re: Asking the permission to conduct a Study

Dear Director General of Kibogora district Hospital,

I would like to ask for the permission to conduct a study for my thesis in partial fulfillment of requirements for the degree of Master of Sciences in Field Epidemiology and laboratory (FELTP) at your Hospital and seven health centers of its cachment area.

Indeed, I'm a resident at University national du Rwanda, SPH/College of Medicine and Health Sciences, Department of Epidemiology and laboratory (FELTP).I have to conduct a study titled ***"Assessing factors associated with low uptake of Voluntary Male Circumcision For HIV Prevention among adult men "*** in Kibogora DH cachment area including its seven health centers: Nyamasheke HC ,Kibogora HC, Ruheru HC, Yove HC ,Hanika HC ,Karengera HC and Kibingo HC for the fulfillment of the requirements for my thesis for getting my Master degree. It is for this reason why I'm asking this permission.

You will see in attachment the Approval from IRB to conduct this study.

In waiting your positive feedback, I thank you a lot.

NIRAGIRE Espérance

CPI:

- Head of **NYAMASHEKE HEALTH CENTER**
- Head of **KIBOGORA HEALTH CENTER**
- Head of **RUHERU HEALTH CENTER**
- Head of **YOVE HEALTH CENTER**
- Head of **HANIKA HEALTH CENTER**
- Head of **KARENGERA HEALTH CENTER**
- Head of **KIBINGO HEALTH CENTER**

KIBOGORA HOSPITAL

NYAMASHEKE DISTRICT

B.P. 01 Rusizi, Tél. 0788341442 / 0785739401

Website: www.kibogora.org , E-mail:kibogorahospital@gmail.com

Date: 12 FEV 2019

Ref:.....

Mrs NIRAGIRE Espérance,

Re: Approval for the permission to conduct a Study

Dear Mrs. Espérance,

Reference to your letter of February on 8th, 2019 asking for permission to conduct a study titled *"Assessing factors associated with low uptake of Voluntary Male Circumcision For HIV Prevention among adult men "* in Kibogora DH cachment area including its seven health centers: Nyamasheke HC ,Kibogora HC, Ruheru HC, Yove HC ,Hanika HC ,Karengera HC and Kibingo HC, I have pleasure to inform you that you are allowed to conduct your study in Kibogora DH and its cachment area, as well as you suggested it.

Best Regards,

Dr Salathiel KANYARUKIKO
Director General of Kibogora District Hospital

CPI:

- Head of **NYAMASHEKE HEALTH CENTER**
- Head of **KIBOGORA HEALTH CENTER**
- Head of **RUHERU HEALTH CENTER**
- Head of **YOVE HEALTH CENTER**
- Head of **HANIKA HEALTH CENTER**
- Head of **KARENGERA HEALTH CENTER**
- Head of **KIBINGO HEALTH CENTER**

Appendix 3 : VMMC Informed Consent Form

Information Sheet

My name is NIRAGIRE Espérance; I am a student in Masters Program, Field epidemiology and Laboratory Management at the University of Rwanda carrying out a study entitled : 'Assessing Factors associated to low uptake of Voluntary Medical Male circumcision among adult married men in Kibogora DH catchment area, in Nyamasheke District ,in Western of Rwanda', I am requesting you to participate in this study.

In fact this study might not benefit you immediately but the findings may help HIV/AIDS prevalence reduction in this area by increasing the Uptake of VMMC among adult men. There are no obvious physical risks foreseen or emotional risks anticipated. The information will be gathered from you as the participants by responding the questions noted in the questionnaire and through your participation in Focus Group Discussion with other adults men .

Data will be collected on defendant variables and independent variables especially on Social demographic informations(your HC and sector of provenance, age, religion, marital status, level of education ,Occupation); on HIV and VMMC status ;General knowledge on VMMC and HIV Prevention; perception and on VMMC practices. So you are free to ask any questions.

Your participation in this study is voluntary, mean that you are free to withdraw from the study any time without any penalty. The service you receive at the health center/Hospital and the relationship with the health care provider will not be affected in any way.

All information will be confidential and your name will be anonymous. For any queries or questions, contact me through the University of Rwanda, College of Medicine and Health sciences the Chairperson of the CMHS IRB (0788 490 522) and of the Deputy Chairperson (0783 340 040), contact the supervisor of this research on 0788864720/078866609 or use my cell phone 0788842371.
Will you please sign to your willingness to participate?

Participant's Statement:
The study described above has been explained to me to my full understanding and I voluntarily give consent to participate in this study. Your signature on this consent form indicates your agreement to participate in this study.

Participant print names:_____

Signature: [ ] Date:___/___//__/__//___/___/___/___//

Researcher print name:_____

Signature: [ ] Date:___/___//__/__//___/___/___/___//

Note: Participants who will sign are married men aged only between 20-59 years old.
Thank you

Appendix 4 :Consent form

AMAKURU KU KWEMERA KWINJIRA MUBUSHAKASHATSI

Ndabasuhuje.Amazina yanjye nitwa NIRAGIRE Esperance; umunyeshuri muri Kaminuza y'Urwanda, agashami ko kurwanya indwara z'ibyorezo no gukurikirana imikorere yaza Loboratwari nkaba ndigukora ubushakashatsi Ku mpamvu abagabo bakuze batitabira cyane gahunda zo kwisiramuza muri aka gace.

Ubu bushakashatsi nta gihembo buri bungenere, ahubwo buzafasha mukongera serivisi nziza itangwa irebana na gahunda yo kwisiramuza ku bagabo bakuze hagamijwe gukomeza kugabanya ubwandu bushya bw'antu bandura indwara ya sida muri aka gace, kandi ku wemera gufatanya muri ubu bushakashatsi ntangaruka mbi bizamutera. Amakuru atangwa uwemeye gufatanya mu bushakashatsi asubiza urutonde rw'ibibazo rukubiyemo; amakuru ku irangamimerere, (ikigo nderabuzima ukomokamo,umurenge,imyaka,idini usengeramo,niba warashatse cyangwa uri ingaragu,amashuri wize,umurimo ukora0;uko uhagaze ku bujyanye no kwipimisha agakoko gatera SIDA, amakuru rusange ku ndwara ya SIDA n'uburyo bwo kuyirinda, uko uhagaze ku bijyanye no kwisiramuza,ndetse n'amakuru rusange uzi ku bijyanye n'igikorwa cyo gusiramura.Kandi ufite uburenganzira busesuye bwo kubaza ikibazo waba ufite.

Gufatanya mu bushakashatsi ni ubushake kandi ufite uburenganzira bwo guhagarika ubu bushakashatsi igihe cyose ushatse ntazindi nkurikizi zibayeho. Serivisi muhabwa kukigo nderabuzima ndetse n'imibanire hagati yabayibaha ntabwo izahungabana nagato. Amakuru yose azabikwa mu ibanga kandi nta zina rizajyaho. Uramutse ugize ikibazo kubijyanye n'ubu bushakashatsi wahamagara ni mero zikurikira: Uhagarariye ubushakashatsi muri Kaminuza y'Urwanda (**0788 490 522**) umwungirije (**0783 340 040**) cyangwa abakurikirana ubu bushakashatsi (**0788864720/078866609)** cyangwa kuri telephone yanjye ubwanjye ,jye uri gukora ubu bushakashatsi **(0788842371).**

Nimwemera ko dufatanya muri ubu bushakashatsi, murasinya ku rupapuro ahabugenewe.

Kwemera gufatanya mu bushakashatsi

Numvise neza igikorwa cy'ubushakashatsi nasobanuriwe, nka ba nemeye kubushake gufatanya muri ubu bushakashatsi

Umukono w'umubyeyi / umuhagarariye ……itariki……

Umukono wuri gukora ubushakashatsi……itariki……

Icyitonderwa:Umugabo Ufite imyaka iri hagati ya 20 na 49 niwe wenyine wemerewe kugira uruhare muri ubu bushakashatsi no gusinya uru rupapuro.

MURAKOZE

QUESTIONNAIRES/ IN DEPTH INTERVIEW GUIDE

IMPAMVU ABAGABO BAKUZE BUBATSE INGO BATITABIRA CYANE GAHUNDA ZO KWISIRAMUZA MU RWEGO RWO KWIRINDA UBWANDU BUSHYA BWA VIRUSI 'INDWARA YA SIDA

IBIBAZO BIGENEWE ABAGABO

Respondant no/**Numero y'uwasubije:**

I. Irangamimerere y`ubazwa

1. Imyaka

2. I**rangamimerere**

a.Ingaragu ☐ b.Uwashyingiwe/ arubatse ☐ Umupfakazi/umupfakare ☐

d) Other (specify) ikndi kandi ukivuge ☐

3. Idini/Itorero usengeramo

a)Umugaturika ☐ b)umuporotesitanti ☐ c)Umumetodisiti d)umuyisilamu ☐

e)umudivantisiti ☐ f)Others:Ikindi ☐ g) Nta dini/torero ☐

4. Urwego rw`mashuri wize a) Ntayo ☐ b)Abanza ☐ c) Ayisumbuye ☐ d)Kaminuza ☐

e)Others(ibindi) ☐

5. Occupation(Icyo ukora):

a) Business (ubucuruzi) ☐ b) Farmer:Umuhinzi ☐ c) Employed: Ufite akazi ☐
d)Student :Umunyeshuri ☐ e) Other (specify):Ikindi(kivuge) ☐

6. HC cathment area (provenance) :Aho uturuka:

7.Self reported HIV status(Uko uhagaze mu birebana na Sida): ☐

a)Positive (**Naranduye**) ☐ b)Negative:Sinanduye/Ndi muzima c)Unknown: **Simbizi** ☐

8. Self reported Circumcision status:uko uhagaze mu bijyanye no kwisaramuza:

a)Circumcised :narisaramuje ☐ b) Uncircumcised :nta bwo nisaramuje ☐

c)No information(do not known):Nta makuru abifiteho ☐

II.General knowledge on VMMC and HIV Prevention/Ubumenyi rusange ku kwisaramuza ku bushake no kwirinda sida**:**

9.**Have you heard about Voluntary Medical Male Circumcision (VMMC)?(Y/N)**

Waba warumvise ibyerekeye kwisaramuza ku bushake? Yego ☐ Oya ☐

10**. If yes, what was your main source of information? (Tick the relevant one)**

Niba ari yego amakuru wayakuye he? Hitamo igisubizo nyacyo

a)Kuri radiyo/ Mu binyamakuru byanditse ☐

b)Kujya ku ivuriro/ ikigo nderabuzima/ ubukangurambaga bwa Ministeri y`ubuzima ☐

c)Ubukangurambaga bw`umuryango utegamiye kuri Leta/ Ibigo bisuzuma Sida ☐

d)Ku kazi/ Inshuti/ Urungano/Abavandimwe/ ku ishuri/ kwa Mwarimu ☐

e) Ku bavuzi ba gakondo ☐

f)Mu muryango wanjye mbibwiye n`umugore wanjye/abana/abavandimwe/ Mushiki wanjye ☐

g)Abayobozi b` inzeo z'ibanze ☐

h)Abayobozi b`itorero/idini/Mu nsengero ☐

i) Abakozi bo kwa muganga ☐

j) Abajyanama b'ubuzima ☐

k)Others/**Ahandi** ☐

11. Male Circumcision offers partial protection against HIV and other Sexually Transmitted Infections (Tick one)

Kwisaramuza ku bagabo birinda by`igihe gito sida n`izindi ndwara zandurira mu mibonano mpuzabitsina

a) I strongly agree /**Ndabyemera cyane** ☐

b) I agree /**Ndabyemera** ☐

c) I disagree /**Simbyemera** ☐

d) I strongly disagree/**simbyemera na gato** ☐

e)I don't know/**Ntabyo nzi** ☐

12. Do you think the community is aware about the Male Circumcision services?Yes/No

Ese mwaba muzi niba mu giturage abantu bafite amakuru ahagije kuri serivisi y`isaramurwa ry`abagabo? Yego ☐ Oya ☐

13. Do you think the community is aware about Male Circumcision reduces the chance of getting HIV infection? Yes/No

Ese mwaba muzi niba mu giturage abantu bafite amakuru ko isaramurwa ry`abagabo rigabanya kwandura sida? Yego ☐ Oya ☐

III.Perception on VMMC

Uko abantu babona ibyerekeye kwisaramuza kw`abagabo ku bushake

14. Do you freely share/discuss about VMMC at your place of work or in your community ? Yes /No

Ese mujya muganirira aho mukorera cyangwa mu giturage iwanyu ku birebana no kwisaramuza ku bushake?

Yego ☐ Oya ☐

15. If yes, what is the general attitude of your work mates/community members ?

Niba ari yego, ese muri rusange abo mukorana cyangwa mubana babyifatamo bate? Babyakira bate?!

a)The men circumcised are ridiculed ☐

stigmatized Abagabo basaramuye barasuzugurwa/ bahabwa akato ☐

b) The men non-circumcised are ridiculed/ stigmatized

Abagabo badasaramuye barasuzugurwa/bahabwa akato ☐

c) Individual's choice is respected /**Kwihitiramo bihabwa agaciro** ☐

d) They do not want to hear about it(ashamed).**Ntibashaka kubyumva/Biteye isoni** ☐

e)They are not interested/**Ntiba ba bbyitayeho** ☐

f) Others/**Vuga Ibindi** ☐

IV.Experience with VMMC /Ubuhamya ku kwisaramuza kw`abagabo ku bushake

16. If you are circumcised, at what age did you do it? (Tick one)

Niba usaramuye, wakoresheje ungana ute?

a) Infancy/ childhood / **Ndi umwana munsi y'imyaka 12** ☐

b) Adolescent/Youth (12 – 19 years)/ **Ndi ingimbi/umusore** ☐

c) Adult (20 years and beyond)/**ndi mukuru** ☐

17.If you have undergone circumcision, who provided the service? (Tick one)

Niba warisaramuje, ninde wabigukoreye?

a) Traditional expert /**umuvuzi gakondo** ☐

b) Medical practitioners at district Hospital/**Umuganga wo ku bitaro by`akarere** ☐

c) Medical practitioners at Health center/**Umuganga wo ku kigonderabuzima** ☐

d)Outreach site during Campaign/**Mu gihe cy`ubukangurambaga,Bajekubikorera hafi y' iwacu** ☐

e) Others (Specify/ **Ibindi, bivuge** ☐

18.How far is the nearest VMMC facility from your place of residence? (tick one)?

Hari intera ingana ite kugera ku kigo aho kwisaramuza kw`abagabo ku bushake bikorerwa?

a) Less than 5 km / **Mu nsi y'ibirometero 5 ugereranyije** ☐

b) 5 to 10 km / **Hagati y'ibirometero 5 kugeza ku 10 km** ☐

c) Beyond 10 km/ **Hejuru y'ibirometero 10** ☐

19. Have you complained of any type of complications after circumcision?(Yes/No)

Ese hari ibibazo wagize nyuma yo gusaramurwa? Yego ☐ Oya ☐

20.If yes , would you specify the complications or difficulties you experienced? **Niba ari yego vuga ibibazo wahuye nabyo?**

a) Delayed healing, beyond six weeks /**Gutinda gukira,(hejuru y`iyumweru bitadatu)** ☐

b) Wound infections (igisebe....) ☐

c) Excessive bleeding /**Kuva cyane** ☐

d) Loss of penis / amputation /**Gucibwa igitsina** ☐

e) Sexual **dysfunction /Igitsina kitagikora** ☐

f)Sexual hypersensibility/G**ushaka gukora imibonano mpuzabitsina cyane** ☐

g) Death /**Urupfu** ☐

h)Other (specify)__Ikindi, kivuge ☐

21.Do you have any regrets for having accepted circumcision? Yes/ No

Ese waba wicuza impamvu wiramuje?Yego ☐ Oya ☐

22.If Yes, kindly share your reasons for it /**Niba ari yego vuga impamvu?**

a) Stigmatization/**Akato** ☐

b) Loss of **penile sensitivity/**Gutakaza imvuro by`igitsina ☐

c) Sexual dysfunction /**Igitsina ntikigikora nez nka mbere** ☐

d) Breach of culture /**kwica umuco** ☐

e) Other (Specify)/**Ikindi Kivuge** ☐

23.If not yet circumcised , what are the current constraints? (Tick the relevant ones)

Niba utari wafata umwanzuro wo kwisiramuza, ni ibiki bindi biteye impungenge/ byakubujije kubikora?

a) Fear of pain /**Gutinya uburibwe** ☐

b) Long Distance from the service delivery points /**Urugendo rwo kugera `aho babigukorera** ☐

c) Stigmatization by the friends /**Baguha Akato(guhabwa akato n'incuti)** ☐

d) Busy work schedule /**Akazi kenshi/kubura umwanya wo kubikoresha** ☐

e) Not sure of the benefits /advantages/**Kutamenya ibyiza byabyo** ☐

f) Fear of possible complications from the operation/**Gutinya ibibazo byavuka nyuma yo gusiramurwa)**

g) It‘s expensive /**Birahenze/MUSA ntibyishyura** ☐

h) **Resistance from my wife /**Umugore yarabyanze ☐

h) It is against the culture of my community /**Ntibyemewe ,binyuranye n' muco wa Kinyarwanda** ☐

l) It is against my **religious beliefs/**(**Ntibyemewe mu itorero** ☐

m) Shame of doing it at old age /**isoni zo kwisiramuza uri mukuru/ ushaje** ☐

n)The VMMC facilities are not readily available **/Amavuriro/ibigo nderabuzima abikora ntaraboneka** ☐

o) Fear of a long period of abstence during the healing period /**Gutinya umwana muremure wo kwifata igihe umuntu ategereje gukira** ☐

p)Fear of wife's unfaithfulness during the healing period /**Gutinya ko umugore yanca inyuma mu gihe cyo gukira**

r)Others/**Ibindi** ☐

24 . According to you, which age group of Males are less circumcised ?**Kubwawe,ubona ari ikihe kigera cy'imyaka abantu bisaramuza ari bake kurusha ibindi?**

a)infant/**Abakiri bato** ☐

Adolescent/youth/**urubyiruko** ☐

Old men married /**Abagabo bkuze bubatse ingo** ☐

25.If young men or old men,why?**Ku bwawe,icyo cyiciro cy'abadakunze kwitabira kwisiramuza, utekereza ko ari kubera iki badakunze kubyitabira cyane?**☐

a)any stigma attached to man being circumcised or uncircumcised?/**Akato gaturuka ku kuba usaramuye cg udasaramuye** ☐

b)any family conflicts in relation to male circumcision?/**Amakimbiranye ayo ariyo yose mumuryango kubera kwisaramuza?**☐

c)Others/**Ibindi** ☐

26.Do you think women are aware on their role in increasing the uptake of male circumcision?Yes/No

Ese waba utekereza ko abagore bagira uruhare mukongera umubare w`abagabo bisaramuza?Babishyigikira?Yego ☐ Oya ☐

27.Do you have any suggestions on how to increase the uptake of VMMC among adult men from 20- 59 years old in this region(list)?**Tanga igitekerezo cy`uburyo bwo kongera abagabo bisaramuza kuva kumyaka 20-59 muri kano gace kanyu mutuyemo**

……
……
.....
.....
.....

Thank you very much for your cooperation, may you be blessed in everything you do

Turabashimiye uko twaganiririye n'amakuru mwaduhaye.Murakoze

Assessing Factors Associated To Low Uptake Of Voluntary Medical Male Circumcision Among Adult Married Men In Kibogora DH Area

Impamvu Abagabo Bakuze Bubatse Ingo Batitabira Cyane Gahunda Zo Kwisiramuza Mu Rwego Rwo Kwirinda Ubwandu Bushya Bwa Virusi 'Indwara Ya Sida (Circomcision)

Indeep Interview Guide For Healthcare Providers /Ibibazo Bigenewe Abakozi Bo Kwa Muganga

1. Work place:

a)Health center ☐ b) DH ☐ c) Community ☐

2. Title:

a) Institution manager ☐ b) Health care staff ☐ Other (specify) ☐

3. Trainings on VMMc status:

a) Never ☐ b) Once ☐ c)More than once ☐

Role Played in VMMC implementation (Uruhare mu gushishikariza abagabo kwisaramuza ku bushake)

4. Do you realize VMMC in this HF? **Yes/No**

Ese servisi yo gusiramura abagabo babishaka iratangwa muri iki kigo?yego ☐ oya ☐

5. When did you begin implementing the VMMC programme in this HF**?**

Ese servisi yo gusiramura abagabo babishaka yatangiye ryari muri iki kigo?

a)Never ☐ b)Less than one year ☐ c)Between 1-3 years ☐ d)More than 3 years ☐

6.Have you staff trained on VMMC in this HF? Y/N

Ese abakozi m uri iki kigo mufite abakozi babonye amahugurwa ku bijyanye no gusiramura abagabo?

Yego ☐ Oya ☐

7. If yes, How many trained since the beginning of program?

Niba bahari,mufite nka bangahe bahuguwe kuri iki kigo kuva ibyo guhugura byatangira kugeza ubu?(bose hamwe ,abagiye n'abagihari**)**

a)None ☐ b)1-3 staff ☐ c)More than 3 staff ☐

8. If yes How many trained on VMMC who still are in place at HF?

Ababozi bahuguwe ku gusiramura kandi bakaba bakibarizwa muri iki kigo ni bangahe (bagihari**)?**

a)None ☐ b)1-3 staff ☐ c)More than 3 staff ☐

9**. Any complications during or after the operations reported**? Y/N

Ese haba hari ibibazo byaba byarigeze bibaho muri gutanga ,nk'uwo muyihaye akaba yaragize ikibazo haba mu gihe yayihabwaga cyangwa se na nyuma yanyu,mukabimenyeshwa ? yego ☐ oya ☐

10.If yes,which one(list)/**Niba bihari ari bivuge**

……
……

11. Have you been able to measure up to the demand for MC? Yego ☐ ☐

Ese mwaba muzi umubare /ingano y'abifuza guhabwa iyi service mu ba turage banyu`?

12.How may you to measure the demand for Circumuncision in your population?!

Mubasha kumenya mute abifuza y'abifuza guhabwa iyi service mu ba turage banyu`?

……
……

13. What are some of the challenges you have met during implementation of this programme?

Ni ibihe imbogamizi mwaba mwaragize mu gushyira mu bikorwa iyi gahunda mu rwego rw'ikigo nderabuzima cyanyu?!

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…….

14. How do you compare demand for MC for children, adolescents and youths, with the adults

Kora ikigereranyo cy` abitabira/abifuza cyane iyi servisi hano iwanyu hagati y'abana bato, ingimbi, n'abagabo abakuru bubatse ingo

Children adolescents and youths Adults men

Abana bato ☐ **ingimbi/urubyiruko** ☐ **abagabo abakuru bubatse ingo** ☐

15. About you,what are some of the barriers towards uptake of VMMC by adults men in this region?

Ku bwawe, ubona ari **<u>izihe mpamvu,impungenge n'imbogamizi zituma abagabo bakuze bubatse ingo</u>** **<u>batitabira cyane gabunda zo kwisiramuza</u>** ugereranyije n'urubyiruko muri aka gace?

……
……
……
……

16. Do you think there are culture barriers against VMMC in the catchment area of your HC?

What are they? Mwaba mutekereza ko haba hari imbogamizi zijyanye `umuco kubirebana no kwisaramuza muri aka gace? Yego ☐ oya ☐

Mutekereza ko zaba ari izihe by'umwihariko?!

……
……

17.What are strategies that you think may contribute to increase VMMC uptake among adults men 20-59 years old in the area of this region:

Ni izihe ngamba mutekereza ko zashyirwaho zikaba zafasha kuzamura ubwitabire mu kwitabira service zo kwisaramuza ku bagabo bakuze bubatse ingo muri aka gace?

- Awareness/ level of education /**Kwigisha abaturage(ubukangurambaga**) ☐
- Availability of VMMC outreaches /**Kwegereza abaturage iyi servisi babasanze mu giturage** ☐
- Availability of VMMC campaigns /**Gutegura servisi n' ubukangurambaga bwo gusaramura ku bantu benshi icyarimwe** ☐
- Increase staff trained on VMMC at all HF/**Kongera abakozi bahuguwe ku bigo byose by`ubuvuzi** ☐
- Financial VMMC service accessibility (free of payment service/insured service/

  Gutanga izi service ku buntu/no gushyiraho uburyo zakwishyurwa ku bwishingizi nka MUSA ☐
- VMMC services offering quality improvement/**Kunoza uburyo bw'imitangire ya serivisi nziza zo kwisaramuza zikoze neza ,zifite imeme ku rwego rw'abazitanga** ☐
- g)Availability of all commodities related to VMMC practices at HC and DH

  Kubona ibikenewe byose bifasha gusaramura ku bigo nderabuzima no ku bitaro ☐

h)Others/**Niba hari ibindi bivuge**……

Ni izihe ngamba mutekereza ko zashyirwaho zikaba zafasha kuzamura ubwitabire mu kwitabira service zo kwisaramuza ku bagabo bakuze bubatse ingo muri aka gace?

a. Awareness/ level of education /**Kwigisha abaturage(ubukangurambaga**) ☐
b. Availability of VMMC outreaches /**Kwegereza abaturage iyi servisi babasanze mu giturage** ☐
c. Availability of VMMC campaigns /**Gutegura servisi n' ubukangurambaga bwo gusaramura ku bantu benshi icyarimwe** ☐
d. Increase staff trained on VMMC at all HF/**Kongera abakozi bahuguwe ku bigo byose by`ubuvuzi** ☐
e. Financial VMMC service accessibility (free of payment service/insured service/
f. Gutanga izi service ku buntu/no gushyiraho uburyo zakwishyurwa ku bwishingizi nka MUSA ☐
g. VMMC services offering quality improvement/**Kunoza uburyo bw'imitangire ya serivisi nziza zo kwisaramuza zikoze neza ,zifite imeme ku rwego rw'abazitanga** ☐
h. Availability of all commodities related to VMMC practices at HC and DH
i. Kubona ibikenewe byose bifasha gusaramura ku bigo nderabuzima no ku bitaro ☐
j. Others/**Niba hari ibindi bivuge** ☐

Impamvu abagabo bakuze bubatse ingo batitabira cyane gahunda zo kwisiramuza mu rwego rwo kwirinda ubwandu bushya bwa virusi 'indwara ya sida (circomcision)

IBIBAZO BYAGENEWE ABAJYANAMA B`UBUZIMA

1. Imyaka y'umujyanama: ☐
2. Igitsina
3. Umugore ☐ Umugabo ☐
4. Icyo ashinzwe:

Binome/uvura ☐ b)ASM/uherekeza ababyeyi ☐

Health promotion/ushinzwe imibereho myiza ☐

Role Played in VMMC implementation/Uruhare rw'Umujyanama

4.Have you been trained on VMMC ?Yes/No

Ese waba warahawe amahugurwa ku gusaramura? Yego ☐ oya ☐

5. If yes How long/Niba ari yego hashize igihe kingana iki?

a)In last six months b)6-12 months ago c)More than 1 year

Mu nsi y'amezi 6 ☐ Hagati y'amezi a 6-12 ☐ Hejuru y'amezi 12 ☐

6. Have you been able to measure up to the demand for MC?/Yes/No

Ese waba ujya ubasha kumenya umubare w'abifuza guhabwa servici yo gusiramurwa mu baturage banyu? yego ☐ oya ☐

7.If yes.how do measure VMMC demand of the population in this community?

Niba ari yego ni gute ubasha k umenya umubare w`ababikeneye muri aka gace?

……
……
…….

8. What are some of the challenges you have met during community mobilization of this programme?

Ni ibihe bibazo cyangwa imbogamizi muhura nazo mu gihe mu ba mukora ubukangurambaga ku bijyanye no kwisiramuza ku bantu bakuru bubatse ingo muri aka gace?

b. Ni izihe?!

……
……
…….

……
…….

9. How do you compare demand for MC for children, adolescents and youths, with the adults men '?

Kora ikigereranyo cy` abitabira/abifuza cyane iyi servisi hano iwanyu hagati y'abana bato, ingimbi, n'abagabo abakuru bubatse ingo

Children ☐ adolescents and youths ☐ Adults men ☐

Abana bato ingimbi, abagabo abakuru bubatse ingo

10. About you,what are some of the barriers towards uptake of VMMC by adults in this region?

Ku bwawe, ubona ari **izihe mpamvu,impungenge n'imbogamizi zituma abagabo bakuze bubatse ingo batitabira cyane gabunda zo kwisiramuza** ugereranyije n'urubyiruko muri aka gace?

……
……
……
……

……
……
……
…….

11. Do you think there are culture barriers against VMMC in the catchment area of your HC?

What are they?

Ku bwawe,waba utekereza ko haba hari imbogamizi zijyanye `umuco kubirebana no kwisaramuza muri aka gace? Yego oya

☐ ☐

Mutekereza ko zaba ari izihe by'umwihariko?!

……
……
……
…….

12.What are strategies that you think may contribute to increase VMMC uptake among adults men over 20 years old in the area of this region:

Ni izihe ngamba mutekereza ko zashyirwaho zikaba zafasha kuzamura ubwitabire mu kwitabira service zo kwisaramuza ku bagabo bakuze bubatse ingo muri aka gace?

- Awareness/ level of education /**Kwigisha abaturage(ubukangurambaga**) ☐
- Availability of VMMC outreaches /**Kwegereza abaturage iyi servisi babasanze mu giturage** ☐
- Availability of VMMC campaigns /**Gutegura servisi n' ubukangurambaga bwo gusaramura ku bantu benshi icyarimwe** ☐
- Increase staff trained on VMMC at all HF/**Kongera abakozi bahuguwe ku bigo byose by`ubuvuzi** ☐
- Financial VMMC service accessibility (free of payment service/insured service/

  Gutanga izi service ku buntu/no gushyiraho uburyo zakwishyurwa ku bwishingizi nka MUSA ☐

- VMMC services offering quality improvement/**Kunoza uburyo bw'imitangire ya serivisi nziza zo kwisaramuza zikoze neza ,zifite imeme ku rwego rw'abazitanga** ☐
- g)Availability of all commodities related to VMMC practices at HC and DH

  Kubona ibikenewe byose bifasha gusaramura ku bigo nderabuzima no ku bitaro ☐

h)Others/**Niba hari ibindi bivuge:**

.....
.....

13. What is your role as a CHW you think in increasing VMMC uptake among adults men over 20 years old in the area of this region?

Ku bwawe,Ni uruhe ruhare rwawe nk`umujyanama w`ubuzima utekereza mu kuzamura umubare w'abantu bakuze bitabira gahunda zo kwisiramuza muri aka gace?!

……
……

MURAKOZE CYANE

Guide for Focus Group Discussion (FGDs)

IBIBAZO BYO KUGANIRWAHO MU MATSINDA

Self introduction of reserachers and information on the study /**Kwimekanisha** k`umushakashatsi

<u>Questions (probe where necessary)</u>:

1. How do you see the awareness of the community about VMMC?

   Ese mwaba mubona abagabo bo muri kano bafite ubuhe bumenyi ku kwisaramuza ku bushake?

2. How do you see the availability and quality of VMMC services in Kibogora district catchment area and your HC?
   Ese ireme rya serivise yo gusaramura ku bushake muribona mute mu gace k`ibitaro by Kibogoran'ikigo nderabuzima cyanyu?

3. What do you think are the barriers in community against VMMC uptake among adult men 20-59 in this area?/

   Ni izihe mbogamizi mubona mu giturage ku kwisaramuza ku bushake ku bagabo bakuru bubatse ingo bafite hagati y'imyaka 20 na 59?

4. Do you think there is any barrier related particularly to the culture vis a vis VMMC uptake among adult men 20-59 in this area?/

   Ese mwaba mutekereza ko hari imbogmizi y`umuco kubirebana no kwisaramuza ku bushake mu bakuze hagati y`imyaka 20-59?

5. What do you think should be done to increase VMMC uptake among adult married men 20-59 in this area? /

   Ni iki mutekereza ko cyakorwa kugira ngo abagabo bubatse ingo bari hagati y'imyaka 20 na 59 bo muri aka gace bitabire kurushaho servisi zo kwisiramuza ku bushake mu rwego rwo kwirinda icyorezo cya SIDA?

Thank you /**Ndabashimiye ikiganiro tugiranye.Murakoze**

TASKS AND TIMEFRAME

Activity	Timeframe											
	July 2018 August 2018	September 2018	October 2018 November2018	December 2018	January 2019	February 2019	March 2019	April 2019	May 2019	June 2019	July 2019	August 2019
1.Research Proposal development												
2. Submission of Research protocol UR/CMHS/SPH/FELTP ,Kibogora DH authorities for their review and approval												
3. Data collection tool design and impression,Questionnaires pre-testing												
4. Data collection process												
5. Data entry, Coding, editing												
6. Data analysis												
7. Report Transmission												