

**FACTORS ASSOCIATED WITH UPTAKE OF VOLUNTARY
MEDICAL MALE CIRCUMCISION SERVICES AMONG ADULT
MALES IN LUDEWA DISTRICT COUNCIL, NJOMBE REGION**

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**MSc (Applied Epidemiology) Dissertation
Muhimbili University of Health and Allied Sciences
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By

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**A Dissertation Submitted in (partial) Fulfilment of the Requirements for the
Degree of Master of Science (Applied Epidemiology) of
Muhimbili University of Health and Allied Sciences**

**Muhimbili University of Health and Allied Sciences,
October, 2016**

CERTIFICATION

The undersigned certify that they have read and hereby recommends for acceptance by Muhimbili University of Health and Allied Sciences a dissertation entitled ***Factors Associated with uptake of Voluntary Medical Male Circumcision Services among Adult Males in Ludewa District Council, Njombe Region*** in (Partial) fulfillment of the requirements for the degree of Master of Science in Applied Epidemiology of Muhimbili University of Health and Allied Sciences

Prof. K.S. Mnyika

(Supervisor)

Date

DECLARATION AND COPYRIGHT

I, **Abrahman A. Ali** declare that this **dissertation** is my own work and that it has not been presented and will not be presented to any other University for a similar or any other degree award

Signature_____ Date_____

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DEDICATION

This work is dedicated to my lovely mother Mayasa Ali Salum and my father Ali Ali Abdallah for their pray, courage and support.

ABSTRACT

Background: Male circumcision is the removal of some or the entire foreskin of the penis. In 2007, World Health Organization (WHO) adopted and recommended Voluntary Medical Male Circumcision (VMMC) to be implemented as an intervention for HIV prevention particularly in the country with high prevalence of HIV and low prevalence of Male circumcision. Since VMMC programme started in Ludewa DC in 2011 and early 2015, 83% of the procedures performed were for <20 years old clients. Little information are available on the factors associated with the uptake of VMMC services among adult males aged ≥ 20 years. Hence this study aimed to identify factors influencing uptake of voluntary medical male circumcision services among adult males aged ≥ 20 years in Ludewa DC.

Materials and methods: An analytical cross-sectional study design was utilized. A multistage probability sampling method was used to randomly select adult males aged >20 years to be included in the study. Structured interviewer administered questionnaire was used in data collection. Data was entered, cleaned and analysed using Epi info version 3.5.1. The p-value of <0.05 and OR at 95% was set as statistical significance level. Chi-square test was performed at bivariate level and those variables with $p < 0.2$ were entered in Multiple logistic regression model to control for confounding and identify factors that are independently associated with uptake of VMMC services.

Results: A total of 326 adult males aged ≥ 20 years were recruited in the study with the median age of 33 years (range 20 to 67 years). More than two third (66.6%) of the study respondents were circumcised. Having secondary and above education level (AOR=4.49; 95%CI: 2.58-7.81), availability of VMMC services (AOR=2.19; 95%CI: 1.21-3.96), pleasing of female partners (AOR=2.83; 95%CI: 1.63-4.93) and social support (AOR=1.78; 95%CI: 1.03-3.09) were independently associated with the uptake of VMMC services

Conclusion and Recommendation: In this study, availability of VMMC services, education level, female partner support and social support were independently associated with uptake of VMMC services. Therefore, in order to increase coverage of circumcised adult males, involvement of women in the programme should be strengthened and also

health education for addressing barriers to uptake of VMMC services should be developed and implemented.

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ABBREVIATION

Term	Meaning
AOR	Adjusted Odds Ratio
CHW-LAP	Community Health Workers-Learning Agenda Project
CI	Confidence Interval
COR	Crude Odds Ratio
DC	District Council
DMO	District Medical Officer
FELTP	Field Epidemiology and Laboratory Training Programme
HF	Health Facility
HIV	Human Immunodeficiency Virus
MC	Male Circumcision
MUHAS	Muhimbili University of Health and Allied Science
MoHCDGEC	Ministry of Health, Community Development, Gender, Elders and Children
SPHSS	School of Public Health and Social Science
THMIS	Tanzania HIV and Malaria Indicators Survey
STIs	Sexual Transmitted Infections
UNAIDS	United Nation Acquired Immunodeficiency Syndrome
UTIs	Urinary Tract Infections
VMMC	Voluntary Medical Male Circumcision
WHO	World Health Organization

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DEFINITION OF KEY TERMS

VMMC: Is the surgical removal of foreskin of the penis by a trained health worker

Uptake of VMMC services: This means circumcision status of the study respondents

Circumcised study respondents: All study respondents who were circumcised either medical or traditional or religion

CHAPTER ONE

1. INTRODUCTION

1.1. Background

Approximately 35.3 million people acquired HIV worldwide in 2012. Among the 35.3 million infected people in the world, 23.5 million people come from Sub-Saharan Africa (1). Among the HIV infected people in the world, 30.7 million aged >15 years while 13.3 of them were males (1). Globally, 2.3 million new HIV infected people were reported in 2012 with 1.6 million deaths suspected to be caused by HIV/AIDS (1).

Male circumcision is the removal of some or the entire foreskin of the penis. It is culturally practiced globally and it is found partially reduce the risk of HIV infection from female to male due to psychological difference between the circumcised men which decrease their susceptibility to HIV infection (2). Voluntary medical male circumcision (VMMC) is the surgical removal of the foreskin of the penis by the trained healthcare worker. In the randomized controlled studies, VMMC was found safely and effectively reduce the risk of HIV infection from female to male by 60% among the circumcised men and the risk of HIV infection was found to be reduced to 73% in other observational studies (3). Also the results from VMMC Cost and impact study revealed that the effective and rapid scale up of VMMC program between men aged 15 to 49 years would rapidly decrease HIV infection rate (4).

In 2007, WHO adopted and recommended VMMC to be implemented as a strategy to reduce HIV infection in the world and it was particularly recommended to be implemented in the countries with low prevalence of male circumcision and high prevalence of HIV (5). Also it was practical portrayed that circumcising eighty percent (80%) of the men population might reduce 45% of new HIV infections from 2011 to 2015 (6).

VMMC only provide partial protection to HIV infection which calls for use of other methods of HIV infection together with VMMC strategy in order to control the problem (7). Furthermore, there is a raised concern about the possibility of compensation after the surgical procedure (7). VMMC also found to have other non-HIV prevention benefits to the circumcised men which include reduction in risk of Urinal Truck Infections (UTIs),

reduced risk of getting other Sexual Transmitted Infections (STIs), improved personal hygiene, prevent cervical cancer to female partners and prevention of penile cancer to men (7).

The data of VMMC program from Njombe region reported that approximately 37% of the uncircumcised men in the region have been reached by the VMMC program since started (8).

Male circumcision in Tanzania conducted and categorized in three major categories which are; 1: traditional male circumcision which is conducted as part of traditional needs, 2: religious male circumcision which is conducted as a part of religion need and 3: voluntary medical male circumcision which is performed due to health benefit reasons and was started 2009 and delivered free in the pre-determined government health facilities

The prevalence of HIV and male circumcision in Tanzania is 5.1 and 72% respectively. Ministry of Health, Community Development, Gender, Elderly and Children (MHCDGEC) through National AIDS control programme opt to prioritize VMMC as a strategy for HIV prevention as recommended by World health organization, this was particularly done in the regions with high HIV prevalence and low male circumcision prevalence. The programme initially prioritized those males aged 10-34 (9). The prevalence of male circumcision for males aged 15 to 49 years in Tanzania regions varied from 20% to 100% for Shinyanga and Lindi region respectively (10). Njombe region was prioritized by the Ministry of Health to start the VMMC program due to highest HIV prevalence in the country 14.8% and one of the regions with the lowest prevalence of male circumcision of 49.2%. Since 2011 to 2014 a total of 91,156 male circumcision procedures had been conducted in Njombe region with support from Jhpiego.

Apart from the national age group (10-34years) targets, the programme in Njombe region decide to extend and prioritize the VMMC services delivery to the older clients aged ≥ 20 years who were at risk of getting HIV infection because of their sexual activeness and involvement in sexual activities. Through increasing the scope of VMMC programme and engagement of older clients aged ≥ 20 years, the HIV prevention benefit would be maximized within the short period of time. The main VMMC communication channels used by the program in the region to deliver messages on benefits of VMMC to the

community were radio feeds, billboard and experiential media and the messages was mainly focus to the older clients and women. However regardless all the efforts of improving the awareness and delivering the VMMC messages to the older clients who are sexually active, 85% of the procedures performed were <20 years men and only 6% of the clients were ≥ 25 years. Although the VMMC program in Kenya showed same clients pattern (11).

The main barriers to uptake of VMMC services among adult that founds from different studies in different countries were fear of pain during and after the surgical procedure including painful erections after surgery and delay of healing after the procedure ((12),(13)). Also other study highlighted fear of income loss during the healing period, lack of knowledge on VMMC benefits especially HIV prevention benefit and the belief and perception that male circumcision cultural practiced in other ethnic groups as a barriers to uptake of VMMC services among adult (14).

The study results from VMMC clinical trials conducted in Uganda and Kenya raised similar concern on the cultural preference for the circumcision status of young boys ((14),(15)). Also the finding of the study on acceptability of VMMC among a community member in Mara region revealed that male circumcision mainly performed during pre-pubescent as traditional rites for passage and has a marked strong preference for circumcision of the young boys (16). The prevalence of male circumcision in Tanzania was approximately 72% while that of Njombe region is 49.2% and WHO recommended prevalence of MC to be 80% in order to enjoy maximum benefit of VMMC. Data from the programme in Ludewa DC which is the one the district constitute Njombe region and where the VMMC program started in 2011 shows that since 2011 up to early 2015, a total of 29,782 VMMC procedures were conducted and more than 83% of the clients are under 20 years (17). The major ethnic groups in Ludewa DC are Pangwa, Manda and Kisi and they are traditionally not circumcised. Contrary to some other ethnic groups in Tanzania, those ethnic groups in Ludewa DC does not perform male circumcision as part of their ethnic rites (18)

1.2. Statement of the problem

The prevalence of HIV and male circumcision in Njombe region is 14.8% and 49.2% respectively. Between 2011 when the VMMC program began in Ludewa District Council and early 2015, 29,782 VMMC procedures were performed in which more than 83% of the clients were <20 years old. In order to enjoy the maximum benefits of reducing new HIV infection through male circumcision, the coverage rates of 80% have been shown to be effective for prevention of new HIV infection. The low coverage of male circumcision especially for adult males may be one of the factors for the high HIV prevalence in the region. Although there is qualitative study done in the region on VMMC services uptake but little information are available on factors associated with uptake of VMMC services among adult males. Therefore, this study aim to identify factors influencing uptake of VMMC and barriers to uptake of VMMC services among adult males in Ludewa DC

1.3. Rationale of the study

Understanding factors that influence the uptake of VMMC services among adult males aged 20 years and above is important in order to ensure that service delivery to this group of males will be more effective. The study results will provide information that will be useful for identifying which aspects of VMMC need to be prioritized or strengthened. Also the results will provide information for developing appropriate interventions for increasing coverage of VMMC by engaging more adult males and reaching the national target of 80% prevalence of male circumcision.

By increasing the coverage of male circumcision in community of Ludewa DC and Njombe region, it is expected that the benefit in reduction of the number of new HIV infections will be achieved and thereby reducing prevalence of HIV in the region

1.4. Research questions

1.2.1. Main research question

What are factors associated with the uptake of Voluntary Medical Male Circumcision (VMMC) services among adult males in Ludewa DC, Njombe region?

1.2.2. Specific research questions

1. What is the proportion of circumcised adult males among the study population in Ludewa DC?
2. What is the proportion of circumcised adult males among the study population by age groups?
3. What is the proportion of adult males who have knowledge on male circumcision in Ludewa DC?
4. What are sources of VMMC information among adult males in Ludewa DC?
5. What are the barriers to VMMC services uptake among adult males in Ludewa DC?
6. What are the motivating factors for VMMC services uptake among adult males in Ludewa DC?
7. What are factors associated with uptake of VMMC services among adult males in Ludewa DC?

1.5. Objectives

1.2.3. Broad objective

The main objective of this study was to determine factors associated with the uptake of Voluntary Medical Male Circumcision (VMMC) services among adult males in Ludewa DC, Njombe region

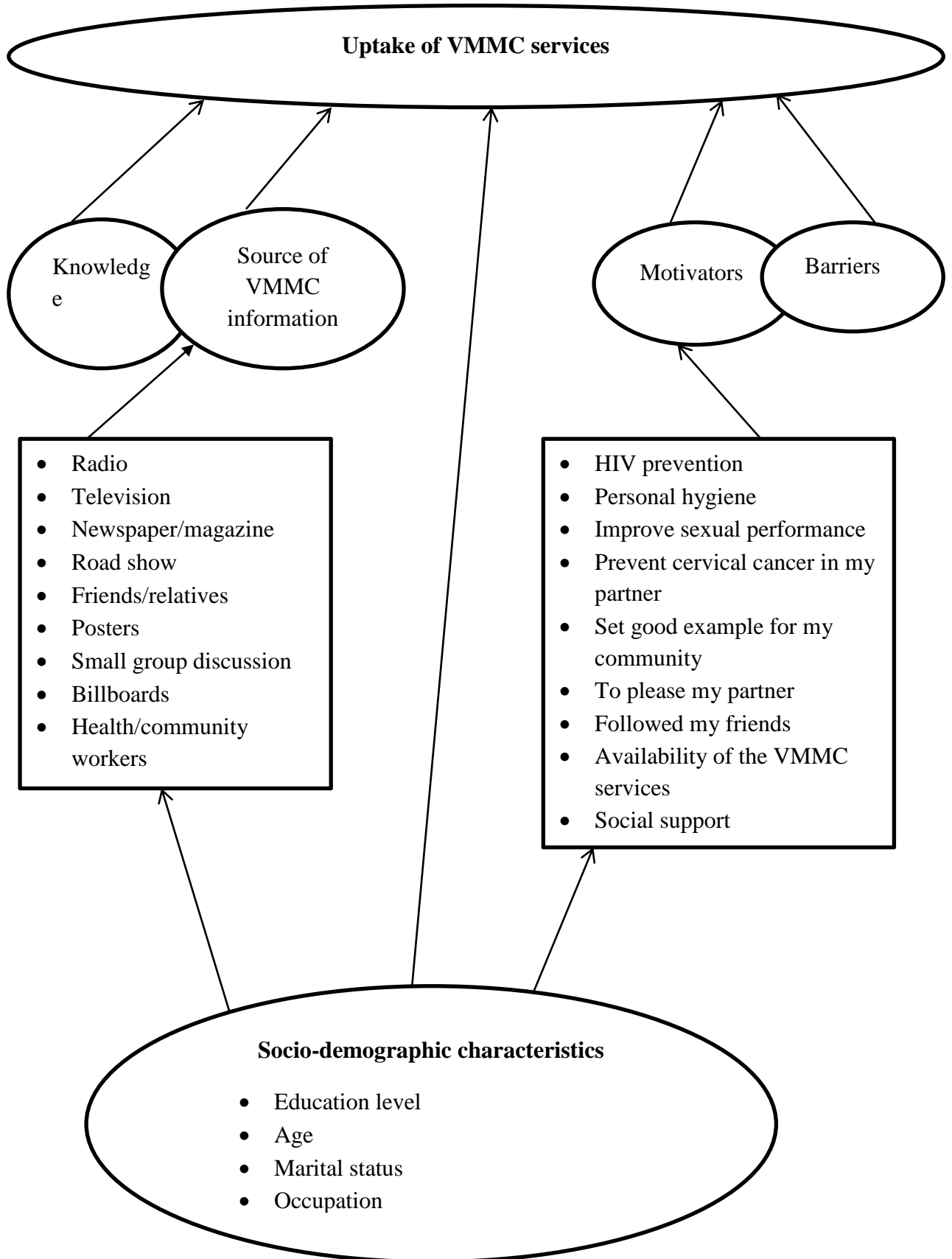
1.2.4. Specific objectives

1. To determine proportion of circumcised adult males among the study population in Ludewa DC
2. To determine proportion of adult males who have knowledge on male circumcision in Ludewa DC
3. To identify sources of VMMC information among adult male in Ludewa DC
4. To determine barriers to VMMC services uptake among adult males in Ludewa DC
5. To determine motivating factors for VMMC services uptake among adult males in Ludewa DC
6. To determine factors associated with uptake of VMMC services among adult males in Ludewa DC

1.6. Conceptual frame work

The possible factors that could influence uptake or rejecting of VMMC services include sources of information on VMMC, knowledge on MC, socio-demographic characteristics, motivators and barriers of VMMC service uptake. For example when proper health education on benefits and effects of MC is provided in the community, that community is more likely to uptake VMMC services than the community where no health education has been provided. Moreover the awareness of the existence of VMMC services in the community may influence the uptake of VMMC services, also the community with VMMC motivating factors such as availability of VMMC services and social support will be on good place of taking VMMC services than the community without these services. Thus ensuring positive availability of these factors in the community may greatly influence the uptake of VMMC services (**Figure 1**)

Figure 1: Conceptual frame work



CHAPTER TWO

2. LITERATURE REVIEW

In addressing HIV burden in the world, after the results of clinical trial study on VMMC showed that VMMC reduce risk of HIV transmission from female to male by 60%, World Health Organization (WHO) in 2007 adopted and recommended VMMC to be implemented along with other HIV prevention interventions as a strategy to reduce HIV transmission in the world and it was particularly suggested to be implemented to those countries with low prevalence of male circumcision and high prevalence of HIV (5). Also it was practical portrayed that circumcising eighty percent (80%) of the men population might reduce 45% of new HIV infections from 2011 to 2015 (6).

Also it was found that VMMC only provide partial protection to HIV infection to the circumcised men, this suggest that other methods of protecting against HIV infection should be used as well as VMMC strategy in order to prevent HIV infection (7). VMMC also found to have other non-HIV prevention benefits to the circumcised men which include reduction in risk of UTIs, reduced risk of other STIs, improved personal hygiene, prevent cervical cancer to female partners and prevention of penile cancer to men (7).

More than half (55%) of the men were circumcised in the male circumcision situation analysis study done in Tanzania (18). Also 74% self-reported male circumcision prevalence was established in the study conducted in South Africa community (19). However the study done in Jamaica on factors associated with the acceptability of male circumcision among men found 14% of the men were reported circumcised (20). Also 15.3% established by Maxwell Repfutse et al as male circumcision prevalence in Mazowe District (21). Furthermore 11.3% was reported as a prevalence of male circumcision among study respondents in Zimbabwe (22).

The study conducted in Zimbabwe found that 68% of the study participants knew about VMMC as an HIV prevention intervention, also 87.6% of the study respondents knew that VMMC can protect against other sexually transmitted infections while 86.1% knew that VMMC improves penile hygiene and 67% knew about its protective effects on cervical cancer to the female partner. Moreover, 89.1% of the respondents understood that VMMC

is only partially protective to HIV acquisition and that circumcised man still need to use other HIV prevention methods such as condom and reduce number of sexual partners. Moreover, 22.6% of the respondents who heard about VMMC believed that a circumcised man does not need to use condom to prevent themselves against HIV infection while 55.7% believed that HIV-positive should be circumcised (22).

The report from study on systematic monitoring of the VMMC scale up in Eastern and Southern Africa highlighted the use of community based health workers, community mobilizers and peers as the main interpersonal sources of information that was successfully used in Tanzania, Kenya and South Africa for delivering the VMMC messages in the community and motivating uncircumcised men to seek VMMC services (23). Similarly health/community workers and friends/relatives were the important interpersonal communication channel used to disseminate information and raise VMMC awareness to the community in Zimbabwe (22). Also similar study done in Zimbabwe found that radio feeds (71.4%) and television (40.4%) were the most frequently used sources of VMMC information followed by newspapers (28.9%) and billboard (22.2%) (22). Additionally, the findings of a randomized controlled trial on text messaging to improve attendance at clinics after male circumcision revealed that use of social media and creative ideas like use of mHealth (SMS message) are the important communication channel that can be used to promote and improving the coverage of VMMC services uptake (24).

Several studies identified most common barriers to the uptake VMMC services, which include fear of pain associated with the surgical procedure and local anesthesia, fear of post-surgical pain, poor and long wound healing after circumcision and long sexual abstinence duration, perceived masculinity and perceived costs associated with the services, fear of loss of income during the healing period ((14),(25)). This was supported by the findings of the study conducted in Mazowe District in Zimbabwe which highlighted fear of pain (42.1%), and fear of reduced sexual performance (4.3%), long abstinence period (30.3%), being HIV positive (5.5%), being too old for circumcision (14.9%), long abstinence period (6.3%), as deterrents of VMMC services uptake (21). Also lack of knowledge about the HIV prevention benefit, fear of income loss during the healing period and the perception or belief that male circumcision is a culturally practiced, so to practice it depend on the cultural needs of the certain community (14). Other barriers that were cited

in the mixed methods study conducted in Zimbabwe were fear of pain (56% for >25years and 47% for <25years), not at risk of HIV acquisition 14.6% (<25years) and 13% (>25years), lack of partner support 14% was mainly mentioned by the older ones (22).

A qualitative study conducted in Iringa and Njombe region highlighted several barriers which include; shame associated with seeking the services together with younger boys, perceived inappropriateness to be circumcised after puberty especially after marriage and having children, partner infidelity during the abstinence period followed surgical procedure, fear of loss of income, and fear of pain associated with postsurgical erections as the barriers for adult uptake of VMMC services (26). Also Tarimo et al on perceptions of Male circumcisions as a measure of HIV infection among Police officers in Dar es Salaam found that shame of undergoing circumcision at an older age and fear of pain as the common cited barriers to uptake of VMMC services (27). It was found that male circumcision promote sexual pleasure, confidence and hygiene or sexual cleanness and also prevent HIV infection from female to male and other sexually transmitted diseases (27). Other barriers to uptake of VMMC services such fear of pre and/or post-surgical pain (AOR=7.09; 95% CI: 2.58-19.47) and Fear of poor wound healing (AOR=2.68; 95%CI: 1.01-7.08) were found independently associated with being uncircumcised (21).

Uptake of VMMC services can be associated with social demographic characteristics such as level of education, marital status and age. Although in the study done in South Africa community found no association between education level (COR=0.96; 95%CI: 0.48-1.46) and age (AOR=0.63; 95%CI: 0.32-1.14) and uptake of VMMC services (28). Similarly, the study done in Zimbabwe found no association between social demographic factors and uptake of VMMC services, education (AOR=0.39; 95%CI: 0.08-1.88), Age (AOR=1.00; 95%CI: 0.50-1.98) and marital status (AOR=0.92; 95%CI: 0.50-1.87) (22). However religion was found to be predictor of the uptake of VMMC services where by those who were Christian were 2 times more likely to be circumcised compared to non- Christian (AOR=2.04; 95%CI: 1.16-3.61) (22). Contrary, Mavhu et al found level of education (AOR=0.50; 95%CI: 0.30-0.84), marital status (AOR=0.66; 95%CI: 0.45-0.96) and age (AOR=0.01; 95%CI: 1.00-1.03) were significantly associated with the uptake of VMMC services (29).

The study done in South Africa on Adult male circumcision as an intervention against HIV found that the Odds of uptake of VMMC services were four times higher to those who cited partner support as a motivator to VMMC compared to those who did not cited it (AOR=4.03; 95%CI: 2.10-7.60) and also having support from family or relative (AOR=4.41; 95%CI: 2.33-8.20) was significant associated with the uptake of VMMC services (28). Another study revealed having a circumcised friend (AOR=0.19; 95%CI: 0.06-0.65) and encouraged by someone (AOR=0.21; 95%CI: 0.07-0.67) were independently associated with being circumcised (21).

The study done in Nyanza Province, Kenya indicated that women have great influence on the circumcision status of their male partner and are much involved in the decision making of their partners for seeking VMMC services. The influential power increase with the increasing of age of their partners, women have greater influence to the older partners in married relationship than the younger men in relationship (30).

Availability of VMMC services, social support and self-efficacy were found to be associated with the uptake of VMMC services among adult men (22). Men who reported availability of VMMC services as a motivator to uptake of VMMC were 2 times more likely to be circumcised (AOR=2.32; 95%CI: 1.67-3.22), in addition males who mentioned social support as a motivator for the uptake of VMMC were 3 times more likely to be circumcised (AOR=3.01; 95%CI: 1.97-4.61), also males who reporting high self-efficacy were 8 times more likely to be circumcised compared to males with low level of self-efficacy (AOR=8.20; 95%CI: 1.08-62.04) (22). While awareness that VMMC prevent HIV infection (AOR=0.78; 95%CI: 0.44-1.42) found to have no association with the uptake of VMMC services (28)

CHAPTER THREE

3. METHODOLOGY

3.1. Design of the study

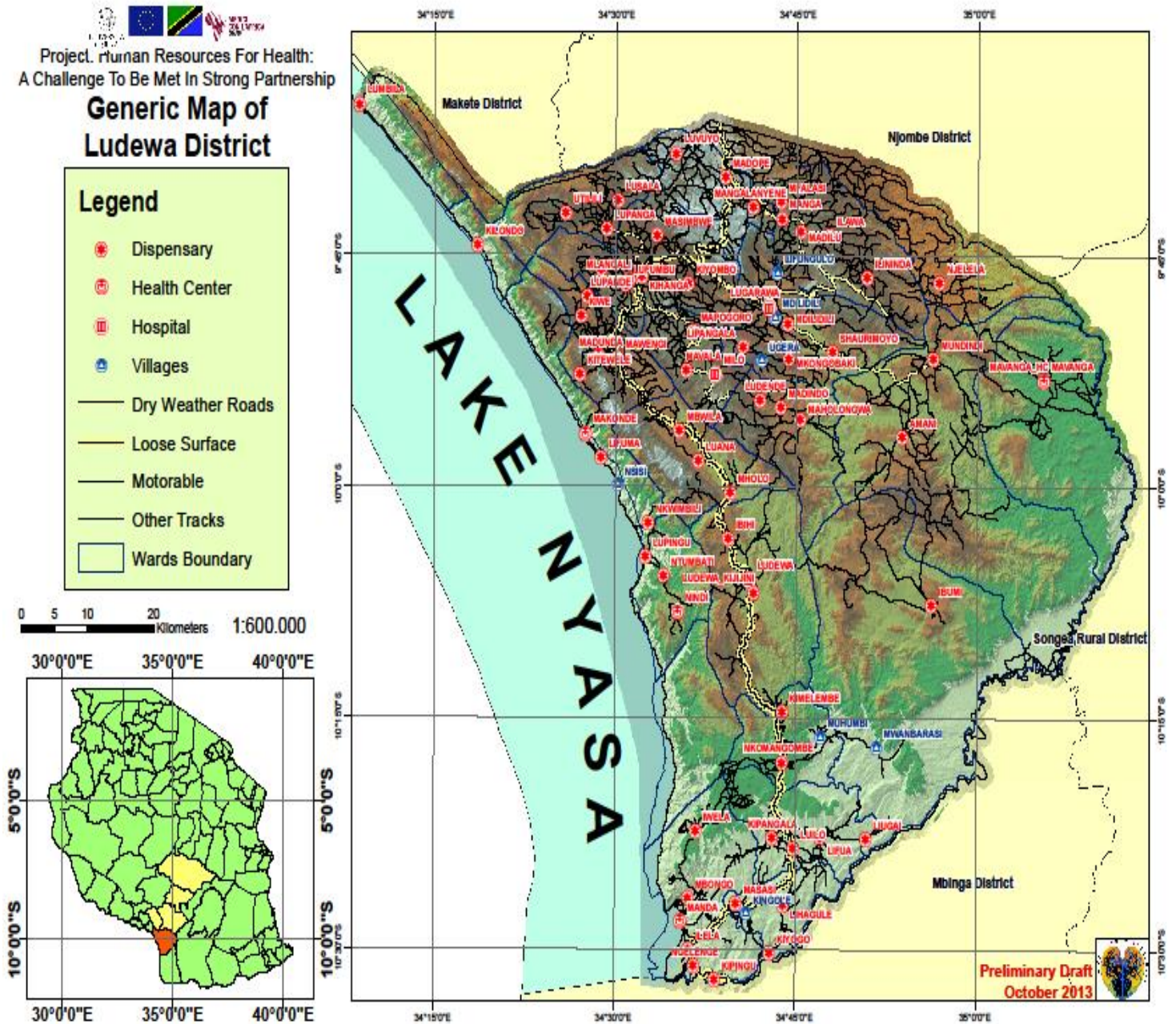
An analytical cross-sectional study design based on the quantitative research method was carried out in Ludewa DC from 14th December, 2015 to 5th February, 2016.

3.2. Area of the study

The study was conducted in Ludewa DC in Njombe Region located Southern highland of Tanzania Mainland. To the west the district bordered by Lake Nyasa, Makete district to the Northwest, Njombe district to the North and Mbinga district to the South. Administratively it is divided into 5 division, 26 wards and 77 villages. The district covers an area of 8,397 square kilometres. The district has a total of 62 health facilities in which 3 are hospitals, 6 are health centers and 53 are dispensaries (**Figure 2**)

According to the population census of 2012, the district has total population of 155,423. The major ethnic groups are Pangwa, Manda and Kisi

Figure 2: Map of Ludewa District Council



3.3. Study population

An adult male aged ≤ 20 years old, living in Ludewa DC for at least 6 months prior to the study and present at the time scheduled for interview was eligible to participate in this study

3.4. Sample size

The minimum sample size (n) was obtained by using formula (32)

$$n = \frac{Z^2 \times P (100-P)}{E^2}$$

Where;

P= prevalence of male circumcision = 26%. (21)

E= Margin of error set at 5%

Z= Standard normal deviate set at 1.96 at 95% Confidence interval (CI)

$$n = \frac{(1.96)^2 \times 26 (100-26)}{5^2} = 295.6 = \mathbf{296}$$

Hence, the sample size was **296** participants

In addition of non-response rate of 10%, sample size round off a total of **326** participants

3.5. Sampling technique

A multistage probability sampling was utilized to select the sample. This was done in three stages as described below;

First stage

A list of wards and villages was requested and collected from DMO office in Ludewa DC. By using computer generated random numbers technique, 7 wards (Manda, Mawengi, Mlangali, Ludewa, Masasi, Luana and Luilo) out of 26 wards were randomly selected. All wards in Ludewa District were numbered from one to twenty-six and those ward numbers which correlates with the computer generated random numbers were selected.

Second stage

Similarly by using computer generated random numbers technique, 2 villages from each ward that were randomly selected at the first stage were randomly selected. The villages from each ward were numbered depending on the number of villages consisted in a ward

and village numbers which correlate with the computer generated random numbers were selected. Hence a total of 14 villages were randomly selected.

Third stage

In this stage, Probability proportion to sample size (PPS) method was used to calculate the sample size to be drawn in each village depending on the number of households in each respective village. Then, samples from 14 villages were randomly selected using computer generated random numbers. A list of numbered households from each village was obtained from village leader. The household numbers which correspond with the computer generated random numbers were then selected.

Fourth stage

One eligible and consented adult male aged ≥ 20 years present at the time of interview was selected from each selected household. If in the selected household there was only one eligible participant, he was selected to be a study respondent for that respective household. However when there was no eligible man in any households, the next household number from the list of households in the respective village was substituted.

In the household with more than one eligible participant, one participant was randomly selected using lottery method. Their first two names were written on the pieces of paper, folded and then thrown into the box. After that, interviewer blinded picked one piece of paper from the box, unfolded and read the first two names found on the picked piece of paper. The eligible men whose first two names found after unfolded of piece of paper recruited as study respondents for the respective household.

The circumcision status of the study respondents who were circumcised at the health facilities was confirmed by using medical records obtained at the health facility in the respective village. The names of the circumcised study respondents were checked and verified from the medical records and if the name available in the medical record was marked in the questionnaire.

3.6. Pretesting of the tool

The interviewer administered questionnaire was pre-tested by 20 respondents from different households in Mbeya DC. The data collection tool was revised after pretested to make sure that the questions capture all required and reliable information. Also the tool was rectified to improve quality and clarity before the implementation of the study. The research assistants used the revised data collection tool to collect data.

3.7. Recruitment and Training of Research Assistants

Three enrolled nurses and two medical attendants from Ludewa District Hospital were trained for two days on the objectives and methodology of the study, Swahili version data collection tool and interview techniques. The health personnel's was used as the research assistants because the circumcision status of the study respondents needed to be reviewed using in the medical records. All research assistants were fluent in Swahili language and indigenous of Ludewa DC

3.8. Data collection procedure

The Interviewer administered structured questionnaire was used during data collection. Questionnaire was used to collect information on socio demographic characteristics, sources of VMMC information and motivators and barriers to uptake of VMMC services among adult males. The questionnaire was translated from English to Swahili language, the Swahili version questionnaires was used to collect data after being pre-tested by 20 respondents from different household in Mbeya DC in which language appropriateness, time taken filling one questionnaire and comprehensiveness of the questions was assessed. A brief explanation on the aim of the study was provided to the participants, the participants were informed on the confidentiality of the information they gave and the participation was voluntary. The consent forms were provided to all participants and collected after been signed. For those study respondents who were unable to sign consent form, they were asked to call their witness for signing of consent form. The consent form was loudly read three times to the study respondents and then asked if he has understood and agree to participate in the study. Once he understood and agreed to participate in the study, he allowed his witness to sign consent form for him. After collection of signed consents interview was conducted using interviewer administered questionnaire.

3.9. Variables

3.9.1. Dependent variable

The outcome variable for this study was the uptake of male circumcision services in which those participants who are circumcised were noted that they have taken male circumcision services and those who are not circumcised were noted as they have not yet take male circumcision services

3.9.2. Independent variables

The independent variables for this study were socio-demographic characteristics (such as age, marital status, education level and occupation), motivators and barriers of VMMC, sources of VMMC information and knowledge on MC.

3.10. Data management and analysis

3.10.1. Data quality

The whole process of data collection was supervised by principal investigator to ensure quality data collection process and avoid breach of protocol by data collectors. The data collection forms were reviewed on daily basis to check the completeness and consistence of the responses. If any of the reviewed forms identified to have some errors, the research assistance were asked to go back to the respective household to make changes to the specific form and items. Epi info 3.5.1 was used to formulate the skip pattern and check codes to reduce errors during data entry process. The data was cleaned before data analysis.

3.10.2. Data analysis

Data was analyzed using Epi info version 3.5.1

3.10.3. Univariate Analysis

At this level, categorical variables were summarised using frequency distribution and proportions where by proportion of circumcised adult males was computed, while continuous variables were summarised using measure of central tendencies and variability (median and range).

Univariate analysis was performed for socio demographic characteristics, knowledge variables, sources of VMMC information and barriers to uptake of VMMC services where by frequency distribution and proportion computed

3.10.4. Bivariate Analysis

The outcome variable which was circumcision status/uptake of VMMC services was tested for association with independent variables which were selected socio demographic variables and motivating factors in order to determine the relationship between the outcome and independent variables. This analysis was assessed by using chi-square test. The p-value of <0.05 and OR at 95% CI was set as statistical significance level. Those factors with the p-value of ≤ 0.2 at the bivariate level was entered into Multiple Regression Model

3.10.5. Multivariate analysis

In multivariate analysis, multiple logistic regressions were performed to identify the predictors of uptake of VMMC services while controlling for other factors.

3.11. Ethical consideration

The study was reviewed and approved by Muhimbili University of Health and Allied Sciences (MUHAS) Research and Publication committee. The letter of introduction to Ludewa DC authority was obtained from MUHAS School of Public Health and Social Science (SPHSS)

The letter of introduction to the wards and villages authorities was obtained from Ludewa District Council. Preliminary meeting was conducted with District Medical Officer (DMO) explaining the aim of the study

Written informed consent was obtained from selected participants in each household after explaining the objectives of the study, assurance of the confidentiality of their response, risk and benefit of the study and explaining that the participation was voluntary

CHAPTER FOUR

4. RESULTS

4.1. Background characteristics of the study respondents

A total of 326 adult males aged ≥ 20 were recruited in the study with response rate of 100%. Out of 326 study respondents, 135(41.4%) were aged between (20-29 years) with a median age of 33 years (range 20 to 67 years). There were 304(93.3%) Christians while 248 (76.1%) of the study respondents were unemployed and 207(63.5) were Pangwa. Also out of 326 study respondents 220 (67.5%) were married and 159(51.8%) had primary education level. (Table 1)

Table 1: Socio-demographic characteristics of the study respondents

Variable	Frequency (n)	Percentage (%)	Circumcised n (%)
Age group			
20-29	135	41.4	99(73.3)
30-39	85	26.1	66(77.6)
40-49	60	18.4	38(63.3)
50-59	41	12.6	12(29.3)
60+	5	1.5	2(40.0)
Tribe			
Pangwa	207	63.5	131(63.3)
Kisi	41	12.6	30(73.2)
Manda	56	17.2	37(66.7)
Other	22	6.7	19(86.4)
Education			
None	28	8.6	10(55.6)
Primary	169	51.8	98(57.9)
Secondary	126	38.7	107(84.9)
Tertiary	3	0.9	2(66.7)
Marital status			
Never married	103	31.6	77(74.8)
Married	220	67.5	140(63.6)
Separated/Divorced/widowed	3	0.9	0(0.0)
Religion			
Muslim	27	8.3	20(74.1)
Christian	291	89.3	191(65.6)
Other	8	2.4	6(75.0)
Occupation			
Employed	78	23.9	70(89.7)
Unemployed	248	76.1	147(59.3)
Median age = 33 years (range = 20 to 67) years			

4.1.1. Distribution of study respondents by villages

More than half of the study respondents come from four villages which are Ludewa mjini 62(19%), Mbogo 48(14.7), Mawengi 33(10.1%) and Luana 29(8.9%) while Luilo 10(3.1%), Lihagule 9(2.8) and Kingole 9(2.8) respectively contribute the lowest number of the study respondents. The proportion of circumcised fluctuated between the village where kipangala, Ludewa mjini and Luilo had the highest proportion of 72.7%, 71% and 70% respectively while Mawengi (63.6%), Mbogo (64.6%) had the lowest proportion. (Table 2)

Table 2: Distribution of study respondents by villages

Village	Frequency (n)	Percentage (%)	Circumcised n(%)
Madunda	20	6.0	13(65.0)
Mawengi	33	10.1	21(63.6)
Lihagule	9	2.8	6(66.7)
Ludewa Mjini	62	19.0	44(71.0)
Luilo	10	3.1	7(70.0)
Luana	29	8.9	19(65.5)
Kingole	9	2.8	6(66.7)
Mbogo	48	14.7	31(64.6)
Kipangala	11	3.4	8(72.7)
Itundu	26	8.0	17(65.4)
Nsungu	15	4.6	10(66.7)
Mbwila	17	5.2	11(64.7)
Ludewa Vijijini	23	7.1	15(65.2)
Mlangali	14	4.3	9(64.3)
Total	326	100	217(66.6)

4.2. Proportion of uptake of VMMC services among study respondents in Ludewa DC

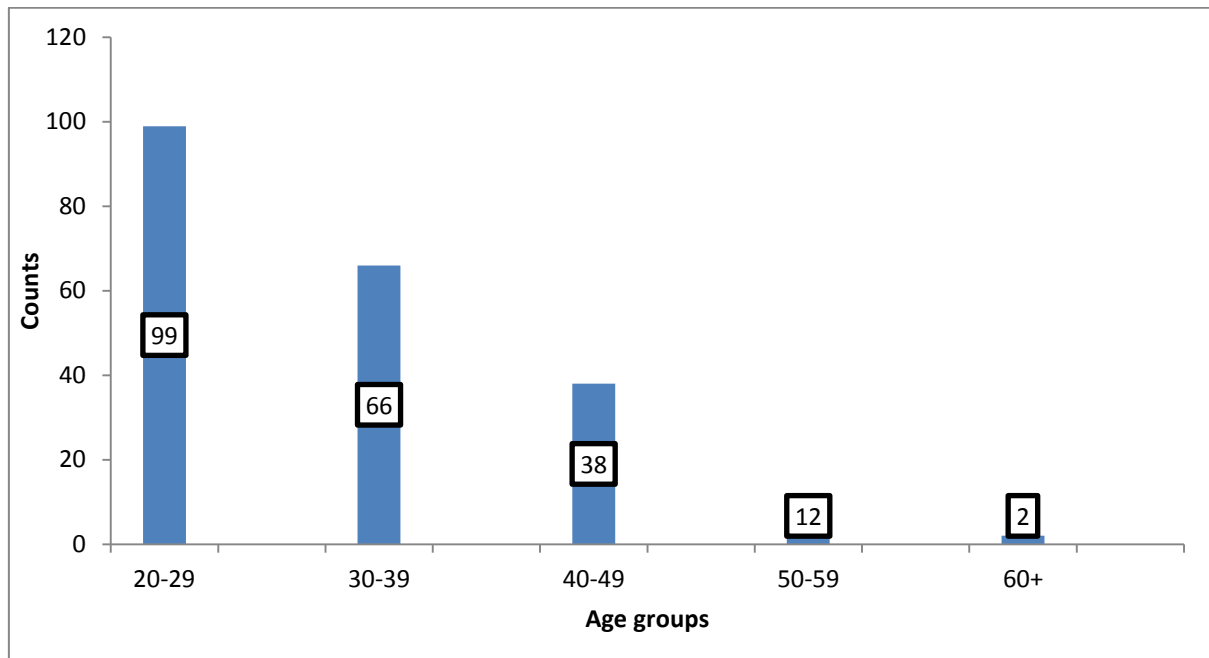
Out of 326 study respondents, 217(66.6%) were circumcised. Out of 217 circumcised study respondents, 204 (94%) were circumcised at the health facility while 13(6%) circumcised at a traditional circumcisers. Over seven percent 16(7.8%) among those who

were circumcised at a health facility, their circumcision status were not confirmed because they were not circumcised in Ludewa DC. Furthermore, the circumcision status of the study respondents who were circumcised at traditional circumcisers were not confirmed.

4.2.1. Uptake of VMMC services by age group (N=217)

Out of 217, 99 circumcised study respondents aged 20-29 years and 66 aged 30-39 years while 2 aged 60+. (Figure 3)

Figure 3: Uptake of VMMC services by age group



4.3. Proportions of study respondents by VMMC Knowledge variables

Of 326 study respondents, 301(92.3%) knew that circumcised men need to use other HIV prevention methods such as reduction of sexual partners and condom to protect from HIV infection and 296(90.8%) knew that VMMC reduce risk of HIV infection to men. Also 273(83.7%) knew that HIV positive men need to be circumcised and 252(77.3%) knew that VMMC can protect against sexual transmitted infections. Nevertheless, 102(31.3%) of the study respondents believed that once individuals circumcised have no longer need to used condom to protect against HIV infection and. (Table 3)

Table 3: VMMC knowledge among study respondents

Knowledge Variable	Frequency (n)	Percentage (%)
VMMC reduce risk of HIV infection	296	90.8
VMMC improve penile hygiene	219	67.2
When a person circumcised have no longer need to use condom to protect from HIV infection	102	31.3
VMMC prevent cervical cancer in women	176	54.0
Still Circumcised men need to use other ways such as reduction of sexual partners and condom to protect against HIV infection	301	92.3
VMMC reduce risk of other STIs	252	77.3
Is it important for HIV positive individuals to be circumcised	273	83.7

4.4. Sources of VMMC information

A total of 306 (93.9%) study respondents heard about the existence of Voluntary Medical Male Circumcision programme in Ludewa DC. The most frequent cited sources of VMMC information were radio 236 (77.1%) and health/community workers 193 (63.1%) while newspapers/magazine 56(18.3%) was the least frequent mentioned sources of VMMC.

(Table 4)

Table 4: Sources of VMMC information among adult males who heard about VMMC (N=306)

Sources of VMMC information	Frequency (n)	Percentage (%)
Television	94	30.7
Radio	236	77.1
Health/community workers	193	63.1
Friends/relatives	100	32.7
Small group discussion	96	31.4
Newspaper/Magazine	56	18.3
Road show	69	22.5
Billboards	146	47.7
Posters	70	22.9

4.5. Barriers to uptake of VMMC services given by uncircumcised study respondents

Majority 92(84.4%) of the uncircumcised study respondents mentioned fear of pain as a barrier to uptake of VMMC services. Also 70.6% of the uncircumcised study respondents cited shame of circumcised at older age together with the younger ones as a reason of being uncircumcised. Over the two third, 68.8% of the uncircumcised study respondents reported fear of knowing HIV status as their barrier to uptake of VMMC services. Furthermore, 67% of the uncircumcised study respondents highlighted fear of poor wound healing after surgical procedure as their reason of being uncircumcised. On the contrary, 64.2%, 55%, 47.7% and 34.9% of the uncircumcised study respondents mentioned long abstinence, not our culture, fear of reduced sexual performance and loss of income respectively as their reasons for being uncircumcised. Finally, low number 7(6.4%) of the uncircumcised study respondents said they did not want to be circumcised because they know that their surgical removed skins will be transported to western countries and also the program associated with free mason (**Table 5**)

Table 5: Reasons given by uncircumcised study respondents for their circumcision status (N=109)

Variable	Frequency (n)	Percentage (%)
Fear of pre and/or post-surgical pain	92	84.4
Fear of loss of income	38	34.9
Fear of knowing HIV status	75	68.8
Fear of long abstinence	70	64.2
Shame of circumcised at older age	77	70.6
Fear of reduced sexual performance	52	47.7
No need to be circumcised	36	33.0
Fear of poor wound healing	73	67.0
VMMC services are available far away and periodically	40	36.7
It is not our culture	55	50.5

4.6. Distribution of Circumcised study participants by socio-demographic characteristics

A large proportion (73.3%) of the study respondents aged 20-29 were circumcised compared to 61.8% among those aged 30+ and the difference was statistical significance ($p=0.029$). Majority (84.5%) of the study respondents with secondary & above level of education were circumcised compared to 55.4% among those with primary & lower level of education and the difference was statistical significant ($p<0.001$). More than two thirds (89.7%) of the study respondents who were employed were circumcised compared to 59.3% among unemployed study respondents and the difference was statistical significant ($p<0.001$). Furthermore, whether the study respondents were married or unmarried did not have any significance influence on the uptake of VMMC services ($p=0.11$). Lastly religion and distance to the health facility had no any significant influence to the uptake of VMMC services. (**Table 6**)

Table 6: Distribution of circumcision status by socio-demographic characteristics

Variable	Circumcised n (%)	Uncircumcised (%)	P value
<u>Age group years</u>	Yes	No	
20-29	99 (73.3)	36 (26.7)	0.029
30+	118 (61.8)	73 (38.2)	
<u>Education level</u>			
Secondary & above	109 (84.5)	20 (15.5)	<0.001
Primary & below	108 (54.8)	89 (45.2)	
<u>Marital status</u>			
Married	140 (63.6)	80 (36.4)	0.11
Unmarried	77 (72.6)	29 (27.4)	
<u>Occupation</u>			
Employed	70 (89.7)	8 (10.3)	<0.001
Unemployed	147 (59.3)	101 (40.7)	
<u>Religion</u>			
Christian	191 (65.6)	100 (34.4)	0.31
Non-Christian	26 (74.3)	9 (25.7)	
<u>Distance to health facility/outreach</u>			
<5km	122 (64.2)	68 (35.8)	0.29
>5km	95 (69.9)	41 (30.1)	

4.7. Distribution of circumcised study respondents by motivating factors

Majority (80.8%) of the study respondents who highlighted female partners support as a motivator to uptake of VMMC services were circumcised compared to 48.6% among those who did not mentioned it and the difference was statistical significance ($p < 0.001$). Over two thirds (69.3%) of the study respondents who mentioned HIV prevention as a motivator to uptake of VMMC services were circumcised compared to 40% among those who did not cited HIV prevention as a motivator of VMMC services uptake and the difference was statistical significance ($p = 0.001$). Furthermore, 69.8% of the study respondents who cited improved personal hygiene as a motivator to uptake of VMMC services were circumcised compared to 53.1% among those who did not cited improved personal hygiene and the difference was statistical significance ($p = 0.011$). Moreover, 72.6% of the study respondents who reported availability of VMMC services as a motivator of VMMC services uptake were circumcised compared to 50.6% among those who did not reported availability of VMMC services as a motivator of VMMC services uptake and the difference was statistical significance ($p < 0.001$). (Table 7)

Table 7: Motivating factors for uptake of VMMC services

Motivators	Circumcised (%)	Uncircumcised (%)	P value
<u>Set good example to the community</u>			
Yes	165 (65.2)	88 (34.8)	0.34
No	52 (71.2)	21 (28.8)	
<u>Female partner support</u>			
Yes	147 (80.8)	35 (19.2)	<0.001
No	70 (48.6)	74 (51.4)	
<u>HIV prevention</u>			
Yes	205 (69.3)	91 (30.7)	0.001
No	12 (40.0)	18 (60.0)	
<u>Prevent cervical cancer to the partner</u>			
Yes	116 (65.9)	60 (34.1)	0.79
No	101 (67.3)	49 (32.7)	
<u>Personal hygiene</u>			
Yes	183 (69.8)	79 (30.2)	0.011
No	34 (53.1)	30 (46.9)	
<u>Improve sexual performance</u>			
Yes	88 (70.4)	37 (29.6)	0.25
No	129 (64.2)	72 (35.8)	
<u>Availability of VMMC services</u>			
Yes	172 (72.6)	65 (27.4)	<0.001
No	45 (50.6)	44 (49.4)	
<u>Having a circumcised friends</u>			
Yes	121 (68.8)	55 (31.2)	0.36
No	96 (64)	54 (36)	
<u>Social support</u>			
Yes	96 (73.8)	34 (26.2)	0.023
No	121 (61.7)	75 (38.3)	
<u>Reduce Risk of getting other STIs</u>			
Yes	175 (69.4)	77 (30.6)	0.041
No	42 (56.8)	32 (43.2)	
<u>Satisfied with the HFs/outreach services</u>			
Yes	151 (65.1)	81 (34.9)	0.37
No	66 (70.2)	28 (29.8)	

Also table 3 show that, 73.8% of the study respondents who mentioned social support as a motivator to uptake of VMMC services were circumcised compared to 61.7% among those who did not mentioned it and the difference was statistical significance ($p=0.023$). Additionally, 69.4% of the study respondents who cited reduced risk of STIs as a motivator to uptake of VMMC services were circumcised compared to 56.8% among those who did not mentioned reduced risk of STIs as a motivator to uptake of VMMC services and the difference was statistical significance ($p=0.041$). However, having a circumcised friend, Improve sexual performance, prevention of cervical cancer to partner, set good example to

the community and satisfied with the HFs/outreach services are the motivating factors which were statistical not significant.

4.8. Factors associated with the uptake of VMMC services among study respondents

Adult males aged ≥ 20 years with secondary & above education level were four times more likely to take VMMC services as compared to those with primary & below education level (AOR=4.49; 95%CI: 2.58-7.81). Furthermore, the study respondents who cited female partner support as a motivator to the uptake of VMMC services were nearly three times more likely to be circumcised compared to those who did not cited it (AOR=2.83; 95% CI: 1.63-4.93). Additionally, the study respondents who highlighted availability of VMMC services as a motivator to VMMC services uptake were two times more likely to be circumcised compared to those who did not highlighted it (AOR=2.19; 95%CI: 1.21-3.96). Also the study respondents who cited social support as a motivator to uptake of VMMC services were almost two times more likely to be circumcised compared to those who did not cited it (AOR=1.78; 95%CI: 1.03-3.09). However, age, occupation, HIV prevention, improved personal hygiene and reduce risk of other STIs were motivating factors that were significantly associated with the uptake of VMMC services at bivariate level but the association was not significant at multivariate analysis. Also marital status was not associated with the uptake of VMMC services both at bivariate and multivariate analysis.

(Table 8)

Table 8: Logistic regression for predictors of VMMC services uptake among study respondents

Factors	Circumcised n(%)	COR (95% CI)	AOR (95% CI)
<u>Age group</u>			
20-29	99 (73.3)	<u>1.70(1.05-2.75)</u>	1.28(0.63- 2.6)
+30	118 (61.8)	1(Ref)	1(Ref)
<u>Education level</u>			
Secondary or higher	109 (84.5)	<u>4.49(2.58-7.81)</u>	<u>2.67(1.29-5.53)</u>
Primary or lower	108 (54.8)	1(Ref)	1(Ref)
<u>Marital status</u>			
Married	140 (63.6)	0.66(0.39-1.09)	1.33(0.62-2.84)
Single	77 (72.6)	1(Ref)	1(Ref)
<u>Employment status</u>			
Employed	70 (89.7)	<u>6.01(2.77-13.04)</u>	2.62(0.99- 6.90)
Unemployed	147 (59.3)	1 (Ref)	1(Ref)
<u>Female partner support</u>			
Yes	147 (80.8)	<u>4.44(2.71-7.27)</u>	<u>2.83(1.63- 4.93)</u>
No	70 (48.6)	1(Ref)	1(Ref)
<u>HIV prevention</u>			
Yes	205 (69.3)	<u>3.38(1.56-7.31)</u>	1.99(0.82- 4.88)
No	12 (40.0)	1(Ref)	1(Ref)
<u>Personal hygiene</u>			
Yes	183 (69.8)	<u>2.04(1.17- 3.57)</u>	1.67(0.87-3.20)
No	34 (53.1)	1(Ref)	1(Ref)
<u>Availability of VMMC services</u>			
Yes	172 (72.6)	<u>2.59(1.56-4.28)</u>	<u>2.19(1.21- 3.96)</u>
No	45 (50.6)	1(Ref)	1(Ref)
<u>Social support</u>			
Yes	96 (73.8)	<u>1.75(1.08- 2.84)</u>	<u>1.78(1.03-3.09)</u>
No	121 (61.7)	1(Ref)	1(Ref)
<u>Reduce Risk of other STIs</u>			
Yes	175 (69.4)	<u>1.73(1.02- 2.95)</u>	1.24(0.66- 2.34)
No	42 (56.8)	1(Ref)	1(Ref)

***Adjustment factors:** Age, education level, employment status, female partner support and availability of VMMC services

CHAPTER FIVE

5. DISCUSSION

The proportion of male circumcision among study respondents found to be higher (66.6%) than that of Njombe region (49.2%) that was reported in THMIS in 2012 (32). This might be due to the success of VMMC program in Ludewa DC and in the region on increasing the prevalence of male circumcision. The results differ with 74% male circumcision prevalence found in South Africa (28). While 55% prevalence was found in the situation analysis study (18). Contrary prevalence of 15.3% was established by Maxwell Repfutse et al (21).

Study respondents cited radio feeds and health/community workers as their most common sources of VMMC information for acquiring VMMC information. This may be due to the fact that other communication channels such as television, newspapers, magazine and billboards are little difficult to be accessed by local community members and some require little literacy level to understand. Also the results suggest that the programme mainly use health/community workers as interpersonal communication channel particularly in those areas which are not accessible with other communication channels such as radio. This result was supported by another study which also established radio feeds as most frequently used existing VMMC communication channel for delivering VMMC messages to the community (22). Also other study found health/community workers were important interpersonal communication channel for promoting VMMC (23). Hence, the use of this communication channel should be strengthened and other technological means such as mHealth (SMS messages) which has showed to be successful in other areas should be utilized (24). Also the program should plan to use the upcoming Community Health Workers Learning Agenda Project (CHW-LAP) as their main interpersonal communication channel in order to increase the coverage of VMMC.

The results of this study revealed that education level of the study respondents was the only socio-demographics variable which were independently associated with the uptake of VMMC services. This might be due to fact that those who were educated were more likely to be able to read and understand many VMMC messages and access more information on the benefits of VMMC which help them to seek VMMC services far more easily.

However, Mavhu et al concurred with our results, they found that educational level was associated with the uptake of VMMC services but also they found age and marital status were significantly associated with uptake of VMMC services (29). Contrary, Maxwell Reputse et al did not find any association between education level age and marital status and uptake of VMMC services (21). Therefore, education to the adult males should be improved and intensified in order to increase the coverage of male circumcision among adult men.

In this study, availability of VMMC services was found significantly associated with the circumcision status of the study respondents. This might be due to the perceived availability of VMMC services in large part of Ludewa DC and free services delivery at the pre-determined government health facilities. The results concurred with the findings from another study done in Zimbabwe on barriers and motivators to Voluntary Medical Male Circumcision among different age groups of men revealed that those who cited availability of VMMC services as a motivator to uptake of VMMC were two times more likely to be circumcised compared to those who did not cite it (22). Hence those interventions which aimed at increasing the coverage of circumcised adult males should also target the sustainable availability of VMMC services to the community.

Also the results of this study revealed that, female partner support was significantly associated with the circumcision status of their male partners. This might be explained by the fact that male circumcision had number of sexual perceptions and realities such as VMMC can be harmful and may induce infertility, VMMC reduce sexual performance, VMMC improve male sexual performance which are also the concerns women in the relationship, this may lead them directly involved in decision of their male partners on their circumcision status. Our results correspond with other study findings which found that those adult men who were supported by female partner were four times more likely to be circumcised compared to those who were not supported by their female partner (28). Also women found to have large influence on the circumcision status of their partners in another study done in Nyanza Province, Kenya (30). Therefore, demand-creation messages targeting women should be developed and utilized to strength women involvement in the VMMC programme.

Furthermore the findings of this study showed that social support was independently associated with the uptake of VMMC services among the study respondents. This suggest that the acceptability of VMMC is high to reach the stage that the community members are encouraged and supported themselves to seek VMMC services, also commitment of local leaders and community members on the engagement to VMMC improved. Another study found that those men who were social supported were three times more likely to be circumcised compared to those who were not social supported (22). Hence, health education messages on the importance of the community to support those who are uncircumcised to seek VMMC services should be developed and delivered.

5.1. Mentioned barriers for uptake of VMMC services among uncircumcised study respondents

The barriers to uptake of VMMC services found in this study were fear of pre and/or post-surgical pain, fear of knowing HIV status due to their perception that in order to get VMMC services one must test for HIV and fear of poor wound healing after surgical procedure. Also shame of circumcised at older age together with the younger ones, fear of reduced sexual performance due to removal of their foreskin of the penis, fear of long abstinence during the healing duration and fear of loss of income during the healing period due to advise they got from the nurse that they should avoid doing hard work during healing period, It is not our culture, VMMC services available far away and periodically.

Fear of pain was the repeated barrier to uptake of VMMC services that was cited by many study findings in various stings((12),(14),(21),(22),(26),(29)). Similarly, another study highlighted shame associated with seeking services together with younger boys and partner infidelity due to post-surgical abstinence period and loss of income as the barriers for uptake of VMMC services (26). Moreover, Maxwell Repfutse et al also found fear of poor wound healing after the procedure and fear of knowing HIV status as the barriers to the uptake of VMMC services (21). Furthermore, Tarimo et al in a study done in Dar es Salaam revealed a shame of undergoing circumcision at an advanced stage and fear of pain as the common cited barriers of VMMC services uptake among adult males (27). Therefore those interventions that aimed at increasing the coverage of circumcised adult males aged >20 years should address these deterrents which might help those interventions to be more successful.

5.2. Study limitation and mitigation

1. The circumcision status of those who were circumcised outside Ludewa DC and at the traditional circumcisers were not verified however to minimize the problem the study respondents were asked to be honestly regarding their circumcision status as no one was going to be circumcised and it is not crime to be uncircumcised
2. We have use research assistants who were familiar to the community which might lead to social desirability bias. Although the research assistants were properly trained to build trust to the interviewees in order to encourage correct and honestly responses

CHAPTER SIX

6. CONCLUSION AND RECOMMENDATIONS

6.1. Conclusion

In this study, education level, female partner support, availability of VMMC services and social support were found to be significantly associated with the uptake of VMMC services among adult males.

6.2. Recommendations

1. Involvement of women in the programme should be strengthened. Special health education targeted women using radio feeds and health/community workers should be developed and implemented in order to increase the coverage of VMMC uptake among adult males as the results found that female partners have significant influences on the circumcision status of their partners.
2. Also CHMT and programme should ensure sustainable availability of VMMC services throughout the council by increasing number of outreaches to the hard to reach area and build capacity to the local health facilities to perform procedure to their respective community.
3. Furthermore, health education on the significance of community to involve in the programme by encouraging and give support to uncircumcised community members to seek VMMC services as findings suggested that social support was significant motivating predictor of VMMC services uptake
4. Moreover, the study explored many barriers to uptake of VMMC services which need to be addressed. Hence, CHMT and the programme should use the local circumcised community members in the community meetings, radio programs to address all barriers such as perceived fear of pain, shame of circumcised at older age, fear of knowing HIV status and poor wound healing to their local community and emphasize other benefits of VMMC apart from HIV prevention such as personal hygiene and protection of cervical cancer to women so as to increase awareness on the benefits of VMMC and finally increase the uptake of VMMC services.

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APPENDICES

Appendix i: English version questionnaire

MUHIMBILI UNIVERSITY OF HEALTH AND ALLIED SCIENCES



All eligible adult males will be interviewed using this form.

“Thank you for agreeing to help us with our study. My name is Ali, Abrahman Ali. I am a Masters student from Muhimbili University of Health and Allied Science (MUHAS). We are talking to men aged ≥ 20 years in an effort to find out more about factors influencing VMMC services uptake for adult males in Ludewa DC. Your contribution will be of great importance to us. The interview will last about [insert a tested time for Swahili interviews]. There are no right or wrong answers to the questions; we would just like to learn about your personal thoughts. If you don’t understand a question, please tell me, and you can add further information at any stage. Your answers will, of course, be kept confidential. Your personal responses will not be seen by any one.”

Place of interview..... Village: Ward.....

Questionnaire No |_|_|_|_|

Date: |_|_|. |_|_|. |_|_|_|_|

1.0. DEMOGRAPHIC CHARACTERISTICS

1.1. How old are you? Write age in full (years) |_|_|_|_|

1.2. What’s your tribe? _____

1.3. What is the highest education level you have attained?

1=None; 2=Adult Education only; 3=Primary Incomplete; 4= Completed primary school
STD 7; 5=Drop out ordinary Secondary school; 6=Completed Secondary School Form 4
and Above; 7=Other studies; |____|

1.4. What is your marital status?

1=Never married; 2=Married; 3=Separated; 4=Divorced; 5=Widowed;|____|

1.5. What is your religion?

1=Christian; 2=Moslem; 3=Other religion (including traditional); 4=No religion; |____|

1.6. What is your employment?

1.7. What is the distance from your home to health facility/outreach?

1=<5km; 2>5km |____|

2.0. KNOWLEDGE ON MALE CIRCUMCISION

2.1. Please describe what you think male circumcision is.

Listen to what the respondent says fill in the box below. Do not show or describe the options to the respondent.

1=Removal of the entire foreskin (the skin that can be rolled forward or back over the head of the penis); 2= Removal of the foreskin (the skin that can be rolled forward or back over the head of the penis), but not necessarily the entire foreskin; 3= Removal of the penis; 4=Other; 5=Don't Know; |____|

Specify if 'Other':

2.2. Why do you think male circumcision is carried out?

Listen to what the respondent says and fill in the options below. Do not show or describe the options to the respondent. 1. Traditional reasons: 1=Yes; 2=No; |____| 2. Medical reasons: 1=Yes; 2=No; |____| 3. Hygiene reasons 1=Yes; 2=No; |____| 4. Religious reasons 1=Yes; 2=No; |____|

For other reasons (please state)

2.3. What are possible health benefits of VMMC?

[Give the interviewee the choice of the following options]

- HIV prevention
- Personal hygiene
- Improve sexual performance
- Prevent cervical cancer to female partner
- Reduce the risk of getting other sexual transmitted diseases
- Other (please specify).....

2.4. In your opinion, being circumcised is enough on its own to protect female to male HIV infection?

1=Yes; 2=No;

2.5. Still Circumcised men need to use other methods such as reduction of sexual partners and condom to protect against HIV infection?

1= Yes; 2=No;

2.6. When a person circumcised have no longer need to use condom to protect from HIV infection?

1=Yes; 2=No;

2.7. Is it important for HIV positive individuals to be circumcised?

1=Yes; 2=No;

2.8. If yes, what are your reasons?

- Increase personal hygiene
- Prevent cervical cancer to the partner

- Other (please specify).....

3.0. SOURCES OF VMMC INFORMATION

3.1. Have you ever heard about VMMC in Ludewa DC?

1=Yes; 2=No

3.2. From which sources

- Radio
- Television
- Newspaper/magazine
- Road show
- Friends/relatives
- Posters
- Small group discussion
- Billboards
- Health/community workers

3.3. Are you circumcised? 1=Yes; 2=No;

Questions for uncircumcised Males ONLY

4. [If 'not circumcised' in Q 3.3] Why aren't you circumcised?

.....

.....

5. Would you want to be circumcised?

1=Yes; 2=No

6. What are your reasons for this answer?

[Give the interviewee the choice of the following options]

- To set good example for my community

- To prevent against HIV infection
- To prevent cervical cancer to my partner
- Other (please specify).....

7. What do you think the benefits of male circumcision would be?

[Give the interviewee the choice of the following options]

- HIV prevention
- Personal hygiene
- Improve sexual performance
- Prevent cervical cancer in my partner

8. Apart from the benefits of male circumcision, what can influence you to seek circumcision services? [Give the interviewee the choice of the following options]

- Availability of the VMMC services
- Having the circumcised friends
- Social support
- Female partner support
- Other (please specify).....

9. Based on this information, would you now want to be circumcised?

1=Yes; 2=No;

10. For your opinion, are you satisfied with how the VMMC services delivered?

1=Yes; 2=No;

11. If no in Q10, why?

.....
.....

—End of interview for uncircumcised male respondents— Express thanks to the respondent for their time and information. Remember to ask them if they have any questions for you. You may need to refer to the briefing you have been given, however, if you don't know the answer to a question, do not be afraid to say so.

Questions for circumcised Males ONLY

12. Why were you circumcised?

- To set good example for my community
- Support from female partner
- Followed my friends
- VMMC services are available
- Social support
- Other reasons (specify).....

13. How old were you when you were circumcised? Years

14. Where was it done?

[Give the interviewee the choice of the following options]

1=At a traditional circumciser; 2=At a health facility; 3=Some other place; 8=NA; 9=Don't Know;

Specify if 'some other place':

15. If it was at health facility in Q13, is it confirmed 1=Yes; 2=No

16. What do you think the benefits of male circumcision are?

- HIV prevention
- Personal hygiene
- Improve sexual performance
- Prevent cervical cancer in my partner
- Other (please specify).....

17. What do you think the problems or negative consequences of male circumcision are?

- Pain
- Loss of income
- Long abstinence
- Other (please specify).....

18. Are you satisfied with how the VMMC services delivered?

1=Yes; 2=No;

19. If no in Q16, why?

.....
.....
.....

—End of interview for circumcised male respondents— express thanks to the respondent for their time and information. Remember to ask them if they have any questions for you. You may need to refer to the briefing you have been given, however, if you don't know the answer to a question, do not be afraid to say so.

Appendix ii: Swahili version questionnaire

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Wote wanaostahili watahojiwa kwa kutumia hili dodoso.

“Ahsante kwa kukubali kutusaidia kwenye utafiti wetu. Jina langu ni Ali, Abraham Ali. Ni mwanafunzi wa Shahada ya Uzamili kutoka Chuo Kikuu Muhimbili cha Afya na Sayansi Shirikishi. Tunazungumza na watu wenye umri wa miaka 20 na kuendelea katika jitihada za kutafuta mambo yanayopelekea utumiaji wa huduma za tohara kwa watu wazima wanaume. Mchango wako una umuhimu mkubwa kwetu. Mahojiano yatachukua mda wa kati ya dakika 10 hadi 20. Hakunajibusahihi walalisilosahihi; tungependa kujifunza kuhusu muono wako. Kama hujafahamu swali, tafadhali nambie, naunaweza kuongeza taarifa katika hatua yoyote. Majibu yako yatahifadhiwa na hayataonekana na mtu yeyote”

Mahali pa mahojiano.....Kijiji:Kata.....

Namba ya utambulisho|_|_|_|

Tarehe: |_|_|_|. |_|_|_|. |_|_|_|_|_|

1.0. TABIA ZA KIJOGRAPHIA

1.1. Una miaka mingapi? Andika miaka tu |_|_|_|_|

1.2. Kabila lako ni nini? _____

1.3. Umefika darasa la ngapi?

1=Sijasoma; 2=Elimuya watu wazima tuu; 3=Elimu ya msingi haijakamilika; 4= Elimu ya msingi iliyokamilika STD 7; 5=Nimetoroka kidato cha nne; 6=Kidato cha nne na kuendelea; 7=Masomo mengine; |_|_|_|

1.4. Umeowa/umeolewa?

1=Sijawahi kuowa/kuolewa; 2=Nimeowa/Nimeolewa; 3=Tumetengana; 4=Tumeachana;
5=Mjane;|____|

1.5. Dini yako ni ipi?

1=Mkristo; 2=Muislam; 3=Dini nyengine (Ikijumuisha ya mila); 4=Sina dini; |____|

1.6. Je, kazi yako ni nini?

1.7. Kuna umbali gani kutoka unapoishid hadi sehemu ya kupata huduma?

1= <5km; 2= >5km |____|

2.0. MAARIFA YA TOHARA YA WANAUME

2.1. Tafadhali elezea nini maana ya tohara?

Sikiliza anachojibu na ujaze kwenye kisanduku chini. Usimuonyeshe wala kumuelezea chaguo zilizopo.

1=Kuondoa ngozi yote ya mbele ya uume; 2= Kuondoa ngozi ya mbele ya uume lakini siyo lazima iwe yote; 3= Kuondoa uume; 4=Nyingine; 9=Sijui |____|

Nyingine, zitaje:

2.2. Unafikiri kwanini tohara inafanyika?

Sikiliza anachojibu na ujaze kwenye kisanduku chini. Usimuonyeshe wala kumuelezea chaguo zilizopo.

Sababu za kitamaduni: 1=Ndiyo; 2=Hapana; |____| Sababu za kiafya: 1=Ndiyo; 2=Hapana; |____| Sababu za kiusafi 1=Ndiyo; 2=Hapana; |____| Sababu za kidini 1=Ndiyo; 2=Hapana; |____|

Sababu nyingine (tafadhali zitaje)

2.3. Nini faida za kiafya za tohara kwa wanaume?

[Muonyeshe majibu yafuatayo]

- Kuzuia UKIMWI
- Usafi wa mtu
- Inapunguza uwezekano wa kupata maradhi mengine ya kuambukiza
- Kuongeza nguvu ya tendo la ndoa
- Kuzuia saratani yakizazi kwa mwanamke
- Nyingine (tafadhali zitaje).....

2.4. Kwa maoni yako, tohara pekee inaweza kuzuia maambukizi ya UKIMWI kutoka kwa mwanamke kwenda kwa mwanaume?

1=Ndiyo; 2=Hapana;

2.5. Je mtu aliyetahiriwa anaweza kutumia njia nyengine kama kupunguza idadi ya wapenzi na kondom kujikinga na UKIMWI?

1= Ndiyo; 2=Hapana;

2.6. Kama ndiyo, tafadhali zitaje

2.7. Je mtu aliyetahiriwa hana haja ya kutumia kondom kujikinga na UKIMWI?

1=Ndiyo; 2=Hapana;

2.8. Je ni muhimu mtu mwenye UKIMWI kupata tohara?

1=Ndiyo; 2=Hapana;

2.9. Nini sababu zako?

- Inaongeza usaifi wa mtu
- Inazuia saratani yashingo ya kizazi kwa mwenza
- Nyengine (tafadhali zitaje).....

3.0. VYANZO VYA KUPATA TAARIFA YA TOHARA

3.1. Je, ulishawahi kupata taarifa kuhusu tohara?

1=Ndiyo; 2=Hapana |____|

3.2. Kama ndiyo, ulipata kutoka chanzo gani?

- Redio |____|
- Televisheni |____|
- Magazeti/Jarida |____|
- Maonesho ya barabarani |____|
- Rafika/Jamaa |____|
- Vibango vidogo |____|
- Maja diliano ya vigurupu |____|
- Mabango |____|
- Wafanyakazi wa afya/Jamii |____|

3.3. Je umetahirwa?

1=Ndiyo; 2=Hapana; |____|

Maswali kwa wasiotahiriwa TU

4. [Kama ‘hujatahiriwa kwenye Q 3.3] Kwa nini hujatahiriwa?

.....

.....

.....

5. Je utahitaji kutahiriwa?

1=Ndiyo; 2=Hapana |____|

6. Nini sababu zako kwa jibu hili?

[Muonyeshe majibu yafuatayo]

- Kuwamfano katika jamii |____|

- Kumridhisha mpenzi wako
- Kujizuia na UKIMWI
- Kuzuia saratani ya kizazi kwa mpenzi wako
- Nyingine (tafadhali zitaje).....

7. Je unafikiri nini faida za tohara?

[Muonyeshe majibu yafuatayo]

- Kuzuia UKIMWI
- Usafi wa mtu
- Kuongeza nguvu ya tendo la ndoa
- Kuzuia saratani ya kizazi kwa mwenzu

8. Mbali na faida za tohara, je nini kinaweza kukupelekea kufanya tohara?

[Muonyeshe majibu yafuatayo]

- Upatikanaji wa huduma za tohara
- Kua na mpenzi anayekuhamasisha
- Kua na rafiki aliye tahiriwa
- Hamasa kutoka kwa jamii
- Zengine (tafadhalizitaje).....

9. Kulingana na taarifa hizi, sasa unataka kutahiriwa?

1=Ndiyo; 2=Hapana;

10. Kwa muono wako unarizika na huduma za tohara zinavyotolewa?

1=Ndiyo; 2=Hapana;

11. Kama hapana swali namba 10, kwa nini?

.....

—Mwisho wa mahojiano kwa washiriki walio kua hawajatahiriwa— Washukuru washiriki kwa mda wao nataarifa zao. Kumbuka kuuliza kama kunamwenye swali. Kama hujui jibu la swali, usiogope kuwaambia.

Maswali kwa waliotahiriwa TU

12. Kwa nini ulitahiriwa?

- Kua mfano katika jamiii
- Kumridhisha mwenza
- Nimeiga marafiki
- Huduma za tohara zinapatikana kirahisi
- Social support
- Nyingine (tafadhali zitaje).....

13. Je ulikua na miaka mingapi wakati ulipotahiriwa? Miaka

14. Je ulifanyiwa wapi?

[Muonyeshe majibu yafuatayo]

1=Kwa mganga wajadi; 2=Kwenye kituo cha afya; 3=Sehemu nyingine; 4=NA; 5=Sijui;

Taja kama sehemu nyingine:

15. Kama ni kituo cha afya, kuna uthibitisho 1=Ndiyo; 2=Hapana

16. Nini faida za tohara?

- Kuzuia UKIMWI
- Usafi wa mtu
- Kuongeza ubora watendo la ndoa
- Kuzuia saratani ya kizazi kwa mwenza
- Nyingine (tafadhali zitaje).....

17. Nini athari za tohara?

- Maumivu
- Kukosa kipato
- Kuko satendo la ndoa kwa mda mrefu
- Gharama za huduma
- Nyingine (tafadhali zitaje).....

18. Je Unaridhika na huduma za tohara zinavyotolewa?

1=Ndiyo; 2=Hapana;

19. Kama hapana swali namba 18, kwa nini?

.....

.....

.....

—Mwisho wa mahojiano kwawashiriki waliotahiriwa— Washukuru washiriki kwa muda wao na taarifa zao. Kumbuka kuuliza kama kuna mwenye swali. Kama hujui jibu la swali, usiogope kuwaambia.

Appendix iii: Consent form

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DIRECTORATE OF RESEARCH AND PUBLICATIONS, MUHAS

INFORMED CONSENT FORM

ID- NO

--	--	--	--	--

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Consent to Participate in a Research

Greetings! My name is Ali, Abrahman Ali from the Muhimbili University of Health and Allied Sciences (MUHAS) conducting a research aimed at determining factors influencing uptake of Voluntary Medical Male Circumcision (VMMC) among adult male in Ludewa DC, Njombe region, Tanzania

Purpose of the Study

In this study research assistant will interview the adult male in the household who are eligible for recruitment in this study using structured questionnaires. Demographic, sources of VMMC information, motivators and barriers to VMMC services uptake data will be collected.

What Participation Involved

If you agree to participate in this study, you will only be required to answer questions on various issues that will be asked.

Confidentiality

No name of participants will be documented and all information we collect on forms will be entered into the computer with the unique identification number only and that the information will be strictly confidential

Rights to Withdraw and Alternatives

Involving in this study is completely voluntary. If you choose not to respond to any question asked you won't be penalized. You can stop participating in this study any time even if you have already given your consent. Refusal to participate or withdraw from the study will not involve penalty or loss of chance to get VMMC services

Benefits

We hope that the findings of this study will provide vital data which will provide evidence-based decision when designing and strengthen VMMC scale up strategies throughout the country. Also the findings of this study will provide information when deciding which sets of intervention to be implemented to increase the coverage of adult circumcision in Ludewa DC and throughout the country and final District and Nation got the maximum health benefit of VMMC program which is to decrease female to Male transmission of HIV.

Who to Contact

If you ever have questions about this study, you should contact the study coordinator Ali, Abrahman Ali of Muhimbili University of Health and Allied Sciences (MUHAS), P.O.Box 65001, Dar es Salaam. **Tel:+225712387079**. If you ever have questions about your rights as a participant, you may call Prof. Aboud S, Chairman of the Senate Research and Publications Committee, P.O.Box 65001, Dar es Salaam. **Tel:2150302-62152489**.

Signature:

Do you agree?

Participant agrees.....Participants does NOT agree.....

Ihave read the contents in this form. My questions have been answered. I agree to participate in this study.

Signature of participant.....

Signature of research assistant.....

Date of Signed consent.....

Appendix iv: Hati ya makubaliano

CHUO KIKUU CHA AFYA NA SAYANSI SHIRIKISHI MUHIMBILI

KURUGENZI YA TAFITI NA MACHAPISHO, MUHAS

HATI YA MAKUBALIANO BAADA YA KUFAHAMISHWA

NAMBARI

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YA

UTAMBULISHO

Kuridhia Kushiriki Katika Utafiti

Salaam! Mimi naitwa Ali, Abrahman Ali kutoka Chuo Kikuu cha Afya na Sayansi Shirikishi Muhimbili. Tunafanya utafiti unaolenga kubainisha mambo yanayopelekea utuumiaji wa hiari wa huduma za kutahiri wanaume kwa watuwazima wanaume, wilayani Ludewa, Mkoani Njombe Tanzania.

Azma ya Utafiti

Katika utafiti huu tunawahoji wanaume watu wazima wenye umri wa miaka ishrini na kuendelea katika kaya, kuhusu taarifa za kidemografia, taarifa juu ya vyanzo vya habari vya uwepo wa programu ya kutahiri watu kitaalam nataarifa ya vichocheo na vikwazo vya utumiaji wa huduma za kutahiri.

Ushiriki gani unaohitajika toka kwako

Kama utaridhia kushiriki katika utafiti huu utahitajika kujibu maswali mbali mbali utakayoulizwa

Usiri

Jina la mshiriki halita rikodiwa na taarifa zote ambazo tutakusanya katika utafiti huu zitaingizwa kwenye kompyuta kwa kutumia nambari za utambulisho tu, na taarifa hizi zitakuwa ni siri.

Haki ya Kujitoa katika utafiti na njia mbadala

Kushiriki katika utafiti huu ni hiari yako. Kama utakataa kujibu swali lolote utakaloulizwa hautaadhibiwa. Unaweza kujitoa katika utafiti huu muda wowote hata kama tayari utakuwa umeridhia kwa kusaini hati ya makubaliano. Ukijitoa katika utafiti huu hautaadhibiwa ama kupoteza nafsi ya kutahiriwa.

Faida

Tunaamini matokeo yatokanayo na utafiti huu yataleta ushahidi wakati wa kutengeneza na kuimarisha mikakati ya kupanua upatikanaji wa huduma ya kutahiri nchi nzima. Kadhalika matokeo ya utafiti huu yatasaidia katika maamuzi ya kuamua njia gani zitumike ili kuongeza idadi ya watu wazima waliotahiriwa ndani ya Ludewa na taifa kiujumla na hatimaye kupata faida za kiafya zitokanazo na kutahiri ambapo faida mojawapo kubwa ni kukupa maambukizi ya VIRUSI VYA UKIMWI kutoka kwa mwanamke kwenda kwa mwanamme ndani ya Ludewa na Taifa kiujumla.

Mawasiliano

Kama utakuwa na maswali yoyote kuhusiana na utafiti huu mpigie mratibu wa utafiti Ali, Abrahaman Ali wa Chuo Kikuu cha Afya na Sayansi Shirikishi Muhimbili S.L.P 65001, Dar es Salaam. **Simu:+225712387079**. Kama utakuwa na maswali kuhusu haki zako kama mshiriki katika utafiti huu mpigie simu Prof. Aboud S, Mwenyekiti wa Kamati ya Utafiti na Machapisho ya Seneti ya MUHAS, S.L.P 65001, Dar es Salaam. **Simu:2150302-6, 2152489**.

Sahihi:

Unakubali?

Mshiriki anakubali.....Mshiriki hakubali.....

Mimi..... nimesoma yaliyomo katika hati hii. Maswali yangu yote yamejibiwa vizuri. Nakubali kushiriki katika utafiti huu.

Sahihi ya Mshiriki.....

Sahihi ya mtafiti msaidizi.....

Tarehe.....

Appendix v: Approval of ethical clearance

**MUHIMBILI UNIVERSITY OF HEALTH AND ALLIED
SCIENCES**

Directorate of Postgraduate Studies

P.O. BOX 65001
DAR ES SALAAM
TANZANIA.



Tel: +255-(0)22-2150302 Ext 207.
Tel (Direct): +255-(0)22-2151378
Telefax: 255-(0)22-2150465
E-mail: dpes@muhas.ac.tz

Website: [http:// www.muhas.ac.tz](http://www.muhas.ac.tz)

Ref. No. MU/PGS/SAEC/Vol. XIV/

8th December, 2015

Mr. Abraham Ali
MSc. Applied Epidemiology
MUIIAS.

RE: APPROVAL OF ETHICAL CLEARANCE FOR A STUDY TITLED "FACTORS ASSOCIATED WITH UPTAKE VOLUNTARY MEDICAL MALE CIRCUMCISION (VMMC) SERVICES AMONG ADULT MALES IN LUDEWA DC, NJOMBE TANZANIA"

Reference is made to the above heading.

I am pleased to inform you that, the Chairman has, on behalf of the Senate, approved ethical clearance for the above-mentioned study. Hence you may proceed with the planned study.

The ethical clearance is valid for one year only, from 7th December, 2015 to 6th December, 2016. In case you do not complete data analysis and dissertation report writing by 6th December, 2016 you will have to apply for renewal of ethical clearance prior to the expiry date.

Dr. E. Balandya
DEPUTY DIRECTOR, POSTGRADUATE STUDIES

cc: Director of Research and Publication
cc: Dean, School of Public Health and Social Sciences

Appendix vi: Introduction letter from MUHAS

MUHIMBILI UNIVERSITY OF HEALTH AND ALLIED SCIENCES

Directorate of Postgraduate Studies

P.O. BOX 65001
DAR ES SALAAM
TANZANIA.



Tel: +255-(0)22-2150302 Ext 207.
Tel (Direct): +255-(0)22-2151378
Telefax: 255-(0)22-2150465
E-mail: dpgs@muhas.ac.tz

Website: <http://www.muhas.ac.tz>

Ref. No. HD/MUH/T. 147/2014

23rd December, 2015

District Executive Director
Ludewa District
P.O. Box 19
LUDEWA.

Re: INTRODUCTION LETTER


The bearer of this letter Mr. Ali Abraham Ali is a student at Muhimbili University of Health and Allied Sciences (MUHAS) pursuing MSc. Applied Epidemiology

As part of his studies has intends to do a study titled: "*Factors associated with uptake of voluntary medical make circumcision (VMMC) services among adult males in Ludewa District, Njombe Tanzania*".

The research has been approved by the Chairman of University Senate.

Kindly provide him the necessary assistance to facilitate the conduct of him research.

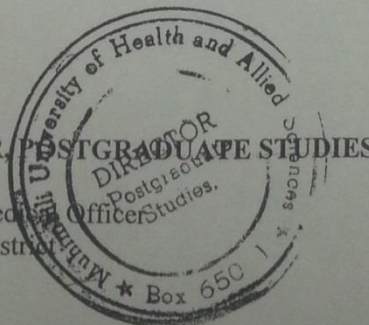
We thank you for your cooperation.


Ms. A. Ndyekiza

For: DIRECTOR, POSTGRADUATE STUDIES

cc: District Medical Officer
Ludewa District
P.O. Box 3
Ludewa.

cc: Dean, School of Public Health and Social Sciences
cc: Prof. K.S. Mnyika



Appendix vii: Introduction letter from Ludewa DC**HALMASHAURI YA WILAYA YA LUDEWA**

OFISI YA MKURUGENZI MTENDAJI (W)
S.L.P. 19,
LUDEWA.

6/01/2016

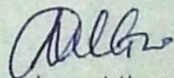
Maafisa watendaji wa Kata,
Kata ya Manda, Lulilo, Luana, Ludewa,
Masasi, Mlangali na Mawengi.
S.L.P. 19,
LUDEWA.

YAH: KUMTAMBULISHA MWANAFUNZI ALI ABRAHMANI ALI

Tafadhali rejea somo tajwa hapo juu.

Mwanafunzi mtajwa hapo juu ni mwanafunzi katika chuo cha Munimbili anayehitaji kufanya utafiti wake katika kata yako hivyo kwa barua hii unaombewa umpokee na umpe ushirikiano

Nakutakia kazi njema.



Andrew Mlangwa
KNY:MKURUGENZI MTENDAJI (W)
LUDEWA.

**Mkurugenzi Mtendaji
Halmeshauri ya Wilaya
Ludewa**

Nakala :

Mkurugenzi Mtendaji (W),
LUDEWA - Kwa taarita.