# FACTORS ASSOCIATED WITH UPTAKE OF VOLUNTARY HIV TESTING AMONG ADOLESCENTS AGED 15 TO 19 YEARS IN MWANZA REGION, TANZANIA

**Iringamile Methusela, (BSc EHS)**

**MSc (Applied Epidemiology) Dissertation**
**Muhimbili University of Health and Allied Sciences**
**November, 2020**

**Muhimbili University of Health and Allied Sciences**
**Department of Epidemiology and Biostatistics**

# FACTORS ASSOCIATED WITH UPTAKE OF VOLUNTARY HIV TESTING AMONG ADOLESCENTS AGED 15 TO 19 YEARS IN MWANZA REGION, TANZANIA

**By**

**Iringamile Methusela**

**A Dissertation Submitted in (Partial) Fulfilment of the Requirement for the Degree of Master of Sciences (Applied Epidemiology) of Muhimbili University of Health and Allied Sciences**
**November, 2020**

## CERTIFICATION

The undersigned certify that they have read and hereby recommend for examination by Muhimbili University of Health and Allied Sciences, a dissertation entitled*:* ‘‘**Factors Associated with Uptake of Voluntary HIV Testing among Adolescents Aged 15 to 19 Years in Mwanza Region, Tanzania**,’’ in (partial) fulfillment of the requirement for the degree of Master of Science in Applied Epidemiology of the Muhimbili University of Health and Allied Sciences.

_____

**Prof. Innocent Semali**

(Supervisor)

**Date**_____

_____

**Miss Senga Sembuche**

(Co-Supervisor)

**Date**_____

## DECLARATION AND COPYRIGHT

I, **Iringamile Methusela**, declare that this **dissertation** is my own original work and that it has not been presented and will not be presented to any other university for similar or any other degree award.

**Signature**…….. **Date**…….

This dissertation is a copyright material protected under the Berne convention, the copyright Act 1999 and other international and national enactments, in that behalf, on intellectual property. It may not be reproduced by any means, in full or in part, except for a short extract in fair dealing, for research or private study, critical scholarly review or discourse with an acknowledgement, without the written permission of the directorate of post graduate studies, on behalf of both the author and the Muhimbili University of Health and Allied Sciences.

## ACKNOWLEDGEMENT

I would like to thank God for giving me this opportunity, strengthening and keeping me healthy to be able to complete this work.

I would like to express the deepest appreciation to my Supervisors, Prof. Innocent Semali and Miss Senga Sembuche, for their unconditional support, encouragement and motivation, which helped to complete this work.

I would like to sincerely thank all the staff of the Muhimbili University of Health and Allied Sciences, Department of Epidemiology and Biostatistics, and the staff of Tanzania Field Epidemiology and Laboratory Training Programme (TFELTP), for their valuable advice, support and encouragement during my studies. I also acknowledge the Sponsorship from the Tanzania Field Epidemiology and Laboratory Training Program (TFELTP).

Much appreciation is due to my colleagues and friends who provided technical support during the development of this dissertation. I would like to extend my special thanks to Dr. Candida Moshiro, the head of Department of Epidemiology and Biostatistics, for her support and encouragement. I also acknowledge the support of Mwanza Regional Authorities for their support during the data collection period.

My special thanks go to my family especially my mother, Miss Paulina Odilo, and my beloved son, Emmanuel Ernest, for their support, patience, understanding, prayers and encouragement throughout my studies.

## DEDICATION

This dissertation is dedicated to my beloved Mother, Paulina Odilo, and to my late father, Methusela Magongo, who supported and inspired me. I also dedicate the work to my beloved son, Emmanuel Ernest, for being patient when I was far from him during my studies.

## ABSTRACT

**Background**: Despite being in high risk of HIV/AIDS infections, most adolescents do not test for HIV voluntarily. Adolescents aged 15 to 19 years who were tested for HIV in the last 12 months were 29.8% in Tanzania. However, some efforts have been made by Tanzania to get more people tested for HIV, but testing rate among adolescents is still low. The aim of this study is to determine the factors associated with HIV testing among adolescents aged 15 to 19 years in Mwanza Region. The results of the study will help HIV stakeholders to promote HIV testing among adolescent in Mwanza Region.

**Methodology**: A cross-sectional study was conducted in Sengerema District in Mwanza Region from January to March 2019. A total of 357 adolescents aged 15 to 19 years were involved in the study. A multistage sampling technique was employed to select participants from whom data was collected through interviews and administered questionnaire. Data was entered and cleaned using Epi info v7.2.2, and analyzed using Stata v13. Measures of central tendency and dispersion were used to summarize continuous variables while frequency distributions were used for categorical variables. Prevalence odds ratios were used as a measure of association between voluntary HIV testing and independent variables.

**Results**: Results revealed that of the 356 adolescents, only 40% of them had ever tested for HIV voluntarily; and 88% were willing to test for HIV voluntarily. In crude analysis, factors which were significantly associated with HIV testing included age POR=1.8 95% CI, (1.15-2.82), fear of positive results POR=3, 95% CI(1.05-8.5), and ever discussed HIV VCT with parents POR=5.5, 95% CI, (3.38-8.97). Other factors included; ever discussed HIV VCT with partner POR=3.58 95% CI,(1.81-7.10), ever had a boyfriend or girlfriend POR=1.9, 95% CI, (1.24-3.14), know where VCT is conducted POR=4.4 95% CI,(2.07-9.30), ever attend HIV clubs POR=3.5, 95% CI, (2.15-5.7), and ever had sex POR=2.5, 95% CI,(1.53-4.06). In multivariate analysis, factors which were associated with HIV testing include knowledge of where VCT is conducted, ever discussed VCT with parents. School, media and health facilities are the major sources of information about HIV VCT.

**Conclusion:** There is low uptake of VCT among adolescents and factors which are associated with this low VCT uptake include knowledge of where VCT is conducted, ever discussed VCT with parents. Further research is recommended which should focus on strategies to enhance voluntary HIV testing uptake among adolescents.

# TABLE OF CONTENTS

CERTIFICATION ..... i
DECLARATION AND COPYRIGHT ..... ii
ACKNOWLEDGEMENT ..... iii
DEDICATION ..... iv
ABSTRACT ..... v
LIST OF FIGURES ..... x
LIST OF TABLES ..... xi
LIST OF ABREVIATIONS ..... xii
DEFINITION OF TERMS. ..... xiii
CHAPTER ONE ..... 1
1.0 INTRODUCTION ..... 1
1.1 Background ..... 1
1.2 Problem Statement ..... 3
1.3 Conceptual Framework ..... 4
1.4 Rationale of the Study ..... 5
1.5 Research Question ..... 5
1.6 Objectives ..... 5
1.6.1 Broad Objective ..... 5
1.6.2 Specific Objectives ..... 5
CHAPTER TWO ..... 6
2.0 LITERATURE REVIEW ..... 6
2.1 Overview of HIV testing among adolescents ..... 6
2.2 Proportion of the sexually active adolescents who have taken HIV testing ..... 6
2.3 Factors associated with HIV testing among adolescents ..... 7
2.3.1 Personal factors associated with HIV testing among adolescents ..... 7
2.3.2 Service related factors associated with HIV testing among adolescents ..... 11
2.3.3 Social cultural factors associated with HIV testing among adolescents ..... 12
2.3.4 Proportion of adolescents willing to test for HIV ..... 12

CHAPTER THREE ..... 14
3.0 MATERIALS AND METHODS ..... 14
3.1 Study design and study period ..... 14
3.2 Study area ..... 14
3.3 Study population ..... 15
3.4 Sample size estimation ..... 16
3.5 Sampling procedure ..... 16
3.6 Eligibility Criteria ..... 17
3.6.1 Inclusion Criteria ..... 17
3.6.2 Exclusion Criteria ..... 17
3.7 Study Variables ..... 17
3.7.1 Dependent variables ..... 17
3.7.2 Independent variables ..... 17
3.8 Data collection tools ..... 17
3.9 Recruitment and training of research assistants ..... 18
3.10 Pre testing of the tools ..... 18
3.11 Data collection methods ..... 18
3.12 Data management and analysis ..... 18
3.13 Ethical consideration ..... 19
CHAPTER FOUR ..... 20
4.0 RESULTS ..... 20
4.1 Social demographic characteristics of the sample adolescents ..... 20
4.2 Univariate analysis of voluntary HIV testing among adolescents in Mwanza Region 21
4.3 Bivariate analysis ..... 22
4.4 Multivariate Analysis ..... 25
4.5 Proportion of adolescents willing to take voluntary HIV test ..... 25
CHAPTER FIVE ..... 26
5.0 DISCUSSION OF FINDINGS ..... 26
5.1 Discussion ..... 26
5.1 Limitation of the study ..... 28

CHAPTER SIX ..... 29
6.0 SUMMARY, CONCLUSION AND RECOMMENDATIONS ..... 29
6.1 Conclusion ..... 29
6.2 Recommendations ..... 29
7.0 REFERENCES ..... 31
APPENDICES ..... 35
Appendix 1: Informed consent (English version) ..... 35
Appendix 2: Questionnaire ..... 37
Appendix 3: Ruhusa / idhini (Swahili version) ..... 41
Appendix 5: Ethical clearance ..... 48
Appendix 6: Introduction letter to Sengerema District ..... 49

# LIST OF FIGURES

Figure 1: A conceptual framework illustrating the factors associated with voluntary HIV testing among adolescents aged 15-19 years..... 4
Figure 2: Map showing study area. ..... 15

# LIST OF TABLES

Table 1: Demographic Characteristics of Respondents.....20
Table 2: Univariate Analysis of Voluntary HIV Testing among Adolescents in Mwanza Region ...21
Table 3: Factors Associated with Voluntary HIV Testing among Adolescents Aged 15 to 19 Years.....23

## LIST OF ABREVIATIONS

| | |
|---|---|
| AIDS | Acquired Immune Deficiency Syndrome |
| ART | Anti-retroviral Therapy |
| CDC | Centre for Disease Control |
| HIV | Human Immune Virus |
| HTC | HIV Testing and Counseling |
| VCT | Voluntary Counseling and Testing |
| WHO | World Health Organization |
| USAID | United States Agency for International Development |

## DEFINITION OF TERMS.

**Adolescent** – Any person between 10 and 19 years of age.

**Confidentiality** – Obligation not to reveal HIV test results of a youth without his or her consent.

**Discrimination** – An action that results from stigma. It occurs when distinction is made against persons resulting in their being treated unfairly on the basis of HIV/AIDS status. This does not only occur to the infected persons but also to their families, relatives and friends.

**Stigma** – Refers to the negative thoughts about a person or group based on prejudice.

**Voluntary Counseling and Testing** – Process whereby a person undergoes counseling to enable him/her make an informed choice about being tested for HIV. This decision must be entirely the choice of the individual and must be assured that the process is confidential.

# CHAPTER ONE

## 1.0 INTRODUCTION

### 1.1 Background

HIV/AIDS is the disease of public health importance in the world. Among all deaths which occur in adolescents, AIDS has the highest contribution compared to other causes. It is the leading cause of death among the adolescents aged 10 to 19 years in Africa; and it is the second cause of death globally among this age group, with more than 90% of these deaths occurring in the sub-Saharan Africa(1).

Adolescents and young people are important population in HIV prevention and treatment particularly in the attainment of the global targets towards elimination of HIV/AIDS by 2030(2). Adolescents engage in risky sexual behaviours such as not using condoms, having multiple sexual partners, and having first sex before the age of 15(3). Evidence of early unprotected sex among young people in Tanzania includes the increase in adolescent fertility from 116 to 132 per 100,000 between the 2010 and 2015/2016 and increase of teenage pregnancy by 4% between 2010 and 2016(4). Thus, high rate of unprotected sexual exposures among young people suggests the need for serious efforts to test for HIV and care for those affected to stop the transmission.

The public significance of adolescents in HIV transmission in Africa is supported by the fact findings that in 2016, there were 73% of new HIV infections among adolescents in Africa(2). In the world, about 2 million adolescents are living with HIV and in every, hour 26 adolescents get infected (5). Many of the young people who are affected by HIV are in low and middle income countries, with 84% living in the sub-Saharan Africa (6). In the year 2016, estimated 4.7% of adolescents aged from 10 to 19 years were living with HIV in Tanzania, at the same time, mortality among adolescents due to HIV tripled from 2000 to 2015(6).

Voluntary HIV testing is among the important strategies towards HIV prevention; it is an approach whereby the client initiates voluntary HIV testing (VCT) without health

provider initiation. It is offered routinely in many health facilities and it is important since it is beneficial to both positive and negative individuals. People who learn that they are HIV negative can decide on safe sex and avoid risky behaviorus; and those who are HIV positive can get HIV treatment and remain healthy for many years. Thus, early HIV testing among adolescents and youth presents substantial public health benefits given that testing can lead to changes in risky behaviours(7)**.** Also, early HIV testing is critical to reducing patient morbidity and mortality as well as preventing future HIV transmission. The Centre for Disease Control (CDC) recommends that everyone between the age of 13 and 64 years should get tested for HIV at least once as part of routine health care (8). This is because knowing the HIV status gives someone powerful information to help him/her to take steps to keep himself or herself and his or her partner healthy. Many affected people do not have any symptoms and can live for many years without knowing they have the virus; as a result, they continue transmitting the virus to uninfected persons unknowingly, which causes endless new HIV infections and poor health outcomes(9).

Among young people and adolescents, HIV testing remains low compared to other age groups despite the high prevalence of HIV infection among adolescents in sub-Saharan Africa(10). This is made worse by the high tendency of youth to migrate to urban areas leading to overcrowding of youths in urban areas and also in areas of dense economic activities including fishing areas. While such contexts facilitate transmission of HIV, access to health services will also be limited thus requiring concerted efforts to increase access to health care, including access to voluntary HIV testing. Indeed, different areas, including Mwanza fishing areas, have unique contexts that attract youths and also influence HIV transmission, thus control should also consider the contexts for effective interventions.

Mwanza attracts many youths in search of economic opportunities, which include fishing and fish industries, textile and beverage industries, processing and agriculture. These are the main social economic activities which are conducted in Mwanza Region in Tanzania(11). Adolescents and young people in the fishing sector are at the risk of acquiring HIV as they come into contact with this high risk sexual network. The region

has high prevalence of 7.2 and low self-reported HIV testing of 64.7% in the general population (12). This study will help to determine the prevalence of voluntary HIV testing among the adolescents aged 15-19 years in Sengerema, one of the districts in Mwanza Region, to determine the factors associated with voluntary HIV testing among the adolescents.

### 1.2 Problem Statement

Despite the observations that HIV prevalence has been on the decline in Tanzania, the decline is unacceptably low among youths and adolescents; in fact, it could be on the increase. In 2016, globally there were 2.1 million adolescents living with HIV and most of them were living in the Sub-Saharan Africa (SSA). Furthermore, among the new HIV infections, one seventh occurred among adolescents with increasing trends(13). In Tanzania, only fifth (20.8%) of the girls and about tenth (13.1%) of boys aged between 15 to 19 years had taken voluntary counseling and HIV test in the past 12 months in 2017(12). Thus, there is a need of promoting VCT among youths in the areas of high youth concentration like Mwanza, which will, in addition, contribute towards achieving the global goal of 95-95-95 by 2030. The global goal of 95-95-95 means that by 2030, 95% of all people living with HIV will know their HIV status, 95% of all people with diagnosed HIV infection will receive sustained antiretroviral therapy and 95% of those on treatment will have suppressed viral load(14). However, given the high mobility of youths to fishing areas, there is dearth of real time data on their underutilization of VCT and factors influencing the underutilization among youths in a specific urban; and in this case, Mwanza City in Tanzania. However, the understanding of their underutilization and associated factors will enable adoption of strategies to address the underutilization. Thus, efforts to increase VCT utilization among adolescents should focus on understanding the determinants of underutilization of VCT among adolescents in the country, despite the availability of services(13)**.** Factors related to youth underutilization of VCT can be categorized into personal, health system, community and governance (see Figure 1.1). Hence, the need to understand the level of utilization of HIV testing and its determinants among adolescents would enable adoption of strategies to increase their utilization, which

will also increase access to other HIV-related services. Also, early diagnosis will reduce transmission among youths and improve health outcomes, thereby decreasing adolescent morbidity and mortality. The objective of this study is to determine the prevalence of voluntary HIV testing, willingness to voluntarily test for HIV and factors associated with voluntary HIV testing among the adolescents aged 15 to 19 years in Mwanza Region.

### 1.3 Conceptual Framework

The conceptual framework in Figure 1 shows the factors that have been found in various studies to be associated with non-uptake of voluntary HIV testing. The factors are divided into individual or personal factors, health facility or service related factors and social cultural factors. Answers to these questions will be important to improve voluntary HIV testing among the adolescents aged 15 to 19 years in Mwanza Region.

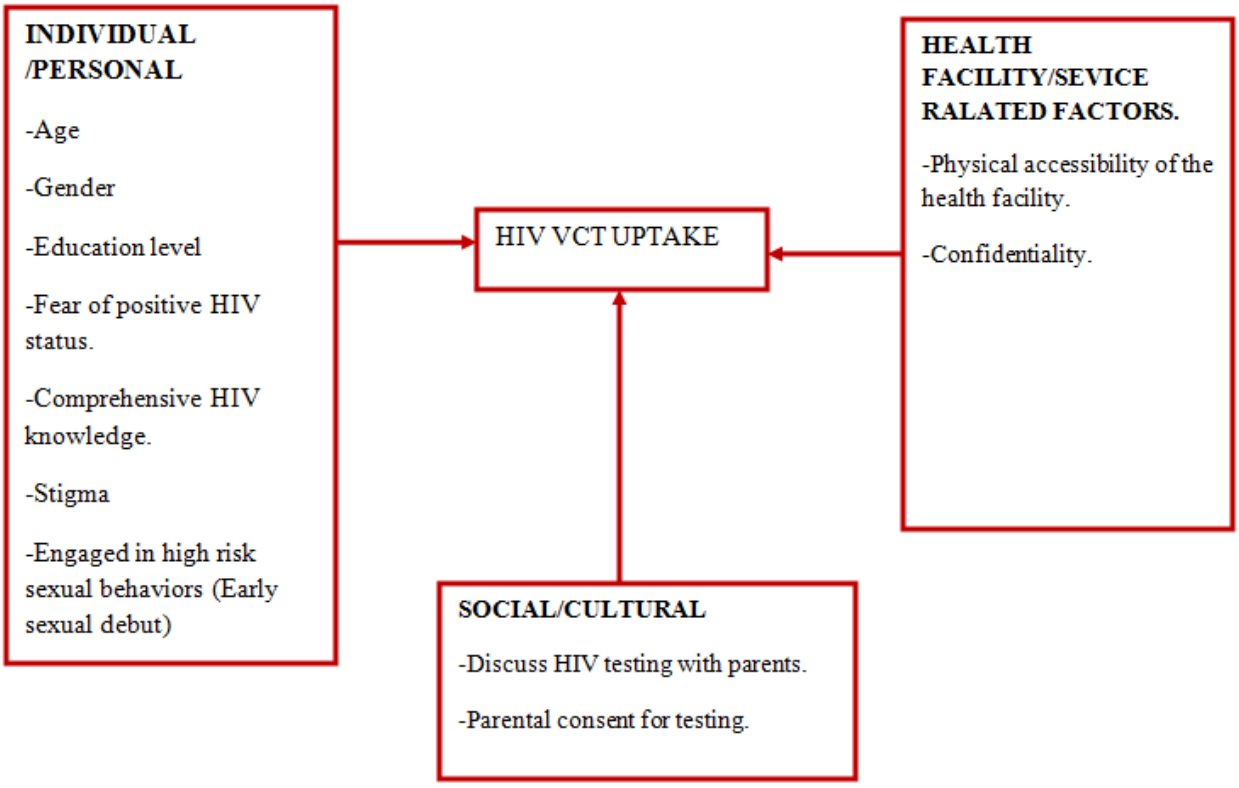



**Figure 1: A Conceptual Framework Illustrating the Factors Associated with Voluntary HIV Testing among Adolescents Aged 15-19 Years**

### 1.4 Rationale of the Study

Despite the benefits of timely diagnosis of HIV infection and the wide availability of VCT services, HIV testing among adolescents in Tanzania remains low. Therefore, results of this study will help to determine the level of voluntary HIV testing among adolescents and the factors associated with voluntary HIV testing among this group so as to work on it and eliminate HIV among this population.

### 1.5 Research Question

What are the factors associated with voluntary uptake of HIV testing among adolescents?

### 1.6 Objectives

#### 1.6.1 Broad Objective

To determine the prevalence of uptake of voluntary HIV testing, willingness to test for HIV and associated factors among adolescents aged 15 to 19 years in Mwanza Region.

#### 1.6.2 Specific Objectives

i. To determine the proportion of adolescents aged 15 to 19 years who have taken voluntary HIV testing in Mwanza Region.
ii. To determine the factors associated with uptake of voluntary HIV testing among the adolescents aged 15 to 19 years in Mwanza Region.
iii. To determine the proportion of adolescents aged 15 to 19 years willing to take voluntary HIV test in Mwanza Region.

# CHAPTER TWO

## 2.0 LITERATURE REVIEW

### 2.1 Overview of HIV testing among adolescents

Tanzania has about 12 million adolescents aged 10 to 19 years and young adults aged 15 to 24 years (5) who are more likely to engage in risky sexual behaviors than older adults; while they also have less frequent contact with health care systems. For a long term control of the HIV epidemic and country development, more efforts on HIV prevention and treatment approaches should also be directed to adolescents. Currently, large proportion of the HIV burden especially in developing countries is among the adolescents aged 10 to 19 years (15). As for HIV prevention and treatment approaches, Tanzania has low level of HIV testing and counseling access and uptake by adolescents (12), leading to late diagnosis and late entry in to care and treatment, hence the increase in HIV burden among this age group (16).

### 2.2 Proportion of the sexually active adolescents who have taken HIV testing

Africa especially sub-Saharan Africa contributes highly to adolescents living with HIV in the world. Specifically, among the 1.6 million adolescents living with HIV in the world, about 1.5 million live in the Sub Saharan Africa (17). Though this age group experiences increasing HIV burden, HIV testing among them is still low. This is evidenced by the observations that in Eastern and Southern Africa regions, about 19% of adolescent girls and 14% of adolescent boys aged 15 - 19 have tested for HIV in the past 12 months and received results of the last test(6).

Tanzania is one among the African countries experiencing high burden of HIV and low HIV testing rate among adolescents despite that HIV testing services are available in many public health care facilities through VCT. Tanzania's demographic health survey of 2017 reported that 29.8% of adolescents had tested for HIV and received results in the past 12 months. (18). Poor HIV testing has been marked as one of the major barriers to HIV prevention in adolescents and most of those who decide to test may find that immunity is already compromised resulting in continued transmission and poor health

outcomes. There is the need of promoting HIV testing in adolescents so as to facilitate early adoption of protective sexual behaviour and access to treatment.

A study conducted in Kibaha District in Tanzania on knowledge on HIV/AIDS and sexual behaviours among the youth revealed that only 28.9% among the respondents had tested for HIV infection; and the rest had not tested for HIV though 74.8% of them knew where to get HIV testing services. Similarly, a survey in Massachusetts on factors associated with HIV testing among sexually active adolescents revealed that, of the 567 adolescents surveyed who had sexual intercourse within the past year, only 127 (22%) had received HIV testing (19). Also, a study done among the adolescents aged 10-19 years in a post conflict pastoralist community of Karamoja Region in Uganda revealed that, of 1439, only 1177 (81.8%) had ever tested and received HIV results (17). Another study on predictors of HIV testing among youth in Sub Saharan Africa revealed that only a limited proportion (36.5 %) of respondents had ever tested for HIV (16). Low youth HIV testing is also reported in another study on factors associated with HIV testing among sexually active South African Youths, which revealed that 32.7% of females and 17.7% of males reported having been tested for HIV (20). Many studies have shown small number of adolescents engaging in HIV test though they are also at a great risk of acquiring HIV. Adolescents should be highly targeted in the promotion of HIV prevention interventions and especially HIV testing and counseling to achieve the HIV transmission control goals that include 95-95-95 by 2030.

### 2.3 Factors associated with HIV testing among adolescents

There are several factors which have been reported from other studies to be associated with HIV testing among adolescents. The World Health Organization (WHO) has classified these factors into personal, service related and social or cultural factors. These factors may act singly or collectively associated with HIV testing (21).

#### 2.3.1 Personal factors associated with HIV testing among adolescents

Sometimes adolescents do not think that they are at the risk of being infected with HIV, so they do not seek HIV testing services despite the fact that they are involving themselves in high risk sexual behaviors such as substance use, unprotected sexual

intercourse and having multiple sexual partners. The personal factors associated with HIV testing among adolescents include age, sex, level of education, fear of positive HIV status, comprehensive HIV knowledge, stigma, and having had sexual intercourse.

#### *2.3.1.1 Age*

Many studies show that age is positively associated with HIV testing as revealed in the study on predictors of HIV testing among youth in Sub Saharan Africa. This was a across sectional study which revealed that there was a positive significant association between HIV testing and respondents' age and age at sexual debut. It showed that older youth compared to younger ones were more than twice as likely to have tested for HIV (16). Similarly, a study on factors influencing the uptake of voluntary HIV counseling and testing among secondary school students in Arusha City Tanzania revealed that participants aged at least 18 years compared to those who were younger were significantly three times more likely to undergo HIV testing (10). Likewise, a study on prevalence and correlates of HIV testing among adolescents aged 10 to 19 years in a post conflict pastoralist community of Karamoja Region, Uganda showed that age was positively associated with HIV testing (17). Also, the study on HIV testing among sexually active South African youth aged 15 to 24 years found that the age 20-24 years was significantly more likely to be tested compared to younger age (20). Again a study on the utilization of voluntary counseling and testing services in Eastern Cape in South Africa found that age was positively associated with HIV testing (21).

#### *2.3.1.2 Gender*

Different studies have also shown that Gender is associated with HIV testing. The study on predictors of HIV testing among youth in Sub Saharan Africa, a cross sectional study, revealed that there was significant association between HIV testing and respondents' gender (21). Similarly, a study on factors influencing the uptake of voluntary HIV counseling and testing among secondary school students in Arusha City Tanzania revealed that girls compared to boys were 2 times more likely to test for HIV (21). Likewise, a formative evaluation of acceptability of HIV testing and counseling at schools in Gauteng and North West provinces in South Africa showed that gender was

significantly positively associated with odds of having had a HIV test (17). Also, a study on factors influencing the uptake of voluntary HIV counseling and testing in rural Ethiopia, a cross sectional study, showed that overall men 28% were relatively more likely to get tested for HIV than women (23.7%) through VCT(22).

A study on uptake of HIV testing and counseling, risk perception and linkage to HIV care among Thai university students revealed that the independent characteristics associated with no HTC uptake include female sex (23). Again, a study on the influence of individual, partner and relationship factors on HIV testing in adolescents revealed independent positive associations with HIV testing including being female (24). This corroborated a study on the individual and neighbourhood correlates of HIV testing among African American youth transitioning from adolescents into young adulthood revealed that female were more likely to have tested for HIV(25).

#### *2.3.1.3 Level of education*

Level of education gives someone more exposure to knowledge, awareness and exposure to HIV/AIDS prevention and control. A study on prevalence and correlates of HIV testing among adolescents 10-19 years in a post conflict pastoralist community of Karamoja Region, Uganda found that adolescents with secondary education or higher were more likely to undergo HIV testing(17). Also a study on HIV testing among sexually active South African youth found that completion of high school was an independent correlate of HIV testing (20). Likewise, a study on the utilization of voluntary counseling and testing services in Eastern Cape South Africa showed that higher level of education was positively associated with HIV testing(21). Similarly, a study on factors influencing the uptake of voluntary HIV counseling and testing among secondary school students in Arusha City Tanzania revealed that participants who were in advanced secondary level were 3 times more likely to test for HIV than those who were in ordinary secondary level. The results were significant (OR = 3.0; 95% CI = 1.6-5.6; $p < 0.001$)(21). Again a study on uptake of HIV testing in Burkina Faso showed that education was associated with HIV testing(26).

#### *2.3.1.4 Fear of positive HIV status*

Studies have shown that fear of positive HIV results is among the reasons for adolescents not testing for HIV since positive results may make them so stressful; however, the life expectancy of HIV positive individual is close to one who is negative (27). A study on HIV testing and sexually transmitted infection among sexually active youth in Balkans showed that fear of the HIV diagnose is associated with low HIV testing(28). Another study on prevalence and correlates of HIV testing among young people enrolled in Thailand showed that fear of positive HIV results was associated with lower odds of ever having been tested for HIV (OR =0.21, CI = 0.08-0.57)(29). Likewise, a study on attitudes to HIV testing and counseling for adolescents among South African youth and parents found that adolescents were afraid of knowing their HIV status (30).

#### **2.3.1.5 Comprehensive HIV knowledge**

High levels of comprehensive knowledge of HIV and AIDS are necessary for HIV prevention; with the right skills and knowledge, young people may have positive influence on HIV testing. A study on the uptake of HIV testing in Burkina Faso, which involved an assessment of individual and community level determinants, found that knowledge on HIV is associated with HIV testing (26). Similarly, a study on factors influencing the uptake of voluntary HIV counseling and testing in rural Ethiopia, which as cross sectional, revealed that men and women who had comprehensive knowledge were more likely to undergo voluntary counseling and testing (22). Also, a study on uptake of HIV voluntary counseling and testing services in rural Tanzania implication for effective HIV prevention and equitable access to treatment revealed that prior knowledge on VCT is associated with HIV testing and VCT completion (31). Another study on the factors affecting HIV testing among youth in Kenya revealed that HIV knowledge is associated with HIV testing among the youth(32).

#### *2.3.1.6 Stigma*

Studies have found stigma as a barrier to HIV testing; someone cannot test for HIV because of negative beliefs and attitude towards HIV positive individuals regardless of the fact that he or she does not know his or her results. A study on the factors affecting

voluntary HIV counseling and testing among men in Ethiopia, which was a cross sectional survey, revealed that having no stigmatizing attitudes towards people living with HIV/AIDS was found to be strongly associated with VCT utilization(33). Likewise, in a study about utilization of voluntary counseling and testing services in the Eastern and southern Africa, it was found that lower level of stigma is positively associated with higher HIV testing (21). Also, a study on attitudes to HIV voluntary counseling and testing for adolescents among South African youth and parents showed that youth do not test for HIV since they are afraid of stigma(30).

### 2.3.2 Service related factors associated with HIV testing among adolescents

Service related factors associated with HIV testing include availability of HIV testing facilities at the community level.

#### *2.3.2.1 Physical accessibility to VCT services*

Physical accessibility to VCT sites may influence HIV testing among adolescents as it has been reported in different studies(34). A study conducted in Malawi on factors associated with HIV testing among adolescents in Northern Malawi revealed that having a HIV testing facility almost tripled the likelihood of HIV testing among boys (34). Similarly, a study on prevalence and correlates of HIV testing among young people in Thailand found that perception that a test sites was easy to find increased the likelihood of HIV testing by almost five times (35). Also, a study on utilization of voluntary counseling and testing services in the Eastern Cape South Africa revealed that proximity to clinics and availability of outreach services are positively associated with VCT(21).

#### *2.3.2.2. Confidentiality*

Fear of violation of confidentiality has been reported in studies as among the barriers to VCT among adolescents and young population(36). A study on HIV testing among sexually active youth in Balkans showed that confidentiality affects VCT utilization among this population(28). Also, a study examining the risk factors associated with resistance to HIV testing found that the belief that results were not confidential was significantly associated with HIV testing(37). Similarly, a study by Selamawit Dagne on voluntary counseling and testing utilization and associated factors among Arba Minch

university students in South Ethiopia found that presence of confidential testing was associated with HIV testing among participants(38). Also, report on barriers to HIV testing by HIV testing programmes stated that the major barrier to HIV testing is fear over HIV testing confidentiality(39). Likewise, a study by Ligia Peralta et al. on barriers and facilitators to adolescents HIV testing revealed that the older youth aged 18-24 years reported that confidentiality encourages adolescents to seek HIV testing services (40).

### 2.3.3 Social cultural factors associated with HIV testing among adolescents

The social cultural factors associated with HIV testing include involvement of parents or care givers in health issue such as discussing with adolescents about HIV/AIDS and advice on HIV prevention or HIV testing as well as obtaining consent from parents for HIV testing. A study about factors associated with HIV testing among sexually active South African Youth aged 15 to 24 years in 2003 revealed that the factors significantly associated with HIV testing among both men and women were talking to parents about HIV AIDS and participating in a lovelife programme(20). Similarly, a study on HIV testing among sexually active South African Youth found that conversation about HIV/AIDS is associated with HIV VCT. (OR = 1.29 AND 95% CI of 1-1.65)(20).

### 2.3.4 Proportion of adolescents willing to test for HIV

Some adolescents like testing for HIV but different factors prohibit them from testing. Studies show that willingness to test is relatively higher among adolescents especially in earlier studies. An online survey conducted on voice, values and preferences of adolescents on HIV testing and counseling 66.9% of respondents stated that they were willing to test; among these, more males (79.2%) were more likely to be tested compared to females (61.2%.)(35). Similarly, the WHO study combining data from workshops in Philippines, South Africa and Zimbabwe indicated that two third of untested adolescents desired an HIV test(15). Likewise, a study by Selamawiti Dagne on voluntary counseling, testing utilization and associated factors among Arba Minch university students in South Ethiopia found that participants were willing to have VCT whereby AOR=3.22, and 95% CI =1.98-5.25)(38). Also, a study by Teka Grima on factors affecting voluntary counseling and testing among Ambo secondary school students in

west Shoa Ethiopia revealed that 69.7 of students were willing to undergo VCT(41). Again, a study by Seye Babatunde on a comparison of community and school based youth Sothern Nigeria found that 76.2% ( 95% CI = 69.8-81.8) of community youth and 56.7 (95% CI = 49, 1-64) of school youth were willing to undergo VCT for HIV(42).

This study will help to determine the prevalence of voluntary HIV testing among adolescents aged 15-19 years in Sengerema, one of the districts in Mwanza Region, and the factors associated with voluntary HIV testing among the adolescents. Most of the studies left behind adolescents who are aged between 15 to 17 years. This study will include all of these adolescents, most of whom are in primary schools.

# CHAPTER THREE

## 3.0 MATERIALS AND METHODS

### 3.1 Study design and study period

This was a cross sectional study that was conducted in randomly selected households in Sengerema District, in Mwanza Region between January and February 2020.

### 3.2 Study area

The study was conducted in Sengerema District, which is one of the seven districts of Mwanza Region. Other districts are Kwimba, Magu, Ukerewe, Misungwi, Buchosa, Ilemela and Nyamagana. Mwanza is among the poorest regions in Tanzania, and it is characterized by poor reproductive health indicators including high prevalence of child marriage, adolescents' fertility and low use of contraceptive (43). In particular, the region has HIV prevalence of 7.2%, which makes it the fourth region with high HIV prevalence; whereby the first region is Njombe (11.4%), the second is Iringa (11.3%) and the third is Mbeya (9.3%). Moreover, Mwanza Region has low HIV testing rate of about 64%(18).

Sengerema District, which is divided into two (2) councils; Sengerema District Council and Buchosa District Council, is among the fishing communities in Mwanza Region, with the population of 663,034 of which 66,728 are adolescents aged 15 to 19 years (2012 census). The district has 50 health facilities with one (1) hospital, four (4) health centres and 45 dispensaries. Of these health facilities, 100% have HIV rapid test kits in stock, 18% conduct HIV testing and counseling services and three quarters have staff trained on HIV testing and counseling(44). Fishing communities have been reported to have low HIV/AIDS health related services due to some challenges existing in this community(45). Figure 3.1 shows the map of the study area.

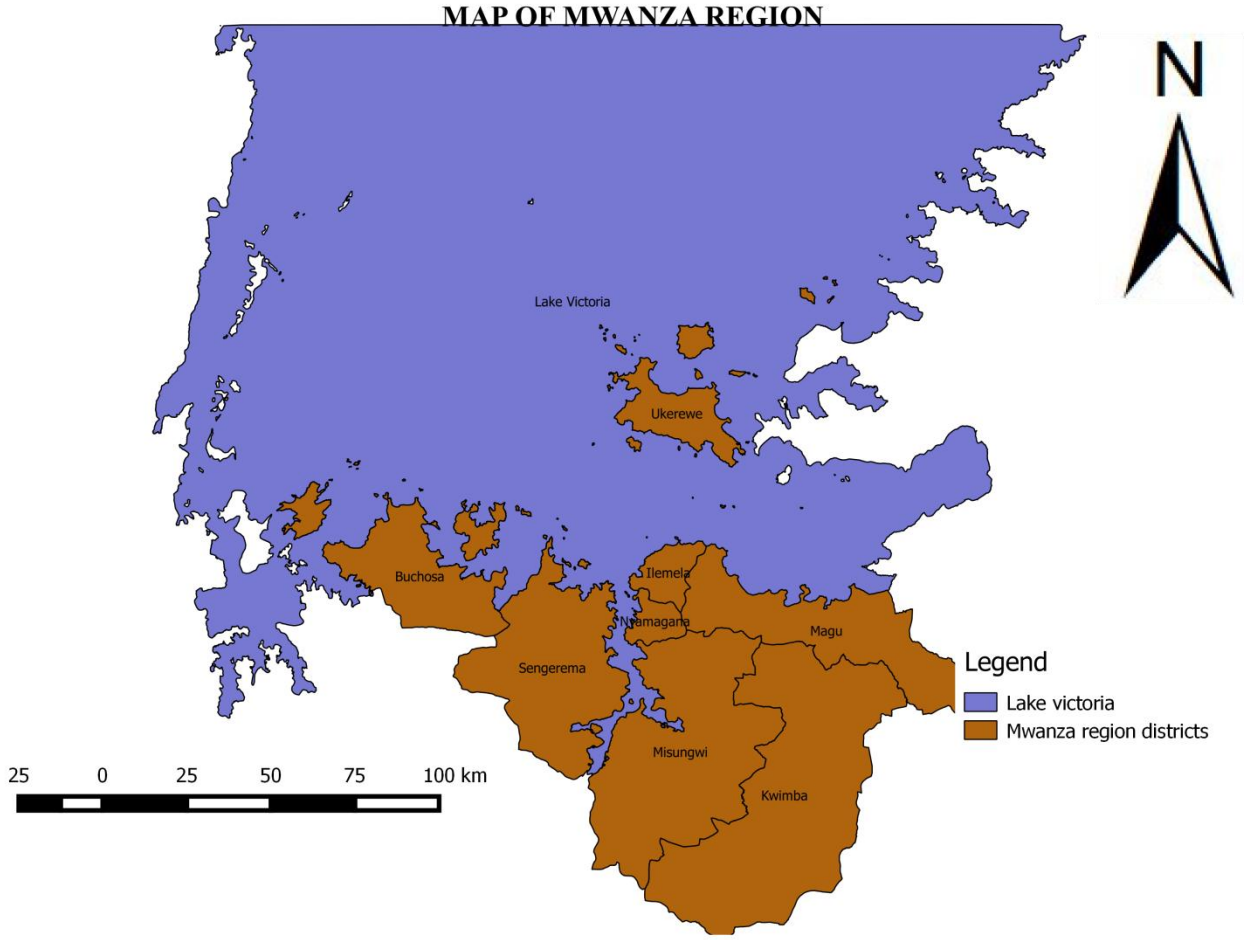



**Figure 3.1: Map of the Study Area**

### 3.3 Study population

The study population comprised the adolescents aged 15 to 19 years living in Sengerema District.

### 3.4 Sample size estimation

The sample size for adolescents was estimated using the formula of single proportion developed by Kish Leslie (1965).

$n = Z^2 p [1-p] / \varepsilon^2$

Whereby

n = the minimum estimated sample size

Z = Z score for 95% Confidence Interval (1.96)

P = 29.8 % Proportion of adolescents aged 15-19 years who have tested for HIV and received results in the past 12 months in Tanzania(18).

ε = marginal of error =5%

Therefore:

$n = 1.96^2 \times 29.8 \times (100-29.8)/5^2$

n=321 adolescents.

With the consideration of none respondents, the sample size was adjusted using:-

$$\text{Sample size} = \frac{n}{1-0.1} = \frac{321}{0.9} = 357$$

Therefore, the estimated sample of adolescents involved in this study had 357 subjects.

### 3.5 Sampling procedure

A multi-stage sampling procedure was applied to identify the adolescents to be involved in the study. Stratification sampling method was used to identify study participants followed by simple random sampling..

Stage 1. Two wards were randomly selected from a list of all wards of Sengerema, that is, two (2) wards from Sengerema Council and two (2) wards from Buchosa Council.

Stage 2. From each selected wards, three (3) villages or streets were selected using the lottery method.

Stage 3. From each selected village or street, a list of households with youths was obtained from a village executive officer. Then 30 households with at least one

adolescent aged 15 to 19 years were selected to obtain 30 adolescents. In the household with more than one eligible adolescent, a random selection was conducted to obtain one participant.

### 3.6 Eligibility Criteria

#### 3.6.1 Inclusion Criteria

Any adolescent aged 15 to 19 years living in Sengerema District was eligible to be enrolled in the study.

#### 3.6.2 Exclusion Criteria

Participants who were seriously sick and mentally unstable were excluded.

### 3.7 Study Variables

#### 3.7.1 Dependent variables

Having tested for HIV for adolescents aged 15 – 19 years.

#### 3.7.2 Independent variables

The independent variables included fear, association of HIV testing with bad behaviour, stigma, lack of information about HIV testing, reaction of health workers, accessing HTC services, consent requirement, peer educator, discussing with parents about HIV, comprehensive HIV knowledge and engaging in high risky sexual behaviours.

### 3.8 Data collection tools

A questionnaire was used to collect information from adolescents. The questionnaire had 7 sections; the first section included identifier information, the second section had adolescents characteristics while the third included knowledge about voluntary HIV testing and counseling. The fourth section was about reasons for not testing HIV voluntarily, the fifth section was about social cultural factors, and the sixth was about willingness to test for HIV at VCT while the last section was about risky sexual behaviours. The questionnaire was developed in English and translated into Swahili. It was adopted from previous studies and modified according to the problem under study to include all possible variables which address the study objectives.

### 3.9 Recruitment and training of research assistants

A total of 5 research assistants were recruited and trained for one day on research methodology, data collection and interviewing techniques.

### 3.10 Pre testing of the tools

Data collection tools were pretested in one village in Mwanza Region, and then revised to ensure clarity, wordings and logical sequence of questions before conducting the study.

### 3.11 Data collection methods

An interviewer went to the selected households and after greetings he or she asked to meet the head of the family or any responsible member of the family who is an adult (in case the head of the family is not present). The interviewer introduced himself or herself and explained the objectives and rationale of the study. Then the interviewer asked the head of the household for a signed consent to interview the adolescent. Upon the permission, the adolescent was also asked to give a signed consent for participating in the study. Upon the consent, the interview with the adolescent was conducted in private but within the household compound.

### 3.12 Data management and analysis

Data was entered in Epi info version7.2.2 software. A data cleaning plan was developed which included processes for screening data for duplication, internal consistency, out of range, invalid values and outliers.

**Data processing and analysis:** Before leaving the field site, completed questionnaires and checklists were reviewed for accuracy, improbable values, completeness, consistency (with other information collected) and uniformity of data entry. Data collection tools were created with Epi Info version 7.2.2. Numerical codes were used to simplify data entry and to reduce errors.

### Univariate analysis

Descriptive analysis was carried out using frequency distribution and proportion for categorical variables and mean and standard deviations for continuous variables.

**Bivariate and Multivariate analysis**

A chi-square test was used to test for association between exposure variables and the outcome. Log binomial regression technique was used to determine the independent factors associated with HIV testing. A *p*-value of <0.05 was considered significant. The crude prevalence odds ratio (POR) was used to quantify statistical association while precision of the association was determined by the associated 95% CI. Step wise log binomial regression method was used to obtain a model which explains well the relationship between outcome, and exposure while controlling for confounding variables. Entry criteria were all variables with a p-value of less or equal to 0.2 in the bivariate analysis.

### 3.13 Ethical consideration

Ethical clearance for conducting this research was obtained from the Institutional Review Board of Muhimbili University of Health and Allied Sciences. Permission to conduct this study in Mwanza Region was obtained from the regional, districts, wards and village administrative offices. Participants were informed about the study objectives, their roles and their rights to give or not to give any information during the interview. Participants were also informed of confidentiality of the personal data and manner in which findings would be presented and used. For participants who were under 18 years old, written informed consent was obtained from their guardians and written ascent was provided to them.

# CHAPTER FOUR

## 4.0 RESULTS

The study included 357 adolescent participants randomly selected from the study areas. The following is the distribution of the important characteristics of the participants.

### 4.1 Social demographic characteristics of the sample adolescents

Out of the 357 adolescents studied, 206 (57.2%) were male and 153(42.8%) were female (Table 1). Majority of the participants 244 (68 %) reported to have completed secondary school education and only a few 15(4%) did not attend school. Most of participants (62%) were aged below 18 years and majority were still students (77%). More participants (47%) reported 15-17 years being the age of sexual debut.

**Table 1: Demographic Characteristics of Respondents**

| DESCRIPTIVE VARIABLE | | N (%) |
|---|---|---|
| Sex | Male | 206(57.2%) |
| | Female | 153(42.8%) |
| Education Level | None | 15(4%) |
| | Primary | 98(27%) |
| | Secondary | 244(68%) |
| Occupation | Students | 275(77%) |
| | Workers | 82(23%) |
| Age | <18 years | 220(62%) |
| | >18 years | 137(38%) |
| Age | Mean | 17 |
| | Median | 17 |
| | Mode | 17 |
| | SD | 1.3 |
| | Min | 15 |
| | Max | 19 |
| Age of sexual debut | 8-14 | 19(20%) |
| | 15-17 | 45(47%) |
| | 18-19 | 32(33%) |

### 4.2 Univariate analysis of voluntary HIV testing among adolescents in Mwanza Region

The univariate analysis has shown that (89%) of adolescents reported to have ever heard about voluntary HIV testing and counseling. Another majority (50%) stated that they had heard about voluntary HIV testing and counseling through media, school and HIV clubs while (37%) had heard through health facilities, and just few of them had heard through parents and friends. The overwhelming majority of adolescents indicated that they knew where voluntary HIV testing could be taken. Table 4.2 summarizes the findings.

**Table 2: Univariate Analysis of Voluntary HIV Testing among Adolescents in Mwanza Region**

| Variables | Categories | N (%) |
|---|---|---|
| Ever heard about HIV VCT | Yes | 314(89%) |
| | No | 38(11%) |
| The source of information about HIV VCT | Parents &Friends | 43(13%) |
| | School, Media &HIV clubs | 167(50%) |
| | Health facilities. | 123(37%) |
| Knowledge of where HIV VCT is conducted | Yes | 279(83%) |
| | No | 58(17%) |
| Importance of HIV VCT to adolescents | Yes | 316(93%) |
| | No | 22(7%) |
| Voluntary Testing experience | Yes | 136(40%) |
| | No | 202(60%) |
| Reason for deciding to test for HIV voluntarily | I was at risk | 27(18%) |
| | To know my status | 120(82%) |
| The last HIV VCT | ≤12months | 87(64%) |
| | >12months | 49(33%) |

A significant percent of adolescents (93%) thought that voluntary HIV testing is important and they can advise their relatives and friend to seek for the service. With respect to experiencing voluntary testing for HIV, only few adolescents stated that they had ever tasted (40%), and majority admitted to have never tested for HIV voluntarily. Among the adolescents who reported they had ever tested for HIV voluntarily, majority (82%) stated that they wanted to know their status and the rest stated that they were at the risk of getting HIV. More than half of adolescents who had ever tested for HIV voluntarily (64%) stated that they tested for HIV voluntarily less than 12 months ago.

**4.3 Bivariate analysis**

Table 4.3 presents prevalence odds ratios of HIV testing for adolescents; as shown, the odds of testing were higher among older adolescents (POR = 1.8: CI, 1.15-2.82, P <0.01) compared to younger adolescents. Female sex was positively associated with HIV testing compared to male sex (POR = 1.17:CI, 0.75-1.81, P=0.49). Adolescents with primary education was positively associated with HIV testing as the odds of HIV testing among adolescents with high HIV testing were higher compared to those in secondary school (POR=1.3: CI, 0.84-2.18, P=0.20). With respect to fear of positive results after testing for HIV, those who fear positive results were more likely to test (POR= 3.28: CI, 1.05- 10.2, P=0.03) compared to those who did not fear HIV positive results. Those who live near health facilities were positively associated with HIV testing (POR=1.3: CI, 0.35-5.07) compared to those who live far from health facilities.

Adolescents who have ever discussed with their parents about HIV and voluntary HIV testing had a strong association with HIV testing (POR=5.5:95%CI, 2.06-3.99, P<0.01) compared to adolescents who had never discussed with their parents about HIV and voluntary HIV testing. Similarly, adolescents who had ever had partners and those who had ever discussed HIV and voluntary HIV testing with their partners had high odds of testing for HIV voluntarily (POR= 1.9:CI, 1.24-3.14, P<0.01), (POR=3.58:CI, 1.81-7.10, P<0.01) compared to adolescents who had never had partners, those who had never discussed HIV and voluntary HIV testing with their partners respectively. With regard to

voluntary HIV testing, those who knew where voluntary HIV testing is conducted were more likely to test for HIV voluntarily (POR=4.4: CI, 2.07-9.30, P<0.01) compared to adolescents who did not know where voluntary HIV testing is conducted.

With respect to reasons for testing for HIV voluntarily, those who reported that they just wanted to know their HIV status had high odds of testing (POR=4.5, 1.66-12.21, P<0.01) compared to those who reported that they were at the risk of getting HIV. Moreover, those who had ever had sex in their life time had high odds of testing (POR=2.5: CI, 1.53-4.06, P<0.01) compared to those who had never had sex in their lifetime.

**Table 3: Factors Associated with Voluntary HIV Testing among Adolescents Aged 15 to 19 Years**

| Variable | Total | Ever had HIV VCT | Bivariate analysis | | Multivariate analysis | |
|---|---|---|---|---|---|---|
| | | | cPOR(95%CI) | P-Value | aPOR(95%CI) | P-Value |
| **Age** | | | | | | |
| ≥18 | 133(39%) | 65(49%) | 1.8(1.15-2.82) | <0.01 | 2.1(0.88-4.82) | 0.10 |
| <18 | 205(61%) | 71(35%) | Ref | | Ref | |
| **Sex** | | | | | | |
| Female | 144(43%) | 61(42%) | 1.2(0.75-1.81) | 0.49 | 0.9(0.80,1.2) | 0.98 |
| Male | 194(57%) | 75(39%) | Ref | | Ref | |
| **Education** | | | | | | |
| Primary | 99(29%) | 45(45%) | 1.2(0.91-1.56) | 0.20 | 0.9(0.69-1.10) | 0.24 |
| Secondary | 239(71%) | 91(38%) | Ref | | Ref | |
| **Fear of results** | | | | | | |
| Yes | 55() | 7(13%) | 3(1.05-8.5) | 0.03 | 1.14(0.96-1.36) | 0.14 |
| No | 141() | 6(4%) | Ref | | Ref | |
| **Physical Accessibility** | | | | | | |
| Short distance | 136(70%) | 9(7%) | 1.3(0.37-4.6) | 0.68 | 0.92(0.73,1.16) | 0.47 |
| Long distance | 59(30%) | 3(5%) | Ref | | Ref | |
| **Confidentiality** | | | | | | |
| No | 166(86%) | 11(7%) | 1.9(0.25-13.18) | 0.53 | 0.95(0.74,1.22) | 0.66 |
| Yes | 28(14%) | 1(4%) | Ref | | Ref | |
| **Ever discussed HIV VCT with parents.** | | | | | | |
| Yes | 171(51%) | 100(58%) | 5.5(3.38-8.97) | <0.01 | 3.69(1.57-8.63) | <0.01 |
| No | 162(49%) | 33(20%) | Ref | | Ref | |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Ever discussed HIV VCT with sexual partner.** | | | | | | |
| Yes | 63(42%) | 43 (68%) | 3.6(1.81-7.1) | <0.01 | 2.1(0.83-5.35) | 0.12 |
| No | 88 (58%) | 33(33%) | Ref | | Ref | |
| **Ever had a boyfriend or girlfriend** | | | | | | |
| Yes | 112(34%) | 57(51%) | 1.9(1.24-3.14) | <0.01 | 0.53(0.20-1.43) | 0.21 |
| No | 221(66%) | 76(34%) | Ref | | Ref | |
| **Ever heard about VCT** | | | | | | |
| Yes | 31(93%) | 129(41%) | 2.7(0.98-7.4) | 0.05 | 0.39(0.75,1.12) | 0.06 |
| No | 24(7.2%) | 5(21%) | Ref | | Ref | |
| **Source of information on HIV VCT** | | | | | | |
| School, media &health facilities | 290(87) | 122(42) | 1.8(0.89-2.42) | 0.1 | 5.3(1.29-22.07) | 0.02 |
| Parents & Friends | 42(13) | 12(29) | Ref | | Ref | |
| **Know where VCT is conducted** | | | | | | |
| Yes | 279(83%) | 126(45%) | 4.4(2.07-9.30) | <0.01 | 6.8(2.11-21.78) | <0.01 |
| No | 57(17%) | 9(16%) | Ref | | Ref | |
| **Reasons to test for HIV voluntary.** | | | | | | |
| Know HIV status. | 120(82%) | 108(90%) | 1.4(1.03-1.77) | <0.01 | 4.5(0.26-77.71) | 0.30 |
| At risk of getting infected. | 27(18%) | 18(67%) | Ref | | Ref | |
| **Parents deny to give consent** | | | | | | |
| No | 176(90%) | 11(6%) | 1.2(0.16-8.7) | 0.86 | 1.79(0.02-203.88) | 0.81 |
| Yes | 19(10%) | 1(5%) | Ref | | | |
| **Never advised** | | | | | | |
| Yes | 92(46%) | 9(10%) | 1.7(0.64-4.67) | 0.27 | 0.11(0.01-2.39) | 0.16 |
| No | 106(54%) | 6(6%) | Ref | | | |
| **Ever had sex** | | | | | | |
| Yes | 95(29%) | 53(56%) | 1.65(1.29-2.14) | <0.01 | 16.6(0.77-361.28) | 0.07 |
| No | 235(71%) | 79(34%) | Ref | | Ref | |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Willingness to voluntary test for HIV** | | | | | | |
| Yes | 293(88%) | 121(41%) | 1.4(0.84-2.25) | 0.17 | 2.7(0.47-15.28) | 0.26 |
| No | 40(12%) | 12(30%) | Ref | | | |
| **Ever attend HIV clubs** | | | | | | |
| Yes | 133(40%) | 61(46%) | | | | |
| No | 200(60%) | 39(20%) | 3.5(2.15-5.70) | <0.01 | 2.38(0.97-5.87) | 0.06 |

### 4.4 Multivariate Analysis

With regard to the multivariate analysis of having been tested for HIV voluntarily among adolescents aged 15 to 19 years in Mwanza Region as shown in Table 3, the following factors were significantly associated with testing for HIV voluntarily: discussion of HIV and voluntary HIV testing with parents (POR=3.7 95% CI, 1.57-8.63 ), knowledge of the place where voluntary HIV testing is conducted (POR=6.8, 95% CI, 2.11-21.78 ) and sources of information about voluntary HIV testing (POR=5.3, 95% CI,1.29-22.07 ).

### 4.5 Proportion of adolescents willing to take voluntary HIV test

Overall, 88.8% of adolescents were willing to uptake voluntary test for HIV. Among males, 88.8% were willing to take voluntarily HIV testing, which was virtually similar to females (88.6%). The adolescents aged 15-17 years were less willing to test for HIV (86%) compared to those aged between 18-19 years (90%). Moreover, adolescents with primary and secondary education were similar in terms of willingness to test for HIV voluntarily (89%). The willingness to test for HIV voluntarily was similar among girls with primary and secondary education (89%) but males; with primary education were more willing to test for HIV voluntarily (93%) than boys with secondary education (86.5%). It was also found that among adolescents who were willing to test for HIV VCT, only 41% had ever tested for HIV voluntarily.

# CHAPTER FIVE

## 5.0 DISCUSSION OF FINDINGS

### 5.1 Discussion

This was a cross-sectional study which aimed to assess the factors associated with HIV testing among the adolescents aged 15 to 19 years in Mwanza Region. This study has revealed that low proportion (40%) of the respondents had taken voluntary HIV testing. The study further revealed that 88% of participants were willing to test for HIV voluntarily. Moreover, it has been found that factors which influence the uptake of HIV testing among adolescents were varied; discussion with parents about HIV and voluntary HIV testing, knowledge of where HIV testing is conducted; and the sources of information about HIV and voluntary HIV testing; school, health facilities and media were the main sources of information about HIV and voluntary HIV testing.

Adolescents who had ever discussed with parents about HIV testing were more likely to have tested for HIV voluntarily than those who had not. The findings are similar to the findings of the study conducted in the United States on association between parent–adolescent communication about sex-related topics and HIV testing between 2006 and2013. The study revealed that for both men and women, discussing how to prevent HIV/AIDS and how to use a condom with a parent before age 18 were positively associated with HIV testing(46). Similar findings were reported in a study conducted in South Africa on factors associated with HIV testing among sexually active South African youth aged 15 to 24 years(20). The findings underline the important role of parents in preventing the spread of HIV in the communities through parent-child communication about HIV.

This could be because before talking to parents, adolescents may think testing for HIV voluntarily is a sign of involvement in sexual behaviours, and this is immoral. But discussion about HIV and HIV testing with parents makes adolescents aware about voluntary HIV testing and see as it is important. Therefore, parents and guardians should make sure that they discuss with their children, especially adolescents, about HIV and

HIV testing so as to rescue them from acquiring or spreading HIV infections, and hence eliminate HIV/AIDS in the communities.

It has also been observed that adolescents who know where HIV testing is conducted are likely to test for HIV voluntarily compared to those who do not know where voluntary HIV testing is conducted. This finding is similar to the study conducted in Burkina Faso, which assessed individual and community level determinants of uptake of HIV testing among sexually active women and men. The study revealed that knowledge on where to access HIV testing was associated with uptake of HIV testing(26). Also, a study on HIV Testing and Sexually Transmitted Infection Care among Sexually Active Youth in the Balkans reported that participants who did not know where to go for voluntary HIV testing are less likely to test for HIV(28). This finding is also similar to the study conducted in South Africa by Peltzer et al. and another study conducted in Rukungiri District in Uganda (47)(48). Therefore, awareness of service availability leads to creation of need, demand and subsequent utilization of the HIV services and hence the need of enhancing the awareness of such services among young people to promote their utilization.

Again the study found that adolescents who had heard about HIV and voluntary HIV testing through school, health facilities and media were more likely to test for HIV voluntarily compared to adolescents who heard through parents and friends. This is similar to the findings of the study conducted on factors affecting voluntary counseling and testing among Ambo secondary school students in West Shoa (41). It is also similar to the study conducted in Burkina Faso by Fati Samadoulougo (26). This may be due to the fact that schools, health facilities and media have effective methods to deliver messages which also lead to self-actualization leading to change of behaviour like decision to test for HIV. Hence there is need to promote the capacity and role of such institutions to uphold the role of informing youths about health issues.

There are other factors which were not independently statistically significant associated with HIV VCT while in other studies they were independently statistically significantly

associated with HIV VCT. These factors are age, sex, education, fear of results, physical accessibility, and confidentiality, discussion with of HIV VCT with sexual partner, having a boyfriend or girlfriend and attendance of HIV clubs. This is contrary to other studies similar studies(10)(20)(21)(17). This May be due to difference in culture, geographical area and traditions.

### 5.1 Limitation of the study

The study could not include qualitative aspects to support the findings of the study by qualitative accounts for not attending voluntary HIV testing among adolescents in the district.

# CHAPTER SIX

## 6.0 SUMMARY, CONCLUSION AND RECOMMENDATIONS

### 6.1 Conclusion

The results of this study revealed that there is low uptake of voluntary HIV testing among adolescents despite being at the high risk of acquiring HIV /AIDS. Also, the factors associated with HIV testing include discussing HIV and HIV testing with parents, the role of school, health facilities and media as the sources of information about HIV and HIV testing and knowledge of where voluntary HIV test is conducted. The study has also highlighted higher willingness to test for HIV among this age group.

Adolescents are important in the prevention and control of the HIV/AIDS epidemic. In order to achieve this epidemic control and reaching 95-95-95 targets, the government requires substantial improvement in reaching adolescents with HIV testing. Therefore, more awareness should be created among all adolescents. To achieve this, there should be collaborative efforts with parents or guardians to ensure that adolescents obtain information about their HIV status and seek prompt counseling and medical interventions.

### 6.2 Recommendations

This study has revealed that there is low uptake of voluntary HIV testing among adolescents; therefore, much emphasize should be put on promoting adolescents to cultivate the culture of testing for HIV voluntarily so as to know their status and hence adhere to the prevention strategies. Also, parents and guardians should talk to their families especially adolescents about voluntary HIV testing and other HIV prevention measures as they have shown greater impact on voluntary HIV testing to adolescents.

There should be motivation through information education communication materials and use of local media, HIV education schedule at schools and health facilities which

increases awareness of the VCT service and knowledge on where VCT services are offered.

Government and policy makers should also establish HIV testing and counseling outreach services so that every adolescent can get the services just like vaccination and pregnancy testing programmes which are usually conducted in schools. Further research is recommended which should focus on strategies to enhance voluntary HIV testing uptake among adolescents.

## 7.0 REFERENCES


1. UNAIDS. the AIDS epidemic for adolescents , with adolescents [Internet]. 2016. Available from: https://www.unfpa.org/sites/default/files/pub-pdf/210079_UNAIDS_ENDING_THE_AIDS_FINAL_SO.pdf.
2. UNAIDS. Active involvement of young people is key to ending the AIDS epidemic by 2030. 2017.
3. LA L. Knowledge on HIV/AIDS and sexual behaviour among youth in Kibaha district Tanzania. Pub Med [Internet]. 2008;2(10):79–83. Available from: https://www.ncbi.nlm.nih.gov/pubmed/18846784.
4. United Nations. Fact Sheet : Teenage Pregnancy Success story from the field. 2010.
5. Avert. Young People HIV and AIDS. Global Information and Education on HIV and AIDS. 2018.
6. UNICEF. HIV and AIDS IN ADOLESCENTS. 2018.
7. Inungu J, Lewis A, Younis MZ, Wood J, Brien SO, Verdun D. HIV Testing among Adolescents and Youth in the United States : Update from the 2009 Behavioral Risk Factor Surveillance System. 2011;80–5.
8. CDC. HIV Testing 101. 2019.
9. AVERT. Symptoms and stages of HIV infection. 2018.
10. Sanga Z, Kapanda G, Msuya S, Mwangi R. Factors influencing the uptake of Voluntary HIV Counseling and Testing among secondary school students in Arusha City, Tanzania: A cross sectional study Health behavior, health promotion and society. BMC Public Health. 2015;
11. Practices B, District S. Poverty and Environment Initiative ( PEI ). 2015.
12. National Bureau of Statistic. Tanzania HIV Impact Survey ( THIS ). 2017.
13. Avert. Young people , HIV and AIDS. Global Information and Education on HIV and AIDS. 2018.
14. UNAIDS. Understanding Fast-Track Targets. Accelerating action to end the AIDS epidemic by 2030. Unaids. 2015;12.

15. Ezeanolue EE, Leone S. Seeking wider access to HIV testing for adolescents in sub-Saharan Africa. 2020;79(6).

16. Asaolu IO, Gunn JK, Center KE, Koss MP, Iwelunmor JI, Ehiri JE. Predictors of HIV testing among youth in sub-Saharan Africa: A cross-sectional study. PLoS One. 2016;11(10):1–12.

17. Ssebunya RN, Wanyenze RK, Namale L, Lukolyo H, Kisitu GP, Nahirya-Ntege P, et al. Prevalence and correlates of HIV testing among adolescents 10–19 years in a post-conflict pastoralist community of Karamoja region, Uganda. BMC Public Health. 2018;18(1):612.

18. National Bureau of Statistics. Tanzania HIV Impact Survey ( THIS ) 2016-2017.

19. Samet JH, Winter MR, Grant L, Hingson R. Factors Associated With HIV Testing Among Sexually Active Adolescents: A Massachusetts Survey. Pediatrics. 2004.

20. Macphail C, Pettifor A, Moyo W, Rees H. Factors associated with HIV testing among sexually active South African youth aged 15 24 years. 2009;21(4).

21. Hutchinson P, Mahlalela X. Utilization of Voluntary Counseling and Testing services in the Eastern Cape, South Africa. AIDS Care. 2006 Aug 1;18:446–55.

22. Teklehaimanot HD, Teklehaimanot A, Yohannes M, Biratu D. Factors influencing the uptake of voluntary HIV counseling and testing in rural Ethiopia : a cross sectional study. BMC Public Health [Internet]. 2016;(September). Available from: http://dx.doi.org/10.1186/s12889-016-2918-z.

23. Khawcharoenporn T, Chunloy K, Apisarnthanarak A. Uptake of HIV testing and counseling , risk perception and linkage to HIV care among Thai university students. BMC Public Health [Internet]. 2016;1–12. Available from: http://dx.doi.org/10.1186/s12889-016-3274-8.

24. Talib HJ, Silver EJ, Coupey SM. The Influence of Individual, Partner, and Relationship Factors on HIV Testing in Adolescents. 2013;(October).

25. Johns MM, Bauermeister JA, Zimmerman MA. NIH Public Access. 2011;22(6):509–22.

26. Kirakoya-samadoulougou F, Jean K, Maheu-giroux M. Uptake of HIV testing in Burkina Faso : an assessment of individual and community- level determinants. 2017;1–11.

27. Katz IT, Maughan-brown B. Improved life expectancy of people living with HIV : who is left behind ? Lancet HIV [Internet]. 2017;4(8):e324–6. Available from: http://dx.doi.org/10.1016/S2352-3018(17)30086-3.

28. Delva W, Wuillaume F, Vansteelandt S, Sc M, Ph D, Claeys P, et al. HIV Testing and Sexually Transmitted Infection Care among Sexually Active Youth in the Balkans. 2008;22(10).

29. Musumari PM, Tangmunkongvorakul A. Prevalence and Correlates of HIV Testing among Young People Enrolled in Non-Formal Education Centers in Urban Chiang Mai , Thailand : A Cross-Sectional Study. 2016;1–16.

30. Macphail CL, Pettifor A, Coates T, Rees H, Cantab M. " You Must Do the Test to Know Your Status ": Attitudes to HIV Voluntary Counseling and Testing for Adolescents Among South African Youth and Parents. 2013;35(February 2008):87–104.

31. Wringe A, Isingo R, Urassa M, Maiseli G, Manyalla R, Changalucha J, et al. Uptake of HIV voluntary counselling and testing services in rural Tanzania : implications for effective HIV prevention and equitable access to treatment. 2008;13(3):319–27.

32. Nall A, Rodriguez LM, Brien JLO. Factors A ff ecting HIV Testing among Youth in Kenya. 2019;1–14.

33. Leta TH, Sandøy IF, Fylkesnes K. Factors affecting voluntary HIV counselling and testing among men in Ethiopia : a cross-sectional survey. 2012.

34. Mkandawire P. Assessing factors associated with HIV testing among adolescents in Malawi. Glob Public Health. 2017;12(7):927–40.

35. WHO. The Voices , Values and Preference of Adolescents on HIV Testing and Counselling Consultation for the Development of the World Health Organization. 2013.

36. Barriers and attitudes towards HIV Voluntary Counselling and Testing ( VCT ) among Secondary School Pupils of Sengerema in Mwanza. 2007.

37. Glick J, Kerr L, Júnior FMLP, Kendall C, Martins TA, Mota RMS. Risk factors associated with resistance to HIV testing among transwomen in Brazil. 2016;0121.

38. Dagne S, Agedew E, Misikir D, Haftu D. AIDS & Clinical Research Voluntary Counseling and Testing Utilization and Associated Factors. 2017;8(6):6–11.

39. Avert. HIV testing programmes Barriers to HIV testing uptake. 2019.

40. Hipszer S, Ghalib K. Barriers and Facilitators to Adolescent HIV Testing. 2007;21(6):8–14.

41. Girma T. AIDS & Clinical Research Factors Affecting Voluntary Counseling and Testing VCT among Ambo. 2016;7(9).

42. Youth S, Harcourt P. Who is more willing to Test for HIV ? A Comparison of Community and. 2018;1–9.

43. Mwanza region. Tanzania : A Youthful and Rapidly Growing Nation Opportunities and possibilities Mwanza Region. 2012.

44. NIMR Tanzania. Tanzania District Health Assessment 2008 – 2009 Summary Report. 2009.

45. Kapesa A, Basinda N, Nyanza EC, Mushi MF, Jahanpour O, Ngallaba SE. Prevalence of HIV infection and uptake of HIV / AIDS services among fisherfolk in landing Islands of Lake Victoria , north western Tanzania. 2018;4:1–9.

46. Balaji AB, Oraka E, Fasula AM, Jayne PE, Monique G, Raiford JL, et al. Association between parent – adolescent communication about sex-related topics and HIV testing , United States . 2006 – 2013. AIDS Care [Internet]. 2016;0(0):1–6. Available from: http://dx.doi.org/10.1080/09540121.2016.1238443.

47. Peltzer K, Matseke G, Peltzer K. Determinants of HIV testing among young people aged 18 – 24 years in South Africa. 2013.

48. FACTORS AFFECTING UPTAKE OF VOLUNTARY COUNSELING AND TESTING SERVICES AMONG YOUTH IN RUKUNGIRI DISTRICT , UGANDA Mwenyango Irene Dissertation submitted to Makerere University School of Public Health in partial fulfillment for the Award of the Degree of Ma. 2010.

# APPENDICES

## Appendix 1: Informed consent (English version)

**Consent to participate in this study**

MUHIMBILI UNIVERSITY OF HEALTH AND ALLIED SCIENCES (MUHAS)

Consent to participate in a study titled; '**HIV Testing among Adolescents Aged 15 to 19 Years.'**

ID NO

Greetings! My name is Iringamile Methusela. Currently, I am a student at the Muhimbili University of Health & Allied Sciences, pursuing MSc in Applied Epidemiology. I am conducting a research to determine HIV testing among adolescents aged 15 to 19 years and associated factors in Mwanza Region.

**Purpose of the study**

The aim of this study is to determine HIV testing among the adolescents aged 15 to 19 years and associated factors in Mwanza Region. If you agree to join this study, you will be required to answer a series of questions that have been prepared in order to obtain the intended information.

**Confidentiality**

The information that you will share in the study will be treated as strictly confidential and will be used only for research purpose. Your name will not be used for identification during data analysis and report development, instead numbers will be used.

**Risks**

The researcher anticipates no harm will happen to you as you participate in this study.

**Benefits**

There will be no direct financial benefits to you; however; participation in this research has the potential to improve HIV testing among adolescents aged 15 to 19 years and finally to prevent HIV transmission through recommendations that will be made from this study.

**Rights to Withdraw and Alternatives**

To participate in the study is voluntary. You are free to choose whether to participate or not or withdraw in this study at any time. Refusal to participate or withdraw will not imply any effect to your service and does not interfere with the study. However, we would like you to participate in this study because your views are very important in this study.

**Who to contact**

If there is any question about this study please do not hesitate to communicate to the **Director of Research and Publication, Dr. Bruno Sunguya,** Muhimbili University of Health and Allied Science (MUHAS), P. O. Box 65001, Dar es Salaam, Tel. no 2150302-6. OR

Dr. I. Semali, the study Supervisor (Mobile: 0754 269 838)
Dr. S. Sembuche, the study Supervisor (mobile: 0784 622 968)
Iringamile M. Magongo–the Principal Investigator (Mobile 0765 910 441)**.**

**Participant agree** ☐ **Participant disagree** ☐

Signature of Participant …… Researcher's signature……..
Date …….. Date……..

**Appendix 2: Questionnaire**

**Questionnaire for adolescents aged between 15 -19 years in Mwanza Region, Tanzania 2019/2020**

**Introduction**

Thank you for accepting to be interviewed. The interview will not take more than 45 minutes. However, you can stop the interview at any time. I will start by asking you some general questions about yourself. Let me assure you that this information will be treated with utmost confidentiality.

## SECTION 1: IDENTIFIER INFORMATION

Questionnaire number ……..

Date of Interview……../……/……...

District……..…… Ward …… Village ……. Hamlet…….....

## SECTION 2: ADOLESCENT CHARACTERISTICS

1. How old are you (age in complete years)……
2. Sex of study participant
   a)Male
   b)Female

**3**. What is your educational level?

a) Primary
b) Secondary
c) Certificate
d) None
e) Incomplete Primary

f)Incomplete Secondary

4. Employment

a) Student
b) Business

c) Employed

d) Self employed.

e) Self employed.

5. Place of residence. a)Urban b.)Rural

**SECTION 3: KNOWLEDGE ON VCT**

6. Have you ever heard about HIV?

a) Yes b) No (If yes go to question 6, if no skip to question 23)

7.If yes, Is HIV i) Curable a) Yes b) No

ii) Preventable a)Yesb) No

iii) Treatable a) Yes b) No

8. Modes of transmission (Tick appropriate answer)

i) Mother to child transmission during pregnancy.☐

ii) Unsafe sexual intercourse☐

iii) Mosquito bite ☐

iv) Living together with HIV infected person ☐

v) Shared contaminated sharp materials ☐

iv) Contaminated blood transfusion to uninfected patient ☐

Vii) Breast feeding mother to child transmission ☐

9. Methods of HIV protection

a)Abstinence

b) Being faithful_

c). Condom use

d). Others……

**QUESTIONS ABOUT VOLUNTARY HIV TESTING AND COUNSELING**

10. Have you ever heard about voluntary HIV testing and counseling?**(If no go to question no 25)**

a) Yes b) No

11. If yes, where did you get the information about Voluntary HIV testing and counseling?

a) School b) Parents/ guardian c) Friends d)Media e)HIV /AIDS clubs f)Health worker g)at health facility.

12. Do you know where voluntary HIV testing and counseling is conducted?

a) Yes b) No

13. Is HIV Voluntary testing and counseling important for adolescents?

a) Yes b) No

14. Can you recommend HIV voluntary testing and counseling to your friends and relatives?

a) Yes b) No

15. Have you ever tested for HIV voluntarily? a) Yes b) No (If no go to question no 18)

16. Why did you decide to test for HIV voluntarily? a)Was sick b)Just wanted to know my status c) I was at risk d)For marriage.

**17.**When was your last voluntary HIV test? a) 12 last months ago b)More than 12 months c)Less than 12 months**.**

**SECTION 4: REASONS FOR NOT TESTING**

**18. Never been advised. a) Yes b) No**

19. Not believing to have HIV infection. a) Yes b) No

20. Afraid of positive results. a) Yes b) No

21. Long distance to Health centre a) Yes b) No

22. No service in the residential area. a) Yes b) No

23. Lack of confidentiality by the provider. a) Yes b) No

**24. Parents denied to give consent. a) Yes b) No**

**SECTION 5: SOCIAL CULTURAL FACTORS**

25. Have you ever discussed with parents about HIV and HIV testing.a) Yes b) No

26. Have you ever attended HIV education sessions at any organization or HIV/AIDS Club?a) Yes b) No

27.If yes, how many sessions have you attended ……..

**SECTION 6: WILLINGNESS TO TEST FOR HIV AT VCT**

28. Are you willing to voluntarily test for HIV?a) Yes b) No

**SECTION 7: RISKY BEHAVIOURS**

29. Have you ever had (do you have) a boyfriend or a girlfriend (partner)? **a) Yes b) No** (If yes go to question 27 if no go to question 28)

30. Have you ever discussed about HIV testing with your boyfriend or a girlfriend (partner)? **a) Yes b) No**

31. Have you ever had sex in your life? a) Yes b) No(If yes go to question 29 if no end.)

32. How old were you when you had your first sex? ……..

33. When was your last sex? a) 12 last months ago b) More than 12 months c) Less than 12 months**.**

**APPENDIX 3: Ruhusa / idhini (Swahili version)**

**HATI YA KUKUBALI KUHOJIWA**

Namba ya utambulisho

Habari, Jina langu ni Iringamile Methusela. Ninasoma katika chuo Kikuu Cha Tiba na Sayansi Shirikishi Muhimbili. Ninasoma shahada ya Uzamili ya utafiti wa magonjwa. Tumekuja kufanya utafiti juu ya upimaji wa virusi vya ukimwi kwa hiari kwa vijana wenye umri wa miaka 15 hadi 19 katika Mkoa wa Mwanza.

**Lengo la utafiti**

Lengo la utafiti huu ni kuangalia upimaji wa virusi vya UKIMWI kwa hiari kwa vijana wenye umri wa miaka 15 hadi 19 katika Mkoa wa Mwanza. Ukikubali kujiunga na utafiti huu utahitajika kujibu maswali ambayo yameandaliwa ili kuweza kupata hizo taarifa.

**Usiri**

Taarifa utakazozitoa zitakuwa ni siri na zitatumika kwa ajili ya utafiti tu na si kwa matumizi mengine yoyote. Mazungumzo yetu yatachukuwa kama dakika arobaini na tano mpaka hamsini hivi kukamilika, zitatumika namba na sio jina wala hakutakuwa na kitu kingine chochote cha kutambulisha ushiriki wako.

**Madhara**

Hatutarajii kutokea madhara ya aina yoyote kwako yatakayosababishwa na utafiti huu.

**Faida**

Hakutakuwa na malipo yeyote kama vile fedha japokuwa kushiriki kwenye huu utafiti kutachangia kuboresha upimaji wa virusi vya ukimwi kwa vijana wenye umri wa miaka 15 hadi 19 kufuatia mapendekezo ambayo yatatolewa baada ya utafiti huu.

**Haki ya kujitoa katika utafiti**

Kushiriki kwako katika utafiti huu ni hiari, unaweza kuamua kukataa kushiriki katika utafiti huu na hakuna adhabu yoyote itakayotokana na kutoendelea kushiriki katika mazungumzo. Hata hivyo, ni mategemeo yangu kuwa utashiriki kikamilifu.
Kama kuna swali kuhusiana na utafiti huu wasiliana na:

**Mkurugenzi wa Utafiti na Uchapishaji Dr. Bruno Sunguya** - Chuo Kikuu cha Afya na Sayansi ya Tiba Muhimbili, S.L.P. 65001 DSM. Simu namba 2150302-6. Kama una maswali zaidi unaweza kuwasiliana na
Dr. I. Semali, Msimamizi wa utafiti (Simu: 0754 269 838)
Dr. S. Sembuche, Msimamizi wa utafiti(Simu:0784 622 968)
Iringamile M. Magongo– Mtafiti mkuu (Simu 0765 910 441)**.**

"Nimesoma na nimeelewa ombi lako, kwa hiari yangu, bila ya nguvu wala ahadi zozote nakubali kushiriki katika utafiti huu". ☐

"Samahani, sipotayari kushiriki / Nipotayari Kushiriki ☐

Sahihi ya mshiriki / Alama ya dole gumba……..... Tarehe.....
Sahihi ya muulizaji..... Tarehe .....

**Appendix 4: Kiambatisho 1: Dodoso la muundo (Swahili version)**

Dodoso kwa vijana wenye umri kuanzia miaka 15-19 katika mkoa wa Mwanza nchini Tanzania mwaka 2019/2020.

**Utangulizi**

Asante kwa kukubali kushiriki katika utafiti huu; kwa hiyo, nitakuuliza maswali mbalimbali kuhusu utafiti huu. Mahojiano yetu hayatachukua zaidi ya dakika 45. Hata hivyo, maamuzi yako yataheshimiwa sana ya kuendelea na mahojiano au kutokuendelea na mahojiano. Nitaanza kwa kukuuliza maswali ya jumla kuhusu wewe mwenyewe. Napenda kukuhakikishia kwamba taarifa hii itatumika na kuhifadhiwa kwa siri zaidi.

**SEHEMU YA KWANZA (1) UTAMBULISHO BINAFSI**

Namba ya dodoso ....., Namba ya mteja .....tarehe ya Mahojiano ...../..... /... Wilaya .....

**SEHEMU YA PILI (2) TAARIFA BINAFSI**

1. Una umri gani(miaka).....
2. Jinsia yako
   a)Kiume
   b)Kike

3.Kiwango cha Elimu
   a)Shule ya msingi
   b)Sekondari
   c)Stashahada
   d)Sikusoma
   e)Sikumaliza elimu ya msingi
   d)Sikumaliza elimu ya sekondari

**4.Ajira**

a) Mwanafunzi
b) Mvuvi

c) Mkulima

d) Mfanyabiashara

e) Mwajiriwa

f) Nmejiajiri

5. Sehemu unapoishi a)Mjini b.)Kijijini

**6. <u>SEHEMU YA 3: UELEWA KUHUSU UPIMAJI WA UKIMWI KWA HIARI</u>**

6. Umeshawahi kusikia kuhusu ugonjwa wa UKIMWI au virusi vya UKIMWI?

a) Ndio b) Hapana (Kama ndio nenda swali la saba, kama hapana nenda swali la23)

**7.Kama ndio, ulifahamu ugonjwa wa Ukimwi kupitia chanzo gani? (Weka alama ya vema katika jibu sahihi**

**a**)Radio ☐

b)Television ☐

c)Wafanyakazi wa afya ☐

d)Magazeti ☐

e)Shule ☐

f)Marafiki ☐

g)Wazazi ☐

**8.Je ugonjwa wa UKIMWI**

i) Unatibika? a) Ndio b) Hapana

ii)Unazuilika?a) Ndio b) Hapana

**9. Jinsi unavyosambaa (Weka vema sehemu sahihi)**

i) Mama akiwa mjamzito.☐

ii) Ngono zembe ☐

iii) Kuumwa na mbu ☐

iv)Kuishi na mwenye virusi vya UKIMWI ☐

v) Vifaa vyenye ncha kali vyenye virusi ☐

iv)Kuongezewa damu yenye virusi vya UKIMWI. ☐

Vii) Kupitia mama anaenyonyesha mwenye virusi vya UKIMWI ☐

10. Njia za kuzuia maambukizi

a)Kuacha ngono ☐

b) Kuwa mwaminifu ☐

c). Kutumia condom ☐

d). Nyingine (taja)……☐

**Maswali kuhusu upimaji wa virusi vya UKIMWI kwa hiari**

11.Umeshawahi kusikia kuhusu upimaji wa virusi vya UKIMWI kwa hiari? (kama hapana nenda swali namba 25)

a) Ndio b) Hapana

12. Kama ni ndio, ulisikia wapi kuhusu upimaji wa virusi vya UKIMWI kwa hiari?

a) Shuleni b) wazazi/ walezi c) marafiki d)vyombo vya habari e)vyama vya UKIMWI f) Watumishi wa afya g)katika vituo vya afya

13. Je, unafahamu mahali wanapotoa huduma za kupima virusi vya UKIMWI kwa hiari?

a) Ndio b) Hapana

14. Je, upimaji wa virusi vya UKIMWI ni muhimu kwa vijana?

a) Ndio b) Hapana

15. Je, unaweza kuwashauri ndugu na marafiki kuhusu upimaji wa virusi vya UKIMWI kwa hiari?

a) Ndio b) Hapana

16.Je, umeshawahi kupima virusi vya UKIMWI kwa hiari? a)Ndio b)hapana (kama hapana nenda swali namba 18)

17.Mara ya mwisho umepima lini? a) miezi 12 iliopita b)Zaidi ya miezi 12 iliyopita c)Chini ya miezi 12 iliyopita.

18.Kama ndiyo, kwa nini uliamua kwenda kupima virusi vya UKIMWI kwa hiari?

a)Nilikuwa naumwa

b)Nilitaka kujua kuhusu afya yangu

c) Nilikuwa katika hatari ya kupata virusi vya UKIMWI

d)Nilikuwa mjamzito

**SEHEMU YA 4: SABABU ZA KUTOKUPIMA VIRUSI VYA UKIMWI KWA HIARI**

19. Sijawahi kushauriwa kuhusu upimaji wa virusi vya UKIMWI kwa hiari. a) Ndio b)Hapana

20. Naamini sina virusi vya UKIMWI. a) Ndio b) Hapana

21. Naogopa kupokea majibu ya kuwa na virusi vya UKIMWI a)Ndio b)Hapana

22. Umbali mrefu kutoka sehemu ya kutolea huduma. a) Ndio b) Hapana

23. Hakuna huduma katika sehemu ya makazi.a) Ndio b) Hapana

24. Hakuna usiri kwa watoa huduma. a) Ndio b) Hapana

25. Wazazi hawataki kutoa kibali au ruhusa ya kupima virusi vya ukimwi kwa hiari

**SEHEMU YA 5: SABABU ZA TAMADUNI NA KIJAMII**

26. Je umewahi kujadilina na wazazi kuhusu UKIMWI na upimaji wa virusi vya UKIMWI kwa hiari a) Ndio b) Hapana

27.Je, umewahi kuhudhuria vipindi vya elimu kuhusu ugonjwa wa UKIMWI katika klabu za UKIMWI? a) Ndio b) Hapana

**SEHEMU YA 6: UHITAJI WA UPIMAJI WA VIRUSI VYA UKIMWI KWA HIARI**

28. Je, unahitaji kupima virusi vya UKIMWI kwa hiari? a) Ndio b) Hapana

**SEHEMU YA 7: TABIA HATARISHI**

29. Umewahi kuwa na (una) rafiki wa kiume au wa kike? (mwenza)? **a) Ndio b) Hapana**

(kama ndiyo, nenda swali la 28, kama hapana, nenda swali la 29)

30.Umeshawahi kujadili kuhusu upimaji wa virusi vya UKIMWI kwa hiari na mwenza wako? (partner)? **a) Ndio b) Hapana**

31.Umeshawahi kufanya mapenzi? a) Ndiyo b) Hapana (Kama ndiyo, nenda swali la 29. Kama hapana, nenda swali la 30)

32.Ulikuwa na umri gan iulipoanza kufanya mapenzi? Taja……..

33.Mara ya mwisho ulifanya mapenzi lini? a) miezi 12 iliyopita b)zaidi ya miezi 12 c)chini ya miezi 12**.**

**Appendix 5: Ethical clearance**

MUHIMBILI UNIVERSITY OF HEALTH AND ALLIED SCIENCES
OFFICE OF THE DIRECTOR OF POSTGRADUATE STUDIES

P.O. Box 65001
DAR ES SALAAM
TANZANIA
Web: www.muhas.ac.tz

Tel G/Line: +255-22-2150302/6 Ext. 1015
Direct Line: +255-22-2151378
Telefax: +255-22-2150465
E-mail: dpgs@muhas.ac.tz

Ref. No. DA.287/298/01A/

18th December, 2019

Ms. Iringamile Methusela
MSc. Applied Epidemiology,
**MUHAS.**

**RE: APPROVAL OF ETHICAL CLEARANCE FOR A STUDY TITLED: "FACTORS ASSOCIATED WITH HIV TESTING AMONG ADOLESCENTS AGED 15 TO 19 YEARS IN MWANZA REGION."**

Reference is made to the above heading.

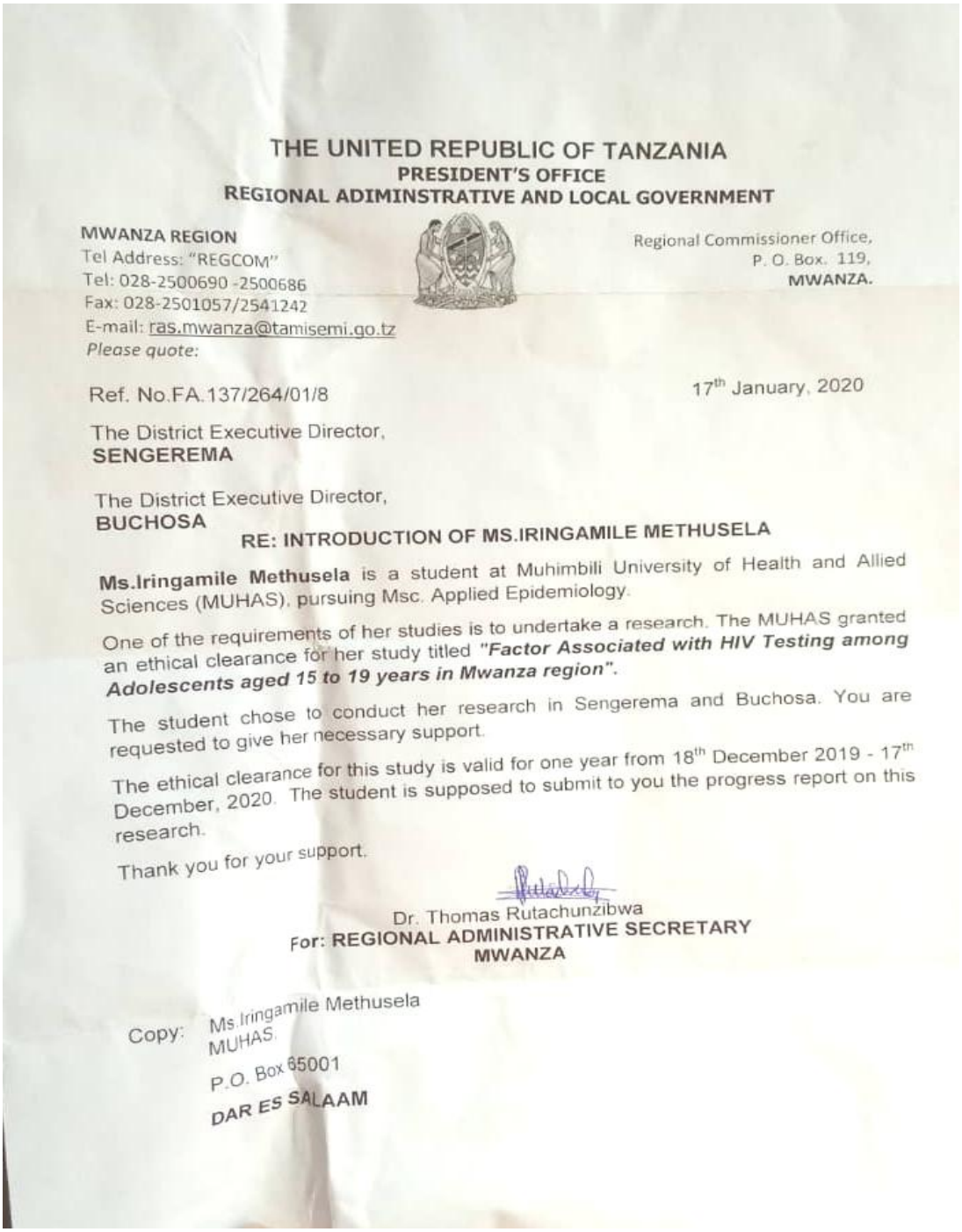
I am pleased to inform you that, the Chairman has, on behalf of the Senate, approved ethical clearance for the above-mentioned study. Hence you may proceed with the planned study.

The ethical clearance is valid for one year only, from **18th December, 2019 to 17th December, 2020.** In case you do not complete data analysis and dissertation report writing by 17th **December, 2020,** you will have to apply for renewal of ethical clearance prior to the expiry date.

Dr. Emmanuel Balandya
**ACTING: DIRECTOR OF POSTGRADUATE STUDIES**

cc: Director of Research and Publications
cc: Dean, School of Public Health and Social Sciences, **MUHAS**

## Appendix 6: Introduction letter to Sengerema District



THE UNITED REPUBLIC OF TANZANIA
PRESIDENT'S OFFICE
REGIONAL ADIMINSTRATIVE AND LOCAL GOVERNMENT

MWANZA REGION
Tel Address: "REGCOM"
Tel: 028-2500690 -2500686
Fax: 028-2501057/2541242
E-mail: ras.mwanza@tamisemi.go.tz
*Please quote:*

Regional Commissioner Office,
P. O. Box. 119,
MWANZA.

Ref. No.FA.137/264/01/8

17th January, 2020

The District Executive Director,
**SENGEREMA**

The District Executive Director,
**BUCHOSA**

**RE: INTRODUCTION OF MS.IRINGAMILE METHUSELA**

**Ms.Iringamile Methusela** is a student at Muhimbili University of Health and Allied Sciences (MUHAS), pursuing Msc. Applied Epidemiology.

One of the requirements of her studies is to undertake a research. The MUHAS granted an ethical clearance for her study titled ***"Factor Associated with HIV Testing among Adolescents aged 15 to 19 years in Mwanza region".***

The student chose to conduct her research in Sengerema and Buchosa. You are requested to give her necessary support.

The ethical clearance for this study is valid for one year from 18th December 2019 - 17th December, 2020. The student is supposed to submit to you the progress report on this research.

Thank you for your support.

Dr. Thomas Rutachunzibwa
**For: REGIONAL ADMINISTRATIVE SECRETARY**
**MWANZA**

Copy: Ms.Iringamile Methusela
MUHAS
P.O. Box 65001
***DAR ES SALAAM***