# AWARENESS AND WILLINGNESS TO USE HIV SELF-TESTING AMONG STUDENTS IN HIGHER LEARNING INSTITUTIONS IN DODOMA CITY, TANZANIA

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# AWARENESS AND WILLINGNESS TO USE HIV SELF TESTING AMONG STUDENTS IN HIGHER LEARNING INSTITUTIONS IN DODOMA CITY, TANZANIA.

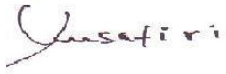
**By**

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**A dissertation Submitted in (partial) fulfilment of the Requirements for the Degree of Master of Public Health of the Muhimbili University of Health and Allied Sciences**
**October, 2021**

## CERTIFICATION

The undersigned certifies that he has read and hereby recommends for acceptance by the Muhimbili University of Health and Allied Sciences a dissertation entitled; ***Assessment of willingness to use HIV self- testing among students in higher learning institutions in Dodoma city, Tanzania***, in fulfilment of the requirements for the degree in Master of Public Health of the Muhimbili University of Health and Allied Sciences.



Dr. Joel Francis
(Supervisor)

24th November 2021
Date

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I, Aloyce H. Mabula**,** declare that this dissertation is my original 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 :**24th November, 2021

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## DEDICATION

This work is dedicated to my beautiful family, lovely wife Miriam Mafuru and my sons Henry and Steven Aloyce.

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## LIST OF ABBREVIATIONS

| | |
|---|---|
| **AIDS** | Acquired immune deficiency Syndrome |
| **CBO** | Community Based Organization |
| **CITC** | Client Initiated Testing and Counselling |
| **HAART** | Highly Active Anti-Retroviral Therapy |
| **HIV** | Human Immunodeficiency Virus |
| **HIVST** | HIV Self-Testing |
| **IDU** | Injecting drug use |
| **MoHCDEC** | Ministry of Health, Community Development, Gender, Elderly and Children |
| **PEPFAR** | President's Emergency Funds for AIDs Relief |
| **PITC** | Provider Initiated Testing and Counselling |
| **PLHIV** | People Living with HIV |
| **PMTCT** | Prevention of Mother to Child Transmission |
| **RDT** | Rapid Diagnostic Test |
| **STAR** | Self-Testing Project in Africa |
| **TZS** | Tanzania Shillings |
| **UNAIDS** | United Nations Programs on HIV/AIDS |
| **UNICEF** | United Nations Children's Emergency Fund |
| **USAID** | United States Agency for International Development |
| **WHO** | World Health Organization |

## OPERATIONAL DEFINITIONS OF TERMS

**Awareness:** knowledge that something exists or understanding of a situation or subject at the present time based on information or experience.

**Willingness:** the quality of being happy to do something if it is needed.

**Exposure to HIV:** The condition of being physically near or unprotected from contact with HIV; presents the possibility of HIV transmission.

**HAART:** Highly Active Anti Retro Viral Therapy, a form of drug treatment for HIV infection consisting of a course of at least three antiretroviral drugs.

**Higher learning institution:** refers to institutions providing education beyond the level of secondary school education, e.g., at a university or college.

**HIV –Self Testing (HIVST)**: is a process whereby a person who wants to know his or her HIV status collects a specimen, performs a test and interprets the test result in private.

**Adolescent:** refers to individual in the 10-19 years age group.

**Youth:** Refers to individuals in the 15–24-year age group.

## ABSTRACT

**Background:** HIV self-testing has been reported in various studies to be an efficient intervention that can help to increase the level of awareness and utilization of HIV care and treatment services. This intervention has been recommended by WHO and is currently being scaled up in several African countries. We determined the awareness and willingness to use HIV self-testing among students in higher learning institutions in Dodoma city, Tanzania

**Broad Objective**: The objective of this study is to determine awareness and willingness to use HIV self-testing among students in higher learning institutions in Dodoma city, Tanzania.

**Material and methods**; We carried out a cross–sectional survey among students attending higher learning institutions in Dodoma City, Tanzania. We applied a multi-stage sampling procedure by randomly selecting two higher learning institutions using the probability proportional to size approach. The sample size for this study was 762 calculated from a single population proportion formula. A self-administered questionnaire was used to collect information from study participants. We double-entered the collected data into Epidata and imported the clean data for analysis using Stata version 14. We determined the proportion of sexual behaviours, awareness, and willingness to use HIVST. We performed bivariate analysis to determine factors associated with willingness to use HIVST was performed using Chi square. Ethical clearance was sought from MUHAS Institutional Review Board (IRB)

**Results**: Of 1917 students recruited in the study, 1210(63.1%) were from St. John's University. The mean (± standard deviation) age was 23(± 2.4) years.50% of all the participants had never tested for HIV. More than 80% of both males and females reported having ever heard about HIV self-testing while 794(85.5%) of males and 597(87.7%) of females reported having previously used HIV self-testing (HIVST). Almost all the participants (99.9%) were willing to use the service if provided in a comfortable environment.

**Conclusion**: Findings from this study show that the awareness to use HIVST is high (80%) and almost all the participants (99.9%) are willing to use HIVST. Therefore, the implementation of HIVST in higher learning institutions is possible though interventions should consider factors such as cost for the test kits, false positives, access, and location to HIVST and linkage to care and treatment services for those who test positive.

# CHAPTER ONE

# INTRODUCTION

## 1.1 Overview

This chapter describes what is known about HIV Self-testing and the motivation for this study. It describes the background, statement of the problem, conceptual framework, rationale, research questions, research objectives and literature reviews.

## 1.2 Background

An estimated 37.9 million people were living with HIV worldwide in 2018(1). About half of the HIV infected population resides in Southern and Eastern Africa. HIV/AIDS has been a major public health concern in Tanzania for more than 30 years (1) In 2018, 1.6 million people were living with HIV in Tanzania. This equates to an estimated HIV prevalence of 4.6 % (1). The severity of the epidemic varies across the country. Some regions in Tanzania report an HIV prevalence of around 1.5% (Manyara) while other regions have a prevalence as high as 14.8% (Njombe). (3)

Like most other sub-Saharan African countries, Tanzania has a very young population. A third of the country's population is aged 10-24, the age most become sexually active. (4) In 2016, an estimated 4.7% of adolescents (aged 10-19) were living with HIV in Tanzania (5). Young people engaging in risky sexual behaviours (such as not using condoms), having multiple sexual partners, and first having sex before the age of 15 remain significant challenges in the country's HIV response. Comprehensive knowledge about HIV is also low – less than half of young people have adequate knowledge (6). 78% of PLHIV in Tanzania are aware of their status (6). Individual awareness of his or her HIV status is very important for prevention and treatment purposes. In Tanzania, 22%-25% of PLHIV are

unaware of their status (6) and 25% of people living with HIV (PLHIV) globally are not aware of their HIV status due to different factors (2). A high level of awareness is more appreciated in adults compared to youths (3). Studies have also reported that only 10% of young men and 15 % of young women know their HIV status (4).

HIV self-testing (HIVST) has been reported in various studies to be an effective intervention that can help in scaling up individuals to know their HIV status (5). It normally involves an individual collecting his or her specimen (oral fluid or blood) from the mouth swab or finger-pricks. The outcome of the test is normally interpreted by the individual himself/herself in privacy or in the presence of another person who is trusted. HIVST has been approved by WHO and UNAIDs as a good approach in reaching the global target for combating the HIV/AIDS epidemic. It is postulated that this approach is highly preferred by many clients due to its associated benefits such as its ease to use and cost-effectiveness (6). This intervention has been proved to have a significant impact on HIV prevention (7). However, knowledge on HIVST existence is still low in some communities (8). A community-based study in Zambia reported a high level of HIVST preference and acceptability (9). This is because the procedure can be easily performed by the clients in various settings including workplaces (10). Knowledge, attitudes and perception on utilization of HIVST vary with respect to different variables (4). Similar findings have been reported in a study conducted in Kenya on awareness, acceptability and perception of HIVST (11).

Tanzania scaled up the implementation of HIVST in 2019 as a pilot in Mwanza Njombe and Ruvuma regions to generate data on the implementation models, uptake, feasibility, and acceptability of HIV self-testing in the country.

### 1.3 Statement of the problem

There are multiple HIV Test System (HTS) delivery models available in Tanzania including Provider initiated HIV counselling and testing (PITC) and various community-based approaches such as mobile and home-based HTS delivered by health care workers from health facilities. Despite these various approaches used for HIV testing, a significant number of individuals are still unaware of their HIV status.

This notable lack of HIV status awareness results in increased risk of HIV transmission among individuals (risk groups) as well as delayed initiation of treatment. Youths are one of the risk group (including men who have sex with other men, female sex workers and injecting drug users) mostly affected by the HIV epidemic but yet the level of HIV awareness is still poor (12). Studies have reported that only 10% of young men and 15 % of young women know their HIV status (4). This notable lack of awareness of HIV status among these youths requires innovative strategies such as HIV Self-testing (HIVST) to increase HIV status awareness level and willingness to use in young men and women as well as other adults in Tanzania. HIVST is an innovative approach since it overcomes the barriers (stigma, discrimination and lack of confidential testing environment) of VCT encountered in the current HIV testing models (13).

HIV Self-testing has been reported in various studies to be an effective intervention that can help in scaling up individuals to know their HIV status (5). HIVST is an innovation in Tanzania, there is no study conducted to determine the level of awareness and willingness on HIVST in Tanzania and therefore this study seeks to explore awareness and willingness to use HIVST among students in the higher learning institution.

Higher learning institutions carry a good proportion of young men and women that are more likely to have multiple sexual partners, engage in substance use and unprotected sex which increase their risk of acquiring HIV infection.

Dodoma city is a capital of Tanzania, and the new government has moved to Dodoma and therefore the population dynamics have changed and could influence the risk behaviours of the inhabitants including higher learning institutions' students.

Findings of this study will help to inform the National Aids Control Program (NACP) on the level of awareness and willingness to use HIVST among higher learning institutions students which will support further scaling up of HIVST services in Tanzania.

### 1.4 Conceptual Framework

Understanding awareness and willingness level on HIVST is critical to designing strategies for HIVST scaling for young people in Tanzania including university/college students. Awareness on HIVST depends on various factors such as age, education level, profession/program of study as wells as life style of the individual. In addition, an individual's HIVST willingness is influenced by different factors.

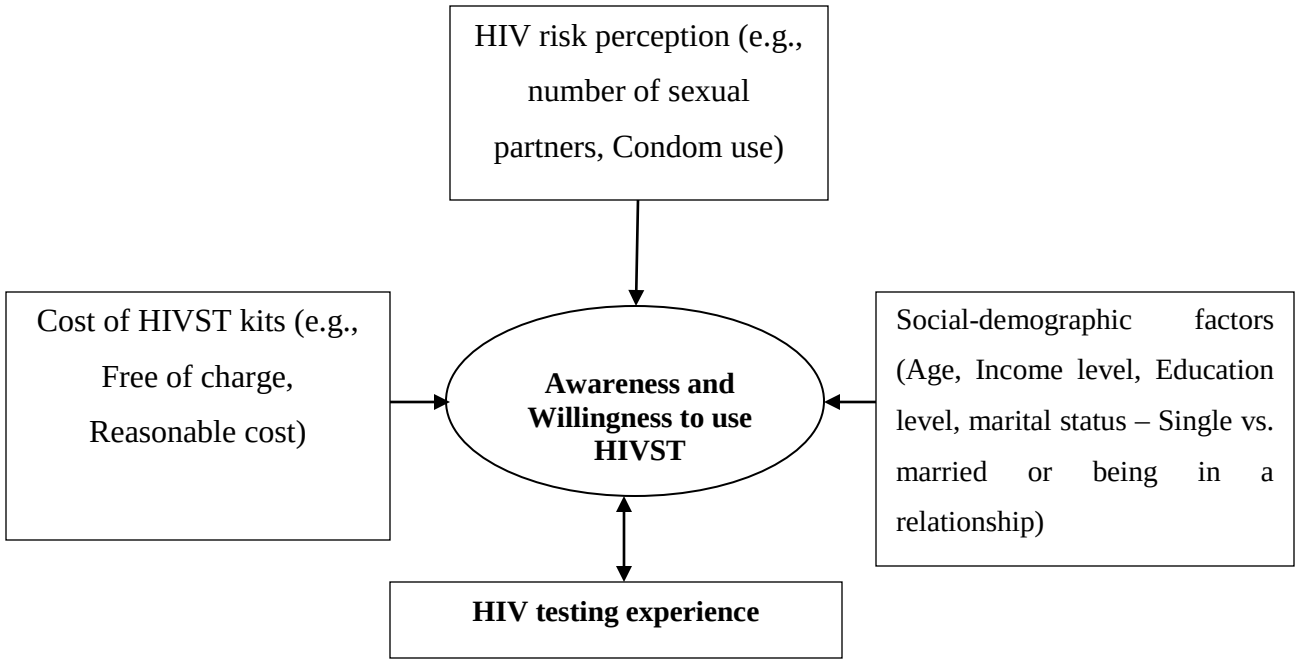
***Availability and accessibility (cost) of HIVST kits****;* the extent and ease of access to test kits in the community has a significant impact on its utilization by the consumers. If offered at a free of charge or reasonable cost, more people are likely to go for the service.

***Social-demographic factors*****:** these include age (young and adults), income level and education status just to mention a few. For example, formally educated individuals are likely to have good knowledge (Awareness) on HIV and HIV related issues compared to their counterparts. Thus, educated individuals are comparably well informed and are likely to access HIV counselling, testing and treatment services.

***HIV testing experience:*** **i**ndividuals who have ever done an HIV test in the past and received the outcome are likely to be willing for an HIVST test compared to their counterparts.

***HIV risk perception***: knowledge on HIV prevention methods, risk factors for HIV and benefits of earlier detection of HIV infection has a significant impact on willingness to use HIVST services.

**Figure 1: The conceptual framework on factors potentially associated with awareness and willingness to undertake HIV –Self- testing.**




**Source** (Researcher's own created CF, 2019)

## 1.5 Rationale

HIVST is a new strategy for maximizing HIV testing(1); it has been implemented successfully in other African countries (2). Like in other countries, Tanzania has started the scaleup of HIVST services since 2019 both at the community and facility level. The scale- up is in a pilot stage and conducted in three regions of Njombe, Ruvuma and Mwanza and is aimed at few target populations such as the Key and vulnerable population (KVP), partners of PLHIV, mobile population (miners, fisherfolks) etc. Therefore, the findings from this study will help to provide information to the Ministry of Health Community Development, Gender, Elderly, Adults and Children (MOHCDGEC) and National Aids Control Program (NACP) in further scaling up of HIVST services to higher learning institutions and other regions across the country.

## 1.6 Research questions

1. Are the students in higher learning institutions in Dodoma City, Tanzania aware and willing to use HIV Self-testing?
2. What are the factors associated with willingness to undertake HIV Self-testing among students in higher learning institutions in Dodoma City, Tanzania?

## 1.7 Broad objective

To assess the awareness and willingness to undertake HIV self-testing among students in higher learning institutions in Dodoma city, Tanzania.

## 1.8 Specific objectives

1. To assess the awareness on HIV self-testing among students in higher learning institutions in Dodoma City, Tanzania.
2. To assess the willingness to undertake HIV self-testing among students in higher learning institutions in Dodoma City, Tanzania.
3. To determine the factors associated with willingness to undertake HIV Self-testing among students enrolled in higher learning institutions in Dodoma City, Tanzania.

# CHAPTER 2

## 2.1 Literature Review

This chapter presents a review of research works which have been undertaken by various scholars on similar topic. It discusses findings from studies conducted in various study settings. The review is based on the current study objectives.

## 2.2 Awareness on HIVST among students

HIV testing history refers to an individual awareness of HIV status through both mandatory or voluntary testing and counselling. Unprotected sexual intercourse has been reported to be the main route of HIV transmission among youth (14). Systematic reviews from Sub Saharan Africa have reported that the HIVST approach has an increased potential for more tester though associated with some intervention implementation concern. For example, comparison of two Meta-analyses in an RCT among MSM showed that testing frequency with HIVST doubled compared to routine based HCT services (15). A study conducted in Kigali, Rwanda among men who attended clinic with a sample size of 579 men, 21% reported to be aware of HIVST (3). Similarly, a study done in Australia among gay and bisexual men with a sample size of 211 participants, 58.4% were unaware of HIVST (40). In addition, a study conducted in Northern Thailand among adults with a sample size of 403 participants revealed that 14% were aware of HIVST (4). Furthermore, a population based study conducted in both Zimbabwe and Malawi with a sample size of 31,385 participants, reported 12.6% awareness levels on HIVST (2).

### 2.3. Willingness to use HIV self-testing among students

Literature from different studies has reported adequate knowledge and willingness of HIV self-testing. However, most of these studies have revealed that despite the high knowledge of participants on HIVST, its use is still limited. For instance, a study conducted in the Democratic Republic of Congo ( DRC ) among University students in a Peri-urban reported high knowledge of HIVST and acceptability(5) . Similar findings have been reported in a study conducted in the United Kingdom (6). Another study in Ethiopia among high school students revealed a high rate of awareness (75.7%) of HIVST, though of these only 62.2% of the students reported to have used the service. These students recommended further that the service should be located closely or within the school for easy access (7). A population-based survey among adolescents in Zambia on HIVST reported that 46.6% of participants had never tested for HIV status, however high willingness of HIVST service was documented (8). In addition a similar study conducted in Zimbabwe among young adults with a sample size of 3662 reported a high rate (73.1%) of HIVST acceptability (9). Another systematic review on a similar topic conducted in both developing and developed countries observed high levels of HIVST acceptability (10). Furthermore a study conducted among men in Tanzania on a similar topic revealed a high level of HIVST acceptability rate (11).

### 2.4 Factors associated with willingness to use HIVST

HIVST implementations have been reported to be influenced by various factors. Evidence from various studies (systematic reviews) show that HIVST is acceptable by a majority of the risk population and most of the participants are able to utilize it with little or no challenges. This is because of its assured privacy, ease to use and confidentiality (30). For

example, a study in Canada among college students reported the accuracy (validity) of the test and the availability of expected linkage to care (for those who test positive) to be part of their concerns (31). Also, a study conducted in Rwanda (32), identified several strategies to look at before implementing HIVST programs in specific populations; developing health education programs aiming at increasing awareness on HIVST, strategic distribution of HIVST kits (in community and Voluntary male medical circumcision sites), an improvement on the usability of the HIVST kits and including the online purchase of the test kits. A similar study done among medical students at Kilimanjaro Christian Medical University College reported that interventionist should take into consideration of suicidal risks for those who test positive, pre and post counselling as well as the cost of buying the HIVST kits(30). Likewise congruent determinants with additional points for the utilization of HIVST services were reported by Mbuya-Brown and Beardsley (2018). Moreover, a study conducted in China among college students identified that the use of local volunteers for distribution of the test kits as well as increased knowledge of one's perceived HIV risk, helped in the willingness to use HTS among the participants(33). Findings from a study in South Africa among college students reported factors that determined the use of HIVST services include being sexually active, having multiple sexual partners one had and having ever been tested for HIV testing(34). Findings from a study conducted in Kenya among health care workers ( HCWs) being female and single were facilitators for HIVST utilization(35).

## 2.5 Research gap in the current study

Although Tanzania through the respective ministry (MOHCDGEC) in collaboration with other development partners have implemented interventions to combat HIV/AIDS epidemic; HIV services uptake is still inadequate to meet the WHO 95-95-95 targets by 2030 and HIVS awareness level and willingness to use this testing approach is low among community members (including higher learning institution students in this context) in the country. This makes a large number of people remain unaware of their HIV status, failure to initiate treatment for those who are infected and high viral load for those living with HIV. Thus, this study aims at exploring these gaps so that findings from this study will enable exploitation of the potential benefits associated with HIVST among the study population (the key and at higher risk groups).

# CHAPTER THREE

# MATERIALS AND METHODS

## 3.1 Overview

This chapter describes the whole process of gathering and analysing the data for the study. It describes the research design, study setting, study population, sample size with its calculations, sampling procedures, data collection methods, data analysis, data presentation, ethical considerations as well as study limitations.

## 3.2 Study design

. This was a cross-sectional study design where a self-administered structured questionnaire was used to collect data from participants

### 3.2.1 Study Setting

The study was conducted in Dodoma city. Dodoma city is a capital of Tanzania, and the new government has moved to Dodoma and therefore the population dynamics have changed and could influence the risk behaviors of the inhabitants including higher learning institutions' students.

Dodoma city has a size of 2769 square kilometres. It has 93,399 households, 41 wards 170 streets 42 villages and 89 hamlets. The Municipality of Dodoma is located at the south-eastern end of the Tanzania Central Plateau at an elevation of 1,200 meters above sea level. The town is located at the geographical centre of the country on the vital Central Railway line; and on a major crossroad of the National East-West trunk road and the famous north to south Cape to Gairo Great North Road, which passes in Tanzania

through Mbeya, Iringa, Dodoma, Babati and Arusha. The town is 465 kilometres from - Dar-es-salaam, and 425 kilometres from Arusha situated at $6o^{o}$ south of the Equator. It has a total population of 410,956 (URT, 2012). There are four higher learning institutions in Dodoma City (University of Dodoma, St. John's University, College of Business Education and Institute of Rural Development).

Data collection took place in July 2020.

### 3.3 Study population, sample size and selection

#### 3.3.1 Study population

The study population consisted of students from St. John University and the University of Dodoma.

#### 3.3.2 Sample size and its calculation

The number of subjects to be included in the study was obtained by using a single population proportion formula:

$$n= Z^2 (1-P) P/ e^2$$

Whereby:

Z = standard normal deviate, corresponding to 95% Confidence Interval (Z = 1.96)

P = Proportion of HIVST awareness (23) from previous studies (P = 54.5%)

n= minimum sample size required

e = Margin of error (e = 0.05)

Substituting the values into the equation gave a minimum sample size of 381 (using a design effect of 2) led to 762 study participants.

### 3.3.4 Sampling procedure.

**We applied a multistage sampling procedure**. As a first stage, we randomly selected two higher learning institutions (the University of Dodoma and St John's University) in Dodoma municipality (city) using the probability proportional to size approach. We then randomly selected two faculties/schools at the University of Dodoma and St. John's University using the probability proportional to size approach and used the same approach to randomly select two classes from each selected faculty/school. All students from each selected class were invited to participate in the study. From SJUT the sampled classes were (206 Students from bachelor of science in nursing first year, 304 students from bachelor of science in nursing third year, 375 bachelor of science in natural science first year and 204 students from bachelor of science in natural science second year) and from UDOM the sampled classes were (271 students from bachelor of education in policy, planning and management year ,268 students from bachelor of education in guidance and counselling year, 49 students from bachelor of education in economics and statistics year and 121 students from bachelor of commerce year).

**Inclusion criteria:** All students from respective classes who were present during the data collection period, aged 18 years and above and consented to participate in the study.

### 3.4 Dependent variables

The primary dependent variables for this study were awareness of HIVST and willingness to use HIV self-test.

### 3.4.1 Independent variables

These are the variables which influence either positively or negatively the outcome variable (risk factors). They may also be termed as motivators and barriers of the outcome variable. For example, lifestyle (e.g., number of sexual partners, condom use) HIV knowledge, availability, and accessibility of HIV test kits.

## 3.5 Study instruments

A structured paper-based questionnaire was used to collect information from participants. The information collected captured the specific objectives meant to assess the awareness, willingness and the factors associated with willingness to use HIVST.

### 3.5.1 Data collection procedures

The data collection team consisted of 3 people, the Principal Investigator (PI) and two research assistants with a bachelor's degree as a minimum education. The PI trained the research assistants on research ethics and study procedures. The training was run for 3 days followed by the piloting exercise at the Institute of Rural Development Planning in Dodoma. The data collection process involved pre- meetings with the selected classes to organize the optimal time to meet with the students (Class Representatives of each respective class informed the students about the study and communicated with the PI on the convenient time to meet all students). The PI and the research assistants met the student in the lecture halls in a session that was compulsory for all students and provided details about the study and invited students who were willing to participate in the study to collect the consent forms and self-administered questionnaires. The study participants returned the signed consent form to the research assistants and dropped the completed questionnaire in the provided box. From SJUT 1289 students expected to participate in the study but 1208

students (93.7%) took part and from UDOM 709 students expected to participate in the study but 707(99.7%) took part in the study.

### 3.5.2 Pretesting of the tools

A joint field testing of the research questionnaire was conducted by the PI and the research assistants aiming at reviewing the questionnaire itself and the technique used by the research team in collecting data.

### 3.8 Investigation tools, validity and reliability

The questionnaire was structured based on the study objectives in a way that captured all required information to achieve the objectives. A pilot study was conducted (comprising of 10% of sample size where subjects were not part of the selected universities for participation) aiming at assessing whether the questionnaire was well designed and suitable for study purposes but there were no changes made after the pilot.

### 3.9 Data management and analysis

Data management included checking the accuracy, completeness of questionnaire and editing of the data where appropriate. Data were double entered in Epidata software version 3.1(**Http://www.epidata.dk**).

Clean survey data was imported from Epidata to Stata version 14 for analysis. Descriptive statistics such as the proportion of HIV awareness and willingness for utilization of HIVST service and HIV test history were determined. Also, Chi-Square test (cross-tabulation) was used to determine the association between willingness to use HIVST (outcome variable) and each exposure variable including sex, age groups, income level, frequency of HIV testing. The statistical significance level of $P < 0.05$ was considered significant.

## 2.8 Ethical Considerations

Approval with Ref.No. DA.287/298/01A/ was granted by the Muhimbili University of Health and Allied Science Institutional Review Board, which permitted us to conduct research to students of higher learning institutions.

Permission was also sought from the Regional Medical Officer (RMO) of Dodoma, Vice Chancellors of UDOM and SJUT and The Rector of the Institute of Rural Development Programs (IRDP).

Verbal explanation and purpose of the study were offered to participants. It was clearly stated to participants that there was no individual benefit from the study but rather the findings would help scale- up HIVST services to the communities. Assurance of confidentiality and anonymity was given to each participant, and it was made clear that participants names would not be shared or appear in the final report. It was also made clear that they were free to decline participation or to withdraw at any moment during interviews if they felt uncomfortable. Each participant who chose to participate provided written consent and submitted a completed questionnaire.

# CHAPTER FOUR

# RESULTS

## 4.1 General characteristics of participants

A total of 1917 students were recruited in the study, 1210 (63.1%) were from St. John's university and 707 (36.9%) were from the University of Dodoma. St John's university contributed a larger proportion of participants for both males and females (64.6% males and 61.1% females respectively) compared to the University of Dodoma. The mean ((±standard deviation) age was 23 (± 2.4) years with most participants falling in the age group of 20-25 years. Four percent of the male and 8% of the female participants reported to be married. Marital status was associated with and sex ($P< 0.001$). Among participants who reported to be in a relationship, more than 70% for both sexes, their relationship period was less than one year (Table 1).

**Table 1: General characteristics of students in higher learning institutions in Dodoma city, Tanzania, July 2020.**

| Characteristic | Category | Sex | | P-value |
|---|---|---|---|---|
| | | Male N (%) | Female N (%) | 0.108 |
| University name | UDOM | 390(35.4) | 317 (38.9) | |
| | St. John's | 713 (64.6) | 497 (61.1) | |
| | **Total** | **1,103 (100)** | **814 (100.0)** | |
| Income level per Month | | | | |
| | < 100,000/= | 787 (71.4) | 573970.4) | 0.648 |
| | > 100,000/= | 316 (28.6) | 241(29.6) | |
| | **Total** | **1,103 (100)** | **814 (100.00)** | |
| College/faculty/school | | | | |
| | Nursing (SONU) | 265(24.1) | 213(26.2) | 0.05 |
| | Natural sciences (FANAS) | 448(40.6) | 284(34.8) | |
| | Education (BED) | 291(26.4) | 248(30.5) | |
| | Business studies (BCOM | 99 (8.8) | 69(8.5) | |
| | **Total** | **1,103(100)** | **814(100.0)** | |
| Age groups | 15-20 | 6(0.5) | 09(01.1) | <0.001 |
| | 20-25 | 850(77.1) | 678(83.3) | |
| | 25-30 | 214(19.4) | 95(11.7) | |
| | 30+ | 29(2.6) | 30(3.7) | |
| | **Total** | **1,103(100)** | **814(100.0)** | |
| Marital status | Single | 623(56.5) | 378(46.4) | < 0.001 |
| | Single (with boyfriend/ girlfriend | 428(38.8) | 367(45.1) | |
| | Cohabiting | 4(0.4) | 0(0.0) | |
| | Married | 47(4.3) | 67(8.2) | |
| | Separated/ divorced | 0.(0.0) | 2(0.3) | |
| | **Total** | **1,102(100)** | **814(100.0)** | |
| Duration with spouse/boyfriend/girlfriend | < 1 Year | 819(74.3) | 5939(73.1) | 0.526 |
| | > 1 Year | 283(25.7) | 219(26.9) | |
| | **Total** | **1102(100.0)** | **812(100.0)** | |

[1] *Varying denominators because of the missing values*

### 4.2. Awareness on HIVST services

More than 80% of participants reported to be aware of HIVST services, with regards to the source of HIVST information, more than 85% of participants reported to have heard the information from a friend or family, radio and newspapers were the other useful sources of information on HIVST services. Also, a large proportion of participants (>85%) acknowledged to have ever previously used HIVST services

**Table 2: Awareness on HIVST among students in higher learning institutions on Dodoma city, Tanzania, July 2020**

| Characteristic | Categories | Sex | | P-Value |
|---|---|---|---|---|
| | | Male N (%) | Female N (%) | |
| Ever heard of an HIV self-test before. | | | | 0.718 |
| | Yes | 866(81.5) | 626(80.9) | |
| | No | 196(18.5) | 168(19.1) | |
| | **Total** | **1,062(100.0)** | **771(100.0)** | |
| Place where heard about an HIV self-test | | | | 0.151 |
| | Friend family | 797(84.7) | 608(87.7) | |
| | TV | 113(12.1) | 74(10.7) | |
| | Radio | 9(0.9) | 0(0.0) | |
| | Newspaper | 3(0.32) | 1(0.1) | |
| | Community worker/educator | 10(1.1) | 6(0.9) | |
| | Clinic | 5(0.5) | 3)0.4) | |
| | Other | 4(0.4) | 1(0.4) | |
| | **Total** | **941(100.0)** | **693(100.0)** | |
| Ever previously used an HIV self -test | | | | 0.195 |
| | Yes | 794(85.6) | 597(87.8) | |
| | No | 134(14.4) | 83(12.2) | |
| | **Total** | **928(100.0)** | **680(100.0)** | |

[1] *Varying denominators because of the missing values*

### 4.3: Social demographic characteristics and willingness to use HIVST among participants

Socio-demographic characteristics did not determine willingness to use HIVST as almost all participants were willing to use the service. Of those willing to use HIVST more than 90% possessed mobile phones and had access to internet services, more than 90% of participants reported to be regular social media users with Facebook (99%) the most preferred social media platform. Majority of participants (99%) were single and those who reported to have sexual partners more than 90% were in relationship for less than 12 months.

**Table 3: Socio-demographic characteristics and willingness to use HIVST among participants of the University of Dodoma and St. John's University, Dodoma, Tanzania.**

| Characteristics | Category | Willingness to use HIVST | | P - Value |
|---|---|---|---|---|
| University. | | Yes N (%) | No N (%) | |
| | UDOM | 706 (99.9) | 1(0.1) | |
| | St. John | 1,194(99.3) | 9(0.8) | 0.113 |
| Sex. | Male | 1,088(99.2) | 9(0.8) | |
| | Female | 812(99.8) | 1(0.2) | 0.071 |
| Age group. | 15-24 | 1529(99.5) | 7(0.5) | |
| | 25+ | 365(99.2) | 3(0.8) | |
| | Missing | 6(100.0) | 0(0.0) | 0.857 |
| Income level (per month). | $\leq$ 100,000/= | 554(99.5) | 3(0.5) | |
| | $\geq$ 100,000/= | 1,346(99.5) | 7(0.5) | 0.953 |
| Own Mobile phone. | Yes | 1,886(99.5) | 10(0.5) | |
| | No | 12(100.0) | 0(0.0) | 0.801 |
| Internet access. | Yes | 1,886(99.5) | 10(0.5) | |
| | No | 15(100.0) | 0(0.0) | 0.778 |
| Face book user. | Yes | 1,877(99.5) | 10(0.5) | |
| | No | 19(100.0) | 0(0.0) | 0.75 |

| | | | | |
|---|---|---|---|---|
| Twitter user. | Yes | 530(99.4) | 3(0.5) | |
| | No | 1,330(99.5) | 7(0.5) | 0.916 |
| WhatsApp use. | Yes | 1,871(99.5) | 100(0.5) | |
| | No | 27(100.0) | 0(0.0) | 0.704 |
| Marital status. | Single | 991(99.5) | 5(0.5) | |
| | Single (with boyfriend/girlfriend) | 790(99.5) | 4(0.5) | |
| | Cohabiting | 4(100.0) | 0(0.0) | |
| | Married | 112(99.1) | 1(0.9) | |
| | Separated/divorced | 2(0.1) | 0(0.0) | 0.988 |
| Duration with spouse/partner. | < 1 year | 1,395(99.3) | 9(0.6) | |
| | ≥ 1 year | 499(99.8) | 1(0.2) | 0.242 |
| Currently living with spouse/partner. | Yes | 168(98.8) | 02(1.2) | |
| | No | 1,304(99.4) | 08(0.6) | 0.396 |

[1] *Varying denominators because of the missing values*

### 4.4: Testing point preference and willingness to use HIVST

On where to access HIVST kits, majority of participants were willing to purchase the kits at a private Pharmacy and almost all participants preferred to purchase the kits from a distributor at the University.

**Table 4: Testing point preference and willingness to use HIVST among students in higher learning institutions on Dodoma city, Tanzania, July 2020.**

| Characteristics | Category | Willingness to use HIVST | | P - Value |
|---|---|---|---|---|
| | | Yes N (%) | No N (%) | |
| Preferred point to use the HIV self-Screen (HIV self-test). | At one, s own private space | 1,348(99.6) | 6(0.4) | |
| | In private confidential space at the facility or mobile van | 543(100.0) | 0(0.0) | |
| | In private confidential space close to facility or mobile | 8(100.0) | 0(0.0) | |
| | other | 1(20.0) | 4(80.0) | <0.001 |
| Preferred point to get an HIV self -screen (HIV SELF- test). | From distributors at the university handing them out | 1,176(99.9) | 01(00.1) | |
| | From a fixed point close to but not at the campus | 594(99.5) | 3(0.5) | |
| | From a vending machine at the campus using a voucher | 3(100.0) | 0(0.0) | |
| | At a fixed point in the community (pharmacy, supermarket | 23(92.0) | 2(8.0) | |
| | Others | 3(60.0) | 2(40.0) | <0.001 |
| source of the HIV self- screen kit (HIV self-test kit). | Purchased at private pharmacy | 1,346(99.7) | 4(0.3) | |
| | Research study | 84(100.0) | 0(0.0) | |
| | NGO | 7(100.0) | 0(0.0) | |
| | Private doctor/ Clinic or hospital | 10(90.91) | 1(9.9) | |
| | Other | 3(100.0) | 0(0.0) | <0.001 |

[1] *Varying denominators because of the missing values*

# CHAPTER FIVE.

# DISCUSSION

## 5.1 Overview

Findings from our study can confirm that the awareness of HIVST among higher learning students is high (80%) and almost all participants (99.9%) were willing to use the HIVST. Factors such as cost for the test kits, false positives, access and location to HIVST and linkage to care and treatment services for those who test positive need to be addressed to maximize utilization of HIVST services among higher learning students. However, these findings represent a proportional of students who were available during the day of data collection excluding those who were absent, further studies need to be conducted to include all the students.

## 5.2. Awareness of HIV self-testing among Participants

Our study findings have revealed a high level of awareness on HIVST among higher learning students where 81.2% of participants reported to have ever heard about HIV self-testing, these findings are similar but slightly higher than those reported in a study conducted in Kilimanjaro region among medical students with about 68% awareness level ((30). The findings from our study represent a very significant difference from those reported from a study done in Thailand among adult population where the awareness was found to be 14%(37), a study conducted among university student in DRC which reported a lower level of HIV self -testing awareness of 54.5% only(23) and study conducted in Rwanda among males attending a clinic in Kigali which reported lower level of HIV self -testing awareness of 21%(32). The observed variations between our study and the other studies may be attributed by1) difference in the study population characteristics particularly

age of participants and 2) the study setting and background characteristics of the study population.

### 5.3. Willingness to use HIVST services by participants

Findings from our study suggest that the willingness to use HIV self-testing among higher learning students is very high, this is supported by the finding that 99.5 % of the study participants reported being willing to use the HIVST service if provided under comfortable environment. This observation is complimented by findings from a study conducted in South Africa among rural young women where acceptability was reported to be 95% (38) and another study carried in South Africa among technical education vocation and training college students, that reported acceptability rate of 87.1(27). However finding from our study are contrary to those reported in a study conducted in China among college students where 77.9% of participants reported to be willing to use HIVST services (33) and those reported in a research conducted in Kilimanjaro, Tanzania among medical students which reported acceptability rate of 62.7%(30). These differences in the level of HIVST acceptability between the current study and the later, may be due to differences in the study setting (where our study was conducted in urban areas and some others in rural areas) and the period during which the research was conducted.

### 5.4. Factors influencing willingness to use HIVST services by participants

Various factors have been identified to influence the willingness or acceptability of HIVST among clients in different study settings and populations. These factors include ever previously tested for HIV, perceived HIV sexual risk behaviour as well as the purchasing power for HIVST kits as reported in a collaborative survey conducted in Zimbabwe and Malawi among community members (10). In addition, young age has also been reported to influence willingness to use HIVST among participants in different studies (38) though in the current study it was not found to be statistically significant. A study conducted in Kigali Rwanda among male clinic attendees added that apart from the aforementioned factors, health- seeking behaviour, HIV knowledge, attitude towards HIVST and condom use after taking drugs and alcohol were predictors of HIVST acceptability (32)**.** Furthermore, a study conducted in DRC Congo among college students identified knowledge of the importance of self-test, perception that counselling pre and post were important as well as the willingness to realize the test with partners as predictors for the acceptability of HIVST among the participants (23).

Even though different factors have been stipulated out from various study settings and populations, in the current study no exact predictors of HIVST were identified (due to multi-co linearity). This may be attributed to the fact that most participants were willing to use the service if provided in a conducive environment at a reasonable price for the test kits or distributed freely to the clients. This implies that HIVST services may scale up HCT in Universities and colleges if implemented in these areas, leading to a high number of students who know their HIV status, prevention services as well as linkage to care for those clients who deserve the service to maintain their health

# CHAPTER SIX.

# CONCLUSION AND RECOMMENDATIONS

## 6.1 Overview

This chapter presents the conclusion of the study. It provides the summary of the important findings to the objectives of the study together with recommendations.

## 6.2 Conclusion

The current study has shown that the awareness of the use of HIVST among higher learning institutions students is high and almost all participants being willing to use this service if provided in a conducive environment. Implementation of HIVST among higher learning institutions students is feasible but interventions should address factors such as cost of the test kits, false positive test results, and HIVST access and location as well as linkage to care and treatment service for those who test positive.

Generally, it can be concluded that HIVST is the best approach for HIV/AIDs prevention, control and treatment initiation services as it removes almost all the challenges encountered in the routine HCT services in the general population.

### 6.3 Recommendations

In order to improve HIV testing coverage among higher learning institutions, the government in collaboration with implementing partners and other health stakeholders should consider piloting demand creation interventions that will help increase access of HIV testing services among higher learning students.

The government should consider using social media platform to advocate health information including messages related to HIVST as most higher learning institutions students have shown to have access to and using these social media.

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# APPENDICES

## Appendix 1: STUDY QUESTIONNAIRE (ENGLISH VERSION)

### WILLINGNESS TO USE HIV SELF-TESTING AMONG STUDENTS IN HIGHER LEARNING INSTITUTIONS IN DODOMA CITY, TANZANIA.

| Question No. | Question | Responses |
|---|---|---|
| 01 | What is the name of your university? | Choose 1<br>1. University of Dodoma<br>2. St. John's University |
| 02 | Have you consented to complete this survey? | 1) Yes<br>2) No |
| 03 | What is your Sex? | 1) Male<br>2) Female |
| 04 | How old are you? | …….. ( number ) |
| 05 | What is the year of training are you at today? | 1) Year 1<br>2) Year 2<br>3) Year 3<br>4) Year 4 |
| 06 | What is your personal income a month? | Number (in Tshs.) |
| 07 | Do you own a mobile phone? | 1) Yes<br>2 )No |
| 08 | Do you have access to the internet? | 1 )Yes<br>2) No |

| | | |
|---|---|---|
| 09 | Do you regularly use any social media services? | 1) Yes<br>2) No |
| 10 | Do you use Facebook? | 1) Yes<br>2) No |
| 11 | Do you use Twitter? | 1) Yes<br>2 )No |
| 12 | Do you use WhatsApp? | 1) Yes<br>2) No |
| 13 | Do you use Instagram? | 1) Yes<br>2) No |
| 14 | Do you use any other social media? | Specify<br>…….. |
| 15 | What is your marital status | 1) Single<br>2) Single (with boyfriend/ girlfriend)<br>3) Cohabiting<br>4) Married<br>5) Separated/divorced<br>6) Widowed |
| 16 | How long have you been with your spouse, partner, or boyfriend/girlfriend? | 1) <1 year<br>2) 1-5 years<br>3) More than 5 years |
| 17 | Are you currently living with your spouse/partner? | 1)Yes<br>20 No |

| | | |
|---|---|---|
| 18 | Have you ever been diagnosed with STI (Sexually transmitted Infections e.g. vaginal/penis discharge or warts)? | 1) Yes<br>**2)** No |
| 19. | If yes, when last did you have an STI (sexually transmitted disease) e.g. vaginal or penis discharge or warts | 1) this year (2018)<br>2) last year (2017)<br>3) previous year (2016)<br>4) more than 3 years ago<br>5) never |
| 20 | Have you ever tested for HIV? | 1) Yes<br>2) No |
| 21 | If yes, how many times have you tested for HIV? (in your lifetime) | 1) Never<br>2) Once<br>3) Twice<br>4) 3-5 times<br>5) >5 times |
| 22 | When last did you test for HIV? | 1) in last 3 months<br>2) 3-12 months ago<br>3) 1-5 years ago<br>4) More than 5 years ago<br>5) Never |
| 23 | If not recently tested, what is your main reason? | 1) Not at risk of being HIV positive<br>2) Don't want to know my status<br>3) Afraid of testing positive of stigma<br>4) Afraid from |

| | | |
|---|---|---|
| | | testing for HIV<br>5) Do not trust service providers<br>6) Cannot take the time off work to test<br>7) Testing takes too long<br>8) I do not know where to test for HIV<br>9) Other reason |
| 24 | What were the results of your last HIV test? | 1) Positive<br>2) Negative<br>3) Do not know<br>4) Prefer not to reveal |
| 25 | Are you currently using ARV drugs (treatment) for HIV? | 1) Yes<br>2) No \| |
| 26 | Have you heard of an HIV self-screen (or self-test) before? (If the answer is no, please skip question 27)<br>*(An HIV self-screen is when instead of having a counsellor performing the test with you, you can conduct the test yourself, in privacy at your convenience, alone or with your partner. You would perform the test and read the result yourself)* | 1) Yes<br>2 No \| |
| 27 | Where did you hear about an HIV self-screen (HIV self-test) | 1) Friend or family<br>2) TV \|<br>3) Radio<br>4) Newspaper<br>5) Community worker/ |

| | | |
|---|---|---|
| | | educator<br>6) Clinic<br>7) Other (specify…) |
| 28 | Have you ever previously used an HIV self-screen (HIV self-test)? | 1) Yes<br>2) No |
| 29 | Where did you get the HIV self-screen kit (HIV self-test kit) | 1) Purchased at a private pharmacy<br>2) Research study<br>3) NGO<br>4) Private doctor/clinic or hospital<br>5) Other |
| 30 | Would you be willing to use an HIV self-screen? | 1 ) Very willing<br>2) Willing<br>3) Somewhat willing<br>4) NOT willing |
| 31 | Where would you prefer to use the HIV self-screen (HIV self-test): | 1) in your own private space (*with no available assistance*)<br>2) in private confidential space at the facility or mobile van(*with assistance available if needed*)<br>3) in private confidential space close to the facility or mobile van (*with assistance available if needed*)<br>4) Other: Complete where…. |

| | | |
|---|---|---|
| 32 | How much - are you willing to pay for an HIV self-screen (HIV self-test) kit? | …… ( amount ) |
| 33 | If you wanted an HIV self-screen (HIV self-test), where would you like to get it? | 1) From distributors at the university handing them out<br>2) From a fixed point close to but not at the campus<br>3) From a vending machine at the campus using a voucher<br>4) At a fixed point in the community (pharmacy, supermarket)<br>5) Other (mention) |
| 34 | If you did take the HIV self-screen home, would you be willing to report your result without your name or details to a telephone number provided if it did not cost you airtime to do so? | 1) Very willing<br>2) Willing<br>3) Somewhat willing<br>4) NOT willing |
| 35 | If you were provided with Tshs.1000 airtime, would you send a photo of the HIV self-screen result strip after you used it? (no name or details unless you want to be contacted) | 1) Very willing<br>2) Willing<br>3) Somewhat willing<br>4) NOT willing |
| 36 | If you screen positive, would you like to speak to a counsellor to provide support and answer your questions? | 1) Yes<br>2) No |
| 37 | If you screen negative, would you like to speak to a counsellor to provide an option for prevention services including PrEP and answer your questions? | 1) Yes<br>2) No |
| 38 | How would you want to be contacted? | 1) Counsellor phones you |

| | | |
|---|---|---|
| | | 2) Counsellor SMS to you<br>3) Counsellor WhatsApp you<br>4) You phone counsellor number provided<br>5) You phone the national HIV hotline |
| 39 | If you were to screen positive, do you know where to access HIV services? | 1) Yes<br>2) No \| |
| 40 | If you screen negative, do you know where to access HIV prevention services? | 1) Yes<br>2) No \| |
| 41 | If you screen positive, do you think you would want to access HIV services? | 1) Yes<br>2) No \| |
| 42 | If you screen negative, do you think you would want to access HIV prevention services (PrEP? | 1) Yes<br>2) No \| |
| 43 | Do you have a steady (regular) partner now?<br>*(together for more than 3 months)* | 1) Yes<br>2) No |
| 44 | How many steady (regular) partners have you had sex with within the last 3 months? | 1) 1<br>2) 2<br>3) 3<br>4) 4<br>5) 5-10<br>6 )More than 10 |
| 45 | Do you know the HIV status of your steady partner/s? | 1) All my steady partners<br>2) Some of my steady partners |

| | | |
|---|---|---|
| | | 3) None of my steady partners |
| 46 | In the last 3 months, how often have you used condoms with your steady (regular) partner/s? | 1)Condoms every time<br>2) Condoms some of the time<br>3) Condoms never used<br>4) Don't want to answer |
| 47 | Other than your steady (regular) partners, have you had sex with anyone else in the last 3 months? | 1) Yes<br>2) No |
| 48 | How many people apart from your steady partner have you had sex without using a condom, even if only once. | 1) 1<br>2) 2<br>3) 3<br>4) 4<br>5) 5<br>6) 5-10<br>7) More than 10 |
| 49 | How many people have you had sex with in the last 12 months? | 1) 1<br>2 )2<br>3) 3<br>4) 4<br>5) 5-10<br>6)More than 10 |
| 50 | Have you paid a partner for sex in the last 12 months? | 1) Yes<br>2) No |
| 51 | Have you received payment by a partner for sex in the last 12 months? | 1)Yes<br>2)No |

| | | |
|---|---|---|
| 52 | In the past 12 months, have you ever drunk any alcohol? | 1) Yes<br>2) No |
| 53 | In the past 30 days, have you ever drunk any alcohol? | 1) Yes<br>2) No |
| 54 | On average, how many days in a week do you drink alcohol? | …… |

## Appendix 2: STUDY QUESTIONNAIRE (SWAHILI VERSION)

## WILLINGNESS TO USE HIV SELF-TESTING AMONG STUDENTS IN HIGHER LEARNING INSTITUTIONS IN DODOMA CITY, TANZANIA.

| Na. | Swali | Majibu |
|---|---|---|
| 01. | Unasoma katika chou kipi? | 1) Chuo kikuu cha Dodoma<br>2) Chuo kikuu cha mtakatifu John |
| 02. | Je,Umekubali kwa hiari kushiriki utafiti huu?<br>(Weka alama ya tiki panapohusika) | 1.Ndiyo ( )<br>2.Hapana( \| ) |
| 03. | Jinsia yako ni ipi?<br>(Weka alama ya tiki panapohusika) | 1) Mwanaume ( )<br>2) Mwanamke ( ) |
| 04. | Umri wako ni miaka | 1)…….. |
| 05. | Upo mwaka wa wangapi wa masomo? | 1)……<br>2)……<br>3)…… |
| 06. | Kipato chako kwa mwezi ni shilingi ngapi? | …….. |
| 07. | Je, unamiliki simu ya mkononi?<br>(Weka alama ya tiki panapohusika) | 1) Ndiyo ( )<br>2) Hapana ( ) |
| 08. | Je una uwezo wa kupata na kutumia huduma ya mtandao/intaneti?<br>(Weka alama ya tiki panapohusika) | 1) Ndiyo ( )<br>2) Hapana ( ) |
| 09. | Je unatumia mitandao ya kijamii mara kwa mara? | 1) Ndiyo ( )<br>2) Hapana ( ) |
| 10. | Je unatumia mtandao wa kijamii wa | 1) Ndiyo ( ) |

| | | |
|---|---|---|
| | Facebook? | 2) Hapana ( ) |
| 11. | Je unatumia mtandao wa kijamii wa Twitter? | 1) Ndiyo ( )<br>2) Hapana ( ) |
| 12 | Je unatumia mtandao wa kijamii wa instagram? | 1) Ndiyo ( )<br>2) Hapana ( ) |
| 13 | Je unatumia mtandao wa kijamii wa watsapp | 1.Ndiyo ( )<br>2.Hapana ( ) |
| 14 | Je unatumia mtandao mwingine wa kijamii zaidi ya hiyo iliyotajwa hapo juu (namba 10-13)? | Taja jina la mtandao huo<br>…… |
| 15. | Je hali yako ya ndoa ikoje? | 1) Sijaoa/ sijaolewa ( )<br>2) Nina mpenzi ( )<br>3) Ninaishi kinyumba na mpenzi bila ndoa ( )<br>4) Nimeoa/ nimeolewa ( )<br>5) Tumetengana/ tumeachana ( )<br>5) Mjane/mgane ( ) |
| 16. | Ni kwa mda gani umekua ukiishi na mchumba, mwenza au rafiki yako wa kike/kiume? | 1) Chini ya mwaka mmoja ( )<br>2) Mwaka 1 – mpaka 5 ( )<br>3) Zaidi ya miaka 5 ( ) |
| 17. | Je unaishi na mpenzi wako kwa sasa? | 1) Ndiyo ( )<br>2) Hapana ( ) |
| 18 | Je,umewahi kugundulika kuwa na magonjwa ya kuambukiza kwa njia ya ngono? | 1) Ndiyo ( )<br>2) Hapana ( ) |

| | | |
|---|---|---|
| 19. | Je ni lini mara ya mwisho ulibainika kuwa na magonjwa ya kuambukiza kwa njia ya ngono?<br>Mfano 1. majimaji ya uke/uume?(vagina/penis discharge<br>2.mafumbo ngozi(warts) | 1) Mwaka 2018 ( )<br>2)Mwaka 2017 ( )<br>3) Mwaka 2016 ( )<br>4) Zaidi ya miaka 3 iliyopita ( )<br>5) Sijawahi kupima ( ) |
| 20 | Je, umewahi kupima maambukizi ya VVU katika maisha yako? | 1.Ndiyo ( )<br>2.Hapana ( ) |
| 21 | Ni mara ngapi umepima virusi vya ukimwi (katika maisha yako yote) | 1) Sijawahi kupima ( )<br>2) Nimepima mara moja ( )<br>3) Nimepima mara mbili ( )<br>4) Nimepima mara 3 hadi 5 ( )<br>5) Nimepima zaidi ya mara 5 ( ) |
| 22 | Ni lini ilikuwa mara ya mwisho kwako kupima maambukizi ya virusi vya ukimwi? | 1)Miezi mitatu iliyopita ( )<br>2) Kati ya miezi mitatu mpaka 12 iliyopita ( )<br>3)Kati ya mwaka mmoja mpaka mitano iliyopita ( )<br>4)Zaidi ya miaka mitano iliyopita ( )<br>5)Sijawahi kupima |
| 23 | Kama hujapima hivi karibuni, je ni kwa sababu gani? | 1) Sikua katika hatari ya kuwa na virusi vya ukimwi ( )<br>2) Sikuhitaji kujua hali yangu ya afya( )<br>3) Niliogopa kugudndulika na virusi vya ukimwi ( )<br>4) Hofu ya unyanyapaa kwa sababu ya |

| | | |
|---|---|---|
| | | kuwa na virusi vya ukimwi ( )<br>5) Sikuwa na mwamini mtoa huduma( )<br>6) Siwezi kutumia mda wakazi kwenda kupima ( )<br>7) Kupima kunachukua mda mrefu ( )<br>8) Sijui ni wapi wanapima ukimwi ( )<br>9) Sababu nyinginezo ( ) |
| 24 | Je mara ya mwisho ulipopima maambukizi ya virusi vya ukimwi majibu yako yalikuwaje? | 1) Chanya ( )<br>2) Hasi ( )<br>3) Sijui ( )<br>4) Sipendi kuweka wazi ( ) |
| 25 | Je kwa sasa unatumia dawa za kufubaza virusi vya ukimwi (ARV)? | 1) Ndio ( )<br>2) Hapana ( ) |
| 26 | Je umeshawahi kusikia kuhusu Upimaji binafsi wa virusi vya ukimwi?<br>(*Upimaji binafsi wa virusi vya ukimwi inamaanisha wewe mwenyewe unajipima kwa kutumia kifaa maalum na kasha unasoma majibu yako. Unaweza kujipima mahali popote ulipo na muda wowote unaotaka wewe. Na pia Unaweza kupima ukiwa pamoja na mwenzi/mpenzi wako)* | 1) Ndio ( )<br>2) Hapana ( ) |
| 27 | je ulisikia wapi kuhusu kujipima mwenyewe virusi vya ukimwi | 1) Kwa marafiki na familia ( )<br>2) Kwenye runinga ( )<br>3) Kwenye magazeti ( )<br>4) Kwa waelimishaji na wafanyazi kwenye jamii ( ) |

| | | |
|---|---|---|
| | | 5) Kupitia kliniki ( )<br>6) Njia Nyingine …… |
| 28 | Je ulishawahi kujipima Virusi vya Ukimwi mwenyewe? | 1) Ndio ( )<br>2) Hapana ( ) |
| 29 | Je ni wapi Ulipata kipimo cha kujipimia virusi vya UKIMWI mwenyewe? | 1) nilikinunua kwa siri duka la madhara( )<br>2) kupitia tafiti ( )<br>3) Taasisi/asasi zisizo za serikali(NGO) ( )<br>4) daktari binafsi/ kliniki au hospitali ( ) |
| 30 | Je utakuwa tayari kujipima mwenyewe virusi vya Ukimwi? | 1) niko tayari haraka sana ( )<br>2) niko tayari ( )<br>3) kiasi flani niko tayari ( )<br>4) Siko tayari ( ) |
| 31 | Je ni mahali gani ungependa kutumia kifaa cha kujipima ukimwi mwenyewe? | 1) katika sehemu ya siri bila msaada wa mtu yeyote ( )<br>2) katika sehemu yenye usiri ambapo kuna msaada pindi utakapo hitajika ( )<br>3) katika sehemu yenye usiri Karibu na sehemu zenye huduma pindi msaada unapohitajika ( )<br>4) Nyingine …….. |
| 32 | Upo tayari kulipia kiasi gani cha pesa ili kupata huduma ya kujipima Ukimwi mwenyewe? | …… |
| 33 | Kama ukihitaji kifaa cha kujipima ukimwi ugependelea ukipate wapi? | 1) kutoka kwa wasambazaji waliopo chuoni ( )<br>2) kutoka sehemu maalum ambayo si |

| | | |
|---|---|---|
| | | Karibu na mazingira ya chuo ( )<br>3) Kutoka kwenye mashine ya usambazaji kwenye chuo kwa kutumia vocha ( )<br>4. Kutoka kwenye seheme maalum kwenye jamii (duka la dawa, super market). ( )<br>5. Nyingine zitaje ……. |
| 34. | Kama ukijipama mwenye virusi vya ukimwi je utakua tayari kutoa majibu yako bila ya kutaja jina lako wala taarifa zako, kwenye namba ya simu utakayopatiwa bila wewe kutumia vocha yako? | 1) niko tayari sana ( )<br>2) niko tayari ( )<br>3) kiasi flani niko tayari ( )<br>4) Siko tayari ( ) |
| 35. | Kama utawekewa muda wa maongezi wa shilingi 1000 utakua tayari kutuma picha inayoonyesha majibu kwenye kipimo ulichotumia kujipima mwenyewe (hakuja jina wala taarifa zingine isipokua kama utahitaji kuwasiliana) | 1) niko tayari sana ( )<br>2) niko tayari ( )<br>3) kiasi flani niko tayari ( )<br>4) Siko tayari ( ) |
| 36. | Endapo baada ya kujipima mwenyewe majibu yako yataonyesha umeambukizwa virusi vya ukimwi, je utahitaji kuongea na mshauri nasaha ili upate msaada utakaohitaji na pia ajibu maswali utakayokuwa nayo? | 1) Ndio ( )<br>2) Hapana ( ) |
| 37. | Endapo majibu yako yataonyesha hauna maambukizi ya VVU, je utakua tayari kuongea na mtoa ushauri ili kukupatia njia ya kujikinga kama vile PrEP and kujibu maswali yako? | 1) Ndio ( )<br>2) Hapana ( ) |
| 38. | Je, ungependa njia gani itumike kuwasiliana na wewe? | 1) Upigiwe simu na mshauri nasaha ( )<br>2) Utumiwe ujumbe wa kawaida na |

| | | |
|---|---|---|
| | | mshauri nasaha. ( )<br>3 Utumiwe ujumbe wa Watsapp na mshauri nasaha ( )<br>4.)Utatumia namba ya simu utakayopewa kumpigia mshauri nasaha ( )<br>5. Utatumia namba ya simu ya taifa kupiga. (hii ni namba inayotolewa na taasisi za kitaifa zinazohusika na virusi vya ukimwi/ukimwi ili ziweze kutumiwa na wananchi kutoa na kupokea taarifa mbalimbali zinazohusu virusi vya ukimwi/ukimwi) ( ) |
| 39 | Endapo baada ya kujipima mwenyewe majibu yako yataonyesha una maambukizi, je unajua mahali unapoweza kupata huduma za afya kuhusu virusi vya ukimwi? | 1) Ndio ( )<br>2) Hapana ( ) |
| 40 | Endapo baada ya kujipima mwenyewe majibu yako yataonyesha hujaambukizwa virusi vya ukimwi, je unajua mahali unapoweza kupata huduma za afya za kujilinda na maambukizi ya virusi vya ukimwi? | 1) Ndio ( )<br>2) Hapana ( ) |
| 41 | Endapo baada ya kujipima majibu yataonyesha una maambukizi,je utakuwa tayari kupatiwa huduma za watu wenye maambukizi ya VVU? | 1) Ndio ( )<br>2) Hapana ( ) |
| 42 | Endapo baada ya kujipima majibu yataonyesha hauna maambukizi, je utakua tayari kupata huduma za kujikinga na virusi vya ukimwi (PrEP) | 1) Ndio ( )<br>2) Hapana |
| 43 | Je kwa sasa una mpenzi yeyote ambaye uko naye mara kwa mara(yaani kama wa kudumu kwa muda fulani hivi)? ( mko | 1) Ndio ( )<br>2) Hapana ( ) |

| | | |
|---|---|---|
| | wote kwa zaidi ya miezi mitatu) | |
| 44 | Je katika kipindi cha miezi mitatu iliyopita umeshiriki tendo la ngono na wapenzi wangapi wa mara kwa mara? | 1) 1 ( )<br>2) 2 ( )<br>3) 3 ( )<br>4) 4 ( )<br>5) 5-10 ( )<br>6) zaidi ya 10 ( ) |
| 45 | Je! Unajua hali ya VVU ya mpenzi/ Wapenzi wako wa sasa? | 1) Najua hali zao wote<br>2) Najua hali ya baadhi yao<br>3) Sijui hali zao wote |
| 46 | Katika miezi 3 iliyopita, ni mara ngapi umetumia kondomu na mpenzi wako wa kawaida (mara kwa mara)? | 1) Natumia kondom kila napofanya tendo la ngono ( )<br>2) Situmii muda wote ( )<br>3) Situmii muda wote ( )<br>4)Sipendelei kujibu Swali hili |
| 47 | Ukiachana na wapenzi wako wa kawaida (mara kwa mara), umewahi kufanya ngono na mtu mwingine katika miezi 3 iliyopita? | 1) 1 ( )<br>2) 2 ( )<br>3) 3 ( )<br>4) 4 ( )<br>5) 5-10 ( )<br>6) zaidi ya 10 ( ) |
| 48 | Je katika miezi 12 iliyopita umefanya tendo la ngono na watu wangapi? | 1) 1 ( )<br>2) 2 ( )<br>3) 3 ( ) |

| | | |
|---|---|---|
| | | 4) 4 ( )<br>5) 5-10 ( )<br>6) zaidi ya 10 ( ) |
| 49 | Ukindoa mpenzi wako wa siku zote,umeshawahi kufanya ngono na watu wangapi wengine pasipo kutumia kondomu hata mara moja tu? | 1) Mmoja ( )<br>2) Wawili ( )<br>3) Watatu ( )<br>4) Wanne ( )<br>5) Watano ( )<br>6) Sita ( )<br>7) Zaidi ya kumi( ) |
| 50 | Je katika miezi 12 iliyopita umeshawahi kumlipa pesa mpenzi wako ili ufanye naye tendo la ngono? | 1) Ndio ( )<br>2) Hapana ( ) |
| 51 | Je katika miezi 12 iliyopita umeshawahi kupewa pesa na mpenzi wako ili ufanye naye tendo la ngono? | 1) Ndio ( )<br>2) Hapana ( ) |
| 52 | Kwa miezi 12 iliyopita umewahi kunywa pombe? | 1) Ndio ( )<br>2) Hapana ( ) |
| 53 | Kwa siku 30 zilizopita umewahi kunywa pombe? | 1) Ndio ( )<br>2) Hapana ( ) |
| 54 | Kwa wastani ni marangapi unakunywa pombe kwa wiki? | 1) Ndio ( )<br>2) Hapana ( ) |

## Appendix 3: INFORMED CONSENT FORM (ENGLISH)

Principal Investigator's name: ……

**Research Title:** WILLINGNESS TO USE THE HIV SELF-TESTING AMONG STUDENTS OF HIGHER LEARNING INSTITUTIONS IN DODOMA CITY, TANZANIA.

### Introduction

I'm a Master of Public Health (MPH) student at MUHAS. I would like to invite you to participate in this research study. If you agree to participate in this study, you will be interviewed about the research topic. The activity will involve filling a questionnaire to be provided if agreed to participate. The interview will take 10 to 15 minutes only. You will participate in filling the questionnaire, and both the interview and the questionnaire that you will fill will be about this research.

### Potential Benefits

The findings will be of great benefit to both healthcare providers and health care users (HCU). This is because the findings will help in policy strengthening/modification with regard to accessing HIV counselling and testing in the community.

### Risks and Discomfort

There are no risks, but discomforts might be present due to questions associated with sexuality issue.

### Confidentiality

No names will be written on questionnaires, records will be secured in computers and unauthorised personnel will not have access to the data. The information obtained will be kept confidential and conversation will not be overheard by other people during the interview.

**Voluntary Research Participation**

Participation in this research is voluntary. You have the right to participate or opt-out of the study at any given point. No harm on the relationship between you and the researchers will be associated.

**Participant**

I have read this consent form and have been given the opportunity to ask questions. I give my consent to participate in this opportunity to ask questions. I give my consent to participate in this study.

Participant signature…….

Date……

Participant phone number (if possible)

……..……..

**Investigator declaration**

I certify that the participant has been given ample time to read and earn about the study. All questions and clarifications raised by the participant have been addressed.

Investigator's signature……Date……

**Contact Information**

In case of any problem, unexpected physical or psychological discomfort, please communicate to the following number.

1. Dr Aloyce Mabula 0767822301.
2. Dr. Bruno Sunguya 0685217272 (MUHAS IRB Chairperson)

## Appendix 4: INFORMED CONSENT FORM (SWAHILI)

**FOMU YA IDHINI YA KUSHIRIKI KWENYE UTAFITI HUU**

Jina la Mtafiti Mkuu: ……

**Kichwa cha Utafiti:** UTAYARI WA KUTUMIA KIPIMO BINAFSI CHA VIRUSI VYA UKIMWI KWA WANAFUNZI WA TAASISI ZA ELIMU YA JUU JIJINI DODOMA, TANZANIA.

**Utangulizi**

Mimi ni mwanafunzi wa shahada ya Uzamili katika chuo kikuu cha afya Muhimbili ambaye kwa sasa ninafanya utafiti kwa ajili ya kukamilisha masomo yangu. Ninapenda kushirikiana nawe katika kufanya utafiti huu kwa ajili ya faida yake kwa jamii yetu ya Tanzania na dunia kwa ujumla. Utakapokubali kushirikiana nami kufanya utafiti huu basi nitafanya mahojiano na wewe ambayo yatatumia muda wa dakika 10 mpaka 15. Pia utashiriki katika kujaza dodoso utakayopewa. Mahojiano tutakayofanya pamoja na dodoso utakayojaza vyote vitakuwa ni kuhusu utafiti huu.

**Umuhimu wa Utafiti huu**

Matokeo yatakayotokana na utafiti huu yatakuwa na umuhimu sana kwa watoa huduma za afya na watumiaji wa huduma hizo. Umuhimu huu pia utawasidia watunga sera kurekebisha au kuimarisha sera mbalimbali zinazohusiana na upatikanaji wa ushauri na upimaji wa virusi vya ukimwi katika jamii.

**Kuwepo kwa Hatari**

Utafiti huu hautakuwa na hatari wala usumbufu wowote kwako. Isipokuwa kunaweza kuwa na kuona aibu kidogo pale ambapo kuna maswali mengine yanahusiana na mambo ya kujaamiina,kitu ambacho kwenye jamii yetu ni vigumu kukiongelea wazi.

**Kuhusu Taarifa zako Binafsi**

Utafiti huu unahakikisha usalama wako kwa kuhakikisha kila kitu kinakuwa ni siri na taarifa zote zitakazotolewa zitatumika kwa utafiti huu tu. Pia haitaruhusiwa kuandika jina lako kwenye dodoso utalojaza.

**Ushiriki katika Utafiti huu**

Utaruhusiwa kushiriki kwenye utafiti huu endapo wewe mwenyewe utakubali kwa hiari yako mwenyewe, na utaruhusiwa kuacha kushiriki muda wowote utakaotaka kuacha. Na maamuzi yoyote utakayofanya hayataharibu mahusiano yako na mtafiti wa kazi hii.

**Mshiriki wa Utafiti huu**

Nimesoma, nimeelewa na nimeuliza maswali kuhusu ushiriki wangu katika utafiti huu. Ninakubali kuwa sehemu ya utafiti huu kwa hiari yangu mwenyewe pasipo kulazimishwa na yeyote au chochote.

Sahihi ya mshiriki……. Tarehe……

Namba ya simu ya mkononi ya mshiriki (siyo lazima kutoa namba yako)……..

**Uthibitisho wa Mtafiti**

Ninathibitisha kuwa mshiriki huyu alipewa muda wa kutosha wa kusoma, kuelewa na kuuliza maswali yote aliyokuwa nayo kuhusu utafiti huu. Maswali yote aliyouliza yamejibiwa na pia aefafanuliwa pale alipokuwa hajaelewa.

Mtafiti

Sahihi ya mtafiti……

Tarehe……

**Mawasiliano**

Endapo kutakuwa na jambo lolote ambalo ni muhimu tuwasiliane basi tumia namba ya simu ifuatayo:

1. Dr. Aloyce Mabula 0767822301.
2. Dr. Bruno Sunguya 0685217272 (MUHAS IRB Chairperson)

## Appendices 5: Population and sampling of classes from SJUT and UDOM

| NAME OF COURSE | YEAR OF STUDY | # STUDENTS SAMPLED | PRESENT ON DATA COLLECTION | DATE OF DATA COLLECTION | UNIVERSITY |
|---|---|---|---|---|---|
| BSc in Nursing | 1 | 206 | 196 | 17/07/2020 | St. John |
| BSc in Nursing | 3 | 304 | 283 | 20/07/2020 | |
| BSc in Natural Science | 1 | 375 | 355 | 17/07/2020 | |
| BSc in Natural Science | 2 | 404 | 374 | 20/07/2020 | |
| Bed in Policy, Planning and Management | 1 | 271 | 269 | 15/07/2020 | UDOM |
| Bed in Guidance and Counselling | 1 | 268 | 268 | 15/07/2020 | |
| Bed in Economics and Statistics | 2 | 49 | 49 | 16/07/2020 | |
| BCOM -PLM | 1 | 121 | 121 | 16/07/2020 | |

# Appendix 6: ETHICAL CLEARANCE

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

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

20th December, 2019

Mr. Aloyce Mabula
MPH-Distance Learning,
School of Public Health and Social Sciences,
MUHAS.

**RE: APPROVAL OF ETHICAL CLEARANCE FOR A STUDY TITLED:" ASSESSMENT OF THE WILLINGNESS TO USE HIV SELF-TESTING AMONG STUDENTS N HIGHER LEARNING INSTITUTIONS IN DODOMA CITY, 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 **20th December, 2019 to 19th December, 2020.** In case you do not complete data analysis and dissertation report writing by **19th 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 7: INTRODUCTION LETTER

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

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Ref. No. HD/MUH/T.554//2017

30th December, 2019

The Vice Chancellor,
St. John University of Tanzania,
P.O. Box 47,
**DODOMA.**

**Re: INTRODUCTION LETTER**

The bearer of this letter Mr. Aloyce Mabula is a student at Muhimbili University of Health and Allied Sciences (MUHAS) pursuing MPH-Distance Learning

As part of his studies he intends to do a study titled: " ***Assessment Of The Willingness To Use HIV Self-Testing Among Students Higher Learning Institutions In Dodoma City, Tanzania.***

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

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

We thank you for your cooperation.

Ms. Sharifa Kamby
**For: DIRECTOR, POSTGRADUATE STUDIES**

Muhimbili University of Health and Allied Sciences
DIRECTOR
Postgraduate Studies
P. Box 65001

cc: Dean, School of Public Health and Social Sciences
cc: Mr. Aloyce Mabula