Factors associated with TB screening among people living with HIV in Mpimbwe District-Katavi Region, Tanzania

Sebastian Neddy Siwale, MBBS

Master of Public Health Dissertation
Muhimbili University of Health and Allied Sciences
October, 2019

Muhimbili University of Health and Allied Sciences

School of Public Health and Social Sciences

FACTORS ASSOCIATED WITH TB SCREENING AMONG PEOPLE LIVING WITH HIV IN MPIMBWE DISTRICT-KATAVI REGION, TANZANIA

By

Sebastian Neddy Siwale

A Dissertation Submitted in (Partial) Fulfillment of the Requirements for the Degree of Master of Public Health of

Muhimbili University of Health and Allied Sciences
October, 2019

CERTIFICATION

The undersigned certify that he has read and hereby recommend for acceptance by Muhimbili University of Health and Allied Sciences a dissertation titled: **"Factors Associated with TB Screening Among People Living with HIV/AIDS in Mpimbwe District-Katavi Region, Tanzania"** in (partial) fulfillment of the requirements for the degree of Master of Public Health of Muhimbili University of Health and Allied Sciences.

_____

Dr. D. C. V. Kakoko

(Supervisor)

_____

Date

DECLARATION AND COPYRIGHT

I, **Sebastian Neddy Siwale**, 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 a 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 short extracts in fair dealing, for research or private study, critical scholarly review or discourse with an acknowledgement, without the written permission of the Directorate of Postgraduate Studies, on behalf of both the author and the Muhimbili University of Health and Allied Sciences.

ACKNOWLEDGEMENTS

First and foremost, I would like to thank the Almighty God for his guidance and leadership throughout my life and as a post-graduate student here at the Muhimbili University of Health and Allied Science (MUHAS).

I am also glad to take this opportunity to express my sincere appreciation to my very supportive supervisor Dr. Deodatus Kakoko who unconditionally and tirelessly sacrificed a lot of his time and efforts to guide and advise me throughout the period of preparing my dissertation. I also extend my sincere appreciations to Ms. Winfrida Onesmo for her diligent support and guidance during proposal preparation and dissertation writing.

I would like to thank staff of the School of Public Health and Social Sciences, particularly Prof.Phare Mujinja, Prof. Method Kazaura, Prof. Daudi Simba, Dr. Rose Mpembeni, Dr. Candida Moshiro, Dr. Bruno Sunguya, Dr. Gasto Fulmence, Dr. Emmy Meta, Dr. Anael Amani and Dr. Nathanael Siriri for their constructive inputs in proposal development.

Again, I would like to extend special thanks to my family for their outstanding inspiration and encouragement during the entire study particularly my wife (Sifuni Julius Kijangwa), my children, Danford S. Siwale, Diana S. Siwale and Deogratius S. Siwale who have been very generous with their time and patience with me during proposal development and report writing.

I would like to thank the Muhimbili University of Health and Allied Sciences particularly the School Of Public Health for awarding me the privilege to undertake this course and for their moral support and encouragement throughout my training including this work. I believe that this academic attainment will broaden my capability to practice as a better Public Health Specialist anywhere in the world.

Gratitude is also extended to the District Administration Secretary (Mr. P. Tenganamba), District Executive Director (Mr. Erasto N. Kiwale) and the District Medical Officer (Dr. Anold Fungo) of Mpimbwe District Council for their support in carrying out the study as I

gained from their expertise in research, data collection and analysis skills and knowledge. Special gratitude is extended to the Ministry of Health, Division of HIV/AIDS Control and Division of Tuberculosis and Leprosy Control, Health Sector Programme through Mpimbwe DC for the financial support towards the MPH course.

I acknowledge my research assistants Mr. Benard Gemba and Mr. Paulo Mafulu for their enthusiasm and dedication during data exercise.

Finally, but not the last, I would like to thank Usevya Health centre, Mamba Health centre, Majimoto Dispensary, Chamalendi Dispensary and Kasansa Dispensary's Management Teams, the study respondents and all the individuals whose efforts have resulted in the completion of this study.

Lastly, my very special thanks go to my classmates, my friends and colleagues who have supported me in one way or another during my studies.

ABBREVIATIONS

AIDS	Acquired immunodeficiency syndrome
ART	Anti Retroviral Therapy
CTC	Care and Treatment Clinic
DC	District Council
HIV	Human Immunodeficiency Virus
IGRA	Interferon-Gamma Release Assays
IPT	Intermittent preventive therapy
LTBI	Latent Tuberculosis Infection
MTB	Mycobacterium Tuberculosis
NTM	Non tuberculosis Mycobacterium
PITC	Provider-Initiated Counseling and Testing
PLWHA	People Living with HIV/AIDS
TB	Tuberculosis
VCT	Voluntary Counseling and Testing
WHO	World Health Organization
INSET	In service Training
MA	Medical Attendant

OPERATIONAL DEFINITION OF TERMS

Tuberculosis Screening: Consists of history taking of persistent cough lasting longer than two weeks with or without blood stained sputum; chest pain and/or shortness of breath; excessive night sweats; intermittent fever; loss of appetite; loss of body weight and excessive tiredness; generally feeling unwell and swollen glands for TB of the glands.

Tuberculosis (TB) Detection: The confirmation of Mycobacterium Bacilli through a smear positive test in case of pulmonary tuberculosis (PTB) and confirmed clinical diagnosis of TB for extra pulmonary TB (EPTB).

TB/HIV Case definition: Any form of TB in PLWH confirmed by laboratory tests positive ZNN-Stain Smear, or Culture of Mycobacterium Tuberculosis.

Perceived susceptibility: A belief about the chances of experiencing a risk, getting a condition or disease. It defines population at risk; risk levels, and personalize risk based on a person's characteristics or behavior.

Attitude: Involves beliefs, feelings, values and dispositions to act in certain ways. In this study attitude refers to the perception or feeling of healthcare providers on the benefit/effectiveness of TB screening and any preconceived ideas they may have towards it.

Healthcare provider: An individual or an institution that provides preventive, curative, promotional, or rehabilitative health care services in a systematic way to individuals, families or communities.

Knowledge: Means 'facts, information, and skills acquired through experience or education; the theoretical or practical understanding of a subject' (Oxford dictionary). In this study 'knowledge' refers how healthcare providers are informed or understand about the benefit of IPT and its risk management.

Stigma: Refers to the disgrace of TB and HIV patients and the social discrimination regarding people infected with TB and HIV. Stigma acts as a social determinant of health, determining access to TB screening and the ability to manage illness and complete treatment of Tuberculosis.

ABSTRACT

Background: Tuberculosis is one of the most common opportunistic infections and a major cause of morbidity and mortality among HIV/AIDs patients. Accordingly, several stakeholders have taken initiatives including TB screening among people living with HIV/AIDs in order to reduce TB related mortality among this group. However, there is scarcity of data on the factors that may influence the TB screening iniative especially in Mpimbwe district.

Objectives: The main aim of this study was to determine the factors associated with TB Screening among People living with HIV in Mpimbwe District.

Methods: This was a cross sectional descriptive study which involved 400 CTC clients and 50 health providers who were randomly selected from the five selected Care and Treatment Clinics (CTCs) available in Mpimbwe District Council. Data were collected using close-ended questionnaires. Data were entered, cleaned and analyzed using Statistical Package for Social Sciences (SPSS) software version 20. Descriptive statistics were performed to describe factors associated with TB screening. Chi-square test was computed and p-value of less than equal or less than 0.05 was used to show significant association between dependent and independent variables.

Results: The percentage of CTC clients living with HIV screened for TB was 39.8% (159 out of 400). Majority were males (p= 0.005) aged 30 years and above, (mean age 33.6+/- 9.4 SD, p= 0.001). Other factors that were significantly associated with TB screening included level of education (p= 0.001), ashamed to safer from Tuberculosis while having HIV infection (P= 0.001), clients' perception on TB and screening (p= 0.001) and clients' knowledge about TB symptoms and transmission (p= 0.001) and healthcare provider attendending on job training on TB infection and TB Screeing (p= 0.002), distance to the health facility (p= 0.001), waiting time at the facility (p= 0.005), and healthcare provider attendending on job training on TB infection and TB Screeing (p= 0.002).

Conclusion: The low proportion of TB screening among PLWH (39.8%) at Mpimbwe district is associated with several individual factors including sex, age and education. Despite the fact that the majority of PLWH and Health care providers were aware on TB and HIV co-infection, efforts to increase coverage of TB Screening should focus on raising the awareness and knowledge to the CTC clients and health care providers about TB screening.

TABLE OF CONTENTS

CERTIFICATION i
DECLARATION AND COPYRIGHT ii
ACKNOWLEDGEMENTS iii
ABBREVIATIONS v
OPERATIONAL DEFINITION OF TERMS vi
ABSTRACT viii
LIST OF TABLES xiii
LIST OF FIGURES xiii
CHAPTER ONE 1
1.0 INTRODUCTION 1
1.1 Background 1
1.2 Problem Statement 4
1.3 Conceptual Framework 5
1.4 Rationale of the study 7
1.5 Research Questions 7
1.5.1 Broad Research Question 7
1.5.2 Specific Research Questions 7
1.6 Objectives 8
1.6.1 Broad Objective 8
1.6.2 Specific Objectives 8
CHAPTER TWO 9
2.0 LITERATURE REVIEW 9
2.1 Introduction 9
2.2 The proportion of PLWH Screening for TB 9
2.3 Individual factors associated with TB Screening 10
2.4 Interpersonal factors associated with TB Screening 12
2.5 Health Facility Factors Associated with TB Screening among PLWH 13
2.6 Synthesis and Knowldege Gap 14

CHAPTER THREE 15
3.0 METHODOLOGY 15
3.1 Study design 15
3.2 Study Area 15
3.3 Study population 15
3.4 Inclusion and exclusion criteria 16
3.5 Sample size 16
3.6 Sampling Technique 17
3.7 Variables 17
3.8 Data Collection Techniques 20
3.9 Data collection tools 20
3.10 Validity and Reliability of the Study 21
3.10.1Validity 21
3.10.2 Reliability 21
3.11 Data Analysis 22
3.12 Ethical Considerations 22
3.13 Study Limitations and Mitigations 22
CHAPTER FOUR 24
4.0 RESULTS 24
4.1 Characteristics of the study respondents 24
4.2 Proportion of PLWH Screened for TB in the five selected health facilities 25
4.3 The Individual Factors Associated with TB Screening among PLWH 25
4.4 The interpersonal factors Associated with TB Screening among PLWH 29
4.5 Health facility factors associated with TB-Screening among PLWH 32
4.6Association between Distance to the Facility, Waiting Time and TB Screening 38
CHAPTER FIVE 39
5.0 DISCUSSION 39

CHAPTER SIX 45
6.0 CONCLUSION AND RECOMMENDATIONS 45
6.1 Conclusion 45
6.2 Recommendations 45
REFERENCES 47
APPENDICES 50
Appendix 1: Questionnaire for Clients (English) 50
Appendix 2: Health Care Providers Questionnaire (English) 57
Appendix 3: Dodoso La Watu Wazima Miaka 18 Na Zaidi-Kiswahili 65
Appendix 4: Dodoso La Watoa Huduma Za Afya 73
Appendix 5: Consent To Participate In Research – English 82
Appendix 6: Ridhaa ya Kushiriki Kwenye Utafiti - Kiswahili 84

LIST OF TABLES

Table 1: Sample size for the participating Clients per Facility from 5 Health Facilities 17

Table 2: Socio- Demographic characteristics of participants in CTCs (N = 400).....24

Table 3: Socio- Demographic attributes of the Health Care Providers (N = 50) 25

Table 4: Client's Social-Demographic Characteristics and TB-screening (N = 400).....26

Table 5: Client's Awareness on TB and how TB Spreads (N = 400) 27

Table 6: Client's knowledge about Signs and Symptoms of TB.....28

Table 7: Client's attitude towards TB infection and Screening.....28

LIST OF FIGURES

Figure 1: Conceptual framework adapted from Stokols 1992 Ecological Model on health behavior change.....6

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background

HIV infection significantly increases the risk of developing and dying from TB by reactivation and re-infection of Mycobacterium. Likewise, Tuberculosis (TB) is a leading cause of death and common presenting illness among people living with HIV(Manjunath and Dhar, 2013). Globally, Tuberculosis was associated with 350,000 TB deaths in 2010 (Gray and Cohn, 2015) and 85% of reported HIV-positive TB patients in 2016 were started on antiretroviral therapy (World Health Organization, 2017).

In African region, that has the highest TB/HIV burden, 82% of TB patients are also HIV positive (World Health Organization, 2017) and in some sub-Saharan African countries, 80% of people with Tuberculosis infection, had also HIV infection (Date and Modi, 2015).

The prevalence of HIV in Tanzania is about 5% (Tanzania HIV Impact Survey (THIS), 2017) and every year 120,000 people got ill with TB (Andersson and Munseri, 2012). Prevalence of HIV in Katavi region is 5.9% (Tanzania HIV Impact Survey (THIS), 2017) where Mpimbwe District Council (DC) is ranked the 2nd District having prevalence of 5.7% after Mpanda Municipal 5.96% (Tanzania HIV Impact Survey (THIS), 2017).

Prevention of TB requires prevention interventions for both HIV infection and TB, including HIV counseling and testing, disclosure and partner testing, behavior modification, earlier antiretroviral therapy, and the "Three I's for HIV/TB" isoniazid preventive treatment, intensified case finding, and infection control for TB (Granich *et al.*, 2010). Persons living with HIV infection or AIDS remain at high risk of TB throughout the course of their HIV status unless they start ART.

The World Health Organization (WHO) provided a practical guidance on translating WHO's principles and recommendations into a national TB screening strategy that requires every client who is diagnosed positive for HIV to be screened for TB as soon as possible. However,

millions of patients ill with TB are still not notified to public health authorities, and the declines in TB deaths and incidence are still too slow (World Health Organization, 2015). Once PLWH are screened for TB, those identified as having presumptive TB need to undergo TB diagnostic evaluation.Persistence of delays in diagnosis and the accompanying continued transmission in the community, highlight the need for a more active approach to detect TB early, hence the need to consider systematic screening for active TB in selected risk groups (Howard and El-Sadr, 2010). The consequences of failing to diagnose TB in a person living with HIV or of not diagnosing HIV in a TB patients accelerates early mortality rates in people with both TB and HIV (WHO, 2008).

The Stop TB Strategy of directly observed therapy short-course (DOTS)–based TB programs help prevention of TB by reducing transmission through prompt identification, diagnosis, and successful treatment of TB but although strong DOTS-based TB programs are essential, prevention of HIV infection is necessary to control TB in areas impacted by HIV like Mpimbwe DC (Granich *et al.*, 2010).

TB screening among PLWH is central to implementation of the WHO's interventions for reducing the impact of the TB and HIV syndemics. Early and Effective TB screening associated with timely treatment among people living with HIV are essential for minimizing TB associated mortality (Date and Modi, 2015) but evidences shows that, 31% of the patients who got their HIV-diagnosis more than one month before their TB-diagnosis, this indicates that HIV positive patients don’t get tested for TB (Andersson and Munseri, 2012). Screening of TB and TB treatment is free of charge in all health facilities in Tanzania (Andersson and Munseri, 2012), but yet, there is significant large number of people living with PLWH who are not screened for TB (Kamenju and Aboud, 2011).

Despite dramatic improvements made since the 1990s in providing access to high-quality TB services, many people with TB remain undiagnosed or are diagnosed only after long delays. The high burden of undiagnosed TB causes much suffering, economic hardship, and sustains transmission of the infection to others (World Health Organization, 2017).

With the increased number of undiagnosed TB cases among people living with PLWH, WHO 2015, issued guidelines to its member states that require PLWH to be screened for TB when attending health facilities. The main objective is to have early detection and treatment there by reducing TB associated mortality among PLHIV.

1.2 Problem Statement

Despite the existence of WHO (2015) guideline for TB-screening among PLWH, only 45.1% of them at Mpimbwe District are screened for TB as per Mpimbwe District Health Profile of 2017/2018. The low rate of TB-screening among PLWH is likely to contribute to the increased number of TB patients, leading to the more spread of the disease.

Studies done in South Africa, Ethiopia, Thailand and Cambodia to explore the factors associated with TB-screening among people living with HIV/AIDS have pointed out some of the individual factors such as intrapersonal and interpersonal, as determinant factors for TB-screening. Yet, other studies have pointed out health facility factors such as health provider's knowledge about TB and TB-screening, availability of skilled health personnel and TB-screening medical supplies as determinants for TB-screening. Nevertheless, since all of these studies were done outside Tanzania where the environment differs in terms of culture, political systems, policies and level of economy, their findings do not necessarily apply to Tanzania. Thus, there is a need to conduct similar study in the Tanzanian context and Mpimbwe DC in particular where the percentage of TB Screening is only 45.1%, so as to find out whether the low rate of TB-screening among PLWH is also associated with the afore mentioned factors for immediate Public health intervention.

1.3 Conceptual Framework

The Conceptual framework that guided this study was modified from Stokols 1992 ecological model on health behavior change. The model argues that, health behavior change is a function of multiple levels of factors ranging from individual level factors, interpersonal level factors, organizational level factors, community level factors to public policy related factors. Individual level factors involve individual characteristics of both health care providers and the clients in terms of their knowledge, skills, awereness andattitude regarding the disease as well their developmental history like economic status and financial resources. Interpersonal level factors involve the way clients and health workers interact in the health system. Organizational factors on the other hand involve the way health care institutions are organized and managed. The model assumes that, if individual, interpersonal and organizational factors are enough, adequate, appropriate and are effectively and efficiently administered and managed, there will be a positive health behavior outcomes to members of the community but if individual, interpersonal and organizational factors are not enough and are in adequate, there will be a negative health behavior outcomes to community members (Shields, 1999).

This study borrows from the ecological model which indicates two levels which are individual factors and interpersonal factors that play together to determine uptake of helth services. Individual factors like gender, age, education attainment, marital status, awareness on TB and TB screening of the same, health seeking behaviour and perception of the person regarding their susceptibility of being infected with TB can determine whether or not the person can go for TB screening services. In addition, the way the person perceives of how others like family, friends and even health care provider's view on the TB infection can determine uptake of TB screening services. A person may fear discrimination from others by being diagnosed with TB while they also have HIV.

However, factors at individual level are not the only possible determinants of TB screening. For instance, a person may not go for or accept the services due to health facility factors like availability of skilled personnel for TB screening, supplies and equipment and even the distance to the health facility.Therefore, individual, interpersonal and health facility factors work together to determine TB screening in HIV clients.

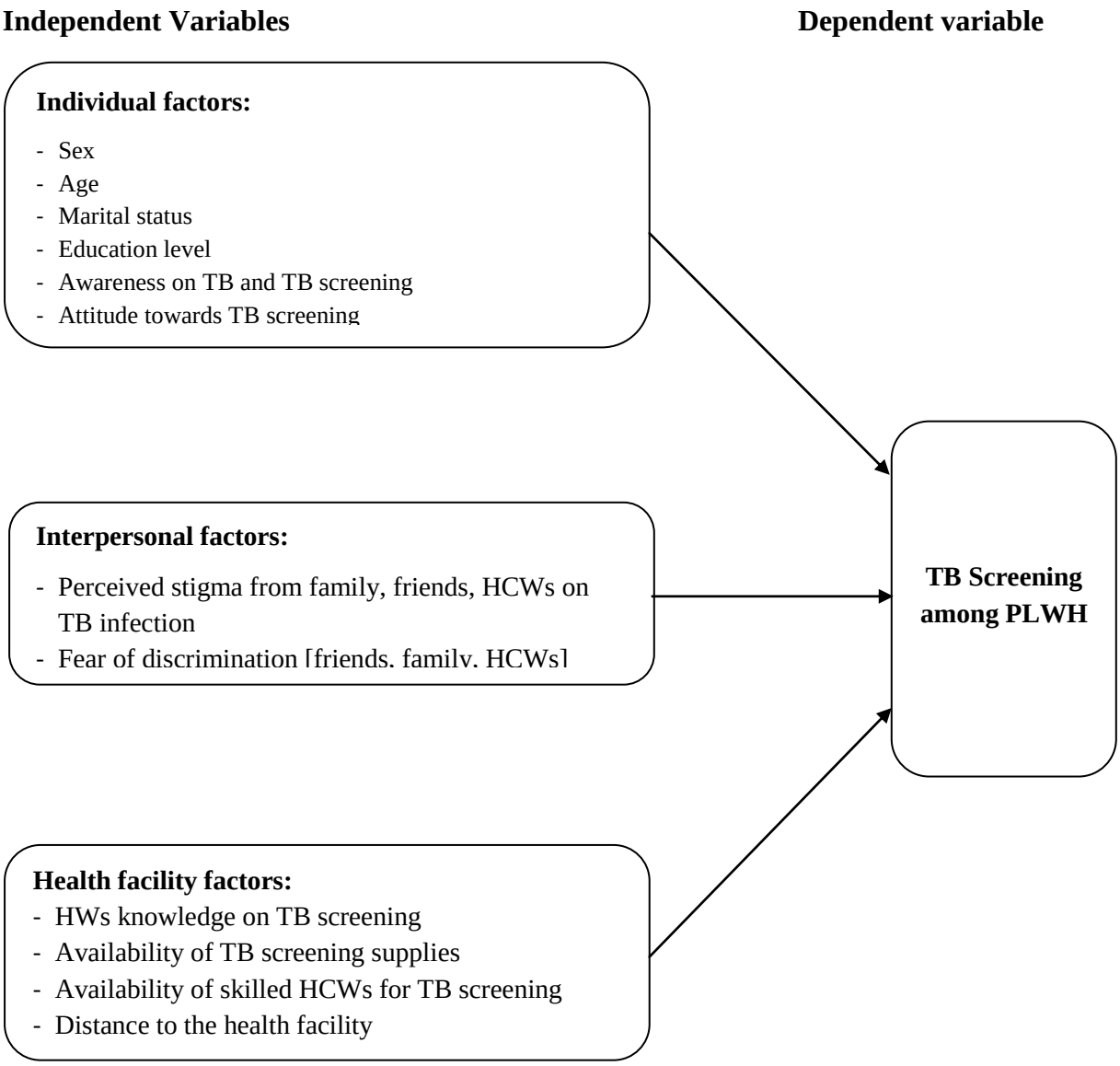


Figure 1: Conceptual framework adapted from Stokols 1992 Ecological Model on health behavior change

1.4 Rationale of the study

This study will be of great significant for theoretical and practical pursuits in the following grounds. First the findings generated from this study, will provide information to the government, health professionals and other stakeholders on individual and health facility factors related to TB-screening among PLWH. Second, the study findings are expected to raise awareness to the community and in Mpimbwe DC on individual and health facility related factors affecting TB-screening among PLWH. Third, the findings from this study will form the bases for future studies on related topic. Fourth, Knowledge on individual and health facility factors affecting TB-screening among PLWH will ensure effective strategies for early TB diagnosis and treatment among them there by reducing TB related mortality among PLWH in Mpimbwe DC.

1.5 Research Questions

1.5.1 Broad Research Question

What are the individual (intrapersonal and interpersonal) and health facility factors associated with TB Screening among people living with HIV in Mpimbwe district?

1.5.2 Specific Research Questions

1. What is the proportion of PLWH screened for TB in the selected health facilities in Mpimbwe district?
2. What are the intrapersonal factors associated with TB screening among PLWH in Mpimbwe district?
3. What are the interpersonal factors associated with TB screening among PLWH in Mpimbwe district?
4. What are the health facility factors that affect TB Screening among PLWH in Mpimbwe district?

1.6 Objectives

1.6.1 Broad Objective

The main aim of this study is to examine individual, interpersonal and health facility factors associated with TB Screening among people living with HIV in Mpimbwe district.

1.6.2 Specific Objectives

1. To determine the proportion of PLWH screened for TB in selected health facilities in Mpimbwe district.
2. To assess the individual factors associated with TB screening among PLWH in Mpimbwe district.
3. To assess the interpersonal factors associated with TB Screening among PLWH in Mpimbwe district.
4. To examine the health facility factors that affects TB Screening among PLWH in Mpimbwe district.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Introduction

TB Screening to people living with HIV for prompt detection is associated with many factors that include Intrapersonal factors such as Sex, Age, Marital status, Education level, Awareness on TB and TB screening**,** Attitude towards TB screening and Health Seeking Behavior for TB, Interpersonal factors such as Perceived stigma from family, friends, HCWs on TB infection**,** Fear of discrimination [friends, family, HCWs] and Health facility Factors for TB screening factors including HCWs knowledge on TB screening, availability of TB screening supplies, and Availability of skilled HCWs for TB screening.

The following literature based on studies done in Tanzania and other parts of the world critically looks at various aspects of factors associated with TB screening mong people living with HIV.

2.2 The proportion of PLWH Screening for TB

In a passive TB screening approach, the most important factors for early case detection include early recognition of TB-suggestive symptoms, early and adequate help seeking of the TB-suggestive symptoms, early and adequate help seeking of the TB-infected people and appropriate diagnostic performance by the health workers. This process is influenced by three main groups of inter-related factors: i) Intrapersonal factors(Sex, Age, Marital status, Education level, awareness on TB and TB screening, attitude towards TB screening, health Seeking and Behavior for TB); ii)Interpersonal factors (Perceived stigma from family, friends, HCWs on TB infection and Fear of discrimination [friends, family, HCWs]) and Health facility factors for TB screening (HCWs knowledge on TB screening Availability of TB screening supplies and availability of skilled HCWs for TB screening) These aspects are detailed below.

TB Screening to people living with HIV for prompt detection is associated with many factors that include decision making, ability to recognize Signs and Symptom of TB, health care-Seeking behavior, access to health services socio-cultural, economic and health system factors (Storla1, et al., 2008).The following literature based on studies done in Tanzania and other parts of the World critically looks at various aspects of factors associated with TB screening among People living with HIV.

2.3 Individual factors associated with TB Screening

TB screening among PLWH is said to be associated with factors such as Sex, Age, Marital status, Education level, awareness on TB and TB screening, attitude towards TB screening, health Seeking and Behavior for TB. A number of researches have been carried out to determine the relationship between intrapersonal factors and TB Screening.

The literature indicates that the rate of attending health facilities for TB Screening and treatment among women living with HIV was less than men. For instance, according to UNDP (2015) in South Africa showed that, women living with HIV had low attendance in health facilities for TB screening and treatment than their fellow men, resulting to high women TB associated mortality(UNDP 2015'Discussion Paper). Women in some of the low income countries cannot decide by themselves to seek for health care, but the decision is often made by the husband or senior members of the family. As a result of their subordinate role in the family, they depend on men or older women for expenses and mobility in the event of illness and diseases including TB-screening. That situation was associated among others by the deeply rooted patriarchy ideology where men used to prohibit their wives from attending health facilities for TB diagnosis and treatment. Additionally, male family members were unwilling to pay for their wives these services (Okojie, 1994). Since the study was conducted outside Tanzania, the findings not necessarily apply to Tanzania since the environment differs in terms of political system, policies and the level of economy. Thus there is the need to conduct this study in Tanzania so as to compare the results.

TB screening among PLWH is also influenced by age whereby adults, have more TB- health seeking behavior than young people. Literatures shows that People living with HIV from 61

years old and above in South Africa attended more in health facilities for TB Screening than young people (Simon etal 2010).

The level of education also has a great effect in determining the rate of TB screening among PLHIV. Literatures shows, people who have acquired the basic education have high health seeking behavior than people who have never attended and acquired the basic education. For instance, Washington state of health (2012) argues that a person who is educated understand easily the seriousness of TB disease and the importance of screening for early treatment thereby reducing TB-associated mortality .Nevertheless, this finding can hardly be reliable as much of the analysis was purely descriptive. Thus the need arises to conduct this research so as to test empirically these findings using quantitative data.

Studies point to the gender differences in awareness and health seeking behavior in general for TB and evidences shows that low education has been linked to poor knowledge on several diseases including TB and erroneous beliefs about TB (Ndwiga, 2013). A study conducted Tanzania reported that patient's delay seeking for medical help is mostly due to lack of awareness on the disease and is significantly longer in rural areas for patients with lower level of education and women are more likely to experience these factors than men (Wandwalo & Mørkve, 2000).

According to Currie and Wiesenberger (2003), Women tend to engage in less health seeking behavior compared to their male counterparts.Results showed that Women generally are less likely to identify disease symptoms in the first place,they might shrug of the symptoms as normal everyday muscle aches or normal regular occurrence due to lack of knowledge and awareness of symptoms and illness in general.Women also tend to belief that they are more restricted compared to their male counterparts in terms of healthcare accessibility.They do not engage in healthcare services even if they have a health problem, and this is due to restricted accessibility to health services associated by social roles of Women. However, these studies do not show how awareness and health seeking behavior factors affect TB screening among people living with HIV. This study sought to demonstrate if these factors affect people living in a different way.

2.4 Interpersonal factors associated with TB Screening

Provider-Clients Interactions

This section explains more on the interaction between the clients, health care providers, friends and the family members who in other ways can affect TB screening.

Literatures has shown that, clients who are involved in decision making regarding follow up and treatments feel in greater control over their health and are more likely to have positive outcomes (Helitzer, Caulfield and Bronner, 2000).

TB screening among PLWH is said to be associated with factors out of individual characteristics such as client's and health care provider's knowledge on TB as well as client's health seeking behavior. A number of studies have been carried out to determine the relationship between individual factors and TB screening. Lorentz, et al. (2015) conducted a study to examine the challenges of tuberculosis diagnosis in community-based active case detection among the urban poor in Cambodia. The study findings identified knowledge on TB severity as the strongest determinant for health care-seeking. (Musasa, 2011) conducted a study to assess the level of knowledge on TB screening among PLWH in Namibia. The study findings indicated that the majority of respondents had no knowledge on TB screening and they did not know any relationship between HIV and Tuberculosis. However, that was not the case in the study done by Grotzinger's in Namibia that revealed the high level of knowledge regarding TB screening but they did not know any relationship between TB and HIV (State, Services and Education, 2012).

Another study done by Rebouças *et al.*, (2017) to evaluate the incidence of tuberculosis and its consequences among individuals diagnosed with virological failure of HIV in Brazil, pointed out the possibility of early TB detection and treatment reduced TB-related mortality among PLHIV as the perceived benefit of TB screening.

Stigma is a social determinant of health, found to be a major barrier to accessing health care (hence resulting in diagnostic delay) and the ability to manage illness and complete treatment. Studies done by Mahendradhata et al (2008) and Ngamvithayapong et al (2000) in Thailand concluded that, low levels of knowledge may lead to the attitude of self stigmatization among

TB patients and generate unwillingness to be associated with TB services including TB screening. Another study have shown that stigma causes delayement of TB Screening among people living with HIV/AIDS (Van Rie *et al.*, 2008). A study conducted in 2010 by Stewart, on association between TB and acquired immune-deficiency syndrome (AIDS) stigma on delay in seeking care for TB symptoms showed that, among men, those with higher TB stigma had a small increase in delay times, while women had a small decrease in delay.

2.5 Health Facility Factors Associated with TB Screening among PLWH

The most important factors for early case detection in a passive case screening approach include early recognition of TB-suggestive symptoms; early and adequate help seeking of the TB-suggestive symptoms, early and adequate help seeking of the TB-infected person and appropriate diagnostic performance by the health workers.

Health facility factors affecting TB screening among PLWH are many, however the most important ones includes the availability of health workers, HCW's knowledge on TB screening as well as the availability of TB Screening medical supplies such as TB Screening questionnaires, forms, tally sheets and register books have a great role in determining the rate of TB-screening among PLWH. Evidence from literature indicates that, the sufficient health personnel in terms of their number, knowledge, skills and experience have positive effects on TB screening.

Contrarily, insufficient health Personnel in terms of their number, knowledge, skills and experience accompanied with the inadequate medical supplies affects negatively the rate of TB Screening among the PLWH (Lorent *et al.*, 2015).

Again, knowledge of the health care workers on management of TB patients among PLWH including their perceived reasons for patient non adherence to treatment aimed at developing strategies to improve the quality of the TB control service in Nigeria. Also, lack of knowledge to health care workers on management of TB patients and poor interpersonal relation and communication with patients have negative effect on patients' adherence to the long duration of TB treatment (Ibrahim et al, 2014). Mueller et al (2016) conducted a study to determine the factors associated with performing Tuberculosis screening of HIV-Positive patients in Ghana.

The study findings showed that inadequate knowledge and skills coupled with limited medical supplies were some of the reasons for low rate of TB screening in Ghana. Therefore, the study concluded that education of staffs for counseling of PLWH and sufficient financing are needed for further improvement in implementing TB Screening for all PLWH. .

More than that, the review of literature have shown that, adequate and equitable distribution of health care facilities in rural areas is critical to human health and capital development.A study done in Nigeria in 2011 on the effect of distance and time on utilization of Health Care Services in Rural areas. The study results revealed that, there is unequal access to modern health facilities among communities living in long distance compared to those living near by the Health facility. They concluded that, distance and total cost of seeking health care affect the utilization of government and private hospitals while total cost of Seeking health care and the quality of access route affect the use of traditional care (Awoyemi, Obayelu and Opaluwa, 2011). . The way the distance affects utilization of the health services as it has shown by the two studies above, may also affects TB screening among PLWH at Mpimbwe DC, so it is one of the aim of this study to find out if the same factor can affect TB screening in the study area.

2.6 Synthesis and Knowldege Gap

Most of the studies surveyed have shown that, TB screening among PLWH is influenced by multiple factors ranging from individual to health facility related factors.Nevertheless, most of these studies were done outside Tanzania Where the environment differs in terms of culture, political systems, policies and level of economy and their findings do not necessarily correspond to Tanzanian context. Therefore, there is a need to conduct similar study in the Tanzanian context and Mpimbwe DC in particular where the percentage of TB Screening is only 45.1%, so as to find out whether the low rate of TB-screening among PLHIV is also associated with the afore mentioned factors for immediate Public health intervention.

CHAPTER THREE

3.0 METHODOLOGY

3.1 Study design

The study was descriptive cross-sectional design. This design was cheap as compared to other types of designs and needed a short time to complete the study. Data were collected over a two-week period, between 30th August, 2018 and 30th September, 2018.

3.2 Study Area

The study was conducted in all five government Health Facilities that provide Care and Treatment Clinics services at Mpimbwe DC in Katavi Region. The selected health facilities were Mamba Health Center, Usevya health Center, Majimoto Dispensary, Chamalendi Dispensary and Kasansa Dispensary. The council was established in 2016/2017 after the division of the former Mlele District. It is located in South west Region of Tanzania with an area of 7,704.84 square Kilometers. The council has 16 public Health facilities with a total of 64 Health providers of different cadres. According to 2012 national population census, Mpimbwe DC has the population of 117,539 involving in various income generation activities including Agriculture, Livestock keeping and Business. The choice of this district is triggered by the fact that, despite of being a new established district, Mpimbwe DC ranked the 2nd District having HIV prevalence of 5.7% next to Mpanda Municipal 5.96% (Tanzania HIV Impact Survey (THIS), 2017). Therefore, with such high HIV prevalence, the district is likely to have high incidence of TB attributed by HIV.

3.3 Study population

The study populations were the people living with HIV and health care providers. These study Populations were selected because they could provide relevant information to answer the research objectives under the investigation.

3.4 Inclusion and exclusion criteria

All PLWH who attended at CTC during the period of data collection aged 18 years and above were included. All PLWH attended CTC during the period of data collection that was seriously sick, below 18 years old and those who were pregnant attending RCH clinics were exluded.

3.5 Sample size

The sample size of this study involved 450 respondents of which, 400 were PLWH and 50 respondents were health care providers.The study included 50 HCWs as part of Health facility factors affecting TB screening among PLWH but they were not infected with HIV. The sample size of this study was obtained by using the formulae below:-

$$n = \frac{N}{1 + N(e^2)}$$

Where;

n= the required sample size

N= the known population living with HIV/AIDS at Mpimbwe District.

e= the level of significance which was fixed to 0.05 because the population was known

N=9094 Known number of people living with HIV at Mpimbwe District

Assuming a non-response of 10%, Then actual sample size for clients (N), N = N x 100/ (100-f) = 363 x 100/ (100-10) = 400

Therefore, a sample of 400 people living with HIV was required for the study. The breakdown of the health facilities and their proportional sample is shown in the table below. Health providers working in the 5 selected CTCs were 50, and all were included in the study.

Table 1: Sample size for the participating Clients per Facility from 5 Health Facilities

Health Facility	Number of Patients available	Proportion per HF	Sample size of PLWH per Health Facility
Mamba H/C	4300	4300 x400= 9094	190
Usevya H/C	3125	3125 x 400 = 136 9094	136
Majimoto Dispensary	350	350 x 400 = 16 9094	16
Chamalendi Dispensary	819	819 x 400= 36 9094	36
Kasansa Dispensary	500	500 x 400 = 22 9094	22
Total	**9094**	**400**	**400**

3.6 Sampling Technique

The health facilities were selected by simple random sampling technique.

The study pointed out the participants from the attendance register and the participant names were obtained after specific interval, number of names depending on the total number of clients in the health facility.The sample included all clients aged 18yrs and above attending CTCs in government health facilities. Clients were selected during clinic date registration where calculations were done involving number of field days and daily attendance roster to get their number of clients to be interviewed for the given day.

3.7 Variables

Quantitative variables were measured using questionnaires with structured questions and observations checklist. To ensure that the variables were standard **(measurable),** the investigator used the Tanzanian demographic health survey on socioeconomic status and the WHO tool on delay in TB detection (WHO, 2009). The following variables formed the basis for data collection:

Independent variables

Individual factors and TB Screening among PLWH

The demographic Variables that were included in this study were age, sex, marital status, level of education and cadre.

Age: as a continuous numeric variable and categorized as 18-30 years ≤, 30 years and above **Sex**: male, female

Marital status*:* Single, Married, Widowed/Widower, Divorced

Level of education/ literally: Primary, Secondary, College and never gone to school

Care: Drs., Clinical Officers, Enrolled Nurse, Supportive staffs (Medical Attendants) etc.

Client's knowledge on TB

1. Signs and symptoms of TB (Cough for ≥ 2 weeks, weight loss, fever, chills, night sweating, body weakness, chest pain, loss of appetite, difficulty in breathing)
2. How TB spreads (Coughing, sneezing, salivary, sharing utensils. maternal to child).
3. Time to reach to the health facility for seeking care and waiting time for services.

Client's Health care Provision for TB screening

1. Practice on TB screening and referring, in case of suspected TB Clients
2. Type of provider seen if in health facility (Cadres)

Interpersonal factors

Reported practice in TB Screening at CTC

1. Type of service providers who made the screening (Cadres)
2. Duration of working in CTC clinic, and experience in Work for TB Screening

CTC client's sources of information/ communication on TB illness

1. Information on TB received during interaction with health service provider in CTC visit at that point in time
2. Information on TB received from other sources (Friends, Relatives, TV/Radio)

Providers' knowledge on practice in TB screening

1. CTC providers' training in TB Screening
2. Knowledge on the TB Screening guidelines
3. Service providers' knowledge on TB
4. Knowledge on when to screen for TB to Clients Living with HIV
5. Practice on TB Screening
6. Practice on management of CTC clients detected to have TB
7. Knowledge on the number of sputum specimen to be taken for TB detection
8. Knowledge on the time for collecting sputum used for TB detection
9. Knowledge on Signs and Symptoms of TB
10. Knowledge on how TB spreads

Ability to access to Health Care Clinic and TB Screening services

1. Distance to facility
2. Waiting time for services in the facility
3. Availability of providers in facility by Cadre

Referral between the CTC and laboratory

1. Service providers' knowledge of the laboratory referral tools for TB suspect within CTC
2. CTC service providers' practice on referral of TB suspect within CTC to the laboratory

Dependent variables

Number of PLHIV screened for TB during any contact with a service provider in any of the CTC visits. Tuberculosis Screening in this study consists of history-taking of persistent cough lasting longer than two weeks with or without blood stained sputum; chest pain and/or shortness of breath; excessive night sweats; intermittent fever; loss of appetite; loss of body weight and excessive tiredness; generally feeling unwell and swollen glands for TB of the glands.

Dependent variable was TB screening which was assessed by looking the number of PLWH who have been screened for TB in the five selected Health Facilities. TB Screening was measured was categorized into screened and not screened where by either TB Screening was done or was not done (1-TB Screening was done; 2-TB Screening is not done).

3.8 Data Collection Techniques

Data collection team was given a two-day orientation course by the principal investigator for the introductory part to the respective health facility authorities as well as the study participants, whom the research team was given a brief overview on the purpose of the study, the confidentiality issues, and the benefits of the study to them and the national level.

Clients were given numbers soon after arrival to CTC and were selected by alternating the numbers. The first participant was selected randomly from the first three Clients attended CTC on the day of data collection in that site. After selecting the client randomly, each selected participant was guided to read and understand the consent form prior to putting their signature to accept their participation in the study. Confidentiality was ensured by not recording any identifying information like names instead the questionnaires were coded after data collection. Research assistants or the principle investigator conducted an individual interview in a closed room away from the health facility and after the clients had exit the facility premises in order to increase privacy and enable respondents to provide their confidential information. At the same time, client's files were also reviewed soon after the interview for confirmation on either the interviewed client had screened for TB or not by looking the presence or absence of the TB Screening checklist/tool with client's details information for the responsible client.

3.9 Data collection tools

Quantitative Data collection

A close-ended questionnaire used for PLWH and Health care providers working in CTCs.In HCWs, questionnaire used to determine the practice of TB Screening among PLWH. Both Health care providers and Patients were given questionnaire to fill. An exit interview using a

structured questionnaire was used for PLWH to determine the practice of TB screening among PLWH.This was done to them soon after getting CTC services and ready to go home.

Documentary Review

CTC-TB Screening registers and the respective client files were reviewed for complementary secondary data. Checklists were used to assess the facility for supplies and commodities for TB Screening by reviewing and recording the supply status for the last one year to the date of the study. Using the same checklist, availability of laboratory reagents was also observed. The researcher selected this Method because it was easy and reliable.

3.10 Validity and Reliability of the Study

3.10.1Validity

In order to ensure the validity of the study findings, the reaseacher employede triangulation, where by questionnaires were triangulated with interviews, documentary analysis and direct observation. It is explained that the use of various research methods greatly increases the validity of the study(Cresswell, 2008) .The instrument used (questionnaire,observation checklists and interview guide) were also assessed by discussing them with collegues from MUHAS-School of Public health and the researchers supervisors who went through various items so as to give their comments. Suggestions and reccommenations were accommodated to amend and rifine the instruments. Concequently, a pilot study was conducted in one of the sampled health facilities in Mpimbwe DC before the actual research. .

3.10.2 Reliability

The reaseacher maintained reliabilities of the study findings in two ways. Firstly, the researcher relied on making logical inferences from the data by being precise in describing phenomena as well as minimizing researcher bias or subjectivity as already stated. Secondly, respondents of the interviews were selected basing their knowledge, skills, competencies as well as experiencies related to the topic under investigation.

3.11 Data Analysis

Questionnaires were screened then data were coded, entered into SPSS version 20 and then cleaned. Descriptive statistics was used to summarize demographic characteristics of the participants. Bivariate analysis was done through cross tabulations and unconditional univariate logistic regression for obtaining odds ratios (CORs) and corresponding 95% confidence intervals (CI). The Chi square test was used to compare proportions. Logistic regression was employed to assess factors independently associated with TB screening while adjusting for potential confounding factors. All variables with a P- value less than 0.20 in the univariate analyses were included in the multivariate model. Adjusted odds ratios and their 95% confidence intervals are presented. A two-tailed p -value of less than 0.05 was considered statistically significant.

3.12 Ethical Considerations

Before conducting this study research clearance was sought from Muhimbili University of Health and Allied sciences (MUHAS) Ethical Committee. Also, the permission to conduct the study was sought from District Administration Secretary-Mpimbwe District Council. Informed consent was obtained from study respondents after being informed on the operation and application of the study findings. Confidentiality of the respondents was ensured at all stages of the study by not collecting any information that would identify someone like names or mobile phone number.

3.13 Study Limitations and Mitigations

Pursuing this study did not face many problems, except that there were two challenges as follows;

First, this was a cros sectional study where data were collected for a short time to assess the individual, interpersonal and health facility factors associated with TB Screening among people living with HIV in Mpimbwe district therefore, interpretation of the findings should not be generalized to the wider population.

The second challenge was the fact that during the administration of questionnaire some respondents had expectations that the research project would eventually help them to secure money. Respondents explained their concerns with deep anticipation that, the researcher was there to get their grivancies so as to take it to the government. However this challenge was mitigated by the researcher through explaining them orally the objectives of the study in order to eliminate their illusion.

CHAPTER FOUR

4.0 RESULTS

4.1 Characteristics of the study respondents

The study involved 400 participants who were PLWH and 50 Participants were health care providers. Majority of the participants were females (52.8%) and majority (55.5%) were 30 years and above. More than two thirds (76%) of the participants were married, and (59%) had primary or higher education.

Table 2: Socio- Demographic characteristics of participants in CTCs (N = 400)

Variable	N (%)
Age	
18- < 30 Years	178 (44.5)
≥30 Years	**222 (55.5)**
Sex	
Male	189 (47.2)
Female	211 (52.8)
Marital Status	
Married	304 (76)
Single	88 (22)
Widowed	8 (2)
Level of Education	
Never been to Formal education	164 (41.0)
Primary	146 (36.5)
Secondary	78 (19.5)
College	12 (3.0)

Majority of the healthcare providers who participated in the study were males (54%), most of them (62%) were Medical attendants, and majority (52%) were single.

Table 3: Socio- Demographic attributes of the Health Care Providers (N = 50)

Variable	N (%)
Age (years)	
18-35	41(82)
36-50	9(18)
Sex	
Male	27(54)
Female	23(46)
Marital Status	
Married	24(48)
Single	26(52)
Cadre	
Doctor/Clinical officer	5(10)
Enrolled Nurse	14(28)
Medical Attendant	31(62)

4.2 Proportion of PLWH Screened for TB in the five selected health facilities

The Proportion of people living with HIV Screened for TB was 39.8% (159 out of 400). Majority were males (p=0.005) aged 30 years and above, (mean age 33.6+/- 9.4SD, p= 0.001). About 80% of those who were aged below 30 years were not screened for TB. There were more unscreened females (66.8%) for TB than males (52.9%).

4.3 The Individual Factors Associated with TB Screening among PLWH

Table 4 summarizes demographic characteristics associated with TB screening among the 400 clients involved in this study. The proportion of clients aged above 30 years who had been screened for TB was significantly higher than that of those aged 30 and below. Also the proportion of males who had been sreened for TB was significantly higher than that of females. Furthermore, the trend of TB screening appeared to favor those with higher education.

Table 4: Client's Social-Demographic Characteristics and TB-screening (N = 400)

Variable	Frequency N (%)	TB screening		P-Value
		Screened N (%)	Not screened N (%)	
Age				
< 30 Yrs	178 (44.5)	35 (19.7)	143 (80.3)	0.001
≥30 Yrs	**222 (55.5)**	**124 (55.9)**	**98 (44.1)**	
Sex				
Male	189 (47.2)	89 (47.5)	100 (52.9)	0.005
Female	211 (52.8)	70 (33.2)	141 (66.8)	
Marital status				
Married	304 (76)	181 (40.5)	123 (59.5)	
Single	88 (22)	35 (39.8)	53 (60.2)	0.2
Widowed	8 (2)	1 (12.5)	7 (87.5)	
Level of education				
No formal education	164 (41.0)	6 (3.7)	158 (96.3)	
Primary	146 (36.5)	67 (45.9)	79 (54.1)	
Secondary	78 (19.5)	75 (96.2)	3 (3.8)	0.001
College	12 (3.0)	11 (91.7)	1 (8.3)	

Client's Awareness on TB and TB-Screening in Mpimbwe DC

From the findings, 99.8% (399 clients out of 400) were aware about TB (see Table 5). They were also aware on ways through which TB is spread. For example, 307 clients (76.8%) agreed that TB is spread from an infected person to another person through Coughing/Inhaling droplets, 190 (47.5%) responded that sneezing could spread TB while 202 (50.2%) stated that TB can be spread by salivar of infected person. Only 12 of clients (3%) mentioned that TB could be spread from mother to child during pregnancy. See Table 5 below

Table 5: Client's Awareness on TB and how TB Spreads (N = 400)

Variable **Client's awareness about TB**	**Yes** **N (%)**	**No** **N (%)**
Ever heard about TB	399 (99.8)	1 (0.3)
Received TB infection information during consultation	320 (80)	80 (20)
Sources of information on TB infection		
Health personnel	320 (80)	80 (20)
Radio/TV/Magazines	177 (44.3)	223 (55.8)
Friends	124 (31.0)	276 (69.0)
Relatives	138 (34.5)	262 (65.5)
Client's awareness on how TB spreads		
Transmission from an infected person to another person	392(98)	8(2)
Cough/Inhaling droplets	307(76.8)	93(23.3)
Sneezing	190(47.5)	210(52.5)
Salivary	202(50.5)	198(49.5)
Sharing utensils	84(21)	316(79)
From mother to child during pregnant	12(3)	387(96.8)

Awareness on TB Signs and Symptoms

About 34.5% of 400 Clients were knowledgeable on TB-Signs and symptoms, while 65.5% were not knowledgeable about TB-Signs and symptoms.

Table 6 below shows signs and symptom suspicious of TB as indicated by PLWH in Mpimbwe DC

Table 6: Client's knowledge about Signs and Symptoms of TB

Variable	PLHIV ever done TB Screening in the past 3 months		Total (%)	P-Value
	Yes (%)	No (%)		
Knowledgeable	134 (97.1)	4 (2.9)	138(100)	0.001
Not Knowledgeable	25 (9.5)	237 (90.5)	262(100)	
Total N (%)	159 (39.8)	241 (60.2)	400 (100)	

Client's attitudes towards TB Infection

The study findings show that the majority of respondents had negative attitudes and perception towards TB infection. For example, out of 400 clients participated in the study, 65.5% belived that people living with HIV are not at risk of acquiring TB infection. On the other hand, only 34.5% of clients had positive attitude and perception towads TB infection. Table 7 below shows attitudes and perceptions about TB as indicated by PLWH in Mpimbwe DC

Table 7: Client's attitude towards TB infection and Screening

Variables	Ever done TB Screening for Pts with HIV in the past 3 Months				Total (%)		P-Value
	Yes	(%)	No	(%)			
Positive attitude	134	97.1	4	2.9	138	100	0.001
Negative attitude	25	9.5	237	90.5	262	100	
Total (%)	159	39.8	241	60.2	400	100	

4.4 The interpersonal factors Associated with TB Screening among PLWH

Perceived stigma from family, friends, HCWs on TB infection

The study findings showed that, majority of the participants who have correct perception screened for TB while the participants who have wrong perception were not screened for TB. From table 8 below the proportion of TB screening was significantly higher among the participants who had no fear of being stigmatized from their family and society compared to those who had fear.For examples. The proportion of TB screening was higher (99.3%, p= 0.001) to clients who had no fear of being known by the community that they have TB infection,(98.6%, P= 0.001) to those who had no fear that the health care providers will disclose their condition without their will while (93.1%, P = 0.001) for those who had no fear of being discriminated by people for having TB infection and HIV.Others with proportion of (89.4%, P = 0.001) for those who had no fear of being isolated by the family members due to their condition, (96.2%, P = 0.001) for those who had no fear of being isolated by friends due to TB infection and lastly (92.3%,P = 0.001) for those who had no fear of being provided poor services due to poor arrangements of time and days of service provision.

Table 8: Association between Clients's perceived Fear of stigmatised by friends, family and HCW towards TB Screening

Variable	Responses	TB Screening		P-Value
		Screened N (%)	Not screened N (%)	
Fear of being known by the community that she or he has TB infection	Yes	24(9.1)	239(90.9)	0.001
	No	134(99.3)	1(0.7)	
Fearing that the Health care provider will disclose the situation without his or her will	Yes	20(7.7)	239(92.3)	0.001
	No	139(98.6)	2(1.4)	
Fear of being stigmatized and disappointed by People due to his or her condition of having TB at the same time has HIV	Yes	11(4.6)	230(95.4)	0.001
	No	148(93.1)	11(6.9)	
Fear that there is no TB screening tools at the health facility.	Yes	7(3)	223(97)	0.001
	No	152(89.4)	18(10.6)	
Fear of being isolated by the family members due to the condition that she or he has	Yes	7(3)	223(97)	0.001
	No	152(89.4)	18(10.6)	
Fear of being Isolated by friends after being detected having TB infection.	Yes	8(3.3)	235(96.7)	0.001
	No	151(96.2)	6(3.8)	
Poor arrangements of service provisions including time and days of service compared with their chance of accessing those services	Yes	3(1.3)	228(98.7)	O.001
	No	156(92.3)	13(7.7)	

Fear of discrimination from family, friends, HCWs on TB infection

The study findings showed that, respondents who had good perception towards TB infection and TB Screening were screened more for TB than those with bad perception.

From Table 9 below shows that, the proportion of TB screening was significantly higher among the participants who had correct perception than those with wrong perception.

For examples, The proportion of TB screening was higher (99.3%,P= 0.001) to clients who had no fear of being disclosed by the health care providers, (93.5%, P= 0.001) to those who had no fear of being abused by the health care providers infront of people while (96%, P = 0.001) for those who had no fear that health workers will keep it open to other people that he/she has TB infection without their will and (92%, P = 0.001) for those who had no fear of being given poor services than others. The proportion of TB Screening was also higher(91.9%, P = 0.001) to clients who had no fear that health care providers will think that they have more partners, that's why they have TB, and some (91.4%, p= 0.001) for those who had no fear of being discriminated by the health care providers, of the particular health facility.

Table 9: Association between Client's fear of being discriminated and TB Screening

Variable	Response	TB Screening		P-value
		Screened N (%)	Not Screened N (%)	
Fear of being disclosed by the Health care providers	Yes	24(9.1)	239(90.9)	0.001
	No	134(99.3)	1(0.7%)	
Fear of being abused by the Health care providers in front of people	Yes	16(6.5)	231(93.5)	0.001
	No	143(93.5)	10(6.5)	
Fear that the Health worker will keep it open to other people that I am having TB infection without my will	Yes	14(5.6)	235(94.4)	0.001
	No	145(96)	6(4%)	
Fear of being given poor services than others	Yes	10(4.2)	228(95.8)	0.001
	No	149(92)	13(8)	
Fear that the Health care providers will think that I have more partners, that is why, I Acquired TB infection	Yes	11(4.6)	228(95.4)	0.001
	No	148(91.9)	13(8.1)	
Fear of being discriminated by the Health care providers of the Health Facility concern	Yes	10(4.2)	226(95.8)	0.001
	No	149(91.4)	14(8.6)	

Table 10: p-value and adjusted odds ratios for factors associated with TB screening among PLWH (N= 400)

	P-Value	AOR(95% C.I.for AOR)
Sex	0.02	0.14(0.34, 0.01)
Age	0.06	0.26(0.06, 0.04)
Education	0.01	
Education (1)	0.01	0.15(0.68, 0.99)
Education (2)	0.00	0.66(0.53, 0.41)
Education (3)	0.37	0.62(0.06, 0.90)
Fear; bad words by HCW	0.01	14.47(1.79, 17.07)
Fear; embarrassed by HCW	0.24	1.33(0.26, 6.95)
Fear; HCW disclosing	0.00	30.36(3.40, 270.91)
Fear; underserved	0.40	1.38(8.04, 3.62)
Fear; misjudged by HCWs	0.18	3.42(0.57, 20.38)
Fear; gossiping by HCW	0.19	3.57(0.54, 23.39)

From the table 10, age (P-value of 0.05) and Sex (P-value of 0.02) of the participants were significantly associated with TB Screening among PLWH. Education of the participants was also significantly associated with TB Screening among PLWH (p-value of 0.01), Contrary to the univariate analysis where many factors were associated with TB screening among PLWH.

4.5 Health facility factors associated with TB-Screening among PLWH

HWs knowledge on TB and its sypotoms

Results show that, all most all the health workers 49(98%) were awere about Bacteria as the most causative agent for TB, but only 34.7% are the one who screened their clients, and only 1(2%) of them knows that Virus is the common cause of TB.The proportion of TB Screening was 17(34%) for the health workers agreed that, persistent cough for more than two week as a common symptoms of TB. The proportion of TB Screening was 35.4% for the health workers who agreed that only17(35.4%) pointed out oughing up blood stained sputum, while 14(43.8%) mentioned unexplained weight loss, 13(39.4%) mentioned fever and others were as shown in table 8 bellow. Results show that most of the health workers were aware about TB and its symptoms.

Table 11: Health worker's knowledge on TB and its symptoms

Knowledge on the causes of TB infection	Responses	TB Screening		p-value
		Screened N (%)	Not screened N (%)	
Bacteria		17(34.7)	32(65.3)	0.3
Virus		0(0)	1(100)	
Symptoms of TB				
Persistent cough≥2 weeks	Yes	17(34)	33(66)	0.02
	No	0(0	0(0)	
Coughing up blood stained sputum	Yes	17(35.4)	31(64.6)	0.3
	No	0(0)	2(100)	
Unexplained weight loss	Yes	14(43.8)	18(56.2)	0.05
	No	3(16.7)	15(83.3)	
Fever	Yes	13(39.4)	20(60.6)	0.2
	No	4(23.3)	13(76.5)	
Chills	Yes	7(50)	7(50)	0.1
	No	10(27.8)	26(72)	
Excessive night sweats	Yes	12(41.4)	17(58.6)	0.1
	No	5(23.8)	16(76.2)	
Fatigue	Yes	7(58.3)	5(41.7)	0.05
	No	10(26.3)	28(73.7)	
Chest pain	Yes	17(39.5)	26(60.5)	0.04
	No	0(0)	7(100)	
Loss of appetite	Yes	10(47.6)	11(52.4)	0.1
	No	7(24.1)	22(75.9)	
Difficult breathing	Yes	17(36.2%)	30(63.8%)	0.02
	No	0(0%)	3(100%)	

HWs knowledge on how TB Spreads

The findings show that the proportion of TB Screening was signinificantly higher (40.1%) to the health workers who were aware that, TB is a communicable disease that can spread from an infected person to uninfected person, and through Cough/Inhaling droplets (34%).Only (37.5%) knows that TB can be spread by sneezing, while (47.7%) knows that TB can be transmitted through salivary. Table 12 below shows that HCWs whose knowledge on how TB spreads and aware about TB-screening to PLWH screened their clients compared to those who had low knowledge.

Table 12: Association between HWs knowledge about TB symptoms and how it spreads and TB-Screening to PLWH (N =50)

Variable	Response	Practising TB Screening		P-Value
		Yes N (%)	No N (%)	
TB can be Transmitted from person to person	Yes	17(40.1)	5(59.9)	0.3
	No	2(25)	6(75)	
Cough	Yes	17(34)	33(66)	0.00
	No	0	0	
Sneezing	Yes	15(37.5)	25(62.5)	0.2
	No	2(20)	8(80)	
Salivary	Yes	11(47.7)	12(52.2)	**0.05**
	No	6(22.2)	21(77.8)	
Sharing utensils	Yes	8(53.3)	7(46.7)	**0.05**
	No	9(25.7)	26(74.3)	
From mother to child during pregnant	Yes	17(34.7)	32(65.3)	0.4
	No	0(0)	1(100)	

Staffs in-service training for TB-screening to PLWH

The proportion of healthcare providers who attended on job trainings about TB screening and screened their clients was significant higher than those who had not attended training.

From the table as it can be seen below, (69.2%, P = 0.002) who attended training on TB infection screened more their clients than those who did not attend the training. Also (64.7%, P = 0.001) who attended TB Screening training, screened more their clients compared to those who did not attend trainings on TB Screening. The proportion of TB Screening done by health workers to their clients was significantly higher for those who attended training on TB Screening to PLWH (61.9%, P =0.001) and those who attended training on how to manage clients of TB infection (56.5%, P= 0.002) than those who never attended the afore trainings.On the other hand, the proportion of TB Screening done by higher cadres such as Doctore, Clinical officers and trained nurses is significantly higher (63.2%, P = 0,005) than the

proportion of it done by lower cadres like MedicalAttendants. Table 13 below illustrates the Association between Health workers who attended trainings and TB Screening

Table13: Association between Health workers who attended trainings and TB Screening (N= 50)

		Practising TB Screening		
Training Status	**Responses**	**Yes N (%)**	**No N (%)**	**p-value**
Attended training on TB	Yes	9(69.2)	4(30.8)	**0.002**
	No	8(21.6)	19(78.4)	
Attended training on TB screening	Yes	11(64.7)	6(35.3)	**0.001**
	No	6(18.2)	27(81.8)	
Attended training on TB screening to PLWH	Yes	13(61.9)	8(38.1)	0.001
	No	4(13.8)	25(86.2)	
Attended training on how to manage clients of TB infection	Yes	13(56.5)	10(43.5)	0.002
	No	4(14.8)	23(85.2)	
Cadre				
Higher Cadres		12(63.2)	7(36.8)	0.005
Lower Cadres		5(16.1)	26(83.9)	

Availability of TB Screening Supplies

Health workers were asked to state whether various TB-screening supplies such algorithm for TB diagnosis, TB Screening Registers TB Screening Guidelines, HIV Patients Register and TB record books were available. Study results show that, majority of the respondents agreed that TB-screening supplies were available by more than 90%-96% in all CTCs in the sampled health facilities.Example the proportion of the health care providers who agreed that Algorithm for TB diagnosis are available is singnificantly bigger 94% (47) than those who disagree that they are not available. Similarly, the proportions for those who agreed on the availability of other Screening tools like TB Screening Guidelines 96% (48),TB Screening Registers 94% (47),TB record books 90% (45), HIV PPatients registers 92%(46) and Referral forms 94% (47) were significantly higher than those who disagreed on the availability of those TB Screening tools.

Table 14: Health Workers' Views on Availability of TB Screening Supplies

TB Screening Supplies	Availability	
	Yes	**No**
	N (%)	**N (%)**
Algorithm for TB diagnosis	47(94)	3(6)
TB Screening Guidelines	48(96)	2(4)
TB Screening Registers	47(94)	3(6)
Algorithm for TB diagnosis	45(90)	5(10)
TB record books	45(90)	5(10)
HIV Patients Register	46(92)	4(8)
Referral forms	47(94)	3(6)
Laboratory	48(96)	2(4)

Association between availability of TB screening supplies and TB Screening

The proportion of TB Screening was significantly higher where the respondents agreed on the availability of TB Screening tools, compared to where the respondents disagreed on the availability of the Screening tools.Examples: The proportion of TB Screening was higher (37.8%, $p = 0.001$) where the respondents agreed on the availability of Algorithm for TB diagnosis than where they disagreed on the availability of them. Table 15 illustrates the association between availability of the tools and TB Screening.

Table15: Association between availability of TB screening supplies and TB Screening

Presence of TB Screening Supplies	Responses	TB Screening		P-Value
		Yes N (%)	No N (%)	
Algorithm for TB diagnosis	Yes	17(37.8)	28(62.2)	**0.001**
	No	0(0)	5(100)	
TB Screening Guidelines	Yes	17(41.5)	24(58.5)	**0.001**
	No	0(0)	7(100)	
TB Screening Registers	Yes	17(37)	29(63)	0.001
	No	0(0)	4(100)	
TB Screening, Checklists, Tally sheets	Yes	17(37.8)	28(32.1)	0.02
	No	0(0)	5(100)	
TB record books	Yes	17(36.2)	30(63.8)	0.2
	No	0(0)	3(100)	
HIV Patients Register	Yes	17(36.2)	30(63,8)	0.2
	No	0(0)	3(100)	
Referral forms	Yes	17(35.4)	31(64.6)	0.3
	No	0(0)	2(100)	
Laboratory	Yes	17(35.4)	31(64.6)	0.4
	No	0(0)	1(100)	

Distance to the Health Facility

The study wanted to know whether the distance to health facility affects TB-Screening to PLWHA. Clients were asked to indicate the distance travelled to health facility for CTCs services from their area of settlement. Results show that**,** majority of the clients' travels long distance from their settlements to CTCs. For example, out of 400 clients interviewed, 176 (44%) travelled between 2-5km, 145 (36.3%) travelled between 6-10km, 50 (12.5%) and 29 (7.3%) travelled more than 10 km.

4.6 Association between Distance to the Facility, Waiting Time and TB Screening

Results show that distance to health facility and waiting time for services affect TB screening since many clients who live more than 2kms and those who reported to wait services for long time,did not screen for TB, but those clients living less than two kilometers and those who wait for short time to get service, screened for TB.The proportion of TB screening was significantly higher to clients who travel a short distance to CTCs and for those whose short waiting time compared to those who lives far from their settlement to CTCs and those who wait for long time before getting services. For example, the proportion of TB Screening among PLWH was significantly higher(80%, P 0.001) for those who travels short distance (Less than 2 Kms from their home to CTCs), (64.2%) than those who travel long distance (2-5Kms) and only 4.1% for those who travel a distance of 6 to 10Kms.

On the other hand, the proportion of TB Screening among PLWH was significantly higher (89.5%, p 0.005) for clients whose short waiting time (1 hour) than those (68.1%) and (2.7%) who had long waiting time (2-3 hours).

Table16: Association between distance to the health facility, Waiting time and TB Screening

Distance to the CTC facility	**Ever screened for TB**		**P-Value**
	Yes N (%)	**No N (%)**	
Less than 2 Km	40(80.0)	10(20.0)	0.001
2 - 5 Km	113(64.2)	63(35.8)	
6 - 10 Km	6(4.1)	139(95.9)	
More than 10 Km	0(0.0)	29(100)	
Waiting Time			
Less tha I hour	1(50)	1(50.0)	**0.005**
1 hour	77(89.5)	9(10.5)	
2 hours	36(68.1)	77(31.9)	
3 hours	3(2.7)	107(97.3)	

CHAPTER FIVE

5.0 DISCUSSION

Findings of the present study indicate that, only 39.8 %(159) of PLWH, were screened for TB in Mpimbwe DC. These results contradict with the study done by Rebouças *et al.*, (2017) to evaluate the incidence of tuberculosis and its consequences among individuals diagnosed with virological failure of HIV in Brazil, that pointed out, the possibility of early TB detection and treatment aimed to reduce TB-related mortality among PLWH as the perceived benefit of TB screening.The results also contradict with the 2017's Mpimbwe DC official health statistics which indicated 45.1% of PLWH were screened for TB. These findings imply that, the rate of TB screening among PLWH in Mpimbwe DC decrease over time.This suggests that, the health system in Mpimbwe DC must initiate a public health education to PLWH and community at large as an intervention to increase community awareness on the importance of TB-screening to individual and national development.

The rate of TB-screening among PLWH in Mpimbwe DC was also associated with the increase of clients' age The more clients become older, the more health seeking behavior, leading to more attendance at CTCs for TB-Screening.Findings have shown that, 55.9% were above 30 years and screened for TB in the study area.Such findings resemble those of Simon et al (2010) who conducted a study in south Africa on the same topic, and the results showed that, PLWH aged 61 years old and above, screened more for TB than young people. This is possible due to the fact that people from 30 years and above are matured enough and are attached with many family responsibilities. Therefore, attending health facilities would make them healthier so as to fulfill such responsibilities in an efficient and effective manner.

Furthermore, results have shown that, client's sex had influence on TB-screening. Males were reported to be screened more than their fellow female counterpart. Such findings are in line with UNDP(2015) study in South Africa which showed that, women living with HIV/AIDS had low attendance in health facilities for TB screening and treatment than their fellow men resulting to high women TB associated mortality. Such scenario might be contributed among

others by the low women economic status as well as the deeply rooted patriarchy ideology characterizing most of the developing countries (Okojie, 1994).This suggests that, women economic empowerment programs as well as gender related education programs need to be strengthened in Mpimbwe DC for more public awareness.

Besides, results have shown that, married clients had more tendency of visiting health facilities for TB-screening than non-married clients. For instance evidence shows that (59.5%) 181 of married clients, interviewed were screened for TB.These findings are comparable to that reported by Okojie (1994) who reported that married clients had more tendency of visiting health facilities for TB-screening than non-married clients. This may be possible due to age maturity and family responsibilities attached to them by their families and community at large.Therefore, attending health facilities would make them healthier to enable them fulfill their responsibilities in an efficient and effective manner.

TB-screening was also associated with the level of education of the client.The more clients is educated, the more he/she attends at CTCs for TB-screening and the less the client level of education, the less attendance at CTCs for TB-screening. Findings show that, clients with the basic education such as primary education and above attended more at CTCs for TB-screening than those below primary education level. The relationship between client's level of education and TB-screening was also reported by Washington state of health (2012) which argued that, a person who is educated understand easily the seriousness of TB disease and the importance of screening for early treatment thereby reducing TB-associated mortality.The above results calls for public health education by the government and other health stakeholders to be disseminated to the grassroots to increase public awareness

Assessment of client's awareness on how TB spreads,knowledge of coughing/inhale droplets was the most cited way of spreading TB among PLWH interviewed in this study (76.8%).This concur with Kamel, et al.(2003) study in Egypt where cough was the most cited sign of TB (76.5%) indicating that cough is the most common symptom of TB.

Findings have shown that, majority of respondents (57%) had negative attitudes and perception towards TB infection. This is because TB infection was considered as non-preventable disease and suffering from it, was associated with shame by the community members. The same was reported by Khan study in Pakistan (2016) who indicated that, about 10.6% TB patients did not consider it as a preventable disease. This would be a driving factor for low TB-screening among PLWHA in the study area. Thus, the above findings calls for health department in Mpimbwe DC and other health stakeholders to increase clients public health education so as to increase their awareness for efficient and effective TB-screening to PLWH.

Client's health seeking behavior in the study area was mainly influenced by gender.Result shows that, males by gender were reported to have more attendance in the health facilities for medical checkup than their fellow counterparts females.Evidence shows that (47.1%) 89 of 189 males interviewed, attended health facilities for medical checkup including TB-screening more than two times. This was not the case to their fellow female who attended only once or not at all. These results concur with Currie and Wiesenberg (2003) study which revealed that women tend to engage in less health seeking behavior as compared to their male counter parts. That was partly due to the restricted accessibility to health services, given by the social roles of women which may limit their ability to visit health care facilities. This implies that it is important for health care professionals at Mpimbwe DC, to understand the diverse factors affecting individual's decision to seek health care treatment including TB-screening. That will enable health professionals to have a better understanding of their clients and their problems thereby recommending services that are appropriate to the individual. This would promote health seeking behavior by female gender instead of providing options that patients might not feel comfortable with, because of society's social norms and values.

Study findings have also shown that majority of respondents (83%) interviewed had negative and wrong perception towards TB and TB-screening. Result indicates that, most of the clients interviewed were reluctant to attend at CTCs clinics for TB-screening due to the fear of being stigmatized by family members, friends and other health care workers. This is the case due to

the fact that, suffering from TB in the study area is perceived by the community members as a shame.Elsewhere in Europe and Asia, Van Rie et al (2008) and Stewart (2010) showed that stigma causes delay of TB Screening among people living with HIV/AIDS.The above findings calls for health department in Mpimbwe DC and other health stakeholders to increase public health education so as to increase community awareness for effective and efficient TB-screening to PLWH

Majority of respondents had negative attitudes towardsTB and TB-screening.Results indicate that, most of the clients (63.4%) interviewed were reluctant to attend at CTCs clinics for TB-screening due to the fear of being discriminated by family members,friends and other health care workers.This is the case due to the fact that, suffering from TB as seen in the study area, perceived by the community members as a shame.These findings are consistent with Rule and Liriope (2016) who argued that, stigma and discrimination often leads to many consequences for Tuberculosis, some of these, includes poor thinking to seek for health care services by women,fear of health workers getting infected and less provision of health care services by health workers because they consciously take into account theTB status of patients while attending to them or when being in contact with Tuberculosis patient (Rule and Liriope, 2016). Thus, the above findings calls for health department in Mpimbwe DC and other health stakeholders to increase public health education so as to increase community and health workers awareness for efficient and effective TB-screening.

The rate of TB-screening is also associated by health workers level of education. The results shows that, health workers with high level of professional education had high knowledge on TB-screening and screened more their clients for TB when attended at CTCs clinics than those with low level of professional education. For example 12 trained personnel (treatment and care group) including doctors/clinicians and trained nurses screened their clients when attended CTC clinics. This was not the case to the supportive staffs including medical attendants. For instance out of 31 supportive staffs interviewed, only 5 supportive staffs screened their patients for TB. The above observation is in line with Lorent at all (2015) who argued that, insufficient health personnel in terms of their number, skills and experience have negative

effects on TB Screening. Therefore, it is a high time for health department in Mpimbwe DC to see the possibility of increasing the number of trained health personnel in those clinics to increase TB-screening coverage in the study area.

On the other hand, results of the relationship between the availability of TB-screening supplies and TB-screening have shown to be paradoxical. Study results shows that, TB screening supplies are vailailable for more than 80%; however, they showed that, despite its availability yet clients are not screened for TB. These findings are contrary to Susanne (2016) study in Cambodia who concluded that, with the availability of enough medical supplies, the rate of TB screening increased due to the increased efficiency and effectiveness in health care provision.

The study also revealed that there is a close association between in-service trainings (INSET) attendance by health care providers and TB-screening in the study area. Result shows that, 61.9% (13) health workers out of 21 who attended in service training on TB-screening to PLWH screened their clients for TB after such training. The above findings are confirmed by Susanne's (2016) study in Cambodia who concluded that, with the availability of enough, skilled and competent health professionals, the rate of TB screening among PLWHA increased. This is possible due to the fact that INSET help workers to develop their skills, competencies and introduce them the new strategies related to their job. Lack of INSET to health workers reduces their capacity and ability to execute their duties in an efficient and effective manner. Thus, it is imperative for the Mpimbwe DC and other health stakeholders to see the possibility of increasing more INSET in the study area depending its financial capability

Distance from where the client lives to health facility also have shown to affect TB-screening.This is evidenced in the study area where many clients who lives far away to CTCs centers did not screen for TB, but those clients living near to CTCs centers seemed to attend CTCs centers and screened for TB. The above observation corresponds to the study done by Awoyemi and others (2001) in Kenya on the effect of distance on access to health services and concluded that, distance to health facility affect the utilization of government and private hospitals health services. This seems to suggest that the government and other health

stakeholders should look in to the possibility of bringing health services near the people by constructing more health facilities in every village as per Tanzania Development Vision 2025 guideline. Additionally, Mpimbwe DC health.department should see the possibility.of providing outreach and mobile clinics services to increase the coverage of TB-screening

The results indicate that, client's waiting time for the service at CTCs had a great influence on TB-screening in the study area. Study findings indicates that ,the increased number of hours the client spent for waiting the service at CTCs, the decreased rate of TB-screening. For instance result shows that, 98.9% of clients who waited the service at CTCs for more than three hours left the clinics before screening while those who waited for the service for one hour or less than one hour, were screened for TB. The association between time spent and TB-screening among PLWHA was also reported in Nigeria (2011) by the study tittled "the effect of distance and time on utilization of health care facilities in Nigeria". The results of that study revealed that there is low rate of utilization of health facilities for the clients lived far away from where they are located. The same study showed that, there were low rate of health service utilization to clients who spent long time waiting for the service. Long waiting time was attributed by health care providers with inadequate number of health workers working at CTCs. Thus, it is imperative for health department in Mpimbwe DC to see the possibility of increasing the number of health workers in those clinics

CHAPTER SIX

6.0 CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

This study has demonstrated that, the low rate of TB-screening among PLWHA in Mpimbwe is attributed by several individual to health facility related factors. Age,Sex and Education were more associated with TB Screening compared to other factors. On the other hand the health facility related factors affecting TB-Screening among PLWHA in Mpimbwe DC includes,the distance to health facility,long waiting time for service availability of in-service training to health workers,health care providers level of education and the number of health care providers available at CTCs clinics.The study findings has demonstrated that,there is a close relationship between the afore mentioned variables and TB screening among PLWHA in Mpimbwe.However,the study has revealed that,although there is more than 80% availability of TB-Screening supplies,TB-screening among PLWHA in the study area are not done as it supposed to be. This is the case due to the fact that, TB-screening among PLWHA has remained constant/low despite the availability of TB-screening supplies

6.2 Recommendations

This study has provided important information regarding the individual and health facility related factors associated with TB-screening among PLWHA in Mpimbwe DC. It is therefore recommended to Mpimbwe DC health department ,Ministry of Health, Community Development, Gender, Elderly and Children, President's Office Local Governments and Regional Administration as well as NGOs to consider the following:

1. Given that the public was found to be unaware of TB-screening,it is recommended to Mpimbwe DC health department , health NGOs and other health stakeholders to conduct public health awareness campaigns through the media and other social networks to educate the public the necessity of TB-screening to PLWHA to individual and national development.

2. Distance was a fact for not screening for TB. It is therefore recommended that Mpimbwe DC health department should provide outreach and mobile clinics services to increase the coverage of TB-screening in the study area
3. In-service training was a fact for TB screening.It is therefore recommended that, Mpimbwe DC should provide more inservice training to health workers to increase their knowledge, skills and competancies for effective CTCs services provision.
4. Since TB-screening among PLWH was influenced by health workers knowledge, skills and competencies, Mpimbwe DC should increase the number of trained health personnel in CTC clinics to increase TB-screening coverage in the study area.

REFERENCES

Andersson, R. and Munseri, P. (2012) 'TB infection among HIV-infected men in Dar es Salaam, Tanzania'

Awoyemi, T. T., Obayelu, O. A. and Opaluwa, H. I. (2011) 'Effect of Distance on Utilization of Health Care Services in Rural Kogi State , Nigeria', 35(1), pp. 1–9.

Date, A. and Modi, S. (2015) 'TB screening among people living with HIV/AIDS in resource-limited settings', *Journal of Acquired Immune Deficiency Syndromes*, 68, pp. S270–S273. doi: 10.1097/QAI.0000000000000485.

Famoroti, T. O., Fernandes, L. and Chima, S. C. (2013) 'Stigmatization of people living with HIV/AIDS by healthcare workers at a tertiary hospital in KwaZulu-Natal, South Africa: A cross-sectional descriptive study', *BMC Medical Ethics*. Biomed Central Ltd,14(SUPPL.1), p. S6. doi: 10.1186/1472-6939-14-S1-S6.

Fatoki, B. (2016) 'AIDS & Clinical Research Understanding the Causes and Effects of Stigma and Discrimination in the Lives of HIV People Living with HIV / AIDS : Qualitative Study', 7(12). doi: 10.4172/2155-6113.1000635.

Granich, R. *et al.* (2010) 'Prevention of tuberculosis in people living with HIV.', *Clinical infectious diseases : an official publication of the Infectious Diseases Society of America*, 50 Suppl 3, pp. S215–S222. doi: 10.1086/651494.

Gray, J. M. and Cohn, D. L. (2015) 'Tuberculosis and HIV Coinfection', (February 2013). doi: 10.1055/s-0032-1333469.

Helitzer, D. L., Caulfield, L. E. and Bronner, Y. (2000) 'Theory and practice : applying the ecological model to formative research for a WIC training program in New York State', 15(3), pp. 283–291.

Howard, A. A. and El-Sadr, W. M. (2010) ‘Integration of Tuberculosis and HIV Services in Sub-Saharan Africa: Lessons Learned’, *Clinical Infectious Diseases*, 50(s3), pp. S238–S244. doi: 10.1086/651497.

Lorent, N. *et al.* (2015) ‘Challenges from tuberculosis diagnosis to care in community-based active case finding among the urban poor in Cambodia: A mixed-methods study’, *PLoS ONE*. doi: 10.1371/journal.pone.0130179.

Manjunath, R. and Dhar, M. (2013) ‘Knowledge and Awareness of Tuberculosis among High School Students of Mysore City, (June 2014), pp. 1–5.

Musasa, J. I. (2011) ‘Knowledge, attitude and practice with regard to tuberculosis and human immunodeficiency virus co-infection among patients with tuberculosis in Walvis Bay District, Namibia’, (February).

Mwaura, L. W., Wandibba, S. and Olungah, C. O. (2017) ‘Original Article Effect of distance on access to health services among women with type 2 diabetes in a rural community in Kenya’, 25(1), pp. 2–4.

Ndwiga, C. (2013) ‘Factors Associated with Tuberculosis Screening and Detection within the ANC Services in Thika Level Five Hospital’.

Rebouças, M. C. *et al.* (2017) ‘Tuberculosis incidence among people living with HIV/AIDS with virological failure of antiretroviral therapy in Salvador, Bahia, Brazil’, *Brazilian Journal of Infectious Diseases*, 21(5), pp. 562–566. doi: 10.1016/j.bjid.2017.05.005.

Van Rie, A. *et al.* (2008) ‘Measuring stigma associated with tuberculosis and HIV/AIDS in southern Thailand: Exploratory and confirmatory factor analyses of two new scales’, *Tropical Medicine and International Health*, 13(1), pp. 21–30. doi: 10.1111/j.1365-3156.2007.01971.x.

Rule, J. and Liriope, D. (2016) *Stigma and Discrimination and Human Rights in Papua new Guinea*.

State, W., Services, T. and Education, P. (2012) ‘Patient Education’, 0127(June), pp. 1–9.

Tanzania HIV Impact Survey (THIS) (2017) ‘Summary Sheet: Preliminary Findings 2016-2017’, (December 2017), pp. 2016–2017.

UNDP (2015) ‘UNDP Discussion Paper: Gender and TB’, (December), p. 14.

WHO (2008) ‘A revised framework to address TB-HIV co-infection in the Western Pacific Region’, p. 77. Available at: http://www.wpro.who.int/publications/docs/TB_HIV_framework_final.pdf.

World Health Organization (2015) ‘Systematic screening for active tuberculosis, an operational guide’, p. 146. doi: ISBN 978 92 4 154860 1.

World Health Organization (2017) ‘Global Tuberculosis Report 2017’, pp. 1–2. doi: WHO/HTM/TB/2017.23.

APPENDICES

Appendix 1: Questionnaire for Clients (English)

Patient and health facility factors associated with TB screening among people living with HIV in Mpimbwe district

Muhimbili University of Health and Allied Sciences

School of Public Health Social Sciences

Dear Respondent

I am Sebastian Siwale from the Muhimbili University of Health and Allied Sciences. I am conducting a study on "Individual and Health Facility Factors Associated with Tb-Screening among PLWH in Mpimbwe District". Your Health Facility is one of the selected Facilities to participate in this study. I therefore request you to answer some questions that seek to find out health care providers knowledge on TB Screening among PLHIV.

Purpose of the study: The purpose of this study is to find out Individual and Health Facility factors associated with TB screening among people living with HIV/AIDS in Mpimbwe DC".

Questionnaire Number: …… Name of Health Facility……

SECTION A: SOCIO-DEMOGRAPHIC CHARACTERISTICS (circle the appropriate response)

1 Sex

i. Male

ii. Female

2 What is your age (in years): …….....

3. What is your marital status?
   i. Married
   ii. Single
   iii. Divorced
   iv. Widowed
   v. Cohabiting
4. What is your education level?
   i. Primary
   ii. Secondary
   iii. Iii. College
   iv. Iv.Never been to formal education

5. What is the distance between home and the health facility where you take ARVs?
   i. Less than 2Km
   ii. Between 2-5Km
   iii. Between 6-10Km
   iv. iv More than 10Km

6. For how long you take time to reach at health facility where you take the ARVs?
   i. Less than 30 Minutes
   ii. Between 30Min – 2Hrs
   iii. More than two hours

SECTION B: Individual Factors Associated with TB Screening among PLWH (Knowledge and Health Seeking Behavior on TB among PLWH)

(Circle the response(s))

7. Have you ever heard about TB?
   1. Yes (Continue question 8)
   2. No (Leave questions 8 to 12, Continue with question 13)

8. From what source of information you heard about Tuberculosis for the first time? You may tick more than one respons.

Source of information	Yes	No
1. Health workers		
2. Radio/Television		
3. Friends		
4. My relatives		
5. Leaflets		

9. Which of the following are sign and symptoms of TB? Tick where appropriate

You can tick in more than one response

Variable	Yes (%)	No (%)
Knowledge on Signs and Symptoms of TB		
Persistent cough>=2 weeks		
Weight loss		
Fever		
Night sweats		
Enlarged glands		
Blood stained sputum		
Chest pain / Difficulty breathing		

10. Do you think TB can be transmitted from one person to another?

i. Yes

ii. No

11. How can TB transmitted from one person to another? (Tick the response; you may tick more than one response)

Mode of TB transmission	Yes (%)	No (%)
a) Coughing		
b) Sneezing		
c) Spitting		
d) Sharing of utensils		
e) Mother to child during pregnancy		

12. Do you think that there is relationship between TB and HIV?

i. Yes

ii. No

Attitudes towards TB and TB Screening among PLWHA

13. Answer the following questions in the table by agree or disagree

Na	**Variable/question**	**Agree**	**Disagree**
i.	People living with HIV are at high risks of acquiring Tuberculosis.		
ii.	It is not shame to safer from Tuberculosis while having HIV infection		
iii.	A person having HIV cannot safer from TB while he/she is under ART.		
iv.	A person with TB infection takes longer time to recover.		
v.	TB is one of the untreatable diseases		
vi.	I could feel uncomfortable to seat nearby People who have TB infection.		
vii.	I could not shake hands with someone having TB infection.		
viii.	If I have Tuberculosis infection, I will not late any one knows my condition.		
ix.	I will feel shame if I will have TB infection.		

14. In relation to TB, answer the following questions by Agree or Disagree.

Na	Information	Answer	
		Agree	**Disagree**
i.	It is important to screen for TB all PLWHA.		
ii.	Do you think that early TB Screening to can contribute in reducing TB related mortality and makes life longer?		
iii.	A Client having both, TB and HIV cannot be cured even if he or she has already started early on ARV.		
iv.	Person with Tuberculosis infection, required to be Isolated from the community as soon as he/she detected.		
v.	TB Testing to PLWH is a self embarrassment		
vi.	The presence of a TB positive person makes a family shame and embarrassed		

15. Have you ever given a referral letter by the facility healthcare provider for TB Screening?
    i. Yes
    ii. No
16. Have you ever being screened for TB (Being asked any questions on TB at the health facility you attend?)
    i. Yes
    ii. No ***(Go to question 19)***
17. Have you screened for TB in this health facility?
    i. Yes
    ii. No
18. Is this the nearest heath facility from your home where you get TB/HIV services?
    i. Yes
    ii. No

STIGMA ON TB INFECTION TO PLWHA

19. **Perceived Stigma, Answer the following questions by indicating Yes or no for any fear you think that it can make you fail to go for TB screening at your nearby health facility**

Perceived Stigma	**Yes**	**No**
a. Fear of being know by the community that she or he has TB infection.		
b. Fearing that the Health care provider will disclose the situation without his or her will.		
c. Fear of being stigmatized and disappointed by People due to his or her condition of having TB at the same time has HIV.		
d. Fear that there is no TB screening tools at the health facility.		
e. Fear of being isolated by the family members due to the condition that she or he has.		
f. Fear of being Isolated by friends after being detected having TB infection		
g. Poor arrangements of service provisions including time and days of service compared with their chance of accessing those services		

FEAR OF DISCRIMINATION TO PLWHA WITH TB

20. **Answer the following questions by indicating Yes or no for any fear that you think, it can make you fail to screen for TB.**

Discrimination	**Yes**	**No**
a. Fear of being disclosed by the Health care providers		
b. Fear of being abused by the Health care providers in front of people.		
c. Fear that the Health worker will keep it open to other people that I am having TB infection without my will.		
d. Fear of being given poor services than others.		

e. Fear that the Health care providers will think that I have more partners that is why, I Acquired TB infection.		
f. Fear of being discriminated by the Health care providers of the Health Facility concern.		

21**. For how long you wait to get the intended Health services at the CTC Clinic?**

(Choose one)

Waiting time	**Answer**	
	Yes	**No**
Less than one Hr.		
One Hr		
Two Hrs		
Three Hrs		
More than three Hrs		

THANK YOU FOR YOUR TIME

Appendix 2: Health Care Providers Questionnaire (English)

Individual and health facility factors associated with TB screening among people living with HIV in Mpimbwe district

Muhimbili University of Health and Allied Sciences

School of Public Health Social Sciences

Dear Respondent

I am Sebastian Siwale from the Muhimbili University of Health and Allied Sciences. I am conducting a study on "Individual and Health Facility Factors Associated with Tb-Screening among PLWH in Mpimbwe District". Your Health Facility is one of the selected Facilities to participate in this study. I therefore request you to answer some questions that seek to find out health care providers knowledge on TB Screening among PLHA

Purpose of the study: The purpose of this study is to find out Individual and Health Facility factors associated with TB screening among people living with HIV/AIDS in Mpimbwe DC".

Health care worker's questionnaire

Questionnaire Number: ……

Name of Health Facility…….

SECTION A: Socio-Demographic Characteristics of the Respondents (circle the appropriate response)

1. Sex
    i. Male
    ii. Female
2. What is your age (in years): …..

3. What is your marital status?
    i. Married
    ii. Single
    iii. Divorced
    iv. Widowed
    v. Cohabiting
4. What is your education level?
    i. Never gone to school
    ii. Primary education
    iii. Secondary education
    iv. Technical college
    v. College(Certificate, Diploma)
    vi. University
5. **What are you doing now at your work place/in this Hospital?.**

a. **Care and treatment**
    i. Nurse Officer
    ii. Assistant Nurse officer,
    iii. Laboratory Technician,
    iv. Doctor/Clinician,
    v. Nurse midwife/Enrolled Nurse,
    vi. X-Ray expert,
    vii. Pham tech,
    viii. Pharmacist,
    ix. Councilor

b. **Administration**
    i. Health officer
    ii. Tratialar,
    iii. Recorder keeper,
    iv. Health secretary,

v. Reception,

vi. Communication officer

c. **Assistant staffs**

i. Medical attendants

ii. Drivers,

iii. Security officer,

iv. Environmental cleaner

v. Cooker

vi. Mortuary attendant

6. **For how long have you been working at CTC Unit**

i. Less than a year

ii. One year

iii. More than a year

7. **What experience do you have in managing PLWH?**

i. Less than a year

ii. One year

iii. More than a year

SECTION B: HEALTH CARE PROVIDER FACTORS ASSOCIATED WITH TB SCREENING

(Circle the response)

8. What is the cause of Tuberculosis?

i. Bacteria

ii. Virus

iii. I don't know

9. Which of the following are symptoms of TB? (Tick the responses, may tick more than one response)

Symptom:	**Yes (%)**	**No (%)**
Coughing for more than two weeks		
Coughing blood		
Unexplained weight loss		
Fever, chills		
Persistent night sweat		
Unexplained fatigue		
Chest pain		
Loss of appetite		
Persistent difficulty in breathing		

10. How is TB transmitted from one person to another? (Tick the response; you may tick more than one response)

Mode of TB transmission	**Yes (%)**	**No (%)**
f) Coughing		
g) Sneezing		
h) Spitting		
i) Sharing of utensils		
j) Mother to child during pregnancy		

Knowledge about relationship between HIV and TB.

11. Choose one answer by indicating Yes or No.

Na.	**Information**	**Answer**	
		Yes (%)	**No (%)**
i.	PLWHA are at high risk to get TB disease		
ii.	There is relationship between TB and HIV		
iii.	People living with HIV are at high risk of acquiring TB than people with no HIV/AIDS		

Knowledge on TB Screening to among PLWHA.

12. ***Answer the following questions if Yes or No.***

Na.	**Information**	**Answer**	
		Yes(%)	**No(%)**
i.	It is important for PLWHA to be screened for TB		
ii.	Do you think that TB screening to PLHIV is better to be done on the soon when the Client receives HIV test results?		
iii.	Do you think that early TB Screening to PLHIV can contribute in reducing TB related mortality?		
iv.	Is there TB Screening Guidelines in your Clinics(CTCs)		
v.	How many sputum samples are taken for TB detection in Labs?		
vi.	Three sputum samples are required for Detection of TB in the Lab.		
vii.	Sputum for AFB from TB Suspect clients must be taken in the morning before eating anything.		

13. How can TB suspect clients obtained? (Choose one **response)**

How to get TB Suspect client		**Yes (%)**	**No (%)**
	By TB Screening		
	By Lab. Tests		
	Malaria tests		

14. In the past three Months, how many clients have ever given them a referral letter for TB Screening?

i. 0
ii. 1 to 10
iii. 1 to 15
iv. 16 to 30
v. More than 30
vi. Not concerned

14. In the past three Months, have ever done TB Screening to PLWHA?

    i. No (Continue with question 16)

    ii. Yes [skip question 16 and continue with question 17]

    iii. Not concerned **[Skip question 16, and continue with question 17]**

15. Why did you failed to Screen them for TB?

Reasons for why TB screening not done	**Yes (%)**	**No (%)**
I was in my annual leave		
No TB screening tools		
I don't know how to go about on TB screening		
No time for that due to large number of CTC clients		
Other reasons. Mention them		

16. Do you provide health education on TB Screening to your clients when they come for C TC services

    i. Yes

    ii.No

17. Do the following TB Screening tools present at your Health facility (CTC)?

Checklist showing availability of the named Screening tool (Put a tick where appropriate).

Presence of TB Screening/Supportive tool	**Yes**	**No**
i. Algorithm for TB diagnosis		
ii. TB Screening Guidelines		
iii. TB Screening Registers		
iv. TB Screening Checklists, Tally sheets		
v. TB record books		
vi. TB Patients Register		
vii. CTC Clients register		
viii. Reagents for TB tests		
ix. Specimen pots for Sputum and Smear microscopy		
x. TB detection referral forms		
xi. Laboratory		

18. **Are the following health services available daily at your CTC clinic?,** (You can have more than one responses)

Health services available daily	**Yes**	**No**
i. CTC Services		
ii. HIV Tests		
iii. TB Sctreening		

19. Do you think that the TB Screening tools available are enough compaired with number of clients you serve per day?
    i. Yes
    ii. No
20. Do you think that the number of you as staff are enough compared to the number of clients you serve per day?
    i. Yes
    ii. No
    iii. Not concerned

KNOWLEDGE ON HOW TO DO TB SCREENING IN A TB SUSPECT CLIENTS

Tick where is correct.

21. Have you ever attended on job training on TB infection?
    i. Yes
    ii. No
    iii. Not concerned
22. Have you ever attended on job training on TB infection Screening?
    i. Yes
    ii. No
    iii. Not concerned

23. Have you ever attended any training on TB Screening to PLWHA?
    i. Yes
    ii. No
    iii. Not concerned
24. Have you ever attended on job training on how take care clients havingTB infection ?
    i. Yes
    ii. No
    iii. Not concerned

THANK YOU FOR YOUR TIME AND COPARATION

Appendix 3: Dodoso La Watu Wazima Miaka 18 Na Zaidi-Kiswahili

CHUO CHA AFYA NA SAYANSI SHIRIKISHI MUHIMBILI

Shule ya Afya na Sayansi za Jamii

DODOSO LA KUTATHIMINI MAMBO YANAYOCHANGIA UPIMAJI WA UGONJWA WA KIFUA KIKUU KWA WATU WANAOISHI NA VVU KATIKA WILAYA YA MPIMBWE

Utafiti kuhusu mambo binafsi na ya mfumo mzimawa Afya yanayochangia katika uchunguzi au upimaji wa ugonjwa wa kifua kikuu kwa watu wanaoishi na maambukizi ya virusi vya ukimwi (VVU) wilayani Mpimbwe-Katavi:

Mpendwa Mshiriki;

Nakukaribisha kushiriki katika utafiti unaofanywa na Bwana Sebastian Neddy Siwale, mwanafunzi wa shahada ya udhamiri kutoka chuo kikuu cha afya na sayansi shirikishi Muhimbili.

Kushiriki kwako katika utafiti huu ni kwa hiari, unatakiwa kusoma taarifa zote katika fomu hii na kuaamua kushiriki au kutokushiriki katika utafiti huu.

Madhumuni ya utafiti: Dhumuni la utafiti huu ni kufanya tathimin ya mambo binafsi nay ale ya mfumo mzima wa Afya yanayochangia katika kuboresha au kuzorotesha huduma za upimaji wa ugonjwa wa kifua kikuu kwa watu wanaoishi na maambukizi ya virusi vya ukimwi (VVU) katika wilaya Mpimbwe.

Maelekezo: Zungushia chaguo linalohusika na jaza/andika maelezo kwenye vipengele vinavyohitajika

Namba ya dodoso: …… **Jina la kituo cha kutolea huduma**: …….....

SEHEMU A: TAARIFA BINAFSI ZA MSHIRIKI (zungushia namba ya chaguo sahihi)

1. Jinsia
    i. Me
    ii. Ke
2. Umri wako ni miaka mingapi? _____
3. Hali ya ndoa
    i. Nimeoa/olewa
    ii. Sijaoa/olewa
    iii. Nimeachika
    iv. Mjane/Mgane
    v. Ninaishi na mwanaume/mwanamke
4. Ni kiwango gani cha juu cha elimu ulichofikia?
    i. Shule ya msingi
    ii. Sekondari
    iii. Chuo
    iv. Sijasoma
5. Kituo cha afya unakopata huduma na dawa za kupunguza makali ya VVU kipo umbali gani kutoka unapoishi?
    i. Chini ya kilometa 2
    ii. Klometa 2-5
    iii. Kilometa 6-10
    iv. Zaidi ya kilometa 10
6. Unatumia muda gani kufika kwenye kituo unakopata huduma na dawa za kupunguza makali ya VVU?
    i. Chini ya dakika 30
    ii. Kati ya dakika 30- saa 2
    iii. Zaidi ya saa mbili

SEHEMU B: UFAHAMU JUU YA UGONJWA WA KIFUA KIKUU KWA WATU WAISHIO NA VVU

(Zungushia chaguo sahihi),"

7. Umeshawahi kusikia kuhusu ugonjwa wa Kifua Kikuu?
    i. Ndiyo [**endelea swali la 8**]
    ii. Hapana [**nenda swali la 13]**
8. Je, ulipata wapi taarifa kuhusu Kifua Kikuu? **(Unaweza kutaja majibu zaidi ya moja. Weka alama ya vema kwenye chaguo sahihi**]

Chanzo cha Taarifa (weka alama kwenye chaguo lako)

Chanzo cha habari	**Ndiyo**	**Hapana**
Wataalam wa afya		
Redio/TV		
Marafiki		
Ndugu zangu		
Vipeperushi		

9. Dalili za kifua kikuu **(weka vema kwenye chaguo lako. Unaweza kuweka vema zaidi ya sehemu moja).**

Na	**Dalili**	**Ndiyo**	**Hapana**
i.	Kukohoa kwa zaidi ya wiki mbili		
ii.	Kukohoa damu		
iii.	Kupungua uzito		
iv.	Homa		
v.	Kuhisi baridi		
vi.	Kutokwa jasho jingi wakati wa usiku		
vii.	Uchovu usio na sababu		
viii.	Maumivu ya kifua		
ix.	Kukosa hamu ya chakula		
x.	Kupumua kwa shida kwa muda mrefu.		

10. Je, unafikiri Kifua Kikuu kinaweza kuambukizwa kutoka Kwa mtu mmoja kwenda kwa mwingine?

i. Ndio

ii. Hapana

11. Je, ni kwa namna gani Kifua Kikuu kinaweza kuambukizwa kutoka kwa mtu mmoja kwenda kwa mtu mwingine? ***(Weka alama ya vema jibu sahihi. Unaweza kuweka alama ya vema zaidi ya sehemu moja)***.

Na	**Njia za maambukizi**	**Ndiyo**	**Hapana**
i.	Kwa njia ya kukohoa		
ii.	Kwa njia ya chafya		
iii.	Kwa njia ya mate		
iv.	Kwa kuchangia vyombo vya chakula		
v.	Kwa mama mjamzito kumwambukiza mtoto		

12. Je kuna uhusiano kati ya Ugonjwa wa kifua kikuu na Virusi vya Ukimwi?

    i. Ndiyo

    ii. Hapana

MTAZAMO KUHUSU KIFUA KIKUU NA UPIMAJI WA KIFUA KIKUU KWA WATU WANAOISHI NA VVU

13. **Tafadhali jibu kama unakubali au haukubali katika maswali yafuatayo**

Na.	**Maelezo**	**Jibu**	
		Nakubali	**Sikubali**
i.	Watu wanaoishi na VVU wapo katika hatari ya kupata ugonjwa wa kifua kikuu		
ii.	Kuugua kifua kikuu ukiwa unaishi na VVU sio aibu		
iii.	Mtu hawezi kuugua kifua kikuu ukiwa unatumia dawa za VVU		
iv.	Ugonjwa wa kifua kikuu unachukua muda mrefu sana kupona		
v.	Ugonjwa wa kifua kikuu ni kati ya magonjwa yasiyotibika		

vi.	Ningejisikia vibaya kukaa karibu na watu wenye na ugonjwa wa kifua kikuu		
vii.	Nisingeshikana mikono na mtu mwenye ugonjwa kifua kikuu		
viii.	Nitaficha hali yangu nikuwa na ugonjwa kifua kikuu		
ix.	Nitajionea aibu nikiwa na ugonjwa wa kifua kikuu		

14. **Utajibu kama unakubali au haukubali katika maswali yafuatayo yanayohusu uchunguzi wa Kifua Kikuu**

Na	**Maelezezo**	**Jibu**	
		Nakubali	**Sikubali**
vii.	Wagonjwa wanaoishi na VVU ni muhimu kufanyiwa uchunguzi wa Ugonjwa wa Kifua Kikuu		
viii.	Uchunguzi wa ugonjwa wa kifua kikuu ukifanyika mapema unaweza kuchangia katika kupunguza vifo vitokanavyo na ugonjwa huu		
ix.	Mtu mwenye VVU na ugonjwa wa kifua kikuu hawezi kupona kifua kikuu hata akianza tiba mapema		
x.	Mtu mwenye ugonjwa wa kifua kikuu anatakiwa atengwe katika jamii pindi anapogundulika		
xi.	Kupima ugonjwa wa kifua kikuu kwa mtu anayeishi na VVU ni kujidhalilisha		
xii.	Uwepo wa mtu aliyepima na kugundulika kuwa ana ugonjwa wa kifua kikuu ni aibu katika familia yake		

15. Je, mtoa huduma za afya katika kliniki yako amewahi kukupa rufaa ya kwenda kufanyiwa uchunguzi wa kifua kikuu?
    i. Ndio
    ii. Hapana

16. Umewahi kufanyiwa uchunguzi wa kifua kikuu?
    iii. Ndio
    iv. Hapana ***(nenda swali la 19 na kuendelea)***
17. Je ulifanyiwa uchunguzi wa kifua kikuu katika kituo hiki?
    i. Ndio
    ii. Hapana
18. Je hiki ndicho kituo kinachotoa huduma za VVU na Kifua kikuu kilicho karibu na nyumbani kwako?
    iii. Ndio
    iv. Hapana

UNYANYAPAA UNAODHANIWA KWA WATU WANAOISHI NA VVU WENYE UGONJWA WA KIFUA KIKUU

19. Tafadhali jibu Kama ni ndio au Hapana kuwa hofu ya mambo yafuatayo inaweza kukufanya usiende kupima ugonjwa wa kifua kikuu katika kituo cha karibu.

i. Hofu ya kufahamika hali ya maambukizi ya ugonjwa wa kifua kikuu.

(Mfano kumfahamu mtu katika kituo cha huduma za afya, hofu ya kufahamika/kuonekana na familia, majirani au watu wegine nikiwa naenda kituoni)

a) Ndio
b) Hapana

ii. Mfanyakazi wa kituo cha afya atafichua kuwa una ugonjwa wa kifua kikuu bila idhini yako.

(*Atawaambia mwenzi au familia yangu au atasimulia au kuwaeleza watu wengine ndani na nje ya kituo habari hizo*)

a) Ndio
b) Hapana

iii. Hofu ya kunyanyapaliwa au kutendewa isivyopendeza kwa sababu unahisiwa kuwa na ugonjwa wa kifua kikuu wakati unaishi n a VVU.

(Ikiwemo kunyimwa tiba, kutendewa katika hali isiyo rafiki, kusubirishwa muda mrefu, kusemwa vibaya, kusengenywa, kuhukumiwa kimaadili au kiimani)

a) Ndio
b) Hapana

iv. Hofu kuwa vifaa vya kupimia ugonjwa wa kifua kikuu havipo

a) Ndio
b) Hapana

v. Hofu kuwa ndugu wa familia watanitenga nikikutwa na ugonjwa wa kifua kikuu

a) Ndio
b) Hapana

vi. Hofu kuwa marafiki zangu watanitenga nikigundulika nina ugonjwa wa kifua kikuu

a) Ndio
b) Hapana

vii. Mpangilio wa huduma usioeleweka (muda/siku za kufungua zisizoendana na nafasi yangu)

a) Ndio
b) Hapana

HOFU YA KUBAGULIWA KWA WATU WANOISHI NA VVU WENYE UGONJWA WA KIFUA KIKUU

20. ***Tafadhali jibu ndio au Hapana kuwa kuogopa kutendewa mambo yafuatayo inaweza kukufanya usipime ugonjwa wa kifua kikuu katika kituo hiki***

i. Kuogopa kuwa mtoa huduma za afya wa kituo atazungumza vibaya kuhusu wewe

a) Ndio
b) Hapana

ii. Kuogopa kuwa mtoa huduma atakudhalilisha au kukutukana

a) Ndio
b) Hapana

iii. Kuogopa kuwa mtoa huduma za afya wa kituo ataweka wazi kwa watu wengine kuwa una ugonjwa wa kifua kikuu bila ridhaa yako

a) Ndio
b) Hapana

iv. Hofu kuwa utapewa huduma kwa umakini mdogo kuliko wagonjwa wengine

a) Ndio
b) Hapana

v. Hofu kuwa wafanyakazi wa kituo cha afya watafikiria kuwa wewe una wapenzi wengi ndo maana ukapata ugonjwa wa kifua kikuu

a) Ndio
b) Hapana

vi. Kusengenywa na mtoa huduma wa kituo cha afya

a) Ndio
b) Hapana

21. Je, ni kwa muda gani mnasubiri kupatiwa huduma pale mnapokuwa kliniki ya kuhudumia wagonjwa wanaoishi na VVU?

(Weka alama ya vema panapohusika)

Muda wa kusubiri	**Jibu**	
	Ndiyo	**Hapana**
Chini ya saa moja		
Saa moja		
Masaa mawili		
Masaa matatu		
Zaidi ya masaa matatu		

ASANTE SANA KWA MUDA WAKO

Appendix 4: Dodoso La Watoa Huduma Za Afya

CHUO CHA AFYA NA SAYANSI SHIRIKISHI MUHIMBILI

Shule ya Afya na Sayansi za Jamii

DODOSO LA WATOA HUDUMA ZA AFYA

Utafiti kuhusu mambo binafsi na ya mfumo mzimawa Afya yanayochangia katika uchunguzi au upimaji wa ugonjwa wa kifua kikuu kwa watu wanaoishi na maambukizi ya virusi vya ukimwi (VVU) wilayani Mpimbwe-Katavi:

Mpendwa Mshiriki;

Nakukaribisha kushiriki katika utafiti unaofanywa na Bw. Sebastian Neddy Siwale, mwanafunzi wa shahada ya udhamiri kutoka chuo kikuu cha afya na sayansi shirikishi Muhimbili.

Kushiriki kwako katika utafiti huu ni kwa hiari, unatakiwa kusoma taarifa zote katika fomu hii na kuaamua kushiriki au kutokushiriki katika utafiti huu.

Madhumuni ya utafiti: Dhumuni la utafiti huu ni kufanya tathimin ya mambo binafsi na yale ya mfumo mzima wa Afya yanayochangia katika kuboresha au kuzorotesha huduma za upimaji wa ugonjwa wa kifua kikuu kwa watu wanaoishi na maambukizi ya virusi vya ukimwi (VVU) katika wilaya Mpimbwe.

Kutathimini masuala binafsi nayale ya mfumo wa utoaji huduma za afya yanayochangia upimaji wa ugonjwa wa kifua kikuu kwa watu wanaoishi na vvu katika Wilaya ya Mpimbwe

Namba ya dodoso ☐

Jina la kituo cha kutolea huduma: _____

Maelekezo: *Zungushia machaguo yanayohusika na jaza/andika maelezo kwenye vipengele vinavyohitajika.*

SEHEMU A: TAARIFA BINAFSI ZA MSHIRIKI (zungushia namba ya chaguo sahihi)

1. **Jinsia**
   i. Me
   ii. Ke
2. **Una umri wa miaka mingapi? _____**

3. **Je, umeoa/umeolewa?**
   i. Nimeoa/olewa
   ii. Sijaoa/olewa
   iii. Nimeachana
   iv. Mjane
   v. Ninaishi na mwanaume/mwanamke
4. **Kiwango kipi cha juu cha elimu ulichofikia?**
   i. Sikusoma kabisa
   ii. Elimu ya awali/ msingi
   iii. Elimu ya ufundi/utaalam
   iv. Sekondari
   v. Chuo (cheti, stahahada)
   vi. Chuo kikuu
5. **Je kwa sasa unafanya kazi ipi kwenye hospitali hii? (kazi ambayo unaifanya muda mwingi ukiwa hapa)?**
   a. **Tiba**
      x. Muuguzi,
      xi. Muuguzi msaidizi,
      xii. Wa maabara,
      xiii. Daktari/tabibu,

xiv. Mkunga,
xv. Mtaalam wa mionzi,
xvi. Mtaalam wa madawa,
xvii. Mfamasia,
xviii. Mshauri nasaha

b. Utawala

vii. Afisa afya
viii. Keshia/mkusanya mapato,
ix. Mtunza rekodi,
x. Katibu muhtasi,
xi. Mapokezi,
xii. Mawasiliano

c. Uendeshaji/wasaidizi

vii. Mhudumu wa afya
viii. Dereva,
ix. Mlinzi,
x. Mfanya usafi
xi. Mpishi
xii. Mhudumu wa motuari

6. Ni muda gani sasa tangu uanze kufanya kazi katika hospitali hii/kituo cha afya?

Weka alama moja ya vema panapowezekana kuweka

Chini ya mwaka mmoja	
Mwaka 1 hadi 2	
Zaidi ya miaka 2	

7. Una uzoefu wa **muda gani** katika kuwahudumia wagonjwa wanaoishi na VVU?

Weka alama moja ya vema panapowezekana kuweka

Chini ya mwaka mmoja	
Mwaka 1 hadi 2	
Zaidi ya miaka 2	

SEHEMU B: UELEWA JUU YA UGONJWA WA KIFUA KIKUU
NA MAHUSIANO YALIYOPO BAINA YAKE NA WAGONJWA WAISHIO NA VVU
(Zungushia Chaguo Sahihi)" Mhudumu Wa Afya Anahusika Hapa"

8. Je, kifua kikuu kinasababishwa na nini?

i. Bacteria
ii. Virusi
iii. Sijui

9. Dalili za kifua kikuu (weka vema kwenye chaguo). Unaweza kuweka alama ya vema zaidi ya sehemu moja.

Na	**Dalili**	**Ndiyo (%)**	**Hapana (%)**
i.	Kukohoa kwa zaidi ya wiki mbili		
ii.	Kukohoa damu		
iii.	Kupungua uzito		
iv.	Homa		
v.	Kuhisi baridi		
vi.	Kutoka jasho jingi wakati wa usiku		
vii.	Uchovu usio na sababu		
viii.	Maumivu ya kifua		
ix.	Kukosa hamu ya chakula		
x.	Kupumua kwa shida kwa muda mrefu.		

10. Je,ni kwa namna gani Kifua Kikuu kinaweza kuambukizwa kutoka kwa mtu mmoja kwenda kwa mtu mwingine? Weka alama ya vema jibu sahihi. Unaweza kuweka alama ya vema zaidi ya sehemu moja.

Weka alama ya vema mahali panapohusika. Unaweza kuweka majibu zaidi ya moja.

Na	**Njia za maambukizi**	**Ndiyo**	**Hapana**
a)	Kwa njia ya kukohoa		
b)	Kwa njia ya chafya		
c)	Kwa njia ya mate		
d)	Kwa kuchangia vyombo vya chakula		
e)	Kwa mama mjamzito kumwambukiza mtoto		

Ufahamu juu ya mahusiano kati ya VVU na kifua kikuu

11. Tafadhali, chagua jibu kama ni ndio au hapana katika maswali yafuatayo

Na.	Maelezo	Jibu	
		Ndio	Hapana
iv.	Je, wagonjwa wanaoishi na VVU wapo katika hatari kubwa ya kupata maambukizi ya ugonjwa wa kifua kikuu?		
v.	Je kuna mahusiano yoyote kati ya Ugonjwa wa kifua kikuu na VVU?		
vi.	Je, watu wanaoishi na maambukizi ya VVU wapo katika hatari kubwa zaidi ya kupata ugonjwa wa kifua kikuu kuliko watu ambao hawana Virusi vya Ukimwi?		

<u>Ufahamu</u> kuhusu upimaji wa kifua kikuu kwa watu wanaoishi na VVU.

12. *Tafadhali jibu kama ni ndio au Hapana katika vipengele vifuatavyo vinavyohusu uchunguzi wa kifua kikuu kwa wagonjwa wanaoishi na VVU*

Na.	Maelezo	Jibu	
		Ndio	Hapana
viii.	Je, ni muhimu kwa mgonjwa anaeishi na VVU kufanyiwa uchunguzi wa kifua kikuu?		
ix.	Je, uchunguzi wa ugonjwa wa kifua kikuu ni vema ukafanyika mara tu mgonjwa anapopokea matokeo yake ya vipimo vya VVU?		
x.	Je, uchunguzi wa ugonjwa wa kifua kikuu ukifanyika mapema unaweza kuchangia katika kupunguza vifo vitokanavyo na ugonjwa huu?		
xi.	Je, kuna miongozo ya uchunguzi wa kifua kikuu iliyopo kwenye klinic ya wagonjwa wanaoishi na VVU?		
xii.	Je, unajua ni sampuli ngapi za makohozi ya mgonjwa yanatakiwa kukusanywa ili yakachunguzwe kama yana vimelea		

	wa ugonjwa wa kifua kikuu?		
xiii.	Sampuli tatu za makohozi zinahitajika maabara ili kuhakiki mtu mwenye kifua kikuu		
xiv.	Makohozi ya mtu anayedhaniwa kuwa na kifua kikuu yanayotakiwa kufanyiwa uchunguzi wa ugonjwa wa kifua kikuu ni lazima yakusanywe asubuhi kabla ya kula chochote		

13. Je, ni kwa namna gani mtu anaefikiriwa kuwa na ugonjwa wa kifua kikuu anapatikana?

Weka alama ya vema panapohusika

Jinsi ya kumpata mtu anaefikiriwa kuwa na ugonjwa wa kifua kikuu.	**Ndiyo**	**Hapana**
Kumfanyia uchunguzi wa awali kwa maswali yanayohusu dalili za kifua kikuu		
Kupitia vipimo vya maabara		
Kumpima malaria		

14. Je, Katika miezi mitatu iliyopita, kwa wastani wewe mwenyewe umewapa rufaa ya uchunguzi wa kifua kikuu wateja wangapi wanaoishi na VVU?

i. 0
ii. 1 hadi 15
iii. 16 hadi 30
iv. Zaidi ya 30
v. Haihusiki

15. Je, katika miezi mitatu iliyopita, umewahi kuwafanyia uchunguzi wa kifua kikuu wateja wako wanaoishi na VVU?

1. Hapana (**endelea swali la 16**)
2. Ndio **[ruka swali la 16 na endeleaa na swali la 17]**
3. Haihusiki **[ruka swali la 16 na endeleaa na swali la 17]**

16. Kwa nini hujawafanyia uchunguzi wa kifua kikuu watu wanaoishi na VVU?

i. Ulikuwa likizo
ii. Dodoso la uchunguzi halikuwepo
iii. Sielewi jinsi ya kufanya
iv. Nakosa muda kutokana na idadi kubwa ya wateja wa CTC

17. Je mnatoa elimu kwa wateja juu ya uchunguzi wa ugonjwa wa kifua kikuu na umuhimu wake kwa wagonjwa pindi wanapokuja klinic kupata huduma.

i. Ndiyo
ii. Hapana
iii. Haihusiki

18. Je, vifaa vifuatavyo kwa ajili ya kufanyia uchunguzi wa ugonjwa wa kifua kikuu vinapatikana katika kituo chako cha kutolea huduma? **(Unaweza kuweka alama ya vema zaidi ya moja mahali panapohusika).**

Maelezo	**Ndiyo**	**Hapana**	**Haihusiki**
Muongozo wa kuhakiki uwepo wa ugonjwa wa kifua kikuu kwa mteja			
Muongozo wa uchunguzi wa awali wa ugonjwa wa kifua kikuu			
Kitabu cha takwimu za uchunguzi wa kifua kikuu			
Dodoso la uchunguzi wa awali wa kifua kikuu			
Kitabu cha takwimu za ugongwa wa kifua kikuu			
Kitabu cha orodha ya wagonjwa kifua kikuu			
Kitabu cha orodha ya wagonjwa wanaoishi na VVU			
Fomu za rufaa kwa wagonjwa waliopatikana katika uchunguzi wa awali			
Maabara			
Vifaa vya kukusanyia sampuli toka kwa wagonjwa wa kifua kikuuna darubini			
Chemicali za uchunguzi wa ugonjwa wa kifua kikuu			

19. Je, huduma zifuatazo zinapatikana <u>kila siku</u> katika kituo chenu cha kutolea huduma? (Unaweza Weka alama ya vema zaidi ya moja mahali panapohusika).

HUDUMA ZINAZOPATIKANA KILA SIKU		
i. Huduma kwa wagongwa wanaoishi na VVU		
ii. Upimaji wa VUU		
iii. Uchunguzi wa awali wa ugonjwa kifua kikuu		

20. Unafikiri vifaa vinavyotumika kufanyia uchunguzi wa kifua kikuu vinatosha ukilinganisha na idadi ya wagonjwa wahudumiwa kwa siku?

iii. Ndiyo

iv. Hapana

21. Je, unafikiri idadi ya watumishi mliopo kwa muundo inatosha, ukilinganisha na idadi ya wagonjwa mnaowahudumia kila siku?

i. Ndiyo

ii. Hapana

iii. Haihusiki

Ujuzi wa kuchunguza mtu anayedhaniwa kuwa na ugonjwa wa Kifua kikuu

Tafadhali weka alama ya vema kwenye jibu sahihi kwako

22. Je umewahi kuhudhuria mafunzo yanayohusu ugonjwa wa kifua kikuu ukiwa kazi?

i. Ndiyo

ii. Hapana

iii. Haihusiki

23. Je, umewahi kuhudhuria mafunzo yoyote yanayohusu ya uchunguzi wa ugonjwa wa kifua kikuu?

i. Ndiyo

ii. Hapana

iii. Haihusiki

24. Je, umewahi kuhudhuria mafunzo yoyote yanayohusu ya uchunguzi wa ugonjwa wa kifua kikuu kwa wateja wanaoishi na VVU?

i. Ndiyo
ii. Hapana
iii. Haihusiki

25. Je umewahi kuhudhuria mafunzo kuhusu namna ya kuwahudumia wateja wenye ugonjwa wa kifua kikuu?

i. Ndiyo
ii. iHapana
iii. Haihusiki

ASANTE SANA KWA MUDA WAKO NA USHIRIKIANO

Appendix 5: Consent To Participate In Research – English

Muhimbili University of Health and Allied Sciences

School of Public Health Social Sciences

A research on Individual and Health Facility Factors Associated with TB Screening among People Living with HIV in Mpimbwe District

Dear participant,

You are hereby invited to participate in a study conducted by Sebastian Needy Siwale for a Masters Dissertation at Muhimbili University of Health and Allied Sciences.

Your participation in this study is entirely voluntary. You should read the information below before deciding whether or not to participate in the study. Your participation in the study will involve participation of the Health care providers and people living with HIV/AIDS who will be asked some questions through questionnaires. Also we will go further to find information from the documentary aspects.

Purpose of the study: The purpose of this study is to find out Individual and Health Facility factors associated with TB screening among people living with HIV/AIDS in Mpimbwe DC".

Voluntary Participation: Participation in this study is voluntary and you have a right to refuse to consent. If you consent to participate, you have also the right to withdraw from the study at any time if you wish to do so.

Benefits: There are no direct benefits for participating in the study. However, this study will provide information on magnitude of TB screening among people living with HIV/AIDS and its implication for their health and outcome, and associated factors for TB screening among

PLHIV. This information will be useful to government and non-government actors to improve interventions.

Risks and discomfort: There are no risks or discomforts involved in this study.

Compensation for time: You will not receive any payment or other compensation for participation in this study. There is also no cost for you to participate in the study except your time.

Confidentiality: Your participation in this study will remain confidential and your identity will be disclosed. There will be no any link between your identity and response.

Review and approval: The review and approval of the study has been done by the Ethical committee of Muhimbili University of Health and Allied Sciences (MUHAS).

Results: The results of the study will be made available to you through a planned means of research dissemination and will be compiled in a research paper for publication as part of a partial fulfillment of a master's degree.

Consent form: I confirm that I have read carefully, understood the information provided and consent to participate in the study.

Contact: If you ever have questions about this study, you should contact the Principal Investigator Sebastian Neddy Siwale from Muhimbili University of Health and Allied Sciences, P.O. Box 65001, Dar-es-Salaam.

I, …… have read the contents of this consent form and my questions have been adequately answered. I therefore agree to participate in this study.

Signature of the participant …….. ….Date ……2018

Signature of the interviewer ……..... …..Date ……2018

Appendix 6: Ridhaa ya Kushiriki Kwenye Utafiti - Kiswahili

CHUO CHA AFYA NA SAYANSI SHIRIKISHI MUHIMBILI

Shule ya Afya na Sayansi za Jamii

Utafiti kuhusu mambo binafsi na ya mfumo mzimawa Afya yanayochangia katika uchunguzi au upimaji wa ugonjwa wa kifua kikuu kwa watu wanaoishi na maambukizi ya virusi vya ukimwi (VVU) wilayani Mpimbwe-Katavi:

Mpendwa Mshiriki;

Nakukaribisha kushiriki katika utafiti unaofanywa na Bw. Sebastian Neddy Siwale, mwanafunzi wa shahada ya udhamiri kutoka chuo kikuu cha afya na sayansi shirikishi Muhimbili.

Kushiriki kwako katika utafiti huu ni kwa hiari, unatakiwa kusoma taarifa zote katika fomu hii na kuaamua kushiriki au kutokushiriki katika utafiti huu.

Madhumuni ya utafiti: Dhumuni la utafiti huu ni kufanya tathimin ya mambo binafsi nay ale ya mfumo mzima wa Afya yanayochangia katika kuboresha au kuzorotesha huduma za upimaji wa ugonjwa wa kifua kikuu kwa watu wanaoishi na maambukizi ya virusi vya ukimwi (VVU) katika wilaya Mpimbwe.

Ushiriki: Ushiriki katika utafiti huu ni wa hiari na una haki ya kukataa kushiriki katika utafiti. Kama umekubali kushiriki utatakiwa kuweka sahihi yako katika fomu hii nakujibu maswali utakayokuwa unaulizwa na msahili.

Faida: Hamna faida ya moja Kwa moja Kwa wewe kushiriki katika utafiti huu. Ila matokeo ya utafiti huu yatasaidia kutathimini huduma za upimaji wa ugonjwa wa kifua kikuu kwa watu wanaoishi na maambukizi ya VVU, na sababu zingine zinazohusiana na upimaji huo miongoni mwa watoa huduma za Afya na Watu wanaoishi na VVU. Taarifa hizi zitasaidia

serikali na wadau wengine kuboresha huduma za upimaji ikiwa ni katika kuzuia vifo vitokanavyo na ugonjwa wa kifua kikuu kwa watu wanaoishi na VVU.

Hasara: Hakuna hasara za moja Kwa moja zitakazotokana na utafiti huu.

Fidia: Hakutakuwa na malipo yoyote kutokana na ushiriki wa utafiti huu na pia mshiriki hutakuwa na gharama zozote za wewe kushiriki katika utafiti huu isipokuwa muda wako tu.

USIRI: Ushiriki wako katika utafiti huu utabaki kuwa siri na taarifa zote zitakazokusanywa zitashughulikiwa kwa usiri wa hali ya juu.Jina lako halitatumika katika taarifa zozote.

Kuidhinisha utafiti: Mapitio na uidhinishaji wa utafiti huu umefanywa na kamati ya maadili ya utafiti ya Chuo kikuu cha afya na sayansi shirikishi cha Muhimbili kilichopo Dar es Sa laam Tanzania.

Matokeo: Matokeo ya utafiti huu yatapatikana kupitia uwasilishwaji katika chuo kikuu cha afya na sayansi shirikishi Muhimbili, na wadau, pia ripoti ya utafiti itawekwa kwa umma (publish) ili iweze kusaidia kutekeleza wa shughuli za upimaji wa ugonjwa wa kifua kikuu na tafiti zingine.

Fomu ya utafiti: Nakiri kwamba nimesoma maelezo yote kwa umakini na nimeelewa kila kilichoandikwa katika fomu hii.Ninaelewa kwamba ninaweza kujitoa muda wowote nitakaotaka kujitoa katika tafiti hii.

Mawasiliano kuhusiana na utafiti huu

Kama una maswali kuhusiana na utafiti huu unaweza kuwasiliana na mtafiti mkuu, Bwana Sebastian Neddy Siwale kutoka chuo kikuu cha afya na sayansi shirikishi Muhimbili, S.L.P 65001, Dar es Salaam.

Mimi,……Nimesoma maelezo yote katika fomu hii na maswali yangu yameweza kujibiwa.Nakubali kushiriki katika utafiti huu.

Sahihi ya Mshiriki.....Tarehe …….

Sahihi ya Msahili …….....Tarehe…….