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FACTORS INFLUENCING UTILIZATION OF DIAGNOSTIC COUNSELLING AND TESTING FOR HIV AMONG TUBERCULOSIS PATIENTS AT MONZE MISSION HOSPITAL, ZAMBIA

BY:

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LUSAKA

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DECLARATION

I, Joyce Mulenga, declare that this dissertation represents my own work and that all the sources I have quoted have been indicated and acknowledged by means of complete referencing. I, further, declare that this dissertation has not previously been submitted for a degree or diploma or other qualifications at this University. It has been prepared in accordance with the guidelines for Master Degree in Nursing Sciences dissertations of the University of Zambia.

Name of student…….

Signature……

Date……

Name of Supervisor……..……..

Signature……

Date……

Name of Co-supervisor……..

Signature……

Date……

CERTIFICATE OF COMPLETION OF DISSERTATION

I Dr Lonia Mwape, having supervised and read this dissertation, is satisfied that this is the original work of the author under whose name it is being presented. I confirm that the work has been completed satisfactorily and approve it for final submission.

Signature……**Date**……..…….

Head of Department

Signature……**Date**……

Department of Nursing Sciences, School of Medicine, University of Zambia

CERTIFICATE OF APPROVAL

The University of Zambia approves this Dissertation on utilization of diagnostic counselling and testing for HIV among patients with tuberculosis at Monze Mission Hospital in partial fulfillment of the Master Degree in Nursing Sciences.

Examiner's Signature…….…….. **Date**…….

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Examiner's Signature…….. **Date**…….

ABSTRACT

Introduction

The burden of Tuberculosis (TB) in Zambia is one of the highest in the world. The incidence of TB has risen in recent years, partly as a result of the impact of the HIV and AIDS epidemic.Therefore, Diagnostic Counselling and Testing(DCT) was recommended as part of the treatment package of tuberculosis patient.This will help improve the patient's quality of life, delaying and preventing complications and deaths due to opportunistic infections that could arise from late detection of HIV/AIDS.Diagnostic Counselling and Testing can best be achieved by information, communication and education to patients with Tuberculosis(TB) on the importance of testing early. The objective of the study was to examine the utilization of DCT and associated factors among patients with TB at Monze Mission Hospital in Southern province of Zambia.

Methods: An institutional-based cross-sectional study was conducted at Monze Mission Hospital chest clinic. Simple random sampling method was used to select in/out patients with tuberculosis from within the hospital.Data was collected from patients who consented for enrolment from October to December 2014. A semi-structured interview schedule was used to collect data. The relationships between the different categories of variables were investigated using Pearson's Chi squared test for association and further fitting logistic regression model. The independent variables were determined to be significantly associated with the outcome variables after bivariate Chi-square testing were included into the logistic regression model. Binary logistic regression analysis of data was carried out using IBM® SPSS®Statistics for Windows version 20.0 to predict factors influencing DCT.

Results: A total of 226 patients were sampled and out of which, 150 (66.7%) did not utilize DCT and 76 (33.3%) utilized DCT. Diagnostic Testing and Counselling was aassociated with the level of knowledge and confidentiality. The *p* value of level of knowledge and confidentiality were less than 0.05 and therefore failed to reject the null hypothesis. Multivariate binary logistic regression model predicted that confidentiality and knowledge were associated with DCT at *p* value < 0.05

Conclusion: This study established that the level of knowledge and confidentiality influenced DCT utilization. There is need, therefore, to consider full use of DCT for detecting HIV/AIDS early so as to prevent opportunistic infections. DCT will improve the management of the patients with tuberculosis. Furthermore, studies should be done to evaluate the role of patients with tuberculosis in the management of their condition.

DEDICATION

I dedicate this study to my late father John Mulenga, late mother Esinala Tembo Mulenga, late brothers Maxwell Mulenga and Mwenya Mulenga for their support and encouragement throughout my life.

My beloved children Zanendaba John Vuttah and Jabulani G.P.N. Vuttah for their undivided love, support, encouragement and prayers that enabled me to complete this study successfully.

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LIST OF ABBREVIATIONS	
Acquired Immune Deficiency Syndrome	AIDS
Antiretroviral Therapy	ART
Diagnostic Testing and Counseling	DCT
Excellence in Research Ethics and Science Converge	ERESC
Highly Active Antiretroviral Therapy	HAART
Human Immune deficiency virus	HIV
Millennium Development Goals	MDGs
Opportunistic Infections	OIs
Tuberculosis	TB
Joint United Nations Program on HIV/AIDS	UNAIDS
Voluntary Counseling and Testing	VCT
World Health Organization	WHO

CHAPTER ONE
1.0. INTRODUCTION

The co-infection between HIV and Tuberculosis (TB) has become a public health concern. More than 40 years after launching the first TB control programme in Zambia. Seventy percent of identified TB patients are co-infected with HIV making it critical to improve the diagnosis and treatment. In the African region (Zambia inclusive) has an escalating incidence of TB cases fuelled by the HIV epidemic. The majority of TB cases occur in young adult population groups aged 15-45 years, the same age group affected by HIV and AIDS.

The United Nations Joint Programme on Acquired Immunodeficiency Syndrome (UNAIDS) estimates that 33.2 million people globally were living with the Human Immunodeficiency Virus (HIV) and Acquire Immune deficiency Syndrome (AIDS) at the end of 2007 and 2.1 million people became newly infected UNAIDS, 2008).Sub-Saharan Africa remains the global region most affected by HIV and AIDS; more than two-thirds of all people with HIV live in sub-Saharan Africa (WHO, 2014). Over 95 percent of these infections occur in developing countries. Of all people infected with HIV about 67 percent were living in sub Saharan Africa, with 75 percent of all AIDS deaths occurring in this region (UNAIDS, 2008).Zambia has one of the world's most devastating HIV and AIDS epidemics in Southern Africa. More than one in every seven adults in the country are living with HIV (UNAIDS, 2012) and life expectancy at birth has fallen to just 49.4 years (UNDP, 2013). In 2011, nearly 42,000 adults are newly infected with HIV that is about 115 new infections each day (UNAIDS 2012).

Furthermore, approximately 68,000 new infections occur every day, with almost 16 percent of adult population aged 15 to 49 is HIV positive in Zambia. Zambia's first reported AIDS diagnosis in 1984 was followed by a rapid rise in the number of people living with HIV. HIV prevalence has not dropped significantly, remaining more or less stable since the mid-nineties. As of 2011, overall HIV prevalence was 13 percent; however, it has been reported as considerably higher in some areas (UNAIDS, 2010). Among the population aged 40 and older, HIV infection rates are higher for men than for women. The realization that it will be impossible to curb the spread of HIV and AIDS without tackling TB and vice versa has led to an upsurge in research, surveillance and treatment initiatives into the two diseases that are feeding off each other to devastating effect.

TB and HIV constitute the main burden of infectious diseases in resource-limited countries (Affusim et al., 2012). Persons infected with HIV are particularly susceptible to tuberculosis, both from the reactivation of latent infection and from new infection with rapid progression to active disease (Pawlowski et al., 2012).An individual who is HIV-positive has 10 times increased risk of developing TB compared to a HIV-negative person. The life time risk is 50 percent for an HIV+ person and 5–10 percent for an HIV negative (Markowitz et al., 1997).Estimates by the World Health Organization (WHO) indicate that there are more than 9 million new active cases of TB and close to 2 million deaths per year and that 2.6 million new cases of HIV infection and 1.8 million AIDS-related deaths occur per year (Affusim et al., 2012). In India alone about 2.5 million people are currently infected with HIV of whom 40 percent are also co-infected with TB (Ghiya et al., 2009).

TB infection contributes to further reduction in CD4 cell count accelerating the progression of HIV infection to Acquired Immunodeficiency syndrome (AIDS) increasing the mortality and morbidity (Wanchu et al., 2010). Despite the existence of effective drugs, TB continues to be a major health problem and kills more than a million a year (Bhagyabati et al., 2005). Patients with HIV infection have a similar bacteriologic response to tuberculosis treatment as those who are not infected but have higher risks of recurrence and death. The influence of tuberculosis co-infection on the progression of HIV disease is controversial (Pawlowski et al., 2012). In 2011 over 43,000 new cases of TB were diagnosed in Zambia making it among one of the highest burden countries in the world (WHO, 2012). 70% ofidentified TB patients are co-infected with HIV making it critical to improve diagnosis and treatment of both infections(WHO, 2014).In 2006 there were 9.2 million new TB cases and approximately 2 million deaths due to TB (WHO Report, 2008). All regions of the world have a stable or falling number of cases of TB except for the African region where the numbers of new cases of TB continue to rise, fuelled by the HIV epidemic.

In 2006, Zambia notified 51,267 patients with TB (all forms), giving a notification rate of 466/100,000. This number is more than 5 times higher than the amount of TB that was found in Zambia in the pre-HIV era. The WHO estimated the TB prevalence rate of 338/100,000 and TB new and relapse cases were 40,638. In 2013, 25,476 (62 percent) HIV positive TB patients were detected (WHO, 2014).

The TB/HIV collaborative services Diagnostic Counseling and Testing (DCT) were introduced in 2004 in Zambia and initiated in 2008 in Monze. DCT is being scaled up throughout the world. However, there is paucity of information and so little is known about the outcomes of DCT on subsequent behaviour.HIV testing and counseling should be offered to all tuberculosis patients in settings where the HIV prevalence among TB patients exceeds 5 percent. Unfortunately, most of the programmes have been implemented vertically and therefore have paid little attention to the linkages between TB and HIV infections (MoH, 2006). These linkages were supposed to be coordinated by the TB/HIV working group of the Stop TB partnership which was established in 2001 with the aim of coordinating the global response to HIV associated TB epidemic.

In addition, TB/HIV working group of the Stop TB partnership and the expansion of HIV care were initiated because TB is the most common opportunistic infection in HIV patients worldwide (WHO, 2014). It is recommended that countries with TB and HIV epidemics provide HIV-related services to TB patients to reduce mortality from HIV-associated TB (WHO, 2014). The recommended services include HIV counseling and testing of all TB patients and providing antiretroviral treatment to eligible HIV-infected TB patients (WHO, 2014). In this case screening services serve as entry points to the treatment of both infections. This signifies the importance of HIV testing among TB patients because the mortality rate among HIV-infected TB patients is substantially increasing unless co-trimoxazole preventive treatment or ART are provided (Chimzizi, 2004).

1.1. PROBLEM STATEMENT

The current trend of HIV testing services still remains poor in low and middle-income countries including setting in which HIV counseling and testing is routinely offered. The number of people who have Tuberculosis (TB) is increasing in much of sub-Saharan Africa, largely due to the high prevalence of HIV infection (WHO, 2011).Zambia is on track to meet the targets for Millennium Development Goals(MDG) No. 6 but has made insufficient progress to meet the targets for MDGs 6. HIV/AIDS prevalence rate stands at 14.3% and it is estimated that between 60% and 70% of patients with TB in Zambia are also co-infected with HIV (WHO, 2014). TB notification rate stands at 353/100 000 population (WHO, 2014).

DCT services remain low in many countries. DCT is increasingly being recommended in Zambia. It is important to improve the understanding of the reasons for poor uptake of HIV testing. However, there is paucity of information that would describe the extent of DCT service utilization among patients with TB in sub-Saharan (William, 2007& Gasana, 2000). Tuberculosis is a major public health concern in Zambia and is among the top ten causes of morbidity and mortality in people living with AIDS (Ministry of Health (MOH), 2006). HIV testing services remains underutilized and a principal obstacle to effective implementation of HIV prevention and treatment programs. HIV infection affects TB treatment in the sense that HIV is the strongest predictor of progression from latent TB infection to active disease.

TB has also been found to be the leading cause of death among HIV infected persons. Early HIV diagnosis facilitates timely access to care and antiretroviral therapy that can subsequently reduce mortality rate and may reduce HIV transmission rates (MOH, 2007).The TB/HIV collaborative services (DCT) were introduced in 2004 in Zambia. At Monze Hospital it was initiated in 2008. Despite the call for its utilization, the service remains underutilized by TB patients at Monze Mission Hospital. The percentage of patients with TB utilizing the service is as low as 32.1 percent. The percentage of patients with TB who accepted HIV testing ranged between 26.1 and43.4 percent from 2009to 2014 (MMH, 2013). These figures are stumpy, indicating low utilization of DCT uptake despite being supported by appropriate policy guidelines and combined patient/care provider education.

The probable reasons why DCT for HIV has not been conducted on patients with TB could be fear of the unknown, inadequate knowledge, discrimination, stigma, attitude of staff, education level, lack of confidentiality and timing of the service. The effects of DCT omission on patients with TB maybe development of opportunistic infection and recurrent TB. This may socially, economically and psychologically have an impact on the family members. The TB programme and the community in Monze may be effected in the sense that they may be an increase in the number of TB relapse if patients are not tested early. The Ministry of health, Monze DHMT and Monze Mission Hospital had already introduced DCT prior the study and it is part of the treatment package. The baseline information that the study will provide is needed for initiation of DCT for HIV among patients with TB as it will help them understand the importance of taking up the test early. HIV testing and counseling stands out as paramount to tackle utilization of DCT problems in treatment and prevention activities even at Monze Mission Hospital.

TABLE 1: DCT utilization has been reducing among TB patients at MMH

YEAR	**TB patients (all forms)**	**Refused DCT**	**Tested for HIV (DCT)**	**Tested HIV positive**
2009	998	565 (56.6%)	433 (43.4%)	139 (32.1%)
2010	1268	877 (69.2%)	391 (30.8%)	186 (47.6%)
2011	1584	1169 (73.8%)	415 (26.1%)	209 (50.4%)
2012	1641	1113 (67.8%)	528 (32.1%)	528 (32.1%)
2013	847	519 (61.3%)	328 (38.7%)	219 (25.8%)
2014	779	560 (71.9%)	219 (28.1%)	112 (14.4%)
TOTAL	**7117**	**4203 (66.3%)**	**2314 (35.5%)**	**1393 (21.9%)**

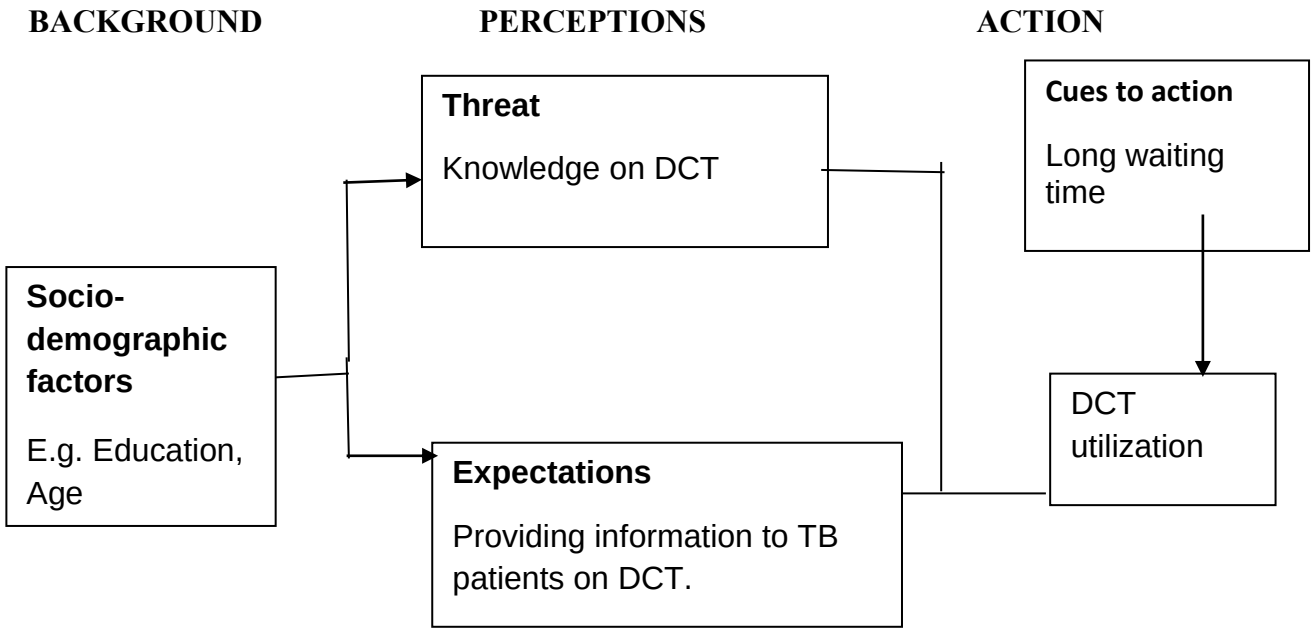
Source: Monze Mission Hospital, 2014.

There is need to understand the reasons for poor uptake of HIV testing. The table above (Table 1) shows that in 2011, staff at chest clinic diagnosed 1584 patients with TB out of whom 209 (50.4%) were tested for HIV. Subsequently in 2012, 1641 patients were diagnosed with TB out of whom only 528 (32.1%) accepted to undergo DCT, (MMH, 2013). The remaining 67.8 percent declined to undertake DCT. In 2012, 1,641 patients were diagnosed with TB out of whom only 528 TB patients accepted to undergo DCT. The number of TB patients that refused to undergo DCT ranged from 56.6 percent in 2009 to 73.8 percent in 2011. The number of TB patients who accepted DCT shows a marked decrease from 43.3 percent in 2009 to 28.1 percent in 2014. The hospital recorded a low number of TB patients who accepted to undergo DCT which underscores the need to explore the factors leading to low acceptability of DCT by patients with TB.

1.2. THEORITICAL FRAMEWORK- HEALTH BELIEF MODEL (HBM)

The study was guided by one of the first theories of health behavior. The Health Belief Model (HBM) was developed in the 1950s by social psychologists (Rosenstock et al., 1950). The model was developed to better understand the widespread failure of screening programs for tuberculosis (Carpenter et al., 2011). They believed that HBM is a psychological health behavior change model developed to explain and predict health related behaviors, particularly in regard to the uptake of health services such as testing for HIV in TB patients (Rosenstock et al., 1988). The HBM suggests that people's beliefs about health problems, perceived benefits of action and barriers to action and self-efficacy explain engagement (or lack of engagement) in health-promoting behavior. The HBM has been applied to predict a wide variety of health-related behaviors such as being screened for the early detection of asymptomatic diseases such as HIV in TB patients. The model has been applied to understand patients' responses on the uptake of DCT and lifestyle behaviors (Rosenstock et al., 1988)

FIGURE1: HEALTH BELIEF MODEL Adapted from Rosenstock (1990)



SOURCE: Adapted from Rosenstock (1990**)**

The study was guided by the health belief model (1990). Rosenstock's work was founded on the assumption that DCT utilization among patients with TB is linked with knowledge of the co-infection with HIV. The patients could perceive DCT as a threat of having HIV and AIDS because they do not understand the importance of taking the test and the severity of a potential illness. An interaction between the health personnel and patients with TB is vital in order to remove threats that hinder patients from undertaking the test and also the benefit of taking a preventive action. This could be achieved by providing patients with necessary information pertaining to DCT. He believed that cues to actions are measures that health care providers could take in order to encourage patients with TB take up the test. The cues to actions could include seeing other patients with TB die of HIV/AIDS related illnesses or opportunistic infections because of the fear to undertake the DCT. If the cues to actions are explained to the patients with TB that may help prevent opportunistic infections that may arise and willingly take up DCT services.

1.3. JUSTIFICATION OF THE STUDY

Little is known about diagnostic testing and counseling because of scarcity of information.
There is scarcity of research evidence about DCT for HIV testing practices among patients with TB in sub-Saharan Africa(WHO, 2011). Therefore, the study will be of importance in that it will help to identify co-infected patients and prevent occurrence of opportunistic infections. HIV testing among tuberculosis patients is critical in reducing morbidity and mortality rates because if found to be HIV positive patients can access ART as well as continued care and support. HIV testing and counseling stands out as paramount to address the TB and HIV problems. Routine testing of patients for HIV in settings with generalized HIV epidemics has the potential benefit of identifying the infection earlier. It may help to prevent morbidity, mortality and sustained transmission. HIV testing at the time of TB diagnosis is an exceptional opportunity to make a new HIV diagnosis and get patients in care.

Co-infection with HIV has contributed to the increase in TB cases and is the biggest risk factor for progression from TB infection to AIDS disease. The burden of HIV in patients with TB may be reduced by implementing DCT for all patients with TB. This is to ensure HIV co-infection is identified and patients are offered appropriate HIV care and treatment (MoH, 2014). The benefit of testing for HIV in patients with TB is to diagnose HIV/AIDS early. The burden of HIV in patients with TB will be reduced by implementing DCT for all patients with TB. This will help to make sure HIV co-infection is identified and patients are offered appropriate HIV care and treatment. DCT may benefit the patients as HIV will be diagnosed early, thereby preventing the dissemination of TB. In addition, it may also reduce the high rates of TB recurrence (WHO, 2014). Opportunistic infections are likely to occur if TB has disseminated and the test for HIV is delayed, especially in those that are HIV positive.

The findings of the study done by Abdurrahman (2015) found that fear of the results; self-trust and lack of private rooms were the main reasons for not accepting the test. In a study according to Seyoum (2013) showed the association with low knowledge and DCT. Zambia is on track to meet the targets for Millennium Development Goals (MDG) No. 6 but has made insufficient progress to meet the targets for MDGs 6.Despite some challenges faced by health care providers to prevent occurrence of other diseases, there are obstacles that the staff face.

Monze Hospital has similar challenges some of which are staff shortages, fear to undertake the test by patients and denial. It was therefore, necessary for the investigator to do the study so that measures to improve the underutilization of DCT may be found and put in place. Furthermore, not many studies have been conducted on this topic in Zambia. The findings will be utilized to develop strategies that enhance DCT utilization for HIV among patients with TB. In addition the study will assist in generating data that can be used as a basis for subsequent studies and investigations.

1.4. MAIN OBJECTIVE

To explore factors influencing utilization of DCT for HIV among patients with TB.

1.4.1. SPECIFIC OBJECTIVES.

- To establish the utilization of DCT for HIV among patients with TB
- To establish knowledge levels about TB/HIV and DCT among patients with TB.
- To determine the socio-cultural and service related factors associated with utilization of DCT among TB patients.

1.5. NULL HYPOTHESIS

There is no association between DCT utilization among TB patients and the following factors;

- Education
- Knowledge
- Stigma
- Discrimination
- Attitude of staff
- Waiting time
- Confidentiality
- Staffing level

1.6. RESEARCH QUESTION

What are the factors influencing DCT utilization among patients with TB at Monze Mission Hospital Chest Clinic?

1.7. CONCEPTUAL DEFINITIONS

Conceptual are concepts of various levels of abstraction that are concisely defined to facilitate their measurement or manipulation within a study.

- **Diagnostic Testing and Counselling** is a process in which the individual undergoes HIV counseling and testing by health care provider initiation (Mutanga et al., 2012).
- **Utilization** is the primary method by which asset performance is measured (Oxford Dictionary, 2010).
- **Uptake** is an act or instance of absorbing and incorporating something especially into a living organism (Oxford Dictionary, 2010).

1.8. **Operational definitions** of this study are:

- **Utilization** refers to use of DCT by TB patients. In this study, utilization of diagnostic testing and counseling will be measured by answering questions patterning to testing if the patient.
- **Knowledg**e refers to the information, understanding and skills gained through education or experience (Oxford Dictionary, 2010).

The participants' level of knowledge on TB/HIV and DCT was assessed by responses from the participants on questions patterning to Knowledge on TB/HIV/DCT. The participants that scored9-11 on questions of knowledge on TB/HIV co-infection and DCT were graded as having high knowledge. Those that score 5-8 on questions of knowledge on TB/HIV co-infection and DCT have medium knowledge and those that score 0-4 on questions of knowledge on TB/HIV co-infection and DCT have low knowledge.

- Stigma
- Staff attitude
- Waiting time
- Confidentiality

1.9. Research variables

1.9.1. Dependent variables

The dependent variable for this study is utilization of DCT.

1.9.2. Independent variables

The independent variables for this study are:-

- Knowledge level
- Education level
- Staff attitude
- Stigma
- Waiting time
- Confidentiality

1.10. Variables, Indicators and Cut off points

Table 2: Variables, Indicators and Questions

Variable	**Scale of measurement**	**Indicator**	**Cut-off point**	**Question No.**
Dependent				
DCT Utilization	Dichotomous	Yes	Participant counselled and tested	18-20
		No	Participant not counselled nor tested	18-20
Independent				
Knowledge Level	Ordinal	High	scores 9-11 on questions of knowledge on TB/HIV co-infection and DCT	6-14
		Medium	scores 5-8 on questions of knowledge on TB/HIV co-infection and DCT	6-14
		Low	scores 0-4 on questions of knowledge on TB/HIV co-infection and DCT	6-16
Education Level	Ordinal	Educated	Respondent has reached College or University level of education	4
		Partially educated	Respondent has reached secondary level of education	4
		Not Educated	Respondent has/has not reached primary level of education.	4
Staff Attitude	Dichotomous	Positive	Patient welcomed at the health facility.	21-25
		Negative	Patient not welcomed at the health facility	21-25
Stigma	Dichotomous	Stigmatized Not stigmatized	Participants were isolated Participants were accepted.	15 -17
Waiting time	Dichotomous	Long Short	More than 30 minutes before client is attended to. Less than 30 minutes before client is attended to	30
Confidentiality	Dichotomous	Yes No	Information was provided in privacy information was not provided in privacy	31-32
Staffing level	Ordinal	Adequate Moderate Poor	4 staff on duty per shift. 2-3 staff on duty per shift 1staff on duty per shift	27-29

The table above summarizes the variables are categorized into independent and dependent variables.

CHAPTER TWO: LITERATURE REVIEW

2.0. INTRODUCTION

Reviewing the existing literature related to the study is a critical step in research process. It is essential that an investigators work be built on the works of others. A literature review is an organized written presentation of what has been published on a topic by scholars (Nancy et al., 2001). The purpose of literature review was to ensure the research has not been done before and identify gaps in the previous research. The review also helped to highlight flaws in the previous research. It provided a context for the research and justifies the research. It enabled the researcher to learn from previous theory on the subject and illustrates how the subject has been studied previously. Literature review showed where the research fitted into the existing body of knowledge, enables the researcher to learn from previous theory on the subject and illustrates how the subject has been studied previously. In addition, it showed that the work is adding to the understanding and knowledge of the field, and assists on refining, refocusing or even changing the topic. It helped the investigator to identify the successes and failures of DCT utilization. In addition, literature review served as a preventive mechanism for duplication of work.

The main areas covered were factors that influence utilization of DCT for HIV by TB patients. Other areas covered included inadequate staff, long queues, inadequate knowledge and stigma were among other factors discussed in the review. The sources of literature review included books, articles, professional journals, policy papers and dissertations. Particular note was taken as references cited by other authors that appears to be relevant. References have been reflected that have information related to theories on DCT utilization by TB patients who were selected. The review focused on available and accessible literature related to TB, HIV, Dual epidemic and factors that influence utilization of DCT.

2.1. TUBERCULOSIS

Tuberculosis remains a health problem of vast dimensions, particularly in the developing world, affecting millions of people each year. TB is a leading cause of morbidity and mortality among people living with HIV/AIDS (Peter et al., 2002). A study done in 2010, in Pakistan found that only 2% of patients with TB knew their HIV status and that nationally, only 22 TB/HIV patients were reported (WHO, 2011). It is exacerbated by HIV infection which if diagnosed late leads to progressive immunodeficiency, and increased susceptibility to infections including TB. It accounts for up to a third of AIDS deaths worldwide (David et al., 2004). Since the mid-1980s, in many African countries, including those with well-organized programmes, annual tuberculosis case notification rates have risen up to fourfold. Up to 70 percent of patients with tuberculosis are HIV-positive in some countries in sub-Saharan Africa (WHO, 2007). Zambia is among the countries in the world with the highest TB incidence rate and with a HIV sero-prevalence of 50-70 percent patients are co-infected with HIV countrywide. In 2013, they were 5.7 million newly diagnosed cases of TB (WHO, 2014).

The prevalence of HIV co-infection among adult patients with TB is between 55 percent and 80 percent making Zambia as one of the hardest hit country by the dual TB and HIV epidemics (WHO, 2007). TB patients constitute the largest single group eligible for DCT. As a result the Zambia National TB Program adopted the WHO Interim Policy on collaborative TB/HIV activities in 2004. However, there are still many challenges with regard to integration of DCT activities in TB departments that may facilitate enrollment into long term HIV care for TB patients. At the 38th World Conference of the International Union against Tuberculosis and Lung disease held in South Africa from 8-12 November, 2007; Dube et al reported on the interventions that improved TB/HIV services in rural areas. Since the majority of the people in rural areas live scattered in vast land, it is difficult for the community to access these health services. Increasing DCT sites and bringing TB/HIV services as close as possible to the family can improve uptake of DCT (WHO, 2014).

The shortage of staff crisis is getting nurses being overworked. The perception of inefficiency may be as a result of high patient volume because of the disease burden of TB and HIV and AIDS. The additional workload and occupational stress experienced by nurses working within overstretched local health systems have been identified as obstacles for effective implementation of DCT (Ross, 2010).In Zambia, patient–provider contact time more than doubled in a clinic when DCT was introduced (Topp et al., 2010). It could be shown in inadequate counseling skills, failure to observe privacy when attending to patients and lack of concern and support for patients accessing TB services. These consequences may hinder patient's access to DCT services. In addition, long waiting time is likely to result where there is inadequate human resource which may dismay patients from undertaking DCT.

2.2. HIV and AIDS

The Pandemic of the Acquired Immunodeficiency Syndrome (AIDS) pandemic and the evident association with TB cause for world-wide concern (WHO, 2014). About 25, 476 patients with TB are HIV positive in Zambia. About 40 million People Living with HIV and AIDS (PLWHA) worldwide were co-infected with Mycobacterium tuberculosis. The majority of co-infected people are in resource constrained countries. Escalating tuberculosis case rates over the past decade in many countries in sub-Saharan Africa and in parts of South East Asia (e.g. northern Thailand) are largely attributed to the HIV pandemic (Nateniyom et al.,2008). Since up to half of people living with HIV/AIDS (PLWHA) develop tuberculosis and tuberculosis has an adverse effect on HIV progression. HIV and AIDS prevention and care should be of priority concern in all TB programmes (WHO, 2007). Further efforts are still needed globally, since only 34% of 6.2 million tuberculosis patients were aware of their HIV status in 2010 (WHO, 2011).

Ghana is also one of the countries in Africa that has embarked on a program to increase the knowledge levels of health care providers on TB and HIV co-infection and DCT. According to Ghana Health Services (2007), hospital studies have shown that the prevalence of HIV in patients with TB is 25-30 percent. At the korle-Bu Teaching Hospital in Accra, 30 percent of HIV patients present with TB and it accounts for 40-50 percent of HIV deaths. A total number of 2053 patients were tested for HIV using DCT strategy. Out of the patients tested only 59 percent were identified as TB-HIV co-infected had enrolled into long time care even when services were readily available and free of charge. However, health care providers faced the challenges of understaffing, infrastructure limitations and large patient volume.

According to Harris et al., (2008) HIV integration activities require careful assessment of health services and modification of infrastructure to address the needs of individual settings. Nearly half of the co-infected patients did not access HIV care because of a number of barriers such as large patient volume and shortage of staff. In line with the country's policy on the "one stop shopping" approach for managing patients with TB/HIV patients' capacity building for clinicians in TB centers have been initiated to facilitate commencement of DCT (Ghana Health Service, 2007).

2.3. DUAL EPIDEMIC

A rising number of dual infections with HIV and tuberculosis have created a co-epidemic spreading throughout sub-Saharan Africa. The situation is made more urgent by increasing rates of drug-resistant TB in areas with a high prevalence of HIV. Half of all new TB cases in sub-Saharan Africa are now HIV co-infected. Zambia is one of the countries in the world most affected by the dual TB and HIV epidemics. Zambia reported over 60,000 cases of tuberculosis, of which at least 62 percent are estimated to be HIV positive (WHO, 2014). The country experienced a dramatic increase in the numbers of patients reported with tuberculosis over the 1990s and early 2000s due to the increasing HIV pandemic. The pandemic will worsen the TB situation in developing countries above the existing situation by reactivating a latent TB infection among dually infected persons.

The World Health Organization estimates that, at least, one-third of the nearly 36 million people living with HIV and AIDS are also infected with TB. TB is the leading cause of death among people living with HIV in sub-Saharan Africa. These two diseases so closely linked to the 2015 Millennium Development Goal of a 50 percent reduction of TB-related deaths is integral to achieving an AIDS-free generation (WHO, 2014). In addition the new infection with tubercle bacilli and rapid progression to active disease in HIV infected persons will also worsen the existing situation (WHO, 2014). Integration of TB/HIV and DCT activities have also shown to be of great benefit in increasing the uptake of DCT among TB patients in KwaZulu Natal in South Africa. However, in most parts of South Africa, the uptake of DCT has been limited (Naidoo, Weyers & Uys, 2007).

This is a largely because TB and HIV and AIDS programs have tightened separate courses which result in co-infected patients having access to separate facilities on separate days. All these services are provided at the site where the patient is first attended to. It further indicates that when health care providers are equipped with knowledge on TB/HIV co-infection and DCT, they face fewer problems in managing patients infected with TB and HIV. In such circumstances, health care providers understand the consequences of the dual epidemic on patients and are likely to encourage eligible patients to utilize DCT. On the other hand, patients will be equipped with knowledge on TB/HIV co-infection and DCT which is likely to increase the uptake of the test. It further indicates that when health care providers are equipped with knowledge on TB/HIV co-infection and DCT, they face fewer problems in managing patients infected with TB and HIV (Engelgen et al., 2007).

According to Engelgen (2007),in settings where the integration of TB/HIV activities has been implemented, the uptake of DCT among TB patients is likely to increase. The percentage of TB patients who knew their HIV status rose from 69 percent in 2011 to 74 percent in sub-Saharan Africa (WHO, 2014). A review of TB registers and HIV data done at health facilities offering integrated TB/HIV care in Nairobi by Engelgen, (2007) revealed that out of the 361 newly registered TB patients 247 (68%) were HIV positive. On the other hand a total of 125 (77%) patients accepted ART along with Anti-Tuberculosis Treatment (ATT).The high uptake of DCT and ART in this setting may be a demonstration of the feasibility and value of an integrated approach to TB/HIV care and is of particular operational importance given the high HIV related mortality faced by TB programs in Sub-Saharan Africa. The barriers that patients may have encountered were inadequate education on TB/HIV co-infection because members of staffs are overburdened with work. This may lead to patients not accepting to undertake DCT because they do not understand the importance.

2.4. DIAGNOSTIC COUNSELING AND TESTING

Diagnostic Counseling and Testing (DCT) is the process of preparing patients who present with signs and symptoms of HIV related illnesses for HIV test and an accurate, complete diagnosis, and with appropriate advice about management of this condition (Mutanga et al., 2012). Diagnostic Counseling and Testing is being scaled up throughout the world. However, little is known about the outcomes of DCT on subsequent behaviour (WHO, 2011). HIV testing and counseling should be offered to all tuberculosis patients in settings where the HIV prevalence among tuberculosis patients exceeds five percent (WHO, 2011).In 2013, 48% of TB patients globally, had a documented HIV test result. Universally, since 2003 there has been a threefold increase in both HIV testing of TB patients and detection of TB-HIV co-infection.

However, total coverage of HIV testing and counseling is still very low. Globally, only about12% and nationally only 22% of TB patients were tested for HIV. In the African region that has the highest TB/HIV burden; three out of four TB patients knew their HIV status. Globally, 70% of the TB patients are known to be living with HIV (WHO, 2014).TB control program should establish a referral linkage with HIV/AIDS programs to provide a continuum of care and support for PLWHA who are receiving or who have completed their TB treatment. In line with the country's policy of the "one stop shopping" approach for managing TB/HIV patients , capacity building for clinicians in TB centers have been initiated so that DCT is commenced in these centers (Ghana Health Service, 2007).

Currently, utilization of HIV testing remains poor even in setting in which HIV counseling and testing is routinely offered. The true level of HIV test uptake among TB patients can be as low as 31.1 percent and as high as 49.3 percent. In South Africa, only 34% of 6.2 million TB patients were aware of their HIV status in 2010 and accepted DCT uptake (WHO, 2011). According to Srikantiah (2007), the test uptake was found to be low at 39 percent. The implication here is that either the HIV test is not being offered to TB patients or patients are not accepting to be tested after being offered the HIV test. There may be other operational factors yet to be determined that are responsible for TB patients not being tested.

Malawi acceptance levels from above 90% under research conditions dropped to 59% during routine care of TB patients(Kang'ombe, 2004) suggesting that the operational particularities of implementing each programme may contribute substantially to differences in acceptance rates. Reasons given by clients for refusing the HIV test included a perception of low risk, having previously tested and feeling 'afraid' or 'not ready' (Claessens, 2002).

Although, there is paucity information that may describe the extent of DCT service utilization and patients' utilization of DCT among patients with TB. It is imperative to understand the reasons for poor uptake of HIV testing (Claessens, 2002).Patients are reluctant to be tested because they believe that TB itself is a deadly disease, and they do not want to add to their burden by being tested for HIV. The stigma associated with being seen undertaking DCT, fear of the test itself and results have been shown to affect testing uptake. The likelihood of HIV-positive patients returning to seek care has reduced. Conducting community awareness campaigns on TB and HIV will probably increase utilization of DCT, hence reducing stigma and discrimination. Counseling patients and families on the importance of DCT and support towards patients with TB may increase utilization of the service. DCT utilization may increase if sensitization on the importance of the service is done.

The separation of TB and HIV programs seem to have significant effect on the utilization of DCT by patients with TB. Despite, programs being situated within the structure of the MOH clearly indicate that separation of these programs poses challenge for TB patients in accessing the service. This may be attributed to the frustration that patients face in spending a lot of time at the ART clinic after being referred from TB clinic. If services were provided at the same site, patient may only have to line up at one site. Provision of services at the same site may serve to reduce the time patients spend accessing both services and enhances confidentially because patients will be in contact with a limited number of health care providers. This may encourage the patient to access DCT because they are assured of confidentiality and will spend less time in the health facility. The provision of TB services and DCT at one site has also shown to improve utilization of DCT by patients in Thailand. Eang et al. (2007) reported that linkages between TB and HIV activities were developed in referral hospitals.

Patients with active TB were counseled and tested at the TB site through the DCT approach. At the same site, other opportunistic treatment and prophylaxis was given. In addition, ARVs were given to eligible patients with TB. This approach calls for an integrated management of TB/HIV co-infection patients where all services that the patient requires are provided at one site instead of referring them to other sites for treatment. When patients with TB are managed at the same site, patients may feel less stigmatized because they may have developed rapport with the staff providing the service. Eang et al (2007) established that over 80 percent of the patients with TB who had undergone DCT done were positive. They received intensive education and were counselled by the member of the staffs. This report is an indication that adequate education and proper counseling may contribute to promoting utilization of DCT by patients' with TB because it may provide an opportunity for dispelling about DCT. On the other hand, inadequate counseling may hinder TB patients from utilizing DCT.

According to Baral (2007), inadequate counseling reduces service utilization, placing enormous burden on the poor and vulnerable. Patients may not receive the necessary information on the consequences of TB/HIV co-infection and the benefits of DCT. In addition, patients may be unwilling to have DCT done because they lack the necessary information and the benefits. Provision of adequate support to TB patients is likely to increase utilization of DCT by patients with TB. The support may be offered in various ways such as providing emotional support and identifying support groups which the patients can join. A support group thus offers encouragement to the patient and provides opportunities for the patient to share their experiences and learn how the other patients are coping (Santos, 2007). Therefore, educating patients about DCT, its benefits and limitations is, therefore, an essential step in improving uptake of DCT. Patient education is also essential to ensure patients take up the test and dispel unrealistic expectations. In a study done in Ethiopia found that association between HIV testing uptake and educational levels was also inconsistent, with one study in Uganda finding that those with formal education were more likely to be offered a test (Wanyenze, 2008)and another in Ethiopia showing that the most educated were less likely to be tested.

According to Zimba (2006), knowledge awareness may increase the uptake of the test. Inadequate knowledge on DCT on part of the patients may be one of the limiting factors for low utilization of DCT (Zimba et al., 2006).Patients may not accept to be tested despite the service being readily available. Gender based violence has also been cited as influencing the utilization of DCT. Human Rights Watch (2007) determines the impact of gender based violence on women's utilization of DCT. Women's ability to make informed decisions about their health and lives is seriously hampered by perceived and real control of men over their health. Some women only accessed the test and started ART after their husbands died at which point they could have long gone beyond their eligibility for treatment. Men feel women must obtain permission from them to undergo DCT which partners normally refused. However, despite the efforts undertaken, the uptake of DCT still remains low, which is an indication that there may be problems on how the programs are delivered. Therefore, the investigator thought it will be appropriate to establish the problems influencing utilization of DCT.

CONCLUSION

The literature review revealed studies that have been conducted on determining DCT utilization among patients with TB in the Sub-Saharan region where the prevalence of TB is high, unlike in the Western countries where it is low. It has shown that in some places DCT utilization is high among female patients with TB than male patients. Studies have revealed that male patients are afraid of their partner reaction if tested positive, hence, they decide not to take up DCT. It is clear that for those patients who fear to take up the test are less likely to benefit from DCT. The patients with TB lack knowledge about TB, HIV/AIDS, dual epidemic and its benefits. In Zambia, few studies have been conducted to evaluate DCT utilization and identify factors that would influence patients with TB to utilize DCT. However, no study has been done in Monze District to address the problem of low DCT utilization among patients with TB.

CHAPTER THREE: METHODOLOGY

3.0. INTRODUCTION

This chapter focuses on the methods that were used to conduct the study. A methodis the systematic, theoretical analysis of the methods or an established, habitual, logical, or prescribed practice or systematic process of achieving certain ends with accuracy and efficiency, usually in an ordered sequence of fixed steps (Irny & Rose 2005) . It comprises of the research design, research setting, sample selection and size among others.

3.1. RESEARCH DESIGN

A cross-sectional study design was used because it sets out to discover new meaning when little is known about the phenomenon of interest. A cross section study is one which involved collecting data about various variables of the sample at one point in time in order to uncover relationships existing among those variables (Creswell, 2003).Furthermore, the design was flexible and addressed research questions of all types.The study conducted used quantitative approach because little is known about DCT utilization.

3.2. RESEARCH SETTING

Monze Mission Hospital is a General Hospital which has a catchment population of 206, 943. The services offered at the hospital are medical-surgical, gynaecology, ophthalmology and cancer screening. The study was undertaken at Monze Mission Hospital chest clinic and in the wards. The site was selected purposively because of the convenience and easy accessibility to the facilities. It was also chosen on the basis that TB programmes are conducted there on a daily basis and records showed low utilization of DCT services for HIV among patients with TB.

3.3. STUDY POPULATION

Men and women aged between 18 and 49 years were included in the study as the above age group gave consent to DCT (MOH/NAC, 2006). The study involved 226 patients who participated and this was the population obtainable at the time the study was conducted. The target population was patients with TB attending the clinic at the time the study was being conducted

3.4. SAMPLING METHOD

In order to obtain a representative sample, participants were obtained from the target population. The sample size was calculated using SPSS Version 20.0 for windows; computer software statistical package was used for data analysis. The sampling frame comprised of all patients with TB that visited chest clinic at the time of the study and met the set criteria. The participants for the study were selected using simple random sampling method. The study entailed defining the population that was studied, determined the percentage of the population that was interviewed or studied, assigned each individual within the population a number and then used arbitrarily selected numbers from a table of numbers, giving each individual an equal chance to be selected for inclusion in the study. In this manner, a sufficiently simple random sample of the general population became representative of the larger whole.(Bartlett et al., 2001).

According to Monze Hospital records (2014), 550 was the total population of patients with TB who attended the clinic for a period of one month. Thus, nine (9) participants were selected randomly per day since the clinic operates on a daily basis. This went on until the required sample size for participants was identified and recruited consecutively for three (3) month to eliminate selection bias until the sample size was reached.

3.4.1 INCLUSION CRITERIA

Patients that met the eligibility criteria were included in the study. Patients with TB within Monze Hospital aged between 18 and 49 years participated in the study. This group was appropriate because they were able to consent for DCT. In-patients and out-patients were included as well as all those who utilize and do not utilize DCT. All those that utilized both counselling and testing as well as those that did not utilize the service.

3.4.2 EXCLUSION CRITERIA

The patients that did not meet the above criteria did not participate in the study. These included patients with TB outside Monze catchment referred to the chest clinic. Patients who declined consent to participate in the study were also excluded from participating.

3.5. SAMPLE SIZE CALCULATION

The sample size was calculated using Krejcie and Morgan's formula as indicated below;

$s = X^2NP(1-P) \div d^2(N-1) + X^2P(1-P)$ (formula for sample size of a finite population).Where;

s = required sample size.

X^2 = the table value of chi-square for 1 degree of freedom at the desired confidence level of 0.05 (3.84).

N = the population size.

P = the population proportion (assumed to be 0.50 since this would provide the maximum sample size).

d = the degree of accuracy expressed as a proportion (0.05).

$$\mathbf{S} = \frac{X^2 NP(1-P)}{d2\,(N-1) + X^2 P(1-P)}$$

$$\mathbf{S} = \frac{3.8416(550 \times 0.50) \times 1-0.50}{0.0025\,(550-1) + 3.8416 \times 0.50\,(1-0.50)}$$

$\mathbf{S} = 226.4220498093$

The total sample size was 226

Based on the expectation that 550 patients with TB passed through chest clinic in three months, the total sample size comprised 226 participants.

3.6. DATA COLLECTION TOOLS AND TECHNIQUE

A semi-structured questionnaire was used to collect data and had predetermined closed and open ended questions. Three nurses were recruited as research assistants and oriented for two days on data collection using a semi-structured interview schedule. The data was collected between October and December, 2014 at Monze Mission Hospital-Chest clinic every day from 08:00 to 12:30 hours. The research assistants and other staff at the clinic were trained on the whole process of data collection so as to reduce the waiting time of the patients. This also ensured that the normal standard of care of the patients was not compromised in anyway. The process was done every day and to complete the process, each patient was expected to pass through the whole process.

3.6.1 VALIDITY OF THE DATA COLLECTING TOOL

To ensure validity, all the independent variables as well as the confounders were considered in this study by capturing them in the interview schedule during data collection and analysis.

3.6.2 RELIABILITY OF THE DATA COLLECTING TOOL

The interview schedule and method of collecting and processing the specimens and data was used on all the patients. The researcher ensured reliability by pre testing the instrument and adjustments will be made accordingly. During the pre-test, the respondents were asked if they had any questions they did not understand. It allowed room for any alterations of the questionnaire if necessary. No alterations were made. The questions were simple, concise and brief. The subjects were exposed to the tool and research assistants were trained and understood the questions without distorting the meaning. Open ended questions provided an opportunity to patients to add their own ideas thereby bringing out issues not thought of when designing he interview schedule.

3.7. PILOT STUDY

A pilot study was conducted on 23 participants who represented 10 percent of the study sample size (226). Chikuni hospital was conveniently selected because it has similar characteristics as the actual research site. The purpose of the pilot was to make necessary amendments to the interview schedule and was examined for reliability and validity of the instruments. It also helped to determine whether the sample was representative of the population or if the sampling technique was effective. No adjustment was done to the interview schedule after pre-testing.

3.8. ETHICAL CONSIDERATIONS

The ethical guidelines demanded that the researcher recognized their requirement to the participants of the study as well as to the development and promotion of knowledge (Royal College of Nursing, 1998). Specific areas that need critical consideration in this regard included among others the degree of inconvenience, and the possibility of emotional reactions by participants. Details of how the current study conformed to the ethical guidelines are outlined below. Ethics according to Nuremberg code (1986), refers to a system of moral values that is concerned with the degree to which the research process adhere to professional, legal and social obligations of the study participants.

The ethical guidelines mandated that the investigator recognized their obligation to the participants of the study as well as to the development and promotion of knowledge. Ethical approval and permission was sought from the Excellence in Research Ethics and Science Converge (ERESC). TB and HIV matters are sensitive and greatest care was taken on the values and beliefs of the participants. Therefore, confidentiality was upheld by ensuring that participants were interviewed in private and their names were not written on the interview schedules. All data collected was kept locked and only accessible to the investigator.

3.8.1 BASIC MORAL PRINCIPLES

The basic moral principles underline the conduct of biomedical and behavioral research involving human subjects and to develop guidelines which should be followed to assure that research is conducted in accordance with these principles (Beauchamp et al., 2001). The applications of the basic moral principles in research are important in order to address issues concerned with protection of participants against risk and exploitation (Quinn 2004).The principles provided a simple, accessible, and culturally neutral approach to thinking about ethical issues in research. The approach is based on four common basic moral principles which include respect for participants, informed consent, confidentiality and anonymity, beneficence/non-maleficence and justice.

3.8.2. INFORMED CONSENT

There is now wide acceptance of the doctrine that research involving human participants should be performed with the informed consent of the participants. Informed consent is essential whenever participants are exposed to a risk or are asked to forfeit personal rights. It is a moral requirement in research to ensure that participants are fully informed about the study and consent to their participation prior to the commencement of data collection (Marten et al., 1999).Informed consent in ethics usually refers to the idea that a person must be fully informed about and understand the potential benefits and risks of their choice of treatment. The value of informed consent is closely related to the values of autonomy and truth telling (Beauchamp et al., 2001). This was achieved by ensuring that participants had legal capacity to give consent, exercised free power of choice, without the intervention of any element of force, fraud, deceit, duress, over-reaching or other ulterior form of constraint of coercion. Participants had sufficient knowledge and comprehension of the elements of the subject matter involved as it enabled participants to make an understanding and enlightened decision.

3.8.3. RESPECT FOR PARTICIPANTS

It is a requirement in research to protect the autonomy of all people, treating them with courtesy, respect and allowing for informed consent prior data collection (Nuremberg code, 1986).The principle of respect for persons was acknowledged and protecting those with diminished autonomy. Participants were capable of self-determination or controlling their own destiny. They were treated as autonomous participants who had the freedom to conduct their lives as they choose without external controls. This principle leads to the requirement of informed voluntary consent (Burns & grove, 2006). This information about research was achieved by was availing it to the participants. Participants were informed about the proposed study and voluntarily choose to participate or not. Participants who were not able to read and write were given verbal explanation regarding the nature of the study. Thereafter, they were requested to make a mark on the consent form and participated willingly. At the end of the data collection, participants were given a feedback on the results. The results will be disseminated through workshops and publication in academic health journals.

3.8.4. CONFIDENTIALITY AND ANONYMITY

Research participants have the right to anonymity and the right to believe that the information gathered from them will be kept confidential (Burns, 2006). Measures were taken to maintain confidentiality by ensuring that no names or other identifying details were indicated on the data collection tool. Instead numbers were used on each participant's data collecting tool. Interviews were conducted in a private room. Furthermore, all questionnaires were kept under lock and key after each interview. The data was also analyzed in a private room. No other person apart from the investigator had access to data.

3.8.5. BENEFICENCE/MALEFICENCE

Participant's decisions were protected from harm by making efforts to secure their well-being. It was achieved by ensuring that participants took an active role in preventing discomfort, harm and promoting a conducive environment. During the study, participants were protected from discomfort, harm and try to bring about the greatest possible balance of benefits in comparison with harm.

3.8.6 JUSTICE

The right to fair treatment is based on the principle of justice. The principle holds that each person should be treated fairly and should receive what he or she is due or owed. The selection of a population and specific participants to the study was fair, the risks and benefits of the study were fairly distributed on the basis of the participant's efforts, needs and rights. The participants were selected for a reason directly related to the problem being studied and not for their easy availability, compromised position and manipulability. All research participants were treated equally without discrimination.

CHAPTER FOUR

4.0. Data analysis and presentation of the findings

4.1. Data analysis

Data analysis is done to reduce, organize and give meaning to the data (Polit, 2001). Numerical codes were used on the interview schedule. Following data collection, the pre-coded interview schedule was double checked for completeness, consistency, legibility and accuracy on a daily basis. The data collected was entered and stored into the data editor of IBM® SPSS® and statistically analysed using IBM SPSS Statistics for Windows Version 20.0. The data entered was subjected to double and consistence checks.This computer software statistical package enabled the researcher to obtain a data set of diagnostic counselling and testing and factors associated with utilization. Frequency tables were used to present data and cross tabulation were used to explore the statistical relationships between dependent and independent variables.

The mean was applied to score ordinal variables such as level of knowledge, level of education and staffing level. The median was utilized to highlight the score at the exact center of the frequency distribution. The relationships between the different categories of variables were investigated with Pearson's chi-squared test for association and further fitting logistic regression model. The effects that levels of knowledge and confidentiality have on DCT utilization were assessed with binary logistic regression. Only the independent variables that were determined to be significantly associated with the outcome variables after bivariate Chi-square testing were included into the logistic regression model. From the chi-squared association analysis, only the level of knowledge and confidentiality were statistically associated with DCT.

Pearson's chi-squared was also used to select potential predictors of utilizing and not utilizing DCT. To control for the effect of confounding variables binary regression was used to adjust confounders. DCT utilization was dichotomized into high and low. The questions not answered by participants were categorized as missing.Odds Ratio and 95% confidence interval were calculated using binary logistic regression to identify predictors of DCT utilization while adjusting for confounders. A p-value of < 0.05 was set and considered significant.

4.2. Data Presentation

A total of 226 patients were sampled from amongst the patients with TB who visited Monze Mission Hospital-Chest Clinic during the period of study. After processing and analysing the data, the latter was presented in frequency tables, contingency tables, graphs and numerical descriptions were given to show the relationships of variables so as to make the data more meaningful.

SECTION A: SOCIO-DEMOGRAPHIC DATA (n=226)

TABLE 4: Demographic characteristics of the participants.

VARIABLES	FREQUENCY	PERCENT
Age		
18-26 Years	32	14.2
26-33 Years	62	27.4
34-41 Years	65	28.8
42-49 Years	67	29.6
Total	**226**	**100**
Sex		
Male	125	55.3
Female	101	44.7
Total	**226**	**100**
Marital status		
Single	106	32.0
Married	72	46.9
Separated	17	7.5
Divorced	14	6.1
Widowed	17	7.5
Total	**226**	**100**
Educational Level		
Primary	79	35
Secondary	113	50
College	24	11
University	4	2
None	5	2
Total	**226**	**100**

Table 4.1 shows that majority of the participants were aged between 42and 49 years. The age range was between 18 and 49 years. The majority of the participants 125 (55.3%) were males and almost half of the patients 113 (50%) had secondary education, primary 79 (35.9), college 24 (10.2) and University education 4 (1.7). Some participants 5 (2) had no formal education.

SECTION B- DIAGNOSTIC COUNSELLING AND TESTING (n=226)

Figure 4.1: Diagnostic Counselling and Testing utilization (n=226)

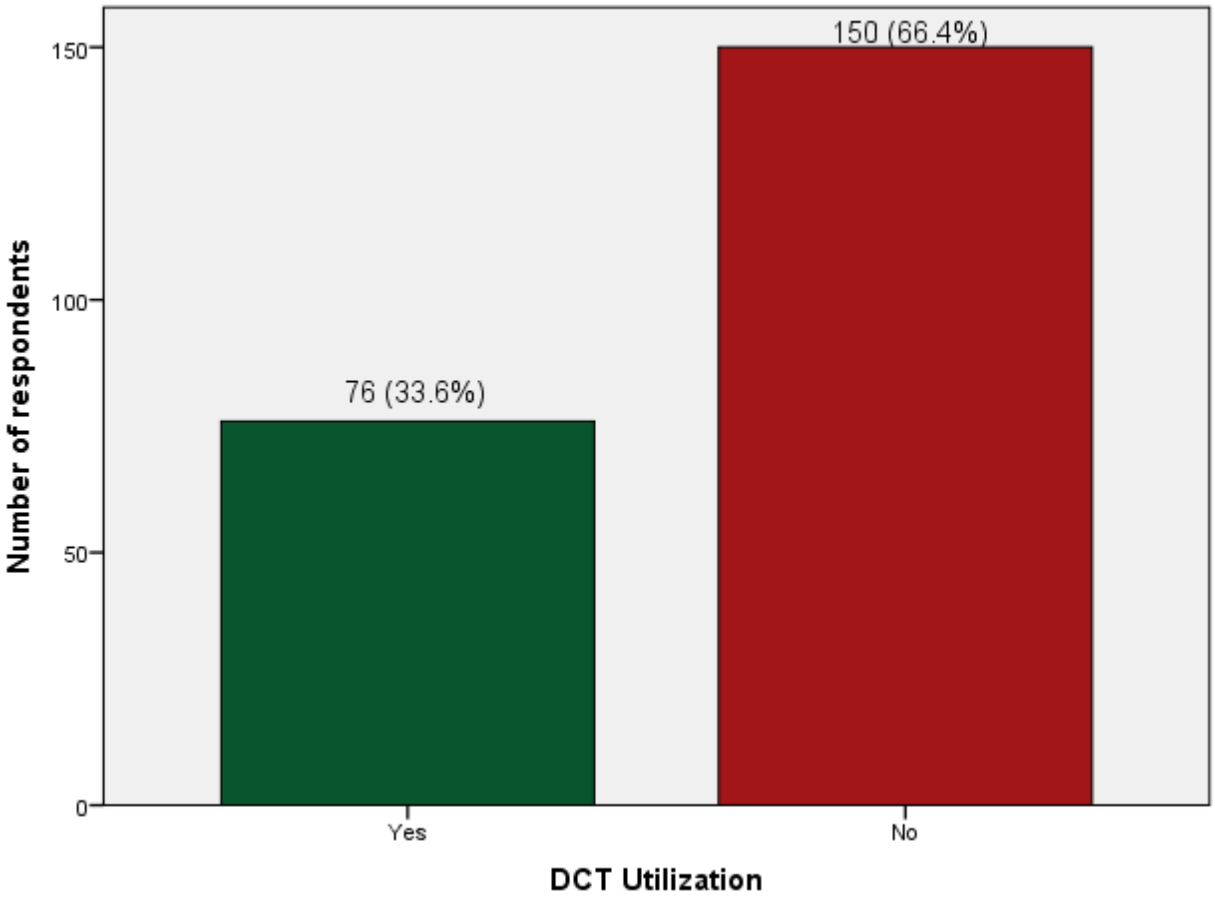


Figure 2: Diagnostic counselling and testing utilization

Figure 4.1 shows that less than half 76 (33.6%) of the respondents had heard about DCT and were tested for HIV while more than half 150 (66.4%) had neither heard about DCT nor tested for HIV.

SECTION C

Table 4.2: Diagnostic Counseling and Testing utilization by the Determinant Factors**(**n=226)

Variables	**Frequency**	**Percent**
Source of information		
Health personnel	127	56.2
Relative	4	1.8
Friends	18	7.9
Media	22	9.7
All the above	51	22.6
Others (specify)	4	1.8
Total	**226**	**100**
Relationship between TB and HIV		
Yes	70	30.9
No	156	69
Total	**226**	**100**
Benefits of Diagnostic Counselling and Testing		
Yes	77	34.1
No	149	65.9
Total	**226**	**100**
Level of knowledge		
Low	140	62
Medium	12	5.3
High	74	32.7
Total	**226**	**100**

Table 4.2 shows that most 127 (56.2%) of the respondents' source of information was from the health personnel followed by the media. Majority of the participants 156 (69%) stated that there was no relationship between TB and HIV while70 (30.9%) indicated that there was a relationship. Majority of the respondents 140 (62%) had low level of knowledge regarding TB, HIV and DCT. The participants further indicated that DCT had no benefits.

SECTION D

Table 4.3**:** Diagnostic Counseling and Testing utilization by the Determinant Factors

Variable	Frequency	Percent
Patient fear and self-perceived risk of infection with HIV	134	59.3
Fear of the unknown	48	21.2
Stigma	29	12.8
Discrimination	7	3.1
Mistrust	2	0.9
None of the above	6	2.7
Total	**226**	**100**
TB and HIV associated stigma and discrimination		
Stigmatised	69	30.5
Not stigmatised	157	69.5
Total	**226**	**100**
Staff attitude and support		
Positive	159	70.4
Negative	67	29.6
Total	**226**	**100**
Staffing		
Adequate	104	46
Poor	114	50.4
Moderate	8	3.5
Total	**226**	**100**
Waiting time		
Long	136	60.2
Short	90	39.8
Total	**226**	**100**

Table 4.3 shows that majority (157 (69.5%) of the respondents stated that they were not stigmatized while less than half 69 (30.5%) indicated that they were stigmatized. More than half 159 (70.4%) of the respondents stated that attitude and support by health workers towards clients seeking DCT was good. Most of the respondents 134 (59.3%) had fear of the unknown and self-perceived risk with HIV infection hence, did not take up DCT while 48 (21.2%) were afraid of being stigmatized. Majority of the participants 136 (60.2%) stated that waiting time for respondents to be attended to was long whiles 90 (39.8%) indicated that waiting time was short.

Table 4.4: The demographic characteristics of participants that utilized and did not utilize DCT.

	DCT utilization		
Characteristic	**Utilized (Yes)**	**Did not utilize (No)**	**P-Value***
	No. (%)	No. (%)	
Age			
18-25 years	8 (17.0)	39 (82.9)	
26-33 years	21 (35.5)	38 (64.4)	0.773
34-41 years	21 (33.3)	42 (66.7)	
42-49 years	22 (33.3	44 (66.7)	
Sex			
Male	48 (38.4)	77 (61.6)	
Female	28 (27.7)	73 (72.6)	0 .160
Education level			
Primary	31 (39.2)	48 (60.7)	
Secondary	32 (28.3)	81 (71.7)	0.970
College	12 (50.0)	12 (50.0)	
University	0 (0.0)	4 (100)	
None	1 (20)	4(80)	
Marital status			
Single	26(36.1)	46 (63.9)	
Married	31 (29.2)	75 (70.8)	0.388
Separated	9 (52.9)	8 (47.1)	
Divorced	4 (28.6)	10 (71.4)	
Widowed	6 (35.3)	11 (64.7)	

Pearson's Chi-Squared Test, *Indicates significant *p*-value at $p < 0.05$.

Table 4.4 shows that DCT utilization was low across all age groups among patients with Tuberculosis. Most of the male respondents 77 (61.6) did not utilize DCT as compared to females 73 (72.6). Among the respondents that had secondary education only 32 (28.3) utilized the service and 81 (71.7) did not utilize the service. Majority of the respondents were married and out of this number only 31 (29.2) respondents utilized the service while 75 (70.8) did not utilize. The relationship between DCT and associated factors of the patients was measured using Pearson's Chi-squared test and the results are presented in tables 4.5, 4.6 and 4.7.

Table 4.5: Diagnostic Counseling and Testing utilization by the Determinant Factors (n=226).

	DCT utilization		
	High	**Low**	
Characteristics	**No (%)**	**No (%)**	**P-Value***
Staffing			
Poor	3 (12.5)	21 (87.5)	
Moderate	29 (40.8)	42 (59.1)	0.354
Adequate	43 (43.4)	56 (56.6)	
Waiting time			
Short	36 (40.9)	36 (40.9)	
Long	40 (22.5)	40 (22.5)	0 .530
Level of knowledge			
High	27 (36.5)	47 (63.5)	
Medium	1 (8.3)	11 (91.7)	**0.045**
Low	48 (34.3)	92 (65.7)	
Confidentiality			
Yes	31 (34.4)	59 (65.5)	
No	44 (32.8)	90 (67.2)	**0.049**
Stigma			
Stigmatised	31 (41.3)	44 (58.7)	0.803
Not stigmatised	44 (32.8)	90 (67.2)	
Time of the service			
Good	45 (59.2)	31 (40.8)	0.515
Poor	82 (54.7)	68 (45.3)	
Attitude			
Negative	107 (71.8)	42 (28.2)	
Positive	50 (65.8)	26 (34.2)	0.325

Pearson's Chi-Squared Test, *Indicates significant *p*-value at $p < 0.05$.

Binary logistic regression determining the factors associated with low Diagnostic Counselling and Testing utilization.

Binary logistic regression analysis was used to determine the true predictors of diagnostic counselling and testing utilization. The results of the Univariate logistic regression revealed that level of knowledge and confidentiality were variables associated with low diagnostic counseling and testing utilization

Table 4.6:Univariate Binary Logistic Regression Determining Factors Associated with utilization of Diagnostic Counselling and Testing (n=226)

Univariate logistic regression was performed on theoretically relevant factors to examine the relationship between each factor and each dependent variable. Chi-square statistics and odds ratios were generated with 95% confidence intervals to guide interpretation. Variables that were found with a statistically significant association ($p<0.05$) at Univariate logistic analysis were entered and analyzed by multiple logistic regression**.**

Note:

- *Indicates significant *p*-value at $p< 0.05$
- Unadjusted odds ratio

	DCT			
	High	**Low**		
Predictor Variable	**No (%)**	**No (%)**	**AOR (95% CI)**	**P-Value***
Knowledge				
High	27 (36.5)	47 (63.5)	0.90(0.504-1.635)	0.099
Moderate	1 (8.3)	11 (91.7)	5.73(0.719-45.785	**0.048**
Low	48 (34.3)	92 (65.7)	1.00(Ref)	
Confidentiality				
Yes	31 (34.4)	59 (65.6)	0.93 (0.52-1.637)	**0.050**
No	44 (32.8)	90 (67.2)	1.00 (Ref)	

In table 4.6, Patients with moderate knowledge are five (5) times likely to utilize diagnostic counselling and testing while those with high knowledge are 9% in odds less likely to take up the test. Patients that have confidence in terms of not disclosing their HIV status by health personnel are 9% in odds are less likely to utilize diagnostic counselling and testing effectively.

The multivariate logistic regression model was the final analysis to be performed. Variables that were found to be a statistically significant ($p<0.05$) at Univariate logistic regression analysis were entered and analysed by multiple logistic regression analysis. The multivariate binary logistic regression model was tested for Hosmer and Lemeshow test of model fitness for data, omnibus test of model coefficients and classification accuracy. The results of the multivariate binary logistic regression analysis to predict whether eight variable factors; that is age, attitude, stigma and discrimination, confidentiality, staffing, waiting time, knowledge level and education levels were associated with diagnostic counselling and testing control status showed that, confidentiality and level of knowledge were statistically significantly associated with Diagnostic Counselling and Testing.

Table 4.7: Multivariate Binary Logistic Regression Model of determinant Factors Associated with Diagnostic Counselling and Testing (n=226)

	DCT			
	High	**Low**		
Predictor Variable	**No (%)**	**No (%)**	**OR (95% CI)**	**P-Value***
Knowledge				
High	27 (36.5)	47 (63.5)	0.89 (0.494-1.610)	0.703
Moderate	1 (8.3)	11 (91.7)	6.05 (0.750-48.830	**0.049**
Low	48 (34.3)	92 (65.7)	1.00(Ref)	
Confidentiality				
Yes	31 (34.4)	59 (65.6)	0.83 (0.491-0.4721	**0.549**
No	44 (32.8)	90 (67.2)	1.00 (Ref)	

Note:

- *Indicates significant *p*-value at $p < 0.05$.
- Adjusted odds ratio

Table 4.7 shows that the patients who had moderate knowledge were six (6) times more likely to utilize diagnostic counselling and testing while those with high knowledge are 8.9% in odds were less likely to utilize the service. Despite the health personnel keeping patients' information in confidence 8.3% in odds of the patients were less likely to take up the test.

CHAPTER FIVE

5.0. Discussion of the findings

5.1. Introduction

The aim of DCT utilization is to help diagnose HIV and AIDS in patients with Tuberculosis early and prevent complications (David et al., 2004).The poor uptake of DCT among patients with TB is coupled with an increase in complications that arise is of a public health concern. Resources are being provided for the management of TB, HIV and AIDS patients at both personal and government levels but achieving high DCT utilization is proving to be a considerable challenge in most cases. The current study examined the utilization of diagnostic counselling and testing for HIV in patients with Tuberculosis at Monze Mission Hospital in the Southern Province of Zambia.

5.2. Demographic Characteristics of the Patients

Most 67(29.6) of the participants that were engaged in the study were aged between 42 -49 years and there was a slight gender distribution difference in that there were more males than females as indicated in table 4.1. The findings of the study done in San Francisco by Glanz et al., (2010) indicate the areas of similarities. Generally, worldwide DCT utilization does not differ from country to country (Rony et al., 2003). In addition, there is no difference in gender distribution of DCT utilization because both genders seem to be affected equally by Tuberculosis (Kipp, 2011). In this study, 113 (50%) of the patients had Secondary education Primary 79 (35.9), College 24 (10.2) and University education 4 (1.7). Some participants 5 (2) had no formal education. The findings are similar to Glanz (2010) in a study conducted in San Francisco where most of the participants had secondary education. Although, literature did not show how education contributes to the prevalence of Tuberculosis, there is reason to suggest that education can influence the incidence of DCT utilization. This is because communicable diseases such as TB are influenced by lifestyle and health education can play a major role in mitigating TB and DCT utilization (Kipp, 2011).

5.3. Diagnostic Counselling and Testing Results

The results showed that out of the 226 patients, most of the participants did not utilize DCT (150, 66.4%) as indicated in figure 1. The low diagnostic counselling and testing among patients with TB as shown in this studyis consistent with other studies in developed and developing countries as indicated in a study done by Srikantiah (2007) in Uganda. Kipp et al, (2011) they reported no correlation between knowledge on TB/ HIV/AIDS and DCT utilization. However, in another study done by David et al (2004) in South Africa, it was reported that there isa strong correlation between knowledge on TB, HIV and AIDS and DCT utilization. In Zambia, low utilization of diagnostic counselling and testing service could be attributed to inadequate knowledge on the importance DCT to rule out HIV and AIDS. In a study conducted by Eang et al., (2007) in Alabama reported that DCT utilization is hampered by lack of knowledge. In Guyana, Malawi and South Africa have higher literacy levels with consequent better knowledge levels about the relationship between TB/HIV/AIDS and its consequences.

5.4. Diagnostic Counselling and Testing and Determinant Factors Associated with Utilization

The current study was able to demonstrate an association between DCT to the level of knowledge and confidentiality as shown in table 4.5, 4.6 and 4.7. There was a statistically significant association between diagnostic counselling and testing to confidentiality and level of knowledge of the patients in this study. This study showed that the patients who did not utilize DCT utilization had47%decreases in the odds of achieving high level of knowledge compared to those who utilized DCT utilization. The p value of level of knowledge and confidentiality were less than 0.05 and therefore failed to reject the null hypothesis. Multivariate binary logistic regression model predicted that confidentiality and knowledge were associated with DCT at p value < 0.05. However, age, education, sex, attitude, stigma, discrimination and timing of the service were not associated with diagnostic counselling and testing.

However, age, education, sex, attitude, stigma, discrimination and timing of the service were not. Among the patients who did not adhere to DCT utilization, most of them had low knowledge while less than half had high knowledge. However, other studies have shown that diagnostic counselling and testing among TB patients is low and even this study indicated low utilization. A previous study done in Ethiopia by Deribew (2013) found an association between level of knowledge and confidentiality of diagnostic counselling and testing.

It is also not surprising that patients with TB who fail to comply with DCT utilization have low knowledge on the importance of testing and results yielded poor outcomes (Deribew, 2009). However, in this study92 (40.7) of those who utilized DCT had confidence in the health personnel while 134 (59.3) had no confidence in the health personnel. A study done by Fay and Glanz (2010) in San Francisco found that confidentiality was associated with non-utilization of DCT. To the contrary, Kipp et al. (2011) in a study done in Southern Thailand reported high level of confidence associated with DCT utilization. Tackling non-utilization of DCT is not a simple matter, as it is multifactorial and might include time, personality and patient-provider relationship (Deribew, 2009).In addition, this study showed 150 66.4) of the patients were less likely to utilize diagnostic counselling and testing because they did not know the benefits of the test.

A study conducted by Nateniyom et al., (2008) found that low rates of utilization of DCT services were attributed to fear, stigma, discrimination, timing of the service, and self-perceived risk of HIV infection among others.It is important to note that diagnostic counselling and testing ascertains the presence of the HIV in patients with TB as chances of them having HIV are high. Nonetheless, the testing of all TB patients is advantageous not only because it helps to detect the HIV, but it also prevent complications that could arise if HIV is not detected early (David, 2004).The present study revealed that the odds of achieving high DCT utilization in TB patients were 67% lower among the patients. These results are in agreement with Deribew et al. (2009) where patients did not utilize the service adequately. Interestingly, a study conducted by Eang et al. (2007) in Alabama reported high DCT utilization among patients.

The high DCT utilization status is associated with confidence and knowledge in other studies could be because information, education and communication is effective (Santos, 2007). The knowledge level of patients with TB correlated with the utilization of DCT utilization in this study. DCT utilization among patients with higher level of knowledge was higher than among those with low level of knowledge. According to Santo (2007), achievement of optimal DCT utilization by imparting knowledge through information, education and communication among other factors minimises serious long term complications of HIV and AIDS opportunistic infections (Santos, 2007). If DCT utilization could be utilized to the maximum, it is possible that the outcome of utilization would be much more satisfactory among patients with TB. Thus, more attention should be addressed to primary preventive factors such as confidentiality in the management of TB patients.

5.5. Conclusion and recommendations

5.5.1 Conclusion

The current study determined the level of Diagnostic Counselling and Testing and associated factors among TB patients at Monze Mission Hospital in the Southern Province of Zambia. The study revealed that DCT utilization was low among TB patients. The level of knowledge on TB/HIV and AIDS/DCT and confidentiality were found to be related to DCT utilization by TB patients in this study. The current results suggest that if these factors are not adequately addressed, DCT utilization by patients with TB will remain low. Thus, it is important for the health-care providers to pay special attention to particular groups, such as those patients with TB and are likely to have co-morbidity with HIV/AIDS to ensure high utilization of the service. The study, provided baseline data on DCT utilization by TB patients at Monze Mission Hospital and the possible factors contributing to low DCT utilization among the patients with TB.

5.6. Recommendation

1. According to this study, it was established that patients had less knowledge on TB, dual infection and the importance of utilizing DCT. To this end, it is therefore recommended that patients need to be sensitized that DCT is part of TB treatment package and hence, the need for all patients to undertake the test.

2. It was also further established that patients were not provided with support and encouragement to take up the test. It is recommended that patients need to be offered emotional support, encouragement to join support groups and provide opportunities for the patient to share their experiences. They should also learn from other patients how they are coping with TB and HIV and AIDS.

3. Improve counsellors' training and skills and manage, support and monitor their work.

4. Encourage disclosure of HIV status by TB-HIV co-infected patients and involve them in motivating other patients with TB to test for HIV in order to reap the same benefits from integrated care, treatment and support.

What's new in this study and strength?

The new finding in this study is that knowledge and confidentiality come out as factors significantly associated with DCT uptake among patients with Tuberculosis. The strength of the study is that the factors have been identified that caused participants not to undertake DCT. Therefore, measures to overcome these factors have been put in place so as to ensure participants utilize DCT adequately.

5.7. Limitations of the study

The study was conducted at Monze Mission Hospital and the limitations could be from possible incorrect information given by the participants because of the presence of the interviewer. To minimize this limitation the participants were interviewed in privacy and names were not written on the interview schedule, instead numbers were used. The participants were informed, educated and communicated to on the importance giving accurate information. The research assistants were orientated on the questionnaire and ethical issues were discusses with them. The study was conducted at Monze Mission Hospital making it difficult to generalize the findings to the entire country.

5.8. Implication to Nursing Education

The study shows that majority 62% (140) participants did not have adequate information regarding DCT utilization. There is evidence, therefore, those participants do not have adequate knowledge on DCT and do not know the benefits and consequences of DCT utilization. It is imperative that all patients are up to date with current trends that all patients with TB should undertake DCT as it is part of the treatment package.

5.9. Nursing Research

The literature reviewed in this study shows that there is limited research done in Zambia to identify DCT utilization and factors associated with utilization among patients with TB. The uptake of DCT among patients with TB is low 66.4% (150). Therefore, nurse researchers need to investigate more on the above mentioned and find out how patients with TB can be helped to take up DCT.

5.10. Nursing practice

The study revealed that there are factors that are associated with DCT utilization (level of knowledge and confidentiality). The health personnel should take keen interest to read research findings so as to enable them take action to improve on the prevailing situation on DCT utilization among patients with TB. They should give information, education and communication to the patients. This will improve the number of patients with TB to take up DCT.

5.11. Nursing management

The study revealed that majority 59.2% (134) of the participants had no confidence in the health personnel offering DCT services. The nurse manager should ensure the health personnel handling patients with TB are trained to offer DCT. They should allocate staff that will be able to offer DCT service in privacy and confidence without disclosing the status of the patients. This will enable patients develop confidence in them and take up the test willingly. They should ensure that health care personnel are reminded on the importance of keeping patients' information in confidence so that they freely take up DCT.

5.12. Recommendation for further research

Future research should focus on evaluating the effect of IEC on utilization of DCT among patients with TB. This will help to evaluate the impact that IEC will have on patients if they take up DCT.

5.13. Data dissemination and utilization of findings

The findings of the study were presented to the faculty of Nursing Sciences Department. They were disseminated to major stake holders involved in the implementation of DCT utilization for HIV among TB patients. These include Ministry of Health and Monze Mission Hospital that provided the research site. A dissemination workshop was organized for health personnel and other stakeholders in Monze. The research reports served as reference materials for other researchers and health personnel. In addition, five copies of the report have been printed and deposited to the Nursing Sciences Department for Lecturers and students references, University of Zambia Medical library for lecturers and students' reference.

The Ministry of Health to guide policy makers in decision making, Monze Mission Hospital and the investigator to serve as reference materials in execution of duties. The findings were published in the Journal of Agricultural and Biomedical Sciences.

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APPENDICES

APPENDIX A: PARTICIPANT INFORMATION SHEET

UTILIZATION OF DIAGNOSTIC COUNSELLING AND TESTING FOR HIV AMONG TUBERCULOSIS PATIENTS AT MONZE MISSION HOSPITAL.

INTRODUCTION

Joyce Mulenga; A student pursuing a Master of Science in Nursing at the University of Zambia is kindly requesting for your participation in the study mentioned above. Before you make a decision whether or not to participate in this study. I would like to explain to you the purpose of the study, any risks or benefits and what is expected f you if you participate. Your participation in this study is entirely voluntary. You are under no obligation to participate; you may choose to participate or not to participate. If you choose not to participate, no privileges will be taken away from you. If you agree to participate, you will be asked to sign this consent in front of someone. Agreement to participate will not result in benefits.

PURPOSE OF THE STUDY

The study will obtain information on the utilization of Diagnostic Counselling and Testing for HIV among patients with tuberculosis and factors that determine utilization. The findings from the study will assist health care personnel and other stakeholders in devising ways and means of improving utilization of DCT by TB patients. This is likely to improve the lives of people co-infected with TB and HIV as well as reduce the risk of high prevalence levels of TB in the community.

PROCEDURE

After you have signed the consent form, and have had a chance to ask questions, you will be asked questions relating to your utilization of DCT services. The questions will be asked to you individually. You will also be given a chance to make suggestions on how you think utilization of DCT services can be improved.

RISK AND DISCOMFORT

Your participation in the study involves no risk to you or any other person. However, part of your time will be utilized to answer some questions. Care will be taken not to embarrass you as some of the questions may seem to be sensitive and personal.

BENEFITS

There is no direct benefit to you by participating in the study. No monetary favours will be given to you in exchange for information obtained but education will be given on the benefit of utilizing DCT by TB patients. The information which will be obtained will help policy makers to take measures to increase the uptake of DCT by TB patients.

CONFIDENTIALITY

Your research records and any information you will provide will be confidential to the extent permitted by law. You will be identified by a number, and personal information will be released without your written permission except when required by law. In the event that Ministry of Health, the University of Zambia Research Ethics Committee or the school of Medicine reviews your records, confidentiality will again be upheld.

APPENDIX B: INFORMED CONSENT

The purpose of the study has been explained to me and I understand the purpose, the benefits, risks, discomforts and confidentiality of the study. I further understand that:

If I agree to take part in the study, I can withdraw at any time without having to give an explanation and that taking part in this study is purely voluntary.

I …….
(Names)

Agree to take part in the interview.

Signed……Date……..(Participant)

Signed……Date……..(Witness)

Signed……date……(Researcher)

PERSONS TO CONTACT FOR PROBLEMS OR QUESTIONS

1. Joyce Mulenga, University of Zambia. School of Medicine, Department of Nursing Sciences, P. O. Box 50110, Lusaka. Cell No. 0977707648/ 0969954729,Email: joycemulenga2009@ yahoo.com
2. Dr. L. Mwape, University of Zambia. School of Medicine, Department of Nursing Sciences, P. O. Box 50110, Lusaka. Cell:0979093045
3. Mrs. P. Mukwato, University of Zambia. School of Medicine, Department of Nursing Sciences, P. O. Box 50110, Lusaka. Cell:0977564486

APPENDIX C: QUESTIONAIRRE

THE UNIVERSITY OF ZAMBIA

SCHOOL OF MEDICINE

DEPARTMENT OF NURSING SCIENCES

QUESTIONAIRRE

TOPIC: FACTORS INFLUENCING UTILIZATION OF DIAGNOSTIC COUNSELLING AND TESTING FOR HIV AMONG TUBERCULOSIS PATIENTS

DATE OF INTERVIEW…….

PLACE OF INTERVIEW…….....

SERIAL NUMBER……..

NAME OF RESEARCHER/RESEARCH ASSISTANT……

INSTRUCTIONS TO THE RESEARCH ASSISTANT

1. Always introduce yourself to the participant.
2. Ensure that the client is a TB patient who is eligible for DCT.
3. Ensure the client is aged between 18 and 49 years and is a resident of Monze District.
4. Explain the purpose of the interview and ask for permission to do the interview.
5. Request the participant for a written consent before you start.
6. If the participant decline to take part, do not force her/him.
7. Do not write names of participants on the questionnaires.
8. Read through the questionnaire carefully and ensure that you obtain data for each stated item.
9. Thank the participant at the end of each interview.

SECTION A: DEMOGRAHIC DATA

1. Sex of the participant

a. Male

b. Female

2. Age at last birthday

a. 18-25

b. 26-33

c. 34-41

d. 42-49

3. Marital status

a. Single

b. Married

c. Separated

d. Divorced

e. Widowed

4. Educational level

a. Primary

b. Secondary

c. College

d. University

e. None

5. Occupation

a. Housewife
b. Formally employed
c. Self-employed
d. Unemployed

SECTION B: KNOWLEDGE ABOUT TB/HIV AND DCT

6. Have you heard about DCT for HIV in TB

a. Yes
b. No

7. What is DCT for HIV in TB? ……

……

…….....

8. If you have heard about HIV, what was the source of most of your information? (Tick all correct answers)

a. Health personnel
b. Relatives
c. Friends
d. Media
e. all the above
f. Others (specify……)

9. Can a TB patient have HIV?

a. Yes

b. No

c. Not sure

d. Do not know

10. According to what you have heard/ read how is HIV related to TB?

a. TB patients can easily get HIV

b. HIV cause TB

c. HIV and TB are the same

d. Not sure

e. Don't know

11. Do you think patients with TB should be counselled and tested for HIV?

a. agree

b. moderately agree

c. strongly agree

d. disagree

12. If your answer to 10 is agree, what are the reasons?

a. To diagnose HIV/AIDS

b. To prevent other diseases occurring

c. To rule out the virus

d. Not sure

e. Do not know

13 If you answer to 10 is disagree what are the reasons?

a. Not necessary
b. Not at risk
c. Afraid of the results
d. not sure
e. Do not know

14 According to what you know what are the benefits/advantages about HIV testing?

a. Help detect HIV early and prevent complications
b. Not sure
c. Do not know

SECTION C: TB AND HIV ASSOCIATED STIGMA AND DISCRIMINATION

15 How do you feel that you have TB?

a. have accepted
b. worried
c. feel isolated
d. do not feel anything

16 Do you feel that health workers treat you differently from other patients because you have TB?

a. Yes
b. No

17 If yes, how do they treat you?

a. Good

b. Bad

SECTION D: DIAGNOSTIC COUNSELLING AND TESTING UTIIZATION

18 Have you been tested for HIV?

a. Yes

b. No

19 Are you aware of your HIV results

a. Yes

b. No

20 If you are aware what were your results?

a. reactive (positive)

b. non-reactive (negative)

SECTION E: ATTITUDE AND SUPPORT BY HEALTH CARE PROVIDERS

21 How is the reception by staff at the clinic?

a. Good

b. Bad

22 If bad, explain why?……

……

……..

23 What is the attitude of health workers at the clinic toward client seeking DCT services?

a. Very good
b. Good
c. Fair
d. Bad

24 In what area of care do you think health care could do better?

a. counselling
b. basic nursing care
c. confidentiality
d. privacy
e. none of the above

25 Why do you say so?.....

.....

……

SECTION F: PATIENT FEAR AND SELF-PERCEIVED RISK OF THE INFECTION

26 Why are people reluctant to undergo counselling and testing?

a. Fear of the unknown
b. Stigma
c. Discrimination
d. Mistrust
e. long waiting time
f. none of the above

SECTION G:STAFF SHORTAGE

27 The last time you went to the clinic how many staffs did you find or attend to you?

a. 1
b. 2
c. 3
d. 4

28 Do you think staffs attending to TB patients are adequate?

a. Yes
b. No

29 If no, explain why?.....

.....

……

SECTION H: WAITING TIME

30 How much time do you think is reasonable to spend at the clinic before being attended to?

a. Less than 30 minutes
b. 30 minutes to one hour
c. One to two hours
d. 2 hours and above

SECTION I

CONFIDENTIALITY

31 Do health worker provide you with information on DCT in confidence

a. yes
b. no

32 Give a reason for response to question No.30……
.
…….

……..

We have come to the end of the interview

and i thank you for your participation

APPENDIX D: PERMISSION TO CONDUCT A PILOT STUDY AT CHIKUNI HOSPITAL

University of Zambia
School of Medicine
Department of Nursing Sciences
P O Box 50110
LUSAKA

15th September, 2014

The Community Medical Officer
District Health Office
P O Box 660144
MONZE

Dear Sir/Madam

RE: PERMISSION TO CONDUCT A PILOT STUDY AT CHIKUNI HOSPITAL

I am a second year Master in Nursing Sciences student at the University of Zambia, School of Medicine. I intend to conduct a study as part of research requirement. The title of the study **is "Factors Influencing Diagnostic Counselling and Testing for HIV among Tuberculosis Patients at Monze Mission Hospital".** The objective of the study is to explore factors influencing utilization of DCT for HIV among TB patients. The result of the study will suggest strategies to improve on utilization of DCT by TB patients and to reduce morbidity and mortality rates. The results of the study will also provide insight into response to DCT utilization for HIV in TB patients to policy makers and government. The purpose of the letter is to request for permission to utilize TB patients attending outpatients department and those admitted at your institution to participate in the pilot study which will be conducted from 15th September to17th September, 2014.

Your favourable response will be greatly appreciated.

Yours Faithfully,

Joyce Mulenga

MSC NURSING STUDENT

APPENDIX E: REQUEST TO USE THE HOSPITAL AS RESEARCH SITE

University of Zambia
School of Medicine
Department of Nursing Sciences
P O Box 50110
LUSAKA

15th September, 2014

The Medical Superintendent
Monze Mission Hospital
P O Box 660029
MONZE

Dear Sir

RE: REQUEST TO USE THE HOSPITAL AS RESEARCH SITE

I am a second year Master in Nursing Sciences student at the University of Zambia, School of Medicine. I intend to conduct a study as part of research requirement. The title of the study **is "Factors Influencing Diagnostic Counselling and Testing for HIV among Tuberculosis Patients at Monze Mission Hospital".** The objective of the study is to explore factors influencing utilization of DCT for HIV among TB patients. .The result of the study will suggest strategies to improve on utilization of DCT by TB patients and to reduce morbidity and mortality rates. The results of the study will also provide insight into response to DCT utilization for HIV in TB patients to policy makers and government.

The results of the study will also provide insight into response to DCT utilization for HIV in TB patients to policy makers and government.

The purpose of the letter is to request for permission to utilize TB patients attending outpatients department and those admitted at your institution to participate in the study.

Your favourable response will be greatly appreciated.

Yours Faithfully,

Joyce Mulenga
MASTER OF SCIENCE IN NURSING STUDENT

APPENDIX F: REQUESTFOR SUBMISSION OF MY RESEARCH PROTOCOL

The Principal Investigator
Joyce Mulenga
The University of Zambia
School of Medicine
Department of Nursing Sciences
BOX 50110,
LUSAKA.
Mobile no: +260 977 -707648.

18th August, 2014.

The Secretary
ERES CONVERGE
33 Joseph Mwilwa Road, Rhodes Park
Lusaka.

Dear Sir/Madam,

RE: SUBMISSION OF MY RESEARCH PROTOCOL ENTITLED "factors influencing Diagnostic Counselling and Testing for HIV among Tuberculosis patients at Monze Hospital".

Reference is made to the above subject matter requesting **ERES CONVERGE IRB** to analyse the proposal for my study.

The objective of the study is to explore factors influencing utilization of DCT for HIV among TB patient at Monze Mission Hospital. The result of the study will suggest strategies to improve on utilization of DCT by TB patients and to reduce morbidity and mortality rates. The results of the study will also provide insight into response to DCT utilization for HIV in TB patients to policy makers and government. The study is likely to take five (6) months from the time clearance and approval will be granted.

The purpose of this letter is to request ERES CONVERGE IRB to review this proposal, before the investigator can engross into the main study. Your ideas are specifically important in trying to protect and give respect to participants and to addresses ethical issues, in a logical and meaningful outcome of the proposed study. However, the study has no risk of injury to the participants. Commencement of the actual study will depend on your advice.

Your quick and favourable response in this matter will be greatly appreciated.

Yours faithfully,

Joyce Mulenga

MASTER OF SCIENCE IN NURSING STUDENT

APPENDIX G: BUDGET

BUDGET CATEGORY	UNIT COST (ZMK)	QUANTITY	TOTAL (ZMK
1.Stationery			800.00
2.SERVICES			
Ethics committee (ERESC)	1,000.00		1,000.00
Data entry	1,500.00		1,500.00
Data analysis	1,500.00		1,500.00
Photocopying proposal	200.00		200.00
Photocopying questionnaire	200.00		200.00
Photocopying report	200.00		200.00
Binding	500.00		500.00
Training research assistants	1,620.00		1,620.00
Field expenses	2,400.00		2,400.00
Result dissemination meeting	3,500.00		3,500.00
Subtotal			13,120.00
CONTINGENCY FUND 10%			1,312.00
GRAND TOTAL			13,932.20

JUSTIFICATION FOR THE BUDGET

A total of K13, 932.00 was required to cover the costs of stationery and other services such as photocopying and formatting the work. The Ministry of Health assisted with the resources for the study.

STATIONERY

Stationery is required for typing the research proposal, writing the research report as well as tying and printing the report. Paper was required to make extra copies of the proposal for submission to the Research Ethics committee and the board of graduate studies. In addition, questionnaires were produced using the same stationery. The bag for interview schedules is for the researcher to ensure that the interview schedules are kept safe. The flash disc is for copying, storage and safe keeping of research data. Other accessories such as pens, pencils, rubber, stapler and staple and note books are required for the routine collection of research data.

SECRETARIAL SERVICES

Funds for photocopying services and binding of the proposal and report was needed. The charge for photocopying implies that one copy was printed and the rest photocopied to cut down on the cost. The researcher will need five copies of the proposal to submit to post graduate research committee for dissertation and dissemination.

RESEARCH ETHICS HANDLING FEE

This was a requirement of the ERES CONVERGE which approved the study.

CONTINGENCY

This was 10% of the total amount of the budget. It was required to cater for any unforeseen expenses during the study.

APPENDIX H: GANTT CHART SHOWING VARIOUS TASKS TO BE UNDERTAKEN AND THE TIMEFRAME FROM July, 2014 TO February, 2015

Activity	Responsible Person/Time Frame	July 2014	August 2014	September 2014	October 2014	November 2014	December 2014	January 2015	February 2015	March 2015
Presentation to the Department	Principal Investigator									
Submission of proposal to Assistant Dean (PG) office	Principal Investigator									
Presentation at GPPF	Principal Investigator									
Submission of proposal to BREC	Principal Investigator									
BREC review and approval	BREC									
Enrolling patients and collecting data	Research Team									
Analyzing data	Principal Investigator									
Writing of dissertation	Principal Investigator and Secretary									
Submission of final dissertation	Principal Investigator									

The study is estimated to last for one (1) year from July 2014, to August, 2015 (appendix IV). Tasks to be undertaken are divided as follows: proposal development 5 months, clearance from graduate for a and ethical committee 2 months, data collection 1 month, submission of draft report 2 months, submission of final report 1 month and dissemination of results 1 month.