

**PREVALENCE OF TUBERCULOSIS AMONG HIV SERO-POSITIVE
PATIENTS ATTENDING HIV CLINIC AT KAMPALA
INTERNATIONAL UNIVERSITY TEACHING
HOSPITAL, BUSHENYI DISTRICT**

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**A RESEARCH REPORT SUBMITTED TO THE SCHOOL OF ALLIED
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DECLARATION

I OKELLO ANDREW declare that this research report is my original work with the exception of acknowledged references and it has never been presented for an academic award in any university or any other institution of higher learning.

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APPROVAL

This research report has been produced under my direct supervision and submitted with my approval.

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Date.....

DEDICATION

I dedicate this research report to my parents **Mr. Ayoo Billy and Mrs. Evaline Ayoo** for their tireless effort to make me what I am today.

The work is also devoted to my brothers and sisters most especially **Sarah, Middy, Robinnah, Dorish, Dilish, Ritah, Tonny, Moses, Lawrence, Benard and Pius** for the moral support granted to me throughout my studies.

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DEFINITION OF TERMS

Adverse drug reactions; Any undesired effect of a drug after its administration for therapy, prophylaxis or diagnosis.

CD4 Cells; A type of white blood cells that play a major role in protecting your body from infection

Co-infection; simultaneous infection by separate disease causing microorganisms.

Drug resistance; The ability of bacteria and other microorganisms to resist the effect of a drug that once stalled or killed them.

Immunosuppression; Suppression of the immune system and its ability to fight infection.

Latent infection; Hidden, dormant or inactive (asymptomatic) infection capable of manifesting symptoms under particular circumstances or if activated.

Prevalence; The number of new and old cases of a disease in a given statistical population at a given time, divided by the number of the individuals in that population, expressed in percentage (total number of cases per 100 population).

Sero-discordance; where in a couple, one is HIV seropositive and the other sero-negative.

Seropositive; Giving a positive result in a blood serum test for the presence of a virus.

Stigma; A mark of disgrace associated with a particular disease.

ACCRONYMS AND ABBREVIATIONS

AIDS	Acquired Immunodeficiency Syndrome
ART	Antiretroviral Therapy
ARV	Antiretroviral
AUC	Area under Curve
CBO	Community Based Organization
CCR5	Chemokine Receptor type 5
CD	Cluster of Differentiation
CDC	Centre for Disease Control and prevention
CNS	Central Nervous System
ddI	Didanosine
DM	Diabetes Mellitus
d4T	Stavudine
ENT	Ear, Nose, and Throat
HIV	Human Immunodeficiency Virus
INH	Isoniazid
KIUTH	Kampala International University Teaching Hospital
KSHV	Kaposi Sarcoma Herpes Virus
MDR-TB	Multi Drug-resistant Tuberculosis
MOH	Ministry of Health
MTCT	Mother-to-Child Transmission (of Human Immunodeficiency Virus)
MVC	Maraviroc
NNRTI	Non-Nucleoside Reverse Transcriptase Inhibitor
NRTI	Nucleoside Reverse Transcriptase Inhibitor
NTLP	National Tuberculosis and Leprosy Program
PI	Protease Inhibitor
SMC	Safe Male Circumcision
TB	Tuberculosis
UNAIDS	Joint United Nations Program on HIV/AIDS
WHO	World Health Organization
XDR-TB	Extremely Drug-resistant Tuberculosis

ABSTRACT.

Back ground.

This study on the prevalence of TB among HIV sero-positive was carried at the HIV CLINIC of Kampala International University Teaching Hospital (KIUTH), Ishaka Bushenyi district.

Aims (objectives).

1. To find out the prevalence of tuberculosis among HIV sero-positive patients aged 15 years and above attending HIV clinic at Kampala International University Teaching Hospital.
2. To assess knowledge, attitudes, and perceptions about TB/HIV co-infection among HIV sero-positive patients aged 15 years and above attending HIV clinic at Kampala International University Teaching Hospital.

Methodology

A retrospective cross-sectional study design was used to conduct this proposed study. The study targeted all patients attending KIUTH HIV/TB clinic.

A standard structured and semi-structured questionnaire was designed and pre-tested for validity and reliability at Kampala International University Teaching Hospital HIV/Tuberculosis clinic before being used for data collection. Data collection started by recruitment of qualified research assistants, appropriate training and orientation of the interviewers before the survey for example when reading the questions.

Quantitative methods of data analysis was used in which data was presented in form of bar graphs and tables before being discussed.

Results

The prevalence of TB among HIV sero positive patients attending HIV clinic at KIUTH stands at 8.06 per 100 participants. The study found that generally, people are aware about the modes of transmission of TB but there is still need for more awareness. Many patients are still not certain whether TB is curable in HIV patients. As seen from the above study, most of the people are not yet aware whether HIV goes hand in hand with tuberculosis.

Conclusion

The prevalence of TB in HIV sero-positive attending HIV clinic at KIUTH is high. Generally TB is affecting patients of all ages and most patients are still not aware if TB in HIV is curable. Most patients have a perception that all TB patients have HIV.

Recommendation.

Health workers in HIV clinic of KIUTH should teach patients the modes of transmission and prevention of TB. KIUTH also need to provide easy access to TB screening services to patients. There is need of financial support by the government to the unemployed patients and low income earners in order to curb down TB infections.

CHAPTER ONE

1.0 INTRODUCTION

This chapter comprises of the following sections, back ground, statement of the problem, and purpose of the study, specific objectives, research questions and justification of the study and conceptual framework.

1.1.1 Back ground of the study.

According to World Health Organization (WHO), tuberculosis (TB) is an infectious disease of humans and animals caused by a species of *Mycobacterium*, usually *Mycobacterium tuberculosis*, mainly infecting the lungs where it causes tubercles characterized by the expectoration of mucus and sputum, fever, weight loss, and chest pain, and transmitted through inhalation or ingestion of the bacteria (WHO, 2016). It is the most common cause of infectious disease-related mortality worldwide (Asensio et al., 2008).

Mycobacteria such as *Mycobacteria tuberculosis* are aerobic, non-spore forming, non-motile facultative, curved intracellular rods measuring 0.2-0.5 micrometer by 2-4 micrometer. Their cell walls contain the mycolic, acid-rich long chain glycolipids and phospholipoglycans (mycolides) that protect mycobacteria from cell lysosomal attack and also retain red basic fuchsin dye after acid rinsing- acid fast stain (Verhagen *et al.*, 2011).

Globally, a total of 10.4 million people are living and it's the leading cause of death among HIV positive patients (WHO 2017). The same study found that TB occurs in every part of the world with the largest number of cases occurring in Asia with 61%, Africa with 26% and the six countries named to be greatly affected are India, Indonesia, china, Nigeria, Pakistan and south Africa. (WHO 2017).

According to Centers for Disease Control and prevention (CDC), globally more than 1 in 3 individuals are infected with TB (CDC, 2012). According to WHO, there were 8.8 million incident cases of TB worldwide in 2010, with 1.1 million deaths from TB among HIV sero-negative persons and an additional 0.35 million deaths from HIV-associated TB. The highest prevalence of TB infection are in Southeast Asia and sub-Saharan with HIV/AIDS pandemic causing increase in TB incidence both in Africa and Southeast Asia. (Mario C 2017).

According to Albajar et al. (2016) who conducted a study in the Sub-Saharan Africa, they found out that after contamination, *M. tuberculosis* multiplies slowly in the lungs and this represents primary infection. In immunocompetent persons, the pulmonary lesion heals in 90% of the cases, but in 10%, patients develop active TB.

In Uganda the World Health Organization (WHO) estimates of TB mortality, prevalence and incidence rates in the country have declined from 50, 492 and 624 per 100,000 population in 1990 to 13, 175 and 179 respectively per 100,000 population in 2012 (WHO, 2016). However, an accurate estimate of TB prevalence or mortality is not available due to weaknesses in surveillance and vital registration limiting the certainty of firm conclusions.

In western Uganda, a research done randomly among the pastoral and Agro pastoral tribes of Mbarara and Bushenyi found that cattle infected with TB are the ones predisposing humans to tuberculosis. (Faye Benard et al 2015).

Because of the ability of the *Mycobacterium tuberculosis* to survive and proliferate within the mononuclear phagocytes, which ingest the bacterium, *Mycobacterium tuberculosis* is able to invade the local lymph nodes and spread to the extra-pulmonary sites causing TB meningitis, TB adenitis, spinal TB, gonadal TB, gastrointestinal TB, etc. (Verhagen et al., 2011; Albajar et al., 2016).

Risk factors of tuberculosis include alcoholism, diabetes mellitus (DM), Human Immunodeficiency Virus (HIV) infection, age below 5 years, immunosuppressive therapy (Menzies et al., 2007). According to Slama et al. (2007) who conducted a study in china, smoking is one of the risk factors and Smokers who develop TB should be encouraged to stop smoking to decrease the risk of relapse.

1.1.2 Tuberculosis and HIV co-infection: Double Trouble.

TB and HIV co-infection is when people have both HIV infection and also either latent or active TB disease (CDC, 2009). According to the same document, TB is a serious health threat, especially for people living with HIV (PLHIV), and is the leading cause of death among PLHIV. Someone with latent TB infection and HIV infection is much more likely to develop TB disease during his or her lifetime than someone without HIV infection since the immune system is already weakened, and without treatment, TB disease can progress from sickness to death.

According to WHO (2016), the risk of developing TB is estimated to be between 26 and 31 times greater in PLHIV than among those without HIV infection. Globally, 14.8% of HIV patients have TB co-infection. In 2014, there were 9.6 million new cases of TB of which 1.2 million were among PLHIV. TB remains the most common cause of death in patients with AIDS (Raviglione et al., 2011). Increasing data demonstrates that antiretroviral therapy (ART) is effective in reducing the risk of TB in HIV sero-positive persons (Juste et al., 2010), according to the same study done in Haiti by Juste et al. (2010) starting ART at CD4 count of 200-350 microliter compared with waiting until the CD4 count is below 200 cells per micro liter reduced the risk of active TB by 50%.

1.2 PROBLEM STATEMENT

Tuberculosis (TB) has caused an alarming increase in HIV/AIDS morbidity and mortality worldwide (Corbett et al., 2008);

In Uganda though there has been a decline in TB- HIV co-infection from 54% in 2011 to 49% in 2013, HIV infection rates remain seven times higher among TB patients (49%) than in the general population (7.3%). An estimated 1.4 - 7% of adults and up to 9.5% of children living with HIV had prevalent TB (MoH, 2016).

The WHO estimates that in 2012 that there were about 1,000 (660–1,300) cases of Multi-Drug Resistant TB (MDR-TB) in Uganda and that about 19% of retreatment patients notified in 2012 were tested for Drug Sensitive TB (DSTB); 89 confirmed MDR-TB cases were notified to the NTLP. WHO estimates of MDR are based on a recent national survey which showed that the proportion of new and retreatment cases that were MDR-TB was 1.4% and 12.1%, respectively (Lukoye et al., 2013).

In Kampala International University Teaching Hospital information accessed from HIV CLINIC medical records shows since March 2015; the incidence of TB in the HIV-seropositive patients is on the rise. The biggest problem is I have found no study trying to establish the prevalence of TB among HIV-seropositive persons attending the facility and the cause of the increasing number despite the interventions in place.

This study therefore comes in place to identify the missing gaps.

1.3 THE OBJECTIVES OF THE STUDY

1.3.1 GENERAL OBJECTIVE

To establish the prevalence of tuberculosis among HIV sero-positive patients attending HIV clinic at Kampala International University Teaching Hospital, Bushenyi district.

1.3.2 SPECIFIC OBJECTIVES

1. To find out the prevalence of tuberculosis among HIV sero-positive patients aged 15 years and above attending HIV clinic at Kampala International University Teaching Hospital.
2. To assess knowledge, attitudes, and perceptions about TB/HIV co-infection among HIV sero-positive patients aged 15 years and above attending HIV clinic at Kampala International University Teaching Hospital.

1.4 STUDY QUESTIONS

1. What is the current prevalence of tuberculosis among HIV sero-positive patients aged 15 years and above attending HIV clinic at Kampala International University Teaching Hospital?
2. What knowledge, attitudes, and perceptions do HIV sero-positive patients aged 15 years and above attending HIV clinic at Kampala International University Teaching Hospital have about/towards TB/HIV co-infection?

1.5 THE STUDY JUSTIFICATION

1. This was to generate information on the current prevalence of tuberculosis among HIV sero-positive patients attending HIV clinic at the facility since no study was found in place of this so far.
2. The new knowledge would help to understand how the local people conceptualize the relationship between TB and HIV, and how stigma affects decision-making of patients and family members.

3. The study was also to provide data for the academic board for the ongoing research. This study therefore has the potential to create improvement in TB and HIV services in Bushenyi district in particular and Uganda as a whole.

1.6 Scope of the study

1.6.1 Content scope

The study focused on the prevalence of tuberculosis among HIV sero-positive patients attending HIV clinic at Kampala International University Teaching Hospital, Bushenyi district.

1.6.2 Time scope

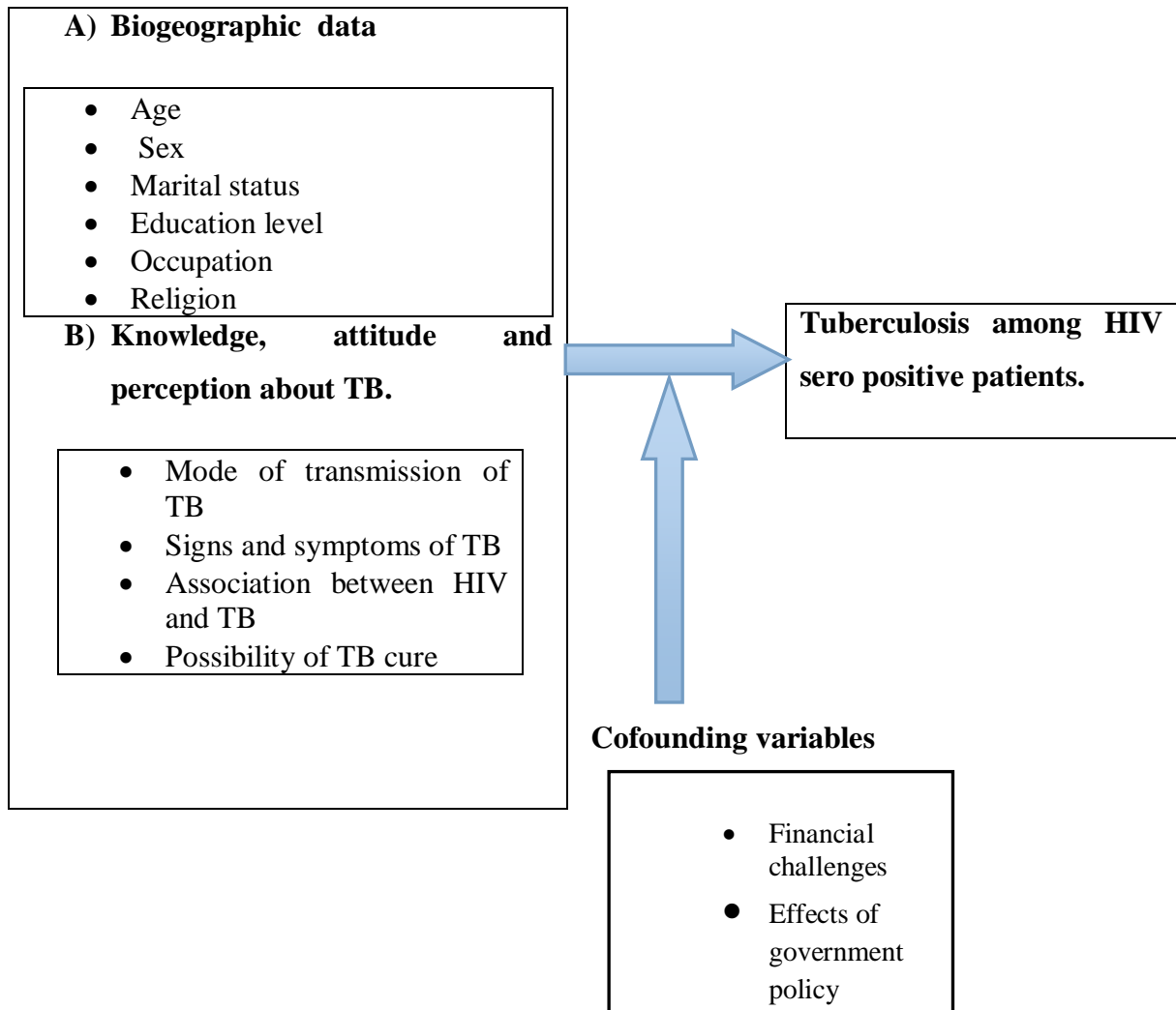
The study was conducted from February to June 2017.

1.6.3 Geographical scope

The study was carried out in Kampala International University Teaching Hospital HIV/AIDS clinic. The institution, situated on a 5KM² of land, is both private/public partnership but is government aided because it is a training facility. The number of beds is 700. The hospital facilities include general surgery, orthopedics, diagnostics, obstetrics/gynecology, antenatal and maternal and child health (MCH) clinic, medicine, ophthalmology, Ear, Nose, and Throat (ENT) department, dental surgery, pediatrics, psychiatry and physiotherapy. There are 5 operating theatres but not all of them may be functioning at any given time. The facility also has administrative departments, and quarters for the staffs.

1.7 CONCEPTIAL FRAME WORK

Independent variables



CHAPTER TWO: LITERATURE REVIEW

2.0 Introduction

This chapter looks at what other researchers have done in different parts of the world and

Compares their findings to the theme of the study.

2.1 PREVALENCE OF TUBERCULOSIS AMONG HIV SERO-POSITIVE PATIENTS

Worldwide, the prevalence of TB and HIV co-infection stands at 14.8% and as many as 50-80% have TB and HIV co-infection in the Sub-Saharan Africa (WHO, 2016). According to a study done by Zwang et al. in South Africa the incidence of TB associated with HIV is believed to have peaked at 1.39 in 2005 and is now decreasing. However globally, TB remains the most common cause of death among patients with AIDS, killing 1 of 3 patients (Raviglione et al., 2011; Zwang et al., 2007).

In parts of sub-Saharan Africa, up to 70% of TB patients are co-infected with HIV. It is estimated that up to 33% of all AIDS deaths worldwide can be directly attributed to TB. In sub-Saharan Africa this increases to 50% (WHO, 2016). Tuberculosis and HIV together are responsible for the deaths of over 4 million people annually (WHO, 2016); TB is one of the most common infections that threaten people living with HIV in the developing world. Of the over 1.7 million deaths from TB in 2015, almost one-third were people co-infected with HIV or AIDS.

In Uganda the number of HIV positive people screened for TB increased between 2006 and 2015 (27% in 2006 to >90% in 2015). The number of TB patients diagnosed through this screening however remains very low (1.5% of those screened versus the expected 5-7%) (MoH, 2016). According to the same document, in recent years, Uganda has made significant strides in diagnosing and treating patients with TB and HIV co-infection. NTLP data show that while the number and proportion of all registered TB cases with a known HIV status, a proxy for HIV testing, has increased, the overall proportion of cases that are HIV positive has declined. The use of Co-trimoxazole Preventive Therapy (CPT) (91% in 2013) and Antiretroviral Therapy (ART) for co-infected TB patients while on TB treatment have both increased over time, although the number and overall proportion of cases receiving ART remains low (65% in 2013).

The prevalence of TB among HIV patients notified to the national TB program has stabilized around 50% since 2009 (WHO, 2016). A few studies conducted in limited settings in Uganda,

showed that the prevalence of TB among people living with HIV ranged between 5.5%-7.2%. (Moor et al., 2007; Worodria et al., 2011) A meta-analysis conducted by Straetemans et al. (2010) showed that TB related deaths among people living with HIV were three times more than those in non-HIV infected persons.

2.2 KNOWLEDGE, ATTITUDES, AND PERCEPTIONS ABOUT TB/HIV CO-INFECTION

TB is the leading cause of death in HIV positive people, and HIV infection is a significant risk factor for TB (WHO, 2016). According to Zwang *et al.* (2007) who conducted a study in South Africa HIV infection increases the risk of rapid TB progression, and complicates diagnosis since HIV patients are more likely to present with non-typical and extra-pulmonary TB. Despite all this, TB is treatable in HIV positive individuals.

According to the World Health Organization globally, especially in the sub-Saharan Africa where the level of literacy is still low, Community knowledge and beliefs about TB and HIV co-infection have had significant impact on health seeking behaviour and treatment outcomes of the two diseases (WHO, 2016).

Despite the importance of understanding community knowledge, relatively few studies have investigated knowledge of TB and TB/HIV co-infection in Sub-Saharan Africa. A study in Tanzania conducted focus group discussions to assess knowledge, attitudes and practices around TB and treatment. The study found low knowledge of TB, frequent self- treatment, and friends and family being the main source of information about TB (Mangesho et al., 2007).

In a South African community survey, respondents believed that TB was caused by having sex after spontaneous abortion, or caused by environmental pollution, smoking, or drinking. These beliefs influenced presentation to health services and adherence (Edginton et al., 2012).

In Eastern Cape Province, South Africa, a mixed methods study found that the most important risk factor for TB was considered to be drinking and smoking. Moral and biomedical understandings of TB risk were intertwined in this community (Moller et al., 2007).

In an Ethiopian survey, exposure to cold air was main perceived cause of TB and the study found that knowledge of TB was higher in literate individuals (Deribew et al., 2010).

A qualitative study in Rwanda found a wide variety of understandings of causes of cough, that cough is mainly treated with herbal medicines, and only very severe symptoms seek medical care. In the study TB was consistently confused with HIV infection by respondents (Ngang et al., 2007).

Another qualitative study amongst the Turkana tribe in Kenya found a strong understanding of the conceptual link between TB and HIV. TB and HIV were attributed to the same causes of drinking alcohol and sexual intercourse (Owiti, 2008).

According to the most recent national survey, Uganda has a national general population HIV prevalence of around 6% (Ministry of Health Uganda, 2014). Although TB control has been slowly improving in Uganda in recent years, TB still constitutes a major challenge. In 2010, TB incidence in Uganda was estimated at 209/100 000 population per year. Fifty four percent of new TB cases (with known HIV status) were in HIV positive individuals (WHO, 2016). Mortality rates (in 2007) from TB are high at 93/100 000. In western Uganda, of reported new smear positive cases, the cure rate (those who had a smear negative result at end of treatment) was 14.7%, treatment completion rate was 59.9%, and default rate was 12.2% (Ministry of Health Uganda, 2014).

While this biological and epidemiological interconnectedness of TB and HIV has been increasingly taken into account in health systems and disease control programs, very little discussion has focused on the community perceptions of TB and HIV co-infection and the implications of community discourse on TB control (Bond & Nyblade, 2007). In-depth knowledge of how the local people understand the interaction between TB and HIV is currently not available for health care providers in most parts of Uganda. Community knowledge and beliefs about disease and health have significant impact on health seeking behaviour and treatment outcomes. Perceived knowledge on the causes of TB has been found to influence transmission of the disease, and certain beliefs may result in failure to recognize symptoms and thus delay diagnosis (Mangesho et al., 2007).

It has also been highlighted that health care workers are often not aware of the knowledge and beliefs of the communities they serve, which can negatively affect health care provision (Edginton et al., 2012). When explanatory models of individuals are conflicting with those of healthcare providers, there is a lack of congruence in beliefs and practices leading to poorer patient adherence to recommendations and management of 13 illness thereby resulting in poorer patient outcomes (Kleinman, 2007). Perceptions around disease and ill health, not just of patients but of family, friends, and general community members, have been identified as important factors influencing health seeking behaviour (Okello & Neema, 2007).

Evaluating local knowledge and perceptions relating to TB and HIV infection will allow district health providers to tailor services and health messaging to the specific needs of the patients, and will provide new insights into program planning.

2.4 SUMMARY OF THE REVIEWED LITERATURE

Available literatures revealed that the prevalence of tuberculosis among the HIV sero-positive persons is on the increase worldwide. Most patients have poor knowledge, attitude/perceptions about HIV/TB co-infection and they are facing lots of challenges in accessing treatment challenges. In the study area there was no study or reliable empirical data in place to try and probe into these concerns.

CHAPTER THREE

METHODOLOGY

2.0 Introduction

This chapter represents a background against which data will be gathered. It introduces the various methodology of the study. This section will deal with;

3.1 Study design

A retrospective cross-sectional study design was used to conduct this proposed study.

3.2 Study area

The study took place in Kampala International University Teaching Hospital (KIUTH) HIV/Tuberculosis Clinic - Ishaka- Bushenyi. Bushenyi is in South-Western part of Uganda, approximately 56 kilometers (35 miles), by road, Western of Mbarara the major town in the region, approximately 290 kilometers by road, South-Western of Kampala, the capital city of the country. The coordinates of Bushenyi town are: 0°32'30.0''S and 30°11'16.0''E; latitude 0.541667, longitude 30.187778 (Wikipedia, 2017).

KIUTH is located northeast of Ishaka Town, Bushenyi District along Mbarara-Kasese Road. Maps of Uganda and Bushenyi can be seen in appendices III and IV

3.3 Selection of study population

The study targeted all patients attending KIUTH HIV/TB clinic.

3.4 Exclusion and inclusion criteria

3.4.1 Inclusion criteria

All patients 15 years of age and above diagnosed with HIV attending KIUTH HIV/TB clinic

3.4.2 Exclusion criteria

All patients below 15 years of age diagnosed with HIV and patients above 15 years of age without HIV attending KIUTH HIV/TB clinic.

3.5 Determination of sample size

The sample size was determined using Krejcie & Morgan Sample Size Formula for Finite Population:

$$s = \frac{X^2 NP (1 - P)}{d^2 (N - 1) + X^2 P (1 - P)}$$

Where:

s = required sample size.

X = the value on the table value for 1 degree of freedom at the desired confidence level (1.96 for a 95% confidence level).

N = the population size (75-80 patients in a month).

P = the population proportion (assumed to be 50% since this would provide the maximum sample size).

d = the error margin (0.05).

On substitution of the values in the above formula,

$$S = \frac{(1.96)^2 (80) (0.5) (1 - 0.5)}{(0.05)^2 (80 - 1) + (1.96)^2 (0.5) (1 - 0.5)}.$$

$S=66$ participants.

Therefore about 66 patients were to participate in this exercise but only 62 were considered because of limited time and financial constraints

3.6 Sampling technique

The study employed purposive sampling technique. This is where patients attending KIUTH HIV/TB clinic answered the questions during the first time of the study. The technique was to give each member of the target population an equal and independent chance of being selected for the study. This ensured that the selected sample is a good representative of the whole population.

3.7 Data collection method

A standard structured and semi-structured questionnaire was designed and pre-tested for validity and reliability at Kampala International University Teaching Hospital HIV/Tuberculosis clinic before being used for data collection. Respondent bias and researcher bias was checked by comparing data with the one summarized in the literature review, documented in chapter two.

3.8 Proofing and Data analysis

All data collections were reviewed at two levels prior to data entry into the research database and upon entry prior to analysis. The data collection and entry process is planned in such a way that all data collection sheets completed in a day were reviewed and entered on the same day.

Data was analyzed using Microsoft excel spread sheet and information summarized in the form of graphs, tables and pie- charts to give descriptive statistics as per the theme of the study.

3.9 Quality control.

Quality assurance started with the recruitment of qualified research assistant, appropriate training and orientation of the interviewers before the survey for example when reading the questions:

Questions were read exactly as they were written

Questions were to be read at normal speed (not too fast or too slow)

Only questions relevant to the respondents was asked (skip rules was followed)

Exact answers of the respondents were coded; interviewers were not allowed to interpret responses

Where the respondents have difficulty understanding the questions: the question or part of it was repeated, probing was used according to the general instructions that were given.

Appearance and behavior of the interviewers was to be professional none was to show any reactions to the respondents' answers.

Pre-testing of the tools shall be done and data management is to be executed professionally.

Respondent bias and researcher bias was checked by random selection of eligible patients.

3.9 Ethical considerations

Patients were included in the study upon giving informed consent for participation. The study was carried out only after approval by the Research Committee School of Allied Health Sciences Kampala International University- Western Campus.

3.10 Limitations to the study

Time was a limiting factor since the researcher has many ongoing events to be executed in the same time frame, eg community placement.

There was also a financial challenge as put clearly in the budget.

CHAPTER FOUR

DATA ANALYSIS AND REPORTING

4.1 Introduction.

This chapter presents the Results, Analysis and interpretations of findings of the study according to the specific study objectives. Findings and results are presented in form of bar graphs, pie charts, tables and figures. The study involved 62 respondents (HIV-sero positive patients) who were attending HIV clinic at KIUTH Bushenyi district.

Table 1: AGE DISTRUBUTION OF THE RESPONDENTS. (n=62)

AGE (YEARS)	FREQUENCY	PERCENTAGE (%)
15-20	03	4.80
21-25	06	9.70
26-30	08	13.0
31-35	06	9.60
36-40	18	29.0
41-45	03	4.80
46-50	09	14.5
51-55	09	14.5
TOTAL	62	100

The majority of the respondents 18 out of 62 (29.0%) were between 36-40 years. The youngest respondent was 20 years and the oldest respondent was 53 years.

Table 2: GENDER OF THE RESPONDENTS. (n=62)

The number of males who participated in the study were 28 (45.2%) and 34 (54.8%) were females. There was almost equal representation of both sexes.

GENDER	FREQUENCY	PERCENTAGE (%)
MALE (M)	28	45.2
FEMALE (F)	34	54.8
TOTAL	62	100

TABLE 3: EDUCATION LEVEL OF THE RESPONDENTS. (n=62)

Out of the 62 respondents that were interviewed, thirty one(50%) had attained primary Education,13 (21%) had no formal education, another 12(19.%) had attained secondary education and 06(09.7%) participants had attained tertiary& university education.

EDUCATION LEVEL	FREQUENCY	PERCENTAGE (%)
No Formal Education	13	21.0
Primary Education	31	50.0
Secondary Education	12	19.3
Tertiary& university	06	09.7
TOTAL	62	100

FIGURE 1: OCCUPATION OF RESPONDENTS.

(n=62)

Most of the respondents 28(45.2%) were peasants, followed by business 10(16.1%),self-employed 07 (11.3%) ,unemployed 06(9.7%),house wife 06(9.7%) andcivil servants were only 05(8.1%) of the respondents

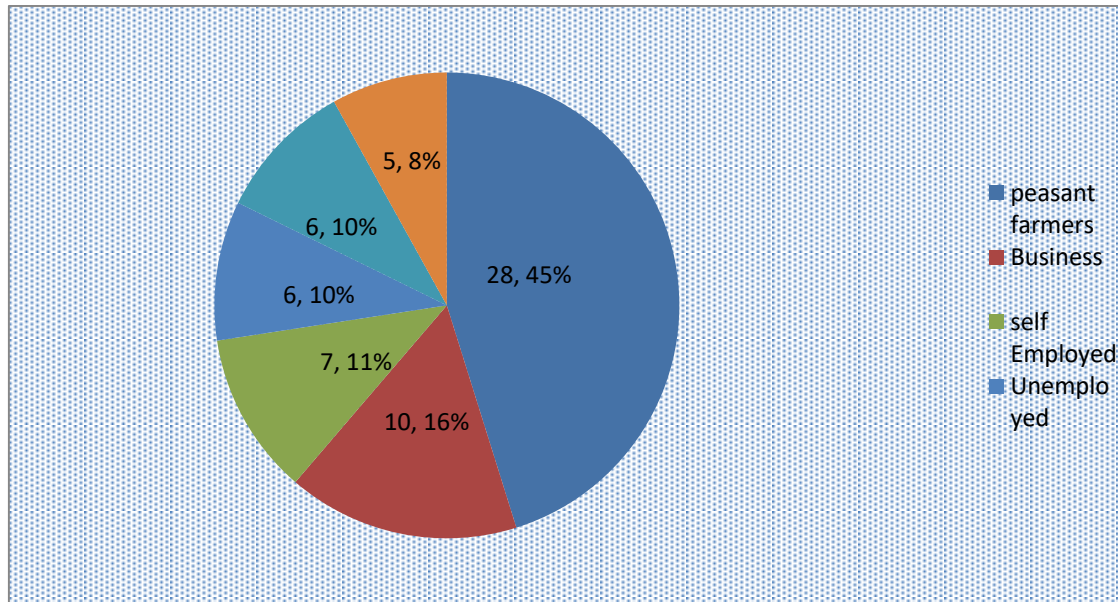


TABLE 4: RELIGION OF THE RESPONDENTS.**(n=62)**

Most of the respondents were Catholics, 27 out of 60 (43.5%), followed by protestants 23 out of 60 (37.2%), the Muslims 09 out of 60 (14.5%), others were 03 out of 60 (04.8%).

RELIGEON	Frequency	Percentage%
Catholics	27	43.5
Protestants	23	37.2
Muslims	09	14.5
Others	03	04.8
Total	62	100

TABLE 5: RESPONENTS WHO HAVE AND HAVE NOT TESTED FOR TUBERCULOSIS. (n=62)

Twelve out of sixty two (19.4%) respondents had cough mucous tested for TB and 50 out of 60 (80.6%) didn't have their cough mucus tested for TB.

PARTICIPANT TESTED FOR TB	FREQUENCY	PERCENTAGE (%)
Yes	12	19.4
No	50	80.6
TOTAL	62	100

TB TEST RESULT OF THE RESPONDENTS (n=12)

Five respondents tested TB positive while 7 respondents tested negative. Out of the 5 positive test, 01 was diagnosed 12 month ago (old case) and 04 was diagnosed less than 6month ago. Therefor the prevalence of TB among HIV-sero positive attending HIV clinic at KIUTH is as computed bellow.

$$\text{Prevalence} = \frac{(\text{Old cases} + \text{New cases}) \times 100}{\text{Total number of participants.}}$$

Total number of participants.

$$\text{Prevalence} = \frac{(1+4) \times 100}{12} = 8.06 \text{ per } 100 \text{ participants.}$$

62

TABLE 6: TB TEST RESULT OF THE RESPONDENTS (n=12)

TEST RESULT	WHEN	FREQUENCY
TB positive	> 12 month ago	01
	<6month ago	04
TB negative	Not applicable	07
TOTAL	Not applicable	12

4.2; RESPONDENT KNOWLEDGE, ATTITUDE AND PERCEPTION ON TB/HIV CO-INFECTION.

Majority of the respondents 26(42.0) said TB can be acquired through sitting near a TB patient, followed by sharing eating utensils, 19(30.6%) and Air borne 17(27.4%)

15 respondents (24.2%) said all TB patients have HIV, 22 (35.5%) said most of the HIV patients have HIV and 25 respondents (40.3%) are not sure.

The Highest number of respondents 36 out of 62(58.1%) said they are not sure whether TB can be cured in HIV patients, 07 out of 62 (11.3%) said TB not can be cured in HIV patients and 19 out of 62 (30.6%) of the respondents said TB can be cured among HIV patients.

TABLE 7; SHOWING PATIENTS KNOWLEDGE, ATTITUDE AND PERCEPTION ON TB/HIV CO-INFECTION

KNOWLEDGE OF MODE OF TRANSMISSION OF TB	FREQUENCY	PERCENTAGE
Sitting near a TB patient	26	42.0
Sharing eating utensils	19	30.6
Air born	17	27.4
TOTAL	62	100
TB CAN BE CURED	FREQUENCY	PERCENTAGE
Yes	30	48.4
NO	07	11.3
Not Sure	25	40.3
TOTAL	62	100

PERCEPTIONS ON TB PATIENTS HAVING HIV.	FREQUENCY	PERCENTAGE
All	15	24.2%
Most	22	35.5%
Not sure	25	40.3%
TOTAL	62	100

CHAPTER FIVE.

DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS.

5.1.0 Introduction.

This chapter highlights the findings of the study, sixty two HIV-sero positive patients attending HIV clinic at KIUTH participated in the study. The main objective of the study was to find the prevalence of TB among HIV-sero positive patients attending HIV clinic at KIUTH Bushenyi district.

5.1.5. Testing for tuberculosis.

Out of the 62 patients who participated in the study, only 12 (19.4%) had tested for tuberculosis and 50 (80.6%) had not tested for tuberculosis. This shows lack of availability and accessibility of TB testing facilities and services.

5.1.6. Positive TB respondents.

During the study, 5 respondents reported that they tested positive for tuberculosis, one tested more than 12month ago and 4 tested within the last 6 month. According to these findings, the prevalence of TB is therefore 8.06 %.This is in line with a few studies conducted in resource limited settings in Uganda which showed that the prevalence of TB among people living with HIV ranged between 5.5%-7.9%. (Moor et al., 2007; Worodria et al., 2011).

5.1.7: Knowledge on the modes of transmission of TB.

Most of the respondents 26(42.0%) said TB can be acquired through sitting near a patient with TB, followed by shearing eating utensils, 19 (30.6%) and air borne 17(27.4%).The study found that generally, people are aware about the modes of transmission of TB but there is still need for more awareness.

5.1.8: Knowledge on the cure of TB.

From the data collected and analyzed, thirty respondents (48.4%) said TB can be completely cured, 07 (11.3%) respondents said TB cannot be cured and 25(40.3%) are not yet sure about the cure of B.Ths. means many people are still not aware that TB can be cured and still need more sensitization. The finding is in line with another one which highlighted that health care workers

are often not aware of the knowledge and beliefs of the communities they serve, which can negatively affect health care provision (Edginton et al., 2012).

5.1.9: perception on TB cures in HIV patients.

There is lack of information and knowledge about TB/HIV co-treatment, leaving many patients still to be not certain whether TB is curable in HIV patients. This was evidenced by the following findings; The highest number of respondents 36 out of 62 (58.1%) said they are not sure whether TB can be cured in HIV patients, 07 out of 62 (11.3%) said TB not can be cured in HIV patients and 19 out of 62 (30.6%) of the respondents said TB can be cured among HIV patients. This shows that most patients are still lack reliable sources of information on TB treatment. The study is in line with another study in Tanzania (Mangesho et al., 2007) who conducted focus group discussions to assess knowledge attitudes and practices around TB and treatment. The study found low knowledge of TB, frequent self- treatment, and friends and family being the main source of information about TB.

5.2.0: perceptions on TB/HIV co-infection.

The study found that most of the respondents 28(45.2%) knows that having TB means having HIV, 18 respondents (29.0%) said having TB does not mean having HIV and 16(25.8%) are not sure. As seen from the above study, most of the people are not yet aware whether HIV goes hand in hand with tuberculosis. The lack of awareness is still due to limited easy access to information about TB/HIV co-infection

5.2.3: Conclusion.

From this study, I conclude that;

The prevalence of TB in HIV sero-positive attending HIV clinic at KIUTH has increased. Generally TB is affecting patients of all age groups. The illiterate and low income earners are the most affected by tuberculosis.

Patients still lack access to TB screening facilities and services.

Most patients are still not aware if TB in HIV is curable. There are still co-treatment challenges in TB/HIV patients. TB/HIV patients still have challenges accessing their health services.

5.4: RECOMMENDATIONS.

According to the study findings, the researcher came up with the following recommendations.

1. Health workers in HIV clinic of KIUTH should teach patients the modes of transmission and prevention of TB.
2. KIUTH also need to provide easy access to TB screening services to patients.
3. There is need of financial support by the government to the unemployed patients and low income earners in order to curve down TB infections.
4. There is need for inter-sectorial collaboration between health service providers and political sector to have effective delivery of HIV/TB services.

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APPENDIX I
INFORMED CONSENT FORM & QUESTIONNAIRE

Dear respondents, I am a student undertaking diploma in clinical medicine and community health at Kampala international University. I am conducting a study on **the prevalence of TB among HIV sero positive patients attending HIV clinic at KIUTH**. Please you are kindly requested to participate in this study. All the information provided will be treated with maximum confidentiality and there is no need for writing your name on the questionnaire provided, only respond to the questions asked. Participation in the study is purely voluntary and you are free to withdraw from the study if at any point you feel uncomfortable to continue with the study, no penalty will be given to you.

There are no individual benefits and incentives for the study participants. The wider community and health sector stand to benefit from this study if the findings are adapted.

Respondent:

I have read the information stated and understood the significance of the study and ready to participate.

Respondents' signature.....

Date.....

Researcher:

I have explained the topic and its objectives to the participants and they have understood the topic and its objectives and voluntarily consented to participate in the study.

Researchers' signature.....

APPENDIX 2

QUESTIONNAIRE

I have read the information presented in the cover letter attached on this consent form and I have been verbally briefed and understood the study conducted by **OKELLO ANDREW** on **PREVALENCE OF TUBERCULOSIS IN HIV SERO-POSITIVE PATIENTS ATTENDING HIV CLINIC AT KAMPALA INTERNATIONAL UNIVERSITY TEACHING HOSPITAL, BUSHENYI DISTRICT.**

I have had the opportunity to ask questions related to the study, and received satisfactory answers, and any additional details I wanted.

I am also aware that participation is voluntary and I have the right to decline following any professional inconvenience that the researcher may introduce in the process. I do not give permission for my identity or identity for my records to be revealed in the research reports.

With full knowledge of all foregoing, I accept to participate in his study.

.....

.....

Signature/ thumbprint of participant

Date

.....

.....

Researcher's signature

Date

Researcher's mobile telephone contact: +256787068685

QUESTIONNAIRES

Your participation is voluntary and the information you give is confidential. You may also stop the interview at any time you wish. I hope that this information will be used in improving health in this community.

NB: Tick the correct answer and answer where necessary.

SECTIONA: SOCIO- DEMOGRAPHIC CHARACTERISTICS

1. Age of the participant..... Participant's Number.....

2. Sex

(a) M [] (b) F []

3. Marital status of the participant

(a) Married [] (b) Single []
(c) Widowed/Widower [] (d) Separated/divorced []

4. Educational level of the participant

(a) Primary [] (b) Secondary []
(c) Tertiary/University [] (d) None []

5. Occupation of the participant

(a) House wife [] (b) Civil servant []
(c) Businessman [] (d) Self-employed []
(e) Peasant/farmer [] (f) Unemployed []
(g) Others Specify.....

6. Religion of the participant

(a) Catholic [] (b) Protestant []
(c) Seventh day [] (d) Muslim []
(e) Orthodox [] (f) others specify.....

7. How many persons older than 18 years, including yourself, live in your household?.....
(persons)

SECTION B: HISTORY OF TUBERCULOSIS AND CURRENT SYMPTOMS

(Part 1) TB HISTORY

1. Have you ever had a positive TB skin test?

Yes [☐] No [☐] Don't know [☐]

2. Have you ever had an abnormal chest x-ray?

Yes [☐] No [☐] Don't know [☐]

If yes, how long ago?.....

3. Have you recently had the mucous you cough up tested for TB?

Yes [☐] No [☐] Don't know [☐]

If yes, were you told it was positive?

Yes [☐] No [☐] Don't know [☐]

4. Have you ever been told you have Infectious Tuberculosis?

Yes [☐] No [☐] Don't know [☐]

If yes, how long ago?.....

Yes [☐] No [☐]

5s. Do you live with or have you been in close contact with someone who was recently Diagnosed with TB? (E.g. shelter roommate, close friend, relative).

Yes [☐] No [☐] Don't know [☐]

(Part Two) CURRENT SYMPTOMS

1. Do you have a cough that has lasted longer than three weeks?

Yes [☐] No [☐]

2. Do you cough up blood or mucous?

Yes [☐] No [☐]

3. Have you lost your appetite? Aren't hungry?

Yes [☐] No [☐]

4. Have you lost weight (more than 7 kilograms) in the last two months? Without trying to?

Yes [☐] No [☐]

5. Do you have night sweats (need to change the sheets or your clothes because they are Wet)?

Yes [☐] No [☐]

SECTION C: KNOWLEDGE, ATTITUDES, AND PERCEPTION ABOUT TB/HIV CO-INFECTION

PART 1: TUBERCULOSIS

How can someone get tuberculosis (TB)?

Airborne []

Sitting near a person with TB []

Sharing eating utensils []

Other specify.....

Is it possible for TB to be completely cured?

Yes [] No [] Not sure []

If yes how?

Taking anti-TB drugs []

Other

What are the main symptoms of TB?

Weight loss []

Fever/Night sweats []

Coughing blood []

PART 2: TB/HIV ASSOCIATION

Does having TB mean a person is HIV positive?

Yes [] No [] Not sure []

How many TB patients have HIV?

All [] Most [] None [] Not sure []

Can TB be cured in someone who has HIV?

Yes [] No [] Not sure []

[illegible]

BUSHENYI DISTRICT.

[illegible] = KIUTH

OFFICE OF THE ADMINISTRATOR -SAHS

IN CHARGE - CHAT

*Please allow this student to
administer his questionnaire*

The Executive Director KIUTH



24th April 2017

Dear Professor,

SUBJECT: DATA COLLECTION

Academic research project is an Academic requirement of every student pursuing a 3 year Diploma in Clinical Medicine & Community Health (DCM) of Kampala International University- Western Campus (KIU-WC). DCM program is housed in the School of Allied Health Sciences (SAHS).

The students have so far obtained skills in Proposal writing especially chapter one, Three & Questionnaire design. The student's topic has been approved by SAHS Research Unit and is therefore permitted to go for data collection alongside full proposal & dissertation writing. As you may discover the student is in the process of full proposal development. However, the student MUST present to you his questionnaire and his research specific objectives that he wishes to address. We as academic staff of Allied Health Sciences are extremely grateful for your support in training the young generation of Health Professionals. I therefore humbly request you to receive and allow the student **OKELLO ANDREW** Reg. No. **DCM/0087/143/DU** in your hospital to carry out his research. His topic is hereby attached. Again we are very grateful for your matchless support and cooperation.

Topic: **PREVALENCE OF TUBERCULOSIS AMONG HIV SERO-POSITIVE PATIENTS ATTENDING HIV CLINIC AT KIUTH, BUSHENYI DISTRICT.**

Sincerely yours,


Christine Kyobuhaire, Administrator- SAHS

CC: Dean SAHS

CC: Associate Dean SAHS

CC: Coordinator, Research Unit- SAHS

CC: H.O.D Dept. Public Health

CC: H.O.D Laboratory Sciences

CC: Coordinators; TLC & DEC

Approved by CHAT Clinic
24/04/2017
Dr. Louis Kanyike