FACTORS INFLUENCING ADHERENCE TO TUBERCULOSIS TREATMENT AMONG PULMONARY TUBERCULOSIS PATIENTS ATTENDING MPIGI GENERAL HOSPITAL - MPIGI DISTRICT

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A RESEARCH REPORT PROPOSAL SUBMITTED TO THE SCHOOL OF NURSING IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF A BACHELOR'S DEGREE IN NURSING OF INTERNATIONAL HEALTH SCIENCES UNIVERSITY

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DECLARATION

I Nakibirige Rehemah humbly declare that this research report on Factors that influence adherence to anti Tuberculosis treatment among pulmonary TB patients attending Mpigi general hospital from February to august is my original work; it contains all the required information that is needed for the academic award of Bachelors in Nursing Sciences.

Signature ……..

Date …….

APPROVAL

I hereby certify that this research report on Factors that influence adherence to anti Tuberculosis treatment among pulmonary TB patients attending Mpigi general hospital from February to August has been produced under my supervision.

Signature……. Date ……..

MRS. OKECHO FLORENCE

SUPERVISOR

DEDICATION

I dedicate this research report to Mr. Muguluma Henry, Miss Namuleme Dianah and my mother, Miss Nakabugo Milly for their support and encouragement in pursuing this degree.

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I thank God greatly for the gift of life, protection, knowledge and guidance that he has granted unto me for developing this research report and throughout the entire BNS course.

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LIST OF ABBREVIATIONS

AIDS	Acquired Immune Deficiency Syndrome
ART	Antiretroviral Therapy
CB - DOTS	Community Based Direct Observed Treatment Strategy
DOTS	Direct Observed Treatment Strategy
EPTB	Extra Pulmonary Tuberculosis
HIV	Human Immune Virus
IDI	Infectious Disease Institute
MOH	Ministry Of Health
NTPL	National Tuberculosis and Leprosy Program
PTB	Pulmonary Tuberculosis
SPSS	Statistical Package for Social Scientists
USAID	United states agency for international Development
UBOS	Uganda Bureau of Statistics
WHO	World Health Organization

OPERATION DEFINITIONS

Tuberculosis;

Tuberculosis (TB) is a bacterial infection caused by Mycobacterium tuberculosis and is spread through inhaling tiny droplets when an infected person coughs or sneezes. It mainly affects the lungs, but it can affect any part of the body, including the tummy (abdomen) glands, bones and nervous system.

Pulmonary tuberculosis;

This is when the Mycobacterium tuberculosis mainly affects the lungs.

Adherence;

Is the extent to which a person's behavior – taking medication, following a diet, and/or executing lifestyle changes, corresponds with agreed recommendations from a health care provider?

Defaulter;

A person who fails to complete a course of medical treatment as prescribed by the health care professional.

Initial phase;

The first period of therapy for a disease. For tuberculosis lasts for two months and drug treatment is daily with isoniazid (H), rifampicin(R), pyrazinamide (Z) and ethambutol(E).

Continuation phase;

The second phase of the treatment for a disease. For tubercculosis te treatment is given for six months and the patient continues with isoniazide (H) and ethambutol (E).

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ABSTRACT

Background: Tuberculosis (TB) is the cause of 1, 8 million deaths annually, 99% of the deaths occurs in the developing countries and among the poorest people of these countries. Studies between high and low income countries demonstrate that rates of TB are significantly higher in poorer populations. World Health Organization introduced DOTS as global strategy for providing TB services which was expected to be delivered primarily by government run public health services (WHO, 2015).

Objective: The main objective was to assess the factors influencing adherence to anti tuberculosis treatment among pulmonary tuberculosis patients attending Mpigi general hospital

Method: A descriptive cross sectional study was conducted using qualitative method of data collection. 133 respondents were sampled using simple random sampling technique. Responded were interviewed with a structured standard questionnaire. 4- item Morisky Medication Adherence Score (MMAS)was used to measure adherence.

Results: 36% of the study participants were found to be adherent to their prescribed medication

Conclusion: High percentages of respondents were not adherent to their medication. Factors that influenced adherence were; Age, Marital status, occupation, level of education , Smoking, drinking alcohol, meals per day, knowledge about TB, Medication availability in the hospital, distance from the hospital and co morbidity.

CHAPTER ONE: INTRODUCTION

1.0 Introduction

This chapter entails the background of the study, problem statement, study objectives, significance of the study and the conceptual frame work.

1.1 Back ground of the study

Tuberculosis is one of the top most ten causes of death worldwide, 10.4 million people are infected with tuberculosis and 1.8 million people die from the disease, and of these 0.4 million people have HIV co infection with tuberculosis. The biggest number of new TB cases occur in Asia estimated to be at 61 percent, followed by Africa with 26 percent, making 87 percent of new TB Cases that occur amongst 30 TB endemic countries. (WHO report 2015.)

In Chennai city of India, the prevalence of pulmonary tuberculosis is estimated to be high and concentrated in some areas of the city, with men having higher rates than women in all ages and those above the age of 55 have a prevalence > 1%. (Dhanaraj B et al., 2015).

In China, the level of non-adherence is found to be 12.2 percent and the level of Adherence is high especially among patients whose treatment is being given under DOTS by the village doctors or regular home visits by the health workers. (WeiguoXu et al., 2009).

In Africa, the incidence rate for tuberculosis is noted to be high mostly in the African WHO regions with 290/100,000 per year. It appears that 9 percent of all new tuberculosis cases among adults (aged15-49years) are attributed to HIV infection, but the proportion is much greater in the African WHO region accounting for 3 percent and some industrialized countries, notably the US having 26 percent. The prevalence rate for co-infection equals or exceeds 5 percent with South Africa having 2 million co infected adults. (Elizabeth L.Corbett et al., 2003).

In Sub Saharan Africa, there are a varying proportion of patients whose defaulting rate increased from 11.3 percent to 26.9 percent, which is attributed to distance from the hospital, experiencing side effects, having no family support, inadequate knowledge about tuberculosis treatment, and use of public transport. (Castel nuovo. B et al., 2010).

South Africa is ranked to be the third country with the highest TB burden in the world with high rates of TB transmission within its communities. (Wood Robin et al., 2011). Adherence to tuberculosis treatment among patients in Ethiopia is major problem. The level of non-adherence is estimated at 18.5 percent (Getachew G/Medhin et al., 2014).

In East Africa, the distribution of adherence to TB treatment varies from country to country for instance, in Tanzania, the level of adherence to anti TB treatment is estimated to be at 95 percent among TB patients who opted for the home based treatment under the PCT(Patient Centered Treatment) approach (Mkopi etal.,2012). In Rwanda however, reported poor adherence to anti-TB treatment as it was estimated to be at 10%. This was a reflection of many TB patients taking less than 90% of the TB treatment. Poor adherence to anti TB treatment is an important independent determinant of mortality among the TB patients (Kayigamba et al., 2013).

Uganda is one of the East African countries ranked as the 16th country with a high tuberculosis burden among the 22 countries with high tuberculosis prevalence globally. It is of great concern to note that pulmonary tuberculosis incidence rate is 136/100,000 population in Uganda. Uganda has a default rate of 13 percent and the treatment completion rate is estimated to be at 70 percent and 29 percent among patients who cure from tuberculosis disease (WHO, 2009). However,

findings reveal that an increase in the defaulting rate is mainly attributed to long waiting time in health facilities, inadequate drugs supply, lack of knowledge and awareness concerning tuberculosis treatment (Namukwaya et al., 2011).

Incident cases of tuberculosis increased nine-fold from 11,625 cases in 1990 to 116,723 in 2007 and is largely triggered by HIV pandemic. In 2011, according to the Ministry of Health and the National TB and Leprosy Program, there are approximately 49,000 new TB cases in Uganda. The high burden of the TB disease is circulated in the urban and peri- urban centers, with Kampala accounting to 78,000 cases, Wakiso, 1,300 cases and other regional towns account to between 1,300 – 1,600 cases (MOH, 2007).

Non adherence to tuberculosis treatment is one of the major challenges to cure the disease and Directly Observed Therapy (DOT) is introduced to ensure patients adherence to the treatment by giving every dose under direct observation. Under the DOT, the level of adherence is estimated to be 67 percent (P.G.Gopi.,et al). Non adherence to anti tuberculosis treatment is noted as one of the reasons for failure of achievement of the global treatment success rates by Uganda (MOH 2011). Defaulting from treatment is among the major hindrances to the achievement of the global target of successful treatment of 85% of detected TB cases hence posing a challenge to its eradication (WHO, 2009).

Mpigi general hospital has a prevalence of 9.6 percent of patients who are co infected with HID/AIDS and are on anti TB treatment (UNGMAS,2010).

1.2 Statement of the problem

Non adherence to tuberculosis treatment is such a major obstacle to efficient control of tuberculosis in Uganda (MGAmuha., etal 2009). Over 40,000 new cases of tuberculosis are being reported in Uganda annually (MOH, 2011). Though the level of adherence has increased from 68 percent in 2003 to 73 percent in 2007, this is still not meeting the WHO target of 90% of patients with TB (WHO, 2008).

The Ministry of Health through National Tuberculosis and Leprosy program has introduced Community Based-Directly Observed Therapy (CB-DOTS) as an intervention strategy for controlling tuberculosis infection, and it aims at passive case identification, BCG vaccination at birth, and effective chemotherapy with free anti-tuberculosis drugs to cure the patients from the disease and also reduce its transmission in the communities. Despite the above interventions, tuberculosis treatment adherence is still low.

Therefore this study aims at exploring the factors that influence adherence to pulmonary tuberculosis treatment among patients attending Mpigi general hospital.

1.3 Study objectives

1.3.1 General objective

To assess the factors influencing adherence to anti tuberculosis treatment among pulmonary tuberculosis patients attending Mpigi general hospital.

1.3.2 Specific objectives

i) To determine the level of adherence to anti tuberculosis treatment among pulmonary tuberculosis patients attending Mpigi general hospital from February to August 2017.

ii) To identify the social-demographic factors influencing adherence to anti tuberculosis treatment among pulmonary tuberculosis patients attending Mpigi general hospital from February to August 2017.

iii) To determine the health system factors that influence adherence to anti tuberculosis treatment among pulmonary tuberculosis patients attending Mpigi general hospital from February to August 2017.

iv) To assess individual factors that influence the level of adherence to anti tuberculosis treatment among pulmonary patients attending Mpigi general hospital from February to August 2017.

1.4 Research questions

a) What is the level of adherence to anti tuberculosis treatment among pulmonary tuberculosis patients attending Mpigi general hospital?

b) What are the social demographic factors that influence adherence to anti tuberculosis treatment among pulmonary tuberculosis patients attending Mpigi general hospital?

c) What are the health facility factors that influence the adherence to anti tuberculosis treatment among pulmonary tuberculosis patients attending Mpigi general hospital?

d) What are the individual factors that influence the adherence to anti tuberculosis treatment among pulmonary tuberculosis patients attending Mpigi general hospital?

1.5 Significance of the study

A few studies have been done in Mpigi general hospital regarding patients adherence to tuberculosis treatment and its one of the centers that offer HIV/AIDS related morbidity like tuberculosis in Mpigi district, with this, there has been a demand to create more information concerning about adherence to tuberculosis treatment among patients attending the ART clinic in Mpigi general hospital.

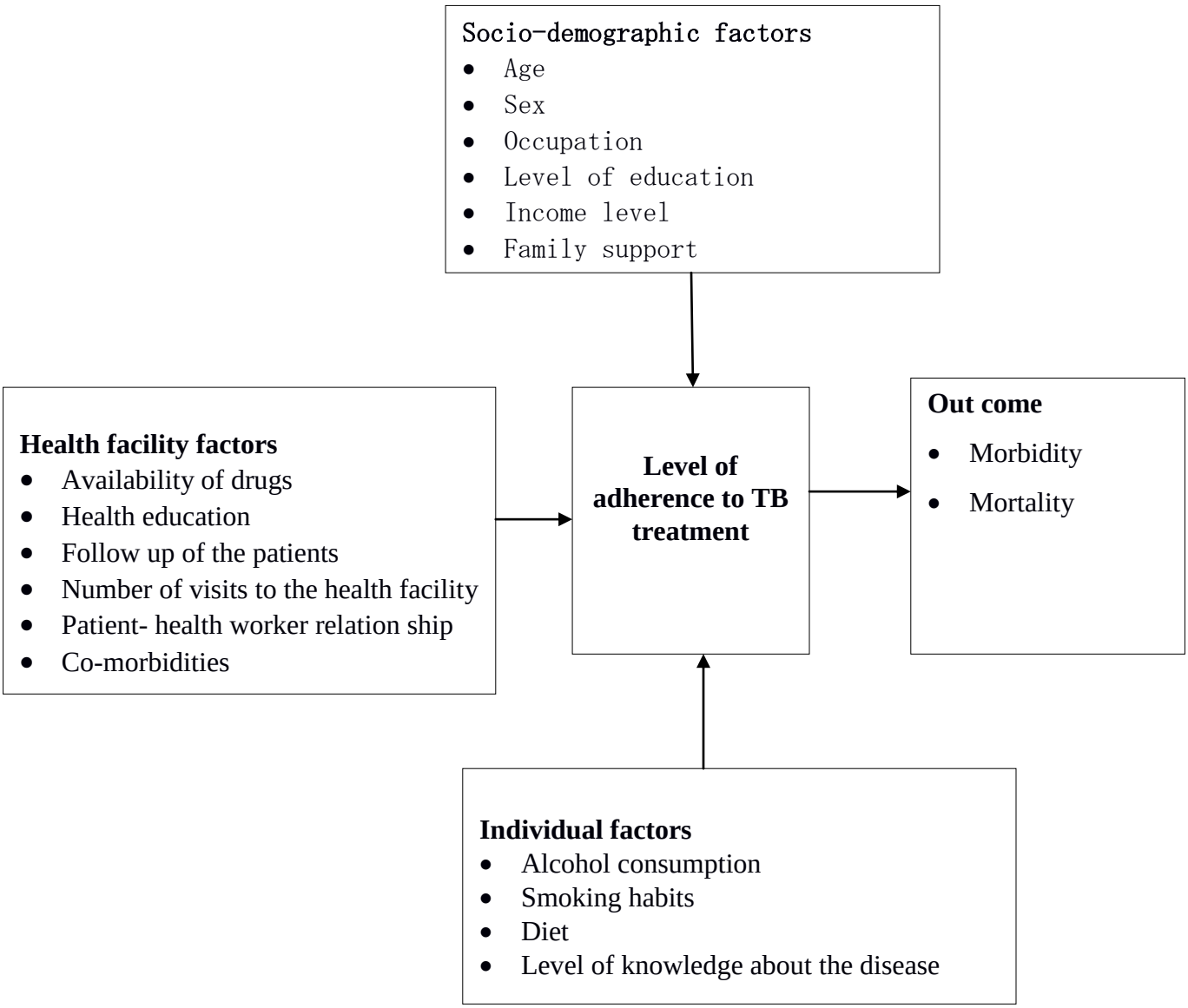
The results from this study will be used to update and equip the health workers of Mpigi general hospital, with knowledge about factors influencing adherence to TB treatment among TB patients in order to increase the level of adherence to TB treatment and also reduce on the number of patients lost to follow and those who default the TB treatment, resulting in improving the general outcomes of TB patients.

The ministry of health in Uganda will also benefit from this study as it act as a foundation for further research studies regarding adherence to TB treatment among TB patients in different areas of the country and also in the formulation of policies that will reinforce patients to adhere to TB treatment, encourage health workers to offer support, counseling and care to TB patients so as to control TB spread in the country.

This research study will provide awareness and more knowledge regarding adherence to TB treatment which will stimulate continuous studies on TB infection and treatment adherence.

1.6 Conceptual framework

Figure 1: conceptual framework



Description of the conceptual frame work

The above conceptual frame work shows the relationship between the study variables. The dependent variable is adherence to anti tuberculosis treatment among patients attending Mpigi general hospital and the independent variables include the following; Socio-demographic factors like, Age, Sex, Occupation, Level of education, Income level, Family support.

Individual factors like, Alcohol consumption, Smoking habits, Diet, Level of knowledge about the disease. Health facility factors like, Availability of drugs, Health education, Follow up of the patients, Number of visits to the health facility, Patient- health worker relationship and co-morbidities.

CHAPTER TWO: LITERATURE REVIEW

2.0 Introduction

2.1 Measuring prevalence of adherence

There is no gold standard for calibration of adherence (Vik eta al, 2004). The methods available for measuring adherence are classified into two categories: direct and indirect measurements (JMCP,2000). Direct measurements include the detection of the drug in biological fluid, observing the patient a she or she takes his or her drugs and measuring biologic markers in blood. This measurement is considered to be more reliable and accurate but it is expensive, impractical for routine use and susceptible to distortion by the patient (Hawksheadandkrousel-Wood, 2007).

Indirect measurements include, asking patients how easy it is for them to take their drugs, pill counting, rates of prescription refills, electronic medication monitor, measurement of physical makers like heart rates in patients taking Beta- Blockers. However, questioning patients susceptible to misrepresentation and health worker over estimating adherence (Osterberg and Blaschke, 2005). Patients self-report can efficiently measure adherence. (Welsh et al, 2002). In this study, Morisky medication adherence scale will be used to measure adherence.

According to the Adherence project, Adherence to long term therapy is defined as "the extent to which a person's behavior-taking medication, following diet, and or executing lifestyle changes, corresponds with agreed recommendations from a health care provider." The definition is a merged version of the definition of Hynes and Rand. The level of adherence to chronic diseases among patients in developed countries averages only 50%, while in developing countries, poor

adherence is said to be having greater magnitude and effects, given the fewer health services and resources and also poor access to the health care (Sabate, et al 2003).

In the context of tuberculosis control, adherence to treatment is defined as the extent to which the patient's history of therapeutic drug-taking coincides with the prescribed treatment. (WHO 2003).

Poor adherence to TB treatment is a major obstacle to adequate control of TB in the developing countries. Strategies like appropriate patient counseling and effective communication, involvement of community health workers in offering health services including administering of treatment to patients that is decentralization of treatment, patient choice of the DOT supporter and also encouragement of supervision activities, result in improved access and adherence to TB treatment, as well as better patient outcome. Therefore, these strategies should be exercised in the health centers (Thiams.,et al 2007).

Following long term therapy is a great challenge to TB patients and has contributed to poor adherence to TB treatment and poor treatment outcome among TB patients. Proper understanding of adherence as a complex behavioral issue, and adequate knowledge about the particular barriers to and facilitators of patient adherence is important to enhance effective patient treatment outcome. According to (Xu,W.,et al 2009), factors such as heavy financial burdens, lack of social support adverse drug reactions and individual factors are being associated with non-adherence and factors like DOT and regular home visits by the health workers are more likely to reduce the non-adherence to anti TB treatment among TB patients. So it was concluded that more efforts should be directed towards improving patient related factors and structural barriers hence enchaining adherence to tuberculosis treatment.

In East Africa, according to the study done in Kenya, it was noted that the defaulting rate was highest during the initial two months that is the intensive phase of treatment. Out of the 954 defaulters, 22.7 percent (215) defaulted treatment with in the first month and 20.4 percent (193) with in the second month of treatment that is the intensive phase of TB treatment. Ignorance, traveling away from treatment site, feeling better and having side effects were the reasons for abandoning treatment among the 120 defaulters interviewed. Poor adherence to TB treatment would mean that the patient remains infectious for a longer time, more prone to relapse and this would increase the risk for treatment failure and also fostering emergency drug resistance TB (Muture .,et al 2011).

A number of factors have been associated with treatment default, according to the studies done in Uganda; factors like distance from home to clinic, poor drug availability, long waiting time at the clinic, conduct of staff and lack of opportunity to express feelings have been attributed to treatment default among TB patients. Patient related factors like lack of health education, being aware of the duration of treatment, not knowing that TB can be cured, the risk of discontinuing the treatment, length of TB treatment, and the side effects of the treatment were also considered for treatment defaulting among the TB patients. Therefore it was concluded that the health system, staff factors and patient misinformation are the factors that influence defaulting among TB patients. Health education directed at patients combined with staff sensitization would result into improved adherence (Elbireer, et al 2011).

Another study carried out in Uganda relieved that poor adherence is one of the factors that is associated with unsuccessful treatment out come together with other factors like HIV infection, age and duration of TB symptoms (Edward, et al 2011).

World Health Organization introduced the DOT as one of the strategies to promote adherence to TB treatment among the TB patients, where by an identified, trained and supervised agent (health worker, community volunteer or family member directly observes and monitors patients while swallowing their anti- TB drugs (WHO 2003)

2.2 Socio-demographic

Occupation status;

Individual factors greatly influence the level to which TB patients adhere to the anti-TB treatment. According to a study carried out by Hasker and Maksad (2008), in Uzbekistan it was found that unemployment, homelessness and being a pensioner were being associated with poor adherence to TB treatment among the TB patients. It was stated that homelessness greatly influence the level to which TB patients adhere to their treatment and is a great risk factor for treatment defaulting, the study population comprised of only six homelessness individuals all of whom defaulted treatment which indicated the impact of homelessness on the patients adherence level to treatment. It was also observed that the risk for treatment default was highest among the patients who were unemployed or the pensioners, than those who were being employed by the government. As compared to a study carried out in Sri Lanka, it showed that patients who unemployed or home bound had a greater level of adherence than the skilled or unskilled laborers to anti TB treatment (Pinidiyapathirage., et al 2008). Another study was being carried out in India which included 1805 cases of pulmonary TB and among these patients the default rate was 23.63 percent and the socio dermographic associated with the poor adherence were being unemployed and being homelessness (Jakubowiak. et al 2007).

Adherence to tuberculosis can be affected by the social demographic factors for example, education level, illiterate, lack of family support, gender and occupation (Ali, et al 2016).

Age:

Basing on a study conducted by (Kulkarni PY., et al 2013) in Mumbai India, it was found that patients who were between the age groups of 15 years and 49 years of age, male gender, the employed patients, those who were educated at least till high school and those from a poor social economic class were more likely to be non adherent to the TB treatment. The study included 150 patients, out of which 103 patients were male while 47 were female. Out of the 103 male patients, 64.1 percent that is 66 patients were non adherent while out of the 47 female patients, 25.5 percent that is 12 were the only ones which were found to be non adherent to the tuberculosis treatment. Other studies carried out in other countries also indicated that male were more likely to default TB treatment than women although the difference is not statistically significant. The reasons being given for men defaulting were that as they work, they have difficult in leaving tier duties and responsibilities at the work place and go for health care center visits and also that men have fewer or no contacts with the health care system (Herrrero ., et al 2015).

In another study carried out by (Hasker., et al 2008) concerning effects of age on adherence, it indicated that the elderly patients more so those above the age group of 65 years were at an increased risk of defaulting the anti TB drugs more than those under the 25 years of age even though the difference was not statistically significant. May be the reason as to why the elderly patients may default the treatment would as a result of forgetfulness and lack of social support from family and friends and also failure to understand instructions given by the health care

workers, with this more research is to be done to rule out the effects of age on adherence to tuberculosis treatment.

Education;

Age and level of education affects the extent of adherence to tuberculosis treatment. According to a study carried out in Ilorin teaching hospital in Nigeria, it was stated that there was statistically significant association between age and treatment adherence among the TB patients with adherence being higher among the younger age groups. In this study it was also discovered that patients who had no formal education were most likely to miss drugs accounting for 19.4 percent out of the 280 responds than those with formal education. (Bellos ., et al 2010).

In another study that was carried out in the same hospital about adherence to TB therapy which included 544 TB patients and it was observed that, the greatest number of patients that missed drugs were those below the age of 25 years accounting for 19 percent then followed by those with in the age ranges 35-44 years with 11.9 percent and the trend decreased with increasing age of the patients as those with age above 65 years had lower tendencies of missing drugs. The study also noted out that patients with tertiary education were less likely to miss their drugs accounting for 4.3 percent as compared to those with no formal education with a percentage of 19.4 percent (Anyaike ., et al 2013).

Family support;

Community and house hold support has a great impact on the extent to which a patient adheres to the TB treatment, according to the research carried out in Indonesia which involved a total number of 63 patients 31 of whom were adherent and 32 were non adherent. Among the many reasons given by the non-adherent group for poor treatment adherence was lack of social support which was being reported by 60 percent of the patients who claimed not to be having a treatment

observer. According to the patients the treatment observer should be someone special to the patient like partner or family member. Without such a person, the patients would forget to take their medication, and also forget to get the new medication form the hospital every month. Mostly the elderly and low educated people defaulted treatment and even stopped as they had no social support from partner or a family member, who always had to check whether they had taken their medication, bring them to the hospital and alps collect for them new medication. Such patients on most occasions couldn't understand the instructions given by the health workers and lacked transport to the hospital (Widjanarko, et al 2009)**.**

Income level;

In one study carried out in Argentina it was found out that non adherence was greatly amongst patients who were living under conditions of low social economic status for example individuals living in a home without running water, in residential area where the majority of households do not have flushing toilets and basic sanitation, and a place of residence where the majority of families fall below the minimum threshold of subsistence capacity, this shows that the environment and the social economic status of the patient has a great impact on the level of adherence to anti-TB treatment. It was also discovered that families where the head of the house hold with no medical insurance, social protection, were unemployed and inactive, had lower levels of adherence to anti-TB treatment compared with those families who had social protection and the heads of their families were employed, such families were more likely to show some degree of support to the TB patients who adhered mostly to the anti-TB treatment (Herrero., et al 2015).

2.3 Individual factors;

Alcohol and smoking habits;

In a study carried out in Morocco, which involved 727 new TB cases, the rate of treatment failure was found to be 6.9 percent and this was significantly among smokers and alcohol drinkers accounting for 9.1 percent and 18.5 percent respectively and even among those with a low income, where by smoking and low income were the main factors that were significantly associated with TB treatment failure in Morocco (Tachtouti., et al 2011). According to Supernal. , et al 2010), it was found that the factors contributing to non-adherence among the TB patients were different among the newly diagnosed TB patient and the other groups of TB patients. Where by smoking during the treatment period and factors related to traveling were the contributing factors to non-adherence among the newly diagnosed TB patients while alcohol consumption and inadequate drug supply were the factors that were significantly associated with non-adherence among the other groups of TB patients.

Diet;

The availability of food was also being stated as one of the factors that influenced adherence to TB treatment among the TB patients. Most of the patients believed that for one to experience fewer side effects and tolerate his or her drugs well must have an adequate diet, and lack or no food at all would lead to very severe side effects and failure to tolerate the anti TB drugs. The majority of patients, most especially those who had insufficient income frequently mentioned lack of food as a factor that greatly influenced their adherence to TB treatment, it could be better for someone without food not to take drugs at all as drugs can be harmful on an empty stomach, and also that TB drugs increase appetite and after taking them one would feel hungry and yet food is already a problem (Gebremariam, M.K., et al 2010). Patients with little or no food end up

not taking their TB treatment as prescribed for fear of an increased appetite or the adverse effects of the drug associated with lack of food leading to either non adherence or poor adherence to TB treatment.

2.4 Knowledge

As a result of poor knowledge about the Tuberculosis infection, the number of non-adherent TB Patients has increased. Basing on the study carried out in India, it was stressed out that patients who defaulted treatment had poor knowledge concerning the susceptibility of TB and its causes and spread, treatment duration, regularity, side effects and curability of the diseases. The research study showed that there was a significant association between default and poor knowledge regarding TB and its treatment, inadequate patient provider interaction and inadequate support from health staff and dissatisfaction with services provided. To add on also a great proportion of patients defaulted treatment as a result of experiencing side effects from the medication (Vijay ., et al 2010).

Basing on a study carried out in Indonesia, out of the 63 patients, 31 were adherent and 32 were non adherent to the anti TB treatment, where by 47 percent of the non-adherent attributed their failure to comply to the treatment as a result of feeling better and 44percent to lack of money even though the treatment was being given freely at the health center, while 13 percent of the non-adherent patients stopped the medication as a result of feeling worse and 28 percent for experiencing side effects of the drugs. Some patients had a negative image about the health care staff, treatment and the quality of medication, and as a result, they were not satisfied with the behaviors of the health care staffs, so most of the non adherent patients reported that they had not

received instructions from the health care staffs concerning the side effects of the drugs and what to do and these constituted 30 percent of the non adherent patients (Widjarnarko., et al 2009). As a result of lack of knowledge concerning the disease and its medication, most patients deliberately stopped taking the medication as they were starting to feel better and hence contributing to non adherence t o the TB treatment.

As compared to another study being out in Morocco, it was stated that 72.9 percent of the non adherent patients stopped taking their medication as a result of feeling better, 34.1 percent reported long duration of the treatment as the reason for defaulting treatment while 9.4 percent defaulting was due to side effects and majority of them that is 84.7 percent reported having difficult in accessing the health care facility as the reason for defaulting the anti TH=B treatment (Tachfouti ., et al 2012).

In East Africa, particularly Kenya, a research study carried out by (Muture ., et al 2011), he stated that out the 945 defaulters, 22.7 percent that is 215 and 20.4 percent that is 193 patients defaulted within the first and second month of the treatment while out of the 120 defaulters interviewed, 16.7 percent that is 20 their default was due to ignorance, 12.5 percent that is 15 was due to traveling away from the health care facility,11.7 percent that is 14 their default was due to feeling better and 10.8 percent that is 13 patients default was due to side effects.

Results from a study conducted by Woimo, 2017 indicated that the prevalence of non-adherence to TB treatment was 24.5 percent in southern Ethiopia and the reasons being associated with non-adherence were poor knowledge about TB and its treatment, having inadequate health information at every visit, and availability and access to the DOTS services. It was emphasized that patients who had inadequate knowledge concerning TB and its treatment had a higher risk of

defaulting the TB treatment as compared to those who had good knowledge. While those who received health information at every visit at the health center was more adherent than those who didn't receive health information at every visit.

2.5 Institutional related factors;

In a study conducted by Hasker (2008), he stated that refusal of treatment by the patient and violation of the hospital rules were the most common reasons for defaulting treatment among the TB patients. He noted that out 126 non adherent patients, 18 percent (23) patients defaulted treatment due to failure to comply with the hospital rules, like displaying aggressive behavior and leaving the hospital premises for some days without notification and permission. While 27 percent (33) refused further treatment where by the patients decided to discontinue treatment under agreed conditions with the health care worker. He also went ahead and noted that being on the hospital admission to a TB was another challenge and also that the intensive phase was being continued longer than the required time. There was also lost of follow up during the transition from the intensive phase to the continuation phase and hence contributing to non-adherence.

In a study carried out in Argentina, it was observed that cost of transport and access to the health care center greatly affected adherence to TB treatment among the TB patients whereby the risk for defaulting from treatment increases as a result of economic barriers in accessing health care facility. Most of the patients who had difficulties in accessing and meeting the transportation costs were at a higher risk of non-adherence than those who never encountered such problems (Herrero ., et al 2015).

Also other studies carried out in different countries indicated that distance to the health care facility and attitude of the health care workers influence the level of adherence to TB treatment

among the patients. Longer distances of greater than 10 Km or 5 Km from the treatment site were being associated with poor adherence to TB treatment.

Patients being co-infected with HIV AIDS is also being associated with poor adherence. In a research carried out by Adane, (2013), he noted that patients who were co- infected with HIV had a higher risk of defaulting as compared to those who were an asymptomatic and those who were sero negative. The non-adherence would result from the additional medication other than that of TB. It was indicated that patients who were taking medication for more than one illness were less likely to adhere to TB treatment as compared to those who were taking only medication for TB.

As compared to another study being done by Gebre Miriam., (2010), it was stated being co-infected with HIV, increases the chances of pill burden if the patient is on Anti- Retro viral Therapy (ART) and possibilities of side effects. Most likely, such patients are being given co-trimoxozole for PCP prophylaxis and some may be having other co-morbid conditions due to HIV like psychosis, which increases the number of pills being taken by a patient hence contributing to poor adherence. It observed that, patients associated a high number of pills with potential damage to the body and a higher risk of non-tolerating the drugs and hence ended up not taking the drugs.

A research study carried out in eight Ethiopia districts concerning the quality of tuberculosis care and its association with treatment adherence indicated that out of the 44 health facilities, 44 percent (18) health centers, the TB care providers were untrained and in 13 out of the 44 health facilities, daily outpatient care was not being given. The unavailability of daily TB care at the health facility contributed to patients missing treatment, the health workers were usually under supervised by the district TB control experts and some of them were unable to deal with the

patients minor illnesses as a result of these, TB patients were fond of missing their treatment and out of 237 patients, 43 percent interrupted their treatment for more than 15 days and 30 percent had at least one dose of drugs unused (Mesfin., et al 2009).

According to (Gupta, 2011),he states the treatment interruption was higher in the private sector hospitals accounting for 56.27 percent as compared to the DOTS service center with 34.25 percent and other sources of treatment also with 9.48 percent. The two most common reasons for treatment interruption were high cost of treatment that is 16.39 percent and early improvement that is 30.05 percent. Most probably the availability and cost of treatment can affect the level of adherence to the TB treatment, as in most of public health facilities the treatment is being offered for free as compared to the private health facilities where the drugs are being paid for whereby there are higher chances for patients missing doses and not being able to take their drugs in the appropriate time due to lack of finances.

In Senegal, Hane. (2007) stated that the main institutional factors that influence adherence to TB treatment are limited access to TB diagnosis and treatment facilities where by approximately 12 percent of the TB patients were unable to collect their drugs due to long distances and poor transport infrastructure. Another factors that was stated is the poor communication between the health workers and the patients at the time of both diagnosis and registration and during treatment and most especially at the beginning of the treatment where by the health care providers were fond of giving relatively correct information to the patients which was brief and general and also the explanation given to the patients were usually in simple terms like you have got Tuberculosis without any other information given to the patient concerning the disease.

Hane also went ahead to mention that the health workers contribute to the stigmatization of the patients as emphasis was being put on isolation of the patients at their home and worker place. This somehow would hinder the patients to come to the health facility for more medication and it also hinders disclosure to the family members who would offer support in fear of being isolated. He stated that the time for the patient and the health care workers was also limited and delegation of tasks was to mostly the unqualified personnel like the community health workers, drug dispensers and these health workers have limited training in issues concerning TB and its treatment.

CHAPTER THREE: METHODOLOGY

3.1 Introduction

This chapter comprises research design, study population, sampling technique, eligibility criteria, data processing and analyzing, ethical consideration and administration approval, and quality control.

3.2 Study Design

A descriptive cross sectional survey was carried out to investigate the factors influencing adherence to tuberculosis treatment among pulmonary tuberculosis patients attending Mpigi general hospital Mpigi district. Both qualitative and quantitative data will be collected.

The information collected was about medication adherence at a particular point in time.

3.3 Study area

The study was carried out in Mpigi general hospital. It is located approximately 38 kilometers west of Kampala district, in Mpigi district. Mpigi general hospital is one of the public hospitals in Uganda that was elevated to a hospital status in 2012, from health center IV. The hospital provides various health care services including out patient and inpatient services both medical and surgical cases, obstetrics and gynecological care, and pediatric care, with a bed capacity of 100 patients. Mpigi District lies within Central of Uganda, it is being bordered by Wakiso district to the east, Mubende district to the north, and Mityana district to the north west. It has a population of over 414,757 people of which 201,012 are females and 208,745 are male and it has 56 parishes and 339 villages.

According to (UNGASS 2010), 246 adults and children were enrolled for HIV care at Mpigi general hospital and of these, 28 were suspected to have tuberculosis.

3.4 Target population

All pulmonary TB patients who were either admitted and/or attending clinics in Mpigi hospital.

3.5 Study population

Pulmonary TB patients admitted and/or attending clinics in Mpigi hospital who consented to participate in this study.

The population was Pulmonary TB patients admitted and/or attending TB clinic in Mpigi hospital aged between 12 to 69 years. This population was used to be a representative of the Pulmonary TB patients in Mpigi district.

3.6 Selection Criteria

3.6.1 Inclusion criteria

Male and female pulmonary TB patients aged between 12 to 69 years who consented to participate in this study and met the eligibility criteria were considered to take part in the study.

3.6.2 Exclusion criteria

All pulmonary TB patients in the inclusion criteria having other circumstances such as being critically ill, mentally unstable, blind, having ear defect and not able to talk were excluded from the study.

3.7 Sample size calculation

The sample size calculation was calculated using the Kish and Leslie method 1965; considering the 9.6% prevalence of tuberculosis patients on treatment in Mpigi general hospital according to the UNGMAS report 2010. The sample size was estimated to be 133.

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

n = sample size

Z = Standard normal value corresponding to 95% C.I (1.96)

d = Absolute error between estimate and true value at 95% (0.05)

P = Estimated prevalence of TB patients on treatment in Mpigi general hospital. (9.6%) UNGMAS 2010.

$n = 1.96^2 \text{ X } 0.096 (1-0.096) / 0.05^2$

$= 0.333 / 0.0025$

$= 133$

3.8 Sampling procedure

The study particularly involved convenient sampling procedure. This applied to all pulmonary TB patients attending the TB clinic in Mpigi general hospital during the period of data collection as long as they had been on TB treatment for more than one month and they met the eligibility criteria.

3.9 Study variables

3.9.1 Dependent variable

The dependent variable was adherence to TB treatment among patients with pulmonary TB attending Mpigi general hospital.

3.9.2 Independent variable

The independent variables were the demographic factors, the individual factors and the health system factors. Demographic factors included; the age, sex, Occupation, Level of education, Income level, Family support and the individual factors were; Alcohol consumption, Smoking habits, Diet, Level of knowledge about the disease. Health facility factors like, Availability of drugs, Health education, Follow up of the patients, Number of visits to the health facility, Patient- health worker relationship and co-morbidities.

3.10 Data collection method

3.10.1 Sources of data

The primary source of data was got from pulmonary TB patients. Other data was collected from the patients care givers, pharmacy records, patient treatment files and the health care professionals; these were the secondary sources of data.

3.10.2 Data collection instrument

The data was collected using the researchers/interviewer-administered questionnaires that were presented to the respondents who were willing to take part in the study. The questionnaires was structured, had sections and sub-sections.

3.10.3 Pretesting of the tool

The questionnaire was pretested among the clients of Kiruddu hospital among 15 respondents, to find out their relevance in obtaining information appropriate for the study. After the pretest,

necessary changes were made in the questionnaires to suite the objectives of the study. Research assistants were also trained prior to the commencement of the research study.

3.11 Data management

The research assistants were trained on how to administer the questionnaire as per the researchers plan with highest level of confidentiality. The assistants were supervised by the researcher and handed over the questionnaires the moment they finished collecting data during the breaks. The data was kept under lock and key and code numbers were assigned to the questionnaire to ensure absolute confidentiality prevent loss of data and mixing of the information.

The data entry was done using SPSS version16. The data was coded, cleaned and then run to get the results. The results were transferred to the Microsoft excel so as to get quality tables, pie charts, and bars.

3.12 Data analysis plan

The descriptive analysis was done basing on the results of the percentages. Bivariate analysis was done to determine the relationship between two variables.

3.13 Quality control issues

The research assistants were trained for one day in order to equip them with the knowledge and skills for carrying out tasks of sampling, giving clear introduction to the interviewee and performing the interview accurately and correctly according to the developed procedure. The research assistants were on daily basis check on the completeness, accuracy and consistency of

collected data before they interview then respondent and also the data collected will be cross checked by the principal researcher for verification.

3.14 Ethical issues

Permission to conduct the study was sought from International health Sciences University, the research department and the Administrators of Mpigi general Hospital. The letter from the University was presented to the Hospital administration for permission to carry out the study. Informed verbal and written consent was obtained from the respondents. Strict confidentiality was maintained all through data collection and analysis. The collected data was restricted to the principal investigator only. A consent form was given to each person who has accepted to participate in the research study, to consent as to be sure that they have agreed to the terms of the research study. To add on, each questionnaire that has been fully filled the respondent was marked with a code.

3.15 Plan for dissemination

The findings of this study was disseminated to the administration of International health Sciences University and the research department of the University, the administration of Mpigi general hospital and ministry of Health.

CHAPTER FOUR: FINDINGS

4.0 Introduction

This chapter presents the findings on factors influencing adherence to tuberculosis treatment among pulmonary tuberculosis patients attending Mpigi general hospital - Mpigi district. This study was conducted on 133 participants of which all the 133 participants were fully interviewed making a response rate of 100%. The study findings are represented in tables and pie charts with appropriate explanation given below.

4.1 Univariate analysis of social demographic factors influencing adherence to anti TB drugs

4.1.1 Social demographic factors

The socio- demographic factors of the study population were described in this section

Table 1: showing Univariate analysis of social demographic N= 133

Variable	Category	Frequency (n)	Percentage (%)
SEX	Male	64	47.2
	Female	69	52.8
Age	12-19	9	7
	20-29	16	12
	30-39	36	27
	40-49	56	42
	50-69	16	12
Marital status	Single	12	9.4
	Married	90	67.4
	Widowed	11	8.4
	Separated	20	14.8
Religion	Christians	82	62
	Moslems	41	31
	Others	10	7
Occupation	Civil servant	28	21.1
	Self employed	32	23.5
	Unemployed	52	39.3
	Student	21	16.1
Level of education	No formal	21	16
	Primary	50	37.5
	Secondary	29	22
	Tertiary	33	24.5

Source: field data

As shown in table 2 above, majority of the participants were female (52.8%), 42% fell in age category of 40-49years old, 62% of them were Christians, 39.3% were unemployed and 37.5% had studied up to primary level.

4.1.2 Measuring adherence using Morisky 4 item scale

Table 2: showing Morisky 4 item measuring adherence scale N=133

Variable	Frequency	Percentage (%)
Ever missed a tab		
Yes	87	65.7
No	46	34.3
Careless at times taking drugs		
Yes	77	58.2
No	56	41.8
Stops when feeling worse		
Yes	13	10.1
No	120	89.9
Stops when feeling better		
Yes	58	43.8
No	75	56.2

Source: field data

With regard to measuring adherence level as presented in table 3 above, 87 (65.7%) reported to have ever missed a tab, 77 (58.2%) are careless at times taking their medication. However 120 (89.9) participants who were the majority take their drugs when they feel worse while as 75 (56.2%) stop taking their medication when they feel worse as shown in the table above.

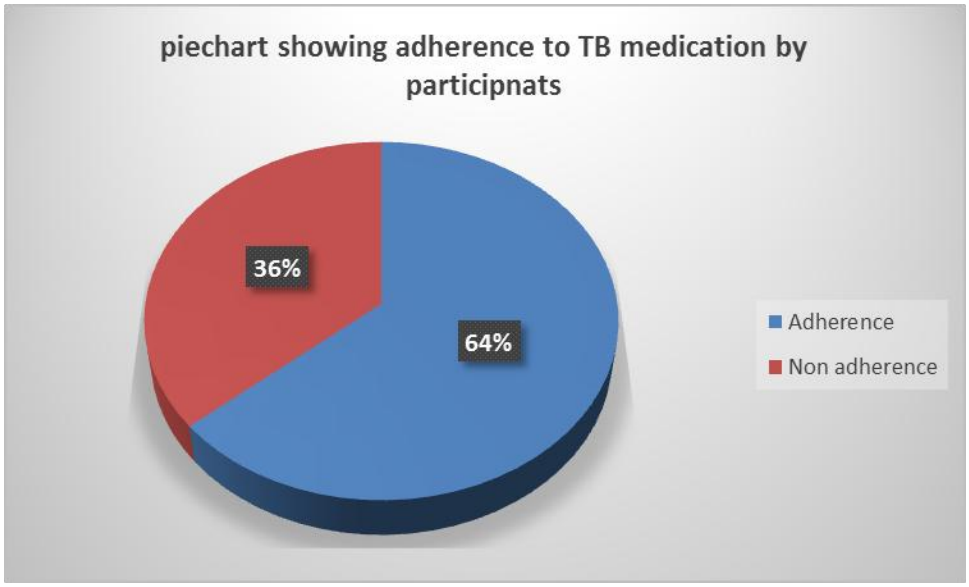
Table 3: MMAS-4 table of results N= 133

Adherence	MMAS-4 SCORE	Number of patients	Percentage (%)
High	0	38	28.2
Medium	1-2	47	35.6
Low	3-4	48	36

Source: field data

Morisky Medication adherence scale (MMSA) has an adherence scale of 0-4; Score of 0 indicate High adherence, 1-2 medium adherence and 3-4 lower adherence as shown above.

Figure 2:Showing adherence to TB Medication by participants



Patients with a score of 0-2 (64%) were considered to be adherent while those with more than 2 (36%) were considered to be non-adherent.

4.1.3 Univariate analysis of individual related factors

Table 4: showing Univariate analysis of individual related factors

Variable		Frequency (n)	Percentage (%)
Smoke	Yes	39	29.4
	No	94	70.6
Drink alcohol	Yes	76	57.1
	No	57	42.9
Meals per day	Once	22	17
	Twice	80	60
	More than 2	31	23
Foods that consist of balanced diet	Carbohydrates, proteins, vitamins	54	40.6
	proteins only	65	48.8
	Carbohydrates only	14	10.6
Do you know TB	YES	96	72.3
	No	37	27.7
Where did you know about it	Hospital	59	44.4
	School	35	26.3
	Radio	32	24.1
	Newspapers	0	0.0
	Others	7	5.2
Signs and symptoms of TB	Cough for more than two week	60	45.1
	Excessive night sweets	12	9.0
	Fever	10	7.5
	Unexplainable weigh loss	13	9.8
	Coughing blood	38	28.6
Health Behaviours affect TB treatment	Smoking	56	42.1
	Alcoholism	42	31.6
	Sudden stopping swallowing medication	35	26.3

Source; Field data

As shown above, majority of the study participants 94(70.6%), were not smoking, drunk alcohol 76 (57.1%), had two meals a day 80 (60%) and reported that proteins only as food that consist of a balanced diet 65 (48.8%). 96 (72.3%) had knowledge about TB, most of them had got knowledge about TB from the hospital 59 (44.4), reported that coughing for more than two

weeks was a sign of TB 60 (45.1%) and most of the participants also reported that smoking affected TB treatment 56 (42.1).

4.1.4 Univariate analysis of health related factors

Table 5: showing Univariate analysis of health related factors

Variable		**frequency**	**percentage**
Medication available in hosp	Yes	121	91
	No	12	9
Waiting time	30 min-1 hr	19	14.3
	1-2 hrs	39	29.3
	More than 2 hrs	75	56.4
Health workers inform you of return date	Yes	119	89.4
	No	14	10.6
Review times in a month	None	98	73.7
	1-2	35	26.3
	2-3	0	0
Health workers attitude	Friendly	78	58.6
	Unfriendly	55	41.4
Distance from hospital	1-2 km	27	20.3
	2—3km	45	33.8
	3-4km	32	24
	More than 5	29	21.9
Get education at hosp about TB	Yes	95	71.4
	No	38	28.6
Co mobbity	Dm	11	8.3
	HTN	27	20.3
	HIV	82	61.6
	Others	13	9.8
Other medication interferes with TB Treatment	Yes	105	78.9
	No	28	21.1

Source: field data

As shown above, majority of the study participants 121 (91%) reported that they found anti TB drugs in the hospital, 75(56.4%) spent more than 2 hours waiting for the health worker, 119

(89.4) reported that health workers informed them of the return date, 98 (73.7%) did not receive any review within a month and 78 (58.6%) reported that health workers were friendly. Most of the participants lived 2-3km from the hospital 45(33.8%), 95(71.4%) get education at the hospital about TB, 82 (61.6) also suffered from HIV and 105 (78.9%) reported that other medications interfered with TB treatment.

4.2 Bivariate Analysis

4.2.1 Bivariate Analysis of social-demographic factors

Table 6: showing Bivariate Analysis of social-demographic factors

Variable	Category	Adherence (No)		Non adherence (YES)		Chi square	Df	P-value
		N	%	N	%			
Sex	Male Female	25 33	43.1 56.9	39 36	52 48	2.53	1	0.101
Age	12-19 20-29 30-39 40-49 50-69	4 9 24 26 9	5.7 12.8 32.3 36.4 12.8	5 7 12 30 7	8.2 11.3 19.7 49.5 11.3	8.54	2	**0.014**
Marital Status	Single Married Widowed Separated	5 57 6 11	6.3 72.1 7.6 13.1	7 33 5 9	12.9 61.1 9.5 16.5	19.196	3	**0.001**
Religion	Christian Moslems others	57 28 4	64 31.5 4.5	25 13 6	56.8 29.5 13.7	3.12	2	0.110
Occupation	Civil servant Self-empld Unemployed student	13 19 31 14	16.9 24.7 40.3 18.1	15 13 21 7	26.8 23.2 37.5 12.5	17.54	3	**0.000**
Level of education	No formal Primary Secondary Tertiary	6 21 20 28	8 28 26.7 37.3	15 29 9 5	25.9 50 15.5 8.6	37.29	3	**0.000**

Source: field data

P-value of less than 0.05 represents a significant factor. From the chi square test results above; Age, Marital status, occupation, level of education were found to be significant.

4.2.2 Bivariate analysis of Individual related factors

Table 7: showing Bivariate analysis of Individual related factors

Variable	Category	Adherence (No)		Non Adherence (YES)		Chi square	df	P value
		n	%	N	%			
Smoke	Yes No	18 59	23.3 76.7	21 35	37.5 62.5	37.88	2	**0.000**
Drink alcohol	Yes No	33 32	50.8 49.2	43 25	63.2 36.8	4.73	1	**0.032**
Meals per day	Once Twice More than 2	7 61 21	7.9 68.5 23.6	15 19 10	34.1 43.2 22.7	15.024	1	**0.000**
Balanced diet	Carb+pro+vitamins	44	51.2	10	21.3	0.45	1	0.374
	Prot'ns only	37	43.0	28	59.6			
	Carbo only	5	5.8	9	19.1			
Do you know TB	Yes No	72 12	85.7 14.3	24 25	49 51	13.54	1	**0.002**
Where did you know about it	Hosp Scho Radi Newspaper others	49 25 21 0 3	50 25.5 21.4 0 3.1	17 10 11 0 4	40.5 23.8 26.2 0 9.5	0.17	1	0.772
S+s	Cough more than a week	45	53.6	15	30.6	1.44	1	0.273
	Excessive night sweats	7	8.3	5	10.2			
	Fever	4	4.8	6	12.2			
	Unexplainable weight loss	6	7.1	7	14.3			
	Coughing blood	22	26.2	16	32.7			
Health Behaviours affect TB Treatment	Smoking	40	42.5	16	41	4.72	1	0.542
	Alcoholism	32	34.0	10	25.7			
	Sudden stopping swallong medication	22	23.5	13	33.3			

Source: Field data

P-value of less than 0.05 represents a significant factor. From the chi square test results above; Smoking, drinking alcohol, meals per day, knowledge about TB were found to be significant.

4.2.3 Bivariate analysis of Individual related factors

Table 8: showing Bivariate analysis of Individual related factors

Variable	Category	Adherence (No)		Non adherence (YES)		Chi square	Df	P value
		n	%	n	%			
Med.in hosp	Yes No	78 5	94 6	43 7	86 14	13.6	1	0.000
Waiting time	30min- 1 hr 1-2hrs More than 2 hrs	11 30 40	13.6 37 49.4	8 9 35	15.4 17.3 67.3	15.6	1	0.121
HW inform return date	Yes No	92 4	95.8 4.2	27 10	73 27	2.67	1	0.133
Review times a month	None 1-2 2-3	39 24 0	61.9 38.1 0	59 11 0	84.3 15.7 0	0.78	1	0.452
HW attitude	Friendly Unfriendly	68 29	70.1 29.9	10 26	27.8 72.2			0.102
Distance frm hosp	1-2 2-3 3-4 More than 5	19 31 15 10	25.3 41.3 20 13.4	8 14 17 19	13.8 24.1 29.3 32.8	17.98	1	0.000
Educ. at hosp. about TB	Yes No	57 17	77 22.9	38 21	64.4 35.6	2.78	1	0.367
Co Mobidity	Dm HTN HIV others	7 17 56 6	8.1 19.8 65.1 7.0	4 10 26 7	8.5 21.3 55.3 14.9	7.58	1	0.002
Other med. Interfere with TB treatment	Yes No	72 22	76.6 23.4	33 6	84.6 15.4	17.84	1	0.333

Source: Field data

P-value of less than 0.05 represents a significant factor. From the chi square test results above; Medication availability in the hospital, distance from the hospital and co morbidity were found to be significant.

CHAPTER FIVE: DISCUSSION OF FINDINGS

5.0 Introduction

This chapter presents discussion of findings of the study. Results were discussed in relation to the literature review

5.1 Summary of objectives

The aim of the study was to assess the factors influencing adherence to anti tuberculosis treatment among pulmonary tuberculosis patients attending Mpigi general hospital.

5.1.1 Measuring adherence

Adherence to Tuberculosis treatment was measured using MMAS-4. The researcher found out that 64% of the participants were adherent and default rate was 36%, these findings were higher compared to a study by Jakubowiak. et al, 2007 which found out that the default rate was 23.63%. However, the findings were lower compared to a study by Mature et al, 2011 which indicated that the default rate was 43.1%.

5.2 Social demographic factors

Significant factors

Sex was found to be significant in this study (p=0.014), the majority of the female study participants were found to be more adherent than men. This could be due to a fact that most female stay at home and near there drugs compared to males who are always busy with the field work. This was in line with a study done by Hasker and Maksad (2008) which found out that female clients were more adherent than male clients

Marital status was found to be significant in this study (P=0.001). Married respondents were found to be more adherent than their counter parts. This could be due to a fact that married individuals have support from their partners. This was in line with a study done by Herrrero et al 2015. However, this contradicted with a study by Hasker., et al 2008

Occupation: Participants who were employed were found to be adherent to their medication than those who were unemployed (p=0.000). This was in line with a studies by Pinidiyapathirage., et al 2008 and Jakubowiak. et al 2007 which found out that unemployed and homeless people had poor adherence to their medication.

Level of education: Level of education was significantly associated with adherence. Participants who had studied up to primary level were found to be more adherent than those who had never gone to school or illiterates (p=0.000). The explanation for this could be that people who have studied have respect for health care providers and therefore respect their prescriptions. This study was in line with a study done by Bellos et al 2010 which found out that patients with no formal education were more likely to miss drug counting and hence less adherent.

5.3 Individual related factors

Significant factors

Alcohol (p=0.032) and smoking (p=0.000) were found to be significant in this study. The explanation for this could be that alcohol changes their mental status and they forget to take their medication on time. This study was in line with a studies done by Tachtouti., et al 2011 and Supernal. , et al 2010 which found out that non adherence was more common in those participants who took alcohol and those who smoke.

Meals per day was also found to be significant in this study (p=0.000). Participants who took two meals and above were found to be more adherent than those who had one meal a day. This was

in line with a study done by Gebremariam, M.K., et al 2010 which indicated that food availability mimic the side effects of drugs.

Knowledge about TB was also found to be significant in this study (p=0.002). This was in line with a study done by Vijay et al, 2010 which found out that patients who defaulted treatment had poor knowledge concerning the susceptibility of TB and its causes and spread, treatment duration, regularity, side effects and curability of the diseases.

5.4 Institutional factors

Medication availability in the hospital was found to be significant in this study. Patients who said that they did not find drugs in the hospital were found to be less adherent than those who said they found drugs in the hospital. This study was in line with a study done by Mesfin., et al 2009.

Distance from the hospital was found to be statistically significant to this study (p=0.000). Patients who lived less than 1 km from the hospital were found to be more adherent than those who lived more than 3km away. This could be due to that fact that patients who stay far are bound to missing there appointments because of transport costs. This was in line with a study done by Herrero ., et al 2015.

Co morbidity was also found to be significant in this study (p=0.002). The explanation for this could be that patients who suffered from another disease had a lot of pills to take which in turn increased side effects and hence making them no adherent. This was in line with a study by Adane, 2013.

CHAPTER SIX

CONCLUSION AND RECOMMENDATIONS

This chapter includes conclusion and recommendations from the study

6.1 Conclusion

The study found out that 64% of the participants were adherent while as 36% were non adherent. The significant factors that influenced adherence were:

6.2 Recommendations

Health care providers should health educate all patients with TB before the initiation of treatment on the duration of treatment, possible side effects and how to deal with them in the language locally used.

Health care providers should be trained on customer care and on how to handle patients.

Health care providers should initiate flexible hours for TB clinic so as to cater for patient's needs.

Strengthen facility DOT for patients staying close to the health facility. This would enable as many patients as possible to be observed by the health worker when swallowing their drugs.

Promote task shifting of the nurses such as dispensing drugs to counsellors at the TB clinic. This would alleviate the burden of work that is often experience by the nurses at the health facility and improve efficiency as patients will not have to wait for long hours.

6.3 Limitation of the study

Self-reporting was used as a primary measure of adherence in this study which could is highly influenced by recall bias and this could have in turn either overestimated the results or under estimated the results.

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APPENDIX 1:- CONSENT FORM

Topic under study: factors influencing adherence to tuberculosis treatment among pulmonary tuberculosis patients attending Mpigi general hospital Mpigi district.

Questionnaire No ….....

Date ….....

Introduction and consent

My name is Nakibirige Rehemah of International Health Sciences University, pursuing Bachelors of Nursing Sciences. I would like to request you to kindly take part in the above mentioned study by responding to the questions that Iam going to ask you. This research is a basic requirement for study purpose. The participation in this study is free and voluntary, the information you will provide will be confidential, and will serve the purpose of this study. Taking part and responding to these questions will take you the minimum of ten and a maximum of fifteen minutes. Taking part in this study by giving your information will serve as prove that you took part in the study.

Date……

Sign……

APPENDIX II: QUESTIONNAIRE

SECTION A

BIO-DATA

1. SEX

a) MALE ☐ b) FEMALE ☐

2. AGE

a) 12- 19years ☐ b) 20-29 years ☐ c) 30-39yrs ☐

d) 40-49yrs ☐ e) 50-69yrs ☐

3. MARITAL STATUS

a) Single ☐ b) Married ☐ c) Widow(er) ☐

d) Divorced / separated ☐ e) others (Specify) ☐

4. RELIGION

a) Christians ☐ b) Moslems ☐

d) Others

5. OCCUPATION

a) Civil Servant ☐ b) Self Employed ☐

c) Unemployed ☐ d) Student ☐ e) Others ☐

6. Does your work interfere with taking of your medication?

a) Yes ☐ ☐

b) No7. LEVEL OF EDUCATION

a) Primary ☐ b) Secondary ☐ c) Tertiary ☐

SECTION B

Level of adherence;

Measuring Adherence level;(Morisky 4 item measuring Adherence scale)

Question	Yes=1	No= 0
8. Have you ever missed a tab?		
9. Are you care less at times<bout taking your medication?		
10.Some times if you feel worse when you are taking your medication, do you stop taking it?		
11.When you feel better, do you sometimes stop taking your medication?		

SECTION C

To assess the individual factors that influence adherence to TB treatment among pulmonary TB patients attending Mpigi general hospital.

12. Did you take alcohol in the last 6 month?

a) Yes ☐ b) No ☐

13. Did you smoke in the last 6 months?

a) Yes ☐ b) No ☐

14. How regularly do you take your meals a day?

a) 1 meal ☐ b) 2 meals ☐ c) > 2 meals ☐

15. Which of the following foods consists of a balanced diet.

a) Carbohydrates, proteins, vitamins ☐ b) proteins only ☐

c) Carbohydrates only ☐

16. Do you know what Tuberculosis is?

a) Yes ☐ b) No ☐

17. If YES above, where did you know about it?

a) Hospital ☐ b) School ☐ c) Radio ☐

d) News Papers ☐ e) Others (Specify) ☐

18. The following are the signs and symptoms of TB. Circle the ones you know.

a) Cough for more than two weeks ☐ b) Excessive night sweets ☐ c) Fever ☐

d) Unexplained weight loss ☐ e) Coughing of blood. ☐

19. The following health behaviors affect the TB treatment utilization?

a) Smoking ☐ b) Alcoholism ☐

c) Suddenly stopping swallowing the medication ☐ d) All the above ☐

SECTION D

To determine health facility factors that influence adherence to anti TB treatment among pulmonary TB patients attending Mpigi general hospital.

22. Do you always find medicine available in the hospital whenever you go for refill?

a) Always available ☐ b) Sometimes available ☐

d) Not available ☐

23. How much time do you usually wait at the TB clinic before being attended?

a) 30 min to 1 hour ☐ b) 1 hr to 2 hr ☐ c) More than 2 hrs ☐

24. Do the health workers inform you when to go back to hospital for review and medicine refill?

a) Yes ☐ b) No ☐

25. How many times do you go to the hospital for review in two months?

a) None ☐ b) 1-2 ☐ c) 2-3 ☐

26. How do you relate with the health workers at the health facility?

a) Friendly ☐ b) Unfriendly ☐

27. How far is the hospital from your home?

a) 1-2 Kilometers ☐ b) 2-3 kilometers ☐

c) 3-4 kilometers ☐ d) > 5 kilometers ☐

28. At the health facility, do you usually get some health education about TB disease?

a) Yes ☐ b) No ☐

29. Do you have any chronic illness currently as you are TB treatment like?

a) Diabetes ☐ b) Hypertension ☐ c) HIV ☐

d) Others (specify) ☐

30. If yes above, are you taking any other medication apart from the TB medication?

a) Yes ☐ b) No ☐

31. Does that other medication interfere with the taking of TB medication?

a) Yes ☐ b) No ☐

32. In most cases, what hinders you from collecting your medication from the health facility?

a) Lack of transport means and money for transport. ☐ b) Long distance form the hospitals ☐

c) Lack of TB drugs at the health facility ☐ d) others (specify) ☐

APPENDIX III: WORK PLAN

ACTIVITIES.	**TIME FRAME**						
	Feb	**Mar**	**Apr**	**May**	**May**	**Jun**	**Jul**
Developing proposal							
Consultation and their Approval of proposal							
Data collection							
Submission of first and third drafts of the dissertation							
Submission of final dissertation							

APPENDIX IV: PROPOSED RESEARCH BUDGET

Activity	**Item**	**Estimated cost in Ug. Shs**	**Source of funds**
Stationary	Ream	20,000	Self
	Pens	2,500	Self
	Printing + final report printing	70,000	Self
	Binding	15,000	Self
	Highlighters	3,000	Self
Transport		50,000	Self
Data collection		25,000	Self
Data entry		35,000	Self
Data analysis		300,000	Parents
miscellaneous		25,000	Self
GRAND TOTAL		**545,500**	

APPENDIX V: INTRODUCTORY AND CORRESPONDENCE LETTER

IHSU INTERNATIONAL HEALTH SCIENCES UNIVERSITY
sanitas per scientiam

making a difference in health care

Office of the Dean, School of Nursing

Kampala, 15th June 2017

IN CHARGE
MPIGI HEALTH CENTER IV.
.....
.....

Dear Sir/Madam,

RE: ASSISTANCE FOR RESEARCH

Greetings from International Health Sciences University.

This is to introduce to you **Nakibirige Rehemah,** Reg. No. **2013-BNS-FT-027** who is a student of our University. As part of the requirements for the award of a Bachelors degree in Nursing of our University, the student is required to carry out research in partial fulfillment of her award.

Her topic of research is: **Factors influencing Adherence to Anti-Tuberculosis Treatment among Pulmonary T.B Patients attending Mpigi General Hospital.**

This therefore is to kindly request you to render the student assistance as may be necessary for her research.

I, and indeed the entire University are grateful in advance for all assistance that will be accorded to our student.

Sincerely Yours,

IHSU 15 JUN 2017 SCHOOL OF NURSING P. O. Box 7782, Kampala - Uganda

Ms. Agwang Agnes
Dean

allowed to carry out research

MPIGI HEALTH CENTRE IV 19 JUN 2017 MPIGI DISTRICT COUNCIL

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