

**FACTORS ASSOCIATED WITH UPTAKE OF ISONIAZID PREVENTIVE
THERAPY FOR TUBERCULOSIS AMONG HIV POSITIVE PATIENTS
ACCESSING CARE FROM TASO MULAGO CENTER
KAMPALA, UGANDA**

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MASTER OF PUBLIC HEALTH

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A Thesis Submitted to the School of Graduate studies, Bugema University, in Partial
Fulfillment of the Requirement for the Award of the Degree of Master of Public
Health

SEPTEMBER, 2018

ACCEPTANCE SHEET

DECLARATION

I, Saidah Menya, declare that this Thesis titled **“Factors associated with uptake of Isoniazid Preventive Therapy among HIV positive patients accessing care from TASO Mulago Center Kampala, Uganda** is my original work and has never been submitted to Bugema University or any other institution of higher learning for any award.

Sign_____

Saidah Menya

Date: _____

DEDICATION

This thesis is dedicated to my mother, Ms. Namugga Aisha Kibirige for the support. May the almighty God bless you abundantly.

I would also like to dedicate this report to, my husband Mr. Muwanga Edward, my children Isaac Mark Mutebi, Ethan David Mutebi and Nicole Abigail Namutebi for their emotional support towards this journey.

BIOGRAPHICAL SKETCH

Saidah Menya was born on 29th June 1984 to Mr. Menya Sowali and Ms. Namugga Aisha Kibirige in Mukono District. She went to Menk Junior School from 1990-1997 for Pimary Leaving Examinations, Mbogo High School for Ordinary and Advanced Level from 1998-2003. In 2004-2007, she joined Masaka School of Comprehensive Nursing, where she obtained a Diploma in Registered Comprehensive Nursing. In 2010-2014, she successfully obtained a Degree in Public Health (Bachelor of Science in Public Health) from International Health Sciences University. In 2016, she joined Bugema University School of Graduate Studies for a Masters Degree in Public Health.

The author has attained many professional short courses covering different areas including, Good Clinical Practice, Program for Infant and Young Child Feeding, Research and Ethics, Knowledge Exchange Enterprise and Commercialization among others, with a diversity of experience.

The author has 10 years of working experience in Clinical Nursing and TB Clinical Trial Management and Research.

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I thank God, the almighty for the gift of life and for bringing me to this level. I wish to appreciate the following for their contribution in terms of physical, spiritual, moral, financial, support that made this study a success.

My sincere thanks go to Bugema University teaching staff for the effort, support and guidance towards this project, most especially Dr. Peter. C. Vuzi, Mr. Christopher Ddamulira and Dr. Stephen Kizza, for they were dedicated supervisors right from proposal to the submission of the thesis. I would also like to thank the University administration including the non-teaching staff for making the University so conducive to study at and their encouragement. I wish to acknowledge Madam Edith Nakiwolo for the support I needed most to accomplish this thesis report.

Special thanks go to TASO Mulago Research and Ethics Committee and the management of TASO Mulago Center for allowing me to carry out the study at their Center, TASO clients and the Health Care providers at TASO Mulago for their honesty in participating in this study. My research assistants Miss Regina Nakayinga and Miss Veronicah Kizza, I thank you so much for your precious time during data collection.

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LIST OF ACRONOYMS

ART	Ant Retroviral Therapy
CVI	Content Validity Index
DF	Degree of Freedom
DOTs	Directly Observed Therapy short course
HIV	Human Immunodeficiency Virus
INH	Isoniazid
IPT	Isoniazid Preventive Therapy
IRB	Investigatory Review Board
KI	Key Informant
LTBI	Latent Tuberculosis Infection
MOH	Ministry of Health
NTLP	National Tuberculosis and Leprosy Program
PLWHA	People Living with HIV/ AIDS
SD	Standard Deviation
TASO	The Aids Support Organization
TB	Tuberculosis
WHO	World Health Organization

ABSTRACT

SAIDAH MENYA, School of Graduate Studies, Bugema University, AUGUST, 2018. **“FACTORS ASSOCIATED WITH UPTAKE OF ISONIAZID PREVENTIVE THERAPY FOR TUBERCULOSIS AMONG HIV POSITIVE PATIENTS ACCESSING CARE FROM TASO MULAGO CENTER KAMPALA, UGANDA.”**

Advisor: Peter. C. Vuzi, Ph.D.

The study involved HIV positive patients who had been accessing care for the past three years from TASO Mulago Center Kampala, Uganda. The study objective was to determine the factors associated with Uptake of Isoniazid Preventive Therapy. The study sample size was 364 patients sampled from a target population of 7053 clients accessing care from TASO Mulago Center. It was a cross sectional study employing both quantitative and qualitative approaches. Data from the study was analyzed using descriptive statistics to obtain means, frequencies and standard deviations as well as inferential statistics to derive crude odds ratios and significances using binary logistic regression and multivariate analysis to obtain adjusted odds ratios.

Results showed that majority of the respondents were females, most of the respondents were aged 31-40 years and primary was the highest education level attained by respondents. Only 11.26% of the respondents had knowledge about IPT, 16.5% received IPT related health education at the clinic, 47.4% have heard about latent TB infection from the community. However, majority (94.2%) feared acquiring TB, 92.3% disclosed their HIV status with 75.6% disclosing to family members.

Health education and creating awareness about latent TB infection in the community were the only significant factors associated with uptake of IPT (AOR = 0.174, 95% CI = 0.055-0.548, $p = 0.003$) and (AOR = 7.494, 95% CI = 1.598-35.148, $p = 0.011$) respectively. Therefore, there is need for health care providers to incorporate IPT related health education at the clinic as well as creating awareness on latent TB infections in the community.

CHAPTER ONE

INTRODUCTION

Background to the Study

Isoniazid Preventive Therapy (IPT) represents strong potential for reduction of mortality and morbidity in people living with HIV (Phillip, 2009). The new end tuberculosis (TB) strategy 2035 emphasizes and recommends systematic diagnosis and treatment of Latent Tuberculosis Infection (LTBI) in People Living with HIV/AIDS (PLWHA) as part of a comprehensive package of HIV care to achieve \geq 90 percent LTBI treatment coverage (WHO, 2016). This is to prevent latent or asymptomatic TB infection from progressing to symptomatic clinical disease and preventing initial infections (WHO, 2017). IPT reduces on the development of new TB infection thus reduces TB morbidity and mortality.

IPT uptake interventions have unfortunately been slow although there has been a slight increase (Mandeep, 2010). Globally in 2011, only 12% of PLWHA newly enrolled in HIV care programs started on IPT (WHO, 2011). In 2014, only 23% of countries globally reported using isoniazid preventive therapy (WHO, 2014).

In South Africa, of the nine percent HIV infected individuals who were actively screened for TB, only 3% were offered IPT in 2010 (Marais, 2010). While in 2014, the proportion of PLWHA who had ever taken up IPT was 30.5% for patients in Ethiopia (Demelash, 2015). The total number of new cases of HIV seen from July to September 2013 was 218, of which (30% N=65) were started on IPT in Nigeria (Nwokeukwu et al, 2015). While in Kenya, 77% were started on IPT (Omesa, 2016). There is a slight increase in uptake though it has not been able to reduce on the TB infection especially among people of reduced immunity like PLWH.

Obstacles to IPT uptake globally according to Center for Disease Control (CDC), (2016) include complexity and duration of treatment in addition to the ART side effects, frequent clinic visits and transport costs to the health facility. In Africa, studies have shown additional obstacles such as knowledge and duration of HIV diagnosis for patients in Ethiopia (Demelash, 2015)., fear of acquiring TB, receipt of health education and a favorable relationship with health care providers for patients in Kenya (Omesa et al., 2016). Among health care providers and the health system, the barriers to IPT uptake included lack of knowledge about treatment guidelines, fear of causing INH resistant TB, concerns about patient adherence, and unreliable supply chains (Getahun, 2010). Hindrance to IPT uptakes vary from country to country but are slightly related since health care is at hospital level and an individual is looked at as a whole not as a single entity.

On the other hand, clinical observation and close monitoring for the development of active TB disease through monthly visits, national drug surveillance systems, introduction of flexible interventions to the specific needs of population groups at risk and their needs to ensure acceptable initiation of treatment improve uptake (WHO, 2015). In addition, factors like adherence to completion of therapy via creation of policies through programmatic environment in promotion of universal health coverage to develop national and local policies with standard operating procedures improve on the levels of IPT uptake (WHO, 2016). These interventions contribute to the prevalence of new TB infections among PLWHA because they hinder implementation of TB related health programs.

However, the Ministry of Health Uganda (MOH) adopted four interventions as part of the core components of TB prevention among PLWHA irrespective of their CD4 counts and among them was IPT for those without active TB (MOH, 2017). The

contributors to the low IPT initiation in Uganda include disclosure of HIV status, lack of recording tools and distance to the health facilities (Costenaro, 2016).

Specifically, at TASO Mulago Center, clients are investigated for TB of any signs of TB like cough > two weeks, night sweats, evening fevers, lack of appetite and weight loss plus X-ray abnormality (TASO Mulago, 2018). All patients with one or more sign or symptom are considered TB suspects and are further investigated for active TB disease as per the national TB guidelines and are not eligible for TB preventive therapy until active TB disease had been excluded on the basis of sputum smear microscopy and mycobacterium culture (TASO Mulago, 2018). Of the 7053 eligible clients for IPT, only 149 in 2017 were started on IPT and these were mainly contacts of TB patients and children < five years of age (TASO Mulago, 2017). Furthermore, in the years 2015, 2016 and 2017, 168 patients developed TB and only seven took IPT according to TASO Mulago, (2018) representing a risk to development of TB of only 4.2%.

Statement of the Problem

Despite the continued efforts by TASO Mulago Center of providing free health education and counseling services to clients, of the 7053 clients who are eligible for IPT, only 149 in 2017 representing only 2.1% received IPT. Of the 168 clients on IPT in 2015-2017, only seven developed TB during the treatment period signifying that IPT has beneficial effects in protecting against TB representing 95.8% protection (TASO Mulago, 2017). However, the 2.1% uptake is quiet very low compared to studies conducted in Kenya, Ethiopia and Nigeria that found out uptake rates of 77%, 30% and 30.5% respectively.

The factors associated with this low uptake in TASO Mulago Center despite the beneficial effects of IPT are not clearly understood. Previous studies by Omesa

etal., 2016 and Demelash, 2015 suggested factors such as socio demographic and health system factors to be involved. The study therefore sought to determine the factors associated with uptake of IPT in TASO Mulago. The study findings will go a long way to bridge the knowledge gap about IPT uptake among PLWHA.

Research Questions

1. What are the individual factors of HIV positive patients accessing care from TASO Mulago Center Kampala, Uganda?
2. What is the level of uptake of IPT among HIV positive patients accessing care from TASO Mulago Center Kampala, Uganda?
3. What are the health system related factors that affect HIV positive patients accessing care from TASO Mulago Center Kampala, Uganda?
4. Are individual and health systems related factors associated with uptake of IPT among HIV positive patients accessing care from TASO Mulago Center Kampala, Uganda?

General Objective

To determine the factors associated with uptake of IPT among HIV patients accessing care from TASO Mulago Center in Kampala, Uganda to enable all those infected by HIV benefit from the IPT intervention by reducing the associated morbidity and mortality of TB after identifying and addressing the barriers to uptake of IPT.

Specific Objectives

1. To describe the individual factors of HIV positive patients accessing care from TASO Mulago center Kampala, Uganda.
2. To determine the level of uptake of IPT among HIV positive patients accessing care from TASO Mulago center Kampala, Uganda.

3. To establish the health system related factors that affect HIV positive patients accessing care from TASO Mulago center Kampala, Uganda.
4. To determine whether there is an association between individual factors, health system factors and uptake of IPT among HIV positive patients accessing care from TASO Mulago Center Kampala, Uganda.

Hypothesis

The null hypothesis is that, individual and health system related factors have no significant association with uptake of IPT among HIV positive patients accessing care from TASO Mulago center Kampala, Uganda.

Significance of the Study

The findings of this study will benefit PLWHA, TASO Mulago center, Ministry of Health Uganda and globally to those countries that suffer from tuberculosis and HIV.

PLWHA: The study will offer an effective public health intervention to reduce mortality and morbidity of TB among HIV positive patients.

TASO Mulago Center: The information gathered will act as a source of knowledge about the reasons for uptake of IPT among HIV positive individuals.

MOH Uganda: Evidence generalized from this study will guide Ministry of Health Uganda and other stakeholders to strengthen supervision, initiation and training support to all HIV clinics regarding IPT administration and utilization.

SCHOLARS: Findings might also provide evidence for researchers in aspect of tuberculosis preventive management among household contact of TB patients where the uptake of IPT among contacts staying with TB case patients can be determined as well.

Limitations of the Study

1. Study findings are limited to TASO Mulago Center and other TASO centers thus not generalizable to all health facilities in the country because of purposive selection.
2. Data collected was between April to July 2018 and views of the respondents during that period were not necessarily the best representatives to that of the whole population because it was a short study period. The researcher addressed this by having a large sample size of 364 from a population of 7053 eligible HIV positive active clients.
3. The researcher faced some recall biases since they were clients who had been on care for more than three years. However, the researcher gave recall events and gave them time to remember to be able to answer all the questions.

Scope of the Study

The independent variables considered to influence uptake were individual and health system related factors while the dependent variable of this study was uptake of IPT for TB. TASO Mulago Center located in Kampala city in Uganda was the study area. The researcher collected data from patients 18 years and above who had been in care for three years or more due to their familiarity with the systems at TASO and had been screened for TB. The health care providers who were concerned with prevention and management of TB who had been in service for the past five years and were familiar with the health system and policy were the Key informants for the study.

Theoretical Framework

The study was based on two theories, the health belief model (HBM) by Rosenstock (1974) and bio-psychosocial model (BPS) by Engel (1977). Health Belief Model explains why individuals accept or reject health behaviors that often depended on one's perceptions of benefits and risks related to health behavior. The HBM

commonly predicts health-related behaviors, preventive health behaviors, sick role behaviors and clinic use to be associated with uptake of IPT (Sheeran & Abraham, 1996). According to the HBM, six constructs influence people's decisions about whether or not to take action and these are;

1. Perceived judgmental risk of contracting the infection.
2. Perceived seriousness, clinical consequences, disability, pain or death from a condition with impact on life style, working ability.
3. Perceived benefits of an action in reducing the health risk and facilitate uptake.
4. Perceived barriers to action, how they benefit the person compared to the perceived costs for their behavior.
5. A stimulus or cue to action when a person is motivated, can perceive a beneficial action, and trigger prompt engagement in health-promoting behaviors.
6. Self-efficacy as an individual's perception of his or her competence to successfully perform a health behavior change.

However, the HBM ignores emotional responses to perceived risk thus assumes that people have the skills to alter the behavior while ignoring social context of behaviors by not accounting for social related factors that influence health behavior.

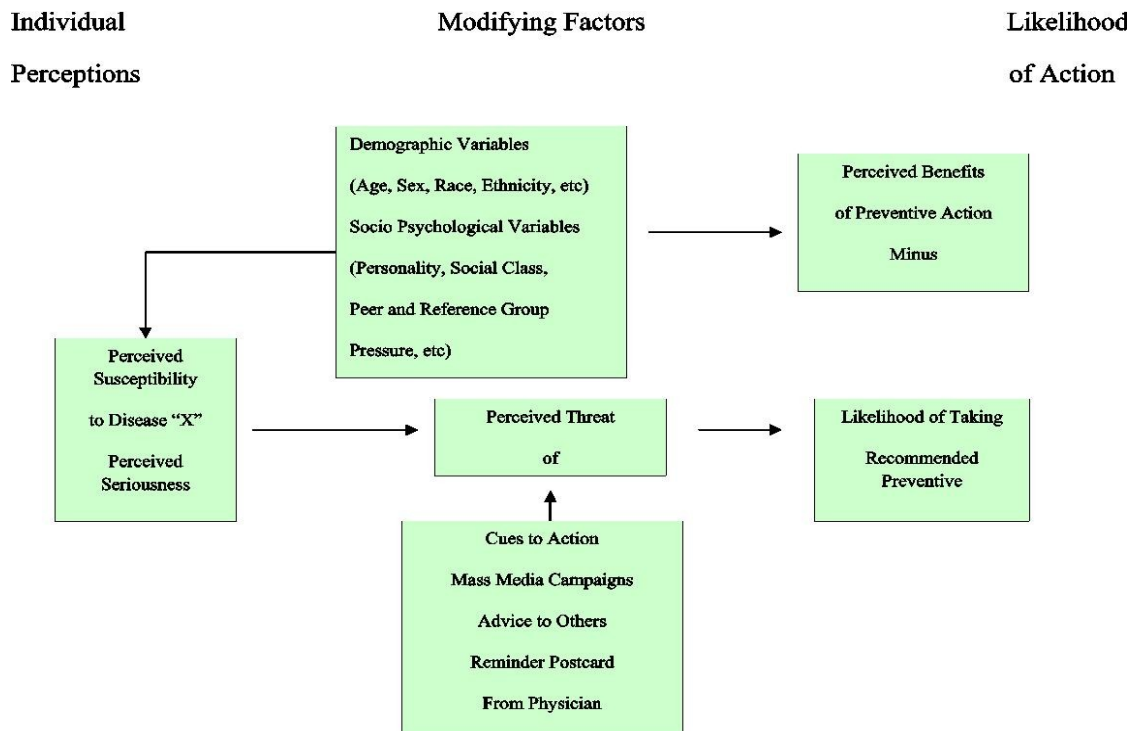


Figure 1: Health Belief Model

In failure to adopt social interactions, the study adopted the Bio-Psychosocial Model (BPS) that states that, bio-medical perspective looks at a holistic perspective grounded in general systems theories that are necessary to address health related issues. The 'bio' component of this theory examines aspects of biology that influence health and uptake such as brain changes, genetics, or functioning of major body organs, such as the motor system. The 'psycho' component of the theory examines psychological components such as thoughts, emotions, or behaviors. The 'social' component includes social factors that might influence individual health such as individual interactions with others culture, and economic status.

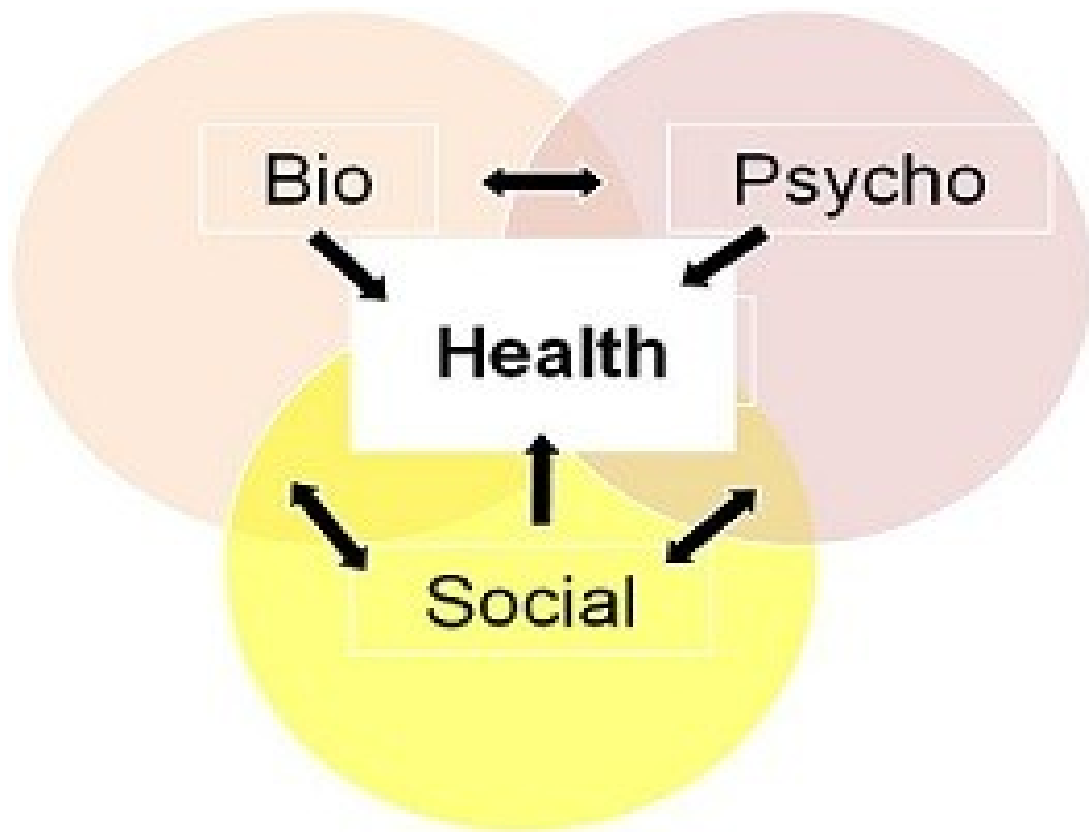


Figure 2: Bio-psychosocial Model

In relation to the study, uptake of IPT was the dependent variable, which can be associated with a combination of individual and health system related factors. Individual factors such as age, sex, marital status, education level. Knowledge on IPT, fear of TB, disclosure of HIV status, duration of HIV diagnosis and family support address the behavior intention and attitude of an individual towards accessing preventive health care. On the other hand, health system related factors such as IPT related health education, creating awareness on LTBI in the community, relationship of the patient with health care provider, distance to the health facility, IPT drug stock out and DOT supervision addresses the subjective norm of what is expected of the health system and how they influence uptake of IPT. BPS was chosen because it shows the social interaction of the determinants of health behaviors and the methods

of promoting preventive measures influence and the use of role models, in this case, health care providers.

Conceptual Framework

The conceptual framework of this study (Figure3) illustrates the hypothesized relationship between the independent and dependent variables. The independent variables were factors associated with uptake of IPT such as individual and health system factors. The dependent variable was uptake of IPT.

Independent variables

Independent variables

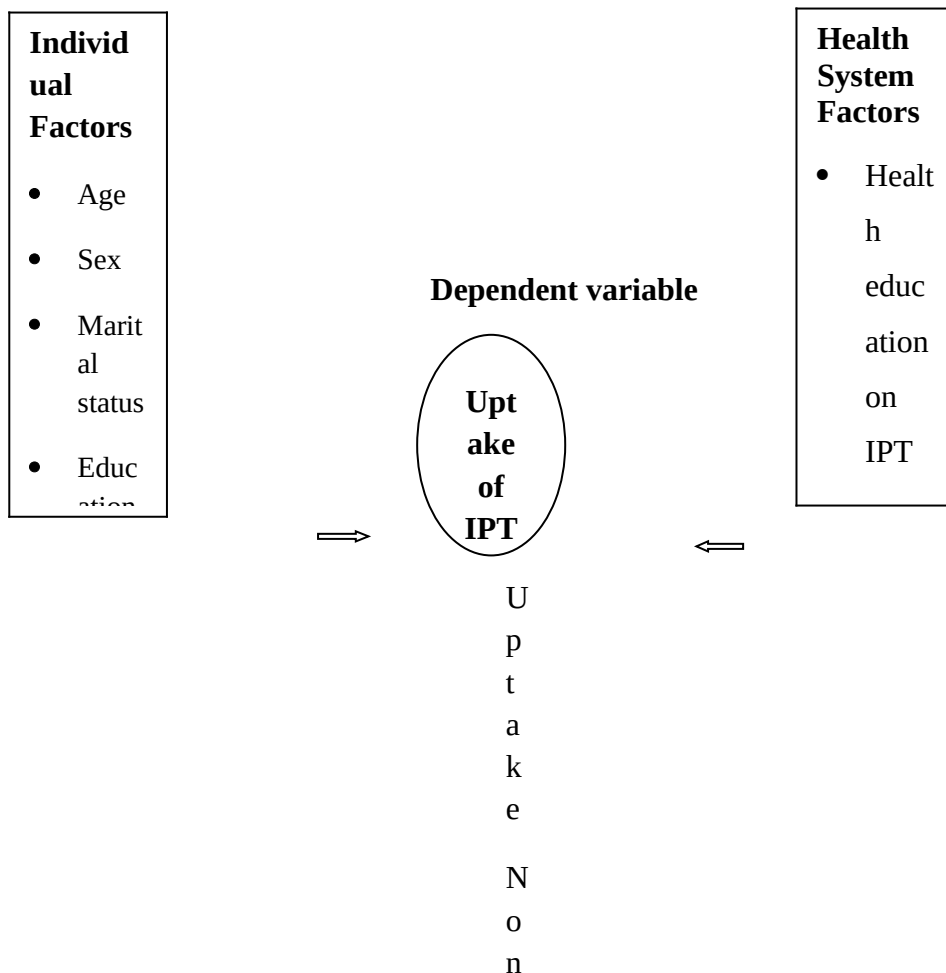


Figure 3: Conceptual Frame Work of the Study

Individual factors of patients such as age, sex, marital status and education level, knowledge on IPT, fear of TB disease, disclosure of HIV status as well as duration of HIV diagnosis and family support were determined. Health system factors

like health education on IPT, creating awareness on latent TB infection information, relationship of health care providers with the patients, IPT drug stock outs and Directly Observed Therapy Supervision (DOTs) all play a greater role on uptake as illustrated in the framework

Operational Definition of Terms

Operational definition of terms in this study included the definitions of the different dependent and independent variables in the study where the independent variables included the individual and health system factors while the dependent variable was uptake of IPT.

Individual Factors of Respondents

In this study, individual factors included age, sex, education level, marital status, knowledge on IPT, fear of acquiring TB, disclosure of HIV status, duration of HIV diagnosis and family support of the respondents. The variables were operationalized as.

Age: In this study, age refers to how old an individual was at the time of study. It was measured in complete years 18, 19 ...70 where 18 is the youngest and 70 the eldest

Sex: In this study, sex refers to whether the respondent was male or female. It was measured nominally as 1 = Male and 2 = Female.

Marital status: In this study, marital status was the description of a person's relationship with a significant other which was measured nominally as 1 = Single (never married), 2 = Married (stays with partner legally), 3 = Divorced/separated/widowed (ever been married but stays alone) and 4 = Cohabiting (stays with a partner illegally).

Education level: In this study education level refers to the highest level of formal schooling attained by the respondent. It was measured nominally as 1 = Never went to school, 2 = Primary school, 3 = Secondary school and 4 = Tertiary/ institution level.

Knowledge on IPT: In this study, knowledge on IPT refers to the awareness and understanding of facts, information, descriptions acquired through or education by perceiving, discovering, or learning about IPT. A seven scale index score was developed to assess knowledge and if someone had > 3 yeses and, was considered having high knowledge on IPT, if had 2 yeses and less was considered having little knowledge on IPT.

Fear of acquiring TB: In this study, fear of acquiring TB refers to the perceived risk of developing TB. This was measured on a five-point index score and if someone had > 3 yeses and above, he/she was considered fearing to acquire TB and if someone had < 2 yeses and bellow, was considered not fearing to acquire TB.

Disclosure of HIV status: In this study, disclosure of HIV status refers to whether someone had shared about the HIV/AIDS status to someone else. This was measured binary as 1 = Yes (disclosed) and 2 = No (did not disclose).

Duration of HIV diagnosis: In this study, duration of HIV diagnosis refers to the known length of time in months someone has had the HIV infection from the time of testing. This was measured in complete months as interval data like 36, 37...where 36 was the minimum duration of HIV diagnosis

Family support: For the purpose of this study, family support refers to the unpaid or informal help received from a family member. It was measured binary as 1 = Yes (Supported by family) and 2 = No (Not supported by family).

Health Systems Related Factors

These included, health education on IPT, creation of awareness on LTBI to the community, relationship of health care providers with patients, IPT drug stock out, DOT supervision and distance to the health facility. They were operationalized as bellow.

Health education on IPT: In this study, this refers to the process of equipping patients with knowledge on IPT to help them make informed choices about their health in regards to TB. This was measured binary as 1 = Yes (Received health education), 2 = No (No health education received).

Creating awareness to patients in the community on LTBI: In this study, creating awareness refers to the process of letting patients know about LTBI information in the communities where they stay. This was measured as binary 1 = Yes (awareness created) and 2 = No (No awareness created).

Relationship with patients: For the purpose of this study, this refers to the friendliness of the health providers with the patients in regards to discussing health issues. It was measured binary as 1= Yes (good) 2 = No (bad).

IPT Drug stock out: In this study, this refers to the situation in which the demand for IPT or requirement for IPT drug was not full filled from the current inventory. It was measured binary as 1 = Yes (IPT dugs in stock) and 2 = No (IPT drugs stock out).

Directly Observed Therapy (DOT) Supervision on IPT: In this study, DOT supervision refers to the action, process of critical watching, directing monitoring and regulating processes, or delegating activities in regards to swallowing IPT. This was measured binary as 1 = Yes (Dots) and 2 = No (No Dots).

Distance to the health facility: In this study, distance to the health facility was how far a person lived from the health facility. It was measured in kilometers as continuous data, the means of transport used to reach the health facility and how long it took them to reach the health facility in minutes as continuous data like 1, 2,3,

Uptake of IPT for TB: In this study, uptake refers to whether the patient has ever been enrolled on IPT, received the IPT and took IPT it. This was measured binary as 1 = Yes (uptake of IPT) and 2 = No (Non uptake of IPT).

CHAPTER TWO

LITERATURE REVIEW

This chapter presents the relevant literature about factors associated with IPT uptake among HIV positive patients and these included individual and health systems factors. Several literature sources from goggle scholar and Pub Med in line were reviewed and their weaknesses and strengths were cross-examined.

Individual Factors and Uptake of IPT

Several literature sources have found out that individual factors such as age, sex, marital status, knowledge on IPT, fear of acquiring TB disease, disclosure of HIV status, family support and duration of HIV diagnosis influence uptake of IPT.

Age and Uptake of IPT

According to the Uganda population based HIV impact assessment survey, HIV prevalence was highest 6.5% amongst individuals aged 15-45 years since these are people of reproductive age and are sexually active as well (WHO, 2016). In addition, a study carried out in Swaziland found out the median age of 38 years was most prevalent with HIV positive individuals as compared to all other ages (Adam etal., 2017).

A study done in Peru on factors affecting uptake of IPT and adherence to treatment of LTBI, the age group 26 to 35 years had significantly higher number of HIV but less uptake of IPT while the age group of 46-55years had more patients put on IPT but few in regards to HIV numbers (Mariano, 2013). In Nigeria, “age was also significant in uptake of IPT and this was because being an active group individuals looked health and may not see that the need for additional IPT” (Nwokeukwo etal., 2015). In another study carried out on routine implementation of IPT in HIV-infected

patients in Zimbabwe, respondents who took IPT were between the age group of 35-44 years (Takarinda et al., 2017).

All studies indicate that HIV prevalence and uptake was influenced by age however, studies reviewed are associated with loss to follow ups and recall biases from respondents and sufficient information may not be acquired to make conclusions to the general population.

Sex and Uptake of IPT

In a study carried out in Wakiso, Uganda on health seeking behavior and challenges in utilizing health facilities in Uganda in 2014, it found out that females were more likely to accessed care as compared to males (Musoke et al., 2014). Similarly, a study done in Ethiopia on the Beneficial effect of IPT and ART on the incidence of TB in PLWHA, it was observed that 39% of the eligible patients initiated on IPT, the number of males who were started on IPT were fewer than females. However, this was a retrospective cohort analysis of electronic database in 2007-2010 this study design is associated with missing information (Kesetebirhan et al., 2014).

Contrarily, in a prospective study between March 2007 to September 2008 among adults, initiation of INH for treatment of LTBI at 12 sites in the US and Canada found out that, “female sex was independently associated with INH discontinuation (RR 1.67, 95% CI 1.32-2.10, $p < 0.001$) thus a low uptake for females” (April et al., 2013). However, for a study carried out in the USA and Canada is in contrast as, it was beyond patients control as INH affected their safety while on the study.

Marital Status and Uptake of IPT

In a retrospective cohort study that employed secondary data from public health institutions in Addis Ababa, 45% of the participants were married (Mahlet

etal., 2016). However, secondary data is bound to missing information. Additionally, most of the patients according to a study carried out in Nigeria were also married and this enabled the researcher to find out if spouses were also infected, those on treatment and getting preventive measures thus a slightly higher IPT uptake percentage of 30% in 2015 as compared to 1% in 2007 (Nwokeukwo, 2015).

In contrast, a study carried out by Mermin (2008), on the risk factors for recent HIV infections in Rakai, Uganda, the risk for HIV infection was highest among the unmarried, widowed, divorced and separated individuals. However, the study in Uganda has old literature but the ones carried out outside Uganda concur with each other that the married had a higher chance of taking up IPT and complete treatment as compared to those that were not married.

Education Level and Uptake of IPT

According to a study carried out in Uganda on the level of HIV discrimination, half of the respondents had primary level of formal education attained and only 7% attained tertiary education (WHO, 2018). In addition, Muhofah, (2010) carried out a study on the determinants of the use of formal health care services in Butaleja Sub County, Uganda and found out that more than half of the respondents had attained formal education to only primary level. Similarly, for a study done on IPT level of adherence and its determinant factors among HIV positive patients in Adama hospital medical college, Oromia, Ethiopia (Elias, etal, 2016), it found out that majority had attained primary level of formal education.

However, in another study done on factors influencing uptake of contraceptive implants in the immediate postpartum period among HIV infected and uninfected women at two Kenyan district hospitals, mothers' education level did not have an

effect on the rate at which implants uptake was absorbed (Mufida et al., 2015). However, the study was limited by convenience sampling technique a type of non-probability sampling technique, which does not give every participant an equal chance of participation in the study.

Contrary individuals with higher formal education can enhance the demand for preventative health services by raising awareness and importance of undertaking regular health check-ups as this may improve the ways in which individuals understand information regarding periodical tests, communicating with the health practitioner, and interpreting results (Sebates, 2006). However, this is old literature with a small sample size and the results may not be generalizable to the whole population. In addition, higher education level was a determinant to the levels of skilled birth delivery and the full immunization uptake of children according to individual and household characteristics in Bangladesh in 2011 (UNICEF, 2013). In conclusion, the cited literature on education level is not in line with uptake of IPT but other preventive health conditions.

Knowledge on IPT and Uptake of IPT

According to a quantitative study done in Namibia in 2010, patients with little knowledge on the care for TB/HIV had low uptake of IPT. This might be that patients may receive health education message differently or not emphasized by the health workers (Musasa, 2011). However, this was a cross sectional study with a small sample size of 267 patients in a period of 4 months therefore information collected may not be generalizable to the whole population. Knowledge emphasizing the benefit of IPT maintenance of good health despite the HIV infection is important as found out that 84% of the respondents in the study agreed with IPT importance as it reduces the chances of acquiring TB this is emphasized after a good acquisition of

knowledge (Szakacs, 2006). Both studies show the importance of knowledge in IPT uptake among HIV positive patients.

In addition, knowledge on IPT on it reducing TB acquisition among the immune compromised individuals is essential as individuals take IPT after sufficient information. This is according to a study done on the acceptability and adherence to IPT in HIV-infected patients clinically screened for latent tuberculosis in Dar es Salaam, Tanzania (Grace, 2015). All scholars emphasize knowledge acquisition has a positive factor towards IPT acquisition and completion if initiated on IPT.

Fear of Acquiring TB and Uptake of IPT

TB in the community is a severe disease associated with a high mortality and it being an opportunistic infection among HIV positive patients. “Fear of acquiring TB is a motivating factor to IPT uptake as an intervention to offer protection as reported by respondents in Kenya in a study carried out on uptake and associated factors among HIV positive patients” (Omesa et al., 2016). This being a hospital based cross sectional study, it looked at participants who had been in care for HIV over six months and have come in contact with TB cases. However, it excluded those who had been on ARV treatment for less than six months therefore a high uptake of 77% although it was bellow the standard of 90% as required by the Kenyan MOH.

Additionally, TB is associated with HIV positivity thus increased fear following diagnosis. “The link between the two diseases causes fear in the individuals as the community will suspect their HIV status especially those who have not told anyone thus more uptakes into care and acquisition of INH” (Green et al., 2004). However, this is an old study of over 10 years back where HIV and TB patients were being stigmatized and isolated by the community. Consequently, fear leads to discrimination in fear of contracting the two diseases and its association with a sense

of shame leading to isolation by the infected person from perceived negative judgment from the community about the disease (Rowe, et al., 2005). In all these studies, fear made patients take up IPT to avoid them being associated with HIV.

Disclosure of HIV Status and Uptake of IPT

Along with fear, disclosure of HIV status to important others like close relatives discourages patients from taking their pills in public which affects their uptake and completion rates according to a study done on IPT adherence and associated factors among HIV positive patients in Addis Ababa, Ethiopia in 2014 (Demelash, 2015). This shows that those patients who fail to disclose had a low uptake rate for IPT as they may conceal their condition and its treatment. Therefore, disclosing helps in coping up and being more adherent. Also Omesa et al., (2016) in a study carried out on uptake and associated factors of IPT among HIV patients found out that respondents who had the infection for more than a year were more likely to disclose their HIV status and take up IPT as compared to those who had been on care for a short time.

In contrast, after disclosure and sharing knowledge with experiences on the danger of TB, patients are motivated to share IPT information to others who are also at risk thus encourage them to seek for care according to a cross section study by (Melaku et al., 2014). In addition, involvement of partners during initiation of IPT could be critical in supporting IPT uptake as this allows partners to address disclosure issues with the help of health care providers as raised by key informant in Addis Ababa (Gebrehiwot et al., 2015). Due to this, courage to take the drugs in public is lost as some of their prescribed medication (Mesele et al., 2014). This being only a qualitative study with only 12 health care providers, the study is subject to selection bias of the participants and the interviewer's opinion.

Conclusively, patient's denial of HIV infection regarding concurrent use of HAART and INH as a preventive measure to TB with a long duration of treatment since they need treatment companions also influences uptake. This being a qualitative review study of secondary analysis data on factors associated with adherence to IPT in Botswana, Ethiopia, South Africa, Tanzania and Thailand (Makanjuola et al., 2014). The study used a large sample size of 4228 respondents and participants were screened for tuberculin skin test prior to IPT initiation from 1997 to 2011 long enough to involve most participants. However, all studies reviewed showed how disclosing HIV status improves uptake and addressing stigma.

Duration of HIV Diagnosis and Uptake of IPT

According to a study done in Addis Ababa on tuberculosis case finding and isoniazid preventive treatment for TB among HIV positive patients, IPT initiation to the newly diagnosis is a burden compared to those who had stayed with the infection for more than one-year duration on highly active ART. Individuals were two times more likely to take up IPT because as people stay longer on highly active ART, they have been in care for long enough to accept treatment and infection prevention measures and became more aware of their health condition (Denegetu and Dolamo 2014). These being cross sectional studies carried out in a shorter period between February and March 2014, patients chosen might not have been a good representative to the general population to make conclusion of the results.

Family Support and Uptake of IPT

According to quantitative study on the predictors of uptake and adherence to IPT among HIV positive adults in Addis Ababa, Ethiopia, family plays an important role in uptake of INH as there is provision of more information from the family member on the importance to take up INH in support of each other (Munseri, 2011).

However, this being a cross sectional study, it is subjective to recall bias due to self-report from February to March, there is no analytical perspective of the results and the information may not be generalizable. Additionally, families have revolved over time before extended families were also common even in the city and it is not the case these days as the cost of life in the city is expensive.

Health Systems Related Factors and Uptake of IPT

The Literature reviewed on each of the variable on the health systems related factors include; Health education on IPT, Fear of TB, relationship with health care providers, IPT drug stock out, DOT supervision, distance to the health facility.

Health Education on IPT and Uptake of IPT

The role of IPT health education on prevention of TB is to emphasize informed decisions in accepting the intervention so as to reduce on the risks made as patients gain and have the power to demand for it if not offered as they demonstrate positive responses and impact on health. According to a study carried out in Kenya in 2014, Health education was a critical process in motivating a patient to adopt behaviors to the benefit of their health during the counseling sessions (Omesa et al., 2016).

In another study carried out in Brazil, physicians did not initiate or motivate staff nurses on utilization of IPT as supported by qualitative study where there was a poor detection and treatment of LTBI among HIV-infected patients by physicians in Rio de Janeiro due to lack of health education (Saraceni, 2011). If health care providers do not pass on knowledge, patients also lack knowledge and this hinders uptake of IPT yet patient's choice of taking treatment is influential by the physiological and psychological impacts of disease and the social and cultural structures in which the person is immersed (Horne, 2013).

Additionally, if sufficient information lacks, risk to acquisition and spread of the disease increases. With sufficient information given onto the patients of what is happening and what they should expect in any situations, this risk reduces as more explanation from the health care providers themselves about benefit of IPT are nearly six times more likely to start on IPT than their counterparts with no explanations (Mindachew et al., 2011). All studies noted the importance of equipping patients with knowledge in regards to health care so that they can make informed decisions about their health in regards to TB prevention.

Creating Awareness to Community about LTBI and Uptake of IPT

An understanding of IPT rationale through creating awareness to clarify on beliefs, importance, safety and concerns about latent TB infections among health care providers proved essential for patient's initiation to therapy with provision of sufficient information to the public erases treatment completion of IPT and patient fears (Rutherford, 2012). Availability of knowledge to patients on the risk for infections empowers patients to take charge of their life.

Relationship of Health Care Provider with Patients and Uptake of IPT

A good relationship between the patients and the health care provider provides a conducive environment to trust the health care provider and have open communication. In the same way, sufficient information to the patients is crucial and the patient is able to ask questions in order to seek clarity on issues as they raise confidence in taking up therapy from a knowledgeable and experienced source (Omesa et al., 2016). Patient - provider relationship is the primary bond for social support in influencing health choices for patients into care.

IPT Drug Stock Out and Uptake of IPT

In Kenya, approximately 20% of women who were eligible for IPT did not receive IPT during stock out of drugs. It is hard for a person who has accepted and finally told there are no drugs yet the duration of drugs is long so what would happen to the remaining periods of treatment when they come for their refills (Bristow et al., 2012). In a similar study in Ethiopia, most concerns raised were about the unreliable provision of isoniazid causing fear of isoniazid resistance in case the patients need the treatment when they acquire TB rather than when it is for preventive as a raised concern by almost all health providers during all focus groups (Gebrehiwot et al. 2015). However, this was only a qualitative study where a mixed study looking at both the providers and patients would analyze both sides and results would be more generalizable to the individuals affected.

Additionally, lack and non-availability of INH drug in some low- and middle-income countries in which only combination therapy for treatment of active TB is available is a factor to non-uptake of IPT (Fox et al., 2015). The studies reviewed support that IPT uptake is supported by availability and accessibility of isoniazid to those in need to improve adherence.

Directly Observed Therapy (DOT) Supervision and Uptake of IPT

Directly observed preventive therapy and a shorter duration regimen for preventive therapy improve treatment uptake according to a study carried out in South Africa in 2010 on the additive effects of IPT and HAART, as DOT supervisors make sure that patients take and complete their treatment with cautious counseling sessions that help them complete their therapy (Golub, 2010). This being a prospective case control trial in 11000 participants, outcome was timely and directly observed preventive therapy reduced the risk if HIV patients from acquiring TB to 89%.

According to a study done by Lisa, (2014) on the interventions to improve delivery of isoniazid preventive therapy in the US, interventions included directly observed therapy that showed improvement in uptake rate for IPT. However, this being a systematic review of qualitative data, there is a possibility of missing information. Health service providers report poor monitoring and no supervision of the IPT program by higher managers.

Distance to the Health Facility and Uptake of IPT

In a study carried out in Tanzania, distance to and from the clinic in terms of kilometers and time it takes to where the patients lived increased the risk of IPT non-uptake and completion of treatment among HIV positive patients. “Some patients have to move for long distances to the clinic for IPT where it is not a onetime visit it hindered uptake and completion rates of treatment where patients had to come back for more drugs yet it was to a longer distance to reach the health facility” (Munseri etal 2007).

Summary of Reviewed Literature and Identified Research Gaps

The literature reviewed covered the concepts of the independent variables social demographic characteristic, patient, health care provider and system factors and the dependent variable uptake with the associated gaps as well as some few contradictions.

Age was associated with uptake of IPT as Mariano, (2013) and Nkwokeukwo, (2015) noted that young adult’s 26-35years were less likely to be initiated on IPT and compared to the older adults of 46-55years. Factors like knowledge, fear of acquiring TB and disclosure of HIV status were positively associated with IPT uptake. In the same way providing health education and having a good relationship with the patients also improve on the rates of uptake (Omesa etal., 2016)

On the other hand, isolated studies have provided criticisms due to small sample size (Denugetu and Dolamo, 2014, Munseri, 2011), either qualitative only (Makanjuola et al., 2014, Saraceni, 2011) or quantitative only studies (Horne, 2013) only and Meta analyses studies (Lisa, 2014) only.

All the reviewed literature reviewed studies conducted in different geographical locations across the world. Such data is not reliable to understand the factors in Uganda specifically in TASO Mulago Center. Data on the factors associated with IPT uptake is lacking and necessitates an investigation in TASO Mulago Kampala Uganda. Therefore, this study sought to address the knowledge gap. Such limitation hinders decision making on matters of prevention for morbidity and mortality due to TB among HIV positives and TB prevalence as well.

CHAPTER THREE

METHODOLOGY

This chapter covered research design, locale of the study, study population, target population, sample size, sample design, sampling procedures, data collection methods and tools, sampling procedures, study validity and reliability and data analysis.

Research Design

The study was descriptive in nature and specifically it employed a cross sectional and correlation study research design. Cross sectional design is that it was based in a health facility and patient's responses were noted at a particular point in time describing a particular phenomenon of individual and health system related factors. Correlation research design was concerned with explaining the association of individual and health system related factors on the uptake of IPT among HIV positive patients.

The study adopted both quantitative and qualitative approaches as adopted by Creswell and Plano, (2011). The quantitative approach analyzed the patient's responses through the statistical, mathematical or computational techniques. The qualitative approach was used for the Key Informant (KI) by studying factors associated with uptake of IPT in their natural settings and attempting to make sense of or interpret phenomena in terms of the meanings KIs brought to them. A mixed method of both qualitative and quantitative approaches helped in improving the quality of research findings effectiveness in answering the study objectives. The mixed method also clearly allowed the examination of a large number of variables and it saved time as information gathered was observed and measured immediately.

Locale of the Study

The study was conducted at TASO Mulago Center, which is located in Old Mulago Kamplala, Uganda. TASO is an indigenous HIV/AIDS service initiative, registered in Uganda as a non-governmental organization. TASO Mulago Center Kampala has been in existence since 1987. At first, it was a small, informal group of people meeting to talk about HIV and AIDS and grew into an organization. Throughout the journey of 30 years, TASO has recorded unparalleled milestones in the service of the citizens of Uganda and beyond in preventing HIV infection, restoring hope and improving the quality of life of people infected and affected by HIV/AIDS. Several activities are carried out by TASO Mulago and these include; HIV testing, training, counseling, medical care, and research. The site has three clinic days in a week and receives an average of 150 clients on each clinic day. It also makes internal arrangements to go out to the field at gazetted areas to extend their service to people nearer to their places of residence. It also conducts weekly meetings in orders to address both patients care and staff management welfare. TASO Mulago Center has 11 Counselors, 3 Pharmacists, 4 Laboratory personnel, 3 Medical doctors, 6 Nurses and clinical officers (TASO, 2017).

Study Population

The study included all HIV positive patients accessing health care service from TASO Mulago Center at the time of the study. TASO Mulago Center has a population of 7721 active clients (TASO Mulago, 2018).

Target Population

The target population comprised of 7053 adults aged 18 years and above who received and access health care from TASO Mulago Center at the time of the study (TASO Mulago, 2018).

Sample Size

Sample size comprised of 364 participants as determined using Krejcie & Morgan 1970 table from a known population of 7053 active patients. For the qualitative study approach, eight key informants were interviewed.

Sampling Procedure

During the study, a record for a list of scheduled patients in order of their registration numbers was obtained from the data department in order to determine the sampling frame. Participants were selected by systematic random sampling method because the procedure was very easy and could be done manually as well as the results were representative of the population. The first patient was identified randomly in order of their registration numbers then every 19th patient was considered for participation in the study. If one declined or was ineligible, the next patient was considered to participate and the process continued until the sample size of 364 was reached. The researcher determined the sampling interval as bellow.

$$\begin{array}{l} \text{Total population} \quad = 7053 \quad = 19.38 \quad = 19^{\text{th}} \\ \text{Sample size} \quad \quad \quad 364 \end{array}$$

The study included HIV positive males and females aged 18 years and above who had been in accessing care at TASO Mulago Center for more than three years. The study also included eight key informants (2 Counselors, 2 Doctors 2 pharmacists and 2 Nurses) who had been in service for the past five years.

The study excluded any patients suspected to have TB disease, those undergoing treatment for active TB disease or are still undergoing screening investigation and those < 18years. Children < 18 years are a vulnerable group that needs an additional consent for their parents yet some do not come with their parents

on their clinic days. Also > 18years is the legal age in Uganda to obtain informed consent.

Data Collection Methods and Instruments

The study used both qualitative and quantitative methods. In the qualitative method, there was description of data in its natural settings, attempting to make sense of the phenomena in terms of the meanings the respondents brought to them. Well as for the quantitative method, data was counted and expressed numerically.

Face to face, interview was used to collect participant's information and views. It had structured questionnaires containing; individual and health system factors and how they influenced uptake of IPT.

Key informant interview (KII) was used to obtain data from KIs who were the health care providers. Their views regarding the associated factors and how they influence uptake of IPT was obtained using KII guide.

The study employed two instruments questionnaire and KII for data collection.

Questionnaire

The questionnaire was the main instrument of the study. It was administered face to face in a personal interview to obtain participants responses. Structured questionnaires were administered to the respondents and interpreted in the language one understood.

The questionnaire had three sections:

Section A with individual factors B with health system related factors and section C composed of uptake of IPT. Information on individual factors included age, sex, education level, marital status, knowledge on IPT, fear of acquiring TB, disclosure of HIV status, duration of HIV diagnosis and family support. Health systems factors included health education on IPT, creating community awareness about LTBI and

relationship of health care providers with patients, drug stock out, DOT supervision and distance to the health facility were assessed. Section C was about uptake of IPT.

Key Informant Interview Guide (KIIG)

A structured KIIG consisted of open-ended and unstructured questions relevant to the subject objectives was used to gather information that patients were not be able to give. This took about 20-25 minutes per interview. Key informant interview was important because it enabled rich data collection.

Validity and Reliability of Instruments

Quality control measures were under taken to ensure that findings of the study met the acceptable standards and these measures included assessing validity and reliability of the data collection instruments.

Validity

According to Amin (2005), validity is the extent to which a procedure measures what it is supposed to measure. In order to ensure this the researcher collected data according to the objectives to address all variables. A panel of experts of supervisors from the university validated the instrument. Information from pretest was used to adjust the questionnaire to improve validity. Each research assistant collected five questionnaires and 20 participants from Mulago Immune Suppressed Syndrome clinic who are not included for this study were pilot tested.

The content validity index was determined from the formula:

$CVI = K/N$ where; CVI= Content Validity Index.

K=Number of items cleared by a panel of expert supervisors and IRB = 32

N= Number of items in the questionnaire = 38

Therefore, $CVI = 32/38 = 0.842$. Since CVI is > 0.7 , the instrument was valid as recommended by Amin (2005).

Reliability

Babbi (2007) defines reliability as, a tool of measurement method, which suggests the same data collected each time in repeated observations of the same population. While Amin (2005) says, reliability of an instrument is the consistence to measure what an instrument intends to measure. Additionally, Cohen's (1960) kappa of reliability is a measure of the agreement between two raters who determine which category a finite number of subjects belong to where by agreement due to chance is factored out

In order to access this, the researcher used a test re test method to 10 patients not part of the study but with similar characteristics. Participants were asked if they understood the questions and if they answered them right then asked again after two weeks to see if they gave the same responses. They were also asked to read the questions loud and be able to internalize them before answering them.

Key informant interview guide was also pre tested to see if the information was understood after review with the supervisors.

Data Collection Procedures

Approval to conduct the study was obtained after an introductory letter from Bugema University via the Dean School of Graduate Studies addressed to TASO Mulago Center IRB where the protocol was approved with its instruments. A letter was received from the ethics committee with its validated instruments. The questionnaire did not include any specific identifier of the interviewee to maintain confidentiality.

Quantitative data collection was by face-to-face interview of the patients. The data collection team comprised of two research assistants who were trained on the data collection tools and administration of informed consent forms, importance of

confidentiality and systematic data collection to ensure completeness was emphasized. The data collectors administered the questionnaires simultaneously during the data collection period. Participants were identified by their registration numbers instead of their names so that participant's names were not linked to their registration numbers by none study research team and only initials where necessary were used.

The questions were translated in the language the participant understood. The main researcher provided daily supportive supervision to all data collectors by checking for completeness and consistency of the filled questionnaires. There are three clinic days and each day has an average of 150 clients there for each data collector was assigned a maximum of five interviews per day to maintain the quality of the data. Data collection process continued for a period of twelve weeks to obtain 364 participants.

Qualitative data collection was by in-depth interviews to health workers including counselors, nurses, pharmacists and doctors. In undertaking the interview sessions, questions were generated after patient's responses from the questionnaire to answer questions that patients were not able to answer in order to full fill the objectives of the study. A guide containing the following areas were used: Knowledge on the infection, factors that influence patient IPT uptake and Barriers or facilitators of patient uptake of treatment, supervision of therapy and availability of IPT drug. Field notes were written at the conclusion of each interview. The data collection method was checklist guided by in-depth interviewing technique with health care provider in close contact with the patient under follow up in ART clinic. After the participants was asked for their voluntary participation, the conversation was noted and further scrutinized to discover recurrent patterns and saturation of ideas before the

themes were identified and interpreted. Detailed notes were taken under each interview.

Data Analysis

Collected quantitative data was entered in epi data entry client page version 4.4, edited, cleaned and combined into broader categories in terms of key variables. It was then analyzed using SPSS software version 20.0. Both descriptive and inferential statistics were used for presenting the results. Uni-variate analysis was done for objective 1, 2 and 3. In the analysis, frequencies, percentages, means and standard deviation (SD) were obtained. Bi-variate data analysis using chi-square tests was applied for objective four and binary logistic regression was performed for the factors that were significant in objective 4 at chi-square level to obtain Crude Odds Ratios (COR). Analysis of multivariate logistic regression was also performed to identify factors associated with uptake of IPT with independent variables in objective four that were significant at bi-variate analysis in order to obtain Adjusted Odds Ratios (AOR). Variables with a p-value < 0.05 were considered significant with uptake of IPT.

For qualitative data, thematic analysis approach was used where codes that described themes in the text were generated. A grounded theory was used to develop the framework that was used to collect the data. Emerging themes were assessed, as the investigator brought out the main ideas after reading all transcripts. Coded themes were developed, interpreted and analyzed.

CHAPTER FOUR

RESULTS AND DISCUSSION

This chapter presents and discusses the results of the study in line with the study objectives. The discussion of the study results was done while comparing with

findings from previous and recent related literature. The findings were used to answer the research questions from which the study objectives were formulated. Three hundred and sixty four respondents accessing care from TASO Mulago center, Kampala Uganda who fulfilled the selection criteria and who consented to participate in the study were considered for participation

Individual Factors of the Respondents

Objective one of the study was to describe the individual factors of the respondents. These included; age, sex, marital status and education level, knowledge on IPT, fear of TB, duration of HIV diagnosis, disclosure of HIV status and family support. Data obtained were analyzed using descriptive statistics to generate frequencies, percentages, mean and standard deviation to describe the individual factors of the respondents as presented in Table 1.

Age of Respondents

According to results in Table 1, majority 126 (34.6%) of the respondents were young adults between the age group of 31-40 years with a mean and SD age of 40.15 \pm 10.86. The mean age 40.15 years, imply that majority of the respondents were young adults and this could be due to the high prevalence of HIV. According to the Uganda population based HIV impact assessment survey, HIV prevalence was highest 6.5% amongst individuals aged 15-45 (WHO, 2016). These are people of reproductive age and are sexually active as well. A high range of 57 years can be explained by the fact that anyone can acquire HIV at any age especially if sexually active.

Table 1 Description of Individual Factors among Respondents in the Study

Variable / Factor	Frequency (n=364)	Percent
Age		
<30	71	21.7
31-40	126	34.6
41-50	90	24.7
51>	69	19.0
	35	

Mean / SD/Range	40.15/10.86/57	
Sex		
Male	51	14.0
Female	313	86.0
Marital status		
Married	168	45.6
Un married	198	54.4
Education level		
None	20	05.8
Primary	173	47.3
Secondary	149	40.9
Tertiary	22	06.0
Knowledge on IPT		
Low	230	63.2
High	134	36.8
Fear TB		
Low	21	05.77
High	343	94.23
Duration of HIV diagnosis (Median/1stIQR)		84 / 60-144
Disclosure HIV status		
Yes	336	92.31
No	30	7.69
Person Disclosed to		
Spouse	122	33.5
Children	97	26.6
Other relative	76	20.9
Unrelated	7	1.9
Stay alone	62	17.0
Family support		
Yes	229	75.58
No	74	24.42

Study results are in line with findings from a study carried out on routine implementation of IPT in HIV-infected patients in Zimbabwe that found out that, majority 42% of the respondents were between the age group of 35 - 44 years (Takarinda et al., 2017). The findings are consistent also with another study done in Swaziland which found out the median age of 38 years was most prevalent with HIV positive individuals with majority on IPT (Adam et al 2017). Also in Peru, the age group 26 to 35 years had significantly higher number of HIV but less uptake of IPT while the age group of 46-55years had more on IPT but few in regards to HIV numbers (Mariano, 2013).

However, in contrast, older age was significantly associated with IPT uptake in Nigeria that found out that majority of the respondents on IPT were between the age group of 46-55 years according to a study carried out on the use of IPT on HIV positive patients (Nwokeukwo et al., 2015).

Sex of Respondents

Results in Table 1, show that majority 313 (86.0%) of the respondents were females. This is because TASO has a culture of having one person representing ten clients who are not for CD4 blood draws and are just to be picked for drugs. Most men are involved in being busy with work so are just being represented for at the clinic as observed during one of the outreach day when one of the counselors mentioned that,

“Instead of every one making sure that they come here on their own to pick their drugs, in case one is not for CD4 blood draws, you should just have one person represent ten people and pick for them their drugs so that they can use that time to do something else” (KI, 2018).

Study findings are in line with findings from a study carried out in Wakiso, Uganda on health seeking behavior among HIV positive patients in 2014 that found out that, 52% of the females accessed cares more than males (Musoke et al., 2014). In a similar study done in Ethiopia on the beneficial effect of IPT and ART on the incidence of tuberculosis in people living with HIV, where 39% of the eligible patients initiated on IPT, majority were females (Kesetebirhan et al., 2014).

In contrast, study results differ from findings got during a multivariable analysis in a prospective study between March 2007 - September 2008 among adults at 12 sites in the US and Canada that found out that, “female sex was independently

associated with isoniazid discontinuation (RR 1.67, 95% CI 1.32-2.10, $p < 0.001$) thus a low uptake for females” (April et al., 2013).

Marital Status of Respondents

In Table 1, more than half of the respondents were not married 198 (54.4%). This average percentage might be probably because the unmarried individuals in search of new partners are involved with multiple sexual partners thus more HIV/AIDS. The study findings are consistent with results carried out according to a study by Mermin, (2008), on the risk factors for recent HIV infections in Rakai, Uganda, the risk was highest among the unmarried, widowed, divorced HIV positive patients.

However, study findings differed from findings gathered in a retrospective cohort study that employed secondary data from public health institutions in Addis Ababa, that found out that majority (45%) of the participants were married and were from Orthodox family (Mahlet et al., 2016). Similarly, in a study carried out in Nigeria on the use of IPT among HIV positive patients, results showed that majority were married and stayed with their partners (Nwokeukwo et al., 2015).

Education level of Respondents

According to results in Table 1, majority 173 (47.5%) of the respondents had primary level of formal education, more (40.9%) had attained secondary level of education while very few (6.0%) had tertiary level of formal education. Primary level of formal education equips people with little knowledge in regards to sexual practices and sex education as well as making informed choices about their health.

Study findings are consistent with finding in a study carried out in Uganda on the level of HIV discrimination, 50% of the respondents had primary level of formal education attained and 7% attained tertiary education (WHO, 2018). Study findings

are also quite similar to finding for a study by Muhofah, (2010) on determinants of the use of formal health care services in Uganda that found out that 54.6 % of the respondents had attained formal education to only primary level. In addition, in a similar study done on IPT level of adherence and its determinant factors among HIV positive patients in Adama hospital medical college, Oromia, Ethiopia (Elias etal, 2016), it found out that majority 83 (49%) had attained primary level of formal education.

In contrast, according to a study done on factors influencing uptake of contraceptive implants in the immediate postpartum period among HIV infected and uninfected women at two Kenyan district hospitals, mothers' education level did not have an effect on the rate at which implants uptake was absorbed (Mufida etal., 2015). However, higher education level was a determinant to the levels of skilled birth delivery and the full immunization uptake of children according to individual and household characteristics in Bangladesh in 2013(UNICEF, 2013).

Respondents Knowledge on IPT

According to results in Table 1, knowledge was measured on a seven scale index score where seven questions were asked and a person who had more than 3 yeses was considered knowledgeable on IPT and if < 3 yeses the respondent had low knowledge. Findings show that few 134 (36.8%) of the respondents had knowledge about IPT. This indicates that respondent had low knowledge on IPT and this could be to because the information being passed on to participants during health education sessions about IPT at the clinic was also low 60 (16.5%). With this low health education on IPT, patients are not able to make informed choices about their health status in addition to their low formal education level. When asked one of the counselors about knowledge on IPT, he said that,

“Normally patients receive information about TB/HIV most especially about TB as an opportunistic infection while they are waiting to be attended to at the next station. However, this interrupts the flow of information being passed on as they await being attended to but there is no specific information in regards to IPT unless a client has a person with TB in the house or has a child of < 5 years of age” (KI 1, 2018).

Study findings are similar to findings in Namibia in 2011 that found out that patients had little knowledge yet patients with little knowledge on the care for TB/HIV had low uptake of IPT. This might be that patients may receive health education message differently or not emphasized by the health workers (Musasa, 2011).

However, high knowledge emphasizing the benefit of IPT maintenance of good health despite the HIV infection is important as it was found out that 84% of the respondents in the study carried out in South Africa, agreed and had high IPT knowledge importance in reducing the chances of acquiring TB (Szakacs, 2006). In addition, high knowledge on IPT on it reducing TB acquisition was essential according to a study done on the acceptability and adherence to IPT in HIV-infected patients clinically screened for latent tuberculosis in Dar es Salaam, Tanzania (Grace, 2015).

Respondents Fear of TB

Fear of TB in this study was assessed on a five-point index score where respondents were asked question in expression of fear, those who had more than 3 yeses were considered to be fearing to acquire TB and if 2 or less yeses, this respondent did not fear TB. Majority 343 (94.23%) of the respondents according to Table 1, expressed very high fear in regards to acquiring TB despite the low knowledge on IPT of 41(11.6%). This could have been due to the fact that since already participants are accessing care due to HIV/AIDS having acquired TB and its

associated morbidity and mortality would be a double disease burden to them. Study findings are supported by findings for a study carried out from Kenya by Omesa et al., (2016) which found out that majority 210 (48%) of the respondents feared acquiring TB

Additionally, the link between TB and HIV causes fear for being suspected of their HIV status especially those who have not shared their HIV status thus more uptakes into care and acquisition of IPT (Green et al., 2004). Consequently, the fears lead to discrimination in fear of contracting the two diseases as its association with a sense of shame leading to isolation by the infected person from perceived negative judgment from the community about the HIV/AIDS (Rowe et al., 2005).

Respondents Duration of HIV Diagnosis

Findings from Table 1 showed that respondents had a mean (84) months duration of HIV diagnosis ranging from 5-12 years. This long range of HIV diagnosis might have been because the researcher looked at participants who had been under care for at least 3 years probably because respondents had been in the system long enough and had been screened and assessed that they did not have active TB. This could also have been due to the fact that as patients who have been on care longer are familiar with the health care systems and policies at the clinic so attend their scheduled visits as expected. Study findings concur with results for a study carried out by Denegetu and Dolamo, (2014) that found out that of the participants on HAART, majority (63.9%) had been on ART for more than a year and had to attend all their clinic visits as scheduled.

Respondents Disclosure of HIV Status

Results from Table 1, show that overwhelming majority 334 (92.3%) of the respondents shared their HIV status to someone. Those who shared their HIV status

shared to people they stay with especially 122 (33.5%) to spouses (sexual partners) when married. This could have been to the fact that all most all their spouses were also accessing HIV care either from the same clinic or at a different HIV clinic. When respondents were un married and were still staying with their children, they confined their HIV status to their children 97(26.6%) as they had to come to the clinic for follow up visits, as they needed to tell them where they were going. Study results were supported by the response from a key informant nurse stated that,

“Continuous counseling about HIV disclosure goes on at every encounter with the clients while at the clinic even when for outreaches in the community. They need to talk about their condition so that they can be supported for care to reduce on stigma associated with HIV” (KI 2, 2018).

Study findings are also in line with similar findings in Kenya by Omesa et al., (2016) that found out that respondents who had been on care for more than a year were able to disclose their HIV status 401 (94%). According to another similar study done on IPT adherence and associated factors among HIV positive patients in Addis Ababa, Ethiopia in 2014 (Demelash, 2015), patients who failed to disclose their HIV status had a low uptake rate for IPT as they may conceal their condition and its treatment,

Additionally, after disclosure and sharing knowledge with experiences on the danger of TB, respondents were more likely to share IPT information to others who are also at risk thus encourage them to seek for care according to a cross section study by (Melaku et al., 2014). Most importantly, partner involvement during initiation of IPT is critical in supporting IPT uptake as this allows partners to address disclosure issues with the help of health care providers as raised by key informant in Addis Ababa (Gebrehiwot et al., 2015).

However, if HIV status is not disclosed, courage to take the drugs in public is lost as some of their prescribed medication may not be taken due to stigma associated with the two disease (Mesele et al., 2014).

Family Support to Respondents

As seen in Table 1, findings from the study showed that big majority 302 (83.0) of the respondents do not stay alone, at least stayed with a family member and mostly 227(62.4%) helped them cope with their HIV status. The most supportive members were the spouse and children they stayed with. This could have been due to the fact that they were able to disclose their HIV status to them. One of the KI Counselor mentioned out that,

“During counseling sessions before initiation on ART, clients are encouraged to have treatment companions especially people they are in close contact with most especially family member to monitor for adherence of their ART” (KI 3,2018).

The above findings are also similar to findings in Tanzania by Makanjuola et al., (2011) in a systematic review for qualitative data that noted out that family and social support facilitate the relationship patients have with their family members as they help the cope with their health issues. In addition, according to quantitative study on the predictors of uptake and adherence to IPT among HIV positive adults in Addis Ababa, Ethiopia, family plays an important role in uptake of IPT as there is provision of more information from the family member on the importance to take up INH in support of each other health (Munseri, 2011).

Uptake of Isoniazid Preventive Therapy among Respondents

Objective 2 of the study was to determine the level of uptake of IPT among HIV positive patients accessing care from TASO Mulago. In the study, respondents were asked if they were currently on IPT and if yes, for how long have they been on IPT.

For those who were not on IPT currently, they were asked whether they have ever been enrolled on IPT, took it and completed the full course of 6 months. Descriptive statistics using frequency and percentages were used as presented in Figure 4.

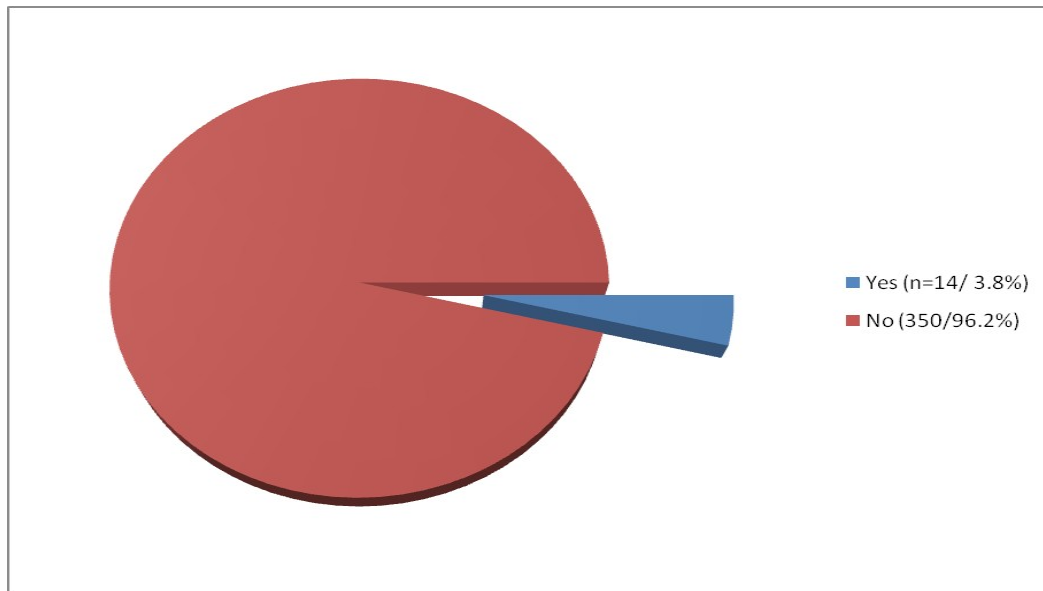


Figure 4 A Pie Chart Representing the Level of Uptake of IPT among Respondents

According to Figure 4, very few 14 (3.8%) of the respondents reported ever been enrolled and having taken up IPT. This implies that the level of uptake was very low probably because of lack of knowledge among individuals on IPT as seen with the low IPT related health education being carried out at the site and little knowledge on LTBI being passed both at the health facility and in the communities where patients stay.

Uptake of IPT in this study was very low compared to similar studies that reported among PLWHA in Kenya, Ethiopia and Nigeria, uptake levels of 77%, 30.5% and 30.0% respectively (Omesa et al., 2016, Demelash, 2015, and Nwokeukwu et al., 2015). The study findings are supported by statements from one of the KI doctors who said that,

“IPT initiation is prioritized to individuals with someone who has TB in the house and children who are 5 years of age and bellow. This is because those identified groups are more at risk as compared to any other person” (KI, 2018).

Health System Related Factors of the Respondents

Objective 3 of the study was to establish the health system related factors that affect HIV positive patients accessing care from TASO Mulago Center and these included; health education on IPT, creating awareness on latent TB infection in the community, relationship with health care providers, IPT drug stock out, DOT supervision and distance to the health facility. Descriptive statistics, for example, frequency, percentages, means, and standard deviations were used to assess the health system related factors, results of which are summarized in Table 2

IPT Related Health Education

According to Table 2 below, only 60 (16.5%) of the respondents received IPT related health education at the clinic and the type of information mainly passed on was about TB prevention 46 (76.6%) and being tested for TB 14 (24.4%) then later being given preventive therapy if had no TB. The low IPT related health education that patients received can be linked to the low 230 (63.2%) knowledge on IPT that respondents had. One of the key Informant counselor noted that,

“Normally, health education is being carried out on clinic days while clients are waiting to be attended to and the information being passed on is about TB/HIV prevention generally. However, there is no specific information being passed on in regard to IPT to clients” (KI 4, 2018).

Table 2: Health Systems Related Factors among Respondents **in the Study**

Variable / Factor	Frequency	Percent
IPT related health education		
Yes	60	16.5
No	304	83.5
Type of IPT information passed on		
Tb prevention	46	76.6
Test and treat	14	24.4
Latent TB information in the community		
Yes	174	47.8
No	190	52.2
Source of LTI information in community		
Health worker	118	69.0
VHT	13	7.6
Mass media	40	23.4
Relationship with health care provider		
Good	315	86.5
Bad	49	13.5
Distance to the health facility		
Mean /SD	13.57/23.37	
Means of transport		
Taxi	305	83.8
Others	59	16.2
Time taken to reach health facility (Mean/SD) 83.8/63.32		
IPT drug stock out		
Yes	1	7.1
No	13	92.9
Dots supervision		
Yes	4	28.6
No	10	71.4

Study findings are similar to findings from Addis Ababa in Ethiopia that found out patients who missed their treatment missed because they did not receive IPT related health education from the health care providers (Mindachew, 2011). In another study carried out in Brazil, physicians did not initiate or motivate staff nurses on utilization of IPT thus there was a poor detection and treatment of LTBI among HIV-infected patients by physicians in Rio de Janeiro due to lack of health education

(Saraceni, 2011). According to a study carried out in Kenya, IPT related health education was a critical process in motivating a patient to adopt behaviors to the benefit of their health during the counseling sessions (Omesa et al., 2016).

Consequently, if health care providers do not pass on knowledge, patients also lack knowledge and this hinders uptake of IPT (Horne, 2013).

Creating Awareness to the Community about Latent TB Infection (LTBI)

According to the study findings from Table 2, nearly half 174 (47.8%) of the respondents have heard about information on LTBI in the community and those who have heard of it, most information was being passed on to the patients by the health worker 118 (69%) through health talks. One of the Key Informants (Doctor) stated that,

“It is important for latent TB information to be passed on to the clients in the communities where they stay as they may have signs and symptoms where they need to access care early enough especially if they are HIV positive before they can acquire active TB. However, are limited by the fact that they pass on information to patients on days they schedule to refill clients with their ART but no specific day for sensitization of the community members on LTBI” (KI 5, 2018).

Similarly, an understanding of IPT rationale through creating awareness to clarify on beliefs, importance, safety and concerns about LTBI among health care providers and patients proved essential for patient’s initiation to therapy to the public as it increases treatment completion of IPT and erases patient fears (Rutherford, 2012).

Relationship with Health Care Provider

Findings from the study in regards to Table 2 indicate that big majority, 315 (86.5%) of the respondents had a good relationship with the health care providers. This might have been due to the fact that since patients have stayed longer enough for about 5-12 years while accessing care, they have managed to get along with the health

care providers as they help them cope with their HIV status. The study findings are in line with a study carried out from Kenya that noted that, sufficient information to patients is crucial in providing open communication thus creating a good relationship between patients and health care providers (Omesa et al., 2016).

Distance to the Health Facility

From Table 2, the average distance in kilometers that participants traveled to reach the health facility was 13.57 Kilometers, the most common means of transport used was a taxi 305 (83.8%) and it took the participants an average of 83.8 minutes to reach the health facility. This distance is quite big in terms of kilometers and time it takes one to reach the health facility due to the fact that respondents took a taxi to reach the health facility and it seemed costly to them. However, as noted by one of the nurses,

“Staff are being divided into groups where some have to go to the field to attend to clients at specified areas in form of out reaches for those who are not able to make it to the clinic so that they do not move long distances to come for their ART” (KI,2018).

The study findings are consistent with a similar study carried out in Adis Ababa, which found out that some patients had to move long distances to the clinic for IPT where it was not a onetime visit. This hindered uptake and completion rates of treatment where patients had to come back for more drugs yet it was a longer distance to reach the health facility and expensive for them (Munseri et al 2007).

IPT drug stock out

According to study findings from Table 2, only 1 (7.1%) of the participant missed IPT due to drug stock out. Almost all 13 (92.9%) of the participants who were on IPT were able to take their drugs and never came to the clinic and missed receiving

IPT because it was not available at the clinic meaning that drugs were always in stock.

One of the key informant pharmacists noted that.

“Clients on IPT have never come to the clinic and there are no INH for them because before one is initiated on IPT, we have to first be sure that we have that person’s full course of therapy otherwise if not available we do not start them on therapy” (KI 6, 2018).

According to a study carried out in South Africa, it is in disagreement with study results, as approximately 20% of women who were eligible for IPT did not receive IPT during stock out of drugs (Bristow et al., 2012). In a similar study in Ethiopia, most concerns raised were about the unreliable provision of INH causing fear of INH resistance in case the patients need the treatment when they acquire TB rather than when it is for preventive as a raised concern by almost all health providers during all focus groups (Gebrehiwot et al., 2015). Additionally, lack and non-availability of INH drug in some low- and middle-income countries in which only combination therapy for treatment of active TB is available is a factor to non-uptake of IPT (Fox et al., 2015).

Dot Supervision

Results from Table 4 show that, all most all participants 10 (71.4%) on IPT were never supervised while taking IPT. The only 4 (28.6%) who were supervised took IPT in the presence of their guardians not by health care providers. According to one of the key informant pharmacist, noted that.

“Sincerely, clients on IPT are not being supervised while swallowing. We assume that due to the fact that clients take their ART on their own from their homes, they will also comply to IPT. But when they come to the clinic, we cross check with their IPT card as they tick against each day and are also encouraged to come with their containers for pill count to asses for adherence” (KI, 2018).

However, study results are in disagreement with findings from a study in South Africa, it found out that directly observed preventive therapy and a shorter duration regimen for preventive therapy improve treatment uptake. As supervisors make sure that patients take and complete their treatment with cautious counseling sessions (Golub, 2010). Similarly, according to a study carried out by Lisa, (2014) on the interventions to improve delivery of IPT in the USA, interventions included directly observed therapy that showed improvement in uptake rate for IPT.

Individual Factors Associated with Uptake of IPT among Respondents in the Study

Objective 4 of the study was to determine whether individual factors are associated with uptake of IPT. Factor such as; age, sex, marital status, education level, knowledge on IPT, fear of TB, duration of HIV diagnosis, disclosure of HIV status and family support were considered. Frequencies, percentages, chi square values and p-values were obtained to look for associations. Cross tabulation was performed for each independent variable against the dependent variable (Uptake) which was summarized in Table 5. Independent variables that had a $p < 0.05$ were considered significant and continued for logistic regression.

Results in Table 4 below, show that basing on Chi-square (χ^2) analysis, there is no significant association between individual patient factors and uptake of IPT among patients accessing care from TASO Mulago. This is seen from the majority of patients who reported that they had never been enrolled on IPT since the past three years they had been accessing care from TASO Mulago, and thus, they are less influenced by the above factors.

Table 3: Individual Factors Associated with Uptake of IPT among Respondents in the study

Variable/Factor	Uptake		χ^2	Df	p- value
	Yes (%)	No (%)			
Age					
<30	5(35.7)	74(21.1)	5.632	3	0.131
31-40	5(35.7)	121(34.6)			
41-50	0(0.0)	90(25.7)			
51>	4(28.6)	65(18.6)			
Sex					
Male	1(7.1)	51(92.9)	0.607	1	0.380
Female	13(4.4)	229(95.6)			
Marital status					
Un married	9(64.3)	189(54.0)	0.574	1	0.317
Married	5(35.7)	161(46.0)			
Education level					
None	1(7.1)	20(5.7)	0.149	3	0.985
Primary	6(42.9)	166(47.4)			
Secondary	6(42.9)	143(40.9)			
Tertiary	1(7.1)	21(6.0)			
Knowledge on IPT					
Low	7(3.04)	223(96.96)	1.7803	2	0.574
Medium	4(4.30)	89(95.70)			
High	3(7.32)	38(92.68)			
Fear TB					
Low	1(4.79)	20(95.24)	0.0505	1	0.8822
High	13(3.79)	330(96.21)			
Duration of HIV diagnosis (Median /SD/IQR)			84/65.2/(60-144)		
Disclosure of HIV status					
Yes	13(3.87)	323(96.13)	0.006	1	0.937
No	1(3.57)	27(96.43)			
Stay alone					
Yes	3(4.92)	58(95.08)	0.228	1	0.644
No	11(3.63)	292(96.37)			
Family support					
Yes	10(4.37)	219(95.63)	1.454	1	0.255
No	4(1.35)	73(98.65)			

Health System Related Factors Associated with Uptake of IPT among Respondents

Objective 4 of the study was to determine the health system factors associated with uptake of IPT such as; Health education on IPT, creating awareness in the community about latent TB infection and the relationship that patients have with the health care providers, IPT drug stock out, DOT supervision, and distance to the health facility. Frequencies, percentages chi square, and p-values were obtained to look for associations as summarized in Table 4. Cross tabulation was done for each independent variable against the dependent variable (Uptake) which is summarized in

Table 4. Independent variables that had a $p < 0.05$ were considered significant and continued for binary logistic regression.

Table 4 findings show that there is no a significant relationship between the relationship of patient with health care providers, distance to the health facility and uptake of IPT since $p > 0.05$. However, factors like health education on IPT, creating awareness on latent TB infection in the community, IPT drug stock out and DOT supervision were significantly associated with uptake of IPT since $p < 0.05$.

Table 4 Health Systems Related Factors Associated with Uptake of IPT among Respondents

Variable/Factor	Uptake		χ^2	df	p- value
	Yes (%)	No (%)			
IPT Health education					
Yes	06(10.00)	54(94.00)	7.357	1	0.012*
No	08(2.63)	296(97.37)			
Creating awareness					
Yes	02(1.15)	172(98.85)	6.555	1	0.023*
No	12(6.32)	178(93.68)			
Relationship with health care provider					
Good	13(4.13)	302(95.87)	1.454	1	0.445
Bad	01(2.04)	48(97.96)			
Distance to health facility					
Mean/SD	13.734/23.77		0.676		0.500
Means of transport					
Taxi	12(3.93)	293(96.07)	0.04	1	0.842
Others	2(3.93)	57(96.61)			
Time taken to reach health facility (Mean /SD)					
< 60 Minutes	11(5.0)	209(95.0)	2.002	1	0.126
>61 Minutes	03(2.1)	141(97.9)			
IPT drug stock out					
Yes	01(7.1)	00(0.00)	25.069	1	0.038*
No	13(92.9)	350(100)			
DOT supervision					
Yes	04(28.6)	00(0.00)	101.111	1	0.000**
No	10(71.4)	350(100)			

* $p < 0.05$ and ** $p < 0.01$

Factors Associate with Uptake of IPT among Respondents in the Study

Objective 4 of the study was to determine whether there is an association between individual, health system factors and uptake of IPT. Frequencies, percentages, crude odds ratios (COR) at bivariate analysis and adjusted odds ratios (AOR) at multivariate analysis were obtained and summarized in Table 5 for those factors that were significant while controlling for other factors.

Table 5: Factors Associated with Uptake of IPT among HIV Positive Patients in the Study

Variable	Uptake		COR (CI; 95%)	AOR (CI; 95%)
	Yes %	No%		
Sex				
Male	1(7.1)	51(92.9)	1	
Female	13(4.4)	229(95.6)	2.268(0.291-17.712)	2.576(0.317-20.912)
IPT Health Education				
Yes	06(10.00)	54(94.00)	1	
No	08(2.63)	296(97.37)	0.243(0.081-0.729)*	0.174(0.055-0.548)**
Creating Awareness				
Yes	02(1.15)	172(98.85)	1	
No	12(6.32)	178(93.68)	5.798(1.279-26285)*	7.494(1.598-35.148)**

**p < 0.01 *p < 0.05 RC = 1

Health Education on IPT by the Respondents

According to results in Table 5, health education on IPT is significantly associated with uptake of IPT (COR = 0.243 95% CI = 0.081- 0.729 =, p = 0.012). This implies that patients who did not receive health education on IPT were 4 times less likely to take up IPT than those who received health education. This is because when one lacks information on IPT, they may also lack knowledge on the basic prevention and control measures of TB. According to the health workers guide in Uganda (MOH, Uganda 2014), “it is important to provide a step-by-step guidance for health workers on the use of IPT in order to enable initiation of all eligible clients after equipping them with all the necessary knowledge which may be through health education”. Study findings are also in line with findings from a cross sectional study

done by Horne et al., (2013) which found out that, health care providers who did not pass on knowledge, patients also lacked knowledge and this hindered uptake of IPT. On the other hand, patient's choice of taking treatment is influential by the physiological and psychological impacts of the disease and the social and cultural structures in which the person is immersed that include health education.

Also when subjected to a multivariate analysis, health education on IPT was still significantly associated with uptake of IPT (AOR = 0.174 95% CI = 0.055-0.548 p = 0.003). This implies that when other factors like age in the model were controlled, the odds of taking up IPT increased to 5.74 times. This could be attributed to the fact that more health education, more knowledge and more uptake of IPT.

Creating Awareness on Latent TB Infections in the Community

According to results in Table 5, creating awareness on LTBI in the community is significantly associated with uptake of IPT (COR = 5.798, 95% CI = 1.279-26285, p = 0.023). This implies that patients who were aware of LTBI in the community were 5.8 times more likely to take up IPT than those who were not aware of IPT in the communities where they lived. This is because when one lacks knowledge and information about the infection, he/she also lacks preventive measures in place and cannot demand for them in case are not provided to them.

Similarly, when subjected to a multivariate analysis, creating awareness on LTBI in the community was still significantly associated with uptake of IPT (AOR = 7.494, 95% CI = 1.598-35.148, p = 0.011). This implies that when other factors in the model were controlled, the odds of taking up IPT increased to 7.5 times for those who were aware of LTBI. This could be attributed to the fact that more awareness more informed and more uptake.

Factors such as IPT drug stock out and DOT supervision on IPT did not come out during binary logistic regression analysis because on one of the cells, there was no response from the respondents although they were significant at χ^2 level.

Hypothesis Testing Analysis

According to the study findings, there was no significant association between individual factors and uptake of IPT with $p > 0.05$; therefore, the null hypothesis of no significance was accepted. However, according to the study findings, there was a significant association between health system related factors and uptake of IPT with $p < 0.05$, thus, the null hypothesis of no significance was rejected. The null hypothesis allows the study to conclude that uptake of IPT is significantly influenced by health system related factors such as IPT related health education and creating awareness on LTBI in communities.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION

This chapter presents the summary of the study findings, conclusion and recommendation in relation to the study objectives.

Summary

The study employed descriptive research design, to determine the factors associated with uptake of IPT among patients accessing care from TASO Mulago Center Kampala, Uganda, the sample size was 364 from the targeted population of 7053 clients at TASO Mulago Center using systematic simple random sampling. The instruments for data collection in this study were a questionnaire and key informants' interview guide, the questionnaire was for 364 participants and the key informant interview guide for 8 health care providers that included 2 Doctors, 2 Nurses, 2 Counselors and 2 Pharmacists. Quantitative raw data was obtained using questionnaires it was then sorted, edited, coded and fed into the computer and analyzed using SPSS version 20.0. Qualitative data from Key Informant Interview Guide was captured as stated from the key informants. Both descriptive and inferential analysis was done. Results generated were presented in frequencies and percentages means and standard deviation for objectives 1, 2 and 3 then interpreted and discussed. For objective four, inferential statistics using chi-square (χ^2) technique were employed and variables that were significant were subjected to binary logistic regression analysis to obtain crude odds ratios for those variables that were significant at binary logistic regression analysis, multivariate analysis was done where adjusted odds ratios were obtained. A 95% confidence interval was set and variables that had a p-value of < 0.05 were considered significant for the study.

Key Findings

The study found that majority of the respondents were females, majority were between the age group of 31 - 40 years, many of the respondents had ordinary level as their highest level of education and majority of the participants were married. Only 11.6% were knowledgeable about IPT despite the long duration of 7 years they had spent accessing care from TASO Mulago Center. However, majority (75.6%) of the respondents stayed with a family member, 92.3% were able to disclose their HIV status and at the same time, 94.23 % feared contracting TB disease.

The overall Uptake of IPT obtained was very low (3.8%) with factors like health education on IPT and creating awareness on LTBI in the community (AOR = 0.174, 95% CI = 0.055- 0.548 p = 0.003) and (AOR = 7.494, 95% CI = 1.598 - 35.148, p = 0.011) respectively being the only significantly associated factors with uptake of IPT at multivariate analysis.

Conclusion

Clients accessing care from TASO Mulago Center were mainly young adults with only primary level of education as the highest level of education. Respondents feared acquiring TB and were able to share their HIV status with family members who supported them. However, participants lacked knowledge on IPT. The study highlights health facility related factors such as health education on IPT and creating awareness on LTBI in the community as important factors explaining the low uptake of IPT. Implying that there is urgent need for health education on IPT and creating awareness on LTBI in communities in order to improve on the rate of uptake of IPT among HIV positive clients in Uganda thus reducing TB related mortality and morbidity.

Recommendations

Basing on the key findings in the study, the following recommendations are made;

For policy

The MOH in collaboration with hospital heads needs to develop a comprehensive evaluation program at national level targeting all health workers in order to address the issue of IPT initiation and administration among HIV positive patients as observed from the low level of uptake of 3.8%.

There is need to increase advocacy and awareness to people on LTBI through mass media by equipping people with knowledge on IPT especially among the HIV positives individuals in order to avoid the prevalence of new TB infections through sensitization. This is based on the little IPT related health education of 16.5% being passed on to the clients at the clinic as well as the low information on LTBI of 47.8% in the communities where they stay which resulted in the low knowledge 36.8% that respondents had

It is also important to develop interventions to ensure DOT supervision on IPT is being carried out to improve on the adherence level so as to avoid resistance to the drug. This is based on the no 71.4% DOT supervision on IPT carried out.

For practice

Basing on the findings that showed that, only 134 (36.8%) had knowledge on IPT and 60 (16.5%) received health education, health care providers need to transfer information to clients by incorporating IPT related health education during clinic days to patients so as to increase knowledge and awareness concerning IPT.

Basing on the study findings, there is need for health care providers to schedule for outreach programs so that they can provide information to people outside the

health facility in regard to LTBI through carrying out community awareness and sensitization in the communities.

For further study

A study that would incorporate the stock out and DOT supervision for IPT among patients accessing care from TASO would be important since the study was not able to look for an association between uptake of IPT and those two factors.

IPT being an intervention in the End TB strategy 2035, similar studies in future may be replicated to provide evidence for further researcher in aspect of uptake of IPT among contacts staying with TB case patients.

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APPENDICIES

Appendix 1: Consent Form English Version

Introduction: My name is Menya Saidah, currently pursuing a Master's Degree in Public Health at Bugema University. This is to request you to participate in the study. The study was focusing on determining the factors associated with uptake of Isoniazid Preventive Therapy for tuberculosis among HIV positive patients accessing care from TASO Mulago Center Kampala, Uganda in order to improve the quality of life of people living with HIV.

Study Procedures: After you have understood, signed and dated on this Informed consent form, you will be eligible to participate in this study. It was a researcher-assisted questionnaire of face-to-face interview. Key informant interview will be conducted to key health professionals.

Risks: There were no direct physical risks involved, but participants may feel some anxiety as you narrate your experience with HIV and the risk for TB. Participants were free to stop and resume the interview whenever they were ready to continue.

Benefits: There were no direct benefits attached at a moment but the findings were to provide knowledge in improving the rate of uptake of Isoniazid preventive treatment for TB after addressing the factors associated with uptake.

Alternatives: The participant may choose to share only the information they were comfortable with to the research assistant and this did not diminish their legal and human rights. They also had a right to withdraw the consent at time of the study with no penalty.

Compensation: the study was not touched to any monetary benefits since it was for academic purposes only.

Confidentiality: The signed and dated informed consent forms was kept in a secure cabin after checking for its completeness and correctness at the end of the day's work. The investigators accessed it and a copy of the signed consent form was given to the participant. It had no personal identifiers and the information provided was kept private and not be shared to the public for none study related purposes.

Voluntary: The researcher participation in this study was upon their free will in deciding whether to participate in a research. Information was provided in the language participants best understood and affirmed willingness to participate.

Right to refuse or Withdraw: Participants were free to join the study or not. If they decided to join the study, they were also free to change their mind to be in the study at any time during the study period for any reason and you would still access care from TASO Mulago Center institution.

Feedback on the findings: As a study participant, they will get feedback on the progress and the findings of the study when a full analysis is completed.

Name of Contacts person on study: Miss Menya Saidah, on 0782201314.

Contact person on research ethics committee: In case they had any concerns regarding the conduct of this in terms of rights and welfare during participation in the study, they could contact the research and ethics committee of TASO IRB/REC Chairperson, Dr. Bogere Daniel, +256 772 139126 / 705 812960

Statement of consent: The information concerning this study as written in this consent form has been read and explained to me, and I have understood the study purpose, risks and I agree to voluntarily participate in the study.

Appendix 2: Consent Form Luganda Version

Enyanjula: Amana gange nze, Menya Saidah, omuyizi wa Master mu Public Health e Bugema University. Nkusaba okwetaba mu musomo gguno nga tunonyezeza ku byafaayo nga bikwatagana ku nkozesa ya Isoniazid mu kuziyiza a kafuba mu balawadde ba mukenenya aba mu TASO – MULAGO esangibwa e Kampala, Uganda. Kino kija kutuyamba okumanya ensonga ezitwatagana ku abantu abaliana akawuka ka mukenenya ne a akafuba.

Emitendera gyo Musomi: Oluvanyuma nga bategedde, basako omukono era nga batekako ennakku zo mwezi ku kiwandiiko kyokukiriza kino, bakirizibwa okwetaba mu musomo gguno. Waliwo omunonyereza eyababuza ebibuuzo nga bagasimbaganye. Ebibinja byatuula mukwogerezanya kkuno abalwadde batonotono be banalondebwa. Ebibuuzo ebikkulu byabuzibwa abakulu be byobulamu abakuggu.

Obuziibu: Tewali buzibu bwaba tukako buterevvu wabula ba nakyewa bafunamu okwelalikirila nga banyonyola ku mbeera gye bayisemu na kawuuka ka mukenenya ate no buzibu bwo kufuna akawuuka akaleeta akafuuba. Baliba ddembe okulekerawo ate ne tu ddamu okubabuza buli bwobanga betegesse okugenda mu maaso.

Emiganyulo: Tewali muganyulo gya ssimba egyaliwo nga gikwataggana kumusomo mukisera ekyo naye ebinazuulibwa bijja kutumanyissa mu ngeri zo kulongoosa mu ngeri zo kukozeza Isoniazid mu kuziyiza akafuba oluvanyuma lwo kwongera okutegera ensonga ezikwatagana ne' nkozesa eyo.

Ebyokulondakko: Nnakyewa yasoboola okwogera kwebyo byokka ebitamuletera kutya na kikirila omunonyereza era tekyagyawo ddembe lye lya bwe bange. kyakirizibwa okusalawo okulekulira omusomo wona bwe bagalidde nga tebatanze.

Okusasulwa: Omusomo tegwekusana ko na kukussassula kyona lwakubanga gwakolebwa lwa kusoma kwokka.

Ebyama: Ekiwandiiko ekyawsawakko omukono wammu ne nnakkku zo mwezi kya kukumibwa butilibiri mu kabadda nga kikwebeddwa okulaba nga kijjuzibwa bulungi era nga kituufu ku nkomerelo yolunakku lwe mirimu egikoleddwa. Kye kwekenenyebwa aba nonyeereza ne kkopi eyatekebwako omukono yakumibwa butiribiri. Tewaliwo kibamanyisa kyona. Ebyabakwattako byona bya kukumibwa nga byakyaama era tetubybulirwa bantu balala abo abatakwataganye mu misomo gya ffe.

Amanya ne ndagiliro: Miss Menya Saidah, Omunonyereza omukulu mu musomo ku siimu 0782201314

Owokutukilira ku ka kyiikko ko kunonyereza: Bwoba nga olina ebyokwewunaganakko ebibuuzo ebikwataggana ku musomo guuno. Osobola okutukilira akakiiko akakwanaganya okunonyereza kwe mpiisa aka TASO IRB/REC Chairperson, Dr. Daniel Bogere, Ku number +256 772 139126 / 705 812960

Okikiiriza: Ebyafaayo byo musomo guno nga bwe byawandikidwa mu kiwandiiko kino bisomeddwa era ne binyiyonyolwa era ntegedde omugaaso, ebizibu era nsazewo okwetaba mu nga ne saliddewo.

Elinya lya Nnakyewa	Omukono	Enaku
zo'mwezi		

.....

Elinya lya akikirila omunonyereza	Omukono	ennakku zomwezi
.....

Ssinga omuntu teyasobola kuwandiika elinya lye, Omujjulizzi yeli ye taggisibwa. Omujjulizi yali omuntu omukulu ategera obulungi nnakyewa gwe yesigga naye nga takwasaganya milimu gya kunonyereza.

Omujjulizi ye kwetagiisabwa okusaakko omukono ne nnakku zomwezi ku kiwandiiko kyo kukiriza oluvanyuma lwo kusoma ekiwandiiko ne nnakyewa, Ebibuuzo

ebibuuzibwa era nebidibwamu era Nnakyewa eya kiiriza okugwetaba mu kunonyereza. Nnakyewa yetagisibwa okusaako omukono nga akozesa ekyenkumu.

Ekyenkumu:

.....

Elinya lyo mujjulizi	Omukono	Ennaku zo mwezi
.....
Elinya lyakikirila omunonyereza	Omukono	Ennaku zo mwezi
.....

Appendix 3: Respondents Questionnaire

I am Menya Saidah a master's student of Public Health from Bugema University. I am conducting a study on factors associated with uptake of isoniazid preventive therapy for TB among HIV positive patients accessing care from TASO Mulago Center Kampala Uganda. You are kindly invited to participate in this study, which is purely for academic purposes. Any information you provide remains confidential.

Questionnaire No.....

Date

Instructions

Please answer the questions as truthfully as possible. There are a set of choices to choose from. Select what you think is the best or most appropriate.

Serial	Question	Responses
Section A		
Individual Factors		
Q1	How old are you? (full years)	_____
Q2	What is your sex/gender	Male1 Female.....2
Q3	What is your marital status?	Single.....1 Married.....2 Divorced/separated/Widow....3 Cohabiting.....4
Q4	What is your highest level of education attained?	None.....1 Primary.....2 Secondary.....3 Tertiary.....4
Knowledge on IPT		
Q5	Have you ever heard about IPT?	Yes.....1 No.....2
Q6	Does someone have to complete treatment to be considered cured of TB infection?	Yes.....1 No.....2
Q7	Can someone acquire TB while on IPT?	Yes.....1 No.....2
Q8	Does IPT protect someone from TB?	Yes.....1 No.....2
Q9	Does someone who has ever suffered from TB need IPT?	Yes.....1 No.....2
Q10	Is IPT given to pregnant women?	Yes.....1 No.....2
Q11	Is IPT the same as TB treatment?	Yes.....1 No.....2
Fear of Acquiring TB		
Q12	Would you be in close contact with someone with TB without any protection?	Yes.....1 No.....2
Q13	Would you be tested for TB after being told you are at risk of acquiring TB?	Yes.....1 No.....2
Q14	Would you expose yourself to someone with TB?	Yes.....1 No.....2
Q15	Would you take preventive treatment after being told you are at risk of acquiring TB?	Yes.....1 No.....2
Q16	Would you take your child for immunization against TB?	Yes.....1 No.....2
Duration of HIV Diagnosis		

Q17	For how long have you been diagnosed with HIV? (full months)	_____
Disclosure of HIV Status		
Q18	Have you ever shared with anyone your HIV status?	Yes1 No2
Q 19	If yes, whom did you share with ?	_____
Family Support		
Q20	Do you stay alone?	Yes1 No2
Q 21	If no, whom do you stay with? (specify)	_____
Q22	Does he/she/they help you to cope with your health status?	Yes1 No2
Section B Health Systems Related Factors		
Health Education on IPT		
Q23	Have you ever received IPT related health educated at the clinic?	Yes.....1 No.....2
Q 24	If yes kindly indicate the information	_____
Community Awareness on Latent TB Infection in the Community		
Q25	Have you heard of any information about latent TB infection in the community?	Yes1 No2
Q 26	If yes, mention the source?	_____
Relationship of the Patient with Health Care Provider		
Q27	Is the health worker willing to discuss with you issues related to your health?	Yes.....1 No.....2
Distance to the Health Facility		
Q28	How far are you from the health facility? (distance measured in kilometers)	_____
Q29	Which means of transport do you use to come to the health facility	_____
Q30	How long does it take you to reach the health facility? (time in minutes)	_____
Section E Uptake of IPT		
Q31	Are you on IPT?	Yes1 No2
Q 32	If no to Q 31, Have you ever been enrolled on IPT and completed?	Yes1 No2
Q33	If no, give reason	_____
Q34	If yes, to Q31 did you take the IPT under supervision?	Yes1 No2
Q 35	Have you ever missed receiving IPT from TASO dispensary?	Yes1 No2
Q 36	Was the reason due to drug stock out	Yes1 No2
Q 37	Are there other reasons?	Yes1 No2
Q38	If yes kindly mention	_____

Thank you for your participation

Appendix 4: Key Informant Interview Guide

I am Menya Saidah a master's student of Public Health from Bugema University. I am conducting a study on factors associated with uptake of isoniazid preventive treatment for TB among patients at TASO Mulago Center Kampala Uganda. You are kindly invited to participate in this study, which is purely for academic purposes. Any information you provide remains confidential.

1. What information about IPT is being passed on to patients at the clinic
2. What are your comments on creating awareness to the community members on latent TB infection in the community?
3. How do you think drug stock outs affect uptake of IPT for TB? And if yes, how
4. How is DOT supervision of patients IPT being carried out?
5. Do you have any other idea why some patients would take up IPT while others do not?

Thank you for your participation

Table 3.1

Table for Determining Sample Size of a Known Population

N	S	N	S	N	S	N	S	N	S
10	10	100	80	280	162	800	260	2800	338
15	14	110	86	290	165	850	265	3000	341
20	19	120	92	300	169	900	269	3500	346
25	24	130	97	320	175	950	274	4000	351
30	28	140	103	340	181	1000	278	4500	354
35	32	150	108	360	186	1100	285	5000	357
40	36	160	113	380	191	1200	291	6000	361
45	40	170	118	400	196	1300	297	7000	364
50	44	180	123	420	201	1400	302	8000	367
55	48	190	127	440	205	1500	306	9000	368
60	52	200	132	460	210	1600	310	10000	370
65	56	210	136	480	214	1700	313	15000	375
70	59	220	140	500	217	1800	317	20000	377
75	63	230	144	550	226	1900	320	30000	379
80	66	240	148	600	234	2000	322	40000	380
85	70	250	152	650	242	2200	327	50000	381
90	73	260	155	700	248	2400	331	75000	382
95	76	270	159	750	254	2600	335	1000000	384

Note: N is Population Size; S is Sample Size *Source: Krejcie & Morgan, 1970*

Table 7 Binary Logistic Regression Analysis

Factors Associated with Uptake of IPT

Variables in the Equation									
								95.0% C.I for EXP(B)	
		B	S.E.	Wald	df	Sig.	Exp(B)	Lower	Upper
Step 1 ^a	IPT related Health Education	-1.414	0.560	6.374	1	0.012	0.243	0.081	0.729
	Constant	3.611	0.358	101.565	1	.000	37.000		
a. Variable(s) entered on step 1: IPT related Health Education									

Variables in the Equation									
								95.0% C.I for EXP(B)	
		B	S.E.	Wald	df	Sig.	Exp(B)	Lower	Upper
Step 1 ^a	Creating Awareness on LTBI in Communities	1.757	0.771	5.193	1	0.023	5.798	1.279	26.285
	Constant	2.697	0.298	81.765	1	0.000	14.833		
a. Variable(s) entered on step 1: Creating Awareness on LTBI in community									

MULTIVARIATE LINEAR REGRESSION
Factors Associated with Uptake of IPT

Variables in the Equation									
								95.0% C.I for EXP(B)	
		B	S.E.	Wald	df	Sig.	Exp(B)	Lower	Upper
Step 1 ^a	IPT Related Health Education	-1.719	0.583	8.701	1	0.003	0.174	0.055	0.548
	Creating Awareness on LTBI in Community	2.012	0.788	6.525	1	0.011	7.494	1.598	35.148
	Constant	3.004	0.377	63.324	1	0.000	20.158		
a. Variable(s) entered on step 1: IPT Related Health Education and Creating Awareness on LTBI in Community									

Appendix 5: Data Collection Letters

BUGEMA UNIVERSITY

Main Campus
32km, Gayaza - Zirowwe Road
P.O. Box 6529
KAMPALA - UGANDA
Tel: 256-312-351400
Fax: 256-312-351460
Email: sgsbugema@gmail.com
Website: www.bugemauniv.ac.ug



Kampala Campus
2 miles Bombo Road
Between Total Petrol Station
& Makerere Yellow Primary Sch.
Muganzi-Awongerera Rd
P.O. Box 6529 KAMPALA - (U)
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+256 312 266 631

SCHOOL OF GRADUATE STUDIES

December 5, 2017

Program Center Manager
TASO Mulago
P.O. Box 10443
Kampala, Uganda

MAZ.
Attach the attached data (numbers) only to the student by Monday 2018.
[Signature]

Dear Sir/Madam;

RE: RESEARCH RECOMMENDATION

This is to introduce to you **Menya Saidah** a student from Bugema University, School of Graduate Studies pursuing a Masters degree in Public.

Saidah is in her second year attending research seminar class which requires the student to write a project proposal and report entitled **"FACTORS ASSOCIATED WITH UPTAKE OF ISONIAZED TREATMENT FOR TB AMONG HIV POSITIVE PATIENTS ACCESSING CARE FROM TASO MULAGO CENTER KAMPALA, UGANDA"**.

The purpose of this letter is to request you provide her with the necessary primary data/information. It is for academic purposes and the findings will remain confidential and of benefit both to the microfinance and the student at large.

Your cooperation will be highly appreciated

Yours

[Signature]



Rosette Kabuye, PhD
Dean, School of Graduate Studies

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Kampala Campus

2 miles Bombo Road
Between Total Petrol Station
& Makerere Yellow Primary Sch.
Muganzi-Awongerera Rd
P.O. Box 6529 KAMPALA - (U)

Tel: +256 312 266 629/30
+256 312 266 631

SCHOOL OF GRADUATE STUDIES

April 5, 2018

To Whom It May Concern

RE: DATA COLLECTION

This is to certify that **Menya Saidah** is a student of Bugema University pursuing a Masters degree in Public Health.

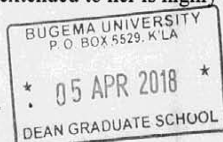
The purpose of this letter is to request you permit her carry out data collection for her research entitled "**FACTORS ASSOCIATED WITH UPTAKE OF ISONIAZID PREVENTIVE THERAPY AMONG HIV POSITIVE PATIENTS IN TASO MULAGO CENTER KAMPALA, UGANDA**".

The research will be based on utmost ethical considerations and the findings will be for academic purposes and of benefit to the Community.

Any assistance extended to her is highly appreciated.

Sincerely,

Rosette Kabuye, PhD
Dean, School of Graduate Studies



Appendix 6: IRB approval Letter



**The AIDS Support Organisation
(TASO) Uganda Ltd.**

TASO Headquarters
Mulago Hospital Complex
P.O. Box 10443, Kampala-Uganda
Tel: +256 414 532 580/1
Fax: +256 414 541 288
E-mail: mail@tasouganda.org
Website: www.tasouganda.org

01st May 2018

TASO TRAINING CENTRE
Kanyanya Of Gayaza-Road,
Aher-Mweene
P.O. Box 10443, Kampala
Tel: +256 414 867 837
Fax: +256 414 566 704
E-mail: training@tasouganda.org

SERVICE CENTRES
TASO ENTEBBE
Plot 15-17 Lugard Avenue
P.O. Box 226, Entebbe
Tel: 0414 320 030/052 774 135
E-mail: entebbe@tasouganda.org

TASO GULU
Plot 4 Mathew Lubwisa Road
P.O. Box 347, Gulu
Tel: 0471 432743/ 0752 774142
Fax: 0471 432959
E-mail: gulu@tasouganda.org

TASO JINJA
Jinja Referral Hospital
P. O. Box 577, Jinja
Tel: 0993 250 117/0752 774 147
Fax: 0434 120 352
E-mail: jinja@tasouganda.org

TASO MASAKA
Masaka Hospital
P.O. Box 1979, Masaka
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E-mail: masaka@tasouganda.org

TASO MASINDI
Masindi Hospital
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Fax: 0465 420 636
E-mail: masindi@tasouganda.org

TASO MIBALE
Mibale Hospital
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Fax: 0454 423 551
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Fax: 0485 421 323
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TASO MULAGO
Mulago Hospital
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Fax: 0414 541 288
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TASO RUKUNGIRI
Ishasha Road
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Tel: 0485 442 810/ 0752 774 141
Fax: 0485 442 813
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TASO SOROTI
Soroti Hospital
P.O. Box 422, Soroti
Tel: 0454 461 380/ 0752 774 143
Fax: 0454 461 042
E-mail: soroti@tasouganda.org

TASO TORORO
Plot 30, Cox Road
P.O. Box 777, Tororo
Tel: 0454 442 008/0752 774 140
Fax: 0454 443 334
E-mail: tororo@tasouganda.org

DISCRETE PRODUCTS
GRANTS MANAGEMENT UNIT /
GLOBAL FUND
House of Hope, Plot 10,
Windsor Loop
P.O. Box 10443, Kampala
Tel: 0414 259 555/ 0752 774 109
E-mail: mail@tasouganda.org

TASO-KARAMOJA PROJECT
Plot 10, Independence Avenue
P.O. Box 131, Moroto
Tel: 0752 744 792
E-mail: mail@tasouganda.org

TORORO LABORATORY HUB
Tororo Hospital
P.O. Box 777, Tororo
Tel: 0454 442 008/ 0752 774 723
Fax: 0454 443 334
E-mail: hub@tasouganda.org

Our Ref: TASOREC/013/18-UG-REC-009

Saidah Menya,
Bugema University, Kampala
saidahmenya.sm@gmail.com

Dear Saidah,

RE: RESEARCH APPROVAL "FACTORS ASSOCIATED WITH UPTAKE OF ISONIAZID PREVENTIVE THERAPY AMONG HIV POSITIVE PATIENTS IN TASO MULAGO CENTER."

Thank you for submitting an application for initial ethics review of the above-referenced regular review research project. In the matter concerning the review, your responses dated 27th April 2018 met all the requirements for approval.

TASO REC is content to give a favorable ethical opinion of the research and annual approval has been granted, effective 01st May 2018, valid until 30th April 2019.

The review and approval includes the following:

Document Type	Date	Version
1. The Study Protocol.	27/04/2018	3.0
2. Informed Consent Form with Translation.	24/04/2018	2.0
3. Data Collection Tools.	05/04/2018	2.0
4. TASO REC Research Review Application and DOC of Interest Form.	10/04/2018	1.0
5. Letter of Introduction, Bugema University	05/04/2018	

Amendments: All proposed changes to the study (including personnel, procedures, or documents) must be approved by the REC in advance through the amendment process before implementation.
Adverse Events/Unanticipated Problems: You must inform the REC of all unanticipated problems and adverse events that occur during your research study.

Site Monitoring: TASO REC undertakes site monitoring visits to verify that the rights and welfare of participants are being protected; to ensure that data is accurate, complete and verifiable data and that the protocol is in compliance with the guidelines and SOPs.

Study Reports: It is a requirement by the TASO REC that you submit timely annual progress reports.

We recommend that you proceed with the registration and final clearance of your study by the Uganda National Council of Science and Technology (UNCST) before commencement.

Renewal of the study approval. This should be through submission of the Annual Report and a Continuing Review Application Form, at least 60 days prior to expiration date. The study cannot continue until renewed by the TASO REC.

Sincerely,



Approved, Valid Until:.....
Dr. Bogeta Daniel,

Chairperson, TASO RESEARCH ETHICS COMMITTEE (REC)
CC: Executive Director, TASO (U) Limited
CC: Uganda National Council for Science & Technology (UNCST)

Appendix 7: Tuberculosis Screening Form



Ministry of Health Intensified TB Case Finding Guide

Use the guide to identify presumptive TB: In HIV Clinic, OPD, IPD and Congregate settings

This guide should be administered by either a health care worker or lay provider at the health facility.

Date of Assessment _____ Reg. Number _____ Fam. Number _____

Name of Health Facility _____ Staff code _____

Age _____ Sex _____ Phone Contact _____

District _____ Sub county _____ Parish _____ Village _____

1.	Has the patient been coughing for 2 weeks or more? <i>(for known HIV patients assess cough regardless of duration)</i>	Yes	No
2.	Has the patient had persistent fevers for 2 weeks or more?	Yes	No
3.	Has the patient had noticeable weight loss (more than 3 kg)	Yes	No
4.	Has the patient had excessive night sweats for 3 weeks or more? <i>(for adults)</i>	Yes	No
5.	Has the child had poor weight gain in the last one month*? <i>(ask for children < 5 years)</i>	Yes	No
6.	Has the child had contact with a person with Pulmonary Tuberculosis or chronic cough? <i>(ask for children < 5 years)</i>	Yes	No

**poor weight gain (Weight loss, or very low weight (weight-for-age less than -3 z-score), or underweight (weight-for age less than -2 z-score), or confirmed weight loss (>5%) since the last visit, or growth curve flattening)*

Guide for Actions to take

- If **yes to question 1** request for sputum test and refer to clinician for further investigations. **Direct the patient to a designated area for people with chronic cough.**
- If **no to question 1 and yes to any other question**; refer to clinician for further investigations
- If **no to all questions**: repeat TB Assessment at subsequent visits

**For Children who are unable to produce sputum, refer to clinician for further investigations*

If you are in a clinic attending to patients enrolled in HIV care record this information on the comprehensive ART card; this information should then be transferred to the Pre ART or ART register.

If you are in a clinic setting (not attending to patients enrolled in HIV care e.g. OPD) and presumptive TB case is found, record the information in a presumptive TB register.