FACTORS INFLUENCING THE UPTAKE OF TUBERCULOSIS PREVENTIVE THERAPY (TPT) AMONG FEMALE (18-49 YEARS) HOUSEHOLD CONTACTS OF BACTERIOLOGICALLY CONFIRMED TB PATIENTS IN WAKISO DISTRICT, UGANDA.

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Master of Public Health-Population and Reproductive Health

UGANDA MARTYRS UNIVERSITY

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DECLARATION

I have read the rules of Uganda Martyrs University on plagiarism and hereby state that this work is my own.

It has not been submitted to any other institution for another degree or qualification, either in full or in part.

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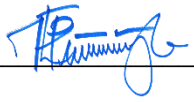
Researcher's signature: 

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APPROVAL

This dissertation is the student's original work, and I have supervised its preparation and deemed it ready for submission.

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ACRONYMS/ABBREVIATIONS

DHIS2	District Health Information Software 2
EPTB	Extra-Pulmonury Tuberculosis
FGD	Focus Group Discussion
HHC	Household Contacts
IDI	In-Depth Interviews
KAP	Knowledge, Attitude, and Perception
KII	Key Informant Interview
LMICs	Low and Middle-Income Countries
MoH	Ministry of Health
NTLP	National TB and Leprosy Program
PBC	Pulmonary Bacteriologically Confirmed
PCD	Pulmonary Clinically Diagnosed
PTB	Pulmonary Tuberculosis
SDG	Sustainable Development Goals
TB	Tuberculosis
TPT	Tuberculosis (TB) preventive treatment
UBOS	Uganda Bureau of Statistics
UN	United Nations
UNHLM	United Nations High-level Meeting
WHO	World Health Organization

ABSTRACT

Introduction: *Tuberculosis (TB) remains a leading cause of morbidity and mortality in Uganda, with household contacts of bacteriologically confirmed TB patients facing heightened risk of infection. Although Tuberculosis Preventive Therapy (TPT) is an effective intervention, its uptake among adult female contacts remains suboptimal. In particular, women of reproductive age face intersecting vulnerabilities that may influence their decision to initiate TPT. This study investigates individual, community, and health system factors influencing TPT uptake in Wakiso District, Uganda.*

Objective: *To assess the factors influencing the uptake of TPT among female household contacts aged 18–49 years of bacteriologically confirmed TB patients in Wakiso District.*

Methodology: *A mixed-methods cross-sectional study design was employed. Quantitative data were collected through structured interviews with 317 eligible women using a multistage sampling approach. Logistic regression analyses were used to identify associations between independent variables and TPT uptake. Qualitative data were gathered through four in-depth interviews with TB contacts purposively selected by health workers and community health personnel and analyzed thematically to contextualize the quantitative findings per objective.*

Results: *TPT uptake among respondents was 76%. Key individual-level predictors of higher uptake included having primary or secondary education (AOR = 4.76; p = 0.018) and informal employment (AOR = 2.40; p = 0.025). At the community level, participants exposed to health talks or community health worker visits were more likely to initiate TPT, while stigma and fear of being mistaken for an active TB case remained deterrents. Among health system factors, women who experienced long wait times at health facilities (AOR = 2.26; p = 0.003) or medicine stockouts (AOR = 2.53; p = 0.022) paradoxically showed higher TPT initiation, suggesting persistence despite service inefficiencies. Qualitative insights highlighted the importance of supportive health worker interactions, privacy assurance, concern about side effects, and accessibility, with logistical barriers, such as transportation and stockouts, frequently cited.*

Conclusion: *Despite relatively high TPT uptake, gaps remain due to educational, perceptual, and systemic barriers. Interventions to improve TPT coverage should focus on providing tailored health education, reducing stigma, and strengthening community-based delivery systems. Ensuring consistent medicine availability and enhancing provider-client relationships can significantly improve adherence and retention in TPT programs among women in high TB burden settings.*

OPERATIONAL DEFINITIONS

Household Contact:	This term refers to individuals living in the same residential setting who share common living spaces, including but not limited to shared living quarters, sleeping areas, cooking, and eating arrangements, with the person diagnosed with TB.
Index TB case:	This term refers to the first diagnosed and bacteriologically confirmed case of TB within a specified household under investigation.
Bacteriologically confirmed TB:	This refers to TB diagnosed when the causative bacterium of TB is identified and confirmed through laboratory testing of clinical specimens obtained from a patient.
TB Preventive Therapy:	This term refers to administering medicine or treatment to individuals at risk of developing active tuberculosis disease but who do not currently have active symptoms. Specifically, it involves providing specific medications, such as isoniazid or other drugs, to prevent the progression from latent TB infection to active TB disease.
Latent TB infection:	A state of persistent immune response to stimulation by M. tuberculosis antigens with no evidence of clinically manifest tuberculosis.
Individual factors:	These are characteristics or variables within a nation's population, such as age, gender, income level, marital status, ethnic origin, and education level.
Community-level factors:	This term refers to the characteristics and conditions within a community that can influence various aspects of an individual's health to accept the uptake of TPT.

Health System-related factors: These are factors that affect the efficiency of health systems and can include: Quality of care: Factors such as availability, accessibility, affordability, and timeliness

- Distance: Distance to health facilities
- Cost: Cost of drugs and healthcare
- Infrastructure: Funding for building and maintaining infrastructure
- Staff: Training and compensation of staff
- Governance: Quality of governance and leadership
- Access: Access to essential medicines and technologies

Uptake of TPT: For this study, the "uptake" of Tuberculosis Preventive Therapy (TPT) specifically refers to the initiation of TPT among eligible female household contacts (aged 18-49 years) of bacteriologically confirmed TB patients in Wakiso District, Uganda. It is defined as the proportion of eligible participants who start TPT within one month of being identified and recommended by healthcare providers.

CHAPTER ONE

INTRODUCTION AND BACKGROUND

1.0 Introduction

Tuberculosis (TB) continues to pose a significant global public health challenge, with an estimated 1.3 million deaths and 10.6 million new cases reported in 2022. It ranks as the second leading infectious killer globally, following the immediate impact of COVID-19 ("Global TB report, WHO, 2022.pdf," n.d.). In Uganda, nearly 240 individuals contract TB daily and approximately 30 die from it, placing the country among the 30 high TB and TB/HIV burden nations, with about 91,000 annual cases (WHO, 2022).

TB, caused by Mycobacterium tuberculosis, spreads primarily via inhalation of aerosolized droplets. Household contacts of pulmonary TB patients are especially at risk of infection and disease. WHO recommends routine identification and screening of such contacts to facilitate early diagnosis and prevention through enrollment on TB Preventive Therapy (TPT) (Fox GJ., et al, 2013; WHO, 2018; WHO, 2019).

In response, Uganda's Ministry of Health developed the TB and Leprosy Strategic Plan (2020/21–2024/25), emphasizing patient-centered care and integration of preventive therapy, including isoniazid and rifamycin-based regimens, into TB programming. These regimens reduce TB progression among those exposed or latently infected (Fox GJ., et al, 2013; WHO, 2018; WHO, 2019).

This study focuses on female household contacts aged 18–49 in Wakiso District, whose caregiving roles and reproductive age increase their vulnerability to TB. Despite high exposure, their engagement with TPT remains underexplored. The research investigates the factors influencing

TPT uptake in this critical but often overlooked demographic ("9789240061729-eng-TB global report, WHO 2022.pdf," n.d.).

1.1 Background to the study

Tuberculosis (TB), categorised as a disease of poverty, is an infectious disease that most often affects the lungs and is caused by a type of bacteria called Mycobacterium tuberculosis (WHO, 2020). It affects all age groups and is categorised into Pulmonary and Extra Pulmonary TB (EPTB). Pulmonary tuberculosis (PTB) affects the lung, whereas EPTB is the disseminated type of TB other than in the lungs. PTB, the most common type, spreads through inhaling aerosolized bacilli from coughing, sneezing, or talking. Close contacts of individuals with active infectious PTB face a high risk of contracting the disease, with untreated bacteriologically confirmed patients being a significant source of TB infection("Global TB report, WHO, 2022.pdf," n.d.; Jilani et al., 2023; Narasimhan et al., 2013).

Globally, TB was the world's second leading cause of death from a single infectious agent after COVID-19, accounting for an estimated 1.13 million deaths in 2022 and affecting over 10 million individuals. The majority of cases are from 30 countries with high TB burden, resource-constrained, low- and middle-income countries (LMICs) (WHO, 2022). The prevalence of bacteriologically confirmed PTB per 100,000 population aged 15 years or over was high in many countries and varied considerably across countries (WHO TB Global Report 2021).

In 2022, an estimated 10.6 million individuals contracted TB worldwide. The largest number of new cases occurred in the WHO South-East Asian Region (46%), followed by the African Region (23%) and the Western Pacific (18%). Moreover, 87% of new TB cases were in the 30 high TB burden countries, with most cases concentrated in specific countries and more than two-thirds of

the global total in Bangladesh, China, the Democratic Republic of the Congo, India, Indonesia, Nigeria, Pakistan and the Philippines (WHO, 2022).

The estimated 10.6 million people (95% UI: 9.9–11.4 million) who fell ill with TB worldwide in 2022 is an increase from 10.3 million in 2021 (95% UI: 9.6–11 million) and 10.0 million (95% UI: 9.4–10.7 million) in 2020, continuing the reversal of the downward trend that had been sustained for many years up to 2020 before the COVID pandemic. Similarly, the TB incidence rate (new cases per 100,000 population per year) is estimated to have increased by 1.9% between 2020–2021 and 2021–2022. (WHO, 2022).

In 2022, an estimated 10.6 million people fell ill with tuberculosis (TB) worldwide, including 5.8 million men, 3.5 million women, and 1.3 million children which reflected an increased burden of disease among men. Additionally, WHO TB surveys carried out revealed an outstanding finding across all surveys in which the burden of TB disease was much higher in men compared to women. In surveys completed from 2007 to 2019, the male-to-female (M: F) ratio of bacteriologically confirmed pulmonary cases ranged from 1.2 (in Ethiopia) to 4.5 (in Vietnam), and a range of 2-4 was common in most countries. The finding that 66-75% of the global burden of TB disease in adults falls on men(WHO Global TB Report, 2021) presents a complex picture when considering the role of women as primary caregivers within households. While men might have higher TB prevalence, women's constant exposure to potentially infectious household members puts them at significant risk.

The comparative data on the prevalence of pulmonary tuberculosis (PTB) in African and Asian countries highlights significant regional differences in disease burden. In African nations, according to an overview of results and lessons learned from prevalence surveys in Africa 2008 – 2016, the PTB prevalence ranged from 119 per 100,000 population in Rwanda (in 2012) to 852

per 100,000 population in South Africa (in 2017), with respective 95% confidence intervals (CI) indicating statistical reliability (79–160 and 679–1026) (Law, I. et al., 2020). Similarly, in an overview of results and lessons learned from prevalence surveys in Asian countries, the prevalence varied from 119 per 100,000 population in China (in 2010) to 1159 per 100,000 population in the Philippines (in 2016), with corresponding 95% CIs (103–135 and 1016–1301) (Onozaki, I. et al., 2015). This data highlights the variation in PTB prevalence within and between continents, further reflecting diverse epidemiological profiles influenced by factors such as healthcare infrastructure, socioeconomic conditions, and public health interventions.

Uganda, identified as one of WHO's 30 high-burden countries for TB/HIV, faced an estimated TB incidence rate of 200 per 100,000 population in 2019 with a slight decrease of 198 per 100,000 population in 2022, and a mortality rate of 35 per 100,000. The notification of 65,897 TB cases in the same year highlighted the substantial burden on the Ugandan healthcare system.

Wakiso District, with a projected population of 3,519,300 individuals, is Uganda's most populated Higher Local Government (UBOS,2023). The high demographic density in Wakiso exacerbates the risk of TB transmission due to overcrowding and the proliferation of slum areas. These urban pockets serve as significant hubs for TB transmissions, warranting targeted interventions to address these challenges.

The interconnected dynamics of high population density and the prevalence of slum areas elevate the risk of TB transmission, necessitating targeted interventions to address these specific challenges within the unique context of Wakiso district.

The United Nations Sustainable Development Goals (SDGs) aim to end the TB epidemic by 2030. TB preventive treatment (TPT) is a proven intervention to prevent the progression from infection to disease and reduce mortality. WHO expanded guidelines to provide TPT to household contacts

of all ages, emphasizing its effectiveness in reducing TB-related morbidity and mortality (WHO, 2018). Evidence indicates that it reduces TB-related morbidity by 72% and mortality by 52%.

However, the sobering statistics of 1.13 million deaths and 10.6 million new cases globally in 2022 reflect a long way to achieving the target. Household contacts typically have regular and sustained close contact with the infected individual, potentially increasing their risk of exposure to the infectious disease.

The World Health Organization (WHO) emphasizes TPT for specific populations, including people living with HIV, household contacts of individuals diagnosed with bacteriologically confirmed pulmonary TB, and those in other risk groups. Two regimens, considered equivalent in safety and efficacy, are the 3HP (Rifapentine and INH once weekly for three months) and the traditional TPT regimen of daily isoniazid for 6 to 9 months (WHO, 2021).

Based on evidence from randomized trials, the World Health Organization (WHO) endorsed the 3HP regimen (three months of weekly rifapentine and isoniazid) in 2021 (WHO, 2021). This shift from the traditional 6-month daily isoniazid regimen reflects the 3HP's advantages – comparable efficacy, better tolerability for patients, and higher completion rates.

Furthermore, research shows that Tuberculosis Preventive Treatment (TPT) significantly reduces the risk of developing active TB and associated mortality (Rangaka, 2014). Numerous clinical trials, observational studies, and data from routine care programs all support the effectiveness of TPT in reducing TB incidence (Semu et al., 2017; Takarinda et al., 2017; Sabasaba et al., 2019).

In the effort to reduce the risk of TB disease among household contacts, the 2018 United Nations High-Level Meeting (UNHLM) set ambitious targets, committing to provide TPT to 4 million children <5 years old and 20 million household contacts ≥5 years old (United Nations, 2019).

Notably, there has been a significant increase in household contacts enrolled in TPT, rising from 0.76 million in 2021 to 1.9 million in 2022. However, substantial gaps persist, with only 15.5 million individuals receiving TPT from 2018 to 2022, representing 52% of the 30 million target. Specifically, for household contacts aged ≥5 years, only 2.0 million initiated TB preventive treatment (WHO, 2022). While the significant increase in household contacts receiving TPT from 2021 to 2022 is encouraging, achieving the ambitious UNHLM targets for TB preventive treatment requires a multi-pronged approach. Substantial gaps remain, highlighting the need for innovative strategies to effectively address barriers to TPT uptake to reduce the burden of tuberculosis worldwide.

Several studies highlight the elevated risk of tuberculosis (TB) among household contacts of individuals with active TB(Shapiro et al., 2012; "Contact investigation for tuberculosis," 2015; Velen et al., 2021). The prevalence of TB can be significantly higher for these household contacts compared to the general population, with estimates ranging from 3.1% to 37.1% depending on the age group and setting(Velen et al., 2021; Fox, G.J et al.,2013). This highlights the importance of Tuberculosis Preventive Treatment (TPT) for this high-risk group.

However, despite the documented increase in TPT uptake globally, studies from Ethiopia and Kenya indicate that initiation rates remain suboptimal(Fentahun et al., 2020; Omesa et al., 2016). While completion rates in Kenya appear promising (Omesa et al., 2016), both countries reveal room for improvement in ensuring more household contacts initiate and complete TPT.

Household members of individuals with infectious pulmonary tuberculosis remain at a high risk of TB infection and disease progression. Prioritizing contact investigation and TPT for these individuals is crucial in preventing infection progression. However, despite TPT availability, poor

uptake among household contacts persists due to multiple barriers hindering policy implementation (Salazar-Austin et al., 2022).

These findings point to a potential gap between the established risk of TB among household contacts and the current effectiveness of TPT programs. This gap suggests the need to address factors hindering TPT uptake in these high-risk populations.

In Uganda, factors contributing to poor TB preventive treatment uptake include limited healthcare worker knowledge, lack of confidence in symptom-based TB screening, inadequate TPT supply, drug stock-outs, poor patient adherence, and concerns about isoniazid resistance. Notably, specific challenges faced by female contacts remain underrepresented in existing research despite their unique circumstances (Kalema et al., 2021; Pathmanathan et al., 2018).

While existing data has primarily focused on contacts under 5 years and aggregated adult populations, understanding the experiences of female contacts, a distinct demographic, is crucial to the fight against TB. Tailoring interventions based on factors influencing TPT uptake among female contacts can contribute to reducing TB transmission within households. This exploration seeks to fill existing knowledge gaps by advocating for research to address the unique dynamics experienced by the sub-population of female contacts in the context of TPT.

1.2 Problem Statement

The inadequacy of tuberculosis preventive therapy uptake among household contacts outlines a critical public health challenge. Despite the proven efficacy of preventive therapy, the specific dynamics of TB transmission within households and the unique vulnerabilities of TB contacts contribute to suboptimal uptake of TPT, with Uganda reporting 60% less of the 86% national target (NTLP report, 2023).

Wakiso district, situated in Uganda, exemplifies the challenges faced by high-burden regions in which female household contacts, who play pivotal roles as caregivers, find themselves at an increased risk of TB exposure. This vulnerability is further heightened by their reproductive age, where factors such as pregnancy and breastfeeding can impact immunity, potentially amplifying disease transmission and progression.

The Ministry of Health (MOH) set an ambitious target for TB contact tracing, aiming for 90% coverage of individuals in contact with the index patient. Unfortunately, the data from MOH DHIS2 paints a concerning picture of Uganda's progress in this area, specifically regarding initiating TPT for contacts aged 5 years and above. The figures for the years 2020 (4.7%), 2021 (7%), and 2022 (46.2%) underline a persistent challenge in achieving optimal TPT uptake. Although there is a notable improvement in 2023 (73.2%), these rates still fall short of the MOH's targeted 90% TPT initiation rate of all eligible contacts.

Digging deeper into the district-level data, Wakiso District stands out, with only 67% of eligible contacts initiated on TB Preventive Therapy (DHIS, 2023). These findings highlight a significant gap between the current TPT uptake and the MOH's recommendation from the systems approach to TPT coverage and retention during Uganda's 100-day TPT scale-up initiative (Musaazi et al., 2023).

This data further reveals a substantial problem in achieving the desired initiation rates for TPT, indicating a critical need for targeted interventions because failure to meet the MOH's target not only hampers the effectiveness of TB prevention efforts but also poses a serious public health risk. Insufficient TPT uptake means missed opportunities for the prevention of active TB cases within the community, particularly among those in close contact with index patients, such as the spouses and the house helpers of reproductive age, among others.

Women in the reproductive age group are not only susceptible to TB but also play pivotal roles within households, making them influential in health-related decisions. Recognizing their unique vulnerabilities and tailoring interventions appropriately can have cascading effects on breaking the cycle of transmission and fostering healthier communities. However, limited research focuses on understanding the specific factors that affect their decisions regarding TPT uptake within this context. A study on the uptake of TPT among pregnant women policy by the WHO showed that only 64% of the countries are implementing this policy, making it more challenging in settings like Uganda, where women fail to sense the dangers of being a TB contact (Miele et al., 2020). Investigating these factors is essential for developing targeted interventions to improve TPT acceptance in this vulnerable population (DeAtley et al., 2022).

Therefore, this research aims to address these gaps by identifying the factors influencing the uptake of TPT among female household contacts of bacteriologically confirmed TB patients in Wakiso District.

1.3 Research Questions

1. What individual characteristics significantly influence the uptake of tuberculosis preventive therapy (TPT) among females (18-49 years) who have had household contacts with bacteriologically confirmed TB patients in Wakiso District?
2. How do community-level factors impact the uptake of Tuberculosis Preventive Therapy (TPT) among females (18-49 years) who have household contacts with bacteriologically confirmed TB patients in Wakiso District?

3. What role do health system-related factors play in influencing the uptake of Tuberculosis Preventive Therapy (TPT) among female (18-49 years) household contacts of bacteriologically confirmed TB patients in Wakiso District?

1.4 Conceptual Framework

The adoption and uptake of Tuberculosis Preventive Therapy (TPT) among targeted populations represent critical pillars in the global fight against tuberculosis. However, the decision-making process regarding TPT acceptance is influenced by various factors, such as individual, community, and health system levels. Understanding how these factors interact is pivotal in developing effective strategies to enhance TPT uptake. The socioecological model (SEM), adopted from the Centers for Disease Control and Prevention 2019 (Engelbert Bain et al., 2020), guides the conceptual framework for this study. This model suggests that individual behavior is influenced by multiple interconnected levels, including individual(e.g., age, education), interpersonal(e.g., family, peers), organizational(e.g., healthcare systems, community e.g., culture, environment),, and policy factors e.g., government regulations. The model offers a comprehensive understanding of the complex dynamics shaping TPT uptake, and by examining these interconnected levels, this study aims to elucidate the factors influencing TPT uptake among the target population (Bronfenbrenner,2024)

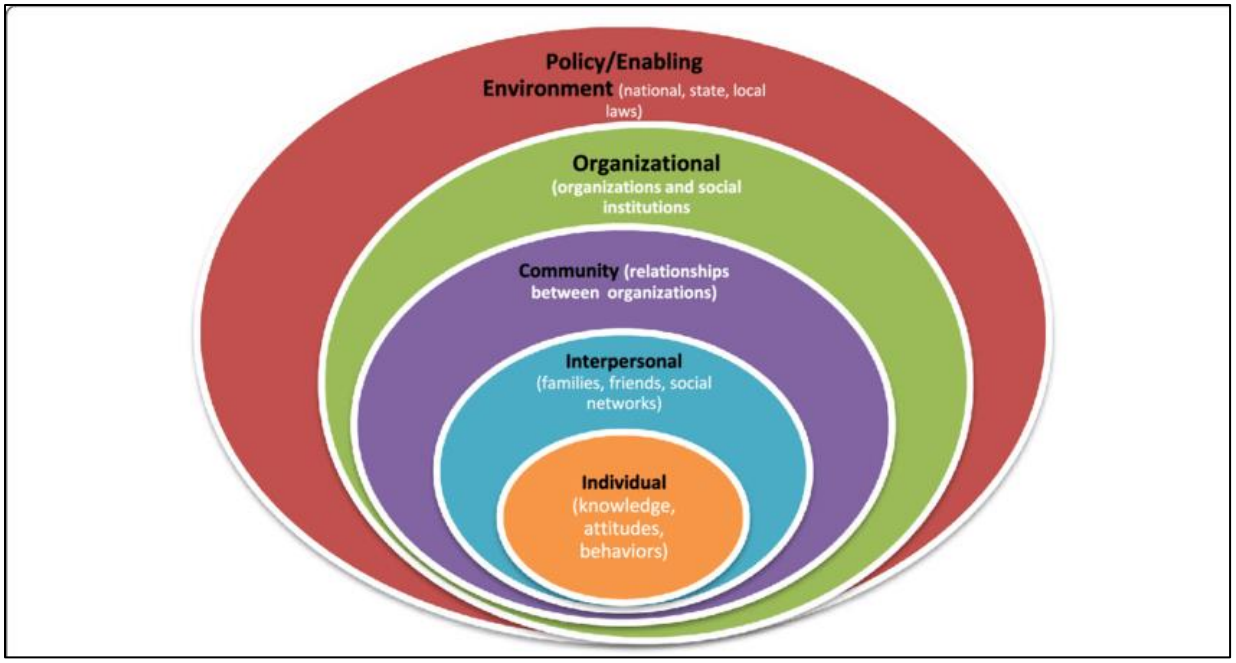

Figure 1: The Socioecological Model (SEM)

At the intrapersonal/Individual level, the SEM considers the individual characteristics that influence TPT uptake. These include individual factors such as marital status, parity (number of children), previous TB history, age, family size, and education level. Education level, for instance, can significantly impact health literacy, thereby affecting an individual's understanding and decision to take TPT. Personal health status and socioeconomic factors also play a critical role in shaping attitudes and behaviors toward TPT(Nutbeam, 2000). Although this level is based on the at-risk individual, it is strongly influenced by all other levels of the socioecological framework

The model further appreciates the role of the interpersonal level, including social networks and relationships as a critical element in influencing TPT uptake. This level encompasses family, friends, and healthcare providers interacting with the individual. Support from family members and peers can significantly enhance the acceptance of TPT, while negative influences or a lack of support can hinder it. Trust in healthcare providers and their ability to effectively communicate the benefits of TPT also plays a crucial role in influencing individual decisions

More to that, Community-level factors, including community awareness and engagement, the stigma associated with TB, cultural perceptions of health and illness, and trust in healthcare providers, further shape TPT uptake. The level of community awareness and engagement might affect the dissemination of accurate information regarding TPT. At the same time, social stigma or cultural beliefs may hinder or facilitate its acceptance within the community.

Additionally, the organizational level considers the influence of healthcare institutions and systems on TPT uptake. This includes the availability of TPT drugs, the adequacy of the health workforce, integration with other community outreach programs, and the training of healthcare providers. Well-resourced healthcare systems and trained providers can significantly enhance the promotion and uptake of TPT(Barker, 2007). The model further appreciates that organizational policies and practices within healthcare institutions can directly affect the accessibility and quality of TPT services.

Ultimately, the policy level, governmental and institutional policies, and regulations play a critical role in shaping the availability and accessibility of TPT. Effective policies can ensure comprehensive TB control programs and facilitate the widespread availability of TPT. Policy support is essential for resource allocation, training programs, and public health campaigns aimed at promoting TPT uptake.

However, these relationships are refined and moderated by several factors. An individual's health status, socioeconomic status, health literacy, gender empowerment, and geographical location act as moderators, influencing the strength and direction of the relationships between the independent variables and the dependent variable (uptake of TPT). For instance, an individual's health status might significantly moderate their decision to accept TPT, especially if they perceive a higher risk

due to their health condition, or an individual with no illness or symptoms may question why they have to take TPT simply because they have been in contact with a TB patient.

Therefore, the uptake of Tuberculosis Preventive Therapy is a complex process influenced by a web of interconnected factors operating at multiple levels. This comprehensive framework aims to explain these relationships and interactions among demographic characteristics, community-level factors, health system-related factors, and moderating variables, offering insights into the dynamics that shape the decision-making process regarding TPT uptake among female household contacts (18 to 49 years) of bacteriologically confirmed TB patients.

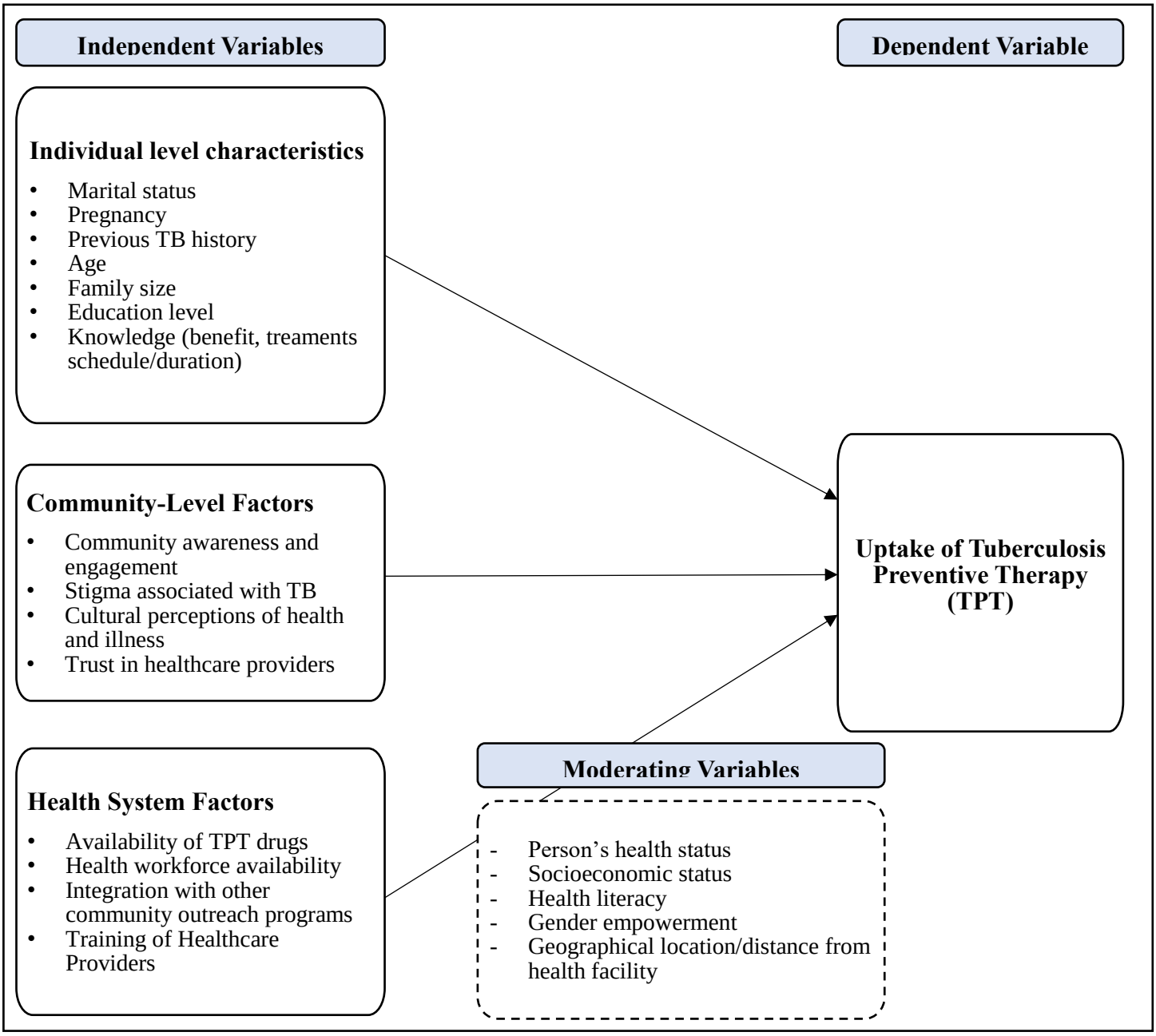

Figure 2: Conceptual Framework

1.5 Objectives of the Study

1.5.1 General Objective

To determine the factors that influence the uptake of TPT among females aged 18- 49 years, household contacts of bacteriologically confirmed TB patients in Wakiso District

1.5.2 Specific Objectives

1. Determine the individual factors that shape the experiences and decisions of female (18-49 years) household contacts of bacteriologically confirmed TB patients regarding the uptake of TPT in Wakiso District.
2. Investigate the community factors that influence the uptake of TPT for female (18-49 years) household contacts of bacteriologically confirmed TB patients in Wakiso District.
3. Examine the influence of health service delivery factors on the uptake of TPT among female (18-49 years) household contacts of bacteriologically confirmed TB patients in Wakiso District.

1.6 Significance and Scope of the Study

Despite the proven efficacy of TPT in preventing TB, there exists a gap in knowledge regarding the barriers and facilitators influencing its uptake among female household contacts. This study aims to bridge this gap by comprehensively exploring and identifying these factors, thereby contributing to a deeper understanding of the socio-cultural, economic, and healthcare-related determinants impacting TPT adoption. By shedding light on the factors influencing the uptake of tuberculosis preventive therapy among female household contacts, this research holds the potential to inform targeted interventions that can address health disparities, reduce vulnerabilities, and

contribute to global TB control efforts. Improving preventive therapy uptake in this group contributes to global TB control efforts and the broader agenda of achieving health equity.

Improving TPT uptake among female household contacts can lead to reduced TB transmission, decreased morbidity and mortality rates, and minimized economic burdens associated with TB treatment. Empowering women in health decision-making can positively impact family and community health outcomes.

Findings from this research can inform evidence-based policies and interventions tailored to the specific needs and challenges women in Wakiso District face concerning TPT uptake. By identifying these determinants, healthcare authorities and policymakers can develop targeted strategies to enhance TPT awareness, accessibility, and acceptance among this population.

Therefore, this study's significance lies in its potential to provide actionable insights that can guide the development of context-specific interventions, policies, and healthcare programs aimed at improving TPT uptake among female household contacts of confirmed TB patients in Wakiso District, ultimately contributing to TB prevention efforts and improving public health outcomes in the region.

Geographical scope: Wakiso District, which was carved out of Mpigi district to improve service delivery, is situated in the central region of Uganda and borders the capital city, Kampala. It encompasses a substantial area, ranking among the largest districts in Uganda, both in terms of population and land area. Kampala is within the district's boundaries.

Wakiso is the most populated district in Uganda, with a projected population of 3,519,300, according to projections by the Uganda Bureau of Statistics (UBOS) for 2023. It spans a total area

of 2,807.75 square kilometers, with a population density of 700 persons per square kilometer. The female population accounts for 53% of the entire population.

The district shares borders with Nakaseke District and Luweero District to the north, Mukono District to the east, Kalangala District in Lake Victoria to the south, Mpigi District to the southwest, and Mityana District to the northwest. Wakiso, housing the district headquarters, is situated approximately 20 kilometers from Uganda's capital, Kampala, by road to the northwest. The town of Wakiso serves as the location for the district headquarters. Kira, the country's second-largest city and a suburb of Wakiso District, comprises two counties: Busiro and Kyadondo. The District has seven constituencies, three within each county and one in Entebbe Municipality. Additionally, it incorporates 15 sub-counties, one Municipality, and six Town Councils.

The District encompasses 146 Parishes, 704 Villages, and two Town Boards: Matugga and Kyengera. The counties, parishes, and villages are administrative units, whereas the sub-counties/Town Councils and Municipal Divisions function as Lower Local Governments.

Content Scope: The study will focus on identifying the factors influencing the uptake of TPT among female (18-49) household contacts of bacteriologically confirmed TB cases within Wakiso District. It will specifically delve into three areas: individual-level factors, community factors, and health system-related factors, as well as how they influence TPT uptake.

Further, the study will examine the diverse factors influencing the decision-making process concerning the acceptance of TPT among female (18-49) household contacts. This examination will encompass socio-cultural determinants like cultural beliefs, gender roles, and the stigma associated with TB.

Furthermore, the study will assess the existing healthcare system factors that affect the uptake of TPT in Wakiso District. This study will include assessing the availability of TPT resources, Health workforce, Integration with other community outreach programs, and training of Healthcare Providers.

1.7 Justification of the study

The justification for delving into the factors influencing the uptake of TPT among female household contacts in the Wakiso district is guided by the urgency to address health disparities and vulnerabilities in this specific demographic. The global TB statistics of 1.13 million deaths and 10.6 million new cases in 2022 underscore the critical need for targeted interventions that go beyond conventional approaches.

While TB is the second leading cause of death among infectious diseases globally, the specific gender dynamics within TB prevalence cannot be overlooked. Despite literature suggesting a high prevalence among males, the role of females as caregivers places them in a unique position of vulnerability. This serves as a stage for exploring TPT uptake among female household contacts in the Wakiso district.

Women in the reproductive age group are not only susceptible to TB but also play pivotal roles within households, making them influential in health-related decisions. Recognizing their unique vulnerabilities and tailoring interventions accordingly can have cascading effects on breaking the cycle of transmission and fostering healthier communities. However, limited research focuses on understanding the specific factors that affect their decisions regarding TPT uptake within this context. Identifying these factors is essential for developing targeted interventions to improve TPT acceptance in this vulnerable population.

Based on the WHO End TB strategy of ending the TB epidemic by 2030, which is aligned with the United Nations Sustainable Development Goals, this research supports the need to bridge the gap between the effectiveness of TPT and its actual uptake in this vulnerable population.

Previous studies have investigated factors influencing TPT uptake among PLHIV and the under-five population. However, there is a scarcity of data on TPT uptake among sub-populations of household contacts above five years, including the female population of reproductive age targeted for this study.

Therefore, addressing this knowledge gap is essential for improving TPT uptake and ultimately curbing the spread of TB within households in Uganda. Also, identifying the factors influencing the uptake of TPT among female household contacts in Wakiso district aims to support this pressing need to address health disparities, reduce vulnerabilities, and contribute to global TB control efforts.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter presents a comprehensive literature review divided into three sections: 2.1 Individual-level factors and TPT Uptake, 2.2 Community-Level Factors Influencing TPT Uptake, and 2.3 Health System Factors Influencing TPT Uptake.

A systematic search was conducted using PubMed, Google Scholar, LILACS, MEDLINE, SCIHUB, BMC, SciELO Virtual Library databases, and other such databases. Peer-reviewed articles, reports from health organizations, and relevant policy documents published in English over the last ten years (2013 - 2023) were included. By incorporating the most recent and relevant research findings, this review provides a solid foundation for understanding the factors influencing TPT uptake among female household contacts of bacteriologically confirmed TB patients in Wakiso District, Uganda. However, given that there have been very few studies that have specifically examined female household contacts, most of the literature included in this chapter covers both people living with HIV and all household contacts.

2.1 Individual-level characteristics and the uptake of Tuberculosis Preventive Therapy (TPT)

Various individual factors influence the uptake of TPT. These factors include marital status, parity, previous TB history, age, family size, and education level. Marital status can impact healthcare-seeking behaviors because married individuals may have access to support systems. Women with higher parity may face challenges in accessing healthcare due to caregiving responsibilities. Previous TB history can increase awareness and acceptance of TPT. Age, family size, and education level also play significant roles. Older individuals, larger families, and those with higher

education may be more receptive to TPT. This is due to factors such as susceptibility, resource allocation, and health literacy.

A community-based cross-sectional Knowledge, Attitude, and Perception (KAP) study conducted in the Shebedino district of Ethiopia revealed that the occupation, marital status, education level, and monthly income of the participants were factors related to the knowledge of patients' families regarding the prevention of TB (Madebo et al., 2023). It is believed that a better understanding of TB prevention could promote the adoption of TPT

Education level:

Research has shown that individuals with higher levels of education are more likely to engage in healthy behaviors, possess better health literacy, and understand the importance of preventive measures. As a result, they are more inclined to adopt TPT than those with lower levels of education.

A study conducted in Kano, Nigeria, found that individuals with informal education were less likely to adopt TPT, while those with higher levels of education were more likely to do so (Jalo, 2020). Similarly, (Suryavanshi et al., 2020) conducted a cross-sectional study at multiple international sites to evaluate the willingness to take MDR-TB preventive therapy. The study reported a notable correlation between higher willingness and individuals who were currently employed or attending school (adjusted odds ratio [aOR], 1.83 [95% confidence interval, 1.07-3.13].

Additionally, in a study conducted in Lagos, Nigeria, education level emerged as a predictor of positive TB prevention practices, as individuals with no formal education were seven times less likely to engage in effective Tuberculosis preventive practices compared to educated individuals [OR- 0.14, CI- 0.05-0.38, P = 0.00, AOR = 7.33 CI- 2.63– 20.39, p = <0.01] (Sunday et al., 2023).

In contrast, a study in Kisumu, Kenya, revealed that rural residents with lower levels of education were more likely to initiate TPT, potentially indicating a connection to lower levels of education (Joseph, M. et al., 2023).

However, a cross-sectional Knowledge, Attitude, and Perception (KAP) study conducted in the Shebedino district, Ethiopia, found that patients' families living in urban areas had a 53% more favorable attitude compared to those residing in rural areas [AOR = 0.470; 95% CI: 0.273–0.808]. This difference was explained by the higher level of education attained by participants in urban areas (Madebo et al., 2023). This study is being conducted in an urban and peri-urban setting, which is relatable to the abovementioned setting.

Marital status:

The impact of marital status on the uptake of Tuberculosis Preventive Therapy (TPT) is an area of interest in public health research, particularly in population and reproductive health research. Several studies have highlighted the influence of marital status on health-seeking behavior, particularly in relation to TB prevention strategies. Research indicates that individuals who are married or in stable relationships are more likely to take TPT because of the support, encouragement, and shared decision-making they receive from their partners. On the other hand, single individuals may encounter more obstacles in accessing and adhering to TPT due to a lack of family support, social isolation, or responsibilities that hinder consistent medical adherence. The literature below further expounds on the impact of marital status on TPT uptake.

Studies conducted among People Living with Human Immunodeficiency Virus (PLHIV) in resource-limited settings reported that married individuals have a higher rate of TPT uptake compared to those who are unmarried or single (Musaazi et al., 2023; Oonyu et al., 2022). The

studies further affirmed that other factors affecting the rate of TPT uptake include employment, education, residence, costs associated with reaching the health center, and pre-TPT counseling. Similarly, a cross-sectional KAP study conducted in Shebedino district, Ethiopia revealed that married individuals were 3.9 times more likely to be aware of TB prevention than the rest of the population [AOR = 3.9; 95% CI = 1.7–8.7, P = 0.002]. This increased awareness could potentially increase the likelihood of TPT uptake (Madebo et al., 2023).

Similarly, a study in Nigeria reveals that individuals who have been married are three times more likely to adopt good practices compared to those who have never been married [OR-3.36, CI 1.89-5.94, P = 0.00, AOR = 3.36, CI- 1.89 – 5.94, p = <0.01] (Sunday et al., 2023). However, a study conducted by (Lwevola et al., 2021) in eastern Uganda showed that the non-completion of TPT was mainly observed among specific groups. These groups include individuals aged 25–50 years, females, married individuals, those who completed only primary education, the unemployed, and those without any source of income. Such a finding asserts that the impact of marital status on TPT uptake can vary depending on cultural, socioeconomic, and geographic factors.

Age:

The relationship between age and the use of Tuberculosis Preventive Therapy (TPT) is complex. Younger individuals may not fully comprehend the risks of TB due to limited access to healthcare information or because they prioritize other health concerns. Conversely, older populations may be more inclined to use TPT as they possess a greater awareness of the risks, potentially stemming from prior experiences or a heightened vulnerability to TB infection. Nevertheless, older individuals may also encounter obstacles such as coexisting health conditions or difficulties with medication, which could affect their willingness or ability to use TPT.

Literature review of TPT uptake with a bias to age showed limited results specific to household contacts but rather focused majorly on TPT uptake among People Living with HIV (PLHIV). Findings from a study conducted by (Musaazi et al., 2023) in various public health facilities in Uganda indicated no statistical difference in the trends of TPT uptake across age groups and sex of the participants over the 4-year study period. However, TPT completion was lower among young PLHIV aged 24 years and below (i.e., predicted mean probabilities of TPT completion ranged from 60.7% to 95.8%) compared to adults aged 25 years and above (i.e., predicted mean probabilities of TPT completion ranged from 67.5% to 99.9%).

Nonetheless, research conducted in Lagos, Nigeria, identified age as a predictive factor for favorable TB prevention practices. The study found that individuals aged between 18 and 27 years were twice less likely to engage in good TB preventive practices (OR-0.44, 95% CI- 0.25-0.78, $p = 0.004$) compared to other age groups (Sunday et al., 2023).

Pregnancy:

Among women, TB predominantly affects those of reproductive age, and the onset of TB during pregnancy or the early postpartum period can lead to adverse maternal, pregnancy, and infant outcomes(Hamada et al., 2020). The uptake of TPT can be influenced by various factors, among which pregnancy emerges as pivotal due to its unique physiological and social implications.

Research suggests that pregnancy can significantly impact a woman's decision to initiate or complete TPT. For instance, a study in Uganda observed slightly higher TPT uptake rates among pregnant women compared to non-pregnant women, yet pregnant women exhibited lower completion rates (Musaazi et al., 2023). Such a trend may suggest that while pregnancy might prompt initiation, concerns or challenges arise during treatment. Concerns regarding potential

teratogenic effects of TPT medications have been cited as a reason for delays in initiation or completion of treatment among pregnant women (Hamada et al., 2020)

Moreover, lack of awareness or education about the benefits and minimal risks associated with TPT during pregnancy serves as a barrier to treatment initiation. A study conducted in India found that pregnant women often lacked knowledge about TB and TPT, which could influence their decision-making process regarding treatment (Mehta et al., 2021).

Pregnancy therefore appears to be a double-edged sword when it comes to TPT uptake. While it may lead to earlier initiation due to increased healthcare contact, concerns about medication safety and lack of awareness can hinder completion.

Family Size:

The family unit plays a multifaceted role in health, influencing social, cultural, and structural conditions that impact an individual's health status(Ho et al., 2022). While it's clear that family relationships affect health outcomes, their specific influence on individual health interventions like Tuberculosis Preventive Treatment (TPT) remains less explored(Makofane et al., 2023).Limited research directly explores family size and TPT uptake. However, some studies suggest potential connections:

As much as Family size might influence the availability of support within the household for adhering to TPT, Research suggests that family size can significantly affect the uptake of TPT among household contacts. Larger family sizes introduce logistical challenges and competing health priorities within the household, potentially hindering consistent adherence to TPT regimens. Decision-making processes within larger families may also delay or discourage individuals from

pursuing preventive therapies like TPT, as resources and responsibilities are distributed among family members(Lien et al., 2018).

Additionally, The economic burden of TB treatment and prevention, including the cost of transportation to healthcare facilities, can disproportionately affect larger families with limited financial resources. This economic strain may influence the decision to prioritize TPT among household contacts. Research by Loveday et al. (2018) in South Africa identified financial barriers as significant factors impacting TB treatment adherence, which could extend to preventive therapies like TPT(Loveday et al., 2018).

Previous TB History:

Individuals with a history of TB infection or treatment are generally assumed to have a greater understanding of the seriousness of the disease and the significance of preventive measures. Consequently, they are more inclined to accept TPT.

Good knowledge about active tuberculosis (TB) and its associated complications, including understanding the perceived seriousness and transmissibility of active TB, can help with treatment. This is evidenced in a study conducted by (Manoharan et al., 2023), where participants who understood the symptoms of active TB and its complications were more receptive to TPT. Participants reported having gained this knowledge from the experiences of their family and friends who had active TB.

Therefore, understanding these demographic nuances is crucial for generating recommendations to facilitate the design of targeted TPT interventions and healthcare policies.

2.2 Community-level factors that influence the uptake of Tuberculosis Preventive Therapy (TPT)

Individual factors and community-level dynamics influence the uptake of Tuberculosis Preventive Therapy (TPT). The literature has identified various community-level factors that significantly impact the acceptance and adoption of TPT.

Community engagement and awareness:

Communities that actively participate in health education programs, community-based awareness campaigns, and participatory interventions tend to have higher levels of awareness regarding tuberculosis prevention and treatment options. Increased awareness positively influences the perception of TPT and its benefits among community members.

It is noted that an informed patient is more likely to understand the potential risks associated with untreated latent TB infection (LTBI). Consequently, they may be more motivated to undergo LTBI treatment to mitigate these risks (Jones et al., 2015; Wong et al., 2023).

Findings from a study conducted by (Singh et al., 2017) in India support the importance of community engagement and awareness in influencing the uptake of TPT. The majority of respondents reported that the lack of a home visit by a healthcare provider and insufficient information on TPT were the main perceived barriers to starting TPT. Furthermore, respondents suggested that the healthcare system should provide more information about TPT.
In the same study, parents were aware of the need to start their children on TPT but did not initiate treatment, which can be attributed to a lack of awareness and a failure to perceive the risks, indicating a limited understanding of the potential harms of not initiating TPT.

Furthermore, a study involving household contacts of individuals with multidrug-resistant tuberculosis (MDR-TB) found that having appropriate knowledge about TB was associated with an increased willingness to take MDR-TPT (Suryavanshi et al., 2020).

Similarly, a study conducted in eastern Uganda also found that the likelihood of incomplete treatment for TPT decreased with an increase in the number of psychosocial and counseling sessions among people living with HIV (PLHIV) (OR, 0.58; 95% CI, 0.41–0.77) (Lwevola et al., 2021). This finding highlights the significance of community engagement and awareness. The findings from a study in Butebo, Uganda, also assert that pre-TPT counseling was identified as the most significant contributing factor to TPT uptake (Oonyu et al., 2022).

Engaging the community is crucial for addressing gaps in myths and misconceptions. Findings from (Manoharan et al., 2023) highlight a gap in implementation where participants were not adequately informed about the indication and interpretation of the Tuberculin Skin Test (TST) for diagnosing LTBI. This resulted in one participant mistakenly believing that the Tuberculin Skin Test is a treatment for LTBI. Such misconceptions can also impact the adoption of TPT.

Similarly, healthcare workers participating in a study conducted in Kenya highlighted the limited understanding among patients about the benefits and effects of TPT. This inadequacy in knowledge led to the emergence of rumors and misconceptions among patients, resulting in refusals to initiate treatment or discarding the medication even after receiving counseling. Providers expressed concern over the absence of consensus and support regarding patient education activities for TPT, indicating a need for unified and supported efforts to educate patients about this therapy (Wambiya et al., 2018). Findings from a study conducted in Malaysia also

indicate that TB contacts with good knowledge have a positive attitude toward screening and TPT (Loh et al., 2023).

However, contrasting findings from CSM-SR models suggest that knowledge about TPT and its side effects can also trigger fear, which then acts as a barrier to the uptake of TPT (Hagger and Orbell, 2022; Leventhal et al., 2016).

Similar to a study conducted in Kano, the majority of the respondents (309; 96.9%) believed that tuberculosis (TB) poses a threat to the health and well-being of HIV patients. Additionally, 307 (95.9%) were aware that TB is preventable. However, over half (172; 53.8%) of the respondents reported using TPT for TB prevention. These findings suggest that awareness alone may not lead to using TPT. This study identified age, education, awareness, and disclosure as independent predictors of TPT uptake (Jalo, 2020).

Stigma associated with Tuberculosis:

The stigmatization of TB can result in the fear of social isolation and discrimination, which may deter individuals from seeking preventive treatment or openly discussing TB-related concerns. This stigma can also hinder adherence to TB treatment and health-seeking behaviors, particularly among urban populations. It remains a significant barrier to TB control, highlighting the need for measures to reduce stigma and improve access to care.

Previous research has indicated that TB is commonly regarded as a stigmatizing illness due to its associations with socially marginalized groups, such as the impoverished, ethnic minorities, those belonging to lower social classes, incarcerated individuals, refugees, and people living with HIV/AIDS (“Tackling TB stigma – a necessary step toward humanising TB | The Union,” 2018); (Christodoulou, 2011).

The results of a study conducted in Uganda, which aimed to assess TB stigma and its associated factors, revealed that the stigma towards TB was high in this urban population and was mainly associated with knowing a person who had died of TB. The odds of having high TB stigma were four times higher among individuals who knew someone who died of TB compared to those who did not [AOR = 4.42, 95% CI (1.69 – 11.50)] (Ashaba et al., 2021).

Additionally, the perception that the symptoms of TB are similar to those of HIV/AIDS was significantly associated with higher TB stigma. Furthermore, participants who had previously been treated for TB were 79% less likely to have high TB stigma than non-retreatment cases [AOR = 0.21, 95% CI (0.09 – 0.52). However, participants who believed that TB and HIV symptoms appear similar were three times more likely to have high TB stigma compared to those who did not think so (AOR = 3.05, 95% CI (1.29 – 7.22)] (Ashaba et al., 2021). This relationship may be partly explained by the fact that, whereas TB deaths may be independent, a section of the public associates them with those of HIV/AIDS. It is worth noting that over half (52.0%) of the participants in this study had high TB stigma.

According to (Bond and Nyblade, 2006) and (Ahmed Suleiman et al., 2013), patients with tuberculosis (TB) frequently express concerns about discrimination, isolation, and rejection. Moreover, they frequently report fears of divorce, limited marriage prospects, inability to share meals and utensils with other household members, and being the subject of gossip in the community. These fears may lead to delays in seeking care for TB symptoms and negatively impact adherence to treatment. As a result, TB stigma is often considered a barrier to TB control, as noted by (Macfarlane and Newell, 2012).

The prevalence of stigma associated with TPT within a rural community in South Africa was found to be considerably high. Factors such as being unmarried ($P < 0.001$), having previously undergone tuberculosis screening ($P = 0.04$), harboring concerns about contracting tuberculosis ($P = 0.006$), and expressing interest in undergoing TPT ($P = 0.01$) were shown to be correlated with higher scores of perceived stigma. The perception of TPT-associated stigma was reported among 8%, 16%, and 66% of the subjects' family, friends, and other members of the community, respectively (Palacios et al., 2023).

The findings from South Africa and Malaysia highlight critical insights into the perceptions and preferences surrounding Tuberculosis Preventive Treatment (TPT) and TB-related stigma among adolescents and the general population, respectively. Adolescents in South Africa express concerns about potential stigmatization and show a preference for clinic-based TPT services over community-based options(Goroh et al., 2023). Meanwhile, individuals in Malaysia exhibit commendable knowledge and positive attitudes toward TB prevention and screening measures but face significantly high levels of TB-related stigma(Loh et al., 2023).

The high levels of TB-related stigma highlight the need for stigma reduction interventions. Educating the population about TB, its prevention, and treatment, and actively addressing misconceptions that contribute to stigma can encourage individuals to seek TPT and other TB services without fear of discrimination. This could lead to higher acceptance and uptake of TPT among those who have come into contact with TB.

Cultural perceptions of health and illness:

Cultural beliefs and practices surrounding health and illness can significantly impact individuals' decisions regarding preventive care, including Tuberculosis Preventive Treatment (TPT). In some cultures, the absence of symptoms meant the absence of disease; thus, there was no need to initiate

TPT as in the study carried out in Cambodia (An et al., 2023). In some cultures, traditional medicine and healers hold a prominent role in health care decisions. Individuals might prioritize traditional treatments for TB prevention over biomedical interventions like TPT due to cultural trust and familiarity. According to (Manoharan et al., 2023), various factors influence the decision to undergo tuberculosis preventive treatment (TPT). Therefore, it is crucial to understand patients' health beliefs and concerns before initiating TPT to promote treatment compliance. (Leventhal et al., 2016) further emphasises that the sociocultural context and past experiences influence the decision-making process regarding TPT, especially those of loved ones who have had active TB. (Hagger and Orbell, 2022) adds that shared experiences, combined with emotions such as fear of contracting TB, play a vital role in determining one's acceptance of TPT.

Trust in healthcare providers and the healthcare system:

The extent to which community members place their trust in healthcare providers and services and their perception of their competence, integrity, and accessibility significantly impact their willingness to accept and adhere to tuberculosis preventive therapy (TPT).

Trust and TPT uptake can be positively influenced by effective communication, patient-centered care, and respectful interactions with healthcare providers.

In a study conducted by (Manoharan et al., 2023), participants who reported having good knowledge about active tuberculosis (TB) and its associated complications expressed the belief that their current state of good health acted as a protective factor against active TB, thereby acting as a barrier to latent tuberculosis infection (LTBI) treatment. Consequently, due to limited knowledge about LTBI, participants trusted healthcare practitioners (HCPs) to decide their treatment options. The lack of knowledge led patients to rely on their HCPs to determine the best course of treatment.

Another study, conducted among Chinese immigrants in Canada by (Gao et al., 2015) explored the role of patient and HCP trust as a barrier or facilitator for TPT. Participants in both interview groups generally expressed trust in medical professionals in Canada to provide appropriate care. However, nearly all participants questioned whether their family doctors possessed sufficient knowledge about LTBI to accurately diagnose the disease. The study further observed that patients who trust their HCPs, considering their skills and ethical conduct, are more likely to engage in TPT. Conversely, the misconception that doctors use drugs as a means to test for LTBI was identified as a barrier to TPT.

2.3 Health system-related factors that impact the uptake of TPT

Screening for active tuberculosis (TB) among TB contacts is of paramount importance to prevent the development of drug resistance, which can arise as a result of monotherapy for TB disease. TB screening typically falls upon a trained Community Linkage Facilitator or a Healthcare Worker. Identifying current cough, fever, weight loss, or night sweats serves as the basis for screening and excluding active TB. Following the screening process, individuals who do not exhibit any of the symptoms above are presumed to be unlikely to have active TB and are therefore initiated on Tuberculosis Preventive Therapy (TPT), regardless of their level of immune suppression, antiretroviral therapy (ART) status, or pregnancy status. In our particular context, the Tuberculin Skin Test (TST) is not a prerequisite for commencing TPT in people living with HIV (PLHIV) (Lwevola et al., 2021).

However, according to (Musaazi et al., 2023), the successful implementation of a program necessitates establishing a sound organizational structure and comprehensive training of frontline health workers who can fully comprehend and effectively execute the intervention. However, these

requirements are contingent upon logistical support and adequate human resources, which may prove unsustainable in the long term, particularly in resource-constrained countries. Consequently, this potential lack of sustainability may undermine the immediate benefits achieved within a shorter timeframe.

Thus, it is evident that various health system-related factors critically influence the acceptance and utilization of Tuberculosis Preventive Therapy (TPT) within communities. Numerous key health system factors have been identified in previous research studies as significant determinants impacting the adoption and utilization of TPT.

Availability of TPT Resources:

The ease of access and the presence of resources connected to TPT, including medicines, diagnostic equipment, and necessary infrastructure, significantly influence the uptake of TPT. Having an ample supply of tuberculosis preventive medications at healthcare centers and accessible diagnostic tools for tuberculosis detection, along with reliable supply chains, are essential. These elements play a vital role in ensuring the delivery of TPT to eligible individuals.

Findings from a research study in South Africa highlight how the lack of resources for Tuberculosis Preventive Therapy (TPT) affected its adoption. In this study, healthcare experts consistently pointed out the isoniazid (INH) shortage. Despite these challenges, these professionals demonstrated resourcefulness by temporarily prescribing adult formulations for children receiving TPT (Baloyi et al., 2022).

Moreover, a systematic review examining the implementation and impact of Tuberculosis Preventive Therapy (TPT) in Ethiopia highlighted isoniazid stock shortages as a significant barrier affecting TPT coverage and successful implementation (Assefa et al., 2022). It is important to

acknowledge that challenges related to stock-outs frequently raise concerns about the sustainability of programs and could potentially lead to drug resistance.

Comparable conclusions emerged from a study conducted in India, where the prolonged unavailability of isoniazid (INH) posed a significant challenge. This issue further demotivated healthcare workers from conducting home visits and initiating tuberculosis (TB) screening among child contacts, as they lacked the resources to provide any treatment after the screening process (Singh et al., 2017).

Similarly, the same study highlighted deficiencies in screening facilities, notably the absence of chest radiography and Tuberculin Skin Test (TST) at various peripheral health institutions. This lack of screening resources was identified by healthcare workers as a significant programmatic challenge, hindering the effective screening process and initiation of Tuberculosis Preventive Therapy (TPT). Sometimes, healthcare providers admit to bypassing screening procedures and immediately starting TTPT, even without symptom inquiries (Singh et al., 2017). Such practices are deemed dangerous as they may heighten the risk of overlooking active TB in both child and adult contacts, warranting discouragement.

In instances of persistent shortages of Tuberculosis Preventive Therapy (TPT) supplies, healthcare providers may lose motivation and might become less proactive in screening processes and initiating TPT, as indicated in a study conducted by (Kalema et al., 2021). Healthcare providers expressed that despite the availability of isoniazid, their prior experiences with irregular supply chains discouraged the initiation of TPT. Additionally, the same study highlighted concerns among healthcare providers regarding the ongoing availability of TPT drugs, apprehensions about fostering drug resistance, and uncertainties about sustaining TPT initiation at an optimal level (Kalema et al., 2021).

Furthermore, a study conducted in Northern Ethiopia unveiled that while most providers acknowledged the potential effectiveness of Isoniazid Preventive Therapy (TPT), various factors hindered its implementation in the region. The primary concerns revolved around the inconsistent availability of isoniazid, which raised fear among nearly all healthcare providers regarding developing isoniazid resistance (Teklay et al., 2016).

A research study conducted in Kenya highlighted poor uptake of TB preventive therapy (TPT) among families with children under five years old who were exposed to index cases. This was attributed to various factors, notably insufficient knowledge about TPT among healthcare workers. Additionally, challenges in public facilities, such as understaffing, drug stockouts, and limited access to diagnostic facilities, further exacerbated the issue, contributing to the poor uptake of TPT in these settings.

Therefore, enhancing health systems by improving infrastructure, implementing efficient data management systems, and establishing standardized protocols for TB screening and preventive therapy plays a crucial role in boosting TPT uptake.

Integration with Other Community Outreach Programs:

Integrating TPT services with existing community health programs holds promise for increasing its acceptance and utilization. The linkage of TB prevention initiatives with maternal and child health services, HIV/AIDS programs, and other primary healthcare initiatives can significantly improve TPT awareness and accessibility, effectively reaching a broader population.

A study by (Salazar-Austin et al., 2022) highlighted key challenges in delivering TPT among household contacts, emphasizing poor integration as a critical issue. The research observed complexities in TPT services and policies, noting inadequate integration into relevant programming encompassing both TB and non-TB care. Additionally, the study revealed

indistinctness regarding responsibilities for implementing contact tracing and investigation among facility- or community-based healthcare workers. Systemic weaknesses in general healthcare services exacerbate these challenges in TPT services. This only implies that in contexts with multiple disease burdens and limited healthcare resources, healthcare providers have a prevailing attitude that TPT holds lower priority than treating patients deemed 'actually sick', posing a significant barrier to TPT implementation at the provider level.

Moreover, a study in Kenya evaluated the factors influencing the acceptability of TPT among healthcare workers and highlighted inadequate integration of TPT-related services as a significant obstacle to implementation. Providers emphasized the lack of seamless integration of TPT services within the clinic, which hindered the effective delivery of the program. They highlighted that many of the clinical examinations necessary before TPT initiation were conducted in different departments, incurring additional patient costs. The providers suggested that performing these examinations within the same facility and subsidizing the associated costs could encourage greater uptake among patients (Wambiya et al., 2018).

Healthcare Provider Availability, Training, and Awareness:

Ongoing education and training initiatives for healthcare providers regarding Tuberculosis (TB) prevention guidelines, the significance of Tuberculosis Preventive Therapy (TPT), and effective communication strategies are fundamental. Equipping healthcare providers with comprehensive knowledge enables them to identify and advise eligible individuals for TPT, addressing concerns and misconceptions that may hinder its uptake.

Research among health workers in South Africa revealed that the primary obstacle to properly implementing Tuberculosis Preventive Therapy (TPT) in healthcare settings was insufficient experience and knowledge about TPT. Conversely, individuals, including caregivers and health

workers, who received education regarding the advantages of TPT were more inclined to both administer and utilize it. (Hoddinott et al., 2020)

Likewise, in a study conducted in Kenya, poor TPT uptake among families was linked to inadequate knowledge about TPT among healthcare workers. Assessing healthcare workers' knowledge of TPT revealed that while the majority (97%) were aware of the drugs used to prevent TB in children under 5 years of age (INH or RH), only a small proportion (16.7%) knew the dosage and frequency of TB preventive drugs for this age group. Moreover, despite awareness of how to screen or evaluate eligibility for TPT among young children, only 41% of the health workers demonstrated knowledge of which children under 5 years were eligible for TPT (Wambiya et al., 2018).

More to that, a study conducted in Namibia to assess the Tuberculosis Preventive Therapy (TPT) uptake among People Living with HIV (PLHIV), various challenges and perceptions were identified that might contribute to the low uptake of the TPT cascade. Findings highlighted the absence of health worker training, irregular TB screening and timing of TPT, unclear responsibilities in prescribing and recording, and clinical misperceptions as potential factors impacting the program's effectiveness. Approximately 61.3% of healthcare workers (HCWs) reported receiving training on TB screening, while 38.7% indicated they had not been trained in providing preventive therapy. Additionally, when asked for suggestions regarding TB and HIV management at their facilities, over a quarter (28.5%) of HCWs emphasized the necessity for staff training, indicating a need to address this lack of training among healthcare workers on TB screening and initiation of preventive therapy, which could ultimately influence the poor uptake of TPT services for PLHIV(Roscoe et al., 2020).

Additionally, a study conducted in Addis Ababa city across multiple health facilities by (Mindachew et al., 2014) uncovered that most healthcare workers lacked the capacity to provide sufficient information and prescriptions to patients due to inadequate training. Similarly, a study conducted by (Kalema et al., 2021) in Uganda highlighted several reasons for low TPT uptake, including clinicians' limited ability to exclude TB based on symptoms alone, concerns about promoting drug resistance due to isoniazid monotherapy, and inconsistent supplies of TPT drugs.

Notably, the presence of well-trained healthcare providers who are well-versed in TB prevention, diagnosis, and treatment is critical. Having sufficient staff and comprehensive training programs that equip healthcare workers with the necessary skills to identify eligible individuals, provide counseling on TPT, and monitor treatment adherence is essential for successful implementation. However, in a study conducted in Uganda, inadequate staffing emerged as a significant issue, as most healthcare providers reported that a lack of TB-dedicated staff hindered TPT initiation (Kalema NS, et al., 2013).

Salazar-Austin et al., (2022) highlighted the lack of appropriate provider training as a key driver contributing to the gap in TPT implementation. The study noted that essential concepts, such as messaging regarding exposure risk, the risk of TB disease progression, the protective effects of TPT, factors affecting eligibility, resistance risk, side effects, and resources needed for TB disease ruling out, were often missing or inadequately addressed in training.

These findings relate to findings in a study involving healthcare workers in Kenya, aimed at understanding factors influencing the acceptability of TPT, which revealed concerns among providers regarding the TPT guidelines and Standard Operating Procedures (SOPs) due to their perceived lack of clarity. Providers specifically mentioned ambiguity in the guidelines related to

eligibility criteria, determining active and latent TB, and the duration of TPT (Wambiya et al., 2018). In the study, clinical and non-clinical providers expressed the need for empowerment in administering TPT, highlighting the need for additional information and training. Some providers mentioned their lack of specific or insufficient training on TPT administration, which hindered their capacity to deliver the intervention effectively.

Manoharan et al., (2023) emphasize that healthcare providers (HCPs) with comprehensive knowledge significantly facilitate TPT uptake. However, barriers to TPT uptake include misinterpretation of the tuberculin skin test (TST), insufficient explanation of TST, and concerns about potential medication side effects. The study highlighted a notable issue of TST result misinterpretation by some HCPs, leading to participants being reassured that a positive TST was normal and didn't require any treatment, resulting in TPT refusal.

Additionally, discrepancies in TST result interpretation by different categories of HCPs led some participants to doubt the diagnosis of LTBI, further causing refusal of TPT.

Furthermore, (Gao et al., 2015) also underscore that well-equipped HCPs with good knowledge of LTBI positively facilitate TPT, while those lacking such knowledge act as barriers to TPT uptake. The importance lies in adequately equipping HCPs with knowledge about LTBI to ensure they can provide accurate and comprehensive consultations, enabling patients to make well-informed decisions regarding TPT.

2.4 Conclusion and Research Gap

The literature review reveals that a web of individual, community, and health system factors influences the uptake of Tuberculosis Preventive Therapy (TPT) among household contacts. At the individual level, key determinants include age, education, employment, marital status, parity,

family size, and previous TB history. These factors shape access to information, health-seeking behavior, and the perceived relevance of preventive care. For instance, higher education levels are linked to increased health literacy and TPT initiation, while caregiving responsibilities and fear of side effects often hinder uptake.

At the community level, awareness about TB and TPT, cultural beliefs, stigma, and trust in healthcare systems significantly shape attitudes towards therapy. Stigmatizing views, primarily associating TB with HIV, discourage TPT uptake and adherence. On the other hand, community health education and engagement can positively influence perceptions and increase demand for preventive services.

Health system-related factors such as drug availability, healthcare worker competence, and service integration also critically impact TPT delivery. Studies have identified poor training, inconsistent guidelines, and medication stockouts as persistent barriers. Additionally, the quality of patient-provider interaction plays a pivotal role in influencing trust, adherence, and continuation of therapy.

Research Gap: Despite the increasing evidence on TPT uptake, significant gaps remain. First, existing literature often aggregates household contacts without disaggregating by gender or age, thereby masking the unique experiences of female contacts aged 18–49 years. This is a critical omission, as women in this age group often serve as primary caregivers, face distinct reproductive health concerns, and bear a disproportionate burden of stigma. Furthermore, much of the literature focuses on children under five or people living with HIV, leaving out adult female household contacts as a distinct sub-population.

Furthermore, studies reviewed rarely explored the intersectionality of individual, community, and health system-level factors in specific high-burden settings like Wakiso District, where urban and peri-urban dynamics coexist. The impact of informal employment, privacy concerns, and logistical barriers in this context is not well-documented.

This study addresses these gaps by providing context-specific evidence on factors influencing TPT uptake among women of reproductive age in Wakiso District, thereby informing more tailored and effective public health interventions.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1. Introduction

This chapter shall discuss the methods used to collect and analyze data to answer the study's research questions. It explains the research design, sampling techniques, data collection methods, and how the collected data was analyzed.

3.1: Study Design

This study employed a convergent parallel cross-sectional design involving collecting and analyzing quantitative and qualitative data. Using these two methods will allow the researcher to triangulate results from the qualitative and quantitative approaches, providing a comprehensive understanding of the research problem. The current health facility records regarding people eligible and those on TPT are insufficient to answer the research questions being investigated. The convergent parallel cross-sectional study design is diagrammatically presented in ***Figure 3*** below:

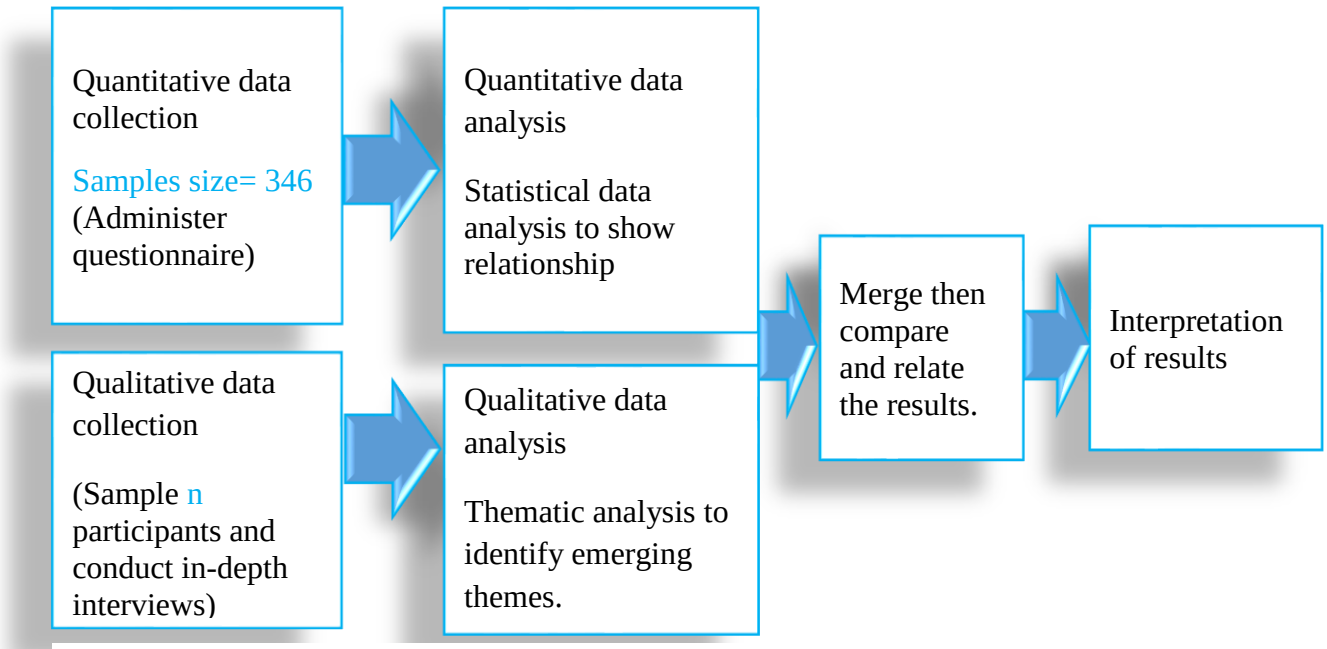

Figure 3: Study Design Model

3.1.1: Quantitative methods

The quantitative approach was adopted to evaluate the results using statistical analysis and look for greater meaning in the data. The data was then be used to test for relationships between the predictor variables, such as health system factors and community structures, on how they contributed to TPT uptake among females (18-49) TB contacts. A survey questionnaire was used to collect the quantitative data among females (18-49).

3.1.2 Qualitative Research Methods

The Qualitative approach offered an in-depth understanding of what drives females (18-49 Yrs) to take up TPT and what can be prioritized at the system and individual levels to increase uptake of TPT among females (18-49 years). This also captured details such as attitudes, feelings, behaviors, motivations, perceptions, and practices that are key in the uptake of TPT services. This provided an in-depth understanding of the hows and whys affecting TPT uptake (Carolyn et al., 2011; Creswell, 2015).

3.2: Study Area

The study was conducted in government-supported health facilities in Wakiso and their surrounding catchment area within Wakiso district. The selection of Wakiso for the study was based on the fact that it is one of the districts with a high burden of TB in Uganda at 6% of all estimated TB cases for the year 2023 (MoH–NTLP FY23). The district also has a mix of peri-urban and urban settings due to its proximity to the capital city and other settings bordering Lake Victoria and other environs of the central region.

3.3 Study Population

The study population comprised all female household contacts aged 18 to 49 years who had lived in the same residence as a bacteriologically confirmed tuberculosis (TB) patient in Wakiso District,

Uganda, within the last year preceding the study. These women were identified from households where a TB case had been diagnosed and notified through the district TB surveillance system. The population was selected based on their potential TB exposure and eligibility for tuberculosis preventive therapy (TPT), guided by national and WHO protocols. Wakiso District was chosen due to its high population density, urban-peri-urban dynamics, and significant TB burden, collectively making it a high-priority setting for evaluating TPT uptake among household contacts.

3.4 Study Unit

The study unit was the individual female household contact aged 18-49 years who shared a household with a bacteriologically confirmed TB patient and was eligible for TPT. Each study unit was selected based on predefined inclusion criteria, including age, gender, relationship to the index TB case, and co-residence during the infectious period. These individuals served as the primary source of data, with information obtained through structured, interviewer-administered questionnaires.

3.5 Eligibility Criteria

Identification of female (18-49) contacts: Health facilities with TB clinics were the points of contact to access study participants, and female (18-49) contacts eligible for TPT will be recorded for each index TB patient. Facility Contact Tracing registers were used to identify and list all the female (18-49) contacts found eligible for TPT in the clinic for the last 6 months. Systematic random sampling using the month's date to generate the starting point was used on the ordered lists of female (18-49) contacts whose Index TB patients are still on active TB treatment (within 6 months). If the date was the 10^{th}, the selection started on the 10^{th} female (18-49) contact in the register, or if the date is the 27^{th}, the selection began on the 27th female (18-49) contact in the Contact Tracing register. For every successful interview, an interval of every 5^{th} female (18-49) contacts was followed until the number of interviews planned for that facility was achieved. For

households with more than one female sampled and meeting the criteria, the additional females were included as respondents.

The selected female (18-49) contacts were reached and taken through the consent process before participating in the study.

3.5.1 Inclusion criteria

- Females of reproductive age (18-49 years) in Wakiso District.
- Female contacts of index bacteriologically confirmed TB patients of reproductive age (18 -49 years).
- Female (18-49) contacts who reside within the catchment area of the sampled facilities treating TB in Wakiso district.
- Female (18-49) contacts found eligible for TPT as recorded in the contact tracing registers of the selected health facility.

3.5.2 Exclusion criteria

- Female (18-49) contacts of index TB patients who had spent more than 6 months in TB care prior to the study period in Wakiso district.
- Female (18-49) contacts presumed to have TB from the screening criteria applied by the health workers and recorded in the contact tracing registers.
- Female (18-49) contacts with confirmed TB disease
- Female (18-49) contacts who do not consent to participate in the study

3.6 Sample Size Determination

Over the last four reported quarters (April 2023 – March 2024) by government-owned health facilities, Wakiso district has identified a total of 15,000 contacts eligible for TPT enrollment

(DHIS2). Based on the Uganda Bureau of Statistics (UBOS) population projection, 53% is estimated to be female, giving approximately 7,950 female TB household contacts from 37 accredited government health facilities to offer TPT and TB care services. The formula of Normal approximation to the hypergeometric was used to determine the sample size of study participants (Nicholson.W.L, 1956). The formula was considered because of its ability to compute samples for small populations. The sample was then be spread to different health facilities through probability proportionate to size sampling.

n = (Nz^2 pq) / ((E^2 (N−1)+z^2 pq))

Where:

N (population size)	7,950
z (confidence level)	1.96
E (+- error)	0.05
p	0.7
q	0.3

A value of z for a confidence level of 1.96 (95%) will result in 311 participants.

The prevalence (p) of 70% for TPT uptake was used as sourced from the MoH data in DHIS2 for eligible contacts for the last four quarters (April 2023 – March 2024).

Considering an estimated non-response of 10%, the final sample size calculated was = Effective sample size divided by (1-non response rate anticipated).

Sample = 311/(1-10%) = 345.6, approximating to 346 after adjusting for the non-responses.

Therefore, a sample of 346 participants was targeted for interview.

Sampling and Selection for Qualitative Interviews:

The study included in-depth interviews (IDIs) to gain deeper insights into the factors influencing Tuberculosis Preventive Therapy (TPT) uptake or refusal among eligible female household contacts. Participants were purposively selected based on the timing of their identification as

eligible contacts for TPT initiation. The IDIs were conducted at locations convenient to the participants, such as their homes, workplaces, or any other setting where they felt comfortable engaging in open discussion. For those with demanding schedules, phone interviews were considered as an alternative to face-to-face meetings.

A total of four in-depth interviews (IDIs) were conducted with female contacts aged 18–49 years. These interviews aimed to explore the personal, social, and systemic factors that enabled or hindered their decision to initiate TPT. The principle of data saturation guided the decision on whether to conduct additional interviews, ensuring that data collection continued only until no new insights emerged. It was observed that the four IDIs were sufficient to complement and triangulate findings from the quantitative method.

3.7 Sampling Technique

The number of eligible female household contacts aged 18–49 years for TPT services was first established using data from health facility contact tracing registers. A probability proportionate to size (PPS) sampling approach was applied to determine the number of female contacts to be interviewed from each sampled health facility's catchment area. Once the eligible numbers were confirmed per facility, systematic random sampling was used to select individual respondents from the contact tracing registers. A total of 346 women were selected to participate in the study across Wakiso District.

Wakiso District has 37 government-owned health facilities that provide TPT services to TB contacts. These include one Health Centre II, 27 Health Centre IIIs, eight Health Centre IVs, and one Regional Referral Hospital. However, only health facilities with community linkage facilitators actively supporting TB services were included in the study. The study established the

number of eligible female contacts from each facility based on contact records from the previous six months. These contacts were linked to index TB patients who remained active on treatment at the study initiation.

3.8 Study variables

The study had one dependent variable: the uptake of TPT among female household contacts of bacteriologically confirmed TB patients aged 18–49 years. Independent variables, including the socio-demographic characteristics of the eligible women, community-level factors, and health system-related influences, predicted this. Responses to the study variables were obtained through structured questionnaires administered during participant interviews. Additional qualitative insights were gathered through in-depth interviews with key informants.

Dependent Variable: Uptake of Tuberculosis Preventive Therapy (TPT), defined as whether an eligible female household contact initiated TPT within one month of being identified. Measurement: Binary variable (Yes = 1, No = 0), based on self-report in the structured questionnaire administered

Independent Variables were obtained from the study participants using the structured questionnaire unless otherwise mentioned per variable below:

Individual-Level Factors:

- Age: Measured in completed years and categorized into age
- Marital status: Categorical variable (Single, Married, Divorced/Separated, Widowed).
- Education level: Categorical (No formal education, Primary, Secondary, Tertiary).
- Occupation: Categorized as Unemployed, Informal employment, or Formal employment.
- Previous TB history: Binary (Yes/No), based on self-report.

- Family size: Number of household members living with the TB contact.
- Pregnancy: Binary (Yes/No), based on self-report
- Knowledge of TPT treatment duration and benefits: Assessed through a series of structured questions.

Community-Level Factors:

- Exposure to TB-related health education: Binary (Yes/No).
- Beliefs about TB preventability: Binary (Yes/No).
- Perceived stigma related to TB: Assessed through a series of structured questions.
- Cultural perceptions: Qualitative assessment triangulated through in-depth interviews and thematic analysis.
- Trust in healthcare providers: Assessed through a series of structured questions

Health System Factors:

- Distance to the health facility: Measured in kilometers and categorized as <5 km or >5 km.
- Experience of medicine stockouts: Binary (Yes/No).
- Long waiting time at the facility: Assessed as a Yes/No based on the participant's experience.
- Availability of TPT at the facility: Binary (Yes/No).
- Interaction with healthcare workers: Qualitative perception was captured through interviews and categorized as supportive/unsupportive based on response themes.
- Pre-TPT health education received: Binary (Yes/No).

3.9 Data collection methods and instruments

3.9.1 Data collection instruments

The study used a structured questionnaire administered in one-on-one sessions between trained research assistants and the study participants. Data from these interviews was entered directly into

the KoboCollect Toolbox platform using mobile devices. In-depth interviews were conducted using a structured guide to ensure the study objectives were aligned. All interviews were audio-recorded to minimize recall bias and facilitate accurate qualitative data synthesis and analysis.

3.9.2 Data collection methods

The study adopted a triangulation methodology for data collection, employing both quantitative and qualitative approaches to obtain complementary information from multiple sources. These included a structured survey questionnaire and in-depth interviews (IDIs). A pre-tested, interviewer-administered structured questionnaire was used to collect quantitative data from eligible female household contacts aged 18–49 years. The questionnaire was developed in English and translated into the local language, Luganda, to enhance understanding. It comprised close-ended questions organized into thematic sections aligned with the study objectives.

An in-depth interview guide was developed and administered to key informants involved in TB preventive services to gather qualitative insights. Data from the structured questionnaire were collected electronically using mobile tablets equipped with the KoboCollect Toolbox platform. This approach minimized data entry errors, allowed for real-time validation through built-in checks, and enhanced efficiency by eliminating the need for secondary data entry.

3.10 Data Analysis and Presentation

Quantitative: Quantitative data was downloaded into Excel from the Kobocollect toolbox and imported into STATA version 16 for statistical analysis. The data was labeled, coded, and examined for completeness to ensure readiness for analysis. Only complete datasets were included in the final analysis.

Univariate analysis was conducted to handle missing and outlier values in the dataset and assess the data's spread. Frequencies were generated to understand the distribution of categorical variables and the proportions within each category.

Bivariate analysis was used to examine the relationship between the dependent variable (uptake of TPT) and each independent variable, including socio-demographic characteristics, community-level factors, and health system factors. Cross-tabulations were performed, and the relationships between variables were assessed using univariable logistic regression analysis. Variables with a p-value of less than 0.05 at the bivariate level were considered statistically significant.

Multivariate analysis was then conducted, including all independent variables found to be statistically significant at the bivariate level. Multivariable logistic regression analysis was performed to determine the association between the dependent variable and predictors, using a 95% confidence interval and controlling for potential confounders.

Results from the analysis mentioned above are presented in table format in chapter four.

Qualitative: Recordings from the four in-depth interviews (IDIs) were translated, transcribed, and typed into Microsoft Word. The resulting transcripts were used to generate themes based on participants' responses in relation to the study objectives. This qualitative data was then linked to the quantitative findings to provide deeper insights into the relationships between the dependent and independent variables. During the reporting process, rich and relevant textual quotations from the transcripts were selected and incorporated directly into the final report, particularly in Chapter Four.

The respondents for the IDIs included female household contacts aged 18–49 years of bacteriologically confirmed TB patients residing in Wakiso District, Uganda. Participants were selected based on their eligibility and willingness to participate in the study.

Respondents were identified through a two-step process. First, healthcare providers managing TB patients referred eligible female household contacts. Second, these referrals were screened to ensure they met the study's inclusion criteria, specifically, being a female household contact of a bacteriologically confirmed TB patient and falling within the defined age range.

3.11 Quality control

Several measures were implemented to ensure the quality and reliability of the qualitative data collected in this study. Interviewers underwent comprehensive training on conducting in-depth interviews (IDIs), with a focus on building rapport, ensuring confidentiality, and using effective probing techniques. The interview guide was pilot-tested with a small sample of respondents to refine the questions for clarity and relevance. A standardized protocol was followed for conducting and recording interviews to maintain consistency across all sessions. Triangulation was employed by cross-referencing qualitative findings with quantitative data to validate and enhance the credibility of results. Additionally, multiple research team members reviewed transcripts and emergent themes to ensure accuracy and reduce interpretation bias. Further quality control measures were undertaken as follows:

Training of Research Assistants: Research assistants fluent in both English and the local language (Luganda), and with a background in health or social sciences, were recruited. They received detailed training on data collection procedures and the administration of the study tools to ensure consistency and competence.

Translation of Tools: Data collection instruments, including consent forms, were translated into Luganda to ensure participants understood and gave meaningful consent. This facilitated accurate data collection by allowing respondents to engage with the tools in a language they fully understood.

Validity: All tools were pre-tested in a similar setting outside the study area to assess flow and appropriateness. Feedback from this process informed revisions to improve content validity. Research experts also reviewed the tools to ensure they captured the intended variables. A similar piloting process was applied to qualitative tools to ensure question clarity and logical sequencing.

Reliability: Translation into the local language minimized the risk of interview misinterpretation. Uniform training sessions for all data collectors ensured a shared understanding of the questionnaire and interview guides. During participant selection, efforts were made to ensure homogeneity within the sample to maintain internal consistency across the survey and qualitative components.

3.12 Ethical consideration

Ethical considerations were upheld throughout the study to ensure compliance with the approved research protocol, applicable legal and regulatory requirements, and the general principles outlined in the International Ethical Guidelines for Biomedical Research Involving Human Subjects and the Declaration of Helsinki. The researcher obtained ethical approval for the study protocol, including all amendments, informed consent documents, and other relevant materials from the Mildmay Uganda Research Ethics Committee (REC. All correspondence with the REC was retained in the study's regulatory file, and copies of the approval letters were stored alongside other study documentation.

Recruitment and Consent: The research team obtained verbal informed consent from each participant or their legal representative before conducting any study-related activities. Participants were told that their involvement in the study was voluntary and that they had the right to withdraw at any point, even after consent. Written consent forms were also obtained for the record and are stored securely.

Procedures for Minimizing Risks: The researcher recognized that the primary risk involved was the potential for social stigma in case of a breach of confidentiality. To mitigate this, strict measures were taken to ensure confidentiality throughout the study, and only anonymized initials were used to identify participants.

Protection of Participants' Personal Data: No names or personally identifying information were recorded on any questionnaires, forms, or field reports. Transcripts from the qualitative interviews and completed data forms were securely stored in a locked cabinet accessible only to the study investigator. The tablets used for data collection were password-protected, and access was restricted to trained research assistants during the data collection period only.

3.13 Limitations of the Study

This study faced several limitations that may have influenced the scope and interpretation of the findings. Firstly, only 317 out of the targeted 346 eligible female participants were successfully reached. This shortfall was primarily due to resource constraints, as the study was self-funded, and logistical challenges limited the ability of research assistants to access all intended participants. As a result, the sample may not fully represent the broader population of eligible female contacts in Wakiso District.

Additionally, the sampling strategy focused on facility-linked respondents, potentially excluding women from remote or underserved communities who may not have access to or engagement with health services. This may have introduced selection bias, favoring participants already integrated into the healthcare system, and therefore limiting the generalizability of the findings to the wider population of female TB contacts.

The study also relied heavily on self-reported data, which may have been affected by social desirability and recall bias. Given the sensitivity of topics such as stigma and healthcare-seeking behaviors, participants may have under-reported negative experiences or over-reported compliance with TPT recommendations. While data collectors employed probing techniques and event-based recall strategies to improve accuracy, the possibility of misreporting cannot be entirely ruled out.

Lastly, the recall bias associated with participants recounting events up to six months prior may have affected the validity of responses, especially for variables related to personal decision-making and health system interactions. Efforts were made to minimize this limitation by using clear and context-specific prompts during interviews and ensuring that participants were not coerced or pressured during the data collection process.

3:14 Plan for Dissemination of Results

The findings of this study will be disseminated through multiple channels to ensure they inform tuberculosis (TB) programming and policy at various levels. At the local level, results will be shared with the participating health facilities in Wakiso District through feedback meetings involving health workers, facility TB focal persons, and community linkage facilitators in district performance review meetings. These engagements will help translate the research findings into

actionable strategies for improving the uptake of Tuberculosis Preventive Therapy (TPT) among female household contacts and strengthen community-level interventions.

At the national level, the study findings will be shared with the National TB and Leprosy Program (NTLP) under the Ministry of Health through the prevention technical working group meeting. This platform will allow the presentation of key evidence to TB sub-national structures, implementing partners, and policymakers to inform national guidelines and strengthen strategies for contact tracing and preventive therapy implementation.

In addition, the research team intends to prepare and submit a manuscript to a peer-reviewed journal focused on public health, infectious diseases, or implementation science. Publishing the findings will contribute to the global evidence base on gender-sensitive approaches to TB prevention and allow other high-burden settings to learn from Uganda's experience. The study may also be presented at relevant scientific conferences or stakeholder forums (TB Union, National TB Stakeholders Annual Conference, or the NTLP Research Forum monthly meetings) to further disseminate the results to researchers, donors, and TB control program stakeholders.

CHAPTER FOUR:

RESULTS

4.0 Introduction

This chapter presents the study's key findings based on both quantitative and qualitative data. The quantitative analysis is structured at three levels: univariate, bivariate, and multivariate. The univariate analysis describes the background characteristics of the study participants, while the bivariate analysis explores associations between the uptake of tuberculosis preventive therapy (TPT) and various independent variables. The multivariate analysis identifies the factors that independently predict TPT uptake among women of reproductive age using logistic regression modeling.

A total of 317 women aged 18–49 years, who were household contacts of bacteriologically confirmed TB patients, participated in the quantitative survey, representing 89.5% of the targeted sample of 354 respondents. For the qualitative component, four in-depth interviews were conducted with women of reproductive age who were contacts of TB patients and accessed TPT services in health facilities within Wakiso District. These qualitative insights helped contextualize and enrich the interpretation of the quantitative findings.

4.1 Socio-demographic Characteristics

This table shows the socio-demographic characteristics of the 317 women aged 18–49 years who were household contacts of bacteriologically confirmed TB patients in Wakiso District. These were interviewed using the quantitate methodology.

Table 1: Participant characteristics

Variables	**Total N=317**
Age (Years)	29.0 (23.0-38.0)
Education Level	
No Education	13 (4.1%)
Primary/Secondary	239 (75.4%)
Tertiary	65 (20.5%)
Type of Employment	
No Employment	35 (11.0%)
Informal Employment	242 (76.3%)
Formal Employment	40 (12.6%)
Marital Status	
Not Married	175 (55.2%)
Married	142 (44.8%)
Pregnancy	
No	293 (92.4%)
Yes	24 (7.6%)
Family size	
< 3 people	164 (51.7%)
≥ 3 people	153 (48.3%)
HIV Status awareness	
No	28 (8.8%)
Yes	289 (91.2%)
Women who started taking TPT after it was offered.	
No	76 (24.0%)
Yes	241 (76.0%)
Data are presented as median (IQR) for continuous measures, and n (%) for categorical measures.	

A total of 317 women aged 18–49 years, who were household contacts of bacteriologically confirmed TB patients in Wakiso District, participated in the study. The median age of respondents was 29 years, with an interquartile range of 23 to 38 years.

239 (75.4%) had a primary or secondary education, and 242 (76.3%) had informal employment. The majority, 293(92.4%), were not pregnant, 153 (48.3%) had a family size of more than 3 people, and 289 (91.2%) knew their HIV Status. The prevalence of TPT uptake was 76%.

For the qualitative approach, four women interviewed for this study were aged 25, 28 (x2), and 49 years, each offering unique perspectives shaped by their personal and social circumstances. All respondents had attained secondary education at varying levels of the ordinary level. They

represented a spectrum of marital statuses, including cohabiting, widowed, married, and single, and were at different stages of their TPT journey. One participant was early in her treatment, while another had completed the six-month course. This diversity in age, marital status, and TPT experience provides valuable insights into the factors influencing the uptake of TPT among female household contacts of bacteriologically confirmed TB patients in Wakiso District.

4.2 Individual factors that influence the uptake of TPT for female (18-49 years) household contacts of bacteriologically confirmed TB patients in Wakiso District

This table shows the socio-demographic factors that influence the uptake of TPT for female household contacts of bacteriologically confirmed TB patients. Univariable and Multivariable logistic regression were used to examine factors that influenced the uptake of TPT. Each independent variable was first subjected to univariable logistic regression to assess its association with the outcome. Variables with a p-value < 0.05 were then included in a multivariable logistic regression model. The last couple of paragraphs under this section highlight findings from the four in-depth interviews related to the current objective.

Table 2:Individual-Level Factors Associated with TPT Uptake

Variable	TPT uptake		Univariable *Crude OR*			Multivariable *Adjusted OR*		
	Yes n (%)	**No n (%)**	**Odds ratio**	**95% CI**	**P Value**	**Odds ratio**	**95% CI**	**P Value**
Occupation								
No Employment	21 (9)	14 (18)	*Ref*					
Informal Employment	189 (78)	53 (70)	2.38	1.13-4.99	**0.022**	2.4	1.12-5.16	**0.025**
Formal Employment	31 (13)	9 (12)	2.3	0.84-6.27	0.105	2.18	0.75-6.31	0.151
Education								
No Education	7 (3)	6 (8)	*Ref*					
Primary/Secondary	179 (74)	60 (79)	2.56	0.83-7.91	0.103	2.2	0.69-7.02	0.184
Tertiary	55 (23)	10 (13)	4.71	1.31-16.99	**0.018**	4.19	1.10-15.93	**0.036**
Know how long it takes to finish TPT Treatment?								
I do not Know	32 (13)	19 (25)	*Ref*					
3 or 6 months	209 (87)	57 (75)	2.18	1.15-4.12	**0.017**	1.46	0.62-3.45	0.385
Aware of TPT Benefits and side effects								
No	18 (7)	13 (17)	*Ref*					
Yes	223 (93)	63 (83)	2.56	1.19-5.50	**0.016**	1.86	0.71-4.89	0.21

Variable	TPT uptake		Univariable *Crude OR*			Multivariable *Adjusted OR*		
	Yes n (%)	**No n (%)**	**Odds ratio**	**95% CI**	**P Value**	**Odds ratio**	**95% CI**	**P Value**
Age								
≤ 30 Years	134 (56)	46 (61)	*Ref*					
> 30 Years	107 (44)	30 (39)	1.22	0.72-2.07	0.45			
Location								
Semi-urban location	153 (63)	49 (64)	*Ref*					
Urban location	40 (17)	17 (22)	0.75	0.39-1.45	0.395			
Village location	48 (20)	10 (13)	1.54	0.72-3.27	0.263			
Marital Status								
Not Married	130 (54)	45 (59)	*Ref*					
Married	111 (46)	31 (41)	1.24	0.73-2.09	0.421			
Pregnancy								
No	225 (93)	68 (89)	*Ref*					
Yes	16 (7)	8 (11)	0.6	0.25-1.47	0.268			
Family size								
< 3 people	124 (51)	40 (53)	*Ref*					
≥ 3 people	117 (49)	36 (47)	1.05	0.63-1.76	0.858			
Received health education on TB and its prevention?								
No	24 (10)	13 (17)	*Ref*					
Yes	217 (90)	63 (83)	1.87	0.90-3.88	0.094			
Aware of the dangers of TB?								
No	18 (7)	13 (17)	*Ref*					
Yes	223 (93)	63 (83)	1.62	0.77-3.40	0.203			

Legend

Bold *– statistically significant*

In the univariable logistic regression analysis, participants with informal employment had significantly higher odds of initiating TPT compared to those who were unemployed (OR = 2.38, p = 0.022). Similarly, individuals with tertiary education were more likely to initiate TPT than those with no formal education (OR = 4.71, p = 0.018). Participants who correctly identified the duration of TPT as either 3 or 6 months had higher odds of uptake compared to those who did not know (OR = 2.18, p = 0.017). Additionally, being aware of both the benefits and side effects of TPT was positively associated with TPT uptake (OR = 2.56, p = 0.016).

Multivariable analysis confirmed that participants with informal employment (AOR = 2.40, p = 0.025) and those with tertiary education (AOR = 4.19, p = 0.036) remained significantly more likely to have initiated TPT after adjusting for other variables.

The qualitative findings revealed that individual experiences and decisions regarding TPT uptake among female household contacts of TB patients in Wakiso District were shaped by several personal factors. A limited understanding of TPT and its purpose was common, with many participants learning about the medicine only at health facilities. One participant reflected, *"I didn't know much about the medicine that prevents TB"*. At the same time, another acknowledged gaps in comprehension of side effects, stating,

> *"I first learned about TPT at the health center in Kasangati. They explained some side effects, but I didn't understand them well"*.

Another respondent noted having experienced side effects shortly after starting TPT,

"It made me feel unwell, so I only managed three months instead of six. I experienced heavy bleeding, nausea, and weakness, so I stopped."

Despite initial apprehension or adverse effects, some women were motivated to take TPT due to personal experiences, such as witnessing a household member's TB treatment. Autonomy in decision-making also emerged as a theme, with participants either making independent choices or relying on family advice. For some, adherence was driven by a strong desire to protect themselves from TB, even in the face of discomfort or minimal community support.

4.3 Community factors that influence the uptake of TPT for female (18-49 years) household contacts of bacteriologically confirmed TB patients in Wakiso District

This table shows the community factors that influence the uptake of TPT for female household contacts of bacteriologically confirmed TB patients. A Univariable and Multivariable logistic regression was used to examine factors that influenced uptake of TPT. Each independent variable was first subjected to univariable logistic regression to assess its association with the outcome. Variables with a p-value < 0.05 were then included in a multivariable logistic regression model. The last couple of paragraphs under this section highlight findings from the four in-depth interviews related to the current objective.

Table 3: Community-Level Factors Associated with TPT Uptake

Variable	TPT uptake		Univariable *Crude OR*			Multivariable *Adjusted OR*		
	Yes n (%)	**No n (%)**	**Odds ratio**	**95% CI**	**P Value**	**Odds ratio**	**95% CI**	**P Value**
Health talk from Health Facilities								
No	75 (31)	37 (49)	*Ref*					
Yes	166 (69)	39 (51)	2.1	1.24-3.55	**0.006**	1.88	1.08-3.29	**0.026**
Is TB preventable?								
No	64 (27)	35 (46)	*Ref*					
Yes	177 (73)	41 (54)	2.36	1.38-4.03	**0.002**	2.37	1.36-4.10	**0.002**
Would you take TPT if confidentiality is maintained?								
No	20 (8)	20 (26)	*Ref*					
Yes	221 (92)	56 (74)	3.95	1.99-7.83	**0.000**	3.47	1.70-7.06	**0.001**
Do you trust that HCW would maintain your privacy if you start TPT								
No	28 (12)	10 (13)	*Ref*					
Yes	213 (88)	66 (87)	1.15	0.53-2.50	0.719			
Are there Cultural practices or taboos related to TB treatment?								
No	214 (89)	61 (80)	*Ref*					

Variable	TPT uptake		Univariable *Crude OR*			Multivariable *Adjusted OR*		
	Yes n (%)	**No n (%)**	**Odds ratio**	**95% CI**	**P Value**	**Odds ratio**	**95% CI**	**P Value**
Yes	27 (11)	15 (20)	0.51	0.26-1.03	0.059			
Are people with TB Treated fairly or discriminated?								
No	110 (46)	43 (57)	*Ref*					
Yes	131 (54)	33 (43)	1.55	0.92-2.61	0.097			
Would you like others to know that your family/friends have TB?								
No	131 (54)	47 (62)	*Ref*					
Yes	110 (46)	29 (38)	1.36	0.80-2.31	0.252			
Is TB Curable?								
No	41 (17)	19 (25)	*Ref*					
Yes	200 (83)	57 (75)	1.63	0.88-3.02	0.123			
Does this community have feedback on health services regarding TPT intervention								
No	146 (61)	44 (58)	*Ref*					
Yes	95 (39)	32 (42)	0.89	0.53-1.51	0.677			
Satisfied with current communication & Information given about TPT?								
No	123 (51)	45 (59)	*Ref*					
Yes	118 (49)	31 (41)	1.39	0.83-2.35	0.214			

Legend

Bold *– statistically significant*

Women who had received health talks at health facilities were significantly more likely to take up TPT (OR=2.10, p=0.006). Participants who believed that TB was preventable had higher odds of initiating TPT compared to those who did not (OR = 2.36, p = 0.002). Furthermore, participants who stated they would take TPT if confidentiality was guaranteed had nearly four times higher odds of initiating TPT (OR = 3.95, p<0.001).

In multivariable logistic regression, health education (AOR = 1.88, p = 0.026), belief in TB preventability (AOR = 2.37, p = 0.002), and confidence in maintaining confidentiality (AOR = 3.47, p = 0.001) were all independently associated with increased odds of TPT uptake.

The qualitative findings revealed that community factors significantly shaped the uptake of TPT among female household contacts of TB patients in Wakiso District. A recurring theme was the absence of structured community support**,** with participants noting limited engagement from community leaders, groups, or organizations. As one participant shared,

"No one helped except my children" (NS02),

while another echoed,

"I haven't seen any support in my community".

The lack of external encouragement often left participants relying solely on their immediate family or personal resolve.

The interviews also highlighted the deep-rooted stigma and discrimination surrounding TB and TPT, rooted in long-standing associations between TB and HIV. Participants expressed fears of

being mislabeled as HIV-positive, which discouraged open discussions and acceptance of TPT. This sentiment was captured by a participant who stated,

> *"There's a belief that if someone has TB, they probably also have HIV"*,

and another who mentioned,

> *"[….]Possibly being accused of having HIV when it was actually TB [….]"*.

These fears contributed to secrecy and reluctance in seeking or continuing treatment, which may undermine adherence and overall health outcomes.

While some participants observed a shift in traditional beliefs, particularly in communities where Christian values promoted greater acceptance and reduced stigma, others acknowledged that residual cultural misconceptions still lingered. For instance, one participant noted,

> *"There were beliefs in the past, but nowadays they are no longer present. Our community is mostly Christian and does not hold onto those beliefs"*.

However, the lingering fear of transmission and stigmatization continues to shape decisions about TPT uptake.

Finally, participants emphasized a lack of outreach and community education about TPT and TB prevention. Many noted that limited information about the purpose, benefits, and side effects of

TPT contributed to hesitancy and discontinuation. One participant expressed a desire for greater awareness, stating,

> *"[….] Increase awareness about this disease and the preventive medicine because there are no outreaches in our area [….]"*.

The absence of proactive education and engagement efforts left a gap in community-level understanding and support for TPT.

In summary, community-level factors, including insufficient support structures, persistent stigma, and limited outreach efforts, collectively shaped the experiences and decisions of women regarding TPT uptake. These findings underscore the need for targeted community education and stigma reduction initiatives to enhance TPT uptake and support in Wakiso District.

4.4 Health service delivery factors that influence the uptake of TPT for female (18-49 years) household contacts of bacteriologically confirmed TB patients in Wakiso District

This table shows the health service delivery factors that influence the uptake of TPT for female household contacts of bacteriologically confirmed TB patients. A Univariable and Multivariable logistic regression was used to examine factors that influenced uptake of TPT. Each independent variable was first subjected to univariable logistic regression to assess its association with the outcome. Variables with a p-value < 0.05 were then included in a multivariable logistic regression model.

Table 4: Health Service Delivery Factors Associated with TPT Uptake

Variable	TPT Uptake		Univariable *Crude OR*			Multivariable *Adjusted OR*		
	Yes n (%)	No n (%)	Odds ratio	95% CI	P Value	Odds ratio	95% CI	P Value
Have access to a health facility that provides TPT services.								
No	101 (42)	22 (29)	*Ref*					
Yes	140 (58)	54 (71)	0.56	0.32-0.99	**0.045**	0.55	0.30-1.02	0.059
Experienced Long wait time?								
No	118 (49)	52 (68)	*Ref*					
Yes	123 (51)	24 (32)	2.26	1.31-3.90	**0.003**	1.9	1.08-3.36	**0.026**
Experienced TPT medicine stockouts?								
No	178 (74)	66 (87)	*Ref*					
Yes	63 (26)	10 (13)	2.34	1.13-4.82	**0.022**	2.53	1.14-5.58	**0.022**
Nearest health centre distance								
Less than 5km	143 (59)	43 (57)	*Ref*					
More than 5km	98 (41)	33 (43)	0.89	0.53-1.50	0.67			
Availability of TPT Service								
No	95 (39)	33 (43)	*Ref*					
Yes	146 (61)	43 (57)	1.18	0.70-1.99	0.535			
Availability of health care workers								
No	29 (12)	6 (8)	*Ref*					

Variable	TPT Uptake		Univariable *Crude OR*			Multivariable *Adjusted OR*		
	Yes n (%)	**No n (%)**	**Odds ratio**	**95% CI**	**P Value**	**Odds ratio**	**95% CI**	**P Value**
Yes	212 (88)	70 (92)	0.63	0.25-1.57	0.319			
TPT services provided by community out reaches								
No	151 (63)	51 (67)	*Ref*					
Yes	90 (37)	25 (33)	1.22	0.70-2.10	0.482			
Discouraged from taking TPT due to staff handling								
No	161 (67)	48 (63)	*Ref*					
Yes	80 (33)	28 (37)	0.85	0.50-1.46	0.559			
Do HCW provide understandable information about TPT and its benefits?								
No	34 (14)	5 (7)	*Ref*					
Yes	207 (86)	71 (93)	0.43	0.16-1.14	0.089			
Incurred any costs for consultations, tests, or medication when accessing TPT?								
No	216 (90)	70 (92)	*Ref*					
Yes	25 (10)	6 (8)	1.35	0.53-3.43	0.527			

Legend

Bold *– statistically significant*

Women who had access to health facilities that provided TPT services were less likely (OR: 0.56, P-value: 0.045) to take TPT compared to women who did not have access to health facilities that provided TPT services. Participants who experienced a long wait time were more likely to take TPT compared to participants who did not experience a long wait time (OR: 2.26, P-Value: 0.003). Women who experienced TPT medicine stockouts had 2.34 times higher odds of taking TPT compared to women who did not experience TPT medicine stockouts (OR: 2.34, P-value: 0.022). Participants who experienced long waiting times were more likely to take TPT compared to participants who said they did not experience long waiting times (OR: 1.90, P-Value: 0.026). Women who experienced TPT medicine stockouts had 2.53 times higher odds of taking TPT compared to women who did not experience TPT medicine stockouts (OR: 2.53, P-value: 0.022).

The qualitative findings revealed that health service delivery factors played a pivotal role in shaping the uptake of TPT among female household contacts of TB patients in Wakiso District. Participants' experiences with the health system were diverse, highlighting both strengths and critical gaps in service provision.

Participants commended the positive interactions with health workers, particularly their communication, empathy, and clear explanations of TPT. One participant shared,

> *"The doctor speaks well, gives you time, and explains your concerns. I haven't faced any challenges"*,

emphasizing the trust and confidence built through such interactions. Another participant added,

"The health worker, Nakyanzi, together with Allen, informed me about the TB preventive medicine. They explained that it helps prevent TB and is effective",

indicating that good communication positively influenced their decision to take TPT.

Despite these strengths, logistical challenges such as medicine shortages, particularly of Vitamin B6 (used to mitigate side effects of TPT), were common. This resulted in treatment interruptions and frustration. One participant recounted,

"Sometimes the B6 medicine runs out and I can't find it in the pharmacy",

Illustrating the impact of supply chain gaps on continuity of care.

Participants also highlighted system-level gaps in follow-up and monitoring. Some reported experiences where a lack of proper tracking mechanisms led to missed medication. As one participant described,

"The patient's book was misplaced, so the patient didn't get medicine. When they returned with the book, they received the medicine".

This suggests that despite the availability of TPT services, systemic lapses in record-keeping and communication may hinder adherence and completion.

An innovative and appreciated practice mentioned was the home delivery of TPT, which reduced barriers to access and was well-received by participants. For instance, one respondent highlighted how outreach services improved convenience and uptake.

"The service involves delivering the medicine to our home by motorcycle, and the patient has to agree to have it delivered"

Lastly, participants emphasized the need for enhanced education and consistent follow-up, as well as early TB detection to prevent spread and improve outcomes. One participant stressed,

"There should be more education about this medicine in health centers and villages",

while another reflected,

"If my patient had been diagnosed early, we wouldn't have been infected. Therefore, I suggest that patients be tested early".

These suggestions underscore the importance of proactive, patient-centered approaches to service delivery.

In summary, while many women valued the care and support provided by health workers, systemic challenges, such as medicine shortages, inconsistent follow-up, and limited patient education, posed significant barriers to the uptake and adherence to TPT. Addressing these issues through improved logistics, strengthened communication, and proactive patient support mechanisms will be essential for enhancing TPT services in Wakiso District.

4.5 Summary of Results

The study explored the factors influencing the uptake of tuberculosis preventive therapy (TPT) among women of reproductive age who were household contacts of bacteriologically confirmed TB patients in Wakiso District. The findings indicate that TPT uptake was generally high, with

three-quarters of the participants reporting initiation of therapy after it was offered. A combination of individual, community, and health system factors contributed to the likelihood of TPT uptake.

At the individual level, the analysis revealed that women's education and employment status substantially influenced their decisions to initiate TPT. Participants with tertiary education were notably more likely to initiate therapy, highlighting education as a significant determinant of health literacy and informed health-related decision-making. Informal employment was also associated with increased TPT uptake, possibly suggesting greater autonomy in accessing health services. Conversely, fears and actual experiences of medication side effects emerged as prominent barriers, as noted in the qualitative feedback, underscoring the need for improved counseling and support in managing side effects.

Community-level factors significantly shaped TPT uptake. Exposure to health education sessions at health facilities and belief in the preventability of TB were strongly associated with higher TPT initiation rates. Concerns around confidentiality were critical, with participants much more likely to initiate therapy if assured their privacy would be maintained. Stigma and discrimination within communities, particularly linked to misconceptions associating TB with HIV/AIDS, presented barriers to initiation and adherence, highlighting the continuing need for targeted stigma-reduction interventions and public health education campaigns.

Regarding health system factors, logistical challenges, such as long waiting times and medication stockouts, unexpectedly showed positive associations with TPT uptake. This likely indicates high motivation or proactive health-seeking behaviors among women who overcame these obstacles. However, qualitative insights provided essential context: respondents emphasized that supportive, empathetic interactions with healthcare providers were crucial for adherence, whereas negative

interactions could discourage continued therapy. Furthermore, logistical challenges such as drug shortages and access difficulties were noted as important barriers, emphasizing the need for improved health system efficiency and patient-centered care.

Collectively, these findings advocate for comprehensive interventions at multiple levels, focusing on enhancing health literacy, strengthening community engagement, ensuring confidentiality, reducing stigma, and addressing challenges in health service delivery to promote TPT uptake and adherence effectively in Wakiso District.

CHAPTER FIVE

DISCUSSION, CONCLUSION, AND RECOMMENDATIONS

5.0 Introduction

This chapter presents an in-depth discussion and interpretation of the study's findings, aligning with its objectives, conceptual framework, and existing scholarly literature. This study explored the factors influencing the uptake of Tuberculosis Preventive Therapy (TPT) among female household contacts of bacteriologically confirmed TB patients in Wakiso District, Uganda. The discussion encompasses the significant individual, community, and health system-level factors that affect the uptake and adherence to tuberculosis preventive therapy (TPT) among women of reproductive age in Wakiso District. The discussion further interprets key findings in relation to the study objectives and compares them with existing literature. Additionally, it outlines conclusions derived from these discussions, provides actionable recommendations, and addresses implications for future research and policy interventions.

5.1 Discussion of Results

5.1.1 Individual Factors Influencing TPT Uptake

The study found that higher education levels were significantly associated with TPT uptake. This finding aligns with previous studies that suggest higher education enhances health literacy, enabling individuals to understand the benefits and necessity of TPT (Jalo, 2020; Suryavanshi et al., 2020). Higher education is often linked to increased access to health information, better decision-making regarding health interventions, and improved communication with healthcare providers. Individuals with higher education levels tend to have a greater understanding of disease prevention and treatment options, making them more likely to adopt preventive health measures,

including TPT. Health literacy has been shown to correlate with adherence to long-term medication regimens (Nutbeam, 2000). Secondly, educated individuals often have better access to reliable health information, enabling them to discern misinformation, such as myths surrounding TPT side effects or stigma.

Additionally, education strengthens an individual's confidence and efficacy in interactions with healthcare providers, fostering improved patient-provider communication. A systematic review by (Berkman et al., 2011) found that higher education levels were associated with improved patient-provider communication, which, in turn, increased adherence to prescribed treatments. Such a finding implies the need for targeted health education campaigns focusing on women with lower educational attainment to improve TPT uptake.

Similarly, employment status played a role, making informal workers more likely to take TPT than formally employed individuals. This may be attributed to the flexibility in work schedules that allows informal workers to seek healthcare without the constraints of rigid employment structures. In contrast, individuals in formal employment may face barriers, such as difficulty taking time off work, which can lead to lower engagement with preventive health services (Smit et al., 2023; Yao et al., 2015). Moreover, individuals in formal employment often have access to private healthcare, where preventive services, such as TPT, may not be a priority compared to curative care. Conversely, informal workers may typically rely on public healthcare systems, where TPT is actively promoted as part of community health programs.

However, some studies have shown that employer-provided health insurance and workplace health policies can play a crucial role in increasing the uptake of preventive services by reducing financial barriers, improving access to routine screenings, and encouraging employee participation in health programs. Companies that offer comprehensive health benefits and wellness initiatives create a

supportive environment that enables workers to seek preventive care without concerns about cost or time constraints. Additionally, workplace policies such as paid sick leave and flexible work schedules can further facilitate access to healthcare services, ensuring that employees prioritize their health without compromising their job security or income (. and Mulla, 2023; Mendoza, 2023; Mulligan, n.d.; Sawchuk et al., 2020; Smit et al., 2023). Therefore, workplace interventions such as flexible medical leave, onsite TB screening, and employer-supported health education programs could enhance TPT uptake among formally employed individuals.

Marital status was another key determinant. The study found that married or cohabiting women had higher TPT uptake (44.8%) than single women (44.2%) and widows (6%). This finding aligns with research indicating that marital support can encourage adherence to preventive treatment (Madebo et al., 2023). Marriage may provide a supportive environment for seeking healthcare, including financial and emotional support from spouses. Single and widowed women may face significant challenges in accessing healthcare, including financial constraints, limited social support, and stigma. The lack of financial stability and social networks can negatively impact their health-seeking behaviour, making it difficult to prioritize preventive healthcare services like TPT. Studies have further emphasised that widowed or unmarried women are particularly vulnerable to economic hardships, further limiting their ability to access and adhere to treatment.

Additionally, social stigma associated with seeking treatment without spousal support can discourage some single women from accessing TPT services. These findings emphasise the need for strong community support structures to enhance access to TPT services for single and widowed women, ensuring they receive the necessary resources and encouragement to complete preventive therapy (Dube, 2023; Odhiambo et al., 2025; Tirivayi, 2016).

Pregnancy status was not significantly associated with TPT uptake, though only 7.6% of respondents were pregnant at the time of the study. Previous literature has shown that pregnant women are less likely to complete TPT due to concerns about medication safety and limited knowledge (Hamada et al., 2020). Concerns about the teratogenic effects of TB medication, cultural beliefs regarding medication use during pregnancy, and competing maternal health priorities may contribute to lower adherence. Furthermore, pregnant women may prioritize antenatal care over TB prevention, particularly if TPT is not integrated into routine maternal health services. Healthcare providers may also hesitate to prescribe TPT during pregnancy due to perceived risks, further reducing uptake. A study by Gupta et al. (2021) highlighted that integrating TPT into antenatal care visits significantly improved adherence rates. Such a finding may further emphasise the need for antenatal care programs to integrate TPT education and support, ensuring pregnant women receive clear, evidence-based information to alleviate fears and encourage treatment completion. Additionally, training healthcare providers to confidently counsel pregnant women on TPT safety and benefits can help improve uptake rates.

5.1.2 Community-Level Factors Influencing TPT Uptake

Awareness and knowledge of Tuberculosis Preventive Therapy (TPT)

Awareness and knowledge of tuberculosis preventive therapy (TPT) are essential for increasing its uptake within communities. According to the World Health Organization (WHO), community sensitization is an effective approach for improving public health outcomes, particularly by enhancing access to and utilization of preventive health services, such as TPT (WHO, 2021). Effective sensitization efforts help community members appreciate the benefits of preventive care, dispel prevalent misconceptions, and motivate individuals to seek healthcare services proactively. For TPT programs to achieve substantial impact, heightened public awareness is crucial.

Communities informed about the risks associated with tuberculosis (TB) and the preventive advantages of TPT are more likely to embrace preventive healthcare practices (Organizat, 2021). However, the current study found community sensitization efforts inadequate, with nearly half of respondents (48.6%) reporting never having received any sensitization related to TPT. This indicates a considerable gap in public health communication efforts. Addressing this gap could significantly enhance TPT uptake by ensuring that more individuals are informed, motivated, and encouraged to seek preventive care.

Findings from the study revealed that the most common sources of TPT-related information included health talks delivered at health facilities (41.9%) and engagement by community health workers (31.9%). Media outlets, such as television and radio, accounted for only 22.1%. While traditional communication channels like health facility-based talks remain critical, there is clear potential to extend reach through broader and more innovative communication strategies. Specifically, incorporating outreach initiatives via social media, community radio programming, and interactive community dialogues could significantly broaden community engagement and improve information dissemination (Awoonor-Williams et al., 2013; WHO, 2021). Qualitative data from interviews further supported the quantitative findings, underscoring the importance of effective healthcare provider-patient communication in fostering uptake of TPT.

Community sensitization is instrumental in improving health literacy, a critical determinant in adopting preventive healthcare interventions such as TPT. In contexts where access to accurate health information is limited, community members are typically less inclined to engage in preventive programs, resulting in lower participation rates and poorer health outcomes (Bauer et al., 2014). A robust body of research consistently demonstrates that low health literacy negatively impacts engagement in preventive health behaviors such as vaccinations, screenings, and

treatments, including TPT (Bauer et al., 2014; Berkman et al., 2011). Therefore, strengthening health literacy through effective, targeted community sensitization is essential to encourage broader participation in preventive health initiatives, ultimately improving overall community health outcomes.

Stigma and Its Influence on TPT Uptake

Stigma significantly impedes the uptake and adherence to Tuberculosis Preventive Therapy (TPT) by affecting individuals' willingness to engage with preventive healthcare services. Social stigma related to tuberculosis (TB) typically originates from misconceptions, fears of discrimination, and deep-rooted cultural beliefs, making individuals reluctant to participate in TPT programs. When individuals perceive stigma in their communities, they often avoid preventive treatment due to fear of being labeled infectious or experiencing social exclusion at work or within their families (Courtwright and Turner, 2010).

In this study, stigma emerged as a notable barrier to TPT uptake. Many participants expressed concerns that taking TPT would cause others to mistakenly assume they had active TB, despite the preventive nature of the therapy. A substantial proportion (56.2%) of respondents reported reluctance to disclose TB within their households due to fear of associated stigma. Although a high percentage (88%) trusted healthcare providers to maintain confidentiality, nearly as many (87.4%) indicated they would be more likely to accept TPT if guaranteed complete privacy. These findings align with previous research, which suggests that communities with low health literacy often have difficulty distinguishing TB infection from active disease, exacerbating stigma-driven avoidance behaviors and undermining TPT coverage efforts (Ashaba et al., 2021; Kimuli et al., 2025).

Qualitative insights also highlighted anxiety among individuals concerning social judgment from peers or community members, further discouraging TPT initiation or continuation. Stigma extends beyond social consequences to psychological effects, such as shame and fear, reducing willingness to engage with healthcare services (Anindhita et al., 2024). Additionally, institutional stigma—where healthcare workers inadvertently reinforce negative perceptions—can further deter TPT uptake (Kılıç et al., 2025).

The study underscores the essential role of healthcare workers in mitigating stigma through clear education and counseling, emphasizing that broader community-based sensitization and psychosocial support are crucial to normalizing TPT and dispelling misconceptions.

5.1.3 Health System Factors Influencing TPT Uptake

Health system factors significantly influence the uptake of Tuberculosis Preventive Therapy (TPT). Although most study participants (58.7%) lived within 5 km of a health facility, many (38.8%) still experienced difficulties accessing TPT services. This underscores that geographic proximity alone does not guarantee service accessibility. Long distances and inadequate road infrastructure increase both travel time and financial costs, deterring individuals from pursuing preventive healthcare. Research consistently shows that individuals living in remote or rural areas face greater challenges in adhering to preventive treatments due to transportation issues and prolonged travel times to health centers (Lankowski et al., 2014; Mattson, 2011; Mseke et al., 2024). Contrary to expectations, from this study, women with access to facilities providing TPT were less likely to have initiated treatment. Conversely, those who experienced long waiting times had higher odds of initiating TPT.

In Uganda, where rural settings predominate, poor transportation networks and substantial distances to healthcare facilities disproportionately burden women, who typically balance health-seeking behavior with household duties and childcare. The indirect costs related to accessing healthcare, including lost income, transportation expenses, and time away from familial responsibilities, particularly affect women, who often shoulder primary caregiving and household management responsibilities (Negash et al., 2024). These barriers suggest a strong need for decentralizing TPT services, such as integrating preventive care within local community health programs and leveraging mobile clinics to enhance accessibility for underserved populations.

Globally, limited access to healthcare remains a persistent barrier to effective TB prevention, notably reducing initiation and adherence rates of preventive therapy (Mseke et al., 2024). Decentralized approaches—including community-based delivery systems—have proven effective in overcoming these geographical constraints. For example, employing trained community health workers to distribute TPT directly within households or utilizing mobile clinics can significantly improve service uptake and adherence (Ahmed et al., 2022; Salazar-Austin et al., 2024; Shenoi et al., 2022). Such community-oriented strategies offer practical solutions for mitigating health service accessibility barriers and enhancing overall TPT coverage.

The availability of Tuberculosis Preventive Therapy (TPT) at health facilities significantly influences its uptake. In this study, 40.4% of participants reported inconsistent availability of TPT at their nearest health facility, and nearly one-quarter (23%) experienced stockouts. Limited availability of essential medicines typically delays treatment initiation, potentially discouraging individuals from seeking care. Interestingly, however, experiencing medicine stockouts was associated with increased odds of TPT uptake among women in this study. Nevertheless, existing evidence emphasizes that inconsistent supply chains and frequent medicine stockouts generally

undermine adherence to preventive treatments and adversely affect outcomes (Mhazo et al., 2024; Olaniran et al., 2022). Ensuring a reliable TPT supply through robust procurement, efficient distribution networks, and effective inventory management is crucial for improving uptake. Integrating TPT supply management into routine TB control programs and strengthening forecasting and inventory training for healthcare workers can mitigate stockouts, enhance trust, and encourage continued community engagement (Bam (née Oosthuizen) et al., 2017).

The quality of interactions between healthcare providers and patients significantly influences the uptake and adherence of Tuberculosis Preventive Therapy (TPT) (Sazali et al., 2023). In this study, although most respondents (87.7%) reported receiving clear TPT-related information, about one-third (34.1%) described negative experiences with healthcare workers, discouraging them from initiating or continuing TPT. This aligns with previous studies identifying poor communication, perceived rudeness, and a lack of patient-centered care as significant barriers to treatment adherence (Kwame and Petrucka, 2021; Naughton, 2018). Effective communication and supportive counseling by healthcare workers are essential for fostering trust, patient engagement, and adherence to preventive treatments (Ayakaka et al., 2022; Musaazi et al., 2023).

Additionally, prolonged waiting times and rushed consultations can leave patients feeling undervalued and reduce their willingness to engage with health services (Alrasheedi et al., 2019). Conversely, healthcare providers who adopt supportive, empathetic, and patient-centered approaches significantly enhance patient participation and adherence to TPT. Continuous training for providers on effective communication strategies, stigma reduction, and culturally competent care is essential (Nieuwlaat et al., 2014). Strengthening healthcare worker training in counseling, personalized patient support, and adherence monitoring can substantially improve TPT completion rates and overall health outcomes.

5.2 Conclusion

This study explored the multifaceted factors influencing the uptake of Tuberculosis Preventive Therapy (TPT) among women of reproductive age who were household contacts of bacteriologically confirmed TB patients in Wakiso District. Drawing from both quantitative and qualitative analyses, several critical themes emerged across individual, community, and health system dimensions.

At the individual level, higher education and informal employment significantly contributed to greater TPT uptake. This indicates the crucial role of health literacy and flexible access to healthcare services in enabling engagement with preventive interventions. Educational status empowered participants with knowledge, while informal employment offered the flexibility needed to seek care. These insights underscore the need for targeted interventions for less-educated and formally employed populations, whose engagement with the health system may be constrained by systemic and personal barriers.

Community factors were equally influential. Awareness, confidentiality assurances, and perceptions of TB stigma significantly shaped uptake behavior. Stigma, fueled by misinformation and association with HIV/AIDS, remains a formidable obstacle, discouraging treatment-seeking and undermining TPT adherence. The findings suggest that tackling stigma through comprehensive sensitization and accurate public messaging is imperative.

Health system-related issues were particularly pronounced. While proximity to health facilities was not a barrier for most participants, issues such as long wait times, drug stockouts, and negative patient-provider interactions deterred some individuals from engaging with services. These findings point to systemic inefficiencies that must be addressed to foster a more responsive and

patient-centered health environment. Notably, participants who had positive interactions with healthcare providers, where counseling and empathy were evident, were more likely to initiate and complete TPT.

The study's integration of qualitative data provided a deeper understanding of contextual factors, such as psychosocial burdens, provider attitudes, and cultural influences that shape TPT uptake. These narratives enriched the quantitative trends and highlighted the lived realities of women navigating TB prevention.

In summary, TPT uptake is shaped by a complex interaction of personal, social, and systemic factors. Sustainable progress in TB prevention requires interventions that not only expand service availability but also ensure accessibility, community ownership, and patient trust. A multi-sectoral approach—one that integrates health system reforms with community empowerment—is critical for enhancing TPT coverage and improving health outcomes in high-burden TB settings like Wakiso District.

5.3 Recommendations

Based on the study findings, the following recommendations are proposed to improve the uptake and adherence to Tuberculosis Preventive Therapy (TPT) among women of reproductive age in Wakiso District:

Strengthen Health Education and Literacy: Develop and implement comprehensive, culturally appropriate health education strategies aimed at improving community knowledge of Tuberculosis Preventive Therapy (TPT). Educational content should simplify complex TB prevention concepts and counter prevailing myths, especially among women with low literacy levels. Community

engagement through participatory learning approaches and local language materials can further enhance comprehension and retention of key messages.

Scale-Up Community Sensitization Campaigns: Broaden TPT outreach efforts beyond formal health facilities by leveraging diverse platforms, including community dialogues, faith-based gatherings, radio talk shows, social media, and peer-led outreach. These approaches can effectively reach underserved and marginalized groups, particularly in rural or peri-urban areas. Integration of TB education into existing community health structures will foster sustainable, grassroots-level engagement.

Address Stigma Through Community Dialogue: Design and roll out anti-stigma interventions that clearly differentiate between latent TB infection, active TB disease, and what it means to be a contact of a TB patient. These initiatives should include community education forums, testimonial storytelling, and inclusion of local influencers, TB survivors, and Village Health Teams (VHTs) to normalize TPT and reduce fear-driven avoidance. Addressing stigma is key to fostering an enabling environment for preventive health-seeking behavior.

Improve Health System Efficiency: Ensure uninterrupted availability of TPT by strengthening supply chain infrastructure, including forecasting, procurement, and stock management systems. Integrate TPT into routine health services such as antenatal care, HIV services, and child health clinics to increase access points. Decentralization of stock distribution and accountability mechanisms should also be prioritized to reduce facility-level shortages.

Enhance Provider Competencies and Work Environment: Invest in regular, competency-based training for healthcare providers on patient-centered communication, TB counseling, stigma reduction, and human rights. Improve motivation through supportive supervision, peer mentoring,

and structured recognition mechanisms. A well-supported, well-trained, and empathetic health workforce is essential to improve TPT uptake and adherence.

Support Socially Vulnerable Groups: stablish targeted support mechanisms such as transport reimbursements and community-based outreach to enhance access for vulnerable populations. These should prioritize women living in geographically remote areas, female-headed households, and those with significant caregiving responsibilities, particularly widowed or single women. Tailored interventions can help mitigate access disparities and promote equitable service utilization.

Expand Decentralized Service Delivery Models: Promote the integration of TPT into routine outreach services by training and equipping Village Health Teams (VHTs) and community health workers to deliver services at the household level. Mobile clinic models and outreach during immunization and market days can be used to reach hard-to-reach populations. Institutionalizing these models within national TB programs can support long-term scalability and sustainability.

These interventions, when implemented together, can significantly enhance TPT uptake and completion rates, thereby contributing to the broader TB control strategy in Uganda.

5.4 Self-evaluation and Implications

Strengths of the research methodology and process:

The study addressed a timely and critical public health challenge—the uptake of Tuberculosis Preventive Therapy (TPT) among women of reproductive age exposed to TB. By focusing on Wakiso District, a high TB burden area in Uganda, the research demonstrated strong contextual relevance and alignment with global health priorities, particularly the goal to end TB as a public

health emergency by 2030. The research problem was clearly defined, targeting a vulnerable population whose preventive care behavior are vital to TB control efforts.

Methodologically, the study was grounded in a well-structured conceptual framework using the socio-ecological model, which facilitated a comprehensive exploration of individual, community, and health system-level influences on TPT uptake. The use of a mixed-methods approach, combining quantitative survey data with qualitative insights from in-depth interviews, added both depth and credibility to the findings. Quantitative data revealed statistically significant patterns, while qualitative narratives enriched the interpretation with real-world context. Ethical and practical considerations were appropriately addressed, with ethical approval secured and informed consent, privacy, and confidentiality maintained throughout the data collection process.

Limitations and areas of improvement:

The study's use of a cross-sectional design limited its ability to draw causal inferences. While significant associations were identified, the design does not permit conclusions about whether specific factors directly influenced TPT uptake. The sampling strategy also targeted facility-linked respondents, potentially excluding hard-to-reach populations such as those in remote or underserved areas. This may have introduced selection bias by overrepresenting individuals already engaged with the health system, thereby limiting the generalizability of findings.

Furthermore, reliance on self-reported data introduced potential for social desirability and recall bias, particularly around sensitive topics like stigma and healthcare-seeking behaviors. Participants may have under-reported negative experiences or overestimated their engagement with TPT services. The study also did not track TPT completion or adherence beyond initiation, constraining insights into long-term outcomes. Although the qualitative component enriched the findings, it

was somewhat limited in scope, comprising only four in-depth interviews. Broader inclusion of stakeholders such as male household heads, district TB coordinators, and other community influencers could have provided more diverse perspectives and deeper thematic triangulation.

Suggestions for further research?

If I were to replicate or extend this research, I would consider adopting a longitudinal or cohort study design to track TPT's initiation, adherence, and completion over time. This approach would allow for stronger causal inferences and a clearer understanding of intervention effectiveness. Additionally, I would diversify the sampling strategy by including community-based participants, particularly those in underserved or non-engaged populations. This could be achieved through mobile data collection teams or door-to-door recruitment, thereby reducing facility-based sampling bias. To improve data accuracy, I would triangulate self-reported information with health facility records, particularly for TPT initiation and completion, to minimize recall bias and validate self-reported behavior.

Expanding the qualitative component would also be a priority. Including more diverse stakeholders, such as male household members, community leaders, religious figures, and pharmacists, would provide richer insights into cultural, structural, and logistical barriers. I would also strengthen behavioral measurement by incorporating validated tools for assessing stigma and health literacy. Embedding an implementation science perspective would allow for real-time assessment of community-led interventions, such as stigma reduction campaigns or decentralized TPT delivery models. Finally, I would collaborate with local media and digital platforms to co-develop targeted awareness campaigns, evaluating their impact through pre- and post-intervention data collection to assess shifts in knowledge, attitudes, and behaviors.

REFERENCES

Ahmed, S., Chase, L.E., Wagnild, J., Akhter, N., Sturridge, S., Clarke, A., Chowdhary, P., Mukami, D., Kasim, A., Hampshire, K., 2022. Community health workers and health equity in low- and middle-income countries: systematic review and recommendations for policy and practice. Int. J. Equity Health 21, 49. https://doi.org/10.1186/s12939-021-01615-y

Alrasheedi, K.F., AL-Mohaithef, M., Edrees, H.H., Chandramohan, S., 2019. The Association Between Wait Times and Patient Satisfaction: Findings From Primary Health Centers in the Kingdom of Saudi Arabia. Health Serv. Res. Manag. Epidemiol. 6, 2333392819861246. https://doi.org/10.1177/2333392819861246

Anindhita, M., Haniifah, M., Putri, A.M.N., Karnasih, A., Agiananda, F., Yani, F.F., Haya, M.A.N., Pakasi, T.A., Widyahening, I.S., Fuady, A., Wingfield, T., 2024. Community-based psychosocial support interventions to reduce stigma and improve mental health of people with infectious diseases: a scoping review. Infect. Dis. Poverty 13, 90. https://doi.org/10.1186/s40249-024-01257-6

Appiah, M.A., Arthur, J.A., Gborgblorvor, D., Asampong, E., Kye-Duodu, G., Kamau, E.M., Dako-Gyeke, P., 2023. Barriers to tuberculosis treatment adherence in high-burden tuberculosis settings in Ashanti region, Ghana: a qualitative study from patient's perspective. BMC Public Health 23, 1317. https://doi.org/10.1186/s12889-023-16259-6

Ashaba, C., Musoke, D., Tsebeni Wafula, S., Konde-Lule, J., 2021. Stigma among tuberculosis patients and associated factors in urban slum populations in Uganda. Afr. Health Sci. 21, 1640–50. https://doi.org/10.4314/ahs.v21i4.18

Awoonor-Williams, J.K., Sory, E.K., Nyonator, F.K., Phillips, J.F., Wang, C., Schmitt, M.L., 2013. Lessons learned from scaling up a community-based health program in the Upper East Region of northern Ghana. Glob. Health Sci. Pract. 1, 117–133. https://doi.org/10.9745/GHSP-D-12-00012

Ayakaka, I., Armstrong-Hough, M., Hannaford, A., Ggita, J.M., Turimumahoro, P., Katamba, A., Katahoire, A., Cattamanchi, A., Shenoi, S.V., Davis, J.L., 2022. PERCEPTIONS, PREFERENCES, AND EXPERIENCES OF TUBERCULOSIS EDUCATION AND COUNSELLING AMONG PATIENTS AND PROVIDERS IN KAMPALA, UGANDA: A QUALITATIVE STUDY. Glob. Public Health 17, 2911–2928. https://doi.org/10.1080/17441692.2021.2000629

Bam (née Oosthuizen), L., McLaren, Z., Coetzee, E., Leipzig, K., 2017. Reducing stock-outs of essential tuberculosis medicines: a system dynamics modelling approach to supply chain management. Health Policy Plan. 32. https://doi.org/10.1093/heapol/czx057

Bauer, U.E., Briss, P.A., Goodman, R.A., Bowman, B.A., 2014. Prevention of chronic disease in the 21st century: elimination of the leading preventable causes of premature death and disability in the USA. The Lancet 384, 45–52. https://doi.org/10.1016/S0140-6736(14)60648-6

Berkman, N.D., Sheridan, S.L., Donahue, K.E., Halpern, D.J., Crotty, K., 2011. Low Health Literacy and Health Outcomes: An Updated Systematic Review. Ann. Intern. Med. 155, 97–107. https://doi.org/10.7326/0003-4819-155-2-201107190-00005

Courtwright, A., Turner, A.N., 2010. Tuberculosis and Stigmatization: Pathways and Interventions. Public Health Reports® 125, 34–42. https://doi.org/10.1177/00333549101250S407

Cremers, A.L., Janssen, S., Huson, M.A.M., Bikene, G., Bélard, S., Gerrets, R.P.M., Grobusch, M.P., 2013. Perceptions, health care seeking behaviour and implementation of a tuberculosis control programme in Lambaréné, Gabon. Public Health Action 3, 328–332. https://doi.org/10.5588/pha.13.0038

Dube, M., 2023. The challenges facing widows in African contexts: A literature review. Int. J. Res. Bus. Soc. Sci. 2147- 4478 12, 452–459. https://doi.org/10.20525/ijrbs.v12i7.2775

Gebreweld, F.H., Kifle, M.M., Gebremicheal, F.E., Simel, L.L., Gezae, M.M., Ghebreyesus, S.S., Mengsteab, Y.T., Wahd, N.G., 2018. Factors influencing adherence to tuberculosis treatment in Asmara, Eritrea: a qualitative study. J. Health Popul. Nutr. 37, 1. https://doi.org/10.1186/s41043-017-0132-y

Kahissay, M.H., Fenta, T.G., Boon, H., 2020. Religion, Spirits, Human Agents and Healing: A Conceptual Understanding from a Sociocultural Study of Tehuledere Community, Northeastern Ethiopia. J. Relig. Health 59, 946–960. https://doi.org/10.1007/s10943-018-0728-6

Kimuli, D., Nakaggwa, F., Namuwenge, N., Kamara, V., Nakawooya, M., Amanya, G., Tumwesigye, P., Mwehire, D., Lukoye, D., Murungi, M., Dejene, S., Byawaka, J., Mubiru, N., Turyahabwe, S., Amuron, B., Bukenya, D., 2025. Level of tuberculosis-related stigma and associated factors in Ugandan communities. PLOS ONE 20, e0313750. https://doi.org/10.1371/journal.pone.0313750

Kılıç, A., Zhou, X., Moon, Z., Hamada, Y., Duong, T., Layton, C., Jhuree, S., Abubakar, I., Rangaka, M.X., Horne, R., 2025. A systematic review exploring the role of tuberculosis stigma on test and treatment uptake for tuberculosis infection. BMC Public Health 25, 628. https://doi.org/10.1186/s12889-024-20868-0

Kwame, A., Petrucka, P.M., 2021. A literature-based study of patient-centered care and communication in nurse-patient interactions: barriers, facilitators, and the way forward. BMC Nurs. 20, 158. https://doi.org/10.1186/s12912-021-00684-2

Lankowski, A.J., Siedner, M.J., Bangsberg, D.R., Tsai, A.C., 2014. Impact of Geographic and Transportation-Related Barriers on HIV Outcomes in Sub-Saharan Africa: A Systematic Review. AIDS Behav. 18, 1199–1223. https://doi.org/10.1007/s10461-014-0729-8

Mattson, J., 2011. Transportation, Distance, and Health Care Utilization for Older Adults in Rural and Small Urban Areas. Transp. Res. Rec. J. Transp. Res. Board 2265. https://doi.org/10.3141/2265-22

Mendoza, R.L., 2023. The insurance role in workplace health promotion: a comparative analysis of the United States and the Philippines. Health Promot. Int. 38, daad001. https://doi.org/10.1093/heapro/daad001

Mhazo, A.T., Miyango, S., Palani, L., Maponga, C.C., 2024. Tuberculosis commodities supply chain performance in the WHO African region: A scoping review. PLOS Glob. Public Health 4, e0003219. https://doi.org/10.1371/journal.pgph.0003219

Mseke, E.P., Jessup, B., Barnett, T., 2024. Impact of distance and/or travel time on healthcare service access in rural and remote areas: A scoping review. J. Transp. Health 37, 101819. https://doi.org/10.1016/j.jth.2024.101819

Mulligan, C.B., n.d. The Value of Employer-Sponsored Health Insurance.

Musaazi, J., Sekaggya-Wiltshire, C., Okoboi, S., Zawedde-Muyanja, S., Senkoro, M., Kalema, N., Kavuma, P., Namuwenge, P.M., Manabe, Y.C., Castelnuovo, B., Kiragga, A., 2023. Increased uptake of tuberculosis preventive therapy (TPT) among people living with HIV following the 100-days accelerated campaign: A retrospective review of routinely collected data at six urban public health facilities in Uganda. PLOS ONE 18, e0268935. https://doi.org/10.1371/journal.pone.0268935

Naughton, C.A., 2018. Patient-Centered Communication. Pharm. J. Pharm. Educ. Pract. 6, 18. https://doi.org/10.3390/pharmacy6010018

Negash, W., Belay, A., Tilaye, L., Geberu, D., Hagos, A., Jejaw, M., Demissie, K., Tiruneh, M., Mesfin Abera, K., Tsega, Y., Endawkie, A., Worku, N., Workie, A., Yohannes, L., Getnet, M., 2024. Barriers to healthcare access among reproductive age women in extremely high and very high maternal mortality countries: Multilevel mixed effect analysis. PLOS ONE 19. https://doi.org/10.1371/journal.pone.0304975

Nieuwlaat, R., Wilczynski, N., Navarro, T., Hobson, N., Jeffery, R., Keepanasseril, A., Agoritsas, T., Mistry, N., Iorio, A., Jack, S., Sivaramalingam, B., Iserman, E., Mustafa, R.A., Jedraszewski, D., Cotoi, C., Haynes, R.B., 2014. Interventions for enhancing medication adherence. Cochrane Database Syst. Rev. 2014, CD000011. https://doi.org/10.1002/14651858.CD000011.pub4

Odhiambo, J.A., Ndunyu, L.N., Nyambedha, E.O., Upadhyay, U., Turan, J.M., Bukusi, E., Agumba, N.O., Cohen, C.R., Weiser, S.D., 2025. Widowhood stigma as a fundamental cause of poor mental, sexual, and reproductive health outcomes in sub-Saharan Africa: A conceptual framework. SSM - Ment. Health 7, 100407. https://doi.org/10.1016/j.ssmmh.2025.100407

Olaniran, A., Briggs, J., Pradhan, A., Bogue, E., Schreiber, B., Dini, H.S., Hurkchand, H., Ballard, M., 2022. Stock-outs of essential medicines among community health workers (CHWs) in low- and middle-income countries (LMICs): a systematic literature review of the extent, reasons, and consequences. Hum. Resour. Health 20, 58. https://doi.org/10.1186/s12960-022-00755-8

Organizat, W.H., 2021. WHO consolidated guidelines on tuberculosis. Module 1: Prevention. Tuberculosis preventive treatment. Tuberc. Lung Dis. HIV Infect. 86–92. https://doi.org/10.30978/TB2021-2-86

Salazar-Austin, N., Bergman, A.J., Mulder, C., Tudor, C., Mulatu, F., Conradie, G., Chaisson, R.E., Golub, J.E., Churchyard, G., Bedru, A., Kerrigan, D., 2024. Improving access to tuberculosis preventive treatment for children in Ethiopia: designing a home-based contact management intervention for the CHIP-TB trial through formative research. BMC Health Serv. Res. 24, 1043. https://doi.org/10.1186/s12913-024-11451-9

Sawchuk, C.N., Russo, J., Ferguson, G., Williamson, J., Sabin, J.A., Goldberg, J., Madesclaire, O., Bogucki, O.E., Buchwald, D., 2020. Health Promotion Programs and Policies in the Workplace: An Exploratory Study With Alaska Businesses. Prev. Chronic. Dis. 17, 200111. https://doi.org/10.5888/pcd17.200111

Sazali, M.F., Rahim, S.S.S.A., Mohammad, A.H., Kadir, F., Payus, A.O., Avoi, R., Jeffree, M.S., Omar, A., Ibrahim, M.Y., Atil, A., Tuah, N.M., Dapari, R., Lansing, M.G., Rahim, A.A.A., Azhar, Z.I., 2023. Improving Tuberculosis Medication Adherence: The Potential of Integrating Digital Technology and Health Belief Model. Tuberc. Respir. Dis. 86, 82–93. https://doi.org/10.4046/trd.2022.0148

Shenoi, S.V., Kyriakides, T.C., Dokubo, E.K., Guddera, V., Vranken, P., Desai, M., Friedland, G., Moll, A.P., 2022. Community-based referral for tuberculosis preventive therapy is effective for treatment completion. PLOS Glob. Public Health 2, e0001269. https://doi.org/10.1371/journal.pgph.0001269

Smit, D.J.M., Proper, K.I., Engels, J.A., Campmans, J.M.D., Van Oostrom, S.H., 2023. Barriers and facilitators for participation in workplace health promotion programs: results from peer-to-peer interviews among employees. Int. Arch. Occup. Environ. Health 96, 389–400. https://doi.org/10.1007/s00420-022-01930-z

Tirivayi, N., 2016. Widowhood and Access to Health Care: A Population Based Study in Uganda. J. Health Care Poor Underserved 27, 1555–1566. https://doi.org/10.1353/hpu.2016.0137

Viney, K., Johnson, P., Tagaro, M., Fanai, S., Linh, N.N., Kelly, P., Harley, D., Sleigh, A., 2014. Traditional healers and the potential for collaboration with the national tuberculosis programme in Vanuatu: results from a mixed methods study. BMC Public Health 14, 393. https://doi.org/10.1186/1471-2458-14-393

Yao, X., Dembe, A.E., Wickizer, T., Lu, B., 2015. Does time pressure create barriers for people to receive preventive health services? Prev. Med. 74, 55–58. https://doi.org/10.1016/j.ypmed.2015.03.008

APPENDICES

Appendix I: Work plan and Budget

Table 5: Work plan and Budget

Activity	Wk 1	Wk 2	Wk 3	Wk 4	Wk 5	Wk 6	Wk 7	Wk 8	Wk 9	Wk 10
Proposal approval										
Training of data collectors										
Piloting the tools										
Quantitative data collection										
Qualitative data collection										
Data cleaning and transcribing										
Data analysis										
Report writing										
Dissemination										

Table 6: Budget

Cost Item	Unit Cost	Freq	Amount
IRB Fees	175,000	1	175,000
Participant compesation (for IDIs)	10,000	5	50,000
Stationary/Printing	100,000	4	400,000
Airtime and Internet (7 people)	20,000	7	140,000
Transport refund (over 10 days)	25,000	70	1,750,000
Safari Day Allowance (wage)	20,000	70	1,400,000
Computer Tablets Hire	10,000	70	700,000
Statistician	500,000	1	500,000
Total			**5,115,000**

Appendix II: Introduction and Consent form

Informed Consent Form for the Survey Questionnaire:

Study Title: Factors Influencing the Uptake of Tuberculosis Preventive Therapy (TPT) Among Female (18-49 Years) Household Contacts of Bacteriologically Confirmed TB Patients in Wakiso District, Uganda

Version 1.1 23rd Sep 2024

Principal Investigator: Tumwesigye Philip
Institution: Uganda Martyrs University Nkozi
Contact Information: philitep1410@gmail.com +256 774 021 394

Participant ID: _____

Introduction:

You are invited to participate in a research study aimed at understanding the factors that influence the uptake of Tuberculosis Preventive Therapy (TPT) among women aged 18-49 who are household contacts of bacteriologically confirmed TB patients in Wakiso District. This study is being conducted by Philip Tumwesigye from Uganda Martyrs University Nkozi. Before you decide to participate, you need to understand why this research is being carried out and what it will involve. Please read the following information carefully and feel free to ask the investigator any questions you may have.

Background and rationale for the study:

The inadequacy of tuberculosis preventive therapy uptake among household contacts outlines a critical public health challenge. Despite the proven efficacy of preventive therapy, the specific dynamics of TB transmission within households and the unique vulnerabilities of TB contacts contribute to suboptimal uptake of TPT, with Uganda reporting 60% less of the 86% national target (NTLP report, 2023). This study aims to identify the factors that influence the uptake of TPT among female household contacts of bacteriologically confirmed TB patients in Wakiso District and further assess the role of community-level and health system-related factors in the uptake of TPT among female household contacts of TB patients in Wakiso District.

Sponsors of the research project and the organizational affiliation of the researchers: Self-sponsored

Purpose of the Study: The study is for academic purposes to enable the research to fulfill one of the requirements for the award of a Master's Degree in Public Health.

Procedures: If you agree to participate in this study, you will be asked to take part in a survey questionnaire During this interview, you will be asked questions about Individual sociodemographic aspects; how community support influences your decision to take TPT; how the health system infrastructure, policies, and programs influence your decision to accept TPT and, the overall barriers and facilitators to the uptake of TPT.

Who will participate in the study? This Questionnaire targets women aged 18-49 years who have been/are household TB contacts to index TB patients.

Estimated duration the research participant will take in the research project: The interview will take approximately 30 minutes and will be conducted at a time and place convenient for you.

Risks and Benefits:
Risks: The risks associated with participation in this study are minimal. You may feel uncomfortable answering some questions. You are free to skip any question you do not wish to answer.

Benefits: You have no direct benefits for participating in this study. However, your responses will contribute to a better understanding of the factors affecting TPT uptake, which may help improve TB prevention strategies in the future. Additionally, your participation in the study will enable the research to achieve an academic milestone.

Confidentiality: All information collected in this study will be kept strictly confidential. Your identity will not be linked to your responses, and data will be anonymized. The audio recordings will be transcribed and then destroyed. Only the research team will have access to the data, which will be stored securely.

Alternatives: You are under no obligation to participate in this study. You should only participate if you are interested.
Cost: You will not incur any costs as a result of your participation in this study

Compensation for participation in the study:
There are no financial benefits to you as a result of your participation in this study. Participation remains optional.

Reimbursement: This study is being conducted in the respondents 'community. There are therefore no costs needed in facilitation for transport or meals.

Questions about the study: Should you need additional information before accepting to participate, please don't hesitate to contact the principal researcher, Mr. Tumwesigye Philip by Telephone Contact: +256 774 021 394.

Questions about participants' rights: Should you need additional information about your right to participate in the study or not, please contact the Chairperson of the Research Ethics Committee, Dr. Jane Frank Nalubega on:
+256 392-174 236, murec@mildmay.or.ug

Statement of voluntariness: Participation in the study is of free will without any compulsion. You are therefore free to participate in the study or not. You are also free to withdraw from the study at any time if you so wish.

Dissemination of results: The findings of the study will be disseminated as follows: Copies of the dissertation will be submitted to the Directorate of Graduate Studies, research, and enterprise; a copy will be submitted to the district health officer of Wakiso District and the sub-county chief of Kyadondo Sub

County for reference. The researcher will also make efforts to share the study findings with the TB implementing partners in the district, key health workers providing TB services, and by making presentations during national and international conferences. The researcher will also endeavor to publish the study findings in a reputable journal of health sciences.

Ethical approval: This study has been approved by the Mildmay Uganda Research Ethics Committee (MUREC)

Statement of Consent

By signing below, you indicate that you have read and understood the information provided above, and you voluntarily agree to participate in this study.

..... Has described to me what is going to be done, the risks, the benefits involved, and my rights regarding this study. I understand that my decision to participate in this study will not alter my usual medical care. In the use of this information, my identity will be concealed. I am aware that I may withdraw at any time. I understand that by signing this form, I do not waive any of my legal rights but merely indicate that I have been informed about the research study in which I am voluntarily agreeing to participate. A copy of this form will be provided to me.

Name ……...Signature/thumbprint of participant ……Date ……

Name ……...Signature of witness ……Date …….

Name ……. Signature of interviewer/Person obtaining informed consent

…… Date …….

Thank you for your participation.

Appendix III: Research Tools

Survey questionnaire for measuring factors influencing the uptake of TB Preventive Therapy

Study Title: Factors Influencing the Uptake of Tuberculosis Preventive Therapy (TPT) Among Female (18-49 Years) Household Contacts of Bacteriologically Confirmed TB Patients in Wakiso District, Uganda

Version 1.0 19th Sep 2024

Principal Investigator: Tumwesigye Philip

Institution: Uganda Martyrs University Nkozi

Contact Information: philitep1410@gmail.com +256 774 021 394

Participant ID: _____

Introduction:

Thank you for agreeing to participate in this interview. We are conducting a study to understand the factors that influence the uptake of Tuberculosis Preventive Therapy (TPT) among women aged 18-49 who are household contacts of TB patients in Wakiso District. Your insights as a respondent are invaluable to us. This interview will take about 30 minutes. Your responses will be kept confidential. Do you have any questions before we begin?

Objective. 1: Determine individual factors that shape the experiences and decisions of female (18-49 years) household contacts of bacteriologically confirmed TB patients regarding the uptake of TPT in Wakiso District.

The interviewer captures the following participant information		
1.1	Level of education	□No formal schooling □Primary □Secondary □Tertiary; Specify_____
1.2	Age (in years)	
1.3	Occupation	□Formal employment □Peasant □Personal small business □Casual laborer

1.4	Marital status	□Single □Married/living with partner □Divorced □Widow
1.5	Ask if the participant is currently pregnant	□Yes □No
1.6	How many people live in your household	
1.7	Number of children	□No children □One □Two to Three □Four or more
1.8	Have you ever received any health education regarding TB and its prevention?	□Yes □No
1.9	Are you aware of the dangers of TB to a person or those near him or her?	□Yes (Please mention a few) □No
1.10	Have you ever suffered from TB previously?	□Yes □No
1.11	Do you know your HIV status?	□Yes □No
1.12	Are you aware of TB preventive Therapy?	□Yes □No
1.13	Are you aware of the benefits and side effects of TPT?	□Yes (Please mention a few:_____) □No
1.14	Do you know how long a person takes to finish a course of TPT?	□3 months □6 months □I don't know □Other specify

Objective 2: Investigate community factors that influence the uptake of TPT for female (18-49 years) household contacts of bacteriologically confirmed TB patients in Wakiso District.

2.1	Have you ever had a TPT sensitization in your community?	□Yes □No
2.2	What are the common sources of information regarding TB and TPT in this community?	□Health talks at Health facilities □Community health workers □Media like TV, Radios □Others specify
2.3	Are you satisfied with the current communication and information about TPT available in your community?	□Yes □No

2.4	Does this community have mechanisms for feedback on health services regarding TB and TPT intervention?	□Yes □No
2.5	Do you believe TB is curable?	□Yes □No □Not Sure
2.6	If a member of your family or close friend had TB, would you want others to know about it?	□Yes □No
2.7	Do you believe TB is preventable if you have been exposed to someone with TB?	□Yes □No □Not Sure
2.8	Do you think people with TB are treated unfairly or face discrimination in your community?	□Yes □No □Not Sure
2.9	Are there any specific cultural practices or taboos related to TB or its treatment in your community?	□Yes □No
2.10	Do you trust that healthcare providers will maintain your privacy if you start TPT?	□Yes □No □Unsure
2.11	Would you be more likely to take TPT if you knew it was confidential and no one would know you were taking it?	□Yes □No □Unsure

Objective 3: Examine the influence of health service delivery factors associated with the uptake of TPT among female (18-49 years) household contacts of bacteriologically confirmed TB patients in Wakiso District.

3.1	How far is your household to the nearest health facility/hospital?	□Less than 5KM □More than 5KM
3.2	Are the TPT services available at your nearest health facility all the time?	□Yes □No □Unsure
3.3	Can you easily access a health facility that provides TPT services in your area?	□Yes □No □Unsure
3.4	Are health workers always available at the facility?	□Yes □No
3.5	Do you experience long waiting times whenever you visit the health facility?	□Yes □No
3.6	Have you ever experienced or been informed that there was a stock out of TPT medicines?	□Yes □No
3.7	Are there community outreaches near you that can provide TPT services?	□Yes □No

3.9	Have you ever felt discouraged from taking TPT due to how healthcare staff handled you?	□Yes □No □Unsure
3.10	Do health workers provide clear and understandable information about TPT and its benefits?	□Yes □No
3.11	Have you ever incurred any costs for consultations, tests, or medication when accessing TPT?	□Yes □No

Outcome variable: Uptake of Tuberculosis Preventive Therapy (TPT)

4.1	Have you ever been offered Tuberculosis Preventive Therapy (TPT) by a healthcare provider?	□Yes □No □Not Sure
4.2	Did you start taking Tuberculosis Preventive Therapy (TPT) after it was offered to you?	□ Yes □ No (Please specify the reasons: _____) □ Not Applicable
4.3	**If** Yes, on what date did you initiate Tuberculosis Preventive Therapy (TPT) after it was offered to you?	Date of initiation: _____ (DD/MM/YYYY)
4.4	**If** you started TPT, did you complete the full course of the therapy as prescribed?	□ Yes □ No (Please specify the reasons for not completing: _____) □ Currently still on treatment
4.5	Have you faced any challenges in accessing or continuing to use TPT?	□Yes □No
4.6	What are the main barriers that prevent you from taking up TPT	Financially costly □Yes □No Long distances □Yes □No Fear of stigma or discrimination □Yes □No Lack of information about TPT □Yes □No Concerns about side effects □Yes □No Belief that I am not at risk of TB □Yes □No

		Fear that others will assume I have TB □Yes □No Traditional Healers' remedies □Yes □No Gender roles in decision-making about healthcare □Yes □No □Others specify

Thank you very much for your time and insights. Your contributions are extremely valuable to our study and will help in developing strategies to improve the uptake of TPT among women in Wakiso District. If you have any further questions or thoughts after this interview, please feel free to contact the Principal Researcher on +256 774 021 394.

In-depth interview Tool for Women (18-49 Yrs) on Tuberculosis Preventive Therapy (TPT)

Study Title: Factors Influencing the Uptake of Tuberculosis Preventive Therapy (TPT) Among Female (18-49 Years) Household Contacts of Bacteriologically Confirmed TB Patients in Wakiso District, Uganda

Version 1.0 19th Sep 2024

Principal Investigator: Tumwesigye Philip

Institution: Uganda Martyrs University Nkozi

Contact Information: philitep1410@gmail.com +256 774 021 394

Participant Information:

Participant ID: _____

Age: _____

Marital Status: _____

Duration on TPT: _____

Level of Education: _____

Introduction:

Thank you for agreeing to participate in this interview. We are conducting a study to understand the factors that influence the uptake of Tuberculosis Preventive Therapy (TPT) among women aged 18-49 who are household contacts of TB patients in Wakiso District. Your insights as a household contact are invaluable to us. This interview will take about 45-60 minutes. Your responses will be kept confidential. Do you have any questions before we begin?

Section 1: Individual Awareness and Knowledge

Can you describe what you know about Tuberculosis Preventive Therapy (TPT)
(Probe: Where did you learn about TPT? Have there been any community meetings or programs about TPT? Have you used TPT before?)

Please share with me your experience when they told you that you were going to start swallowing TPT.
(Probe: Can you recall who informed you about starting TPT? How did they explain what TPT is and its purpose? How did you feel when you first learned about TPT? What were your initial thoughts or feelings when you heard you would be starting TPT? DID you complete the full course of TPT?)

Section 2: Community Support and Influence

Can you describe the kind of support you receive from your community regarding TB treatment and prevention? *(Probe: Are there community leaders or groups that advocate for TPT? How influential are these leaders/groups in your decision to take TPT? Are there other women in your community who have taken up TPT?)*
How did your household environment influence your decision to take up TPT? *(Probe: Did your family support you in taking TPT? Were there any family members who discouraged or encouraged you from taking TPT? How do household responsibilities or dynamics affect your ability to adhere to TPT? eg who makes decisions, can women decide to start TPT)*

Section 3: Stigma and Discrimination

Have you or someone you know experienced any stigma or discrimination related to TB or TPT in your community? *(Probe: How does this stigma affect your willingness to take up TPT? Can you share specific instances?)*

Are there any traditional or cultural practices that are known to influence the uptake of TB treatment or TPT in your community? *(Probe: How do they affect your willingness to take up TPT? Can you share specific examples of these practices?)*

Section 4: Accessibility and Availability

How accessible are the TB and TPT services in your community? (*Probe: Are there challenges in reaching these services? How often do you have to travel to access TPT?)*

What do you think could be done at the community level to improve access to TPT services? *(Probe: Are there specific community initiatives you would suggest?)*

Section 5: Health System Awareness and Information Dissemination

How did you first hear about TPT? *(Probe: Were the healthcare workers informative and clear about the benefits and side effects of TPT? Did you receive any educational materials about TPT?)*

Section 6: Health System Trust and Confidence

How confident are you in the health system's ability to provide effective TPT? *(Probe: Do you trust the healthcare providers who are administering TPT? Have you had any negative experiences with the health system regarding TB or TPT?)*

Section 7: Quality of Care and Support

Can you describe the quality of care you receive from health care providers regarding TPT*? (Probe: Are the health facilities clean and well-equipped with medicines and diagnostic tools? Do healthcare providers take the time to answer your questions and address your concerns? Do you receive follow-up visits or calls from healthcare providers?)*

Section 8: Barriers within the Health System

What challenges have you faced within the health system in accessing TPT? *(Probe: Are there long waiting times, stock-outs, or other logistical issues? How do these challenges affect your willingness to start or continue TPT?)*

Section 9: Recommendations

Do you have any additional comments or suggestions on how to improve TPT uptake among women in your community? *(Probe: Are there other factors we haven't discussed that you think are important? What improvements would you suggest for the health system to enhance TPT uptake?)*

Thank you very much for your time and insights. Your contributions are extremely valuable to our study and will help in developing strategies to improve the uptake of TPT among women in Wakiso District. If you have any further questions or thoughts after this interview, please feel free to the principal Researcher at +256 774 021 394.