HEALTH FACILITY INTERVENTIONS TUBERCULOSIS SERVICE DELIVERY: ASSESSMENT OF THE TB PROGRAM IN HOIMA REGIONAL REFERRAL HOSPITAL

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ABSTRACT

This study was about the health facility interventions tuberculosis service delivery, an assessment of the Tuberculosis program. A case study of Hoima Regional Referral Hospital. This study examined how health facility interventions have improved Tuberculosis service delivery efforts among referral hospitals in Uganda, focusing on Hoima Regional Referral Hospital which was taken as a case study. It had three objectives namely; (i) To assess the contribution of infrastructure upgrades to the Tuberculosis service delivery of the Tuberculosis program at Hoima Regional Referral Hospital. (ii) To analyse the contribution of skilled healthcare professionals to the outcomes of the Tuberculosis program at Hoima Regional Referral Hospital. (iii) To examine the effectiveness of Tuberculosis awareness campaigns in improving TB service delivery at Hoima Regional Referral Hospital.

The research focused on three key health facility interventions infrastructure upgrades, skilled healthcare professionals and Tuberculosis awareness campaigns and their impact on Tuberculosis service delivery, addressing a critical public health challenge in a region where Tuberculosis remains a significant burden.

This study employed a mixed research design using both quantitative and qualitative approaches to obtain comprehensive data on the study variables. A sample size of 155 out of 247 respondents was selected using appropriate sampling techniques to ensure representation of the target population. Data were collected using questionnaires and interview guides, while analysis was conducted using

statistical and thematic methods to generate meaningful findings in line with the study objectives.

The findings revealed that these interventions collectively explain 51.6% of the variance in Tuberculosis service delivery ($R^2 = 0.516$, $p < 0.001$), highlighting their significant role in improving Tuberculosis care outcomes. The sections that follow provide a detailed conclusion of the findings in relation to the study's objectives and offer recommendations for hospital administrators, policymakers, and future researchers to enhance Tuberculosis service delivery at referral hospitals.

While these three interventions demonstrably influence Tuberculosis service delivery at Hoima Regional Referral Hospital, the researcher acknowledges that other factors, such as patient-centered care approaches, community involvement, service accessibility, program sustainability, and the efficiency of resource allocation, may also significantly impact outcomes. Furthermore, recognizing the likelihood of government and donor funding for Tuberculosis programs at Hoima Regional Referral Hospital and similar facilities, a follow-up study is recommended to specifically investigate the influence of health facility interventions on the success of donor funded Tuberculosis programs across Uganda. This would provide crucial insights into how external funding shapes the effectiveness of Tuberculosis service delivery in comparable healthcare settings.

DECLARATION

I hereby declare that this final dissertation report is my original work and has not been presented for a degree in any other university or for any other academic award.

All sources of materials used for the proposal have been duly acknowledged.

Jovia Kusiima

Researcher

28/07/2025

APPROVAL

This final dissertation report, entitled “Health Facility Interventions and TB Service Delivery: assessment of the TB Program in Hoima regional referral hospital,” has been reviewed and approved by:

Supervisor

Solomon Mwije

28/07/2025

DEDICATION

I dedicate this research to the Almighty God for the wisdom that He has given me to accomplish this level of education; to my family and friends particularly my father and mother. To my young sister Jacqueline, brothers Jobab, Jonah and my friends, who have always loved me unconditionally and whose good examples have taught me to work hard for the things that I aspire to achieve. God bless you abundantly for the never-ending love and support.

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The pursuit of this academic journey was tiring and involved multitasking. I thank God, for His everlasting wisdom, He has seen me through all my academic and education stages to this level. I thank HIM for the gift of tuition, the gift of good health and the gift of wisdom. Thank You, I Bless Your Name.

To my supervisor Sir Mwije Solomon School of Social Science, Uganda Christian University, Main Campus in an exceptional way, thank you so much for your timely guidance and mentorship.

As a class coordinator, I want to give a special mention to my classmates from the MDME Easter intake 2023. We achieved a lot and guided each other through our WhatsApp groups, voice calls and online Zoom discussions. The encouragement and peer reviews were critical for this output.

Thank you so much to the administration of Hoima Regional Referral Hospital (HRRH) for the time and cooperation during the process of data collection.

Lastly, I am exceedingly humbled by the respondents (TB patients, Care Takers and Health workers at HRRH) for the great cooperation they showed me during data collection, I am grateful.

May Almighty God bless you

All Thank you

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ACRONYMS & ABBREVIATIONS

TB	Tuberculosis
CT	Care Takers
HW	Health Workers
UG	Uganda
TZ	Tanzania
US	United States
KIIs	Key Informants
MoH	Ministry of Health Uganda
ANOVA	The Analysis of Variance
USA	United States of America
WHO	World Health Organization
FGDs	Focused Group Discussions
M&E	Monitoring and Evaluation
UCU	Uganda Christian University
UN	United Kingdom
CPM	Critical Path Method
CHWs	Community Health Workers
PPE	Personal Protective Equipment
HIV	Human Immunodeficiency Virus
SDG	Sustainable Development Goal
HRRH	Hoima Regional Referral Hospital

LMICs	Low- and Middle-Income Countries
SPSS	Statistical Package for the Social Science
NTLP	National TB and Leprosy Control Program
eCBSS	Electronic Community Based Surveillance System

CHAPTER ONE

INTRODUCTION

1.1 Introduction

This study was about the health facility interventions tuberculosis service delivery, an assessment of the TB program. A case study of Hoima Regional Referral Hospital. The significance of the study was presented without which the researcher would not have had the foundation of carrying out this research. Using HRRH as reference was selected as a case for the study because it covers the Bunyoro region in Mid-western region of Uganda, serving seven (7) districts with a large population of about 2.3 million people, Kwikiriza (2020).

In addition, conducting the research at Hoima Regional Referral Hospital provided a suitable setting for understanding how healthcare services are delivered in a major public health facility.

1.2 Background

The section presents the background to the study, the statement of the problem, the purpose or general objectives, the objectives of the study, the research questions, the scope of the study, geographical scope, content scope, the significance, justification and operational definition of terms and concept.

Tuberculosis is the tenth most common cause of death globally. Interventions are crucial for effectively combating the disease. Anil Kumar Indira Krishnan (2019) indicates that Health facility interventions directly impact the prevention,

diagnosis and treatment of TB for example, improved diagnostic techniques such as GeneXpert testing which can rapidly detect TB and drug resistance, are implemented within health care to early detection and treatment initiation.

The WHO (2023) report indicates that 64% of an expected 10 million TB cases are found and treated each year, leaving 3.6 million cases with either no care at all, sub-optimal care for which the quality of services is strange or adequate care but not narrated to NTLP.

WHO (2022) envisions a "world free of TB (zero deaths, disease, or suffering due to TB)" in its End TB plan 2016–2030, which was adopted after 2015 and the objective of "ending the global TB epidemic" by 2035 which is denoted by a yearly frequency of under ten diagnoses per hundred thousand individuals.

According to Chan (2023) who is a Former Director-General of the WHO, as we strive for a world free of tuberculosis the effectiveness of health facility interventions and service delivery mechanisms becomes paramount.

Tuberculosis (TB) remains a formidable global health challenge, particularly impacting economically marginalized populations and those living in resource constrained settings (WHO, 2023).

Considerable progress has been made in understanding the epidemiological disparities in TB burden (Lönnroth et al., 2009)

Historically, TB has been associated with higher prevalence among men in many parts of the world (Law and Floyd, 2020), including in Uganda where this study is located.

An estimated 1/3 global populace is expected to be affected by tuberculosis (TB), a serious health problem under the Department of Countrywide Disease Control of the MoH (2021).

Uganda is a country with a high tuberculosis burden; its incidence has remained fairly constant over the years at around 198 cases per 100 000 population per year, with a high proportion of missed tuberculosis cases WHO (2023).

In comparison to prior years, the Hoima District Health Department recorded 453 cases of tuberculosis patients, according to the NTLP (2021) With an emphasis on assessing the TB case findings in Uganda, cases from Kitoba, Kigorobya, Buhanika, and Buseruka sub-counties were reported to the Hoima District. Kigorobya had 208 cases, Buhanika 86, Kitoba 51 and Buseruka 108.

In the Bunyoro region/Hoima District, however, the number of tuberculosis patients managed to drop from 78.8% to 50% this improvement being due to better efforts by local health services, such as finding and managing TB cases more effectively, MoH (2022).

Research by Cole (2020) about tuberculosis in the United States of America showed that measures were taken to identify and treat individuals with active tuberculosis, track down and screen individuals who had encountered TB patients, treat additional targeted individuals and populations, and 78% of the total patients were successfully treated.

Tuberculosis continued to be a major disease in South Africa. WHO (2022) indicated that approximately 280,000 people fell ill with TB in the country, and 54,000

people died from the disease. The number of people diagnosed with TB and linked to care improved, with treatment coverage rates from 57% in 2021 to 77% in 2022. This improvement indicated progress in detecting and managing TB cases more effectively compared to previous years.

Research by Obeagu (2024) showed that TB is a lung related disease, which can be transmitted from person to person via the airborne particles during normal social interactions. Thus, posing a serious risk to uninfected people who meet infected but undiagnosed people.

According to MoH report (2020), TB is everywhere in Uganda. Higher burden in Cities than in rural, some districts notified more TB than the expected average. An estimated 1500 people (820-2300) fell ill with drug-resistant TB (DR TB) in 2018, but only 34% of these were notified to the National TB Program. The treatment success rate for TB was only 64% (233/365) for the 2016 cohort down from 70% for the 2015 cohort. Death rates remained high at 19%, as well as lost to follow up at 15%.

MoH (2021) reported West Nile, Karamoja and Lango with TB case detection rates of more than 100% of the expected TB cases in these regions, whereas Busoga, Teso, and Bukedea regions had case detection rates of less than 50%, meaning the TB cases notified among the expected regions continued to decline in the financial year 2019-2020 till date.

By 2019/20 financial year, TB treatment coverage had reached 75%. HRRH also kept a TB treatment success rate of about 78%, thanks to several quality improvement measures following the MoH report (2023).

Tuberculosis control in Uganda especially in Hoima has progressively strengthened over the years, largely driven by sustained national and global public health interventions aimed at improving early detection, expanding treatment coverage, and reducing community transmission. In the Bunyoro sub-region, particularly Hoima District, a notable improvement has been reported in tuberculosis case management, with figures declining from 78.8% to 50%. This reduction has been largely attributed to strengthened local health system performance, including intensified active case finding, improved diagnostic capacity, and more effective treatment follow-up mechanisms implemented at health facility level (Ministry of Health, 2022).

1.3 Statement of the Problem

In spite of Uganda's improvement in Tuberculosis prevention under the National Tuberculosis Program service delivery gaps continue to manifest at facility level predominantly in Hoima.

According to the WHO (2021), the influence that service delivery had on Health facility interventions had not been recorded in previous years yet HRRH had many patients who complained about poor services. Many complaints were about inadequate infrastructure, limited equipment, out of stock medical supplies, among others.

Although the National Tuberculosis Program (2023), Uganda's Minister of Health commended the achievements of the National Tuberculosis Program and noted that Uganda, TB prevention efforts, particularly in areas like Hoima, had seen significant progress. The ministry emphasized the role of improved healthcare infrastructure, availability of medical equipment, and skilled personnel in enhancing the quality of TB services. Furthermore, the National Strategic Plan for TB and Leprosy (2020/21-2024/25) aligns with global TB reduction goals, aiming at 20% dropped in TB rate by 2024/25.

However, following MoH (2023) inadequate and inconsistent funding for equipment maintained, staff training and community awareness initiatives threatens the achievement of this goal. Therefore, there is need to examine how health care interventions influence the effectiveness of TB service delivery particularly at Hoima Regional Referral Hospital.

1.4 Purposefulness of the study

This study was to examine how health facility interventions have improved TB service delivery efforts among referral hospitals in Uganda, focusing on Hoima Regional Referral Hospital taken as a case.

1.5 Specific objectives of the study

1) To assess the contribution of infrastructure upgrades to the TB service delivery of the TB program at HRRH.
2) To analyse the contribution of skilled healthcare professionals to the outcomes of the TB program at HRRH.

3) To examine the effectiveness of tuberculosis awareness campaigns in improving TB service delivery at HRRH.

1.6 Research Questions

1. To what extent does infrastructure upgrades contribute to the service delivery of the TB program at HRRH?
2. How have skilled healthcare professionals contributed to the outcomes of the TB program at HRRH?
3. How effective are tuberculosis awareness campaigns in improving TB service delivery at HRRH?

1.7 Scope of the Study

This study was conducted under three scopes as follows:

1.7.1 Geographical Scope

The research emphasized to examine the relationship between health facility interventions and TB service delivery at referral hospitals in Uganda using a case study of Hoima Regional Referral Hospital.

1.7.2 Time Scope

The study focused on the period covered by the Uganda National TB and Leprosy Program Annual Report 2020/21–2024/25, published by the Ministry of Health, Government of Uganda (2020). The five-year scope was considered appropriate for a social science study under Monitoring and Evaluation (M&E), as it provided adequate time for seeing trends, assessing outcomes, and evaluating the impact

of interventions. This time also permitted for satisfactory data collection and analysis, using recent and comprehensive data, in that way enhancing the significance and reliability of the study results.

1.7.3 Content Scope

The study was limited to examining the relationship between health facility interventions and TB service delivery at referral hospitals in Uganda, using Hoima Regional Referral Hospital as a case study.

1.8 Justification

This research was carried out to measure the performance of the TB Program in relation to health facility interventions and service delivery outcomes also The Uganda National TB Program was implemented at Hoima Regional Referral Hospital, making it a suitable case for evaluating what aspects of TB control are working effectively and which parts require development and HRRH was carefully chosen as the study site for the reason that it is the main referral hospital in Hoima City and plays a useful role in TB service delivery in the region.

1.9 Significance

The results of this research as long as appreciated perceptions for healthcare professionals at Hoima Regional Referral Hospital, supportive more informed decision-making in the managing of tuberculosis (TB), the analysis led to specific recommendations intended at solidification the effectiveness of the TB program, in the end of contributing to improved TB service delivery within Hoima District to add on these findings of this study are projected to contribute to scholars and

experts in Development Monitoring and Evaluation by providing practical evidence that can inform future research and improve existing study approaches and it also intended to strengthen evaluation practices by offering insights that enhance the assessment of development programmes and lastly, the study was significant for policymakers and development partners through evaluating the implementation of the Uganda National TB Program in Hoima District hence the research helped identify what interventions were successful and which areas required enhancement of these findings can assist government bodies and organizations in aligning health policies with national development goals and enhancing strategies for TB control at both local and national levels after being able to figure out what worked well and what didn't.

1.10 Theoretical framework

The Societal Ecological Model (SE Model) and the Health Belief Model (HBM) served and the study's managerial models to commonly discover the factors which influenced TB control and management within the Uganda National TB and Leprosy Program, absorbed exactly on Hoima District.

According to Gupta (2020), Rosenstock developed the Health Belief Model in the 1950s. It offered a theoretical framework for comprehending health-related behaviors which emphasized the ways in which individual beliefs such as perceived benefits, perceived risks of tuberculosis, the gravity of sickness and barriers to compliance influence decisions about one's health.

With an emphasis on health workers and patient perspectives, the study applied the Human Behavior Model (HBM) which examined the individual aspects affected the effectiveness or challenges of TB control measures, Smith and Jones (2021) they stated that through investigating social, interpersonal, communal and individual influences on health behavior, the Societal Ecological Model (SEM) enhanced the Health Belief Model (HBM) and helped build holistic solutions by analyzing the relationships and impacts of these components.

1. **Individual Level**

This phase focused on individual personality traits like knowledge, attitudes, beliefs and abilities that aimed to change behaviors like smoking cessation through educating people about the dangers and benefits.

2. **Interpersonal Level**

This stage explored how relationships with coworkers, friends and peers can influence health behaviors by providing stress, direction or motivation which increased positive interpersonal impacts and decreased negative ones, interventions such as social skills training, psychotherapy and peer or family-based support groups.

3. **Community Level**

This level focused on the settings, such as schools, workplaces, and neighborhoods, where social relationships occur. It included the norms, standards, and social networks present within these settings. Community-level interventions

included generating healthy school environments, executing workplace wellness programs, and advancing community support networks.

1.10.1 Conceptual Framework Analysis

The National TB AND LEPROSY PROGRAM- 2020/21- 2024/25

VISION: A Uganda free of Tuberculosis and Leprosy

GOAL: To reduce the incidence of TB by 20% from 200/100,000 population in 2019/20 to 160/100,000, and the proportion of Leprosy

STRATEGIC OBJECTIVES AND OUTCOME TARGETS

- Create awareness about TB and increase the proportion of people with TB symptoms that seek appropriate care from health facilities by 2024/25.
- Increase TB preventive treatment coverage among eligible people by 2024/25
- Reduce the proportion of Leprosy notification that are children by 2024/25.
- Increase TB treatment success by 2024/25.
- Reduce Leprosy notifications that are children by 2024/25.
- Build effective and efficient systems that ensure quality, equitable and timely TB, and Leprosy Services.

The theory of change

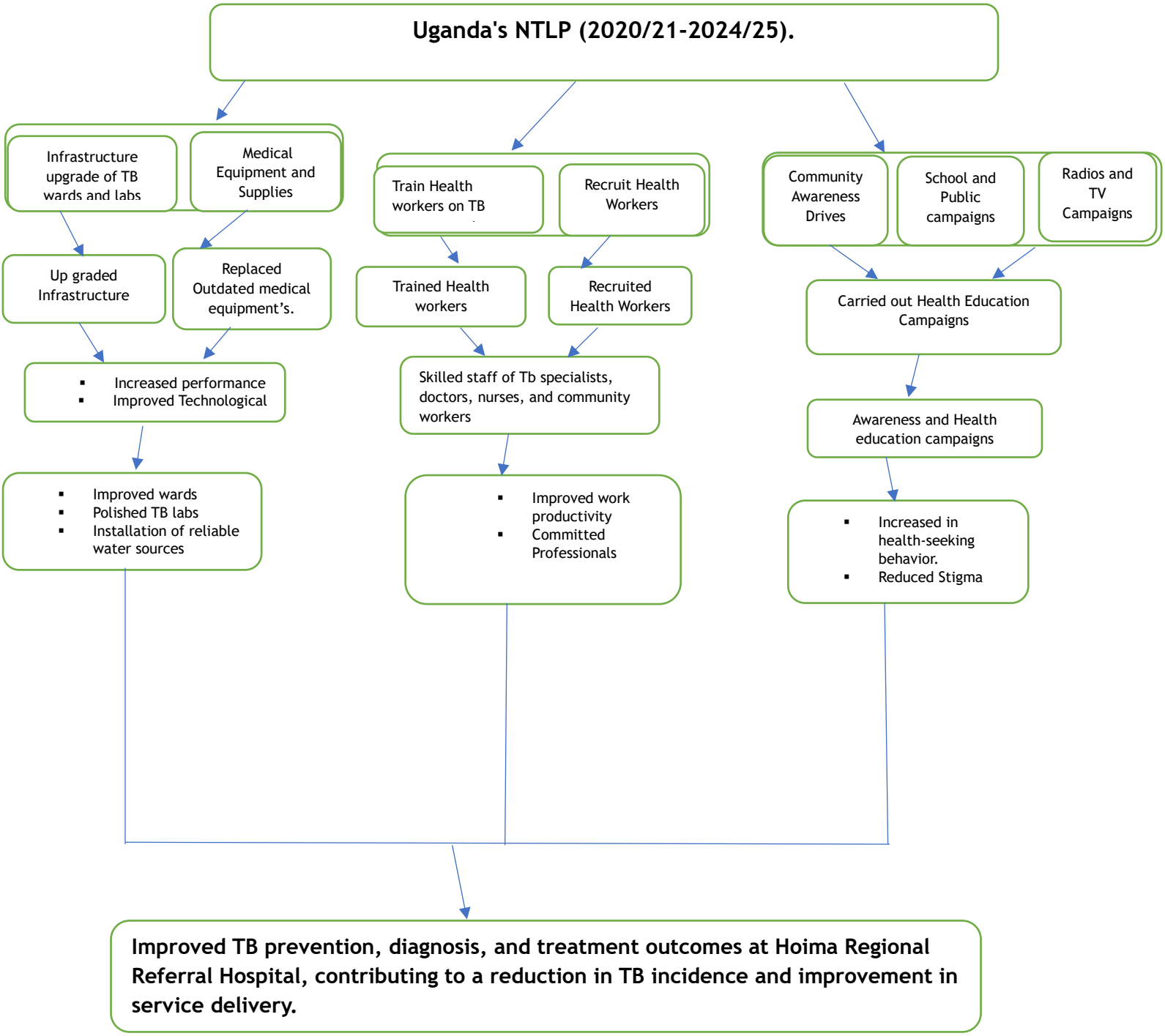

Figure 1: Theory of Change for Uganda's National TB and Leprosy Program (2020/21-2024/25)

1.10.2 Programs Theory

Awareness and Health Education Campaigns

According to World Health Organization (WHO) 2023, health education campaigns are vital for promoting health equity and fostering behavior change by equipping individuals with knowledge and skills to make knowledgeable decisions about their health.

Awareness and health education campaigns work a critical part in increasing health seeking behavior and reducing stigma through provision of accurate information and addressed misconceptions.

Skilled labor of TB specialists

According to Yandra Rivaldo (2023) training was designed, systematic activity resulted in an enhanced level of skill, experience and ability that were necessary to perform a given task effectively. Training healthcare workers in handling TB cases were crucial for improved patient care, reduced transmission rates, and improved detection and treatment in healthcare facilities nationwide.

Additionally, staffing and capacity building efforts required continuous funds which ensured that healthcare workers are well-trained and that facilities are well maintained. Without consistent financial support, the sustainability of these programs was at risk, hindering the overall performance of the TB program. The availability of funds also impacted community outreach and education programs, which were essential for raising TB awareness and encouraging early detection.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This section presents a review of the literature related to the study concepts and research objectives. The literature review was conducted through a careful examination of existing scholarly work on the key variables of the study namely, health facility interventions and service delivery with a focus on the assessment of the TB program at HRRH. This chapter also identifies the underlying or acknowledged research gaps that the current study sought to address.

2.2 Contribution of infrastructure upgrades on the TB service delivery

According to WHO (2019), infrastructure improvement is an essential element of a well-functioning healthcare system. A strong healthcare infrastructure including physical facilities, information systems and medical equipment is crucial for achieving universal health coverage. Quality healthcare services require well-equipped facilities, reliable utilities, a skilled workforce and accessible primary healthcare units. While WHO (2019) emphasizes the importance of infrastructure such as physical facilities, information systems and equipment in strengthening health systems and achieving universal health coverage, there was limited empirical evidence on how specific infrastructure upgrades impact TB service delivery at regional referral hospitals in Uganda, such as HRRH. This

study sought to find out how infrastructure improvements at HRRH had affected the effectiveness, accessibility and quality of TB services.

Also, according to the World Bank (2020), to improve access to treatment, the government increased its investment in health infrastructure. This included the construction and renovation of hospitals and health centers, improvements in physical infrastructure and the integration of electronic health records and telemedicine. These developments have been shown to facilitate better patient management and follow up, particularly in remote and underserved areas. Despite these national-level investments, there was limited evidence on how such infrastructure enhancements had specifically influenced TB service delivery at the facility level particularly in regional hospitals like HRRH. The extent to which these improvements had translated into measurable outcomes such as improved diagnosis rates, reduced treatment delays or better follow-up in TB care remains unclear and under-researched.

Africa, as a geographical zone faces a big challenge in the provision of healthcare, whereby many of the poor people do not have access to high quality healthcare services where Adekanbi (2017) emphasized at least of African governments to allocate 15% on their budget to the healthcare sector thus ensured universal health coverage attained since most of the nations have failed to achieve the minimum requirements in service delivery. Although the specific impact of limited government health investment on TB service delivery at regional health facilities, HRRH remains underexplored thus to examine how national level resource constraints influence the effectiveness of TB service delivery at HRRH providing localized insights to inform health financing and policy decisions.

Lippincott (2019) demonstrated that the implementation of GeneXpert machines in various U.S. healthcare settings improved TB case detection rates and reduced diagnostic delays but also the study did not provide data on the treatment outcomes or long-term health impacts of patients diagnosed using this technology, leaving the actual benefit to patient recovery unclear.

According to a report by the New York City Department (2019), enhanced laboratory facilities and improved treatment centers led to a significant decline in TB incidences and better patient outcomes and there was limited evidence on whether the implementation and distribution of technologies like GeneXpert machines, along with enhanced laboratory and treatment facilities, had produced comparable improvements in TB diagnosis and patient outcomes.

In Tanzania, investments in advanced medical infrastructure and staff training were associated with improved TB diagnosis and treatment outcomes (WHO, 2016) and the study did not clearly identify which aspects of TB service delivery such as diagnostic turnaround time, treatment initiation rates, or patient retention were most improved by infrastructure upgrades.

Lastly, Olupot (2017) stated in the study in Lira District, Uganda this showed that health centers with better-quality diagnostic tools and sufficient medical supplies reported better TB case finding and treatment outcomes.

2.3 Contribution of skilled healthcare professionals to the TB service delivery.

Dheda et al. (2014) highlighted that multidisciplinary teams improve TB program outcomes by promoting comprehensive care and teamwork. However, there is limited

evidence on the specific contribution of skilled healthcare professionals within these teams to TB service delivery in low-resource settings like Hoima Regional Referral Hospital. This gap points to the need for focused research on how skilled healthcare professionals directly impact TB service delivery outcomes in rural Ugandan hospitals.

In the United States, medical personnel undergo comprehensive trained in the diagnosis, treatment, and management of tuberculosis (TB) (Camero, 2006). This specific field of expertise guarantees proper diagnosis, appropriate treatment, and efficient patient care, enhanced patient outcomes and lowering the risk of tuberculosis transmission. There was limited research on the impact of specialized TB training among healthcare professionals in regional hospitals, particularly in relation to service delivery outcomes however much it affirms that expertise guarantees efficient patient care by healthcare workers, a gap that this study sought to fill by assessing how the training and expertise of healthcare workers influenced TB service delivery at HRRH.

In isolated locations with limited access to healthcare facilities, CHWs made a substantial contribution to the early detection and treatment of tuberculosis when accompanied by qualified healthcare professionals (Jerene et al., 2016). However much this emphasized how crucial it was to incorporate Community Health Workers (CHWs) into the healthcare system since they ensured prompt interventions, lessen the strain on official healthcare facilities, and bridge the gap between underserved populations and healthcare services, there remained limited evidence on how skilled the Community Health Workers were to give treatment of tuberculosis to patients and whether the percentage of sick patients lowered thus this study was conducted to find

out the contribution of skilled healthcare workers TB service delivery to the patients clearly identifying their expertise.

Mfinanga (2021) emphasized the significance of ongoing professional development for Tanzanian healthcare professionals. Though the reliability of TB diagnosis and treatment has been greatly increased by training programs that emphasized modern diagnostic instruments and updated TB management criteria. There was limited research on how ongoing professional development and training programs affected the reliability of TB diagnosis and treatment, a gap that this study filled by assessing the impact of continuous capacity building for healthcare professionals on TB service delivery at HRRH.

Kirenga (2022) stated that skilled healthcare workers managing both HIV and TB improved patient outcomes by offering comprehensive care and reducing treatment interruptions. However, the study did not provide evidence on the specific contribution of these professionals to TB service delivery. It also failed to explore why, despite being skilled, some healthcare workers in different facilities may still face challenges in delivering effective TB care.

Uganda Ministry of Health (2023) study indicated that enhancing healthcare coordination, collaborative training initiatives for medical professionals on HIV and TB co-management had improved treatment outcomes for patients with co-infections in Uganda, where HIV and TB co-infection rates are high, integrated care delivery has proven essential.

According to Hoima District Health Office (2022), training programs that highlighted current treatment standards and rapid diagnostic tools, such as GeneXpert, importantly the reduced diagnostic delays and better-quality treatment success rates. Moreover, the study does not assess the actual contribution of these trained healthcare workers to critical aspects of TB service delivery, such as accurate diagnosis, treatment monitoring, or patient outcomes. It also fails to examine how skilled these workers became through the task-shifting process or how their acquired skills influenced the quality of services thus presenting a gap in understanding the role and effectiveness of skilled healthcare professionals in delivering TB services in the district.

2.4 Effects of Tuberculosis awareness campaigns in improving TB service delivery.

Globally, TB remains one of the leading infectious diseases, claiming approximately 1.6 million lives annually despite being preventable and treatable (WHO, 2023). While TB awareness campaigns have aimed to increase public knowledge and promote health-seeking behavior, their actual effect on service delivery outcomes such as early diagnosis, treatment uptake, and adherence remains underexplored in low-resource settings.

Awareness campaigns had recognized a pivotal strategy for reducing the burden of TB. Initiatives such as World TB Day, introduced by the WHO, aimed to educate communities on the signs, symptoms and treatment of TB, thereby improved service delivery through early case detection and treatment adherence (Zumla, 2019). There was limited empirical evidence on the actual impact of global awareness initiatives like World TB Day when implemented at the local level in Uganda, particularly in referral settings.

Sreeramareddy (2018) found that multimedia campaigns such as posters, TV advertisements, and social media significantly improved public knowledge and attitudes toward tuberculosis, particularly in low- and middle-income countries (LMICs). However, the study mainly focused on awareness outcomes, with little examination of how such campaigns translated into improvements in TB service delivery, including early diagnosis, treatment initiation, or adherence.

In Africa, TB awareness campaigns have been instrumental in enhancing service delivery especially in high-burden countries. Initiatives like the STOP TB Partnership, working alongside African governments have focused on community engagement for instance, evidence from South Africa indicates that TB awareness campaigns increased community screening rates by 20%, contributing to earlier diagnoses and improved treatment outcomes (Claassens et al., 2016).

Katamba et al. (2018) reported that TB awareness campaigns in Tanzania using drama, radio talk shows and school-based interventions significantly increased knowledge about TB symptoms and helped reduce stigma.

In Uganda, tuberculosis is still a disturbing public health concern with a rate of 200 cases per 100,000 people (WHO, 2023) for this case the awareness campaigns have played a key role in efforts to enhance TB service delivery nevertheless but also there is limited practical evidence evaluating the usefulness of these campaigns in improving critical service delivery outcomes for example early diagnosis, treatment initiation, patient loyalty and overall treatment success within Uganda’s healthcare facilities.

In Hoima, tuberculosis awareness campaigns have had significant localized impacts on service delivery. The implementation of grassroots campaigns, often led by local healthcare workers and NGOs, has contributed to better TB case detection and reduced delays in seeking treatment (Nabukenya et al., 2022).

Mukama (2023) reported that community outreach initiatives such as school visits and radio programs enhanced TB knowledge by 40% among the rural population in Hoima while improved awareness is a helpful step, there remains limited evidence on whether these campaigns effectively explain knowledge gains into physical improvements in TB service delivery outcomes, including early diagnosis, treatment initiation, patient adherence and follow-up care.

2.5 Summary

Despite several national and global hard work to fight tuberculosis, important facts gaps remain in how exact health system interventions impact TB service delivery within localized, resource constrained backgrounds such as HRRH while infrastructure upgrades have been generally recognized as a foundation stone of quality healthcare, there was inadequate practical evidence on how these developments ranging from diagnostic technologies to physical facilities in a straight-line impact TB exposure, treatment observance and patient results in Uganda's regional referral hospitals.

Similarly, although the contribution of skilled healthcare professionals was well documented, globally there was inadequate research exploring the specific roles of task-shifting, multidisciplinary care and ongoing professional development in enhancing TB service quality at HRRH.

Furthermore, while TB awareness campaigns were globally recognized for increasing community engagement and health seeking behavior, localized evaluations of their effectiveness especially in underserved regions like Hoima are scarce, the diversity of campaign strategies from multimedia outreach to school and community-based initiatives shown promise yet remains underexplored.

Chapter Two reviewed relevant literature on tuberculosis service delivery and health system interventions, with particular attention to diagnostic improvements, treatment outcomes, and program implementation, the review shows that while progress has been made in strengthening tuberculosis control efforts, disparities in access and service delivery remain a persistent challenge across different settings.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents a description of the methodology the researcher employed in collecting and processing data about the topic of the study. It specifies the research design, sampling procedures, research instruments and data analysis techniques that were used to explore the concepts under the study, it also describes the methods and the procedures which were used to conduct the study as well as the research design, validity, reliability, data collection procedures, instruments and methods, primary data, data collection methods, ethical considerations and methodology constraints, furthermore, it provides a clear explanation of the sampling process for both qualitative and quantitative components, outlining how participants were selected using appropriate sampling techniques to ensure adequate representation of the target population and to enhance the validity and reliability of the findings.

3.2 Research Design

The purpose of employing a mixed methods approach was to provide a comprehensive understanding of the research problem by combining the strengths of both data types and the quantitative data allowed for statistical analysis and generalization of trends meanwhile the qualitative data offered deeper insights into participants' perspectives and experiences after the data was collected, both data sets were analyzed separately and then integrated to draw comprehensive conclusions and this approach allowed for the triangulation of findings, ensuring a more robust interpretation of the research

questions through combining these two methods, the study aimed to validate and enrich the results, providing a more holistic understanding of the topic under investigation (George, 2021).

3.3 Population of the Study

This study targeted a study population of 247 in which a sample of 155 participants was drawn and the population included caretakers, patients and healthcare workers involved in the TB, providing a wide spectrum of perspectives and experiences this was considered because these individuals were directly associated with or affected by the TB program at the hospital.

3.4 Sample Size Determination

The researcher classified the sample size of the study's population. This approach was employed to reduce bias during the selection of respondents, as well as to enhance the capacity to generalize the results of the population and ensure that the sample size encompasses all units of interest. The sample size of the study was determined using Yamane (1967) formula as shown below (Uniproject, 2016).

$$n = \frac{N}{(1+Ne^2)}$$

Where;

n is the required sample size

N is the study population size or accessible population size

e is the margin of Error which is 0.05 if the study is conducted at 95% level of significance.

Considering the total population where N = 240 (for Convenience Sample size population)

$$n = \frac{240}{1 + 240 \times 0.05^2}$$

$$n = 150$$

For quantitative data, the sample size was 150 participants. This sample size was statistically significant enough to ensure that the findings were robust and generalizable to the entire target population.

Table 1: Sample size and selection method

Category	**Target Population**	**Sample Size**	**Sampling Method**
Healthcare workers	7	5	Purposive
Patients 1 to 2 years or above	152	$\frac{152}{240} \times 150 = 95$	Convenience Sampling
Caretakers (1 to 2 Years and above)	88	$\frac{88}{240} \times 150 = 55$	Convenience Sampling
Total	**247**	**155**	

3.5 Sample Procedure

This study employed non-random sampling methods specifically purposive and convenience sampling to select participants.

3.5.1 Purposive Sampling

The study utilized a purposive sampling method to gather in-depth qualitative data from a total sample of 5 healthcare workers directly involved in the TB program at HRRH and to add on the researcher carried out deliberate selection of individuals based on their specific knowledge, professional roles and direct experience relevant to the research questions that is to say that healthcare workers were also selected based on their direct involvement in providing TB services, which gave them firsthand experience with service delivery challenges and outcomes moreover the researcher then identified key participants who included 2 clinical officers, 2 nurses and 1 data records officer through departmental contacts and were then personally approached by the researcher to explain the study's purpose and invite their participation as per Crossman (2018).

3.5.2 Convenience Sampling

For the recruitment of TB patients and their caretakers, I employed convenience sampling. This non-probability sampling method was chosen due to the absence of a comprehensive, pre-existing list of all eligible TB patients and their caretakers at HRRH.

The researcher’s data collection involved approaching individuals who were readily available and accessible at the Hoima Regional Referral Hospital during the designated data collection periods. The researcher identified patients who were receiving TB-related services like check-ups, medication as eligible participants. Their primary caretakers, who accompanied them, were also considered for participation. These individuals took part in the study while they were taking care of their patients.

Recruitment continued on an ongoing basis, with participants being enrolled as they presented themselves and expressed willingness to participate and the target sample sizes of 95 patients and 55 caretakers were achieved.

3.6 Data Collection Methods

This study employed questionnaire surveys to collect quantitative data; KII's used to collect qualitative data; a review of documents was also conducted to reinforce the background, problem statement and literature review.

3.6.1 Document Review

It offered a historical perspective, collaborated findings from other data collection methods, identified contradictions and helped in preparations for interviews. This method contributed to the objective of investigating the challenges that impacted the implementation of the TB program. By reviewing policy papers, hospital records, and reports from relevant health authorities it helped to gain insights into key issues, trends, and dynamics which covered any TB program initiatives and strategies by both state and non-state performers while considering challenges, outcomes of these interventions.

According to U.S. Department of Health and Human Services (2018), reviewed documents were valuable source with background information. It offered insights into issues that could not be directly noticeable by the study's objectives, yet they could be advantageous to the research and highlighted issues that other methods might overlook. It is unintrusive and relatively cost-effective.

3.6.2 Survey

A questionnaire was one of the greatest often used tools for accumulating quantitative statistics. The researcher employed this method to amass substantial amounts of data in a short period. Surveys using questionnaires were conducted to collect primary data subsequently patients plus attendants. This method yielded precise and dependable answers to the research questions. As Saul Mcleod (2023) pointed out, questionnaires offer an economical, abrupt, and efficient means of acquiring large volumes of statistics from a comfortable model of people.

3.6.3 Key Informant Interviews (KIIs)

Five participants were the focus of this strategy, which aimed to collect primary data and offered insights on the TB program's execution, with an emphasis on the participation of qualified healthcare professionals and infrastructure modifications.

The HRRH's healthcare workers who included the clinical officers, nurses and record's officer the method's target audience. Key Informant Interviews (KIIs) had a crucial component of qualitative research due to their ability to supplement other research techniques such as surveys and focus group discussions (FGDs), according to Lokot (2021).

3.7 Data Collection Tools

This study employed a range of data gathering instruments, such as questionnaires, interview guides, FGD guides, and document review checklists.

3.7.1 Questionnaire

A sequence of structured questions was designed to elicit information from participants which makes up a questionnaire, a tool for collecting data. Questionnaires were distributed via in-person meetings to the patients and care takers by the researcher.

The study intended to gather complete data by combining both quantitative and qualitative questions which enabled a more comprehensive understanding of the relationship between the efficacy of the TB program, qualified healthcare workers and infrastructural changes which captured a variety of insights and deepening the analysis, this mixed-method approach provided comprehensive research of the subject matter.

3.7.2 Interview Guide

A data collection tool which describes the subjects and inquiries an interviewer plans to address during a research project is called an interview guide. It acted as a guide, gave the researcher a clear framework for examined interested subjects, discussion points for wrapping up the interview and any necessary follow-ups with the respondents, and the proper sequence for asked questions. Maintained consistency and focus were essential during the interview process (DeJonckheere & Vaughn, 2019). During Key Informant Interviews, this instrument was used to collect data from the hospital healthcare workers who offer TB services to patients at HRRH.

3.8 Validity and Reliability

This section shows the validity and reliability for both quantitative and qualitative tools.

3.8.1 Validity and reliability of quantitative tools

To ensure the validity of the quantitative tools that were used in the study, such as surveys and questionnaires, a multi-step approach was adopted. Content validity established by engaging experts in tuberculosis (TB) treatment and healthcare evaluation to review the questions and confirm that they align with the study objectives (Creswell & Creswell, 2018). This expert validation process helped refine the questions, ensured that they measured what they are intended to measure. Construct validity was assessed by analyzing whether the questionnaire accurately captured the key variables under study. This involved reviewing theoretical frameworks and previous studies to ensure consistency in the conceptualization of key constructs (Bryman, 2016).

Reliability was ensured by maintaining consistency in data collection procedures. Test-retest reliability was assessed by administering the same questionnaire to a subset of respondents at two different points in time and comparing their responses for consistency (Babbie, 2020). Internal consistency reliability was measured using Cronbach's alpha, which evaluated the extent to which multiple items within a questionnaire measured the same concept. A Cronbach's alpha score of 0.7 or higher was considered indicative of good reliability (Field, 2018).

3.8.2 Validity and reliability of qualitative Tools

For qualitative tools like interview guides or focus group discussion guides, validity was ensured through careful design of the questions. The questions were open ended, unbiased, and cover all the research objectives. Member checking, to confirm the

accuracy of the findings with the participants were to also enhance validity. Reliability of qualitative tools was more about consistency and transparency of the process.

Credibility refers to the extent to which the data collected accurately represents the phenomenon under study. To enhance credibility, I ensured the use of complete data, employed theoretical triangulation, and participated in validation processes and member checks as part of the rigorous techniques used in data collection.

Transferability is the extent to which the findings are transferable to other situations. I addressed the applicability of the findings to similar contexts or individuals not to broader contexts thus accomplishing through a “thick description” of the findings from multiple data collection methods.

Confirmability means making sure that the data and results truly reflect what the participants said, not the researcher's personal opinions or assumptions. To support this, I kept clear notes on how I grouped and interpreted the responses, so that anyone reviewing the work can see how the conclusions were reached.

3.9 Data Collection Procedure

The researcher attained approval-letter from Uganda Christian University and identified one (1) research assistant who was trained on the use of data collection tools, as well as the purposefulness and ideas of the study. We then traveled to HRRH to pre-test the tools and ensured we were fully familiar with them before the actual data gathering begun. The researcher used tools to accumulate data from randomly selected respondents, secured consent from key informants, and recorded and transcribed notes for study findings.

3.10 Data Analysis

The gathered data was taken through verification, coding, and summarization to derive meaningful insights for improved interpretation.

3.10.1 Quantitative Data Analysis

This is a methodical technique for gathering and evaluating quantifiable, verifiable data. It employed statistical techniques to assess and analyze the quantitative data, allowed the researcher to systematically categorize, summarize, and visualize observations. This form of analysis allowed the researcher to understand and draw assumptions about a phenomenon within a, well-defined group (sample). The sample was meticulously chosen from a larger population in a way that allowed the results to be generalized to the entire population. SPSS software was used to process the raw data for this study so that it can be quickly interpreted. The analysis was guided by the creation of frequency tables and percentages. The purposefulness of the analysis was to characterize the respondents' opinions regarding the independent behavior of the variables. The analysis' findings directed the study's debates, conclusions, and suggestions Ali (2021). The researcher evaluated the results considering their practical and statistical relevance following study's goals.

3.10.2 Descriptive Statistics

Data collection, presentation, description, analysis, and interpretation were all included in descriptive statistics. The goal was to distill them from a set of values.

To better understand service delivery and healthy facility initiatives, the researcher employed descriptive statistics to evaluate data from the hospital, concentrating on central tendency and dispersion metrics.

3.10.3 Inferential Statistics

The researcher utilized regression analysis to make predictions and draw conclusions about the broader population based on the sample data. Specifically, regression analysis was employed to examine the relationship between infrastructure upgrades, the presence of skilled healthcare professionals, and the outcomes of the TB program at Hoima Regional Referral Hospital. This analysis helped address the research questions by identifying the strength and direction of these relationships.

3.10.4 Qualitative Data Analysis

Examines linguistic or visual material to interpret implicit and explicit meanings, encompassing subjective and social dimensions and structures. This analysis was used to uncover and describe issues in the field or identify patterns in routines and practices to derive generalizable conclusions by comparing different material, texts or cases.

According to Clarke (2006), the method offers flexibility and the capability to interpret various facets of the research area used to further track, scrutinize, and document themes within the data in comprehensive detail.

The researcher used the thematic analysis method to track and document themes in data, allowed flexibility in interpreted research aspects, prepared data involved in transcribing interviews, categorizing field notes and familiarizing oneself with it.

Subsequently, the researcher coded data using descriptive terms which categorized ideas, identified patterns, refined these themes, and then interpreted the data, related it to research objectives and existing literature, to draw relevant conclusions and gain a greater considerate of the experience under study.

3.11 Ethical Considerations

3.11.1 Informed Consent

The researcher ensured that all participants had a clear understanding of the nature of the study and their role in it. This included being informed about the purpose of the research, the procedures to be followed, any potential risks and benefits, and their rights as participants such as the right to withdraw at any time without consequences.

3.11.2 Privacy and Confidentiality

The researcher was committed to maintaining participant privacy and data confidentiality by securely storing and avoiding identifying information in reports and publications, as well as by monitoring for possible theft. The researcher also monitored for potential breaches of confidentiality.

3.11.3 Cultural Sensitivity

Owing to the participants' varied backgrounds, the researcher respected regional traditions and beliefs while monitoring for any possible cultural biases that could influence the interpretation of the results.

3.11.4 Data Integrity

By refraining from any activities that could compromise the reliability or validity of the data, such as plagiarism, data fabrication or falsification, the researcher preserved the integrity of the procedures for gathering, analyzing, and reporting data.

3.12 ANTICIPATED LIMITATIONS

Language Barrier

It was inspiring to communicate with locals who speak different languages to see to it that everyone agrees. In addition, I changed to tools and research subordinates that were easy in the language.

Time Constraints

Inadequate time for gathering data had no negative impact on the outcomes as the hospital's scheduled time was measured while making plans, and extra time which was permitted for any delays.

Uncooperative Respondents

Participation in the study may not have been appealing to everyone. To encourage participation, the researcher-maintained confidentiality, offered small incentives, and clearly communicated the importance and purpose of the study.

CHAPTER FOUR

PRESENTATION, ANALYSIS AND INTERPRETATION OF FINDINGS

4.1 Introduction

This chapter analyzes and presents the study findings on how health facility interventions, infrastructure upgrades, skilled healthcare professionals and TB awareness campaigns have improved TB service delivery at Hoima Regional Referral Hospital, based on information obtained from the study questionnaire, interviews, and observations. It specifically presents the background information about the respondents to contextualize the sample and a presentation of the inferential findings in relation to the specific objectives, which aim to assess the contribution of infrastructure upgrades, analyze the role of skilled healthcare professionals, and examine the effectiveness of TB awareness campaigns in improving TB service delivery.

4.2 Characteristics of Respondents

In this section, the characteristics of respondents included in the study are presented.

Table 2: Descriptive results on characteristics of respondents

Item	Description	Frequency	Percent (%)
Category	Patient	95	63.3
	Caretaker	55	36.7
	Total	**150**	**100.0**
Sex	Male	74	49.3
	Female	76	50.7
	Total	**150**	**100.0**
Age Bracket	18 - 25 Years	8	5.3
	26 - 35 Years	39	26.0
	36 - 45 Years	101	67.3
	46 Years and above	2	1.3
	Total	**150**	**100.0**
Marital Status	Married	81	54.0
	Single	56	37.3
	Widowed	13	8.7
	Total	**150**	**100.0**
Duration in TB Program	6 months - 1 Year	38	25.3
	1 - 3 Years	32	21.3
	More than 3 Years	80	53.3
	Total	**150**	**100.0**

Table 2 shows the analysis conducted on the respondents' characteristics, the majority, 76 (50.7%), of the respondents in the study were female, while 74 (49.3%) were male, making a total of 150 respondents. This near-balanced gender distribution indicates that the views on TB service delivery at Hoima Regional Referral Hospital are likely to echo the experiences of both males and females, provided that an inclusive view of how gender may impact observations of the program's infrastructure, awareness campaigns, and healthcare professionals.

Among the respondents, the popular, 95 (63.3%), were patients, while 55 (36.7%) were caretakers, tallying 150 respondents tis distribution suggests that the study primarily captures the perspectives of TB patients, complemented by a substantial proportion of caretakers, contributing a balanced view of those directly affected by TB and those supporting and the age distribution reveals that the majority of respondents 101 (67.3%) were between 36 and 45 years, indicating that middle-aged individuals form the core demographic engaging with the TB program.

The next most represented group were those aged 26 to 35 years (26.0%), the minimal representation of younger respondents aged 18 to 25 years (5.3%) and older individuals above 46 years (1.3%) suggested a potential gap in the program's reach or accessibility to these age groups this underrepresentation may reflect structural, social, or awareness barriers that prevent these populations from actively engaging with TB services. The findings underscore the importance of tailoring TB interventions to effectively reach both ends of the age spectrum, especially youth and the elderly, who may have different healthcare needs and barriers and the significant proportion of

caretakers (over a third) is a critical strength, moving beyond a purely patient-centric view.

The study findings showed that most of the respondents, 81 (54.0%), were married, followed by 56 (37.3%) who were single, while 13 (8.7%) were widowed, making a total of 150 respondents such as their need for clear instructions and support from healthcare professionals at Hoima Regional Referral Hospital and the overwhelming presence of the 36-45 age group suggests that TB program significantly impacts the most economically productive segment of the population.

The acute underrepresentation of both the youngest (18-25) and oldest (46+) age groups is a critical finding because according to what I observed from the interactions with the young people especially the ones between 25 and 30 years and for the older group, it is important to note that 80 (53.3%) of the respondents had been involved in the TB program for more than 3 years, followed by 38 (25.3%) for 6 months to 1 year, and 32 (21.3%) for 1 to 3 years, totaling 150 respondents and also the dominance of respondents with over 3 years of involvement signifies a unique and valuable data source who are expert users of the TB program.

Table 3: Summary of Key Informant Demographic Information

Key Informant Code	Current Role in TB Program at Hoima RRH	Years in TB Service Delivery	Specific Services Provided to TB Patients
K1	Clinical Officer	8 years	Diagnosis, Prescribing, Patient Education, Follow-up
K2	Nurse	5 years	Drug Administration, DOTS Observation, Patient Counseling, Contact Tracing
K3	Clinical Officer	4 years	Diagnosis, Treatment Initiation, Referral, Counseling
K4	Nurse	3 years	Sputum Collection, Vital Signs Monitoring, Health Education, Home Visits
K5	Data Record Officer	2 years	Data Entry, Report Generation, Patient Record Management, Data Analysis Support

Table 3 shows the summary of the Key Informant Demographic information and their responses:

K1 (Clinical Officer with 8 years of experience) emphasizes a holistic approach to TB care, stating,

"We treat every TB patient with respect and follow up closely because their recovery depends not just on medicine but on how we support them emotionally and physically."

This underscores the importance of empathy and comprehensive support beyond just medical treatment.

K2 (Nurse with 5 years of experience), who also received TB treatment when she had started working on TB patients at HRRH, praises the facility's conditions:

"The wards are always clean with enough windows for fresh air and we aren't crowded. It makes me feel safe to treat the TB patients."

This response directly points to the positive impact of a clean, uncrowded, and well-ventilated environment on patient well-being and sense of security.

K3 (Clinical Officer with 4 years of experience) stated that,

"You can see the effort, we have handwashing places, separate waiting areas and the staff are always reminding the care givers, visitors, inspectors among others to wear masks." This shows that they really care about stopping the spread of TB.

This highlights the visible and consistent implementation of infection control practices and how these measures are perceived as a sign of dedication to preventing TB transmission.

K4 (Nurse with 3 years of experience) points to the significant improvement brought about by reliable resources:

"Having a steady supply of TB drugs, functional lab equipment, and protective gear has made a big difference. It's no longer about improving; it's about delivering quality care with confidence."

This indicates that consistent access to essential drugs, equipment and protective gear is crucial for staff morale and their ability to deliver high-quality care.

K5 (Data Record Officer with 2 years of experience) shares a personal transformation:

> *"Before coming here, I knew very little about TB, but through the posters, health talks, and the explanations, I now understand how it spreads, how to support my husband or my patient, and how to protect myself. It has empowered me as a health worker."*

This response emphasizes the effectiveness of TB awareness campaigns initiatives in empowering not just TB patients but also healthcare workers, improving their knowledge and ability to protect themselves and others.

4.3 The contribution of infrastructure upgrades to the TB service delivery of the tuberculosis (TB) program at Hoima Regional Referral Hospital.

The first objective of the study was to assess the contribution of infrastructure upgrades to TB service delivery at Hoima Regional Referral Hospital, the second objective was to analyze the contribution of skilled healthcare professionals to TB program outcomes, and the third objective was to examine the effectiveness of tuberculosis awareness campaigns in improving TB service delivery each independent variable (Infrastructure Upgrades, Skilled Healthcare Professionals and Awareness Campaigns) was measured

using 4 items scored on a five-point Likert scale (5 = Strongly Agree, 4 = Agree, 3 = Neutral, 2 = Disagree, 1 = Strongly Disagree), also the descriptive statistics for these items are presented below, with each item summarized in terms of its mean and standard deviation, reflecting the respondents' perceptions of these health facility interventions in the context of the TB program.

Table 4: Descriptive Results for infrastructure upgrades

S/N	Item	SD (%)	D (%)	N (%)	A (%)	SA (%)	Mean	S.D
B1	The hospital has adequate waiting areas and consultation rooms for TB patients.	0.7	6.7	17.3	38.7	36.7	4.04	0.933
B2	The hospital environment (cleanliness, ventilation, space) is suitable for TB patients.	4.7	4.0	16.0	40.0	35.3	3.97	1.049
B3	The hospital has adequate diagnostic facilities (e.g., laboratory, imaging services) for TB diagnosis.	1.3	2.0	18.0	43.3	35.3	4.09	0.854
B4	The TB treatment facility has sufficient space for patient care and treatment.	2.7	1.3	12.7	34.7	48.7	4.25	0.921
B5	The hospital provides a conducive environment for treating TB patients, including proper infection control measures.	0.7	0.7	26.0	38.0	34.7	4.05	0.834

N=150

Source: *Primary Data*

Table 4 shows that the majority, 75.4% (38.7% Agree + 36.7% Strongly Agree), of the respondents agreed that the hospital has adequate waiting areas and consultation rooms for TB patients (Mean = 4.04, SD = 0.933). A total of 75.3% (40.0% Agree + 35.3% Strongly Agree) of the respondents agreed (Mean = 3.97, SD = 1.049) that the hospital

environment (cleanliness, ventilation, space) is suitable for TB patients to add on 78.6% (43.3% Agree + 35.3% Strongly Agree) agreed (Mean = 4.09, SD = 0.854) that the hospital has adequate diagnostic facilities (e.g., laboratory, imaging services) for TB diagnosis and also 83.4% (34.7% Agree + 48.7% Strongly Agree) agreed (Mean = 4.25, SD = 0.921) that the TB treatment facility has sufficient space for patient care and treatment.

The data indicates a strong consensus among respondents that the hospital's infrastructure adequately supports TB service delivery. The high level of agreement (was over 75% across all indicators) which showed that respondents perceive the hospital environment to be well-resourced and this positive perception is particularly important in the context of TB care, where overcrowding, poor ventilation and inadequate infrastructure can significantly increase the risk of disease transmission. The high mean scores (all above 4.00 on a 5-point Likert scale) further reinforce the consistency of satisfaction across the sample. The strongest agreement was in relation to the adequacy of treatment space (Mean = 4.25), which is crucial for maintaining patient dignity, ensuring confidentiality and delivering patient-centered care.

The findings show that patients who perceive that health facilities are conducive are more likely to believe in the benefits of seeking care and adhering to treatment, thus improving health outcomes.

Lastly, findings suggest that a supportive physical environment, therefore, contributes significantly to positive behavior toward TB care and treatment compliance.

The following are key highlights shared by respondents as narrated by health workers during the interview process:

"The wards are always clean with enough windows for fresh air and we aren't crowded. This makes me feel safe to be treated here compared to where I started my treatment, this place gives a peace of mind."-Health Worker

Additionally, 72.7% (38.0% Agree + 34.7% Strongly Agree) agreed (Mean = 4.05, SD = 0.834) that the hospital provides a conducive environment for treating TB patients, including proper infection control measures. This is supported by a health worker's statement during the interview as part of their experience with infrastructure upgrades:

"You can see the effort we have handwashing places; separate waiting areas and the staff are always reminding us about masks. This shows that we really care about stopping the spread of TB."-Health Worker

From the above results, what stood out among the respondents was that the TB treatment facility has sufficient space for patient care and treatment, which was shown by the highest mean of 4.25, indicating strong agreement. The lowest standard deviation (SD = 0.834) was observed for the item on the hospital providing a conducive environment with proper infection control measures, indicating the highest consensus among respondents.

4.3.1 Pearson's Correlation Analysis between infrastructure upgrades and delivery of the tuberculosis (TB) program at Hoima Regional Referral Hospital.

Table 5: Pearson's Correlation Analysis between infrastructure upgrades and delivery of the tuberculosis (TB) program

		Infrastructure	TB service delivery
Infrastructure	Pearson Correlation	1	.478**
	Sig. (2-tailed)		.000
	N	150	150
TB service delivery	Pearson Correlation	.478**	1
	Sig. (2-tailed)	.000	
	N	150	150

**. Correlation is significant at the 0.01 level (2-tailed).

Table 5 shows Pearson's correlation coefficient r = 0.478 between Infrastructure Upgrades and TB Service Delivery, suggesting that the two variables have a positive significant relationship. The r = 0.478 and significance p = 0.000 indicate that there is

a moderate positive significant relationship between Infrastructure Upgrades and TB service delivery at Hoima Regional Referral Hospital. This means that an increase in infrastructure upgrades is associated with an increase in TB service delivery i.e., greater infrastructure upgrades are associated with greater perceived effectiveness of TB service delivery.

The Pearson correlation coefficient ($r = 0.478$, $p = 0.000$) reveals a moderate, positive and statistically significant relationship between infrastructure upgrades and TB service delivery at HRRH. This means that improvements in hospital infrastructure such as enhanced waiting areas, better diagnostic equipment, improved ventilation and expanded treatment spaces are associated with corresponding improvements in how TB services are delivered and perceived by patients and caretakers.

In real terms, this proposes that targeted investments in hospital infrastructure are likely to yield calculable improvements in TB service outcomes, together with patient satisfaction, treatment adherence and recovery rates.

4.4 The contribution of skilled healthcare professionals on the outcomes of the TB program at Hoima Regional Referral Hospital.

The second objective of the study was to analyze the contribution of skilled healthcare professionals to TB program outcomes at Hoima Regional Referral Hospital. The TB program outcomes, according to the conceptual framework, are influenced by two indicators of skilled healthcare professionals Training and Expertise and Accessibility and Support measured using 5 items scored on a five-point Likert scale (5 = Strongly Agree, 4 = Agree, 3 = Neutral, 2 = Disagree, 1 = Strongly Disagree). The findings are

presented in two steps. In the section that immediately follows, the descriptive statistics for the Skilled Healthcare Professionals variable are presented, and thereafter, the correlation and regression results are presented. In Table 5 below, the descriptive statistics of the variable Skilled Healthcare Professionals are presented.

Table 6:Descriptive Results for skilled healthcare professionals

SN	Item	SD (%)	D (%)	N (%)	A (%)	SA (%)	Mean	S.D
C1	I frequently interact with healthcare professionals regarding the patient's TB treatment.	0	0	16.7	46.7	36.6	4.20	0.705
C2	Healthcare professionals provide clear instructions for caring for the TB patient at home.	0	0.6	18.7	42	38.7	4.19	0.754
C3	Healthcare professionals have a positive attitude towards TB patients and caretakers.	0	0.7	4.0	32.0	63.3	4.59	0.605
C4	The care provided by healthcare professionals contributes to the patient's TB recovery.	0	2.0	1.3	28.0	68.7	4.63	0.618
C5	I have received training or guidance from healthcare professionals on TB management.	59.3	8.0	1.3	14.7	16.7	2.21	1.633
C6	Skilled healthcare professionals have a significant impact on TB treatment outcomes.	80.6	12.7	2.7	1.3	2.7	1.33	0.823
C7	The hospital has adequate resources to support TB healthcare professionals.	0	0	0	45.71	54.29	4.543	0.501

N=150

Source: *Primary Data*

Table 6 shows that 83.3% (46.7% Agree + 36.6% Strongly Agree) of the respondents agreed that they frequently interact with healthcare professionals regarding the patient's TB treatment (Mean = 4.20, SD = 0.705). A total of 80.7% (42.0% Agree + 38.7% Strongly Agree) of the respondents agreed (Mean = 4.19, SD = 0.754) that healthcare professionals provide clear instructions for caring for the TB patient at home to add on 95.3% (32.0% Agree + 63.3% Strongly Agree) agreed (Mean = 4.59, SD = 0.605) that healthcare professionals have a positive attitude towards TB patients and caretakers.

Furthermore, 96.7% (28.0% Agree + 68.7% Strongly Agree) agreed (Mean = 4.63, SD = 0.618) that the care provided by healthcare professionals contributes to the patient's TB recovery and the fact that 83.3% of respondents frequently engage with healthcare providers suggests a healthcare system that prioritizes ongoing dialogue which is crucial for chronic diseases like TB requiring prolonged treatment and strict adherence.

Perhaps, most striking is the exceptionally high level of positive attitudes from healthcare workers, recognized by 95.3% of respondents furthermore, the overwhelming consensus (96.7%) that healthcare professionals' care contributes to TB recovery highlights the perceived effectiveness and reliability of the healthcare system from the patient perspective.

This was also highlighted by a health worker during the interview:

"We treat every TB patient with respect and follow up closely because their recovery depends not just on medicine but on how we support them emotionally and physically." – Clinical Officer

However, only 31.4% (14.7% Agree + 16.7% Strongly Agree) agreed (Mean = 2.21, SD = 1.633) that they have received training or guidance from healthcare professionals on TB management also only 4.0% (1.3% Agree + 2.7% Strongly Agree) agreed (Mean = 1.33, SD = 0.823) that skilled healthcare professionals have a significant impact on TB treatment outcomes. Lastly, 100% (45.71% Agree + 54.29% Strongly Agree) agreed (Mean = 4.543, SD = 0.501) that the hospital has adequate resources to support TB healthcare professionals.

The data presents an interesting dichotomy regarding healthcare professionals' role in TB management despite the fact a strong majority (96.7%) of respondents agree that healthcare providers' care significantly contributes to patient recovery, there is a contrastingly low perception and with only 31.4% affirming this.

"It's no longer about improving; it's about delivering quality care with confidence."

_Health Worker

From the above results, what stood out among the respondents was that the care provided by healthcare professionals contributes to the patient's TB recovery, which was shown by the highest mean of 4.63, indicating strong agreement. The lowest standard deviation (SD = 0.501) was observed for the item on the hospital having adequate resources to support TB healthcare professionals, indicating the highest consensus among respondents.

4.4.1 Pearson's Correlation Analysis between skilled healthcare professionals and TB service delivery at Hoima Regional Referral Hospital.

Table 7: Pearson's Correlation Analysis between skilled healthcare professionals and TB service delivery

		Skilled healthcare workers	TB service delivery
Skilled healthcare workers	Pearson Correlation	1	.459
	Sig. (2-tailed)		.000
	N	150	150
TB service delivery	Pearson Correlation	.459	1
	Sig. (2-tailed)	.000	
	N	150	150

Table 7 shows Pearson's correlation coefficient r = 0.459 between Skilled Healthcare Professionals and TB Service Delivery, suggesting that the two variables have a positive significant relationship. The r = 0.459 and significance p = 0.000 indicate that there is a moderate positive significant relationship between Skilled Healthcare Professionals and TB service delivery at Hoima Regional Referral Hospital and this means that an increase in the perceived quality of skilled healthcare professionals is associated with an increase in TB service delivery.

4.5 The contribution of TB awareness campaigns on TB service delivery at Hoima Regional Referral Hospital.

The effectiveness of TB service delivery, according to the conceptual framework, is influenced by awareness campaigns, which were assessed through indicators such as

community engagement, knowledge broadcasting, and early diagnosis promotion, measured using 6 items scored on a five-point Likert scale (5 = Strongly Agree, 4 = Agree, 3 = Neutral, 2 = Disagree, 1 = Strongly Disagree). The findings are presented in two steps, in the section that immediately follows, the descriptive statistics for the Awareness Campaigns variable are obtainable, the correlation and regression results are presented to assess the relationship between awareness campaigns and TB service delivery improvements.

In Table 5 below, the descriptive statistics of the variable Awareness Campaigns are presented.

Table 8: Descriptive Results for TB awareness campaigns

SN	Item	SD (%)	D (%)	N (%)	A (%)	SA (%)	Mean	S.D
D1	I have attended or heard about TB awareness campaigns.	22.7	1.3	2.7	11.3	62.0	3.89	1.657

D2	The campaign helped me understand how to care for a TB patient better.	0	0	0	46.0	54.0	4.54	0.5
D3	The hospital provides clear TB information to caretakers.	0	1.3	19.3	48.0	31.3	4.09	0.745
D4	I have participated in TB awareness campaigns.	1.3	2.7	22.7	11.3	62.0	3.89	1.657
D5	The awareness campaigns have increased TB knowledge among patients.	0.7	0	18	45.3	36.0	4.16	0.760
D6	More patients are seeking early TB diagnosis because of the campaign.			1.3	30.0	68.7	4.67	0.498

N=150

Source: *Primary Data*

Table 8 shows that 73.3% (11.3% Agree + 62.0% Strongly Agree) of the respondents agreed that they have attended or heard about TB awareness campaigns (Mean = 3.89, SD = 1.657). A total of 100% (46.0% Agree + 54.0% Strongly Agree) of the respondents agreed (Mean = 4.54, SD = 0.5) that the campaign helped them understand how to care for a TB patient better in addition, 79.3% (48.0% Agree + 31.3% Strongly Agree) agreed (Mean = 4.09, SD = 0.745) that the hospital provides clear TB information to caretakers. Also, 73.3% (11.3% Agree + 62.0% Strongly Agree) agreed (Mean = 3.89, SD = 1.657) that they have participated in TB awareness campaigns and the respondents agreed that the hospital shares clear and useful TB information with caretakers and the clarity in communication likely helps improve how families support patients through treatment.

This was also highlighted by a health worker during the interview:

"Before coming here, I knew very little about TB, but through the posters, health talks, and the explanations, I now understand how it spreads, how to support my husband or my patient, and how to protect myself. It has empowered me as a health worker." _Health Worker

Additionally, 81.3% (45.3% Agree + 36.0% Strongly Agree) agreed (Mean = 4.16, SD = 0.760) that the awareness campaigns have increased TB knowledge among patients. Furthermore, 98.7% (30.0% Agree + 68.7% Strongly Agree) agreed (Mean = 4.67, SD = 0.498) that more patients are seeking early TB diagnosis because of the campaign, indicating a highly positive perception, this contrasts with a health worker's statement during the interview as part of their observations on campaign impact:

"Despite the awareness efforts, many patients still come when the disease has advanced. There is a gap between information and action; even though we reach into the communities, patients still repeat the same act." _Health Worker

From the above results, what stood out among the respondents was that more patients are seeking early TB diagnosis because of the campaign, which was shown by the highest mean of 4.67, indicating strong agreement. The lowest standard deviation (SD = 0.498) was observed for the item on more patients seeking early TB diagnosis because of the campaign, indicating the highest consensus among respondents.

4.5.1 Pearson's Correlation Analysis between tuberculosis awareness campaigns and TB service delivery at Hoima Regional Referral Hospital.

Table 9: Pearson's Correlation Analysis between tuberculosis awareness campaigns and TB service delivery

		Awareness Campaigns	TB service delivery
Awareness Campaigns	Pearson Correlation	1	.458**
	Sig. (2-tailed)		.000
	N	150	150
TB service delivery	Pearson Correlation	.458**	1
	Sig. (2-tailed)	.000	
	N	150	150

**. Correlation is significant at the 0.01 level (2-tailed).

Table 9 shows Pearson's correlation coefficient r = 0.458 between Awareness Campaigns and TB Service Delivery, suggesting that the two variables have a positive significant relationship. The r = 0.458 and significance p = 0.000 indicate that there is a moderate positive significant relationship between Awareness Campaigns and TB service delivery at Hoima Regional Referral Hospital. This means that an increase in awareness campaigns is associated with an increase in TB service delivery.

The findings indicate a moderate and statistically significant positive relationship between TB awareness campaigns and the effectiveness of TB service delivery at Hoima Regional Referral Hospital. This means that as the hospital and its partners growth their efforts to raise public alertness about tuberculosis, the quality and reach of TB services also improve.

4.6 Multiple Linear Regression Analysis

Multiple regression analysis was carried out to establish the overall causal effect of Infrastructure Upgrades, Skilled Healthcare Professionals, and TB Awareness Campaigns on TB service delivery at Hoima Regional Referral Hospital using adjusted R^2 statistics. The multiple regression analysis was also conducted to establish which among the dimensions of the independent variables was the most significant predictor of the variance in TB service delivery using standardized coefficient statistics, and the results are presented in the table below.

Table 10: Multiple Linear Regression Analysis Results for Infrastructure Upgrades, Skilled Healthcare Professionals, and TB Awareness Campaigns on TB service delivery at HRRH

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.718[a]	.516	.506	2.04147

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	648.706	3	216.235	51.885	.000[a]
	Residual	608.468	146	4.168		
	Total	1257.173	149			

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	7.703	3.815		2.019	.045
	Infrastructure	.531	.057	.549	9.386	.000
	Skilled healthcare workers	.379	.107	.242	3.528	.001
	Awareness Campaigns	.504	.055	.627	9.171	.000

a. Predictors: (Constant), Awareness Campaigns, Infrastructure, Skilled healthcare workers

b. Dependent Variable: TB service delivery

P<0.05

Source: *Primary Data*

Table 10 shows that R Square is the coefficient of determination, indicating how much of the total variation in TB service delivery can be explained by Infrastructure Upgrades, Skilled Healthcare Professionals, and TB Awareness Campaigns. In this case, an R Square of 0.516 or 51.6% of the total variation in TB service delivery can be explained by these predictors, taking into account all the variables and the sample size of the study. The Analysis of Variance (ANOVA) established whether the regression model predicted TB service delivery significantly well. From the model, the F-ratio is 51.885 ($p < 0.001$). Therefore, the results show that the model predicts TB service delivery significantly well.

The standardized coefficient statistics revealed that TB Awareness Campaigns is the single highest significant predictor of the variance in TB service delivery ($\beta = 0.627$, $t = 9.171$, $p = 0.000$) compared to Infrastructure Upgrades ($\beta = 0.549$, $t = 9.386$, $p = 0.000$) and Skilled Healthcare Professionals ($\beta = 0.242$, $t = 3.528$, $p = 0.001$). The implication is that TB Awareness Campaigns has the strongest influence on TB service delivery, followed closely by Infrastructure Upgrades, while Skilled Healthcare Professionals also contributes significantly but to a lesser extent.

Additionally, when communities are well informed, they are more likely to support TB patients during treatment, which improves treatment completion rates. As a result, effective awareness campaigns not only improve individual health outcomes but also contribute to broader efforts of controlling and preventing TB within the community.

CHAPTER FIVE

DISCUSSION OF FINDINGS

5.1 Introduction

This chapter presents the discussion of the study findings, structured around the three objectives of the research.

5.2 Summary of findings

This summarized the findings and implications of the data according to the major themes of the study.

This study aimed to examine how health facility interventions have improved TB service delivery efforts among referral hospitals in Uganda, focusing on Hoima Regional Referral Hospital taken as a case. It had three objectives namely; (i) To assess the contribution of infrastructure upgrades to the TB service delivery of the TB program at HRRH. (ii) To analyse the contribution of skilled healthcare professionals to the outcomes of the TB program at HRRH. (iii) To examine the effectiveness of tuberculosis awareness campaigns in improving TB service delivery at HRRH.

5.3 Discussion of the findings in relation to contribution of infrastructure upgrades to TB service delivery

In summary, the objective one sought to assess the contribution of infrastructure upgrades to TB service delivery at HRRH.

The findings of the study revealed a positive influence between infrastructure upgrades and TB service delivery, where infrastructure upgrades in the study context involve providing adequate waiting areas and consultation rooms, ensuring a suitable hospital environment for example cleanliness, ventilation and space having sufficient diagnostic facilities for example laboratory, waiting space service arears which ensured the TB treatment facility had enough space for patient care and maintaining a conducive environment with proper infection control measures. This means that if the above infrastructure upgrades were properly implemented, TB service delivery enhanced patient comfort and infection control. However, it also means that, in an instance that those factors are poorly implemented; the performance of the road infrastructure projects will be negatively affected.

The findings indicate that the hospital's provision of adequate waiting areas and consultation rooms for TB patients reflect a structurally supportive healthcare environment, which according to WHO (2019), explained how infrastructure improvement is an essential element of a well-functioning healthcare system. Well-being structure infrastructure including physical facilities, information systems and medical apparatus were crucial for universal health coverage. Quality services required facilities equipped with utilities, skilled workforce, and primary health facilities.

In addition, the findings suggest that by providing proper facilities, the hospital is addressing key determinants of health behavior, such as perceived convenience, comfort, and respect, which are vital for increasing uptake of TB services. According to World Bank (2020), to improve access to treatment, the government stepped up its spending on health infrastructure, including the construction and renovation of

hospitals and health centers improved physical infrastructure, the integration of electronic health records and telemedicine shown to facilitate better patient management and follow-up, particularly in remote and underserved areas.

More so, Olupot (2017) conducted a study in Lira District-Uganda that demonstrated how health centers with modern diagnostic tools and sufficient medical supplies have improved service delivery by increased the number of TB cases detected and treated.

Findings also indicate that despite the benefits of proper TB program the government budget allocation in building capacity of the hospital and TB area there lays a challenge of limited budgets and is not effective enough for the operation of all activities in the hospital infrastructure. Changing the status quo in order to evaluate service delivery models needs more technology provision in order to provide the full picture of service delivery which is critical to understanding, according to Emma M Smith Assistive (2024).

Findings also show that a well maintained and spacious facility can serve as a critical enabler, increasing patient confidence in the health system and encouraging regular visits for treatment follow up and medication adherence, according to the Socio-Ecological Model perspective which emphasizes the importance of environmental and institutional factors in shaping health behaviors and access to care.

Findings show that patients who perceive that health facilities are conducive, are more likely to believe in the benefits of seeking care and adhering to treatment, thus improving health outcomes according to Health Belief Model. And also, the availability of clean and well-ventilated facilities reduces perceived barriers to care, such as fear of infection or stigma associated with poor hospital conditions.

According to the Monitoring and Evaluation Plan for NTLP (2024-2025), TB objectives are well-defined in numerical terms and are allocated adequate funding. However, this documented financial commitment does not necessarily reflect the realities on the ground. The mismatch between strategic planning and actual technical and operational execution points to a deeper issue: resources may be assigned, but without a robust narrative and strong systems of technical support, their impact remains limited.

The findings also show a notable improvement in the availability of quality assured TB medicines, supplies, and equipment across all levels of care. This points to growing consistency and reliability within the TB supply chain, which is essential for sustaining effective treatment and case management.

According to the Uganda National Strategic Plan for Monitoring and Evaluation (2023), this progress is supported by data from the NTLP (2024) quarterly report, which highlights a 95% increase in availability, as captured through the LMIS quarterly reporting system. While this marks a significant achievement, it also underscores the importance of maintaining this momentum through continued investment in logistics, forecasting and stock monitoring to prevent future stockouts or service disruptions.

The findings reveal that TB patients are often required to travel between 5 to 10 kilometers to access services at Hoima Regional Referral Hospital (HRRH). This reality stands in contrast to the Uganda National Strategic Plan for Monitoring and Evaluation Plan (2023), which emphasizes the importance of equitable access to healthcare services across all regions. While the plan promotes early TB detection and treatment, the distance to the referral facility undermines that intention by creating a physical

access barrier, especially for patients in rural and underserved areas and findings show that physical proximity to health facilities does not always translate into actual service access. Although the Uganda National Strategic Plan for Monitoring and Evaluation Plan (2025) states that 75% of the population lives within 5 kilometers of a health facility, this statistic becomes less meaningful when essential TB services are not available at lower-level health units.

The findings expose the economic vulnerability TB patients face due to continued reliance on out-of-pocket payments. According to the Uganda National Strategic Plan for Monitoring and Evaluation (2023) calls for financial risk protection and equitable health financing, yet the ongoing cost burden contradicts this for example the lack of social protection for TB patients reveals a critical gap in the health system's ability to shield the poor from catastrophic expenditures, contributing to inequitable outcomes.

The findings suggest that decentralization of TB services remains insufficient, especially for advanced care and diagnostics. While the Uganda National Strategic Plan for Monitoring and Evaluation Plan (2024-2025) outlines decentralization as a strategic goal, in practice, patients are still referred to regional facilities like HRRH for basic TB services. This discrepancy reflects a weakness in implementation and supports the argument that more aggressive decentralization efforts are needed to align service delivery with policy intentions, in addition the findings show that there is no development of an electronic TB Monitoring and Evaluation system at HRRH. This directly contradicts with the commitments made in the Uganda National TB and Leprosy Program (NTLP) Strategic Plan, which stated that electronic systems for tracking TB data would be developed and operationalized at all service levels. The absence of such

a system at HRRH one of the key referral facilities highlights a significant gap in implementation.

This failure undermines efforts to improve data accuracy, reporting efficiency, and patient follow-up. Without a functional electronic monitoring system, data collection remains paper-based and prone to errors, delays and inconsistencies, according to the NTLP's (2020-2021 to 2024-2025) digital transformation agenda, as outlined in the plan, appears to exist more in theory than in practical raising critical concerns about accountability, transparency and the actual progress being made in TB control.

The findings show that the lack of an electronic TB monitoring system undermines data-driven care and continuity HRRH remains reliant on manual, paper-based tools. Although Uganda's Ministry of Health has committed to rolling out digital TB surveillance systems this contradicts successful national rollouts of electronic TB trackers like the DHIS2-based TB eCBSS system which improved real-time patient follow-up and minimized data loss (DHIS2, 2023).

If even regional referral hospitals are not equipped with the promised systems, it calls into question how lower-level facilities are expected to comply, thereby exposing a disconnect between national level planning and local level execution.

5.4 Contribution of skilled healthcare professionals to TB program outcomes at Hoima Regional Referral Hospital

Objective two sought to analyze the contribution of skilled healthcare professionals to TB program outcomes at Hoima Regional Referral Hospital. The findings of the study revealed a mixed influence between skilled healthcare professionals and TB program

outcomes, where skilled healthcare professionals in the study context involve frequent interaction with patients and caretakers, providing clear instructions for TB care at home, maintaining a positive attitude towards TB patients and caretakers, contributing to patient recovery, offering training or guidance on TB management having a significant impact on treatment outcomes, and being supported by adequate hospital resources.

The findings of the study also suggest that a mixed influence between skilled healthcare professionals and TB program outcomes, where skilled healthcare professionals in the study context involve frequent interaction with patients and caretakers. According to Uganda Ministry of Health (2023), study indicated that by enhancing healthcare coordination, collaborative training initiatives for medical professionals on HIV and TB co-management had improved treatment outcomes for patients with co-infections. In Uganda, where HIV and TB co-infection rates are high, integrated care delivery has proven essential.

In addition, the findings also show that providing clear instructions for TB care at home, maintaining a positive attitude towards TB patients and caretakers, contributing to patient recovery, offering training or guidance on TB management having a significant impact on treatment outcomes, and being supported by adequate hospital resources. According to a study by Kirabira et al. (2020), task-shifting initiatives in Hoima District, where nurses and mid-level health workers were taught to take on TB care responsibilities normally undertaken by doctors, enhanced access to TB services.

The findings show that trained health workers and skilled health professionals give proper information to the TB patients and Care takers on how, what, when during the time of treatment and after treatment, according to Yandra Rivaldo (2023) training was designed, systematic activity resulted in an enhanced level of skill, experience and ability that were necessary to perform a given task effectively. Training healthcare workers in handling TB cases were crucial for improved patient care, reduced transmission rates, and improved detection and treatment in healthcare facilities nationwide.

The findings reveal that task-shifting is unevenly applied, compromising workforce flexibility such as ask-shifting empowering nurses and mid-level providers to handle TB tasks has been nationally endorsed, but HRRH lacks standardized implementation of this model according to Callaghan et al. (2009). This echoes broader findings where successful ART/TB programs in Uganda benefitted from structured delegation of responsibilities.

The findings indicate that irregular training of healthcare professionals reduces sustained quality of TB care therefore the trainings at HRRH are still lacking or they are donor-dependent, failing to build long-term skills or institutional memory. According to Amref Health Africa (2025), recent national reviews emphasizes that reliance on short-term, fragmented training leads to gaps in capacity and weakens service delivery.

The findings demonstrate that skilled healthcare workers' impact is curtailed by system-level constraints like stock-outs and underfunding despite competent staff, external bottlenecks such as inconsistent supply of TB medicines, PPE and diagnostics

continue to limit performance. According to Akumu et al. (2024), recent evidence from rural Uganda confirms that such systemic barriers are a major cause of treatment delays.

The findings suggest that multisectoral collaboration training has not translated into local TB management practices. According to WHO AFRO (2024), national partnerships have trained over 500 health workers in integrated TB-HIV service delivery although HRRH shows no evidence of adopting these collaborative approaches in its operational routines thus limiting integrated care for co-infected patients.

The findings show that the absence of structured supervision and performance feedback limits clinical accountability where HRRH lacks such performance feedback loops which weakens accountability and consistent treatment outcomes, according to DHIS2 (2023), nationally programs using digital surveillance tools conduct regular reviews to identify missed doses and follow ups.

Lastly, if the skilled healthcare professionals are well-supported with resources, training, and adequate staffing, TB program outcomes will be enhanced, improving patient recovery and adherence where as there is low perceived impact of skilled professionals where the TB program outcomes were negatively affected, potentially leading to reduced patient support and slower recovery rates for example one of the patients, I witnessed who was told to go get a certain drug outside of the hospital here the patient included that sometimes the health workers become emotionally upset especially when they don’t have enough drugs in the hospital.

5.5 Discussion of the findings in relation to the Contribution of TB awareness campaigns in improving TB service delivery at HRRH.

Objective three sought to examine the effectiveness of TB awareness campaigns in improving TB service delivery at Hoima Regional Referral Hospital. The findings of the study revealed a positive influence between TB awareness campaigns and TB service delivery where awareness campaigns in the study context involve community participation, increasing understanding of TB care among caretakers, providing clear TB information this has enhanced the TB knowledge among patients and promoting early diagnosis. This means that if TB awareness campaigns are effectively implemented, reaching more communities and addressing behavioral gaps, they will significantly enhance TB service delivery, improving patient engagement and knowledge.

The findings of the study revealed a positive influence between TB awareness campaigns and TB service delivery where awareness campaigns in the study context involve community participation, according to WHO (2023), health education campaigns are vital for promoted health equity and fostered behavior change by equipped individuals with knowledge and skills to make informed decisions about their health. The awareness and health education campaigns work a critical part in increased health-seeking behavior and reduced stigma through provision of accurate information and addressed misconceptions, these initiatives encouraged people to pursue prompt medical care, particularly for conditions that carry stigma, such as tuberculosis (TB).

In addition, the findings reveal that providing clear TB information has enhanced the TB knowledge among patients and promoting early diagnosis. According to Zumla

(2019), awareness campaigns were recognized as a pivotal strategy for reducing the burden of TB. Initiatives such as World TB Day, introduced by the WHO, aimed to educate communities on the signs, symptoms and treatment of TB, thereby improved service delivery through early case detection and treatment adherence.

Also, findings indicate that TB is still a big problem in HRRH and the TB awareness sessions are helping to enhance TB service delivery, according to WHO (2023), TB remains a significant public health issue, with an estimated incidence rate of 200 cases per 100,000 people in Uganda.

The findings show that there is a moderate positive significant relationship between Awareness Campaigns and TB service delivery at HRRH. This means that an increase in awareness campaigns is associated with an increase in TB service delivery such as greater awareness campaigns are associated with greater perceived effectiveness of TB service delivery, a study by Mukama (2023) revealed that community outreach initiatives for example school visits and radio programs had improved TB knowledge by 40% among the rural population of Hoima City.

The findings indicate that TB awareness campaigns in Hoima have led to slight but noticeable improvements in public knowledge and health-seeking behavior regarding tuberculosis. According to Mulebeke et al. (2025), campaigns improved the number of people screened for, presumed to have, and diagnosed with TB disease in central Uganda, supporting scale-up efforts nationally and across sub-Saharan Africa where such indicators are suboptimal.

The findings reveal that TB screening initiatives have contributed to reducing stigma by normalizing testing and encouraging open conversations about TB. According to Turyahabwe et al. (2024), community tuberculosis screening initiative is effective.

The findings highlight a critical need for increased stakeholder engagement in TB awareness campaigns, particularly within the heart of the Bunyoro region, to enhance outreach and community impact. According to Amare et al. (2023), stakeholders emphasized the critical role of providing daily health education on TB at all service delivery points to enhance TB awareness among men, which was expected to lead to improved health-seeking behavior. Key messages should focus on stigma reduction and promote healthy lifestyles to decrease smoking and alcohol use, and reinforcing cough hygiene.

The findings reveal that gender influences TB exposure and vulnerability, with men experiencing higher rates of TB and missed diagnoses making them a key driver of new infections. According to Dodd et al. (2016) and Shaweno et al. (2020) two-thirds of TB cases which go undiagnosed or undetected are among men and models highlighting social interactions underscore the role of adult men in driving new TB infections.

As a social construct, gender plays a pivotal role in shaping individuals' behaviors, expectations and interactions within societies (Courtenay, 2000), and these influence exposure and vulnerability to TB in unique ways (Nhamoyebonde and Leslie, 2014; Miller et al., 2021).

The complex interplay between gender norms and the pathways through which people navigate TB care is a critical issue that needs to be addressed to end TB (Horton et al.,

2016; 2018a; Chikovore et al., 2020; Ringwald et al., 2023). Gender disparities in TB can be attributed to various factors, including occupational exposure and socio-behavioral.

However, it also means that if these campaigns are poorly implemented there will be delay of early diagnosis, indicating high consensus but potential gaps, TB service delivery will be negatively affected.

CHAPTER SIX

CONCLUSION AND RECOMMENDATIONS

6.1 Introduction

This chapter presents the conclusion and recommendations derived from the study on how health facility interventions have improved TB service delivery at Hoima Regional Referral Hospital, Uganda.

6.2 Conclusion

The main purpose of this study was to examine how health facility interventions have improved TB service delivery efforts among referral hospitals in Uganda, focusing on Hoima Regional Referral Hospital taken as a case in addition the research also focused on three key health facility interventions infrastructure upgrades, skilled healthcare professionals, and TB awareness campaigns and their impact on TB service delivery, addressing a critical public health challenge in a region where TB remains a significant burden.

The study involved 150 respondents, predominantly patients with a substantial proportion of caretakers selected through a stratified random sampling method to ensure representation across relevant groups. Both quantitative and qualitative approaches were adopted, utilizing questionnaires and interviews to collect data, which was analyzed using Pearson's correlation coefficient and multiple linear regression to assess the relationships between the interventions and TB service delivery, findings revealed that these interventions collectively contributed to the variance in TB service

delivery highlighting their significant role in improving TB care outcomes, the sections that follow provide a detailed conclusion of the findings in relation to the study's objectives and offer recommendations for hospital administrators, policymakers, and future researchers to enhance TB service delivery at referral hospitals.

The first objective assessed the contribution of infrastructure upgrades to TB service delivery. The findings showed that infrastructure upgrades had a moderate positive significant influence on TB service delivery of respondents agreeing that the TB treatment facility has sufficient space in addition it suggests that improvements in waiting areas, hospital environment, diagnostic facilities, and infection control measures significantly enhance patient comfort and TB care delivery.

In respect to the second objective, the findings indicated that skilled healthcare professionals, which in the study context meant providing frequent interaction, clear instructions, a positive attitude, and being supported by adequate resources, had a moderate positive significant influence on TB program outcomes. However, respondents agreed that skilled professionals significantly impact TB treatment outcomes which highlighted potential gaps in training despite strong agreement on resource availability.

Concerning the third objective, which sought to examine the effectiveness of TB awareness campaigns in improving TB service delivery, the findings revealed that awareness campaigns had the highest positive significant influence on TB service delivery of respondents having participated in campaigns most of the respondents agreed that campaigns promote early diagnosis. This underscores the critical role of community engagement and education in enhancing TB care which also showed that

the study concluded that TB awareness campaigns have the strongest influence on TB service delivery among the predictors, followed closely by infrastructure upgrades, with skilled healthcare professionals having a smaller but significant effect. The study found that these health facility interventions collectively have a positive and significant influence on TB service delivery at Hoima Regional Referral Hospital explained by the regression model.

6.3 Recommendations of the Study

Based on the study findings, the following recommendations are proposed to enhance TB service delivery at Hoima Regional Referral Hospital, Uganda focusing on the context of health facility interventions and the study showed that infrastructure upgrades positively contribute to TB service delivery. Therefore, the study recommends that hospital management should sustain and further improve infrastructure systems to support TB care. Proper infection control measures, such as ventilation and cleanliness, should be maintained across all units.

Secondly, the study established that skilled healthcare professionals positively influence TB program outcomes. It therefore recommends that hospital administrators should prioritize clear and adequate resource allocation to support TB healthcare professionals. These resources, including TB drugs and protective gear, should be directed to their intended purpose thus management of the hospital should invest in continuous training and professional development for healthcare workers involved in TB care. Regular training programs can help update staff on current TB treatment guidelines, infection prevention measures, and patient management practices.

Thirdly, the study recognized that TB awareness campaigns have the strongest positive influence on TB service delivery and the study recommends that hospital management should ensure the availability of materials that support TB education, such as posters and health talks and establish a health information system or database to meet the information needs of staff and caretakers, providing regular updates on TB awareness activities.

6.4 Further Research

Since the study was conducted at Hoima Regional Referral Hospital, the findings may differ from other healthcare facilities, such as district hospitals, private hospitals, or community health centers involved in TB care across Uganda. Thus, a similar study should be undertaken at different levels, for instance at district hospitals or community health centers, to determine whether infrastructure upgrades, skilled healthcare professionals and TB awareness campaigns influence TB service delivery in those settings under varying operational and resource conditions.

Although the study demonstrated that infrastructure upgrades, skilled healthcare professionals, and TB awareness campaigns positively influence TB service delivery at Hoima Regional Referral Hospital, the researcher acknowledges that there may be other health facility interventions and factors that could also impact TB service delivery. These might include factors such as patient-centered care approaches, community involvement in TB programs, the accessibility of TB services, the sustainability of intervention programs and the efficiency of resource allocation for TB care, among others.

The study also recommends strengthening staff training and continuous mentorship on tuberculosis management at Hoima Regional Referral Hospital. Regular refresher training can help health workers stay updated on the latest TB treatment guidelines and improve the quality of care given to patience hence need to improve patient follow-up systems within TB programs, especially for patients on long treatment courses. Strengthening follow-up through community health workers or phone reminders can help reduce treatment interruptions and improve recovery rates.

In addition, since Hoima Regional Referral Hospital likely receives support from government and donor funding for TB programs, the researcher recommends another study to be conducted on the influence of health facility interventions on the success of donor-funded TB programs in Uganda. This would provide insights into how external funding shapes the effectiveness of TB service delivery in similar healthcare settings.

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APPENDICES

APPENDIX 1: STRUCTURED QUESTIONNAIRE

Dear respondent,

My name is Jovia Kusiima, a student of Uganda Christian University pursuing a Master's Degree in Development Monitoring & Evaluation (M&E). I am conducting an academic study on the topic: "Health care interventions Tuberculosis service delivery: Assessment of the TB program.". A case of Hoima Regional Referral Hospital (HRRH).As one of the requirements of the degree, am required to conduct research on "Health care interventions Tuberculosis service delivery: Assessment of the TB program of Hoima Regional Referral Hospital." This questionnaire is used to collect relevant data for my research. Kindly, note that data collected will be entirely for academic purposes and as such your responses will be used for only this study and with high level of confidentiality. Please spare some time to answer this questionnaire.

Thank you in advance.

SECTION A

Biographic data (tick where applicable)

a. Age: (years)

[ ] Below 18 [ ] 18-30 [ ] 31-45 [ ] Above 45

b. Gender

[ ] Male [ ] Female [ ] Other

c. How long have you been receiving TB treatment here?

[ ] Less than 6 months [ ] 6 months – 1 year [ ] More than 1 year

SECTION B

1. Contribution of infrastructure upgrades to the TB service delivery of the TB program at HRRH.

This questionnaire for TB Patients and Care Takers. Using the scale provided, indicate the extent to which you agree/disagree with the following statements.

SA-Strongly A-Agree (5), Agree (4), N-Neutral (3), D-Disagree (2), SD-Strongly Disagree (1).

Statement	SD	D	N	A	SA
The recent improvements in hospital infrastructure have made it easier for me to access TB services.					
The new or improved facilities have made it easier for me to find the TB services within the hospital.					
The expanded or renovated spaces have reduced overcrowding in TB service areas.					
The upgraded hospital and laboratory facilities have improved the quality of TB services I receive.					
Since the improvements, my TB test results are available more quickly.					
The new medical equipment and facilities have made my TB treatment more effective.					
The improved infrastructure has ensured better privacy and confidentiality when I access TB services.					
The hospital has adequate waiting areas and consultation rooms for TB patients.					
The hospital environment (cleanliness, ventilation, space) is suitable for TB patients.					
The hospital infrastructure makes it easier for patients to receive treatment without long delays.					
Infrastructure improvements have made it easier to receive timely TB diagnosis and treatment.					

SECTION C

2. Contribution of skilled health care professionals to the outcomes of the TB program at HRRH.

This questionnaire for TB Patients and Care Takers. Using the scale provided, indicate the extent to which you agree/disagree with the following statements.

SA-Strongly A-Agree (5), Agree (4), N-Neutral (3), D-Disagree (2), SD-Strongly Disagree (1).

Statement	**SD**	**D**	**N**	**A**	**SA**
The availability of trained health workers at this facility has improved the quality of TB care I receive.					
The recruitment of more health workers has reduced the waiting time for TB services.					
The recruitment of skilled health workers has made it easier to access TB services when needed.					
Skilled health professionals provide clear and understandable explanations about my TB treatment.					
I receive timely follow-ups and check-ups from the healthcare professionals managing my TB treatment.					
The healthcare workers at this facility treat me with respect and compassion throughout my TB treatment.					
How well do health workers listen to your concerns and respond to your questions?					

SECTION D

3. Effectiveness of TB awareness campaign in improving TB service delivery at HRRF. Questionnaire for TB Patients and Care Takers

Statement	**SD**	**D**	**N**	**A**	**SA**
I have heard about TB awareness campaigns at this hospital.					
The TB awareness campaign helped me understand TB symptoms, transmission, and treatment.					
The hospital provides enough TB awareness through posters, radio, and community meetings.					
The awareness campaign encouraged me to seek TB testing and treatment earlier.					
It is now easier to access TB services after the awareness campaigns.					
I feel more comfortable discussing TB because of the awareness efforts.					
TB stigma in my community has reduced because of the campaign.					

APPENDIX 2: INTERVIEW GUIDE

2.1 INTERVIEW GUIDE FOR TB PATIENTS AND CARE TAKERS

Dear respondent,

My name is Jovia Kusiima, a student of Uganda Christian University pursuing a Master's Degree in Development Monitoring & Evaluation (M&E). I am conducting an academic study on the topic: "Health care interventions Tuberculosis service delivery: Assessment of the TB program.". A case of Hoima Regional Referral Hospital (HRRH).As one of the requirements of the degree, am required to conduct research on "Health care interventions Tuberculosis service delivery: Assessment of the TB program of Hoima Regional Referral Hospital." This questionnaire is used to collect relevant data for my research. Kindly, note that data collected will be entirely for academic purposes and as such your responses will be used for only this study and with high level of confidentiality. Please spare some time to answer this questionnaire.

Thank you in advance.

SECTION A:

Biographic data (tick where applicable)

a. Age: [ ] Below 18 [ ] 18-30 [ ] 31-45 [ ] Above 45

b. Gender: [ ] Male [ ] Female [ ] Other

c. How long have you been receiving TB treatment here?

[ ] Less than 6 months [ ] 6 months – 1 year [ ] More than 1 year

SECTION B: HEALTH FACILITY INFRASTRUCTURE

1. Have you noticed any recent infrastructure improvements in the hospital's TB ward? If yes, what are they?
2. How do you think these improvements have affected the comfort and well-being of TB patients?
3. Are there any infrastructure-related challenges that still exist in the TB ward?

SECTION C: ACCESSIBILITY AND SERVICE DELIVERY

4. How accessible are TB services for patients in terms of space, waiting areas, and sanitation facilities?
5. Do you think the hospital has enough beds and proper ventilation for TB patients? Why or why not?
6. Have there been any delays in receiving TB-related services? If yes, what do you think causes them?

Section D: Conclusion

Is there anything else you would like to share regarding your experience as a caretaker for a TB patient at this hospital?

Thanking the participant and provide an opportunity for any final thoughts.

2.2 INTERVIEW GUIDE FOR HEALTH WORKERS

Dear respondent,

My name is Jovia Kusiima, a student of Uganda Christian University pursuing a Master's Degree in Development Monitoring & Evaluation (M&E). I am conducting an academic study on the topic: "Health care interventions Tuberculosis service delivery: Assessment of the TB program.". A case of Hoima Regional Referral Hospital (HRRH).As one of the requirements of the degree, am required to conduct research on "Health care interventions Tuberculosis service delivery: Assessment of the TB program of Hoima Regional Referral Hospital." This questionnaire is used to collect relevant data for my research. Kindly, note that data collected will be entirely for academic purposes and as such your responses will be used for only this study and with high level of confidentiality. Please spare some time to answer this questionnaire.

Thank you in advance.

Section 1: Demographic Information

1. What is your current role in the TB program at Hoima Regional Referral Hospital?
2. How long have you been working in TB service delivery?
3. What specific services do you provide to TB patients?

Section 2: General Impact of Infrastructure Upgrades

4. What infrastructure upgrades have been made at Hoima Regional Referral Hospital in relation to TB services?
5. How have this infrastructure improvements affected your ability to deliver TB services?
6. In your opinion, has the hospital physical space improved in terms of accommodating TB patients and service provision?

Section 3: Effect on TB Diagnosis and Laboratory Services

7. Have the infrastructure upgrades improved the capacity of the laboratory to diagnose TB? If so, how?
8. Have the upgrades led to faster turnaround times for TB test results?
9. Are there improvements in the availability and functionality of diagnostic equipment for TB?

Section 4: Effect on TB Treatment and Patient Care

10. Has the upgraded infrastructure improved access to TB treatment and care for patients?
11. Have the improvements enhanced infection control measures, such as better ventilation and isolation facilities for TB patients?
12. How has the upgraded infrastructure affected patient flow and waiting times for TB services?

13. Have you observed changes in patient adherence to TB treatment since the infrastructure upgrades?

Section 5: Effect on Health Worker Experience and Service Delivery

14. Have the infrastructure upgrades improved your working environment as a healthcare provider?
15. Has there been any impact on staff workload or efficiency in delivering TB services due to these improvements?
16. Do you feel that the upgrades have contributed to better coordination between different departments involved in TB care?

Section 6: Challenges and Recommendations

17. Despite the infrastructure upgrades, what challenges do you still face in delivering TB services?
18. Are there any areas where further infrastructure improvements are needed?
19. What recommendations would you make to enhance the impact of infrastructure upgrades on TB service delivery?

Conclusion:

Thank you for your valuable time and insights. Your responses will help in understanding the role of infrastructure improvements in enhancing TB service delivery at Hoima Regional Referral Hospital. If you have any additional thoughts or suggestions, please feel free to share.

APPENDIX 3: INFORMED CONSENT FORM.

Title of the Study: Health Care Interventions Tuberculosis Service Delivery: Assessment of The Tuberculosis Program in Hoima Regional Referral Hospital.

No	Name of Investigator	Designation	Address/ Telephone/ Email	Institution of Affiliation
1	Jovia Kusiima	Principle investigator	joviahkusiima@gmail.com	Uganda Christian University, Mukono (Main Campus)
2	Mwije Solomon	Co-investigator/Academic Supervisor	smwije@ucu.ac.ug	Uganda Christian University, Mukono (Main Campus)

Introduction:

This study is being conducted by Jovia Kusiima, a candidate pursuing a master's degree in Development Monitoring and Evaluation from Uganda Christian University, Uganda. The researcher is interested in understanding how health facility interventions have improved service delivery at Hoima Regional Referral Hospital (HRRH). You are being asked to participate because you are a healthcare worker, patient, caregiver or administrator at HRRH with valuable insights and experiences that can contribute to this research.

Description of the Research

The purpose of this study is to assess the impact of various health facility interventions on service delivery at HRRH. This research will help the researcher understand how

these interventions influence patient outcomes and overall service efficiency, and could inform future healthcare policies and practices.

Who Will Participate and why in the Study?

Healthcare workers, patients, caregivers and administrators at HRRH are invited to participate in this study. The researcher aims to gather diverse perspectives to gain a comprehensive understanding of the impact of health facility interventions on service delivery.

Potential Risks and Discomforts

There are no anticipated risks or discomforts associated with participating in this study. However, if any question makes you uncomfortable, you have the right to skip that question or withdraw from the study at any time.

Potential Benefits

While there may not be direct benefits to you, your participation will contribute to the researcher's understanding of how health facility interventions have improved TB service delivery at HRRH and also help in further changes at the HRRH.

Confidentiality

Your responses will be confidential, and your personal information will not be shared with anyone outside the research team. Your responses will be stored securely and will only be used for the purposes of this research.

Procedure

If you agree to participate, you will be asked to complete a questionnaire. The questionnaire will include questions about your experiences and observations related to health facility interventions and service delivery at HRRH. The questionnaire should take approximately 15 minutes to complete.

Voluntary Participation or Statement of Voluntariness

Your participation is completely voluntary and you will not be compensated for your time. If you decide to participate, you can withdraw at any time. Your decision to participate, decline or withdraw will not affect your relationship with Uganda Christian University.

Withdrawal from the study and withdrawal of Authorization

Participation in this study is voluntary. You have the right to decline to participate or withdraw at any time without penalty. There are no consequences for choosing not to participate or for leaving the study early.

Reimbursements or Cost

There is no cost to participate in this study. Your participation is completely voluntary, and you will not be compensated for your time.

Whom to contact in case of ethical related concerns?

This study was approved by Uganda Christian national council for Science and Technology (UNCST), In case of any Ethical or your rights related concerns or inquiries, please contact UCUREC Chairperson; Prof. Peter Waiswa, 0772405357,

pwaiswa@musph.ac.ug or UCUREC Manager, Mr. Osborn Ahimbisibwe, 0775737627 or oahimbisibwe@ucu.ac.ug UNCST: Tel; +256414705500, info@uncst.go.ug

STATEMENT OF CONSENT

Do you accept to be recorded?

Yes ☐ No ☐

I voluntary agree to participate in this research program to tick appropriately.

Yes ☐ No ☐

I understand that I will be given a copy of this consent form.

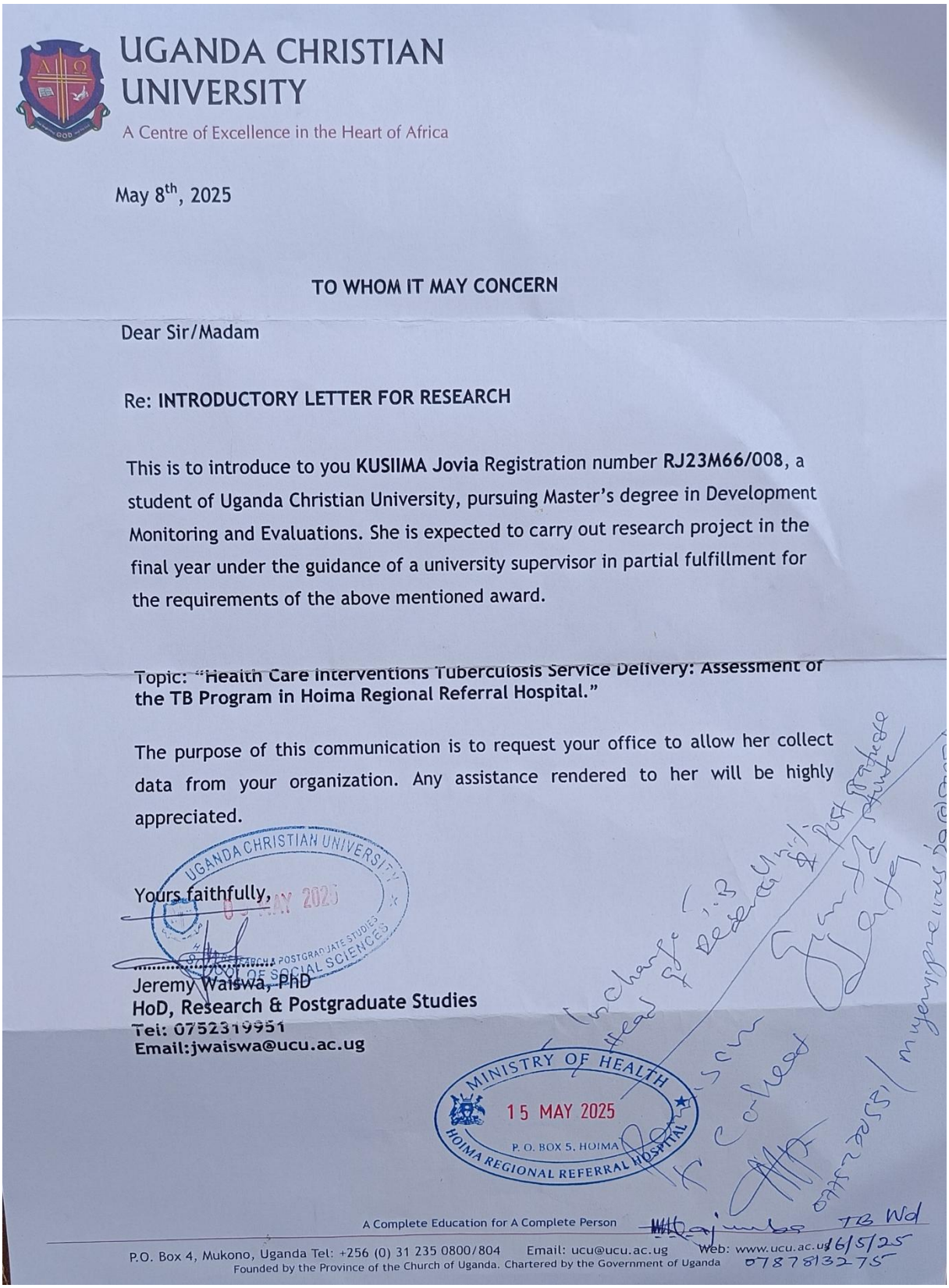
Name of Participant: …….

Sign: …… Date: …….

Name of Researcher: …….

Sign…… Date…….

APPENDIX 4: INTRODUCTORY LETTER FOR RESEARCH



UGANDA CHRISTIAN UNIVERSITY

A Centre of Excellence in the Heart of Africa

May 8th, 2025

TO WHOM IT MAY CONCERN

Dear Sir/Madam

Re: **INTRODUCTORY LETTER FOR RESEARCH**

This is to introduce to you **KUSIIMA Jovia** Registration number **RJ23M66/008**, a student of Uganda Christian University, pursuing Master's degree in Development Monitoring and Evaluations. She is expected to carry out research project in the final year under the guidance of a university supervisor in partial fulfillment for the requirements of the above mentioned award.

Topic: **"Health Care interventions Tuberculosis Service Delivery: Assessment of the TB Program in Hoima Regional Referral Hospital."**

The purpose of this communication is to request your office to allow her collect data from your organization. Any assistance rendered to her will be highly appreciated.

UGANDA CHRISTIAN UNIVERSITY 05 MAY 2025 SCHOOL OF POSTGRADUATE STUDIES SCHOOL OF SOCIAL SCIENCES

Yours faithfully,

Jeremy Waiswa, PhD
HoD, Research & Postgraduate Studies
Tel: 0752319951
Email:jwaiswa@ucu.ac.ug

MINISTRY OF HEALTH 15 MAY 2025 P. O. BOX 5, HOIMA HOIMA REGIONAL REFERRAL HOSPITAL

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TRANSLATED VERSION SECTION

Anyakugarukamu Ebikaguzo,

Eibaralyange nilyo Jovia Kusiima, omwegi wa Uganda Christian University anyakwega Master's Degree mu misomo yebyenkurakurana. Nkukora okusoma ha mutwe: "Obukonyezi bwebyobwomezi hakuhikya obuhereza bwakakonko: Okukebera entekaniza ezakakonko omu irwaro lya Hoima Regional Referral.

. Ebimu ebikwetagisibwa hakutunga degree enu, nkwetagisibwa kukora okutolereza ha "Obukonyezi bwebyobwomezi hakuhikya obuhereza bwakakonko: Okukebera entekaniza ezakakonko omu irwaro lya Hoima Regional Referral.

" Orupapura rwebikaguzo runu rukozesebwa kusoroza amakuru gona agakwataine no kutolereza kwange. Nkubamanyisa ngu, amakuru gona agarasorozebwa, gakugenda kukozebwa omumigendero yokwega, yonka hamu nokusoma kunu galinzirwe muno obutahikibwaho abatakwikirizibwa kugatunga. Mbesengereize, mutunge ho akaire, mugarukemu ebikaguzo ebiri harupapura runu. Mwebale muno.

Amakuru agakukwataho (koma ahakwetagisibwa)

a. Emyaka: ☐ Hansi ya ikuminamunana(18) ☐ Ikuminamunana kuhika makumi-asatu (18-30)

☐ Asatunagumu kuhika hananetanu (31-45) ☐ Haiguru ya ananetanu

b. Olimuki ha binu: ☐ Musaija ☐ Mukazi ☐ Ekindi

c. Omazire kasumiki notunga obujanjabi bwakakonko hanu?

☐ Hansi yemyezi mukaga ☐ Emyezi mukaga kuhika hamwaka gumu ☐ Kuhingura owanka gumu

Kukebera omugaso gwebintu ebyongeirweho ha kuhikya obuhereza bwakakonko ebya omu ntekateeka ya'akakonko omu irwaro lya Hoima Regional Referral.

A. Ebikaguzo bya barwaire na byaabantu abakonyera abarwaire

Obusobozi bw'okuhikira ebikozesebwa.	**Nkihakaniza kimu namani**	**Nkihakaniza**	**Kinganaigana**	**Nkwikiraniza nakyo**	**Nkwikiraniza nakyo muno**
Okuterekerwa bbuhyaka mu birungo byeirwaro ebyekikungu, bikifoire kyangu nyowe kuhikiira ebyetago bwekirwaire kya Akakonko					
Kuruga ha kuterekerwa buhyaka, nkamara akaire nindinda kufuna okufeibwaho nobbujanjabi bwa Akakonko					
Ebikozesebwa ebihyaka ebyokujanjaba oba ebihindwirwe bbigumiize byahikiriza obujanjabi bwange obwa Akakonko					
Ebikaro ebigazihibwe oba ebihindwirwe bikendeize omuntu nyamwingi omubikaro namberi obuhereza obwa Akakonko bugabirwa.					
Eirwaro elyongeizebweho no'bbugabirizi obwe byokwekebeza bihindwire Omuhendo gwo'buhereza bwa Akakonko obbunfuna					
Kuruga ha'kwongerwaho oburungi, engarukwamu zange eza Akakonko nzifuna bwangu					
Ebikozesebwa by'obujanjabi ebihyaka bihikirize obujanjanbi bwange bwa Akakonko					

Translated Version. SECTION C

Anyakugarukamu Ebikaguzo,

Eibaralyange nilyo Jovia Kusiima, omwegi wa Uganda Christian University anyakwega Master's Degree mu misomo yebyenkurakurana. Nkukora okusoma ha mutwe: "Obukonyezi bwebyobwomezi hakuhikya obuhereza bwakakonko: Okukebera entekaniza ezakakonko omu irwaro lya Hoima Regional Referral.

. Ebimu ebikwetagisibwa hakutunga degree enu, nkwetagisibwa kukora okutolereza ha "Obukonyezi bwebyobwomezi hakuhikya obuhereza bwakakonko: Okukebera entekaniza ezakakonko omu irwaro lya Hoima Regional Referral.

." Orupapura rwebikaguzo runu rukozesebwa kusoroza amakuru gona agakwataine no kutolereza kwange. Nkubamanyisa ngu, amakuru gona agarasorozebwa, gakugenda kukozebwa omumigendero yokwega, yonka hamu nokusoma kunu galinzirwe muno obutahikibwaho abatakwikirizibwa kugatunga. Mbesengereize, mutunge ho akaire, mugarukemu ebikaguzo ebiri harupapura runu. Mwebale muno.

Amakuru agakukwataho (koma ahakwetagisibwa)

a. Emyaka: ☐ Hansi ya ikuminamunana(18) ☐ Ikuminamunana kuhika makumi-asatu (18-30)

☐ Asatunagumu kuhika hananetanu (31-45) ☐ Haiguru ya ananetanu

b. Olimuki ha binu: ☐ Musaija ☐ Mukazi ☐ Ekindi

c. Omazire kasumiki notunga obujanjabi bwakakonko hanu?

☐ Hansi yemyezi mukaga ☐ Emyezi mukaga kuhika hamwaka gumu ☐ Kuhingura owanka gumu

Obukonyezi bwa bajanjabi hali okurwanisa oburwaire bwakakonko

A. Ebikaguzo byaa abarwaire bwakakonko na byaabantu abakonyera abarwaire

Okuhikirra nkubaho kwaba abajanjabi	**Nkihakaniza kimu namani**	**Nkihakaniza**	**Kinganaigana**	**Nkwikiraniza nakyo**	**Nkwikiraniza nakyo muno**
Nkubaho kwaba abajanjabi banu kunsobozeseze kutunga obukonyezi obukumara					
Okubaho kwaa abajanjabi baingi kukehya oklindirah					
Okubaho kwaa abajanjabi baingi kuletereza kwanguhyo obuhereza bwangu					
Okubaho kwaa abajanjabi kuha obuhereza kurungi					
Nfuna okukeberwaho ha bwire kuruga ha abajanjabi					
Nfuna ekitinisa nobuyambi kurungi kurunga hali abajanjabi					

Translated Version. SECTION D

Ebikaguzo byabarwaire na byaabantu abakonyera abarwaire

Anyakugarukamu Ebikaguzo,

Eibaralyange nilyo Jovia Kusiima, omwegi wa Uganda Christian University anyakwega Master's Degree mu misomo yebyenkurakurana. Nkukora okusoma ha mutwe: "Obukonyezi bwebyobwomezi hakuhikya obuhereza bwakakonko: Okukebera entekaniza ezakakonko omu irwaro lya Hoima Regional Referral.

. Ebimu ebikwetagisibwa hakutunga degree enu, nkwetagisibwa kukora okutolereza ha "Obukonyezi bwebyobwomezi hakuhikya obuhereza bwakakonko: Okukebera entekaniza ezakakonko omu irwaro lya Hoima Regional Referral." Orupapura rwebikaguzo runu rukozesebwa kusoroza amakuru gona agakwataine no kutolereza kwange. Nkubamanyisa ngu, amakuru gona agarasorozebwa, gakugenda kukozebwa omumigendero yokwega, yonka hamu nokusoma kunu galinzirwe muno obutahikibwaho abatakwikirizibwa kugatunga. Mbesengereize, mutunge ho akaire, mugarukemu ebikaguzo ebiri harupapura runu. Mwebale muno.

Amakuru agakukwataho (koma ahakwetagisibwa)

a. Emyaka: ☐ Hansi ya ikuminamunana(18) ☐ Ikuminamunana kuhika makumi-asatu (18-30)

☐ Asatunagumu kuhika hananetanu (31-45) ☐ Haiguru ya ananetanu

b. Olimuki ha binu: ☐ Musaija ☐ Mukazi Ekindi ☐

c. Omazire kasumiki notunga obujanjabi bwakakonko hanu?

☐ Hansi yemyezi mukaga ☐ Emyezi mukaga kuhika hamwaka gumu ☐ Kuhingura owanka gumu Hanu omazireho kasumiki

Okusobora	Nkihakanziza Kimu Namani	Nkihakaniza	Kinganaigana	Nkwikiranzi nakyo	Nkwikiranzi nakyo muno
Mpulire oburango obukwatana ha kurangasaniza haburwaire bwakakonko					
Oburango bwoku rangasaniza akakonko bunkonyeire okwetegereza obumanyikirizo, okutuura no bujanjabi.					
Eirwaro lihereza okurangasaniza okukumara okwa akakonko kuraba omu bipande, enzimburukusa maraka(radio), nokweterana kwahamu.					
Okurangasaniza kukankonyera kutunga okwekebeza kwakakonko nobujanjabi bwangu.					
Hati kikwanguha to kutunga obuhereza bwakakonko hanyuma yokurangasaniza					
Nkuhura ntekaine kubaza ha kakonko habwokurangasaniza okwamani.					
Okwenatira habwakakonko mukweterana kwange kukehere habwokurangasaniza					

Translated Version. APPENDIX 2: INTERVIEW GUIDE

Omutwe: Kukebera omugaso gwebintu ebyongeirweho ha kuhikya obuhereza bwakakonko ebya omu ntekateeka ya'akakonko omu irwaro lya Hoima Regional Referral.

Anyakugarukamu Ebikaguzo,

Eibaralyange nilyo Jovia Kusiima, omwegi wa Uganda Christian University anyakwega Master's Degree mu Development Monitoring & Evaluation (M&E). Nkukora okusoma ha mutwe: Obukonyezi bwebyobwomezi hakuhikya obuhereza bwakakonko: Okukebera entekaniza ezakakonko omu irwaro lya Hoima Regional Referral. Ebimu ebikwetagisibwa hakutunga degree enu, nkwetagisibwa kukora okutolereza ha Obukonyezi bwebyobwomezi hakuhikya obuhereza bwakakonko: Okukebera entekaniza ezakakonko omu irwaro lya Hoima Regional Referral.

" Orupapura rwebikaguzo runu rukozesebwa kusoroza amakuru gona agakwataine no kutolereza kwange. Nkubamanyisa ngu, amakuru gona agarasorozebwa, gakugenda kukozebwa omumigendero yokwega, yonka hamu nokusoma kunu galinzirwe muno obutahikibwaho abatakwikirizibwa kugatunga. Mbesengereize, mutunge ho akaire, mugarukemu ebikaguzo ebiri harupapura runu. Mwebale muno.

Amakuru agakukwataho (koma ahakwetagisibwa)

a. Emyaka: ☐ Hansi ya ikuminamunana(18) ☐ Ikuminamunana kuhika makumi-asatu (18-30)

☐ Asatunagumu kuhika hananetanu (31-45) ☐ Haiguru ya ananetanu

b. Olimuki ha binu: ☐ Musaija ☐ Mukazi Ekindi ☐

c. Omazire kasumiki notunga obujanjabi bwakakonko hanu?

☐ Hansi yemyezi mukaga ☐ Emyezi mukaga kuhika hamwaka gumu ☐ Kuhingura owanka gumu

1. Mubugufu, okusobora kweranga (emyaka, bworama oli mukazi oba musaija, obukwataine bwawe nomurwaire)?
2. Omuzari kasumiki no rolera omurwaire wakakonko hairwaro lya Hoima Regional Referral?
3. Bujunanizibwa ki obukuru obwawe mukurolera omurwaire ogwo?
4. Wakaboine empiduka zona ezakakorwa habintu mu kisiika kyabarwaire bakakonko mwirwaro linu? Obweraba ego, biki ebyo?
5. Okutekereza zinu empinduka ziresereho zita okubudabudibwa nokubakurungi okwaba rwaire bakakonko?
6. Haroho ebuzibbu byona mubikwato, ebikyaroho my bisiika bya akakonko?
7. Abarwaire kibanguhiire kita kuhika ha buhereza bwakakonko omungeri yemyanya, ebiikaro byokulindiraho hamu nebikwato byobwechumi?
8. Okunihira eirwaro liina ebitabu bikumara hamu nobu hikizo burungi hali abarwaire bakakonko? Habwaki? Habwaki nangwa?

9. Habaireho okererezebwa kwona mukufuna obuhereza obukwataine nakakonko? Obukiraba ngu ego, okunihira kiki ebuletereize?

10. Oina kindi kyona kiwakwetagire kugabana habyo rabiremu nkomuntu akurolera omurwaire wakakonko mwirwaro linu?

11. Webale muno, kutwara akaire okwegaita mu kukaguza kunu.

Translated version. CONSENT FORM

Omutwegwokwega: Obukonyezi bwebyobwomezi hakuhikya obuhereza bwakakonko: Okukebera entekaniza ezakakonko omu irwaro lya Hoima Regional Referral.

Enamba	Embara	Omutolerezi	Eya Email	Esomero
1	Jovia Kusiima	Omutolerezi omukuru	joviahkusiima@gmail.com	Uganda Christian University, Mukono
2	Mwije Solomon	Omutolerezi akusagika	smwije@ucu.ac.ug	Uganda Christian University, Mukono

Okutandikirwaho

Okusoma kunu kukolebwa Jovia Kusiima, ogu akusoma okukuguka mu byenkurakurana okurolera, nokubera (master's degree in Development, Monitoring and Evaluation) ha itendekero lya Uganda Christian University omu Mukono-Uganda. Omwegi akugonza kwetegereza omulingo obuyambi bwebyobwomezi buhindwire hakuhikya obuhereza aha Irwaro lya Hoima Regional Referral. Okukaguzibwa kwetereniza habwokuba oli mujanjabi, olimurwaire, olimukonyezi womurwaire orundi omurolerezi aha Irwaro lya Hoima Regional Referral namagezi hamu nobukugu ebikusobora kuletereza ho okutolereza kunu.

Ekigenderwa

Omugaso gwokusoma kunu guli gwoku kebera ebileserweho obuyambibwebyobwomezi muku hikya obuhereza hairwaro Hoima Regional Referral. Otulereza kunu kwija

kukonyera omwegi arukugikora okwetegereza engeri obuyambi bunu buhindwire ebikuruga mubarwaire kandi nokugarukamu emitendera nebikorwa byebyobwomezi.

Booha abakwetaba mu musomo gunu?

Abajanjabi, abarwaire, abakonyezi na bakuru beirwaro lya Hoima Regional Referral nubo beserwe kwetaba mu musomo gunu. Omwegi ogu nuwe omutolerezi akugonza kutunga okwetegereza ha ngarukwamu ezikwahukana hangeri obukonyezi bwebyobwomezi hakuhya obuhereza.

Obutendebeke no'butatekana

Busaho kutebesereza kwobuzibu bwona obukusobora kuhikaho omu musomo gunu. Oiroho, ekikaguzo kyona obukirakumaraho obusinge, oliwobugabe butakigarukamu orundi kuruga omukusoma kunu akaire kona akokusoma kunu.

Ebirungi ebiku'sobora kugobororwa

Okwetabamu kwawe kusobora butakuyamba baitu kwija kuyamba hakwetegereza kwomwegi arukukora okutolereza kunu engeri obuyambi bwebyobwomezi buhindwire okuhikya obuhereza ha'irwaro lya Hoima Regional Referral.

Habyensita Byokwerekera

Engarukwamu zawe tizija kuherezebwa omuntu ondi wena ogu atakwikirizibwa kubanazo, nobukwenda bwawe obwensita tibukwija kugabirwa muntu wena ali aheru yekikweto kyokutolereza kunu. Engarukwamuzawe zija kulindwa kandi zikozesebwo omugaso gwokutolereza kunu gwonka.

Emitendera

Obworaikiraniza kwetaba, oijakukaguzibwa. Ebikaguzo bija kuba habyorabiremu, ebyorozere ebikwataine no'bukonyezi bwebyobwomezi nokuhikya obuhereza aha irwaro lya Hoima Regional Referral. Ebikaguzo biina kutwara kingana dakiika ikuminaitanu kubimarayo.

Okwehayo kwokweterana

Okwetaba mukusoma kunu Tikiri kyokuhambiriza baitu, kyoburungi bwensi. Obwokuchwamu kwetabamu, okusobora kurugamu kaire koina. Enchwamuyawe kwetabamu rundi kurugamu tikina ekikwija kukora hankoragana yawe na Uganda Christian University.

Oina obusobozi butetabamu rundi kuruga mukwetabamukunu akaire kona otafubiirwe.

Oina obusobozi butetabamu rundi kuruga mukwetabamukunu akaire kona otafubiirwe.

Enturukya yebyensimbi

Busaho kusasurwa kwona hakwetaba mu musomo gunu. Okwetabakwawe okuba oyehaireyo kandi tokwija kusasurwa habwobwire bwawe.

Ebikaguzo

Obworaba oina ebikaguzo hakusoma kunu, bairaba hikiira omwegi akukora okutolereza kunu, ha UCUREC waa katembe kanu; Prof. Peter Waiswa, 0772405357, pwaiswa@musph.ac.ug obah UCUREC omukuru, Mr. Osborn Ahimbisibwe, 0775737627 obah oahimbisibwe@ucu.ac.ug UNCST: Tel; +256414705500, info@uncst.go.ug

Nsomere obukwenda obwahaiguru, kandi nyaikiriza okwetaba mu kusoma kunu.

Eibara lya agarukiremu …… Eibara lya’habwize …….

Okukurukuta kwa’garukiremu …… Okukurukuta kwa’habwize…….

Ebirobyokwezi…… Ebirobyokwezi……

Enchwamu

Okwetaba mukusoma kunu okuba oyehaireyo. Oina obusobozi butetabamu rundi kuruga mukwetabamukunu akaire kona otafubiirwe. Busaho mperambi hakusaraho obutetaba orundi kuleka okusoma kunu kara.