

**Isoniazid Preventive Therapy Initiation and Associated Factors among People
Living with HIV on
Antiretroviral Therapy (ART) in Atiak HCIV, Amuru District, Northern
Uganda**

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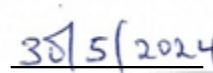
Declaration

I, **Oneka George Brown**, hereby affirm that this research thesis is my original work and has not been submitted to any institution of higher learning for academic or other awards prior to this.

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Approval

This dissertation has been produced under our guidance as appointed Gulu University Faculty of Medicine Supervisors and it is now ready for submission.

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Abstract

Background: The global annual new TB cases is over ten million in number, particularly among individuals who are immunocompromised. Those living with HIV are particularly at risk and highly likely to progress from the latent stage of TB to active disease. TB remains the most common cause of death among PLWHA, contributing to approximately one-third of HIV-related fatalities. By 2019, only about half (49%) of HIV-positive individuals newly initiated on ART program worldwide had been initiated on IPT. There is limited data on the initiation of IPT in Amuru district, hence the need for study.

Objective: To determine the initiation of Isoniazid Preventive Therapy and establish the factors contributing to the initiation among eligible patients with HIV on ART in Atiak HCIV in Amuru District.

Methodology: Secondary data from ART cards in ART Clinic for the period of January to December 2023 were collected using a prepared checklist. HIV+ individuals on Antiretroviral treatment and not having active TB were included in the study. Analysis of the data was facilitated using Stata version 14.0 statistical software.

Results: A total of 427 patient-level data were screened, and a total sample of 425 were enrolled as study participants through systematic random sampling while 2 participants were eliminated due to incomplete information. Females constituted over half of the study participants (62.9%), while 37.41% were males. Participants who had been on ART for durations of 6 to 10 years constituted the majority (34.8%) of the study participants, while those who had been on care for less than 1 year formed the least category (5.18%). Initiation of IPT was found to be at 93.41% (n=397), while non-initiation was at 6.59% (n=28). The duration on ART of more than one year was found to be associated with initiation of IPT.

Conclusion: The coverage of IPT was found to be 93.41% which is relatively high and supports the WHO recommendation as well as findings from other studies. Longer duration on ART from 6-10 years was associated with high coverage.

Recommendation: Retention in care, which is a core objective of HIV care, is an important factor in achieving high coverage of IPT. Thus, more emphasis should be put in achieving high level of retention in comprehensive HIV care as this positively impacts on TB prevention through high IPT coverage. Appointment keeping should be encouraged as this directly impacts on IPT initiation.

Key words: Isoniazid Preventive Therapy, Isoniazid, PLHIV, ART, HIV, HIV/AIDS

Operational definitions

- **Isoniazid Preventive Therapy:** This is using Isoniazid as a preventive treatment against Tuberculosis in HIV+ individuals.
- **Coverage:** Coverage within this context means all eligible PLWHIV on ART and are initiated on IPT or completed within the research period.
- **Completion:** Completion means all eligible PLWHIV on ART and initiated on IPT who took the medication for the recommended period of six months.

List of Abbreviations/ Acronyms

ANOVA:	Analysis of Variance
ART:	Antiretroviral Treatment
HIV:	Human Immune Deficiency Virus
IPT:	Isoniazid Preventive Treatment
MOH:	Ministry of Health
PLHIV:	People Living with HIV
SDGs:	Sustainable Development Goals
SPSS:	Statistical Packages for Social Scientists
TB:	Tuberculosis
USCDCP:	United States Centers for Disease Control and Prevention
WHO:	World Health Organization

CHAPTER ONE

1.0 Introduction

Isoniazid Preventive Therapy (IPT) remains a key health action in curbing the progression of tuberculosis (TB) from latent stage and eventually to active disease (Oonyu et al., 2022). Tuberculosis disease, whose aetiology is *Mycobacteria tuberculosis*, is in the top ten main causes of global sickness and death (Zeru, 2021). The African continent contributed 24.5% to the global TB burden in 2019, with more than 1.4 million reported cases and about 608,000 deaths (Zeru, 2021). The high prevalence of TB in the region is strongly associated with compromised immune systems, with HIV identified as a major comorbid factor (Gebbru et al., 2020). That same year, co-infection of TB with HIV was responsible for over 211,000 deaths. In Uganda, the percentage of PLHIV newly initiated on IPT in 2019 was 60%. Evidence shows that these therapeutic preventive actions such as effective use of IPT could bring down word mortality associated with TB by up to 60% among PLHIV (Oonyu et al., 2022).

Daily administration of isoniazid for six months for PLHIV on ART without active tuberculosis is a key recommendation of the World Health Organisation (Robert et al., 2020). In addition, WHO guidelines also emphasize the provision of HIV testing and counseling, implementation of methods of preventing HIV, initiation of cotrimoxazole prophylaxis, access to comprehensive HIV/AIDS services, and timely initiation of antiretroviral therapy (ART), and where active TB is found to be out of question, IPT should be provided (Robert et al., 2020).

A study by Tuwa et al. (2024) in Tanzania and (Kazibwe et al., 2022) in Uganda found the coverage of IPT at 91% and 92.8% respectively. It is likely that full integration of IPT into routine HIV/TB care contributed to this outcome. However, recent studies conducted in Butebo, Uganda (2022), and parts of Tanzania, reported significantly lower coverages of 34.2%, 28.9% respectively (Oonyu et al., 2022), (B. ini N. Christian, 2022). In the regions with low coverage mentioned above, there was reportedly still low level of comprehensive HIV service integration, human resource gaps and relatively poor supply chain system.

Recent studies in western Uganda (Kibaale district) showed that being in the age group of 35-44 years, being married, having a monthly income of 40,000-100,000 shillings, finding it easy to talk to other people about TB problem, and receiving continuous counselling were independently associated with uptake of isoniazid preventive (Isaac & Kizito, 2022)

In most of the Sub-Saharan Africa countries, the major factors influencing IPT implementation and uptake were stock-outs of IPT commodities, fear of developing isoniazid-resistant TB among clients, patient's refusal and non-adherence, and improper counseling and low commitment of HIV clinical care providers (Assefa et al., 2023).

In a 2018 study conducted in Nairobi, Kenya, provider acceptability of IPT was influenced by factors relating to the organisational context, provider training on IPT and their perception on its efficacy, length and clarity of IPT guidelines and standard operation procedures, as well as structural factors (policy, physical and work environment). Inadequate high-level commitment and support for the IPT programme by programme managers and policy-makers were found to be the major barriers to successful IPT implementation. (Wambiya et al., 2018).

Recent studies also in Tanzania region of Mwanza demonstrated that factors associated with high IPT uptake included having an employed caregiver and attending the ART clinic every month (Tuwa et al., 2024) while higher education was identified as a protective factor for INH initiation. Religious practice significantly increased the likelihood of initiation, whereas stigma reduced the odds of initiation in a study conducted in Zambia. (Phiri et al., 2026).

1.1 Background to the study

Globally, new TB cases is over 10 million yearly, particularly for immunocompromised individuals. People living with HIV are particularly at risk and more likely to progress from latent TB infection to active disease. TB remains the leading cause of death among PLWHA, contributing to approximately one-third of HIV-related fatalities (Zeru, 2021; Rogers et al., 2019). Isoniazid Preventive Therapy (IPT) is a well-established public health intervention that reduces TB incidence among PLHIV by treating LTBI, thereby preventing its progression to active TB (Rogers et al., 2019). An analysis of clinical trials has shown that IPT lowers TB incidence among PLHIV by 30–74% (Robert et al., 2020), while the combination of IPT with antiretroviral therapy (ART) can lower TB incidence and related mortality by up to 90% among PLWHA.

Isoniazid (INH) is a common first-line drug used in TB treatment (Sabasaba et al., 2019). Among PLHIV, INH is administered as a preventive treatment against TB infection. Epidemiological studies conducted in different countries have shown that IPT reduces the risk of TB incidence among HIV-infected individuals by 33–90% (Ayele et al., 2015). The World Health Organization (WHO) emphasises that PLHIV should complete six months of IPT to ensure effective prevention of active TB (Sabasaba et al., 2019)

Globally, completion rates for the six-month IPT course range from 39% to 99% (Al-Darraj et al., 2013) In Uganda, studies have reported completion rates of 65–98% among those who initiated IPT. Epidemiological evidence demonstrates that IPT completion not only reduces mortality risks among PLHIV but also decreases the need for costly TB treatment and lowers the overall expenses of HIV care services. Effective implementation of IPT is therefore central

to Uganda's national TB control strategy and contributes significantly to achieving the Sustainable Development Goals (SDGs) by 2030 (Sabasaba et al., 2019).

The Centers for Disease Control and Prevention, United States of America, puts the prevalence of HIV in Uganda at 7.3% as of 2022, and Tuberculosis infections rate at 201 cases for every 100,000 people (Oonyu et al., 2022). Furthermore, more than 40% of individuals receiving antiretroviral therapy (ART) had TB coinfection. In response to the significant health burden caused by HIV/TB co-infection, Uganda's Ministry of Health issued guidelines in 2020 recommending that all People Living with HIV (PLHIV) be screened for TB, and those without active TB be provided with Isoniazid Preventive Therapy (IPT) (Mugenyi et al., 2024). To substantially reduce the impact of these diseases, the World Health Organization (WHO) set an ambitious goal for IPT coverage to exceed 90% by 2035, a target embraced by Uganda (Kirenga et al., 2015). This goal took into account earlier research which found 0.5% of individuals newly initiated on treatment for HIV and have started IPT between 2003 and 2012, with overall coverage of IPT estimated at just 39% in Butebo district (Oonyu et al., 2022). Such example of low uptake could pose a challenge to achieving WHO's health goal of decreasing TB.

1.2 Problem statement

The estimate from the World Health Organization (WHO) shows that approximately 1.7 billion people worldwide carry tuberculosis infection (TBI), with 5–10% are likely to progress to active TB disease in their lifetime (Tran et al., 2021). Globally, data showed that close to ten million individuals got infected with TB, expected to have led to approximately 1.3 million deaths in 2020 (Oonyu et al., 2022). Within that year, 792,000 individuals with HIV had TB disease, with 214,000 related deaths.

The burden of death from TB is disproportionately higher for individuals with HIV than individuals who are not infected in TB/HIV burdened countries such as Uganda (Kazibwe et

al., 2022). In addition, PLHIV often experience poorer TB treatment outcomes, with TB contributing to one in every three AIDS-related deaths (Sullivan & Nathavitharana, 2022). This underscores the importance of TB prevention through treatment of latent infection, which offers substantial benefits in reducing both morbidity and mortality among PLHIV.

Despite being a key WHO recommendation for more than ten years, IPT uptake has remained suboptimal (Christian et al., 2024). Only 49% of individuals living with HIV and newly started on ART programs worldwide had been initiated on IPT by the year 2019. In 2020, the Ministry of Health Uganda issued guidelines directing healthcare workers to screen all individuals on ART and initiate IPT for those without active TB disease because of the dual burden of the diseases (C. Christian et al., 2024).

In Amuru District, where HIV prevalence stands at 4.5%, IPT coverage remains uncertain but is likely low, posing a barrier to reach “WHO’s End TB” target of reducing TB incidence and mortality by 90% in 2035. This challenge is not unique to Uganda, as global estimates of 2019 indicated that only 49% of people with HIV infection newly started on ART accessed IPT (Getahun et al., 2010).

This study will determine IPT coverage and factors among people on ART in Atiak HCIV, Amuru District. Atiak HC IV is the highest-level health facility in Amuru district offering the largest spectrum of health services, and with the largest spectrum of TB/HIV services. It is an older health facility in Amuru district, that serves a large catchment involving parts of Adjumani district, parts of Gulu district as well as parts of South Sudan. Much as studies have been done on IPT coverage, those targeting individuals on ART in rural settings remain low. Few studies have used document review to assess the coverage of IPT among individuals on ART (Edessa1 & Likisa, 2015).

This study will as well provide much-needed information on prevalence of IPT initiation that will guide policy implementation, planning for context-specific interventions, and monitoring

the performance of interventions at district and facility levels. The various stakeholders will use this information to support IPT implementation.

1.3 General objective

To determine Isoniazid Preventive Therapy coverage and associated factors among people living with HIV on Antiretroviral Therapy (ART) in Atiak HC IV, Amuru District, Northern Uganda

1.4 Specific objectives

1. To establish the coverage of Isoniazid Preventive Therapy among people living with HIV on ART in Atiak HC IV.
2. To determine associated factors for the coverage of IPT among individuals living with HIV on ART in Atiak HC IV.

1.5 Research questions

1. What is the coverage of Isoniazid Preventive Therapy among individuals living with HIV on ART in Atiak HC IV?
3. What are the associated factors for IPT coverage among individuals living with HIV on ART in Atiak HC IV?

1.6 Scope of the study

The study focused on Isoniazid Preventive Therapy Coverage and Factors among People living with HIV on Antiretroviral Therapy (ART) in Atiak HC IV, Amuru District, Northern Uganda. The district has 8 health centers providing screening for TB, diagnosis, and treatment. The only Gene Expert site is Atiak HCIV. Amuru district is chosen given the fact that there is a significant number of ART centers and a regular supply of IPT medicine within the district. Atiak HC IV, being the highest-level health facility in the district with a large catchment, will give a better picture of the general situation of IPT coverage and factors among PLWHIV on ART. Both children and adults were considered in the study. The study focused on the year 2023, as this time period relates to the current known prevalence of HIV/AIDS within Amuru district.

1.7 Justification of the study

Isoniazid Preventive Therapy (IPT) refers to the administration of isoniazid to individuals confronted with high risk of progression to active TB disease (C. Christian et al., 2024); Oonyu et al., 2022). For example, those living with HIV are 20 to 37 times likely to develop active TB from latent infection compared to uninfected individuals. HIV is most recognised risk factor for TB. This health challenge is best addressed by initiation of IPT. IPT is one of the “Three I’s” for HIV/TB control.

IPT has been demonstrated as an effective strategy for reducing TB incidence both at individual and population levels. However, despite strong evidence of its effectiveness, implementation remains limited to developed countries such as United States (Al-Darraj et al., 2013). Fifteen years after the WHO recommendation to provide IPT to all people living with HIV, fewer than 1% have accessed it globally (Yirdaw et al., 2014). Although supportive policies for IPT exist in at least 84 countries, including Uganda, actual program implementation remains low.

The available health systems for instance in Amuru District face several challenges to IPT implementation. Therefore, understanding the coverage and the associated factors in Atiak HC IV will provide information to the stakeholders, especially policy makers and implementers of TB/HIV programs to create successful programs that can address the key issues identified.

This study will provide evidence-based knowledge to help scale up clinical training where skills on comprehensive TB screening and IPT initiation were lacking, improve supply chain reliability for IPT commodities, and strengthen community education.

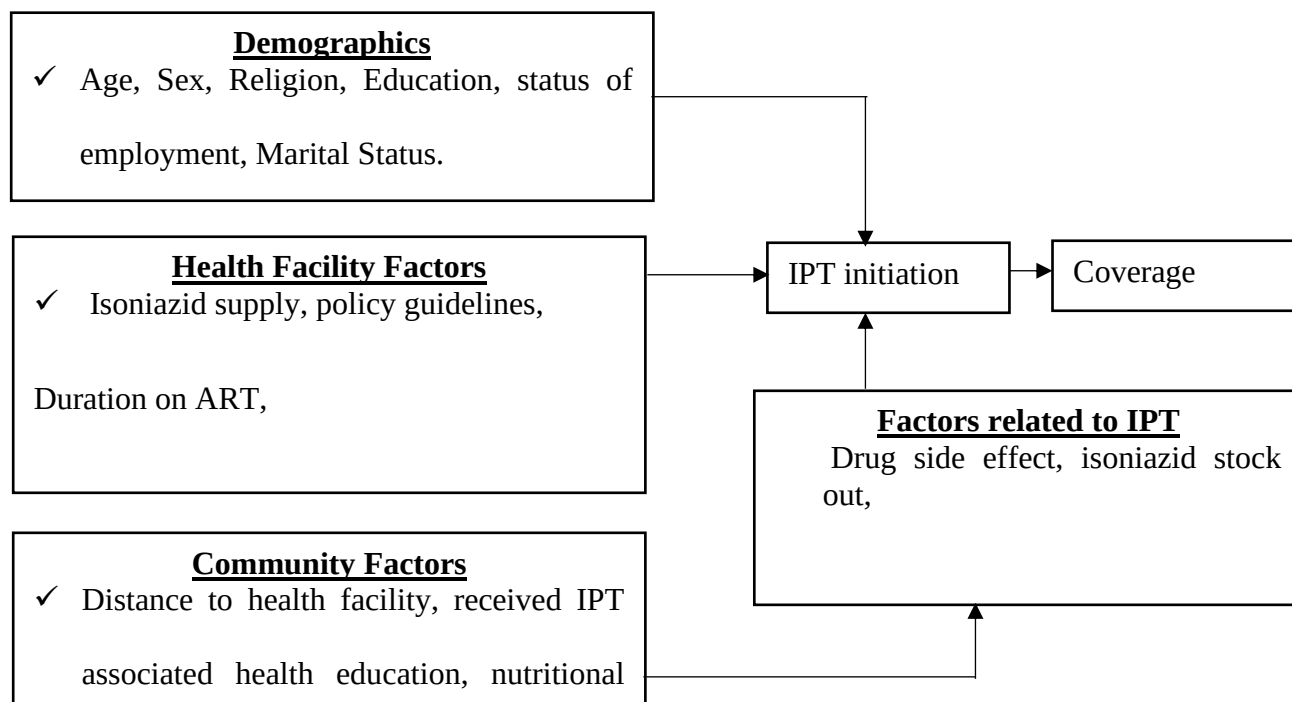
At health policy and program management levels, the information from this study may help in resource allocation to ensure steady stocks of IPT commodities, update national and district standard operating procedures to match latest World Health Organisation guidelines, and help in tracking and reporting indicators across the care cascade to spot gaps in patient initiation.

Health workers can use the findings from this study to facilitate education of patients on why preventive medication matters even when they feel healthy, as well as combine ART and IPT prescriptions into unified clinical tools to reduce daily administrative burdens.

Misconceptions regarding why healthy individuals take anti-TB medication, normalizing use within local support networks can be addressed by trained community health workers to lead health talks, track missed clinic appointments, and support home-level administration.

1.8 Conceptual Framework

The conceptual framework depicts an association amongst variables in the study. Figure 1.1 below depicts the relationship amongst the variables;



Source: Adapted from Oonyu *et al.* (2022) and Manisha *et al.* (2022).

Narrative of conceptual framework

The conceptual framework on factors influencing IPT coverage among PLWHA on ART highlights several interrelated determinants. Community factors such as social support could influence IPT coverage. Patients' engagement with family members, the wider community, and health care providers shapes their knowledge, attitudes, and perceptions of IPT. Socioeconomic circumstances also play a role in shaping personal beliefs, particularly when patients live far from health facilities and have limited access to information on the benefits of IPT. In addition, HIV treatment-related factors influence adherence to IPT; for example, individuals who are unwilling or unable to disclose their HIV status may be less likely to consistently follow IPT treatment. Alcohol consumption likely affects adherence to schedules of taking medication, as they can forget the schedules, thereby as well affecting coverage.

CHAPTER TWO

LITERATURE REVIEW

2.1: Global TB Control Strategy

In 2015, the World Health Organization (WHO) launched the End TB Strategy, aiming to eliminate the global TB epidemic by 2035. This strategy includes three main indicators with targets set for 2030 and 2035: the annual number of TB-related deaths, new TB cases (for every 100,000 individuals annually), and the proportion of households affected by TB and facing unaffordable healthcare costs (Uplekar et al., 2015). The 2030 goals are to reduce deaths due to TB by 90% and the incidence by 80% compared to 2015 figures. The WHO has since raised the target to 95% by 2035, and a 90% drop in new infections (Raviglione & Sulis, 2016). Preventing new infections with TB to active form is important for healthcare goals. Currently, TB prevention strategies fall into three main categories: treatment of latent TB infection, implementation of infection control measures to prevent transmission, and childhood vaccination with the BCG vaccine (Raviglione & Sulis, 2016).

2.4 Isoniazid Preventive Therapy Initiation Prevalence and factors

IPT involves using the antibiotic isoniazid to prevent the development of active TB in people exposed to the bacteria or those with latent infection. It also lowers the chance of TB recurrence (Burke et al., 2021). WHO recommends a daily dose of isoniazid at 10 mg/kg (up to a maximum of 300 mg) for a minimum duration of six months. High-risk groups for IPT include people on antiretroviral therapy (ART), children and infants who are contacts of TB patients, and individuals receiving immunosuppressive treatments (Robert et al., 2020). To boost IPT uptake, Uganda's National Tuberculosis and Leprosy Program has issued guidelines to enroll all

PLHIV and ART patients on a six-month IPT regimen after ruling out active TB (Oonyu et al., 2022).

A study by Tuwa et al. (2024) in Tanzania and (Kazibwe et al., 2022) in Uganda found the coverage of IPT at 91% and 92.8% respectively. It is likely that full integration of IPT into routine HIV/TB care contributed to this outcome. However, recent studies conducted in Butebo, Uganda (2022), and parts of Tanzania, reported significantly lower coverages of 34.2%, 28.9% respectively (Oonyu et al., 2022), (B. ini N. Christian, 2022). In the regions with low coverage mentioned above, there was reportedly still low level of comprehensive HIV service integration, human resource gaps and relatively poor supply chain system.

Recent studies in western Uganda (Kibaale district) showed that being in the age group of 35-44 years, being married, having a monthly income of 40,000-100,000 shillings, finding it easy to talk to other people about TB problem, and receiving continuous counselling were independently associated with uptake of isoniazid preventive (Isaac & Kizito, 2022)

In most of the Sub-Saharan Africa countries, the major factors influencing IPT implementation and uptake were stock-outs of IPT commodities, fear of developing isoniazid-resistant TB among clients, patient's refusal and non-adherence, and improper counseling and low commitment of HIV clinical care providers (Assefa et al., 2023).

In a 2018 study conducted in Nairobi, Kenya, provider acceptability of IPT was influenced by factors relating to the organisational context, provider training on IPT and their perception on its efficacy, length and clarity of IPT guidelines and standard operation procedures, as well as structural factors (policy, physical and work environment). Inadequate high-level commitment and support for the IPT programme by programme managers and policy-makers were found to be the major barriers to successful IPT implementation. (Wambiya et al., 2018).

Recent studies also in Tanzania region of Mwanza demonstrated that factors associated with high IPT uptake included having an employed caregiver and attending the ART clinic every

month (Tuwa et al., 2024) while higher education was identified as a protective factor for INH initiation. Religious practice significantly increased the likelihood of initiation, whereas stigma reduced the odds of initiation in a study conducted in Zambia. (Phiri et al., 2026).

A 2022 cross-sectional study conducted in Kenya among children below 5 years found that IPT uptake was higher among females (70.2%) against 67.5% in males. This is in agreement with similar studies conducted in Tanzania (Maokola et al., 2021) and KwaZulu-Natal in South Africa (Mansournia, M. A., Higgins, J. P. T., Sterne, J. A. C., & Hernan, 2017), which reported that female sex was associated with increased IPT uptake.

The study conducted in Kenya also noted that children with caregivers who are of a higher level of education were more likely to be initiated on IPT compared to those with incomplete primary education. Respondents of younger age were more likely to initiate children on IPT compared to those > 40 years. The study concluded that IPT uptake is still unexpectedly low and this may be a major driver of TB infection in young children (Ouma et al., 2019)

Being more than 60 years of age, migrant worker and not being initiated on ART were significantly associated with IPT initiation (Dhungana et al., 2019)

In a study conducted in Tanzania in 2021, female sex, obesity, WHO clinical stage II, enrolment in hospitals, enrolment in Njombe region, and enrolment in public health facilities were associated with increased IPT uptake, while being on ART and severe nutritional status were associated with decreased IPT initiation (Maokola et al., 2021)

In Southern Africa, more women (61.3%) initiated IPT than men. Overall median adherence to IPT was 97.6%. (Mansournia, M. A., Higgins, J. P. T., Sterne, J. A. C., & Hernan, 2017)

In South East Nigeria, the major factors affecting uptake of IPT were lack of awareness of benefit, and lack of fear of contracting tuberculosis. However, lack of awareness of IPT benefit was the only independent factor associated with poor IPT uptake (*10-1163-1-PB*, n.d.)

CHAPTER THREE

METHODS

3.1 Study Design

Cross-sectional study design was used for this study. It was carried out by looking at records of patients who are on IPT and those who completed within the research period, in Atiak HC IV in order to determine coverage and associated factors amongst people on ART.

3.2 Area of Study

The study was conducted in Atiak HC IV with a catchment population of about 18,716. The district of Amuru in northern Uganda has a population estimated at 227,000 in 2022. Amuru is bordered by Gulu district in the east, Adjumani and Obongi to the West, and Nwoya district to the South. It is also bordered by South Sudan to the North. There are 35 health centers in the district, with 8 health facilities providing initial diagnosis for TB care. The only Gene Expert site is Atiak HCIV, which is also the highest-level health facility in the district. The catchment area of Atiak HC IV covers part of Adjumani district, parts of South Sudan, and parts of Gulu district. The health facility is situated in Atiak town council, Kilak North constituency. It receives approximately 200 patients daily, and offers services that include outpatient consultation and treatments, inpatient admissions, comprehensive TB/HIV services including IPT, maternity services, minor and major surgeries, especially related to pregnancy and its complications, for example, caesarean sections, laboratory services, young child services including immunization, and health education, to mention but a few.

The implementation of IPT at Atiak HC IV is guided by Government of Uganda Health Policy. The facility is staffed with qualified personnel in the TB/HIV clinics, trained both in TB management and in providing counselling to PLHIV on ART regarding IPT prior to initiation.

Isoniazid (INH) is provided at no cost to PLHIV and individuals on ART, following screening to exclude active TB.

Important to note is the fact that Atiak HC IV is situated in a Town Council along the Great North Road passing through Gulu to Juba in South Sudan. This trade route has a spectrum of activities that promote the spread of HIV, as well as TB, such as commercial sex work and substance abuse.

3.3 Study Population

Clients on ART in Atiak HC IV who do not have active TB and those who fit the inclusion criteria for this study participated.

3.3.1 Inclusion Criteria

We included every HIV positive person enrolled on ART with no active TB.

3.3.2 Exclusion Criteria

Every client with incomplete records was excluded and those on TB treatment. Clients who were less than three months on ART were also excluded.

3.4. Sample size determination

The study used Kish Kish-Leslie formula:

“ $N = Z^2 Pq / d^2$, where, n =sample size, $z=1.96$ at 95% confidence interval, $p=50\%$ (0.5); and $q=1-p$, $d=0.05$ ”. therefore, when substituted, “ $n = 1.96^2 * 0.5 / 0.05^2 = 384$ ” (Baguma & Negesa, 2024).

Taking a non-despondence rate of 10%, the sample size is 422. This will be the minimum sample size for this study.

3.4.1 Sampling techniques and data collection

A review of health facility client ART cards for the research period was used. Systematic random sampling was used, with respondents picked alternately from the sampling frame of

876 clients, until the sample size of 427 was realized. All clients on ART and who are on IPT and those who completed IPT within the study period, were considered as respondents in the study. Research assistants filled the data collection checklist with the details of the respondents together with the support of the health workers providing IPT.

3.5 Procedure of data collection

The data collection checklist was the primary tool for extracting information from the electronic medical records of the clinic. The primary document reviewed was the ART card. Two research assistants in IPT service delivery helped in data collection. Before data collection, the researcher oriented the research assistant data collection tool and extraction from health facility records. Coded checklist linked patients to records in the electronic system via serial numbers, enabling follow-up where necessary. Data collected was securely stored in pass password-protected computer with access restricted to the research team only.

The primary outcome of interest was IPT initiation. Variables included in the study were age, sex, marital status, religion, education employment. In also includes health facility factors (e.g., distance to the health facility) and residence. IPT coverage is defined as whether patients initiated and/or completed IPT, measured dichotomously (“yes” or “no”).

3.6 Data Analysis

All collected data were reviewed for completeness and accuracy. Any errors or omissions identified were corrected following discussion. The completed data were entered into a spreadsheet of the Microsoft Excel® software package. The final data were cleaned and backed up on a separate external hard drive before exportation to the statistical software (Stata/IC 14.0 version) for analysis.

Objective 1: The coverage was established by dividing the total number initiated on ART and on IPT extracted within study period, by the total number of IPT eligible people on ART. It will be expressed in percentage.

Objective 2: At bivariate analysis, Chi squared test was used. The analysis used numerical - categorical data. Variables with a p-value<0.2 and those biologically plausible were taken into the multivariable logistic regression model. Multivariable regression analysis was done to find factors independently associated. Variables with p-values<0.05 were reported as associated factors.

Furthermore, descriptive statistics such as frequency distributions, percentages, and frequency tables were used to analyze quantitative data and relate variables that were attained from the study. The study used inferential statistics such as logistic regression analysis to determine the association between variables.

3.7 Ethical issues

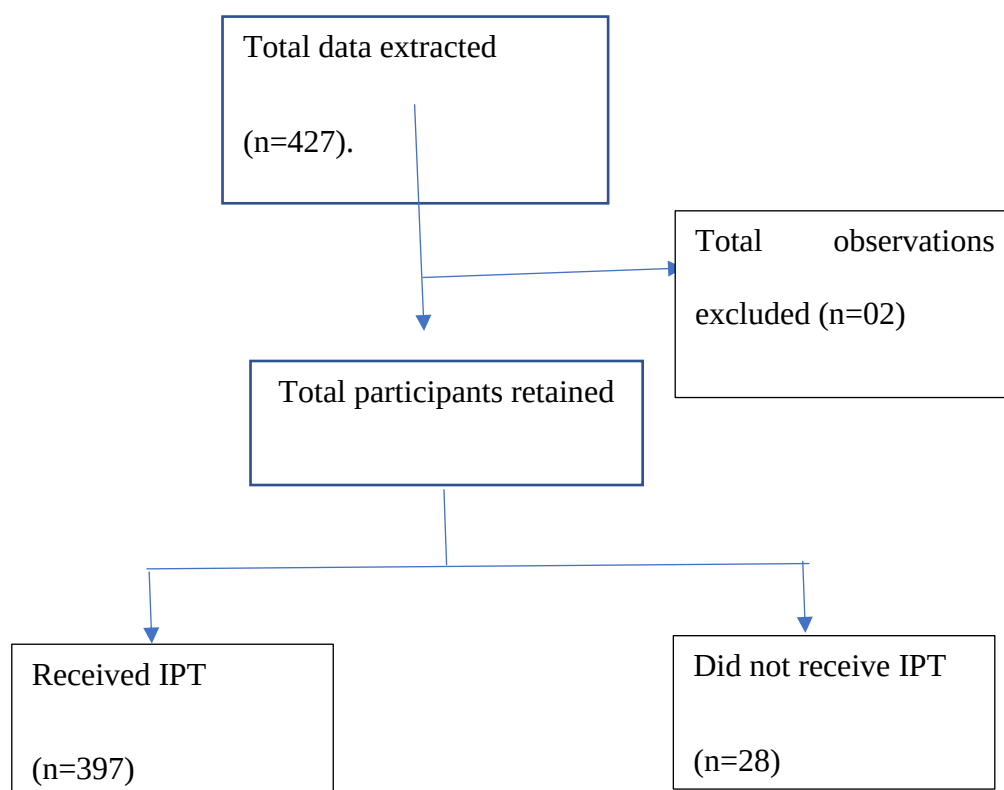
Ethical clearance was sought from Gulu University Research and Ethics Committee, as well as an introductory letter from the Faculty of Medicine which was delivered to Atiak HCIV and the clinic. Administrative clearance was sought from the office of the Chief Administrative Officer and the District Health Officer before accessing the facility for data collection,

CHAPTER FOUR

STUDY RESULTS

The data for this study was drawn from a pool of people living with HIV and on ART in the period of January 2023 to January 2024 in Atiak HCIV, Amuru district. Secondary data was collected using data collection checklist from ART clinic of Atiak HCIV with the support of the unit staff and a research assistant. A total of 427 patient level data were screened and a total sample of 425 were enrolled as study participants through consecutive sampling, while 2 participants were eliminated due to incomplete information.

Figure 1: flow chart summarizing the sample size selection, data abstraction and analysis process.



4.2 Demographic characteristics

In this study, females constituted slightly over half of the study participants (62.9%) while 37.41% were males. The data reviewed showed that majority of participants (76.94%) falls in the age group 25-59 years, while children under 12 years of age were only 3.29% of the study participants. Of the total population studied, over half (56.24) are individuals married, while others are single. Participants who studied up to college level constituted the least percentage (5.88%), while the majority studied up to primary school level (47.53%). More than half of the participants (58.8%) were peasants, while civil servants contributed the least percentage of 2.35%. Participants who had been on ART for durations of 6 to 10 years constituted the majority (34.8%) of the study participants, while those who have been on care for less than 1 year formed the least category (5.18%). Important to note also is that, majority of the participants (71.53%) live within more than 5km from the health facility. Of significance as well is the fact that 1.18% of the study participants had poor MUAC measurement performance (red), while more than half of the participants (54.12%) were not Alcohol consumers compared to 45.88% who consume Alcohol regularly.

Table 1. Demographic characteristics

Variables	Frequency	Percentage (100%)
Age group		
0-12years	14	3.29
13-24 years	58	13.65
25-59 years	327	76.94
60 years and above	26	6.12
Sex		
Male	159	37.41
Female	266	62.59
Marital status		
Single	186	43.76
Married	239	56.24
Religion		
Moslem	10	2.35
Christian	415	97.65

Educational status		
College	25	5.88
No education	29	6.82
Secondary	169	39.76
Primary	202	47.53
Employment status		
Others	1	0.24
Civil servant	10	2.35
Business	122	28.71
Peasant	250	58.82
Duration on ART		
<1 year	22	5.18
1-5years	110	25.88
6-10years	148	34.82
>10years	145	34.12

Previous history of TB treatment		
Yes	17	4.00
No	408	96.00
Distance to health facility		
0-5km	121	28.47
5km and above	304	71.53
Documented side effects		
Yes	6	1.41
No	419	98.59
Alcohol consumption		
Yes	195	45.88
No	230	54.12
MUAC		
Red	5	1.18
yellow	20	4.71
green	400	94.12

4.3: Objective 1: IPT Initiation Prevalence

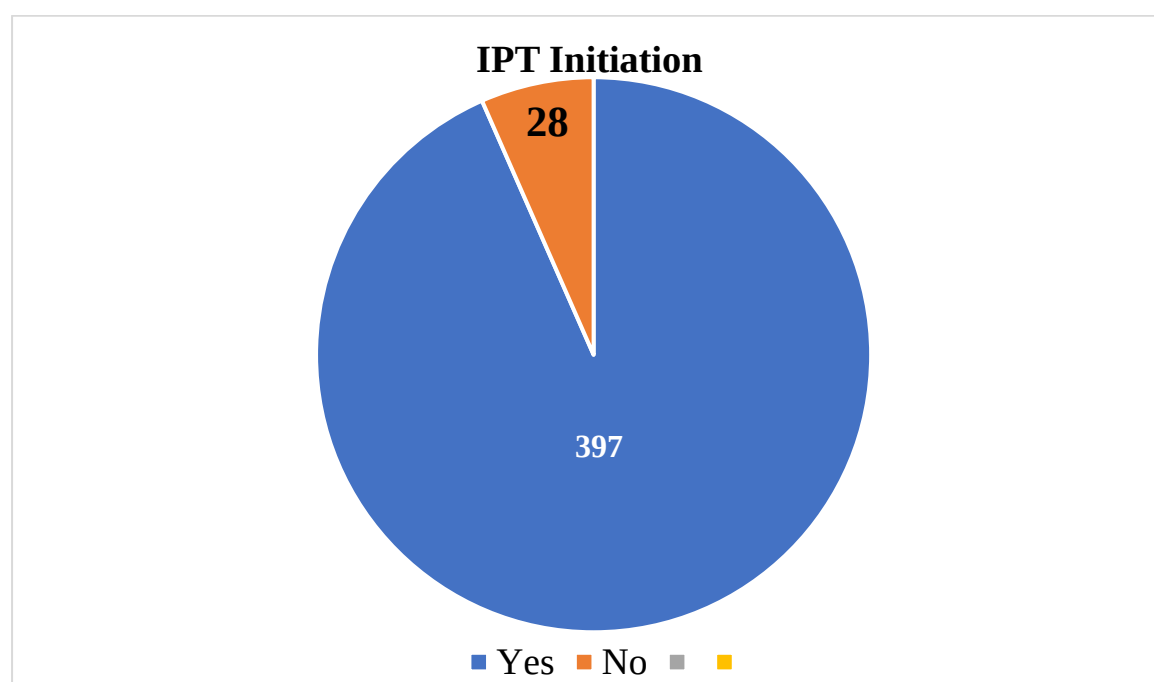


Figure 2: Pie chart showing IPT initiation among clients on ART enrolled into the study. n=425

In this study, initiation of IPT was found to be 93.41% (n=397), while non initiation was at 6.59% (n=28). More females were initiated (62.72%) (n=249) compared to males (37.28%)

(n=148) during the study period. Among the non-initiated clients, females constituted 60.72% (n=17), while males contributed 39.28%, (n=11). Female sex is a risk factor for poor initiation of IPT as shown by this statistics.

4.4. Objective 2: Factors associated with IPT Initiation .

Table 2: Bivariate analysis: Participant factors associated with IPT initiation.

Variable	IPT Initiation		cOR (95% CI)	p-value
	“Yes”	“No”		
	(Freq, %)	Freq (%)		
Sex				
Male	148(37.2)	11(39.29)	1	0.007
Female	249(62.7)	17(60.71)	1.85(1.18-2.89)	
Age group				
0-12years	14(3.53)		1	0.680
13-24years	56(14.11)	2(7.14)	1.5(0.20-10.95)	
25-59 years	301(75.8)	26(92.86)	0.47(0.10-2.18)	
60 years and above	26(6.55)		0.32(0.72-118.7)	
Marital status				
Single	176(44.4)	10(35.71)	1	0.199
Married	221(55.6)	18(64.29)	0.76(0.51-1.15)	
Religion				
Moslem	8(2.02)	2(7.14)	1	0.600
Christian	389(97.9)	26(92.86)	0.87(0.51-1.47)	
Education status				
No education	28(7.05)	1(3.57)	28(3.8-205.7)	0.001
College	25(6.3)		1	
Secondary	154(38.7)	15(53.57)	0.36(0.04-2.8)	0.341
Primary	190(47.8)	12(42.86)	0.56(0.07-4.5)	
Employment status				
Civil servant	10(2.52)		41(5.6-298.0)	<0.001
Others	1(0.25)		1	
Business	111(27.9)	11(39.29)	0.24(0.03-1.96)	0.186
Peasants	234(58.9)	16(57.14)	0.35(0.04-2.76)	
Child	41(10.33)	1(3.57)	1	0.324

Duration on ART				
<1year	1(0.25)	21(75)	0.04(0.006-0.35)	0.003
1-5 years	105(26.4)	5(17.86)	441(48.98-3970)	<0.001
6-10years	146(36.7)	2(7.14)	1533(133-17632)	<0.001
>10years	145(36.5)		1	
History of TB treatment				
Yes	10(2.52)	387(97.48)	1.42(0.54-3.75)	0.469
No	7(25)	21(75)	12.9(4.46-37.27)	<0.001
Distance to health facility				
5km and above	102(25.62)	19(67.68)	5.36(3.28-8.76)	<0.001
0-5km	95(74.31)	9(32.14)	6.10(2.67-13.92)	<0.001
Documented side effects				
Yes	6(1.51)		13.96(9.51-20.48)	<0.001
No	391(98.4)	28(100)	1	
Alcohol consumption				
Yes	183(46)	214(53.9)	15.25(8.50-27.34)	<0.001
No	12(42.86)	16(57.14)	0.87(0.40-1.90)	0.74
MUAC				
Red	5(1.26)		14.38(9.66-21.40)	<0.001
Yellow	18(4.53)	2(7.14)	0.62(0.13-2.84)	0.544
Green	374(94.2)	26(92.86)	1	

From the above data, participants who have been on ART for one year or more have a statistically more significant initiation on IPT compared to those who have been on ART for a duration of less than one year (1-5years: cOR:441;95%CI:48-3790, $p<0.001$, 6-10years: cOR:1533;95%CI:133-17632, $p<0.001$)

Compared to participants with history of TB treatment, those with no history of TB treatment are statistically about 9 times likely to be initiated on IPT than their counterparts (cOR:12.9; 95%CI:4.46-37.27, $p<0.001$).

There is statistically more significant initiation of IPT among participants who travel more than 5km to the facility, as compared to those living within 5km from the facility (cOR:6.1; 95% CI: 2.67-13.12, $p>0.001$)

4.5 Multivariable analysis: Factors associated with IPT Initiation

Table 3: Multivariable analysis of factors associated with IPT Initiation

Variables	IPT Initiation		Bivariate analysis	P value	Multivariate analysis	P value
	Yes	No	cOR (95% CI)		aOR(95%CI)	
	(freq, %)	(freq, %)				
Duration on ART						
<1year	1(0.25)	21(75)	0.04(0.006-0.35)	0.003	1	
1-5years	105(26.4)	5(17.86)	441(48-3970)	<0.001	455(38-5451)	<0.001
6-10years	146(36.7)	2(7.14)	1533(133-17652)	<0.001	1636(105-25330)	<0.001
>10years	145(36.5)	00(00)	1			
History of TB treatment						
Yes	10(2.52)	387(97.48)	1.42(0.54-3.75)	0.469	1	
No	7(25.0)	21(75.0)	12.9(4.46-37.27)	<0.001	1.52(0.06-36.15)	0.794
Distance to health facility						
0-5km	102(25.7)	295(74.31)	5.36(3.28-8.76)	<0.001	0.036(0.001-0.86))	0.04
5km and above	19(67.86)	9(32.14)	6.10(2.67-13.92)	<0.001	0.76(0.14-3.96)	0.75

At multivariable level, the duration of the participant on ART remained statistically significant.

Duration on ART of over one-year associates with higher initiation on IPT compared with participants who have been on ART for less than a year (1-5years: aOR:455, 95% CI=38-5451, $P<0.001$, 6-10years: aOR: 1636, 95% CI=105-25330, $P<0.001$)

Chapter Five

Discussion.

5.1 Initiation of IPT

This study assessed the initiation of IPT and associated factors among people on ART in Atiak HCIV, Amuru district. The finding indicates that 397 (93.41%) were initiated on IPT, while 28 (%) were not. Although the observed initiation of IPT among respondents on ART was 93.41%, a significant number, 28 (5.9%), are outside treatment. The relatively high initiation in this study supports the WHO-recommended target of 90% for each country. A similar study by Tuwa et al. (2024) in Tanzania and (Kazibwe et al., 2022) in Uganda found the initiation of IPT at 91% and 92.8% respectively. This is likely attributed to the full integration of IPT into routine HIV/TB care, such as in Uganda. In this study, IPT integration into the routine delivery of comprehensive HIV care also explains the high coverage reported. Furthermore, the collaborative efforts from healthcare development partners in terms of facilitating capacity building for healthcare workers, expediting the processes of the supply chain for ART and IPT commodities in collaboration with district health teams and Ministry of Health, and facilitating redistribution of commodities from overstocked sites to sites with stockouts could have contributed to the high coverage seen in this study. The adoption of the differentiated service delivery model (DSDM) by the district, involving integrated comprehensive care package community outreaches for HIV/TB services covering hard-to-reach areas of the health facility catchment on a monthly basis, helped improve access to IPT services and thus could have significantly contributed to the high coverage. The few reported side effects of IPT, the availability of trained and knowledgeable health workers at service delivery points, and the availability of recent guidelines at the health facility may also explain the high coverage in this study. The routine health education sessions at the clinic could also have contributed to the high coverage by sensitising the eligible clients for IPT. However, recent studies conducted in Butebo, Uganda (2022), and parts of Tanzania, reported significantly lower initiations of

34.2%, 28.9% respectively (Oonyu et al., 2022), (B. ini N. Christian, 2022). In the regions with low initiation mentioned above, there was reportedly still low level of comprehensive HIV service integration, human resource gaps and relatively poor supply chain system.

5.2 Factors associated with initiation of IPT

Our study found that being on ART for more than one year is associated with higher IPT coverage. This finding aligns with (Oonyu et al., 2022), who reported a mean duration of 4.31 years between HIV diagnosis and IPT initiation. The association may be attributed to routine ART clinic visits, which provide opportunities to promote and initiate IPT. Similarly, a study by Tuwa et al. (2024) in Mwanza, Tanzania, found that monthly ART clinic visits play a key role in enhancing IPT coverage among HIV patients. These findings highlight the importance of retention in comprehensive HIV/TB care, as it directly impacts IPT coverage.

Regarding demographic factors, sex was observed to influence IPT coverage, with females representing the highest proportion of both initiated and non-initiated participants (62.72% and 60.72%, respectively). However, no statistically significant relationship was found between IPT initiation and sex, although some studies, such as (Tadesse et al., 2016) have reported significant associations. In the African context, this trend may reflect females' generally higher health-seeking behavior.

Important to note also is that more than half of the respondents (56%) were married. Marriage as an institution can provide a good social support system that may promote initiation and adherence to IPT.

This study however did not assess completion of IPT among those initiated, which would inform on the overall protection benefit of IPT use.

5.3 Conclusion

In conclusion, this study found that the initiation of IPT among respondents on ART in Atiak HCIV was higher (93.41%) than WHO target of 90%. The factor attributable to the high coverage was found to be the duration a client has taken on ART. The higher the duration, the higher the initiation on IPT. Thus retention in care for HIV/TB patients needs to be well supported at health facility and at higher levels of decision making as it directly influences the initiation of IPT.

Recommendations

This study recommends that the Ministry of Health (MOH) and stakeholders continue to advocate for health promotion activities such as sensitization of the community to help sustain IPT initiation. This should include social behavioral change messaging among the health care workers and general population.

Strengthen appointment keeping among clients, as noted in this study that routine clinic visits is associated with high IPT initiation

Continuous in-depth patient education during routine clinic visits and ensuring that staff working at Chronic Care clinics are well equipped and knowledgeable on current guidelines.

Further future studies could look at:

1. Barriers and facilitators of completion of IPT among clients on ART.
2. Predictors of missed opportunity to IPT initiation among clients on ART.

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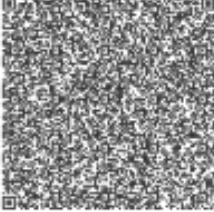
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Appendices

Appendix 1. GUREC Approval of the research topic.

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RESEARCH ETHICS COMMITTEE



25/06/2024
To: Oneka Brown
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Review Type: Initial Review

Re:GUREC-2023-595: Isoniazid preventive therapy coverage and associated factors among people living with HIV on antiretroviral therapy in Atiak HC IV, Amuru District, Northern Uganda.

I am pleased to inform you that at the **100th** convened meeting on **11/05/2023**, the Gulu University REC meeting voted to approve the above referenced application.

Approval of the research is for the period of **25/06/2024** to **25/06/2025**.

As Principal Investigator of the research, you are responsible for fulfilling the following requirements of approval:

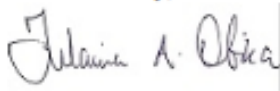
1. All co-investigators must be kept informed of the status of the research.
2. Changes, amendments, and addenda to the protocol or the consent form must be submitted to the REC for re-review and approval **prior** to the activation of the changes.
3. Reports of unanticipated problems involving risks to participants or any new information which could change the risk benefit: ratio must be submitted to the REC.
4. Only approved consent forms are to be used in the enrollment of participants. All consent forms signed by participants and/or witnesses should be retained on file. The REC may conduct audits of all study records, and consent documentation may be part of such audits.
5. Continuing review application must be submitted to the REC **eight weeks** prior to the expiration date of **25/06/2025** in order to continue the study beyond the approved period. Failure to submit a continuing review application in a timely fashion may result in suspension or termination of the study.
6. The REC application number assigned to the research should be cited in any correspondence with the REC of record.
7. You are required to register the research protocol with the Uganda National Council for Science and Technology (UNCST) for final clearance to undertake the study in Uganda.

The following is the list of all documents approved in this application by Gulu University REC:

No.	Document Title	Language	Version Number	Version Date
1	Covid-19 Risk Management plan	English	02	2024-06-25
2	Protocol	English	02	2024-06-17

3	Data collection tools	English	02	2024-06-17
4	Informed Consent Waiver	English	not applicable	2024-06-01

Yours sincerely,



Julaina A. Obika (PhD)
For: Gulu University REC

Appendix 2: Plagiarism check of the dissertation.

GULU

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URL: www.gu.ac.ug

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PLAGIARISM CHECK

Declaration for Originality Form

This form must be completed and signed for all scholarly work produced.

Name: _____ **ONEKA GEORGE BROWN (MR.)** _____

Personal File No.(staff) Reg. (student). **REG. NO. 22/U/1506/MPH/PS**

Faculty/Institute: **FACULTY OF MEDICINE, GULU UNIVERSITY**

Department: **PUBLIC HEALTH** _____

Title and bibliographic description of the work

**ISONIAZID PREVENTIVE THERAPY COVERAGE AND ASSOCIATED FACTORS
AMONG PEOPLE LIVING WITH HIV ON ANTIRETROVIRAL THERAPY (ART) IN
ATIAK HCIV, AMURU DISTRICT, NORTHERN UGANDA**

Declaration.

1. I understand what plagiarism is and I am aware of the University policy on this regard,
2. I declare that this ... **Dissertation** ... (Proposal, thesis, essay, assignment, paper, report etc.) is my original work and has not been submitted elsewhere for examination, award of a degree or publication. Where other people's work or my work has been used, this has been properly acknowledged and referenced in accordance with Gulu University requirements,
3. I have not sought or used the services of any professional agency to produce this work,
4. I have not allowed, and shall not allow anyone to copy my work with the intention of passing it off as his/her own,
5. I understand that any false claim of this work shall result in disciplinary action in accordance with University Policy on Plagiarism.

Signature _____ *Oneka* _____

Date 6/9/2025

Originality Report

The article/thesis/document titled above have been subjected to plagiarism check and the level was found to be.....**20%** (percent) this is classified as:

☒ Minor

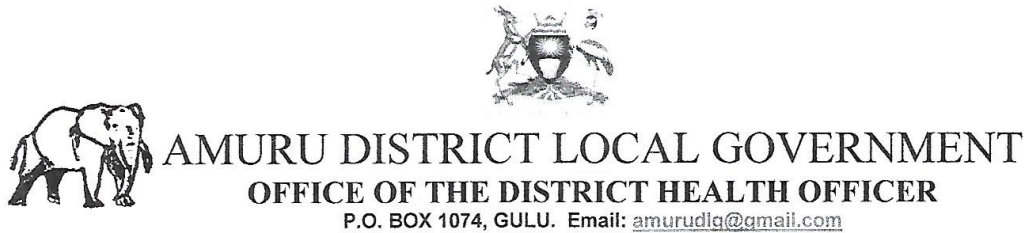
☐ Moderate

☐ Serious

Yours sincerely,

Clement Eutaaya Nabumba
Office of the Librarian
University Librarian
CLAUDE CLAIRE (PhD)

Appendix 3: administrative clearance from the district.



Alternative Communication Routes

District Chairperson
Office Line: 0392- 138928
Mobile: 0782-777855
Chief Administrative Officer
Office Line: 0392 138904
Mobile: 0772-487457

Principal Assistant Secretary
Mobile: 0777185432
Chief Finance Officer
Mobile: 0772-512957
District Health Officer
Mobile: 0772482631
8/1/2024

Mr Oneka George Brown,

22/1506/MPH/PS,

Gulu University

Dear Sir,

RE: RESEARCH PLACEMENT LETTER

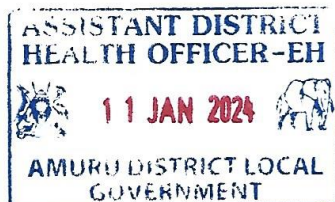
Reference is made to the communication from Gulu University Research Ethics Committee dated 30/9/2023 and yours dated 9/10/2023 regarding the above.

This is to inform you that your request has been granted, and you are therefore permitted to carry out data collection and eventual research titled **“ISONIAZID PREVENTIVE THERAPY COVERAGE AND ASSOCIATED FACTORS AMONG PEOPLE LIVING WITH HIV ON ART IN ATIAK HCIV”**.

You are therefore asked to report to the in-charge of Atiak HCIV for further guidance and support.

Wishing you good luck in your endeavors.


Okello Denis,
Assistant District Health Officer- Environment,
Amuru District.



Cc: CAO Amuru district

Cc: In-charge, Atiak HCIV.

Appendix 4: COVID 19 and MPOX prevention measures.

Measures for the Prevention and control of risk of spread of COVID-19 and MPOX during the implementation of research

Isoniazid preventive therapy coverage and associated factors among people living with HIV on Antiretroviral therapy in Atiak HCIV, Amuru district:

Principal Investigator: Oneka George Brown, MPH Student.

Introduction:

The novel Coronavirus is transmitted from human to human through droplets and direct or close personal contact with an infected individual

Novel Coronavirus signs of infection include respiratory symptoms, fever, cough, shortness of breath and breathing difficulties. In more severe cases, infection can cause pneumonia, severe acute respiratory syndrome, kidney failure and even death

Implementation of the prevention and control measures

In the implementation of the research activities, the investigators are committed to ensuring the safety of its research team, research participants and communities where the study will be conducted. The study team undertakes to comply with the Standard Operating Procedures issued by the Ministry of Health, and presidential directives to mitigate against the risk of infection of COVID-19, rapidly detect and effectively respond to any COVID-19 case that may occur in the process of carrying out the study, screening, face covering, physical distancing, and good hand hygiene.

Procedures to be followed during the implementation of the research. Prior to data collection and Training

1. **Health guidance:** There will be training sessions dedicated for COVID-19 sensitization and awareness, to equip the research team with knowledge of signs and symptoms of the COVID-19, and preventive measures such as hand hygiene before placing and removing the mask, as well as storage of the mask, social distancing. The research team will circulate notices, posters, charts on common signs and symptoms of COVID-19 as provided by the Ministry of Health, and develop and/or use existing plan for the appropriate referral pathway for identified and/or suspected cases.
2. **Personal Screening:** All researchers, research assistants, research participants and any other individuals engaged in research activities will screen temperature daily for fever. Screening for temperature will be carried out during planning meetings, trainings, community outreach. Any individual found with COVID 19 symptoms will be withdrawn and referred to the COVID – 19 task force for further assessment and management. The withdrawn individual will be allowed to return only if they present a valid certification of their COVID-19 status showing negative result

3. **Wearing face coverings:** All researchers and research assistants and any other individuals engaged in research activities that require interaction with fellow researchers or research participants or the community member will have to wear a face mask that fully covers the mouth and nose at all times. The study will provide face masks for individuals who do not have.
4. **Physical Distancing:** There will be social distancing during the training, meetings, community outreach of at minimum of 2 metres. During breaks, the team will not be allowed to congregate in common areas.
5. **Good hygiene:** All team members will be required to wash their hands or use hand sanitizers before and after entering the training room, and other common areas. Hand washing equipment shall be supplied and made available at all times. All surfaces and equipment shall be sanitised frequently.

During data collection

1. **Personal Protective Equipment (PPE):** All research assistants involved in tracing of respondents and in in-person interviews and research participants will use PPE including a properly fitted face mask. Enumerators/Researchers and research participants will wash hands with soap and water or use hand sanitizer prior to the interview. Handshakes and hugging are prohibited. Physical distancing of at least 2 metres in all research related activities shall be observed.
2. **Focus group discussions:** The research team shall carry educational materials on prevention of COVID-19 in a language understood by the participants. These materials shall also have visual images to support understanding. Enumerators/Researchers and research participants will wash hands with soap and water or use hand sanitizer prior to the interview. Screening for temperature will be carried out prior to conducting meetings
3. **Consent Process:** The Researcher /Research assistants will observe social distancing when taking consent (while 2 metres apart) upon arrival to the participant. Enumerators/Researchers and research participants will wash hands with soap and water or use hand sanitizer prior to the interview. Participant will then be sensitized on covid-19 and presented with preventive measures.
4. **Equipment sanitization:** shared devices used to record or capture data shall be sanitized regularly.

During Dissemination/Community engagement

1. **Community Engagement:** The research team shall carry educational materials on prevention of COVID-19 in a language understood by the participants. These materials shall also have visual images to support understanding. Enumerators/Researchers and research participants will wash hands with soap and water or use hand sanitizer prior to the interview. Screening for temperature will be carried out prior to conducting community engagements.
5. **Equipment sanitization:** shared devices used during community engagements to shall be sanitized regularly.

The preventive and control measures will continuously be reviewed based on new information and guidelines communicated by the Ministry of Health

Appendix 5: Checklist for ART clients on IPT

Dear Respondents

My name is **Oneka George Brown**, a Master of Public Health (MPH) Student of Gulu University Faculty of Medicine with **Participant. No: 22/U/1506/MPH/PS** pursuing a Master of Public Health, conducting a research study on the topic ***“Isoniazid Preventive Therapy Coverage and Factors among People on Antiretroviral Therapy (ART) in Amuru District, Northern Uganda”***. Findings from this study will be submitted to Gulu University Faculty of Medicine as partial fulfillment for the award of the Degree of Master of Public Health. The information required is purely for academic purposes only and will be treated with utmost confidentiality. All information furnished will be kept very confidential. Please kindly feel free to give the most appropriate answer for each alternative option.

Section A: Socio Demographic Information of Respondents

1. Age: _____ Date of Birth: _____ Sex: Male ☐ Female ☐
2. Marital Status
Single ☐ Married ☐ Separated ☐ Cohabiting ☐ Divorced ☐ Widowed ☐
3. Religion
Christian ☐ Moslem ☐ Traditionalis ☐ Others Specify _____
4. Level of education of respondents
No education ☐ Primary ☐ Secondary ☐ College ☐
5. Employment Status
Peasant ☐ Civil servant ☐ Business ☐ Others Specify _____

Section B: Clinical Information and coverage of IPT

6. Duration of living with HIV
< 1 year ☐ 1-5 years ☐ 6-10 years ☐ > 10 years ☐
7. Initiated on IPT
Yes ☐ No ☐
8. Disclosed HIV Status?

Yes ☐ No ☐

9. If yes to who? Partner ☐ Relative ☐ Fellow Patient ☐ Friend ☐

10. Screened for TB using ICF Tool? Yes ☐ No ☐

11. Previous history of TB treatment? Yes ☐ No ☐

Section C: Factors contributing to the coverage of Isoniazid Preventive Therapy among eligible people on ART.

12. IPT supply Bi-monthly ☐ Irregular ☐

13. Adequate stock (Lasts 2months) Yes ☐ No ☐

14. Health education on IPT? (Documented) Yes ☐ No ☐

15. Current policy available Yes ☐ No ☐

16. Distance to health center (within 5km) ☐ more than 5km ☐

17. Documented side-effects Yes ☐ No ☐

18. Alcohol consumption? Yes ☐ No ☐

19. Nutrition status of the patient (MUAC) Green ☐ Yellow ☐ Red ☐

Thank you for your time!

Appendix II: Research Work Plan

Activity	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec-May
Period	(2023 to 2024)											
Idea/ Topic Identification												
Adjustment of Proposal and Supervision												
Proposal Defense												
Data Collection												
Data Entry and Processing												
Draft Report												
Submission of Report and dissemination												

Appendix IV: Budget Estimate for the study

S/No	Item	Quantity	Unit Cost	Amount
1	Printing paper	3 Reams	18,000/=	54,000/=
2	Pens	1 Packet	18,000/=	18,000/=
3	Pencils	½ Dozen	2,000/=	2,000/=
4.	Flash disk	1 Piece	60,000/=	60,000/=
5.	Binding materials	Lumpsum	80,000/=	80,000/=
6.	Typing cost	Lumpsum	200,000/=	200,000/=
7.	Photocopying	Lumpsum	250,000/=	250,000/=
8.	Feeding	Lumpsum	400,000/=	400,000/=
9.	Transport	Lumpsum	500,000/=	500,000/=
10.	Allowance for Research Assistants	Lumpsum	1,000,000	1,000,000/=
11.	Administration	Lumpsum	500,000	500,000
12.	Results Dissemination	Lumpsum	1000,000	1000,000
	Total			4,064,000/=