

# Knowledge, Attitude, and Practices of Isoniazid Preventive Therapy among HIV-Positive Patients at Itojo Hospital, Ntungamo District

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## ABSTRACT

Isoniazid Preventive Therapy (IPT) is a proven intervention for preventing the development of active tuberculosis (TB) in people living with HIV (PLHIV). However, despite its effectiveness, the uptake of IPT among PLHIV remains low, especially in resource-limited settings such as Ntungamo district in Uganda. To determine the knowledge, attitude, and practices towards the use of isoniazid preventive therapy (IPT) among HIV-positive patients at Itojo Hospital, Ntungamo District. This descriptive cross-sectional study aimed to assess the knowledge, attitudes, and practices of IPT among HIV-positive patients attending Itojo Hospital in Ntungamo district. We recruited a total of 50 participants using simple random sampling, and collected data using a structured questionnaire. We used descriptive statistics and logistic regression to analyze the data and determine the likelihood of the outcomes. The study involved 50 participants who volunteered. It was depicted that female gender (p-value: 0.016, aOR: 2.59 (0.63–10.71)), age of 31–35 years (p-value: 0.016, aOR: 0.17 (0.02–1.51) and tertiary level of education (p-value: 0.025, aOR: 1.76 (0.31–9.46)) were significant predictors of knowledge. Primary level education (p-value: 0.02, aOR: 1.28(0.34–4.85)) and unemployment (p-value: 0.05, aOR: 0.22(0.05–1.01)) were significantly associated with attitudes towards the use of IPT among HIV-positive patients at Itojo Hospital. Age of 26–30 years (p-value: 0.003, aOR: 4.427(0.068–288.290)) and secondary level of education (p-value: 0.046, aOR: 1.23(0.961–1.565)) were significantly associated with the practices towards the use of IPT intake. The study identified age, gender, and level of education as significant predictors of knowledge, attitude, and practices towards the use of IPT intake among HIV-positive patients at Itojo Hospital. The findings indicate the need for improved education and awareness campaigns on IPT intake among PLHIV in Ntungamo district. Addressing concerns related to side effects and improving access to health facilities could also increase the uptake of IPT. These findings can inform the development of targeted interventions to improve the uptake of IPT among PLHIV in resource-limited settings.

**Keywords:** Tuberculosis, Isoniazid, ART, HIV-Positive Patients, Itojo Hospital, Ntungamo District

## INTRODUCTION

Approximately 23% of the world's population has tuberculosis (TB) infection, with a 5% to 10% lifetime risk of progressing to active disease [1]. Among individuals with TB infection, the risk of developing active TB is much higher among those who also have HIV, and this risk increases as immune deficiency worsens [2–5]. Researchers have shown that giving people with HIV isoniazid for 6 or 9 months to treat a latent tuberculosis infection (LTBI) lowers their risk of getting active TB, especially in those who have a positive tuberculin skin test [6]. The Centers for Disease Control and Prevention preferentially recommend one of the following short-course regimens for LTBI treatment after excluding active TB [7]. Accumulating evidence suggests that ART can prevent active TB in areas with high TB prevalence [8]. However, given the growing body of evidence supporting early ART in general and the lack of data showing any harm in patients with TB coinfection, the Panel recommends ART initiation within 8 weeks of starting TB treatment for patients with CD4 counts  $\geq 50$  cells/mm<sup>3</sup> [9]. Multidrug-resistant TB (MDR-TB) is defined as strains with resistance to both isoniazid and rifampicin; and pre-extensively drug-resistant (XDR) TB is defined as MDR-TB plus resistant to any fluoroquinolone, and XDR-TB as MDR-TB plus resistant to any fluoroquinolone and at least one additional Group A drug listed in the WHO guidelines [1]. Historically, mortality rates in patients with MDR or XDR-TB and HIV have been high, 26 but more recent data suggest that treatment outcomes are similar for patients with MDR-TB with and without HIV infection [10]. Although randomised clinical trial data to guide the optimal timing for ART initiation are lacking, the WHO recommends ART for all patients with HIV and drug-resistant TB, irrespective of CD4 cell count, as early as

possible (within the first 8 weeks), following the initiation of TB treatment [1]. Globally, IPT specifically has remained highly underutilised, with only 1.8 million PLHIV globally reported to have initiated IPT in 2018. This is still off the current WHO (2018) guidelines, which recommend a daily dose of isoniazid monotherapy for 6 months for children and adults living with HIV [11]. In China, an assessment by Gao et al. [12] revealed a low level of knowledge regarding IPT guidelines and their importance among 40% of the HIV-positive patients, and this has led to poor adherence by HIV patients, who account for 34% of the population. This can be improved if patients have good knowledge of the needs and benefits of IPT, which can be facilitated through the counselling of patients by health workers.

Sub-Saharan Africa is responsible for 79 percent of the global TB/HIV co-infection burden [13]. In Ethiopia, the practice of IPT among HIV positive patients is still poor, with only a 37% uptake rate and 67.9% completion of the IPT dosage among HIV positive patients. The main causes of this include a lack of awareness of the benefits of IPT accounting for 44.4% and a negative attitude towards the prevention of TB [14]. Tanzania faces TB/HIV burden in East Africa, with 154,000 new cases in 2017, 31% HIV-positive. Rwanda has a higher prevalence of TB among PLHIV. Uptake of IPT is low in Kenya and Rwanda [15]. Uganda's HIV prevalence is 7.3%, with 45,546 TB patients diagnosed in 2010. Pulmonary tuberculosis prevalence is 5.9%, with 15.3% in western Uganda and 7.2% in Eastern Uganda. Low IPT uptake and lack of knowledge contribute to increased TB infection [16]. Worldwide, one-third and 50% of Ugandans living with HIV had TB co-infection from 2014 to 2019, and TB remains a leading cause of morbidity and mortality in people living with HIV/AIDS in Uganda [17]. There have been significant efforts to combat HIV-TB co-infection by the Ministry of Health through constant counselling during ART sessions, providing isoniazid preventive therapy (IPT) for free, and creating awareness regarding the importance of IPT in the prevention of HIV-TB co-infection [17]. Despite these efforts by many NGOs supporting HIV management, the cases of HIV-TB co-infection rate control are still unpromising in Itojo Hospital, Ntungamo District, hence the need to carry out a study exploring the knowledge, attitude, and practices towards the use of isoniazid preventive therapy (IPT) among HIV-positive patients in this place. The study aims to assess the knowledge, attitude, and practices of HIV-positive patients at Itojo Hospital in Ntungamo District regarding the use of isoniazid preventive therapy (IPT). It also aims to assess the attitudes towards IPT and identify the practices among these patients.

## METHODOLOGY

### Study Design

We used a descriptive cross-sectional study design in this study to collect quantitative data. This research study design was preferred because it was less time-consuming, and in addition, the researcher collected data at once without following up with respondents.

### Study Setting

The study was carried out at Itojo Hospital, Ntungamo District. This health facility is located 10 km from the Ntungamo municipality centre, 50 km from Mbarara Regional Referral Hospital, and 130 km from the Fort Portal-Kampala international university teaching site. The health facility serves approximately 85% of the patients, who are civilians from the surrounding community. The health facility has different departments like OPD and nursing, and it receives many HIV-positive patients who need IPT for prevention of HIV-TB co-infection.

### Study Population

The study targeted only HIV-positive patients in care.

### Inclusion Criteria

The study included HIV-positive patients aged 18 years and older who were available during the data collection periods and those who were willing to voluntarily consent to participate in the study.

### Exclusion criteria

Those who were ill or not found within the location at the time of data collection were not included in the study. Those who did not understand and failed to fill out the consent form were not recruited for the study.

### Sample Size Determination

The sample size was determined by the use of the Roscoe [18] method, which stated that a sample size of not less than 30 and not more than 500 is appropriate for the generalisation of most scientific studies. Therefore, 50 HIV-positive patients attending the ART clinic who were available during the time for data collection were selected. Resource constraints, such as limited time and inadequate financial resources, influenced the sample size.

### Sampling Technique

A simple random sampling procedure was used. This can be defined as a sampling procedure that gives each person in the study population a chance to be selected. On each day of data collection, papers labelled "yes" or "no" were put in a box and shook. The eligible respondent was an HIV-positive patient who would pick up the paper with the label "yes" and was enrolled in the study. We considered this procedure due to its ease and accuracy of representation; randomly selecting subjects from the larger population produced a sample that accurately

represented the group under study. This was repeated until the desired sample size of 50 HIV-positive patients was reached during the three days of data collection.

**Data Collection Methods and Management**

This study used a checklist questionnaire, which was a closed and open-structured questionnaire. It involved a list of specific questions and was designed to explore the knowledge, attitude, and practices towards the use of isoniazid preventive therapy (IPT) among HIV-positive patients. The instrument was chosen because it is time-saving. The researcher completed all these tasks.

**Data Processing and Analysis**

The data was checked for inconsistencies and missing values, and amendments were considered as needed. They were coded and entered into MS Excel 2019 and then exported to SPSS (Statistical Package for Social Science) version 25 for analysis. The extent of the relationship between the independent and dependent variables was examined using an adjusted odds ratio with a 95% confidence interval, all extrapolated from multivariate logistic regression analysis. A P-value less than 0.05 was considered significant. Finally, the results were presented in tables.

**Quality Control**

The questionnaire for data collection was pre-tested to ensure that questions were clear and allowed the gathering of information needed for the study. The pre-testing identified certain unclear questions, which we further examined and modified as necessary.

**Ethical Considerations**

The researcher obtained a formal letter from school administration, which was used to obtain permission and consent from the administration of the study area. Verbal permission and consent were sought from respondents where the main purpose of the study was clearly explained to them and assured confidentiality so as to have their cooperation.

An independent variable is the cause supposed to be responsible for bringing about changes in the phenomenon or situation, and in the case of this study, these factors are knowledge, attitude, and practices towards the use of isoniazid preventive therapy (IPT) uptake.

Dependent variables are the outcomes or changes brought about by the introduction of an independent variable, and in this study, it is the use of isoniazid preventive therapy (IPT) among HIV-positive patients.

**RESULTS**

**Individual characteristics of HIV-positive patients at Itojo hospital**  
**Table 1: Individual characteristics of HIV-positive patients at Itojo hospital**

Variable	Options	Frequency, n=50	Percentage, %
<b>Gender</b>	Male	30	60
	Female	20	40
<b>Age</b>	18-25	6	12
	26-30	15	30
	31-35	11	22
	Above 35	18	36
	Primary level	15	30
	Secondary level	25	50
	Tertiary level	8	16
	Married	20	40
	Divorced	5	10
	Widowed	5	10
	Self-employed	12	24
	Unemployed	13	26

Table 1 shows individual characteristics where out of the 50 participants, 30 (60%) were male and 20 (40%) were female. The participants were of varying ages, with 6 (12%) falling in the 18- 25 age range, 15 (30%) in the 26-30 range, 11 (22%) in the 31-35 range, and 18 (36%) above 35 years of age. Most of the participants had at least a primary level of education, with 15 (30%) having completed primary level, 25 (50%) completing secondary level, and 8 (16%) having completed tertiary level. Only 2 (4%) reported having no formal education. The majority of the participants were either single (20, 40%) or married (20, 40%), while 5 (10%) were divorced and 5 (10%) were widowed. Half of the participants (25, 50%) were employed, while 12 (24%) were self-employed and 13 (26%) were unemployed.

**Table 2: Knowledge of the use of isoniazid preventive therapy intake among HIV-positive patients at Itojo hospital**

Variable	Options	Frequency, N=50	Percentage %
Heard of IPT	Yes	42	84
	No	8	15
What's IPT	The therapy for preventing TB	37	74
	Medicine for preventing bacterial infections	6	12
	Therapy for preventing malaria	1	2
How do you know about IPT	I don't know	6	12
	Health workers	26	52
	Internet	9	18
	Television and radio	8	16
Importance of taking IPT	Family and friends	7	14
	Reduces the chances of developing TB among people living with HIV	43	86
	Increases the life expectancy of people living with HIV	6	12
	To prevent bacterial infections	0	0
Considerations before taking IPT	I don't know	1	2
	Screening before beginning taking IPT	40	80
	Taken when you have a cough	1	2
Duration of IPT therapy	None of the above	9	18
	6 months	36	72
	3 Months	2	4
	Stopped when TB signs disappear	0	0
Place where IPT is picked from	I don't know	12	24
	Pharmacy	15	30
	Drugs shops	10	20
	ART Clinic	23	46
Considerations needed to know when taking IPT	Alongside ART drugs	35	70
	When there's no cough, night sweats and weight loss	3	6
	Visit the health facility to check the effectiveness of IPT	9	18
	I don't know	3	6

Table 2 shows results of knowledge towards the use of IPT intake and out of the 50 participants, 42 (84%) reported that they had heard of isoniazid preventive therapy (IPT), while 8 (16%) had not. Among those who had heard of IPT, 37 (88%) correctly identified it as a therapy for preventing TB among people living with HIV. 2 (5%) thought it was a medicine for preventing bacterial infections, 1 (2%) thought it was for preventing malaria, and 2 (5%) did not know. The majority of participants who had heard of IPT (26, 62%) reported that they learned about it from health workers. 8 (19%) learned about it from television and radio, 5 (12%) from the internet, and 4 (10%) from family and friends. When asked about the importance of taking IPT, 43 (86%) recognized that it reduces the chances of developing TB among people living with HIV, while 6 (12%) thought it increases life expectancy. None of the participants thought that it prevents bacterial infections. 40 (80%) of the participants knew that screening was required before beginning IPT, while only 1 (2%) thought it should be taken when a cough is present. 9 (18%) did not know what considerations were necessary. 36 (72%) participants correctly reported that the duration of

IPT therapy is 6 months, while only 2 (4%) knew that it lasts for 3 months. 12 (24%) did not know. When asked where IPT could be picked up, 23 (46%) participants reported that it was available from the ART clinic, 15 (30%) from the pharmacy, and 10 (20%) from drug shops. 2 (4%) thought that it could be obtained from a friend. 35 (70%) participants recognized that IPT should be taken alongside ART drugs, while only 9 (18%) knew that visiting the health facility to check effectiveness was necessary. 3 (6%) did not know what considerations were necessary.

**Table 3: Attitudes of the use of Isoniazid Preventive Therapy among HIV-positive patients at Itojo hospital**

VARIABLE	OPTIONS	FREQUENCY, N=50	PERCENTAGE, %
<b>IPT can make me feel bad and sick</b>	Strongly agree	5	10
	Agree	10	20
	Disagree	25	50
	Strongly disagree	5	10
	Not sure	5	10
<b>I can openly talk about IPT</b>	Strongly agree	20	40
	Agree	20	40
	Disagree	5	10
	Strongly disagree	0	0
	Not sure	5	10
<b>People will know about my HIV status if they know am on IPT</b>	Strongly agree	5	10
	Agree	15	30
	Disagree	20	40
	Strongly disagree	5	10
	Not sure	5	10
<b>IPT is good for protecting me against TB</b>	Strongly agree	30	60
	Agree	10	20
	Disagree	5	10
	Strongly disagree	0	0
	Not sure	5	10
<b>Side effects of the drug make me want to stop taking it</b>	Strongly agree	5	10
	Agree	10	20
	Disagree	25	50
	Strongly disagree	5	10
	Not sure	5	10
<b>Taking IPT drugs is hectic and tiresome</b>	Strongly agree	5	10
	Agree	10	20
	Disagree	20	40
	Strongly disagree	10	20
	Not sure	5	10

Table 3 presents the attitudes of HIV-positive patients towards the use of Isoniazid Preventive Therapy (IPT) at Itojo hospital. The table shows the frequency and percentage of responses to various statements about IPT. The options for responses range from strongly agree, agree, disagree, strongly disagree, and not sure. From the table, it can be seen that the majority of the respondents (50%) disagreed that IPT can make them feel bad and sick. Also, 40% of the respondents strongly agreed that they can openly talk about IPT. Only 10% of the respondents strongly agreed that people would know about their HIV status if they knew they were on IPT. The table also shows that 60% of the respondents strongly agreed that IPT is good for protecting them against TB. In addition, 50% of the respondents disagreed that side effects of the drug make them want to stop taking it. Furthermore, 40% of the respondents disagreed that taking IPT drugs is hectic and tiresome. Overall, the results suggest that the majority of the respondents had positive attitudes towards IPT, with only a small percentage having negative attitudes.

**Table 4: Practices towards the use of IPT intake among HIV-positive patients at Itojo hospital**

Variable	Options	Frequency N = 50	Percentage %
Have you been on IPT	Yes	30	60
	No	20	40
Challenges faced while taking IPT	Misunderstanding dosage	10	33.3
	Forgetting to take the medicine	15	50
	Completely stopped taking the drugs	5	16.7
	Self medication when I get cough	0	0
Do you continue on IPT after having side effects	Yes	20	66.7
	No	10	33.3

Table 4 shows the practices towards the use of IPT intake among HIV-positive patients at Itojo hospital. Out of the 50 patients, 60% reported that they had been on IPT. The most common challenge faced by patients while taking IPT was forgetting to take the medicine, reported by 50% of those who had been on IPT. Other challenges included misunderstanding dosage and completely stopping taking the drugs, reported by 33.3% and 16.7% of patients on IPT, respectively. When asked if they continued on IPT after having side effects, 66.7% of patients on IPT reported that they continued taking the medicine, while 33.3% reported that they did not continue.

**Table 5: Multivariate logistic regression to determine the association between the individual characteristics and knowledge of the use of Isoniazid preventive therapy (IPT) intake among HIV-positive patients at Itojo hospital.**

Variable	Options	P Value	aOT	95% CI	
				lower	Upper
Gender	Male	-	1		
	female	0.016	2.59	0.63	10.71
Age	18-25	-	1		
	26-30	0.211	0.28	0.05	1.60
	31-35	0.016	0.17	0.02	1.51
	Above 35	0.084	0.20	0.03	1.54
Level of education	None	-	1		
	Primary Level	0.269	0.35	0.06	1.90
	Secondary level	0.248	0.35	0.07	1.72
	Tertiary level	0.025	1.76	0.31	9.46
Marital status	Single	-	1		
	Married	0.731	0.76	0.22	2.62
	Divorced	0.844	1.31	0.22	7.74
	Widowed	0.390	3.73	0.32	43.53
Employment status	Employed	-	1		
	Self-employed	0.177	4.06	0.57	28.80
	Unemployed	0.959	0.98	0.19	5.03

Table 5 presents the results of a multivariate logistic regression analysis that aimed to determine the association between individual characteristics and knowledge of the use of Isoniazid preventive therapy (IPT) intake among HIV-positive patients at Itojo hospital. The results show that being female is significantly associated with

knowledge of IPT intake, with a p-value of 0.016 and an aOR of 2.59, indicating that females are more likely to have knowledge of IPT intake compared to males. Individuals who were aged between 31-35 years were significantly associated with knowledge of IPT intake, with a p-value of 0.016 and an aOR of 0.17 (95% CI 0.02-1.51). This indicates that these individuals are more likely to have knowledge of IPT intake.

**Table 6: Multivariate logistic regression to determine the association between individual characteristics and attitudes of the use of Isoniazid Preventive Therapy among HIV-positive patients at Itojo Hospital.**

Variable	Options	P Value	aOT	95% CI	
				lower	Upper
Gender	Male	-	1		
	female	0.019	0.38	0.09	1.61
Age	18-25	-	1		
	26-30	0.94	0.95	0.25	3.64
	31-35	0.76	0.79	0.18	3.45
	Above 35	0.56	0.64	0.14	2.91
Level of education	None	-	1		
	Primary Level	0.2	1.28	0.34	4.85
	Secondary level	0.49	0.64	0.18	2.30
	Tertiary level	0.32	0.45	0.09	2.18
Marital status	Single	-	1		
	Married	0.42	0.57	0.14	2.31
	Divorced	0.86	1.20	0.14	16.06
	Widowed	0.30	0.26	0.02	3.50
Employment status	Employed	-	1		
	Self-employed	0.97	0.97	0.19	4.89
	Unemployed	0.05	0.22	0.05	1.01

Table 6 shows the results of a multivariate logistic regression analysis aimed at determining the association between individual characteristics and attitudes towards the use of Isoniazid Preventive Therapy (IPT) among HIV-positive patients at Itojo hospital. The analysis found that primary level of education (p-value: 0.02) and being unemployed (p-value: 0.05) were significantly associated with attitude towards the use of IPT among HIV-positive patients at Itojo hospital. Individuals who had at least attained primary level of education had 1.29 more odds of having a positive attitude towards IPT intake whereas those who were unemployed were less likely (aOR: 0.22) to have a positive attitude towards IPT intake.

**Table 7: Multivariate logistic regression to determine the association between individual characteristics and the practices towards the use of IPT intake among HIV-positive patients in Itojo hospital.**

Variable	Options	P Value	aOT	95% CI	
				lower	Upper
Gender	Male	-	1		
	female	0.356	1.825	0.478	6.965
Age	18-25	-	1		
	26-30	0.003	4.427	0.068	288.290
	31-35	0.887	0.751	0.061	9.268
	Above 35	0.910	0.789	0.057	10.905
Level of education	None	-	1		
	Primary Level	0.121	0.52	0.122	0.963
	Secondary level	0.046	1.23	0.961	1.565
	Tertiary level	0.211	0.58	0.234	0.765
Marital status	Single	-	1		
	Married	0.434	0.57	0.14	2.31
	Divorced	0.231	1.20	0.14	16.06
	Widowed	0.231	0.26	0.02	3.50
Employment status	Employed	-	1		
	Self-employed	0.051	0.78	0.421	1.123
	Unemployed	0.491	1.21	0.780	1.534

Table 7 presents the results of a multivariate logistic regression analysis that aimed to determine the relationship between individual characteristics and practices towards the use of isoniazid preventive therapy (IPT) intake

among HIV-positive patients at Itojo Hospital. The analysis reveals that age (26–30 years) is significantly associated with practices towards the use of IPT intake (p-value: 0.003), where these patients have higher odds of (4.427 (95% CI: 0.068–288.190) practice towards the use of IPT intake. Additionally, the secondary level of education is significantly associated with practices towards IPT use (p-value: 0.046), where these patients are more likely to practice IPT intake 1.23 (95% CI: 0.961–1.565) compared to those with no education. Gender, marital status, and employment status were not significantly associated with practices towards IPT use.

## DISCUSSION

### **Knowledge of the use of isoniazid preventive therapy intake among HIV-positive patients at Itojo Hospital.**

The results of the multivariate logistic regression analysis presented in Table 5 suggest that age, gender, and level of education are significant predictors of knowledge of isoniazid preventive therapy (IPT) intake among HIV-positive patients at Itojo Hospital. The finding that females are more likely to have knowledge of IPT intake compared to males is consistent with some previous studies conducted in Africa [19]. This may be due to differences in access to health information and communication channels, with females being more likely to access and use health services compared to males [20]. This underscores the importance of gender-sensitive interventions in improving knowledge and uptake of IPT among HIV-positive patients [21]. The finding that a higher level of education is significantly associated with knowledge of IPT intake is also consistent with previous studies [22]. Education is an important determinant of health literacy, which is defined as "the degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions". Health literacy is crucial for individuals to understand and act on health information, including knowledge of IPT intake [20]. On the other hand, the mixed results for marital status are not consistent with previous studies. While being widowed was significantly associated with knowledge of IPT intake, the other categories (single, married, divorced) did not show significant associations. Previous studies have shown that being married is associated with higher levels of health-seeking behaviour and health-related knowledge compared to being single or divorced [23]. However, these findings may be context-specific and require further investigation. Finally, the non-significant associations of age and employment status with knowledge of IPT intake may be due to other factors such as access to health services, health literacy, and social support. The complex interplay between individual characteristics and knowledge of IPT intake among HIV-positive patients requires further research. In conclusion, the results of this study suggest that gender, age, and level of education are important predictors of knowledge of IPT intake among HIV-positive patients at Itojo Hospital. These findings have important implications for designing targeted interventions to improve knowledge and uptake of IPT among HIV-positive patients, particularly among males and those with lower levels of education. Health literacy programmes, gender-sensitive interventions, and community-based approaches may be useful strategies in this regard.

### **Attitudes towards the use of isoniazid preventive therapy among HIV-positive patients at Itojo Hospital.**

The results presented in Table 6 suggest that individual characteristics such as age, education, marital status, and employment status were not significantly associated with attitudes towards the use of IPT among HIV-positive patients at Itojo Hospital, except for primary level education. The analysis found that patients with primary-level education had a significant positive association with attitudes towards IPT intake. This finding may be due to the fact that patients with primary-level education have some level of formal education that allows them to understand the importance of IPT intake in preventing TB disease. On the other hand, patients with no formal education may not have adequate knowledge or understanding of IPT, which could negatively impact their attitudes towards IPT intake. Previous studies have shown that educational level plays a crucial role in determining knowledge and attitudes towards IPT intake among HIV-positive patients. Patients with higher educational levels in Ethiopia demonstrated significantly better knowledge and attitudes towards IPT compared to those with lower educational levels [24]. Ifeyinwa et al. [19] conducted another study in South-East Nigeria, which also revealed that patients with lower educational levels exhibited poor knowledge and attitudes towards IPT. These studies suggest that educational interventions targeted at HIV-positive patients with lower educational levels could help improve their knowledge and attitudes towards IPT. The results also showed that gender, age, marital status, and employment status were not significantly associated with attitudes towards IPT intake among HIV-positive patients at Itojo Hospital. These findings are consistent with previous studies that have found no significant association between these factors and attitudes towards IPT intake [25]. It is important to note that this study has some limitations. Firstly, conducting the study in only one hospital limits the generalizability of the findings to other hospitals or settings. Secondly, the study relied on self-reported data, which may be subject to social desirability bias. Lastly, the study did not assess the actual use of IPT among the participants, which could provide more insights into the factors that influence the uptake of IPT. In conclusion, the findings from this study suggest that patients with primary-level education are more likely to have positive attitudes towards the use of IPT among HIV-positive patients at Itojo Hospital. These findings highlight the need for educational interventions targeted at HIV-positive

patients with lower educational levels to improve their knowledge and attitudes towards IPT. Future studies could explore other factors that may influence attitudes towards IPT intake, such as the cost of the medication, perceived benefits, and side effects.

### **Practices towards the use of isoniazid preventive therapy intake among HIV-positive patients in Itojo Hospital.**

The results from the multivariate logistic regression analysis presented in Table 7 suggest that age and level of education are significantly associated with the practices towards the use of isoniazid preventive therapy (IPT) among HIV-positive patients in Itojo Hospital. Specifically, patients aged 26–30 have higher odds of practicing IPT compared to those aged 18–25. Patients with primary-level education have lower odds of practicing IPT compared to those with no education. However, gender, marital status, and employment status were not significantly associated with practices towards IPT use. The finding that age is associated with IPT use is consistent with some previous studies. For instance, a Tanzanian study Mhalu et al. [26] found that younger age was associated with increased adherence to IPT among HIV-positive patients. Similarly, a South African study Wood and Bekker [27] found a significant association between younger age and higher levels of IPT adherence. This may be due to the fact that younger patients are generally more receptive to health education and may have better health-seeking behaviours compared to older patients [26]. The finding that patients with primary-level education have lower odds of practicing IPT compared to those with no education is somewhat surprising. In contrast, a study conducted in South Africa found that higher education levels were associated with increased adherence to IPT [26]. Further research is necessary to explore the reasons behind these differences.

### **CONCLUSION**

The study revealed that gender and level of education were significant predictors of knowledge about IPT intake among HIV-positive patients at Itojo Hospital. Specifically, being female was associated with higher knowledge of IPT intake, and patients with tertiary-level education were more likely to have knowledge about IPT intake. On the other hand, age, marital status, and employment status were not significant predictors of knowledge about IPT intake. The multivariate logistic regression analysis showed that among the individual characteristics studied, only primary level education was significantly associated with attitudes towards the use of IPT among HIV-positive patients at Itojo Hospital. Gender, age, marital status, and employment status were not significant predictors of attitudes towards IPT intake. The analysis found that age and level of education were significantly associated with practices towards the use of IPT intake. Patients aged 26–30 had a higher odds ratio of IPT use compared to those aged 18–25, while patients with primary level education had a lower odds ratio of IPT use compared to those with no education.

### **RECOMMENDATIONS**

1. It is recommended that healthcare providers at Itojo Hospital develop targeted interventions aimed at improving the knowledge of male patients and those with lower levels of education about the use of IPT. These interventions may include the use of educational materials, counselling sessions, and community-based education programs. It is also important to evaluate the effectiveness of these interventions periodically to ensure that patients are receiving accurate and up-to-date information about the use of IPT.
2. It is important for healthcare providers to prioritise education and awareness programmes that focus on the benefits of IPT for HIV-positive patients, particularly for those with lower levels of education. Healthcare providers should tailor these programs to address potential barriers to IPT uptake and adherence.
3. It is recommended that health education interventions on the importance and benefits of IPT use target patients aged 26–30 years, as they appear to be more likely to adopt the practice. Additionally, we should strive to enhance the knowledge and awareness of patients who lack education or have only received primary level education about the benefits of IPT use, as they seem to be less likely to engage in IPT intake. One-on-one counseling or group health education sessions could serve as these interventions, and their design should be culturally appropriate and sensitive to the patients' needs. Future research could also explore other factors that may be associated with IPT use, such as social support and patient beliefs and attitudes towards IPT use.

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