



Uptake of Isoniazid Preventive Therapy and Its Associated Factors among People Living with HIV Attending Jinja Regional Referral Hospital, Uganda

Bataringaya Bathsheba

Faculty of Clinical Medicine and Dentistry, Kampala International University, Uganda

ABSTRACT

This study investigates the factors influencing the uptake of isoniazid preventive therapy among HIV patients at Jinja Regional Referral Hospital in Uganda. The research design is a cross-sectional descriptive design, with a simple random sampling procedure. The study area is the OPD clinic of Jinja Regional Referral Hospital, one of the thirteen Regional Referral Hospitals in Uganda. Information was collected from the target population is all HIV positive patients using a questionnaire. This study focused on content validity, reliability, and data collection procedures. The study also analyzed the relationship between socio-demographic factors, healthcare system-related factors, patient-related factors, and uptake of Isoniazid among people living with HIV. The findings showed that the majority of participants on HIV/AIDS treatment and taking isoniazid regularly were between 41-60 years old, with young patients not liking taking isoniazid. The study also found that females were more likely to be adherent to treatment than males, while Christians and employed people were more likely to take isoniazids. Family support is also crucial for adherence to isoniazid treatment. Health-related factors affecting regular uptake include distance from health facilities, poor patient-physician relations, and lack of availability of service providers. Patient-related factors also affect the regular uptake of isoniazid. The study concludes that youth participants aged 20-40 years dislike taking isoniazid, while middle-aged and older patients aged 41-60 years do. The government should increase IPT services to different health facilities and provide free services, including the provision of isoniazid treatments, to help these patients.

Keywords: Tuberculosis, Mycobacterium tuberculosis, HIV, Isoniazid

INTRODUCTION

Tuberculosis (TB) in humans is caused by bacilli of the genus *Mycobacterium* and species *Mycobacterium tuberculosis* complex [1]. Tuberculosis is one of the single most prevalent cause of death in those with human immunodeficiency virus infection (HIV) [2]. Isoniazid Preventive therapy (IPT), also known as chemoprophylaxis with isoniazid reduces the risk of a first episode of TB occurring in people exposed to infection or with latent infection and a recurrent episode of TB. Although all people with latent TB infection who take isoniazid benefit, the greatest reduction in infection is observed in HIV-negative patients and in TST- and HIV-positive individuals. Isoniazid preventive therapy therefore represents an effective and cost-effective measure [3]. The World Health Organization (WHO) recommends isoniazid taken at a daily dose of 5 mg/kg (maximum 300 mg) for at least six months, and ideally for nine months [5]. Shorter rifampicin-containing regimens have shown similar efficacy compared with 6-9 months of isoniazid monotherapy, but rifampicin-containing regimens are more likely to be discontinued because of adverse effects [6]. Increased rates of hepatotoxicity and death in HIV-uninfected individuals have been reported for regimens containing rifampicin and pyrazinamide [7]. However, this risk appears to be limited to HIV-uninfected individuals, as a rigorous re-analysis of a large trial of rifampicin and pyrazinamide in HIV-infected patients confirmed an absence of serious toxicity [8].

Isoniazid preventive therapy has been used mainly for its beneficial effect in the individual. At a population level, mathematical modelling of community-wide preventive therapy in settings with a high burden of both HIV and TB suggests that this strategy may contribute to a reduction in the incidence of TB [9]. The risk of TB in individuals infected with both *M. tuberculosis* and HIV is much higher than for those without HIV infection [10]. Treatment with isoniazid of individuals who are both TST- and HIV-positive, living in settings with high prevalence of TB, reduces the risk of developing active TB by around 60% [11]. The history of tuberculosis (TB)

mixes with the history of humanity since TB is one of the oldest infectious diseases affecting mankind. For many countries, the “end” of TB as an epidemic and major public health problem is still a distant reality. This is despite the fact that, with a timely diagnosis and correct drug treatment, most people who develop the disease can be cured. Worldwide, around 10 million people still fall ill with the disease each year (more adults than children, and more men than women), and TB is one of the top 10 causes of death. It is also the leading cause of death from a single infectious agent, ranking above HIV/AIDS [12].

HIV remains a health burden of global epidemic proportion [13]. TB though curable, is one of the most common causes of HIV-related illness and death [12]. About 11.5 million adults living with HIV/AIDS are estimated to be co-infected with Mycobacterium tuberculosis, with 71% of those coinfected living in sub-Saharan Africa [13]. The dramatic spread of the HIV epidemic throughout Sub-Saharan Africa in the past decades has been accompanied by up to a fourfold increase in the number of TB cases [13]. Strategies to control tuberculosis must now include interventions to reduce HIV infection being the strongest risk factor for developing TB disease in those with a latent or new Mycobacterium tuberculosis infection. The risk of developing TB is between 20 to 37 times greater in people living with HIV (PLHIV) than among those who do not have HIV infection [14].

Isoniazid (INH) preventive therapy (IPT) is currently recommended for the treatment of latent TB infection among people living with HIV and children under five years of age who are contacts of patients with TB. Isoniazid prophylaxis can reduce the risk of developing tuberculosis by 59% among children aged 15 years or younger [15]. Isoniazid preventive therapy (IPT) for people living with HIV, who do not have active TB, is one of the strategies recommended by the World Health Organization (WHO) and the Joint United Nations Programme on HIV/AIDS (UNAIDS) to enable the effective prevention, diagnosis and treatment of TB in PLWHA [16]. In the general population, the lifetime risk of progression from latent TB infection to active disease is about 10%, HIV-positive persons who are infected with *M. tuberculosis* have a 5%–8% annual risk and a 30% lifetime risk of developing active TB [17]. It is estimated that 50 % of new adult cases of tuberculosis in Uganda are co-infected with HIV. Strategies to control tuberculosis must now include interventions to reduce HIV infection and vice versa [18]. To the best of my knowledge, there is lack of information on how effectively these strategies have been implemented in Uganda. Basing on this lacuna, the study therefore is to investigate the factors associated with the uptake of isoniazid preventive therapy among people living with HIV in Jinja regional referral Hospital, Uganda.

The study aims to investigate the factors influencing the uptake of isoniazid preventive therapy among HIV patients at Jinja Regional Referral Hospital in Uganda. The objectives include assessing the impact of socio-demographic factors, establishing the influence of healthcare system factors, and determining the influence of patient-related factors on the uptake of isoniazid preventive therapy among these patients. The research aims to provide valuable insights into the factors influencing HIV treatment adherence.

RESEARCH METHODOLOGY

Research Design

Research design is the “architecture” of the study or the structured approach to be followed by the researcher to answer the questions raised by the research objective. A cross-sectional descriptive design will be adopted for the study. Cross-sectional research design will be used in this study because data will be collected only once from the sampled group within a brief span of time. Cross-sectional study is also less costly in terms of time and resource as a large sample can be studied within a relatively short period of time.

Study Area

The study area was the OPD clinic of Jinja regional referral hospital eastern Uganda. Jinja Hospital one of the thirteen (13) Regional Referral Hospitals in Uganda and located in the center of Jinja, not far from the Source of the Nile. It was the Regional Referral Hospital for the districts of Bugiri, Iganga, Jinja, Kaliro, Kamuli, Mayuge, Kayunga and parts of Mukono with an overall population of 3.5 million people. The coordinates of Jinja Hospital were 00 25 52N, 33 12 18E with a bed capacity of 600.

Target Population

The study targeted all HIV patients who had enrolled for chronic care under IPT with latent tuberculosis at JRRH.

Study Population

Population was a particular group of individuals or elements who were the focus of the research. The target population was the entire set of individuals or elements who meet the sampling criteria. An accessible population was the portion of the target population to which the researcher has reasonable access [19]. All HIV positive patients who have been enrolled for chronic HIV care and under IPT, PLHIV with latent tuberculosis and had no symptoms suggestive of active Tuberculosis at Jinja regional referral Hospital will comprise the study population.

Inclusion Criteria

Adult 18 years or above who had consented and were willing to participate in the study. All patients living with HIV having latent tuberculosis and have no symptoms suggestive of active Tuberculosis attending Jinja regional referral Hospital and have been taking IPT for at least 3 months.

Exclusion Criteria

Patients living with HIV below 18 years of age who had not consented or had symptoms suggestive of active Tuberculosis. People who were HIV negative.

Sample Size

The sample size for the study was determined by the minimum sample size determination for population proportion.

Using Kish Leslie Formula

Where n = sample size

z = Standard normal value corresponding to 95% confidence interval = 1.96

d = Margin of error 5% = 0.05

p = Expected proportion of PLHIV under IPT, from the study the proportion is at 10%.

q = $(1-p) = (1-0.1) = 0.9$

$$n = \frac{(1.96)^2(0.9)(0.1)}{(0.05)^2}$$

$n = 138.2$

The sample size for the study is 139 respondents

Sampling Procedure

The sampling procedure for this study was simple random sampling where the researcher made a total of 278 small papers of similar color and size. 139 of them were written on YES and the other 139 were NO. Those that would pick papers with 'yes' would participate in the research and those that would pick 'no' will not participate in the study.

Research Instruments

A single method (a questionnaire) would be used to collect information from respondents.

A questionnaire was a method of gathering self-report information from respondents through self-administration of questions in a written form. It was commonly used to obtain important information about the population. A questionnaire consisted of a set of structured questions that respondents would be expected to respond to them appropriately. The items in the questionnaire were derived from the objectives of the study and research questions. The data collection instrument or the questionnaire was prepared in consulting with TB/HIV program managers, literatures reviewed and referring the guidelines on IPT implementation and intensified TB case-finding in resource-constrained settings [4]

Validity

Validity is the extent to which a measurement instrument accurately measures what it is meant to measure. This study focused on content validity, based on recent guidelines for intensified TB case finding and IPT for PLHIV in resource-limited settings, literature review, and expert feedback. Both content and face validity were checked during the pilot study and by TB/HIV program managers. The questionnaire was pretested to a similar sample as the actual sample, allowing for meaningful observations. The pretest sample ranged from 1% to 10%, depending on the sample size. Respondents were asked to understand the words, terms, and concepts being used, the question or task being asked, and the answer choices. They were also asked if their interpretation of the question coincided with the researcher's desired measurement. Five questionnaires were used for pretesting at Mbarara regional referral hospital, and the methods proposed for data analysis were analyzed to ensure appropriateness. Respondents' understanding of the questions and their responses was crucial for identifying respondent-related problems.

Reliability

Reliability or precision refers to the degree of similarity of the results obtained when the measurement is repeated on the same subject or same group. To address reliability for this study the questionnaire was administered to different groups of PLHIV at different time intervals but included in the sample size.

Data Collection Procedure

Data collection was started by the researcher obtaining a letter of introduction from Kampala International University, Western Campus. The introductory letter was used to apply for a research permit. Thereafter, I introduced myself to the medical superintendent KIUTH before embarking in data collection. All data collection tools were pre-tested at Mbarara Regional Referral Hospital. Then sampling of the subjects was done and research instruments administered after consent was secured. The questionnaires were collected from the respondents as soon as they were completed. The respondents who were busy and not able to complete the questionnaires immediately were noted in the questionnaire tracking form and allowed to complete the process later.

Quality Control

To ensure quality control

1. The data collection tool (questionnaire) was pretested.
2. Data analysis was by information and technology specialists.

Ethical Consideration

Approval and permission for the study was requested from the Jinja regional referral Hospital administration through the university research committee.

All respondents in this research were given the right to self-determine to participate or to withdraw from the study at any time without the need for any justification. None of the questions included any kind of negative emotion or psychological trauma. Approval of ethical clearance was secured from the university inform data collection clearance letter for collecting information and the study adhered to the principles of scientific integrity and honesty.

Data Analysis and Presentation

After data had been collected from the field, it was edited, coded and entered in statistical package for social scientists (SPSS). The findings from the study were presented in tabulated format with respective frequencies and percentage. The study also analyzed the relationship between socio-demographic factors, health care system related factors, patient related factors and uptake of IPT among people living with HIV. The Chi-square method will be used to test the hypotheses.

Data Presentation and Analysis

The findings illustrate the participants' socio-demographic characteristics, knowledge health related factors associated with Isoniazid uptake as well as patient-related factors associated with Isoniazid uptake and appropriate figures were reached after calculating the values.

The findings are presented following the objectives stated.

Socio-demographic Characteristics

Table 1: showing the socio-demographic characteristics of participants

characteristic	Taking isoniazid regularly(n=84)	Percentage (%)	Not taking isoniazid regularly (n=62)	Percentage (%)
AGE				
20-40	28	33.3	35	56.5
41-60	44	52.4	18	29
Above 60	12	14.3	09	14.5
GENDER				
Female	48	57.2	34	54.8
Male	36	42.8	28	45.2
RELIGION				
Christian	64	76.2	52	83.8
Muslim	14	16.7	08	13
Others	06	7.1	02	3.2
OCCUPATION				
Employed	58	69	29	46.8
Un employed	26	31	33	53.2
RECEIVING FAMILY SUPPORT				
Yes	45	53.6	27	43.5
No	39	46.4	35	56.5

From the table 1 above, it is showed that majority of the participants on HIV/AIDS treatment and taking isoniazid regularly were between 41-60 years, 44(52.4%) as compared to those not taking regularly whose majority were between 20-40 years, 35(56.5%). The table further shows that among the participants taking isoniazid regularly, most of them were females, 48(57.2%) as compared to males who were 36(42.8%). Among those not taking isoniazid regularly, females were again the most, 34(54.8%) as compared to males, 28(45.2%). The table again shows that, majority of the participants taking isoniazid both regularly and occasionally were Christians by religion as compared to other religions. It is again indicated that majority of the participants taking

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isoniazid regularly were employed, 58(69%) as compared to unemployed, 26(31%). The table further shows that among those who were taking isoniazid regularly, most of them were receiving family support, 45(53.6%) as compared to 39(46.4%) who were not receiving family support.

Health-Related Factors Affecting the Regular Uptake of Isoniazid Distance from the Health Facility

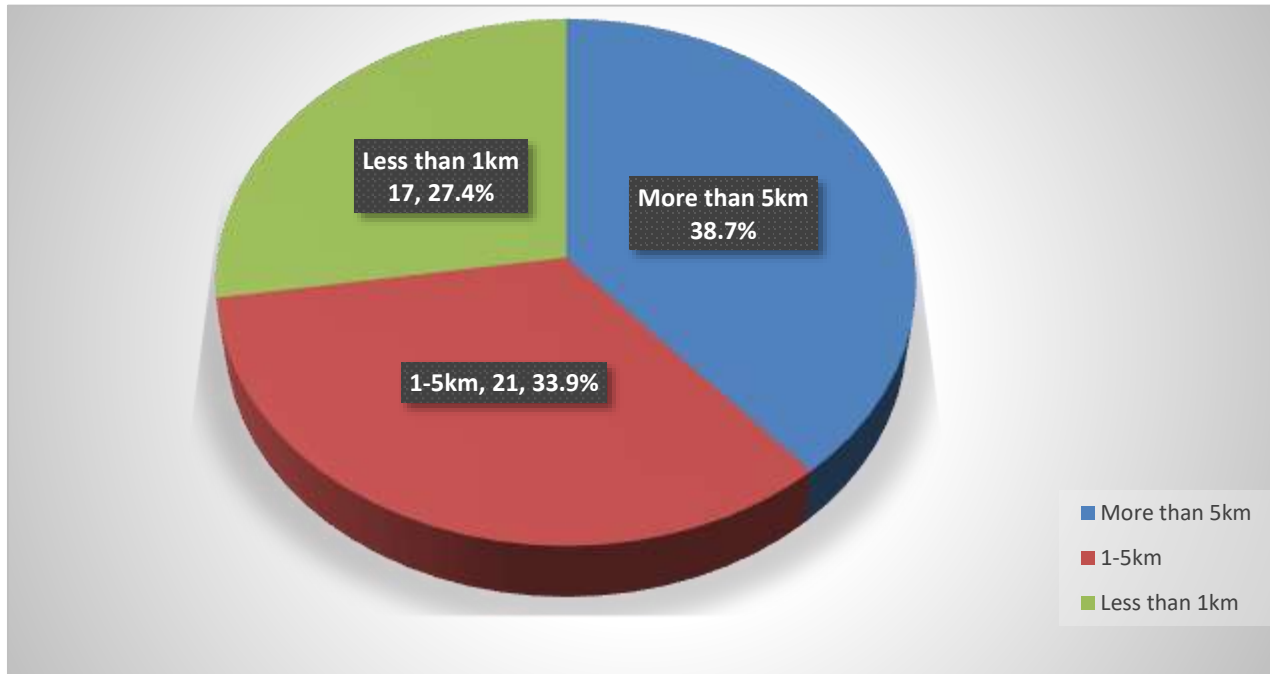


Figure 1: Showing the distance from the facility for the participants (n=62)

From the figure 1 above, it is indicated that most of the participants who were not taking isoniazid regularly were coming from a distance of more than 5km from the healthy facility, 24(38.7%), 21(33.9%) participants were coming from a distance of 1-5km from the facility whereas 17(27.4%) were coming from a distance of less than 1km.

Other Health Related Factors Affecting Regular Uptake of Isoniazid Among HIV/AIDS Patients

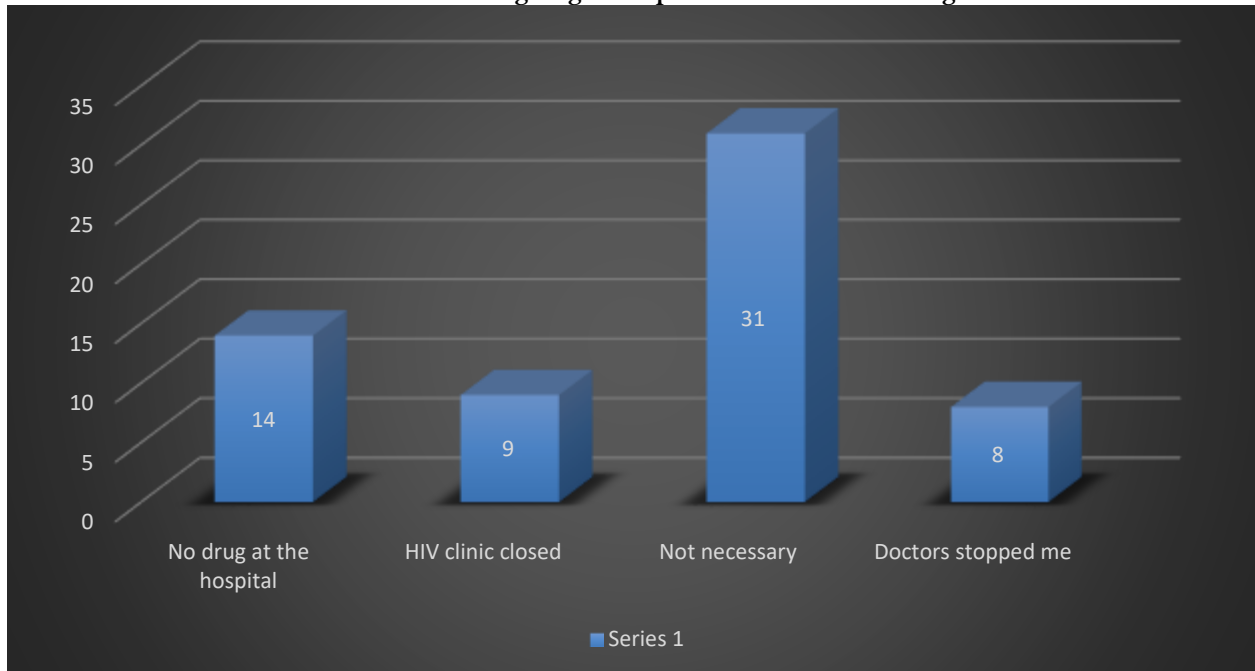


Figure 2; showing other health related factors affecting regular uptake of isoniazid among HIV/AIDS patients (n=62)

From the figure 2 above, it is indicated that majority, 31(50%) of the HIV/AIDS patients who were not taking isoniazid regularly said that the drug was not necessary since they were on ARV's. 14(22.6%) responded that the drug was not available at the facility, 09(14.5%) said that the HIV clinic was always closed whenever they went for the drug whereas 08(12.9%) said that doctors stopped them from taking isoniazid drug.

Patient Related Factors Affecting Regular Uptake of Isoniazid Drug Among HIV/AIDS Patients.

Table 2: Showing patient related factors affecting the regular uptake of isoniazid drug among HIV/AIDS patients (n=62)

Factor	Frequency(n)	Percentage (%)
It has side severe side effects	09	14.5%
I don't know about the drug	48	77.4%
The drug shortens life span	05	8.1%

From the table 2 above, it is indicated that majority 48(77.4%) of the HIV/AIDS patients never knew isoniazid drug and so never had reasons for not taking it regularly. 09(14.5%) of the HIV/AIDS patients said that the isoniazid drug had severe side effects so they were unable to take it up regularly whereas 05(8.1%) of the HIV/AIDS said that they were not taking the drug regularly because it shortens life span.

DISCUSSION

Socio-Demographic Characteristics

The study shows that majority of the participants on HIV/AIDS treatment and taking isoniazid regularly were between 41-60 years, 44(52.4%) as compared to those not taking regularly whose majority were between 20-40 years, 35(56.5%), this shows that youth patients didn't like taking isoniazid like the middle-aged patients and older patients of 41 to 60 years. The study further shows that among the participants taking isoniazid regularly, most of them were females, 48(57.2%) as compared to males who were 36(42.8%) and among those not taking isoniazid regularly, females were again the most, 34(54.8%) as compared to males, 28(45.2%), females are more and this could be because they have good health seeking behaviours, most men remain in their homes and hardly go to look for treatment. The study again shows that, majority of the participants taking isoniazid both regularly and occasionally were Christians by religion as compared to other religions, this could be because the study was carried out in a Christian dominated area and it could therefore be of less significance, in relation to other studies, a study by Makanjuola [20]. This relates to the perception of HIV/AIDS as incurable and the associated tension between people's faith in western medicine on the one hand and traditional healing practices on the other, which especially come to a head in the case of such 'fatal' diseases. The study also indicated that majority of the participants taking isoniazid regularly were employed, 58(69%) as compared to unemployed, 26(31%), this means having a job is an enabling factor to complying to isoniazid treatment, this is because these people could be having money to meet any associated costs, when compared with other studies, these study results differ from a study by Makanjuola, [20], who had indicated that Participants were more likely not to appear for treatment in cases where they had to seek permission from their employers. One participant suggested: "even the bosses should be told about this program so that tomorrow when people ask for permission for these visits every month, they should know what is going on. The study further shows that among those who were taking isoniazid regularly, most of them were receiving family support, 45(53.6%) as compared to 39(46.4%) who were not receiving family support, this shows that people who get family support can easily go for isoniazid treatment, a comparison with other studies, a study in some families, by Mindachew, [21] showed that responsibilities of parenthood could work as a motivating factor to adhere to treatment while others reported that responsibilities such as taking care of children could reduce the possibility of adherence Support and encouragement from spouse, family and community health workers and concern for family members facilitated adherence to IPT. The quantitative components of the included studies typically focus on demographic factors.

Health Related Factors Affecting the Regular Uptake of Isoniazid

The study indicated that most of the participants who were not taking isoniazid regularly were coming from a distance of more than 5km from the healthy facility, 24(38.7%), 21(33.9%) participants were coming from a distance of 1-5km from the facility whereas 17(27.4%) were coming from a distance of less than 1km, this shows that, people who are a longer distance from health facility, don't easily get isoniazid treatment. The study indicated that majority, 31(50%) of the HIV/AIDS patients who were not taking isoniazid regularly said that the drug was not necessary since they were on ARV's, this could be because people are not sensitized about importance of isoniazid treatment, to prevent tuberculosis, when compared with other studies a study by Mindachew [21], showed that the impact of poor patient-physician relation on adherence in different setting. Randomized trial also showed that an increase in non-adherence in situations where doctors appear insensitive, use medical jargon, view patients as complainers, or do not provide clear messages about the cause of the illness or reasons for treatment.

Furthermore, the study revealed 14 (22.6%) responded that the drug was not available at the facility, 09(14.5%) said that the HIV clinic was always closed whenever they went for the drug whereas 08(12.9%) said that doctors stopped them from taking isoniazid drug, this could be as a result of developed side effects.

Patient Related Factors Affecting Regular Uptake of Isoniazid Drug Among HIV/AIDS Patients

The study also found out that indicated that majority 48(77.4%) of the HIV/AIDS patients never knew isoniazid drug and so never had reasons for not taking it regularly, 09(14.5%) of the HIV/AIDS patients said that the isoniazid drug had severe side effects so they were unable to take it up regularly whereas 05(8.1%) of the HIV/AIDS said that they were not taking the drug regularly because it shortens life span, this shows that some patients develop side effects after taking isoniazid, a related study [20] also indicated that Most of the health care providers had also mentioned stock-out of Isoniazid medication and other supplies related to the IPT program in the facilities. They reported stock-outs in the previous year and considered this as a factor that greatly affected delivery of IPT to the patients.

CONCLUSION

The study concludes that youth participants of 20-40 years didn't like taking isoniazid like the middle-aged patients and older patients of 41 to 60 years This was observed with majority of the participants on HIV/AIDS treatment and taking isoniazid regularly were between 41-60 years, 44(52.4%) as compared to those not taking regularly whose majority were between 20-40 years, 35(56.5%),

Recommendation

- There is a need for more sensitization among HIV patients to adhere to isoniazid treatment.
- The government should increase IPT services to different health facilities.
- They should provide free service to HIV patients including provision of isoniazid treatments since most of them have less income.

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