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Health System and Patient Factors Facilitating the Implementation of Isoniazid Preventive Therapy for People living with HIV attending Care and Treatment Centres in Songea Municipality, Tanzania

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Abstract

Isoniazid Preventive Therapy (IPT) is an essential public health intervention for people living with HIV (PLHIV), especially in low-income countries with high tuberculosis (TB) and HIV burden. Despite available evidence that IPT is efficacious, its implementation is still low in many countries. Therefore, this study aimed to determine the coverage of IPT implementation and explore factors facilitating the implementation of IPT in Songea municipality, Tanzania. The study employed a cross-sectional descriptive study design using both quantitative and qualitative approaches of data collection. A review of 2148 records of PLHIV eligible for IPT was done to determine coverage of IPT implementation. 21 in-depth interviews and 5 observations were conducted to explore factors facilitating IPT implementation. Overall, IPT coverage of the municipality was estimated to be 45%. The study revealed that the availability of IPT training, regular supportive supervision, collaboration between TB and HIV programs, availability of IPT guidelines and patient registers were the main factors facilitating the implementation of IPT. The study recommends that local government authorities, managements of healthcare facilities, drug suppliers, and partners working in TB and HIV programs, service providers, community leaders and community health workers should continue working together and ensure that the identified facilitating factors are sustained to increase the coverage of IPT to reach at least the minimum 50% as recommended by the WHO.

Background

Isoniazid Preventive Therapy (IPT) is an anti-tuberculosis drug provided to individuals who are latently infected with *Mycobacterium tuberculosis* to prevent the progression to active disease (WHO, 1998; 2004). The most powerful known risk factor for progression from latent infection with Mycobacterium tuberculosis to active disease in low-income countries is HIV (WHO, 1998). Therefore, IPT for people living with HIV/AIDS (PLHIV) is an essential public health intervention in low-income countries with high tuberculosis (TB) and HIV burden (WHO, 1998).

IPT is part of the three I's for HIV/TB collaboration as recommended by the World Health Organization (WHO, 1998; 2004). These include, intensified TB case finding,

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isoniazid (INH) preventive therapy, and infection control for TB (WHO, 1998; 2004; 2011). Tanzania is one of the 22 TB high-burden countries (WHO, 2015; 2016). IPT was included in Tanzania's national policy guideline for collaborative TB/HIV activities in 2008 (URT MoHSW, 2008; 2016). The 2015 national HIV guideline stipulates that all PLHIV should be screened for active TB using WHO screening algorithm that include four clinical symptoms (current cough, fever, weight loss, and night sweats). IPT is administered daily and orally for a period of six months at a dose of 300mg for adults, and 10mg/kg for children (WHO, 2011; 2012). When IPT is provided to an eligible PLHIV, it provides up to 18 months of protection against TB (URT MoHSW, 2015). IPT can be initiated before or after the initiation of antiretroviral therapy (WHO, 2011; URT MoHSW, 2015).

Several studies have demonstrated the benefits of IPT among PLHIV. A Cochrane review of 12 randomized controlled trials revealed that IPT reduces the risk of developing active TB in PLHIV by 33%; and by 64% when targeted to PLHIV who had a positive tuberculin skin test (WHO, 2011; Akolo et al., 2010). A retrospective study done in Rio Brazil in 2007 also showed that IPT significantly reduces the incidence of TB among PLHIV who received ant-retroviral therapy (ART) (Golub et al., 2007). Tuberculosis incidence among patients who received ART and IPT was 0.80/100 PY (95% CI 0.38–1.47) (ibid.). Despite available evidence that IPT is efficacious, its implementation is still low in many countries, including Tanzania (WHO, 2015). However, amongst reasons that have been pointed out to facilitate IPT implementation globally are the availability of regular supportive supervision, IPT guidelines, standard screening tools, patient's registers and information education and communication (IEC) materials (WHO, 2012; Mindachew et al., 2014; Teklay et al., 2016; Getahun et al., 2010, Makanjuola et al., 2014). In Tanzania there is a limited evidence regarding the coverage and factors facilitating the implementation of IPT for PLHIV. Therefore, this study aimed to reduce such knowledge gap by determining the coverage of IPT implementation and exploring health system and patient factors facilitating the implementation of IPT in care and treatment centres (CTCs) in Songea municipality, Tanzania.

Methods

Study Area

The study was conducted in Songea municipality in Ruvuma region, located in the southern part of Tanzania. Songea municipality is among the districts of Ruvuma region, and is the capital town of the region. As of 2012 population census, Songea municipality had a total population of 203,309 people (96,347 males and 106,962 females). This study setting was selected because Songea municipality was among districts with a high prevalence of HIV (5.6%) in Ruvuma region. This prevalence was higher than the national prevalence of 5.0% (TACAIDS and Zanzibar AIDS Commission, 2018). Songea municipality has 11 healthcare facilities providing IPT for PLHIV. Among these healthcare facilities 8 are public health facilities, 2 are military health facilities, and 1 is faith-based health facility.

Study Design

This enquiry employed a cross-sectional descriptive study design using both quantitative and qualitative approaches of data collection. Cross-sectional studies form a class of research methods that involve data collection at one specific point in time. This type of study design allows for quick and easy data collection even for a small or large population. The quantitative part aimed to determine IPT coverage, while the qualitative part aimed to explore health system and patient factors facilitating the implementation of IPT for PLHIV in CTCs in Songea municipality.

Sampling Procedures and Data Collection Tools

The study employed the purposive sampling technique to get study participants in both the quantitative and qualitative parts. The participants for the quantitative part included all PLHIV registered in CTCs of the selected healthcare facilities. Convenience sampling technique was used to select 5 out of the 11 healthcare facilities providing IPT in the municipality based on their proximity, time allocated for data collection, and resources available for the research. The study participants for qualitative part were also purposively selected based on their role in the implementation of IPT. They included healthcare providers, namely, ART-nurse and counsellors, CTC clinicians, and pharmacists who were working in the five selected CTCs. In addition, adults PLHIV who were provided with IPT in the five selected CTCs in Songea municipality were also included in the study. A total of 13 healthcare providers and 8 adults PLHIV provided with IPT at the selected five healthcare facilities participated in this study. The study participants were identified and approached with the help of the CTC in-charge of each selected healthcare facility.

The number of healthcare providers and PLHIV interviewed depended on information saturation. The study reached data saturation when no new ideas relevant to emerging categories could be envisaged, and when further coding was no longer feasible (Fusch & Ness, 2015). Well-designed interview guides were used to guide in-depth interviews with selected study participants. An observation checklist was also used to collect qualitative information. Observation checklist included several issues such as the availability of isoniazid and pyridoxine, patient registers, IPT guidelines, standard screening tools (TSQs), and information education and communication (IEC) materials, including fliers, pamphlets, and posters from each selected healthcare facility.

For the quantitative part of the study, we reviewed patients' records using structured data collection form from IPT registries of each selected healthcare facility to generate information on the number of PLHIV registered in CTCs, and provided with IPT between January 2015 and January 2017. In the study, IPT coverage was determined as the percentage of PLHIV started on IPT among all PLHIV registered in CTCs who are eligible for IPT.

The principal researcher and trained research assistants collected data for this study. The administration of the healthcare facilities provided special rooms close to CTC for conducting in-depth-interviews. Such rooms provided privacy to the

study participants and their information. Based on their experiences of providing and taking IPT, healthcare providers and patient interviewees were asked about their views on health system and patient factors facilitating the implementation of IPT for PLHIV. The researchers conducted observations at the end of all interviews in each selected healthcare facility.

Ethical Considerations

The study obtained ethical approval from the Research Ethics Committee of the Muhimbili University of Heath and Allied Sciences. Permissions to conduct the study were also obtained at regional, district and health facility levels in the study area. Individual-informed verbal consent was obtained from all participants. They were informed about anonymity and confidentiality issues, and that they could withdraw from the study at any time they wished.

Data Analysis

Quantitative data were analysed using the SPSS for windows (Version 20) statistical software. Data were checked for completeness and correctness through proofreading while entering the data into the software. Descriptive statistics (frequencies and percentages) were employed, and data were visualized using tables and bar graphs. Thematic analysis—which involves identifying, analysing and reporting patterns (themes) within data (Ibrahim, 2012)—was used to analyse qualitative data. Audio-recorded data from the in-depth interviews were transcribed verbatim and translated into English.

Qualitative data verification for accuracy and completeness was done through reading and re-reading by the researchers to ensure all recorded information and variations were identified. After transcription, codes were developed by the researchers based on the original terms used, and then matched. The transcripts and notes were analysed thematically by categorizing them in line with the specific objectives (health system and patient factors facilitating implementation of isoniazid preventive therapy for people living with HIV). The codes were presented, discussed, and checked by the research team. Tentative categories and sub-categories were created from the clustered codes, and subsequently main themes emerged based on the patterns and relationships between the categories. Main themes were illustrated with representative quotations.

Results

A total of 2148 (87.3%) out of the 2460 PLHIV registered in the HIV clinics between January 2015 and January 2017, were eligible for IPT. However, only 964 (44.9%) were provided with IPT (Fig. 1). All health facilities included in this study started implementing IPT in the years 2014 to 2016. The study findings revealed that there were disparities in IPT coverage between healthcare facilities. Two healthcare facilities had high IPT coverage of 87.6% and 57.0%, while three other healthcare facilities had a much lower coverage of 10.6%, 18.2% and 35.6%. The lowest IPT coverage in Songea municipality was observed in the healthcare facility that started IPT implementation late in 2016 compared with other health facilities (Table 1).

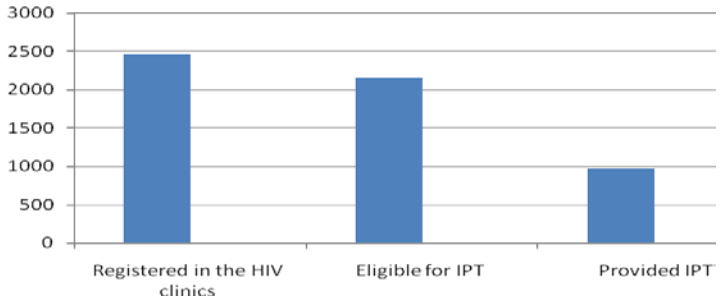

Figure 1: Number of PLHIV Provided with IPT in 5 Healthcare Facilities in Songea Municipality, Tanzania January 2015 – January 2017

Table 1: IPT Start Year and Coverage of 5 Healthcare Facility in Songea Municipality, Tanzania January 2015 – January 2017

Health Facility	IPT start year	No. of PLHIV registered in CTC	No. of PLHIV eligible for IPT	Total No. of IPLHIV provided	IPT Coverage (%)*
Facility1	2014	662	497	177	35.6
Facility2	2014	426	391	71	18.2
Facility3	2015	414	395	226	57.0
Facility4	2016	391	348	37	10.6
Facility5	2015	567	517	453	87.6
Total		**2460**	**2148**	**964**	**44.9**

Note: * - IPT coverage was determined as the percentage of PLHIV provided with IPT among all PLHIV registered in HIV care who are eligible for IPT.

A total of 21 participants (13 healthcare providers and 8 patients) participated in the qualitative study (Tables 2 and 3). Eleven (84.6%) of the healthcare providers had more than one year working experience in HIV care, while 7 (53.8%) had certificate-level of education (Table 2). Seven (87.5%) of the patients had education of ≤ Std. VII (Table 3).

Table 2: Demographic Characteristics of Interviewed Healthcare Providers At 5 HIV Clinics in Songea Municipality, Tanzania, 2017

Demographic Characteristics		Healthcare providers (N = 13)	
		N	***R***
Age (years)	<30	2	15.4
	30-60	11	84.6
Sex	Female	5	38.5
	Male	8	61.5
Profession	Nurse	5	38.5
	Pharmacist	3	23.1
	Doctor	5	38.5
Education Level	Certificate	7	53.8
	Diploma	4	30.8
	Advance Diploma	2	15.4
Work experience in HIV care (yrs.) <1		2	15.4
Work experience in HIV care (yrs.) ≥1		11	84.6

Table 3: Demographic Characteristics of Interviewed Patients Provided With IPT at 5 HIV Clinics in Songea Municipality, Tanzania, 2017

Demographic Characteristics		Patients (N = 8)	
		N	*%*
Age (yrs.)	<35	2	25.0
	35-70	6	75.0
Sex	Female	4	50.0
	Male	4	50.0
Education Level	≤ Standard seven	7	87.5
> Standard seven		1	12.5
Marital status	Married	4	50.0
	Divorced	3	37.5
	Widowed	1	12.5

Health System Factors Facilitating IPT Implementation

Healthcare providers and patients were asked about health system factors facilitating the implementation of IPT for PLHIV in Songea municipality. The analysis generated seven themes, namely: availability of IPT training, regular supportive supervision, availability of IPT guidelines and patient registers, availability of IEC materials, availability of TB screening questionnaires, collaboration between TB and HIV programs, and good provider-client communication.

Availability of IPT Training

Most healthcare providers reported that IPT training was provided in the municipality, and it included both before-service provision and on-job-training. They also reported that IPT training enabled them to provide IPT services effectively. One respondent had this to say:

> *"We went for IPT training before starting this service; we cannot start providing this service before receiving training"* (R12H4-Nurse).

Another respondent added:

> *"For those who do not have the 3 I's training, we give them on-job-training because the government cannot afford training all healthcare workers: it is the responsibility of us who have been trained to provide on-job-training to those who do not have. That is why here in CTC you cannot find any healthcare provider who does not know IPT guidelines"* (R16H5-Nurse).

Regular Supportive Supervision

Most healthcare providers reported that they received regular supportive supervision every quarter of the year from the Council Health Management Team (CHMT) and the Regional Health Management Team (RHMT). Also, they received supportive supervision from Non-Governmental Organizations, such as the Walter Reeds which is the major sponsor of most CTC services in the municipality. They also remarked that supportive supervision provided them with new updates on the implementation of IPT services. One of the respondents said:

> *"Our healthcare facility has CTC with many clients compared with all other health facilities in the municipality. For that reason, we receive several supportive supervisions from the CHMT and RHMT, and from our sponsor (Walter Reeds). We thank them because when they come, they provide us with new updates that facilitate the implementation of IPT"* (R6H1-Doctor).

Availability of IPT Guidelines and Patient Registers

Healthcare providers in all 5 healthcare facilities reported to have IPT guidelines and patient registers. They reported that IPT guidelines were very helpful for their service provision as they remind and guide them on how to provide services. They reported to use IPT guidelines and patients registers for service provision. One of the respondents expressed that:

> *"We thank them for these IPT guidelines. You may have IPT training but there are a lot of things to learn. As you can see, I was trying to pass through this guideline to validate the service I am offering to my clients*" (R12H4-Nurse).

Another respondent had this to say:

> *"We have IPT guidelines and patient registers, for example when we provide IPT to our clients we document in CTC2, but also we record in their TB screening questionnaires. Besides that, in the dispensing room there is a special register in which they record all clients provided with IPT"* (R6H1-Doctor).

Availability of Information Education and Communication (IEC) Materials

Most of the health workers in all healthcare facilities reported that the availability of IEC materials—such as posters, fliers and pamphlets—facilitated the implementation IPT in healthcare facilities. They reported that the IEC materials were written in Kiswahili language, which most clients understand and can acquire knowledge. One of the respondents reported:

> *"IEC materials are available, even if you try to pass through the facility surroundings you can see we have tried to post them and they are in Kiswahili language that anyone who know how to read and write can read and understand"* (R8H1-Pharmacist).

Another respondent had this to say:

> *"We have a number of posters and fliers in this facility; and when we are stocked out we communicate directly to the District AIDS Coordinator, who sometimes communicates to the Regional AIDS Coordinator to request for more posters and fliers. Also, we get them from our sponsor … Walter Reeds. Not only that, but also because we have District TB and Leprosy Coordinators, we communicate with them; who in case of any problem they come to help. Generally, the health system is well-organized"* (R6H1-Doctor).

Availability of TB Screening Questionnaires

Respondents reported that a TB screening questionnaire was not a problem in their healthcare facilities. They reported to have many TB screening questionnaires for adults and children. They also reported that they use them to identify TB suspects. One of the respondents said:

"We have more than enough TB screening questionnaires because in every CTC client file you can find one. We do not have problem with them: we have for adults and children as well, and we use them to identify TB suspects" (R7H1-Doctor).

Another respondent had this to say:

"We have many TB screening questionnaires and they now bring them as books, you just pick them, you do not bother to produce a photocopy as we used to do previously. Many of them are there at the reception and they facilitate the identification of TB suspects" (R16H5-Nurse).

Collaboration Between TB and HIV Programs

Most of the healthcare providers reported that there was a collaboration between TB and HIV programs in their healthcare facilities. They said because of this collaboration, TB screening was done to every HIV client in CTC. They also said this improves identification of TB suspects and increase the number of PLHIV who are eligible for IPT. They reported that the provision of IPT was the responsibility of the HIV program, while the supply of IPT was done by the District TB and Leprosy Coordinator (DTLC). In addition, they reported that there were TB and HIV coordinators at the facility level and at the district level who usually conduct supportive supervision and provide them with updates and new trainings. Such kind of supportive supervision facilitated the implementation of IPT service in the municipality. One of the respondents said:

"There is a linkage between TB and HIV programs. For example, here we are providing HIV care but we also screen our clients for TB and provide IPT services; but when we have clients who are TB suspects, we conduct investigation and when they have confirmed TB infection, we refer them to the TB department" (R2H1-Nurse).

Another respondent had this to say:

"We have a focal person or TB/HIV coordinator and quality improvement teams at our facility and at the district level. Therefore, we communicate with them for new updates and trainings, and we are also sending our monthly Isoniazid order to the DTLC. The problem is that sometimes we receive little Isoniazid than what we have ordered" (R6H1-Doctor).

Good Provider-client Communication

Most of the interviewed health workers from different health facilities reported to have good communication with their clients. They said the health facility management emphasize that they must sit down with their patients to provide health education and discuss with them about their problems and reach agreement on various issues pertaining to their condition. One of the healthcare providers expressed thus:

"In the morning, patients come, we provide health education on the importance of drug adherence as you know IPT is a long regime as it takes six months; while others are still taking ARV, which is a lifelong regime" (R6H1-Doctor)

Another respondent had this to say:

> *"The service is provided in a friendly way. As I told you earlier, we tell our patients that if we forget to write IPT for them they are free to remind us"* (R8H1-Pharmacist).

When talking about provider-client communication, most clients reported similar findings: that they have good communication with their healthcare providers. One of the patients said:

> *"We have good communication with our healthcare providers; they even give us their phone numbers for communication when we have problems"* (R3H1-Patient).

Patient Factors Facilitating IPT Implementation

Healthcare providers and patients were asked about patient factors facilitating IPT implementation for PLHIV. The analysis generated two themes:
patients' knowledge of IPT, and lack of stigma.

Patients' Knowledge of IPT

Most healthcare providers reported that knowledge of IPT imparted to patients by healthcare providers increases patients' acceptance and use of IPT services. They also said that such knowledge is necessary for patients' adherence to medication. One of the healthcare providers said:

> *"Health education enables PLHIV to accept IPT and adhere to medication, but this is only if they understand it. If a client did not understand the health education provided, s/he will not be willing to start and adhere to IPT"* (R12H4-Nurse).

When patients were asked what makes them take IPT, most reported that they were willing to take IPT after getting health education from healthcare providers and by reading some IEC materials. One of the patients said:

> *"We were taught that it is a prophylaxis and we take it since we are vulnerable to different opportunistic diseases and TB. We see our fellows suffering from TB, therefore after that education it was easy for us to accept and start using it"* (R3H1-Patient).

In addition, another patient had this to say:

> *"We were educated about its benefit; I saw it was important for me to use them"* (R14H3-Patient)

Lack of Stigma

Most of the healthcare providers and patients reported that lack of stigma was an important patient-factor that facilitates IPT implementation. They reported that in recent years there is no stigma attached to CTC clients because the society in general has accepted the problem because HIV has affected many people in the society. One of the healthcare providers said:

> *"The society has accepted the HIV problem and people are now free: they can fill the form here at CTC for viral load test and send it to the laboratory. They are free, they go there, take the investigations and leave, they are very free"* (R7H1-Doctor).

Regarding the issue of stigma, one of the patients had this to say:

> *"In recent years, for sure, there is no longer stigma; may be because the disease has affected many people: we now receive good care from the government, from our healthcare workers and even from our relatives"* (R4H1-Patient).

Discussion

This study sought to understand the coverage of IPT implementation and explore health system and patient factors facilitating the implementation of IPT for PLHIV in Songea municipality, Tanzania. The municipality started IPT implementation late in 2014 despite the fact that IPT was included in Tanzania's national policy guideline for collaborative TB/HIV activities since 2008 (URT MoHSW, 2008; 2016). IPT coverage in Songea municipality was estimated to be 45%, which is sub-optimal coverage since it is below the 50% target level recommended by the WHO. The regional referral hospital had IPT coverage of 87.6%: this was because it received special priority from CHMT and RHMT in terms of supportive supervision, training, and the supply of IPT. One healthcare facility that had the lowest coverage of 10.6% started IPT implementation in late 2016 with insufficient supply of IPT. Although this study reported sub-optimal coverage of IPT compared to the WHO recommended level of 50%, it is still higher than the findings in the study by Teklay et al. (2016) in Tigray region in Ethiopia, which reported IPT coverage of 20%. The lack of IPT trainings prior to the introduction of IPT services was the main reason reported for the low IPT implementation in the Tigray region (ibid.).

Health System Factors Facilitating the Implementation of IPT

It is well-documented that the provision of IPT trainings to healthcare providers both before service provision and on-job-training impart knowledge, skills and change their attitude towards successful implementation of IPT service (URT MoHSW, 2008; 2016). Most of the study respondents particularly healthcare providers reported that it was easy for them to provide IPT services to PLHIV because they were provided with IPT training both before the IPT service provision and on job training. This implies that healthcare providers in Songea municipality had the capacity to provide adequate information and prescription to the patients eligible for IPT. However, this finding is different from those of other studies done in Ethiopia (Mindachew et al., 2014; Teklay et al., 2016) where most of the healthcare providers reported that they did not have the capacity to provide adequate information and prescription to the patients since they were not exposed to IPT trainings prior to the introduction of IPT services. This might partly explain the lowest IPT coverage of 20%, which was reported in the Tigray region in Ethiopia (Teklay et al., 2016).

It is also acknowledged that if the health system has organized regular supportive supervisions to healthcare facilities, it can provide healthcare providers with new updates on the implementation of IPT services (URT MoHSW, 2008; 2016).

Similarly, most of the interviewed healthcare providers in Songea municipality reported to receive regular supportive supervisions from the Council Health Management Team (CHMT), Regional Health Management Team (RHMT), and an NGO working in the municipality. This finding entails that smooth implementation of IPT service is partly dependent on regular supportive supervision that is conducted at a healthcare facility level. Tanzania's IPT policy stipulates that CHMT and RHMT are responsible for providing monitoring and supportive supervision of collaborative TB/HIV activities in any district or region (URT MoHSW, 2008; 2016).

IPT guidelines are very useful working tools for IPT service provision. They focus on facilitating the implementation of IPT and intensified case finding (ICF). They also underline and strengthen the leadership role of national AIDS control programs and HIV stakeholders to scale up the implementation of TB screening and provision of IPT among PLHIV. In addition, IPT guidelines provide guidance to health-care providers, policy-makers and health program managers working in the field of HIV/AIDS and TB. IPT guidelines are also intended to provide guides to other stakeholders including NGOs, donors and patient-support groups that address HIV and TB (WHO, 2011). The availability of a patient register is also important as it is a tool for keeping patient records. All healthcare providers in all the 5 studied healthcare facilities in Songea municipality reported to have IPT guidelines and patient registers in their facilities. A study done by Makoni and colleagues, also reported that the availability of IPT guidelines in the healthcare facilities contributed to the improvement in the implementation of IPT services (Makoni et al., 2015).

The availability of IEC materials imparts community members with IPT education through its key messages, hence improves community awareness and IPT program uptake. Similar studies have found that isoniazid (INH) acceptance and adherence can be enhanced by the provision of adequate education from healthcare providers, IEC materials, as well as counselling services at the start of therapy, and during subsequent follow-ups (Munseri et al., 2008; Habakkuk et al. 2011). It has been noted that the National TB and Leprosy Program (NTLP) has responsibility for producing educational materials to educate the public about the importance of prevention of various diseases including TB (Ayele et al., 2017). This study found that all healthcare facilities in Songea municipality that were included in this study had enough Information education and communication (IEC) materials.

The revised WHO IPT implementation guidelines recommend the use of a simplified screening algorithm that relies on the absence of all four clinical symptoms (current cough, night sweats, fever, and weight loss) in identifying PLHIV who are eligible for IPT (WHO, 2011; URT MoHSW, 2015). In the revised WHO IPT guidelines, chest radiography is no longer a mandatory investigation before starting IPT. A simplified symptom-based algorithm should be used for all adults living with HIV: whether they are pregnant, receiving ART,

or have successfully completed TB treatment (WHO, 2011). In this study, most healthcare providers reported to have adequate number of TB screening questionnaires for adults and children in their healthcare facilities. This means they were able to identify PLHIV who were eligible for IPT. Similar studies showed that most healthcare facilities reported to have standard screening tools that facilitated the implementation of IPT in their settings (Makoni et al., 2015), but if not for economical constrains in poor settings, adding a chest x-ray (CXR) to the screening tool may improve the sensitivity and specificity of the screening tool (Shayo et al., 2014).

According to the WHO, the implementation of IPT services is the responsibility of the national HIV program, although in most cases the INH used is supplied by the national TB program (NTP) (WHO, 1998). A qualitative study in Cameroon reported that one of the reasons for non-implementation of IPT was that, at the program level, it was not clear as to who assume the responsibility for planning and implementing of IPT activities (Habakkuk et al., 2011). In our study, the existence of collaboration between TB and HIV programs was reported by most healthcare providers as a facilitating factor in the implementation of IPT services in their healthcare facilities. This implies that by having collaboration between the two programs, the implementation of IPT service is improved through increasing identification of TB suspects and the number of PLHIV eligible for IPT. Contrary to our study, a study done in South Africa reported lack of coordination between HIV and TB activities as an operational barrier mentioned by most clinic staff (Lester et al., 2010).

It has been documented that patients who have good communication with their healthcare providers are more likely to accept their health problems, understand treatment options as directed by the provider, modify behaviour, and follow their medication schedules (Stewart et al., 1995). Other studies have also reported that one of the best predictors of IPT adherence is provider-client communication (Habakkuk et al., 2011; Mindachew, 2011). It is also documented that there is a correlation between effective physician-patient communication and the implementation of IPT services (Stewart et al., 1995). Findings from our study revealed that most of the interviewed healthcare providers reported to have good communication with their clients who were taking IPT. A health system that has put in place good provider-client communication strategy facilitates the provision of health services, including the IPT service implementation at a facility level. This means that clear communication between patients and providers in healthcare facilities in Songea municipality helped patients to build trust with every IPT procedure, which improved patient level of adherence to IPT medication.

Patient Factors Facilitating IPT Implementation

Literatures shows that isoniazid acceptance and adherence is influenced by health education and counselling a patient receives at the start of a therapy, and during subsequent follow-ups (Mindachew et al., 2014; Ayele et al., 2017; Berhe et al.,

2014; Conrad et al., 2014). Similarly, Munseri and colleagues reported that IPT completers were enabled by understanding the importance of IPT, and IPT counselling (Munseri et al., 2008). Melaku and colleagues also found that individuals who were informed about the reasons for taking IPT by healthcare workers were more likely to be adherent than those who did not have information about why they are taking IPT (Berhe et al., 2014). Most interviewed healthcare providers from our study reported that the knowledge of IPT imparted to patients made them accept and use IPT services. The interviewed patients reported that they were willing to take IPT after getting health education from their healthcare providers. This finding implies that it is very important for healthcare providers to provide health education and adherence counselling to patients who are eligible to start IPT before they initiate IPT, and during subsequent follow-ups.

Findings from our study showed that the lack of stigma associated with HIV/AIDS was a patient-related factor that facilitates IPT implementation. The lack of stigma enables patients to adhere to the prescribed IPT. Contrary to our findings, other studies on factors influencing adherence to IPT reported stigma as one of the challenges limiting the implementation of IPT in many settings. This is due to fear of rejection and stigmatization after disclosing patients' HIV status, or being seen going for, or coming out of treatment/IPT services (Mindachew et al., 2014; Makanjuola et al., 2014). Some patients are not willing to disclose their sero-status to their family members or to others who are close to them because of the fear of disturbing or losing the normal relationships they have with their families and within their communities (fear of stigma and discrimination). Due to this situation, they lack the courage to take the drugs in public, forcing them to miss some of their prescribed medication (Mindachew et al., 2014).

Conclusion

The implementation of IPT in Songea municipality was sub-optimal with only 45% coverage of eligible PLHIV, which is lower than the WHO recommended IPT coverage of 50%. A successful implementation of IPT is dependent on the existence of facilitating factors. These include the availability of IPT training, regular supportive supervision, collaboration between TB and HIV programs, availability of IPT guidelines and patient registers. This study recommends that local government authorities, management of healthcare facilities, drug suppliers, and partners working in TB and HIV programs and service providers continue working together and ensure that the identified health system and patient facilitating factors are sustained to increase IPT uptake. The study also recommends that scientific studies should be conducted to identify barriers to achieving the WHO recommend IPT coverage of 50%, and their corresponding solutions.

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