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FACTORS ASSOCIATED WITH POOR ADHERENCE TO ANTI-TUBERCULOSIS MEDICATION AMONG PATIENTS AGED 20-70 YEARS ATTENDING TB CLINIC AT HOIMA REGIONAL REFERRAL HOSPITAL; A CROSS SECTIONAL STUDY.

Wycliffe Okol Tusabe, Samson Wolingha, Sr. Josephine Sassazi*
St Francis school of Health Sciences

ABSTRACT.

Background:
Aim: To establish the factors associated with poor adherence to anti-tuberculosis medication among patients aged 20-70 years attending the TB clinic at Hoima Regional Referral Hospital.

Methodology:
A descriptive cross-sectional study design employing quantitative and qualitative methods of data collection was used to collect data from 100 respondents who were selected using a simple random sampling method. Data was collected through the use of a pretested questionnaire, analyzed manually using a tally sheet, and presented in tables, figures like pie charts, and bar graphs with frequencies and explanatory remarks.

Results:
The majority of the respondents 70(70%) were males and only 30(30%) were females. More than half, 53 (53%) of the respondents belonged to the age group of 31-40 years while only 06(06%) were in the age bracket of 20-30years. Most of the respondents, 45(45%) were Banyoro whilst only 08(08%) were Bakiga. Half of the respondents 50(50%) stated drug side effects as the reason for poor adherence to Anti-TB medications whilst only 7% mentioned other causes like adverse effects. The majority 70(70%) of the respondents revealed that long-distance contributed to poor adherence to Anti-TB medications while the minority 10(10%) of respondents were undecided.

Conclusions:
From this study, it was concluded that the most contributing factors to non-adherence to treatment were; distance to hospital 70 (70%), treatment side effects50 (50%), and feeling better after a short period of treatment 65(65%). Others were being single with no family support and being peasants was associated with low income.

Recommendation:
The City, region, and hospital authority should emphasize community-based outreach to promote interactions between the community and health workers to improve the knowledge about TB and the need to complete TB treatment.

Keywords: *Poor adherence, Anti-Tuberculosis medication, Tuberculosis clinic, Hoima Regional Referral Hospital*
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Corresponding author: *Wycliffe Okol Tusabe**
St Francis School of Health Sciences

BACKGROUND.

Globally, the WHO supported a four-day meeting to review and provide input to the finalization TB prevalence survey report. The findings of the survey indicated that the TB prevalence in Uganda is higher at 253 TB cases per 100,000 population than the previously reported estimate of 159 TB cases per 100,000 population based on the 2015 WHO Global TB Report. (WHO, TB survey report 6, Sep 2016). According to the national report from Hoima Regional Referral Hospital in 2021, it indicated that 453 cases of TB patients were registered a number higher than in the previous year which was attributed to the poor case detection criteria of the disease, knowledge deficiency regarding TB, and the gap in adherence to treatment. This has led to escalated expenditures by the Ministry of Health towards the provision of quality health care to TB patients. It has also led to the depletion of the local population's income as a result of high expenditures incurred while seeking health care services at the hospital like high transport costs. Despite interventions by the Ministry of Health and other stakeholders regarding policy formulation and improving health care services, poor adherence to anti-TB medication remains a common and

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potentially preventable health concern that is becoming a more pressing issue in the Hoima district. Thus the study aims at establishing the factors associated with poor adherence to anti-TB medication among patients aged 20-70 years attending the TB clinic at Hoima Regional Referral Hospital. Hoima city. This study aims to assess the factors associated with poor adherence to anti-TB medication among patients aged 20-70 years attending the TB clinic at Hoima Regional Referral Hospital.

METHODOLOGY.

Study Design.

A cross-sectional descriptive study design was employed in this study and it involved quantitative methods of data collection. The study design was selected because it was easy to undertake since the study took a short period.

Study Setting and Rationale.

The study was conducted at Hoima Regional Referral Hospital in the city of Hoima in Hoima District in the Western Region of Uganda Hoima City. It is the referral hospital for the districts of Bulisa, Hoima, Kibaale, Kiryandongo, Kagadi, Kakumiro, Kikuube, and Masindi. The hospital is approximately 198 kilometers, by road, northwest of Mulago National Referral Hospital, in Kampala, Uganda's capital city. Hoima Hospital is a public Regional Referral hospital, funded by the Uganda Ministry of Health, and general care in the hospital is free. It is one of the seventeen Regional Referral Hospitals in Uganda. The hospital has a TB unit that offers treatment to TB susceptible patients and MDR-TB patients. The unit has both inpatient and outpatient services. Poor adherence is more pronounced in outpatients which is why it is important to find out the causes to improve adherence to anti-TB medication.

Study Population.

The study included patients aged 20- 70 years seeking TB treatment services at Hoima Regional Referral Hospital, Hoima City.

Sample Size Determination and Rationale.

Slovin's formula was used to calculate the sample size (n) given the population size (N) and a margin error (e). It was computed as n=N/ (1+Ne2).
Whereas n = number of samples (?)
N =total population (140)
n = 140/1+140(0.05)2
n = 140/1+140(0.0025)
n = 140/1+0.4
n = 100
Therefore, the sample size included 100 respondents.

Sampling Procedure.

A simple random technique was used to select patients at the TB clinic because everyone in the target group had equal chances of being included in the study. 20 papers (10) written on "even numbers" and (10) "odd" numbers were distributed to patients seeking TB treatment services at the TB clinic. Only those respondents who picked papers containing even numbers were included in the study. Ten (10) patients were approached for data collection daily until the required sample size of 100 respondents was achieved.

Inclusion Criteria.

Only patients between the age of 20-70 years seeking TB services at the TB clinic and who had consented to participate in the study were considered.

Exclusion criteria.

Patients who did not consent and those below 20 years or above 70 years were excluded and did not participate in the study.

Definition of variables.

Independent variables.

These included demographic, treatment, and health facility-related factors contributing to poor adherence to treatment among TB patients.

Dependent variable.

This included poor adherence to anti-TB medication among TB patients at Hoima Regional Referral Hospital, Hoima City.

Research instruments.

Questionnaires with both open and close-ended questions were used to collect data. Pre-testing was done on five patients and modifications were done on the questionnaire before proceeding to the study area for data collection. The questionnaire was arranged in three sections, section A, which contained questions on the social demographic data of the respondents, section B which addressed the treatment-related factors contributing to poor adherence among TB patients, Section C which contained

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questions on the health facility-related factors contributing to poor adherence among TB patients.

Data Collection Procedure.

Before giving out the questionnaires, the study fully explained the purpose of the study to the respondents. Interpretation of questions was done for respondents who were not able to read and write in English. Each filled-in questionnaire was checked for accuracy and completeness by the study.

Data Management.

The data obtained was stored in notebooks, a computer, and a flash disk as a backup copy.

Data Analysis.

After collecting the data, it was manually tallied, entered in a computer, and presented in frequency tables, and figures like pie-charts, and bar graphs with some explanatory remarks using Microsoft Excel computer program.

Ethical Consideration.

A letter of introduction was obtained from the St. Francis School of Health Sciences introducing the study to the administration of Hoima Regional Referral Hospital, seeking permission to carry out the study. After granting the permission, the Hospital administrator introduced the study to the In-charge of the T.B. unit who in turn introduced it to the respondents. Respondents were assured of maximum confidentiality and only numbers instead of names were used to identify the respondents. There were no incentives and no samples that required pricking the patients. The study commenced after the objectives of the study had been explained to participants and they had consented to participate in the study. Participants were free to leave the study if not interested.

RESULTS.

Demographic Characteristics of the Respondents.

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Table 1: Showing the distribution of respondents according to their socio-demographic characteristics (N=100).

VARIABLE	CATEGORY	FREQUENCY (N=100)	PERCENTAGE (%)
Gender	Male	70	70
	Female	30	30
TOTAL		100	100
Age (Years)	20-30	06	06
	31-40	53	53
	41-50	23	23
	≥51	18	18
TOTAL		100	100
Tribe	Banyoro	45	45
	Baganda	10	10
	Banyankole	15	15
	Bakiga	8	8
	Others (e.g Bakonjo)	32	32
TOTAL		100	100
Marital status	Single	20	20
	Married	56	56
	Separated/divorced	10	10
	Cohabiting	05	05
	Widowed	09	09
TOTAL		100	100
Education level	Primary	60	60
	Secondary	20	20
	Tertiary institution	16	16
	University	04	04
TOTAL		100	100
Religion	Catholics	42	42
	Protestants	35	35
	Muslims	10	10
	Born again	08	08
	Others(e.g. Jehovism)	05	05
TOTAL		100	100
Employment status	Peasants	50	50
	Civil servants	07	07
	Self-employed	30	30
	Unemployed	13	13
TOTAL		100	100

Source: Primary field data.

The study revealed that the majority of the respondents 70(70%) were males and only 30(30%) were females. More than half, 53 (53%) of the respondents belonged to the age group of 31-40 years while only 06(06%) were in the age bracket of 20-30years. Most of the respondents, 45(45%) were Banyoro whilst only 08(08%) were Bakiga.

The majority of the respondents 56(56%) were married while the minority, 05(05%) were cohabiting. An overwhelming number of the respondents, 60(60%) had attained up to the primary level of education while only 04(04%) of the respondents had attained up to the university level. Half of the respondents 50(50%) were peasants whilst only 07(07%) of the respondents were civil servants. The majority of the respondents 42(42%) were Catholics and only 05(5%) of the respondents belonged to other religions like Jehovism.

Treatment-related factors contributing to poor adherence among TB patients aged 20-70 years at Hoima Regional Referral Hospital, Hoima City.

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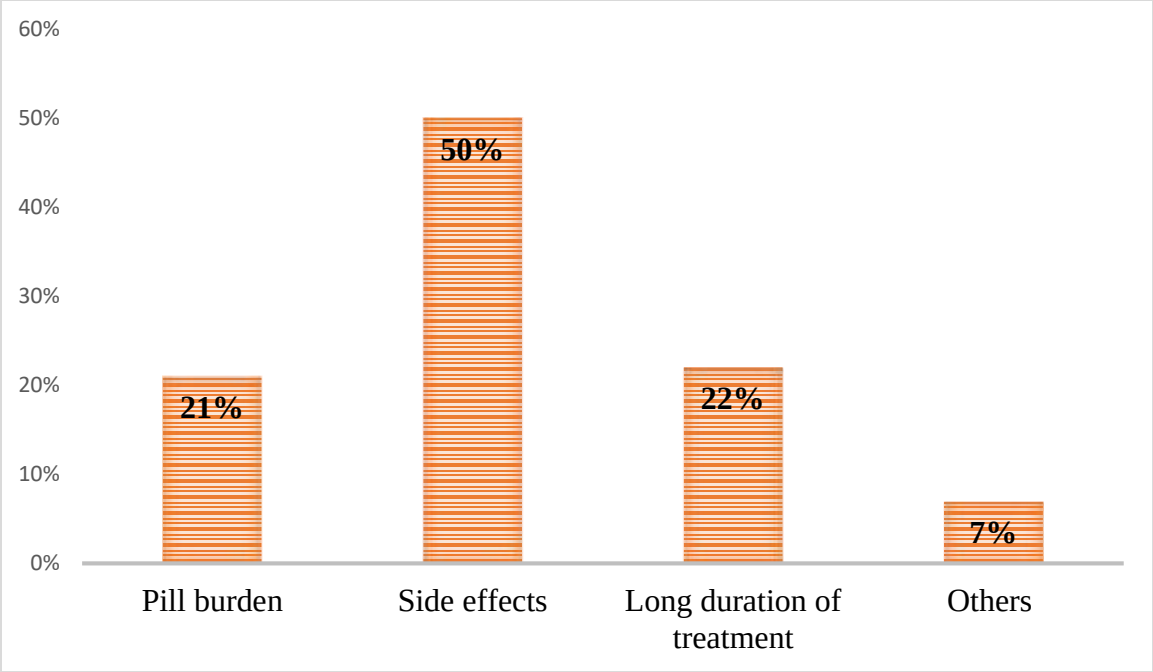
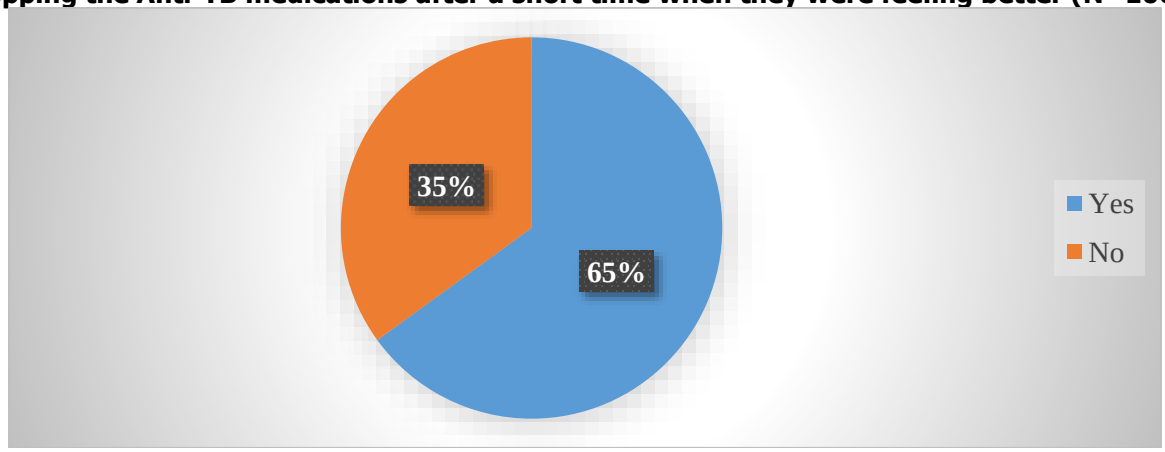
Figure 1: Showing the distribution of respondents according to their responses on what could contribute to poor adherence to Anti-TB medications (N=100).



Source: Primary field data.

The study revealed that Half of the respondents 50(50%) stated drug side effects as the reason for poor adherence to Anti-TB medications whilst only 7% mentioned other causes like adverse effects.(Figure 1)

Figure 2: Showing the distribution of respondents according to whether they felt like stopping the Anti-TB medications after a short time when they were feeling better (N=100).



Source: Primary field data.

The majority of the respondents 65(65%) stated that they felt like stopping the Anti-TB medication when they felt better after a short duration of treatment while only 35(35%) said they could not.

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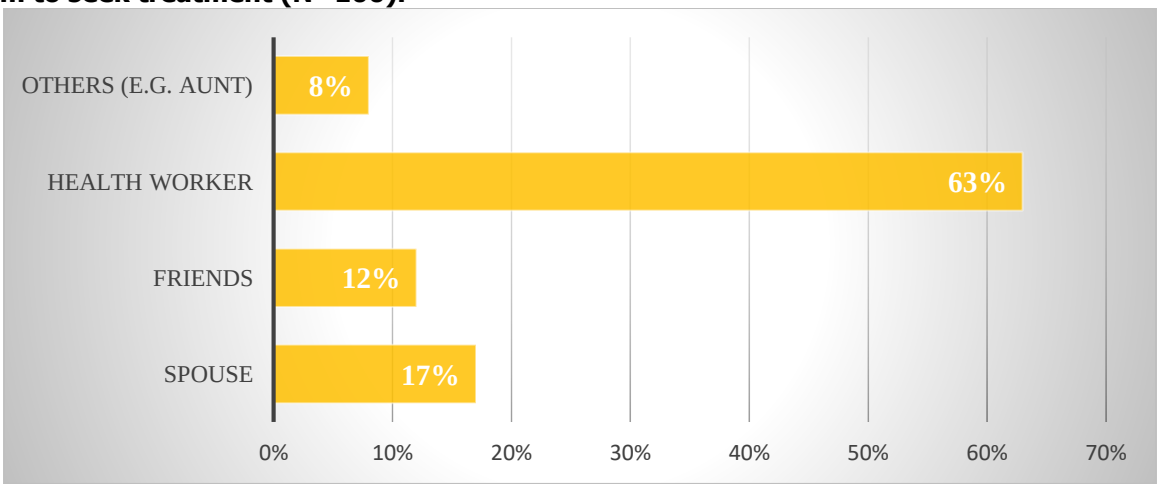
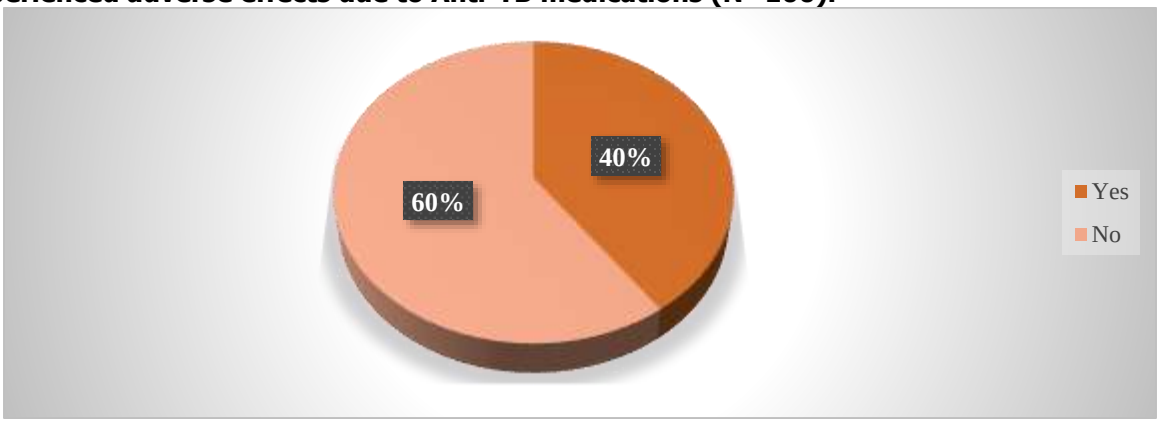
Figure 3: Showing the distribution of respondents according to their responses on who asked them to seek treatment (N=100).



Source: Primary field data.

Figure 3 shows that the majority of the respondents 63% were asked to seek treatment by health workers while only 8% of the respondents stated that they were advised to start treatment by other people like aunts.

Figure 4: Showing the distribution of respondents according to whether they had experienced adverse effects due to Anti-TB medications (N=100).



Source: Primary field data.

Figure 4 shows that only 40(40%) of the respondents had experienced adverse effects due to anti-TB medications whereas the majority 60(60%) of the respondents had not.

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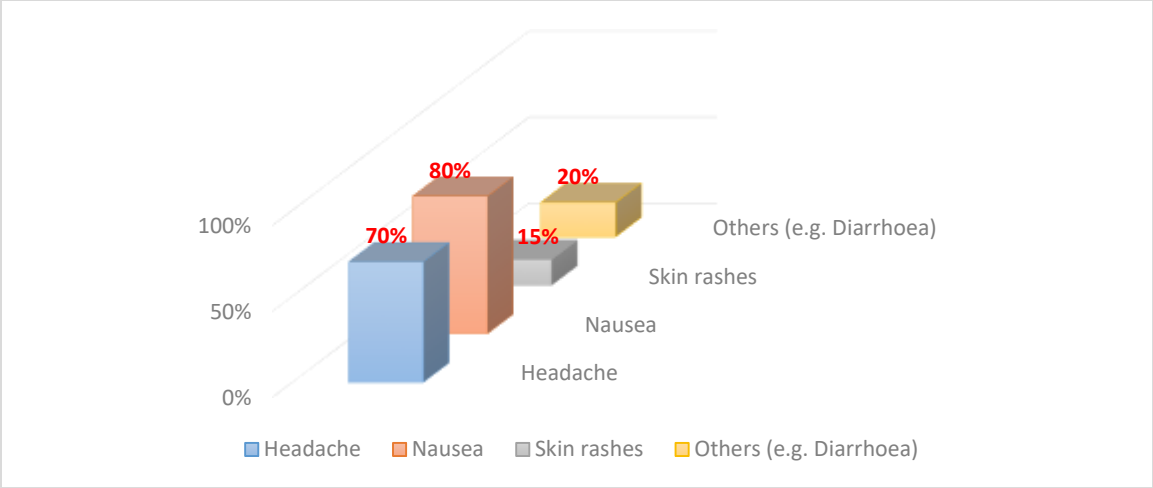
Figure 5: Showing the distribution of respondents according to their responses regarding the side effects they had experienced (N=100).



Source: Primary field data.

The study revealed that the majority of the respondents 80(80%) had experienced Nausea while only 15% had experienced Skin rashes. However, the sum of respondents was more than 100 since some stated more than one side effect. (Figure 5)

DISCUSSIONS.

The data show that the majority of the respondents 70 (70%) were male and 30 (30%) were female. The largest number of respondents 53 (53%) were in the age group of 31-40 years, and 23 (23%) were in the age group of 41-50 years. These are the most productive age groups that the majority of people in the family and the country depend on for support and care. This, therefore, implies the cycle of poverty, ignorance, malnutrition, and disease in the community. This is in line with the WHO report of 2018, which stated that the highest tuberculosis burden is in the poorest countries of the world (WHO, 2018).

The majority of the respondents were Banyoro by tribe 45 (45%), followed by the other tribes like Bakonjo, Baruru, Bagungu, 32 (32%) and the least 08(8%) were Bakiga. The predominant tribe in this area is the Banyoro as revealed in the above study. Most of the respondents 60 (60%) and 20 (20%) had primary and secondary levels of education respectively. The largest number of the respondents 50 (50%) were peasant farmers, 30(30%) were self-employed, 13(13%) were unemployed and only 07 (7%) were civil servants.

The study revealed that Half of the respondents 50(50%) stated drug side effects as the reason for poor adherence to Anti-TB medications, 22(22%) stated long duration of TB treatment, 21(21%) mentioned pill burden since most of them had other co-morbidities like HIV whilst only 7% mentioned other causes like adverse effects. This finding is in line with a study in Nairobi by Bernard et al, (2020) who found that patients attributed their poor adherence to Anti-TB medications due to its side effects (72%), pill burden (20%), and time taken to complete the dose (8%).

The majority of the respondents 65(65%) stated that they felt like stopping the Anti-TB medication when they felt better after a short duration of treatment while only 35(35%) said they could not. This was associated with the fact that the majority experience side effects and thus would wish to stop treatment once they felt better.

The majority of the respondents 63% were asked to seek treatment by health workers, 17(17%) by their spouses, and 12(12%) while only 8% of the respondents stated that they were advised to start treatment by other people like aunts. This was because most of the TB clients were diagnosed from health facilities thus the health workers counseled the clients on enrolling in treatment. These findings were similar to those of Pablos-Méndez A et al, (2017) in South Africa which showed that the majority of 78% of TB clients were advised to start anti-TB medications as soon as possible.

Only 40(40%) of the respondents had experienced adverse effects due to anti-TB medications whereas the majority 60(60%) of the respondents had not.

The study revealed that the majority of the respondents 80(80%) had experienced Nausea, 70(70%) stated Headache, 20(20%) mentioned other side effects like diarrhea and only 15% had experienced Skin rashes. However, the sum of respondents was more than 100 since some stated more than one side effect.

CONCLUSIONS.

From this study, it was concluded that the most contributing factors to non-adherence to treatment were; distance to hospital 70 (70%), treatment side effects 50(50%), and feeling better after a short period of treatment 65(65%). Others were single with no family support and being peasants was associated with low income.

RECOMMENDATIONS.

- There is a need for the Hoima Regional Referral Hospital administration to emphasize ongoing adherence counseling for TB patients by professional counselors at every drug refill.
- The City, region, and hospital authority should emphasize community-based outreach to promote interactions between the community and health workers to improve the knowledge about TB and the need to complete TB treatment.
- Community-based health workers should be supported to carry out community-based activities and support TB/HIV co-infected patients in Hoima City and the entire region.
- Health workers should stop assigning treatment supporters to patients and allow patients to choose their supporters.
- The MOH should lobby for support from the government and development partners to fund and introduce short message reminders to alert patients on when to come for their next refill.

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A lot of thanks to all the clients at Hoima Regional Referral Hospital who participated in this study for your maximum cooperation.

LIST OF ABBREVIATIONS.

APHRC: African Population and Health Research Center
CDC: Centres for Disease Control
DATS: Digital Attained Therapies
DOTS: Direct Observable Therapies
HRRH: Hoima Regional Referral Hospital
ICBHP: Integrated Community-Based Health Program
LMIC: Low and Middle-Income Countries
MDR-TB: Multi-Drug Resistant Tuberculosis
MoH: Ministry of Health
NIH: National Institute of Health
NTLP: National Tuberculosis and Leprosy Programme
NTP: National Tuberculosis Programme
RTI: Respiratory Tract Infections
SAT: Self-Administered Therapy
TB: Tuberculosis
UNESCO: United Nations Educational, Scientific and Cultural Organization
UNICEF: United Nations Children's Fund
WHO: World Health Organization

SOURCE OF FUNDING.

The study was not funded.

CONFLICT OF INTEREST.

The author declares no conflict of interest

AUTHOR BIOGRAPHY.

1. Wycliffe Okol Tusabe, a student at St Francis School of Health Sciences Namataba – Mukono
2. Mr. Samson Wolingha, senior lecturer at St Francis School of Health Sciences Namataba – Mukono
3. Sr. Josephine Nassazi, principal at St Francis School of Health Sciences Namataba – Mukono

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