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INDIVIDUAL FACTORS ASSOCIATED WITH PRE-DIAGNOSTIC LOSS- TO FOLLOW-UP OF PRESUMPTIVE TB PATIENTS AT NDEJJE HEALTH CENTER IV, WAKISO DISTRICT. A CROSS-SECTIONAL STUDY.

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Abstract

Background

Tuberculosis is an infectious respiratory disease that most often affects the lungs caused by a type of bacteria; mycobacterium tuberculosis which is acid-fast bacilli (AFBS) spread through the air when an infected person coughs, sneezes, or spits. The purpose of the study was to identify the individual factors associated with pre-diagnostic loss-to-follow-up of presumptive TB patients at Ndejje Health Center iv, Wakiso District.

Methodology

A cross-sectional study design was used. The study population comprised all TB patients seeking Tuberculosis services at the Medical Clinic and TB clinic at Ndejje Health Center IV and the sample size for the study was **120** respondents.

Results

(56.7%) of the respondents were females and (43.3%) were males. (67%) had been diagnosed with TB. All, 100% were aware of Tuberculosis as a disease. 58% received information about TB from school. (55%) mentioned 2-4 signs and symptoms of TB. (100%) agreed that TB is treatable. (70%) gave their samples for routine testing. (50.8%) thought routine testing was not necessary when the first test was negative.
(73.3%) showed a great danger of infecting other family members.

Conclusion

The individual factors influencing the drop-out rates were knowledge about TB and individual welfare.

Recommendation

The health care providers for Ndejje Health Center IV should encourage presumptive TB patients to provide telephone contacts to the TB clinic staff to assist in follow-up activities in case the patient misses an appointment. But also, if the patient has no telephone, they can provide contacts of their closest relative, their immediate neighbor, or even the LC1 of their village.

Keywords: *Individual factors, Presumptive TB patients, Ndejje Health Centre IV.*
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Background of the study

Tuberculosis is an infectious respiratory disease that most often affects the lungs caused by a type of bacteria; mycobacterium tuberculosis which is acid-fast bacilli (AFBS) spread through the air when an infected person coughs, sneezes, or spits. The condition is chronic and has serious physical, physiological, social, and economic consequences for concerned persons and their families, yet it's preventable and curable.

In northern Ethiopia in 2017, the proportion of presumptive TB dropouts we see in this study is significantly higher than that seen at the national level, 37.7% of the presumptive TB patients who were on the list for follow-up did not reach the laboratory for sample collection and revealed that advancement in age and positive HIV status were significantly associated with pre-diagnostic drop out as they individuals took them to be of less value to themselves in a one on one interaction with some of the patients. This was contrary to the findings of a study by Ekuka et al., (2020) in Uganda to assess factors associated with loss of follow-up among presumptive TB patients which found that, the lower levels of age were more likely to drop out before diagnosis, especially those aged 18 years and below for reasons grouped by age as; children between 0–6 were difficult to diagnose and had their decisions managed by caretakers, children in the adolescent age group would have had to be in school or were involved in menial jobs that would not let them return to the health facility as expected. HIV-negative individuals were more likely to make it to the point of diagnosis compared to their positive counterparts according to Ansa and colleagues who suggest that the HIV-positive clients might drop out before diagnosis due to stigma, (Ansa GA. et al., 2019).

An individual is considered presumptive at the health facility if they have one of the following: cough for 2 or more weeks; persistent fever for 2 or more weeks; noticeable weight loss; excessive night sweats and if it's a

child, poor weight gain or history of contact with a PTB patient. In addition, they may be considered so if they are at high risk for TB (key population) and currently have a cough or - abnormal chest X-ray, (WHO, 2018). Individuals lost between screening and confirmation of active TB are considered pre-diagnostic dropouts. Accurate diagnosis and successful treatment of TB avert millions of deaths annually - about 54 million lives were saved globally between 2000 and 2017 (WHO, 2018).

According to the WHO fact sheet, tuberculosis is a chronic disorder that affects the lungs (pulmonary tuberculosis) and the one that affects other body parts like the gastrointestinal (extrapulmonary tuberculosis). The patient is presumed to have TB when they show the four cardinal signs which include persistent fever, excessive night sweats, cough for more than two weeks, and excessive weight loss (WHO, 2018)

According to the 2014/15 National prevalence study, 39% of individuals with TB symptoms in Uganda did not seek care. This included presumptive TB patients who might have dropped out of care during the diagnostic period, and diagnosed TB patients who might stop care before initiating treatment or while on a treatment, (MOH, 2017).

Methodology

Study design

A descriptive cross-sectional study design was used to enable the researcher to obtain information about the situation at hand and show the current situation of the condition under study in the desired population. This is because the study did not require follow-up of clients over some time. The information required was collected once from the study participants.

Study setting

The study was conducted at Ndejje Health Center IV, a public health facility, located in Wakiso District in the Central region of Uganda. Ndejje Health Center IV provides primary health care services, and maternal and child health services to the residents of the district, and the neighboring district within the region.

Study population

The study population comprised all TB patients seeking Tuberculosis services at the Medical Clinic and TB clinic at Ndejje Health Center IV.

Sampling

Sample Size determination

The sample was calculated by using the Kish and Leis Lie formula (1965), for cross-sectional studies.

$$N = \frac{z^2pq}{d^2}$$

Where,

N- Represents the sample size

d- Represents a precision of the study, a precision of 9.5% was used due to limited resources and time of the study.

z- Represents standard normal deviation corresponding to a 95% confidence interval which is 1.96 p- Represents proportional characteristics which has been estimated around 50%. (Kalichman, 2015).

q- Represents (1-p) which is (1-0.5) = 0.5.

$$N = \frac{1.96^2 \times 0.5 \times 0.5}{0.095^2}$$

N = 120 Therefore, the sample size for the study was 120 respondents.

Sampling Method.

A probability, simple random sampling method was employed to identify the participants for the study, and it involved the identification of the children's mothers or guardians and the collection of data from participants who were identified by use of the sampling method from the Out-Patient department and In-Patient wards at the health facility.

Sampling Procedure.

All patients at the TB clinic who met the inclusion criteria were requested to randomly pick a preprepared note from a box containing pieces of paper with notes "yes" and "no" once without replacement. Any caretaker who picks a paper with the "yes" was part of the sample and this was done on every day of data collection until the desired respondents had been sampled.

Study Variables

Dependent Variable

The dependent variable of this study was the Loss of follow-up of presumptive Tuberculosis patients.

Independent Variables

The independent variables were the individual, community, and health facility-related factors associated with the Loss of follow-up of presumptive Tuberculosis patients.

Selection Criteria

Inclusion criteria

The study included all patients presumed to have TB, or who have been diagnosed with TB and seek health care at the TB clinic at the health facility and are aged 18 years and above who are not very ill.

Exclusion criteria

All patients presumed to have TB, or have been diagnosed with TB are very ill, all patients below the age of 18, were excluded from the study.

Data Collection

Data collection method.

The study employed a survey data collection method, where a questionnaire was administered to 120 respondents who met the inclusion criteria at the study site and selected through a random selection and was taken in the study once. Data collection tool

The researcher used researcher-administered questionnaires for respondents.

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Data collection procedure

The researcher together with the trained research assistant collected data from the respondents using semi-structured questionnaires to ensure that the data collected is accurate. Both the researcher and the research assistant introduced themselves to the in charge of the health facility that has been chosen as the study area and to the patients at the OPD, medical Clinic, and TB clinic and in the wards during days of data collection, where they got access to the respondents and obtain the sample to collect data from on each day.

The exercise of actual data collection always commenced at 08:00 am and ended at 02:00 pm every day from Monday to Friday for the 30 days of data collection. The evening hours were utilized for passing through the research questionnaires to check for completeness.

Quality control

Pilot Study.

A randomly selected sample of 10 patients was used for the pilot study from Wakiso Health Center IV, in Wakiso District. Here the questionnaires were pre-tested for effectiveness of data collection by interviewing 10 caretakers. Repetitions, overlapping response options, and other inconsistencies in the tools were identified and corrections were made to ensure that relevant data were collected.

The findings of the pilot study were not used in writing the research report.

Training the Research Assistant.

The researcher trained the research assistant on how to use the data collection tools. The main aim of the training was to achieve appropriate techniques in questioning approaches and proper filling of the questionnaires.

Data analysis and presentation

Data was analyzed manually and using Microsoft Office Excel then presented using tables, graphs, and pie charts and was also subjected to content analysis where the obtained data having been summarized was analyzed per specific objective and question with responses.

Ethical Consideration

The research Report after being approved by the Research Committee of Kampala School of Health Sciences, the researcher was provided with an introduction letter directed to the In-charge Ndejje Health Center IV.

The researcher obtained permission to collect data, from the in-charge of Ndejje HC IV. The principle of informed consent was always upheld through the recruitment process and data collection. The identities of the respondents were not disclosed and their confidentiality was maintained; data from the respondents was stored under lock and key.

The respondent's consent was by signing. Privacy and confidentiality of respondents were ensured by interviewing each respondent alone and using the information for the sole purpose.

Results

Socio-demographic characteristics of respondents

Table 1: Showing Socio-demographic characteristics of respondents. (N=120)

Variable	Frequency (n=120)	Percentage (100%)
Gender		
Male	52	43.3
Female	68	56.7
Age of respondents		
18-19	5	4.2
20-35	75	62.5
36 and above	40	33.3
Area of Residence		
Semi-urban	62	51.6
Urban	58	48.3
Marital status		
Married	78	65
Living alone/Single	38	31.6
Separated	2	1.7
Widowed	2	1.7
Religion		
Christian	86	71.7
Muslim	34	28.3
Level of Education		
Tertiary	3	2.5
Secondary	48	40

Primary	55	45.8
None	14	11.7
Occupation of respondents		
Students	16	13.3
Employed	28	23.3
Unemployed	64	53.4
Self-employed	12	10

Table 1, More than half (56.7%) of the respondents were females while the least (43.3%) were males. The majority (62.5%) of the respondents were aged 20 -35 years while the minority (4.2%) were aged (18-19) years. Regarding the area of residence, more than half (52%) of the respondents lived in semi-urban areas while the least (48.3%) lived in urban areas. The majority (65%) of the respondents were married the minority (17%) were separated and widowed. The majority of 55(45.8%) of the respondents completed primary level while the minority (2.5%) had no education at all. More than half of the respondents were unemployed 64 (53.4%) while the minority were students (13.3%).

Individual factors associated with pre-diagnostic loss to follow presumptive tuberculosis patients.

Table 2: Showing monthly income of respondents. (N=120)

Variable Monthly Income	Frequency (n=120)	Percentage (100%)
<100,000shs	38	31.6
100,000-500,000shs	77	64.2
>500,000shs	5	4.2
Total	**120**	**100**

Table 2, the least had a monthly income of more than 500,000 (4.2%), and the majority (64.2%) had monthly income between 100,000shs – 500,000shs

Figure 1: Showing distribution by diagnostic status of respondents (N=120)

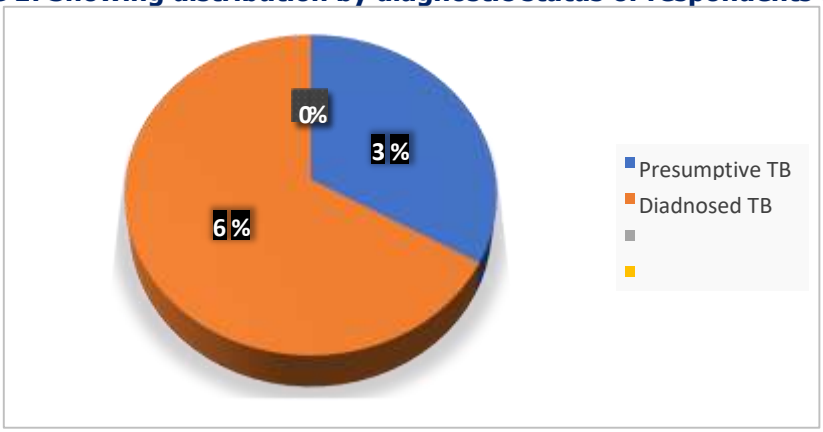

Figure 1, the majority (67%) of the respondents had been diagnosed with TB while the minority (33%) of the respondents had not been diagnosed with TB. Of all the respondents, 100% were aware of Tuberculosis as a disease.

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Figure 2: Showing source of information on Tuberculosis

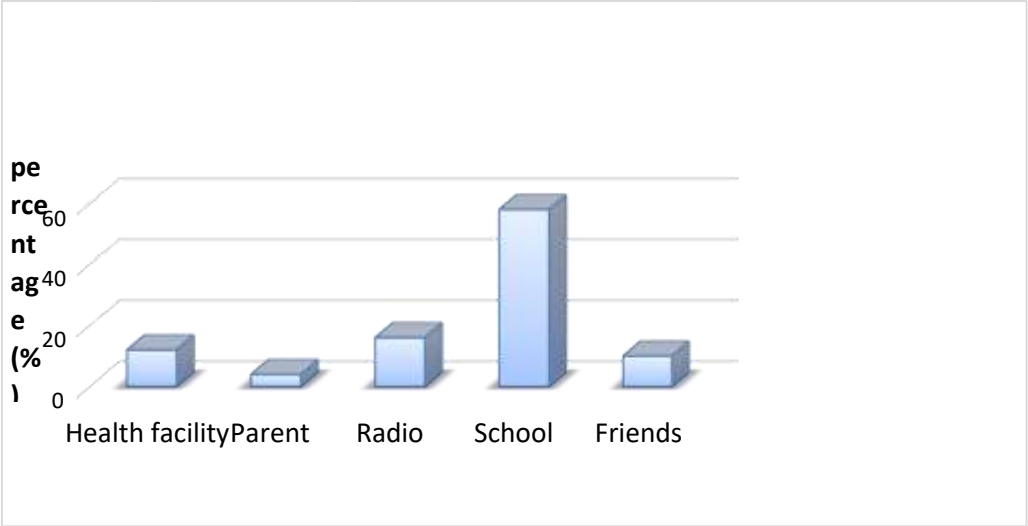

Figure 2, the majority of the respondents 58% received information about TB from school while the least 4% learned about TB from their parents.

Individual factors on the knowledge of signs and symptoms.

Table 3: Showing knowledge of signs and symptoms N=120)

Knowledge of signs and symptoms	Frequency (N=120)	Percentage (%)
Mentioned more than 4	41	34.2
Mentioned 2-4	66	55
Mentioned at least 1	13	10.8
Mentioned none	00	00
Total	**120**	**100**

Table 3, more than (55%) mentioned 2-4 signs and less (10.8%) mentioned at least 1 sign

Figure 3: Showing knowledge of signs and symptoms. (N=120)

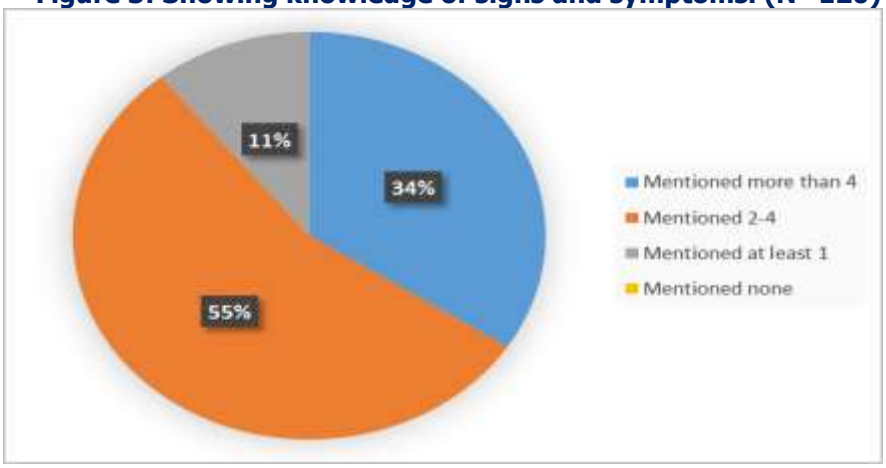

Figure 3, the majority of the respondents (55%) mentioned 2-4 signs and symptoms of TB while a minority of the respondents (13%) mentioned at least one sign/ symptom of TB this shows that the respondents knew TB.

Table 4: showing response to TB treatment. (N=120)

Is TB treatable?	Frequency(N=120)	Percentage (%)
Yes	120	100
No	00	00
I don't know	00	00
Total	**120**	**100**

Table 4, all the respondents (100%) agreed that TB is treatable.

Table 5: Individual factors on samples for routine testing

Can you freely give your samples for routine testing	Frequency(N=120)	Percentage (%)
Yes	84	70
No	36	30
Total	**120**	**100**

Table 5, the majority (70%) gave their samples for routine testing well and the minority (30%) didn't accept.

Figure 4: Showing respondents who agree or disagree with routine testing. (N=120)

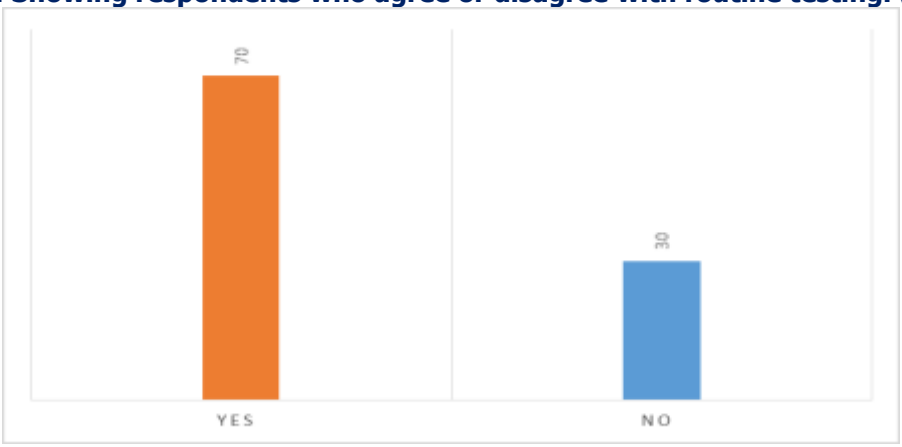

Figure 4, the majority (70%) of the respondents would freely give out samples for routine testing whereas the minority (30%) would not freely give out samples for routine testing.

Table 6: showing information on the importance of routine testing (N=120)

What is the importance of routine testing if one has not been confirmed with TB?	Frequency (N=120)	Percentage (%)
To help identify the disease	36	30
To protect our relatives' home	19	15.8
There is no need for more tests when first test is negative	61	50.8
For record keeping	04	3.3
Total	**120**	**100**

Table 6, most (50.8%) thought routine testing was not necessary when the first test was negative whereas the least (3.3%) did it for record keeping.

Figure 5: Showing the importance of routine testing if one has not been confirmed with TB. (N=120)

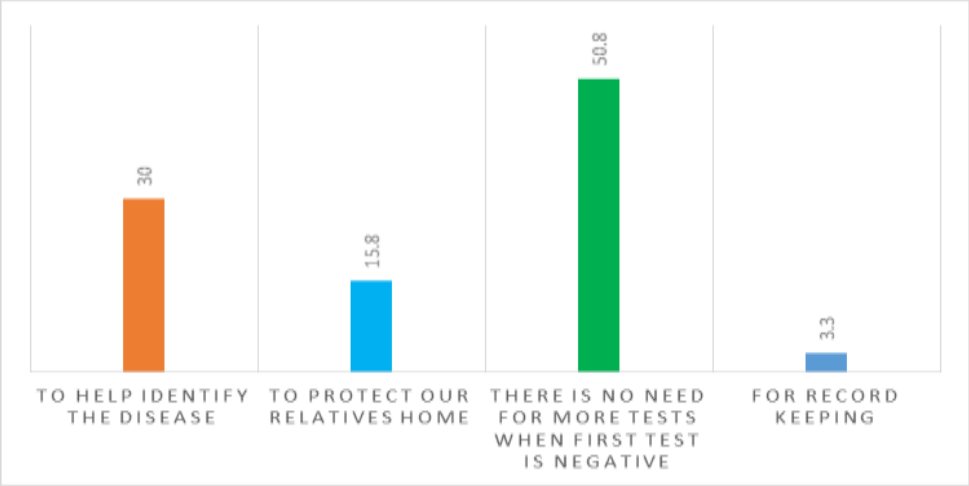

Figure 5, the majority of the respondents (50.8%) said that there is no need for more tests when the first test is negative while a minority of the respondents whereas the least (3.3%) said that it was for record keeping.

Table 7: Individual factors on dangers of not getting treated if confirmed with TB

Dangers of not getting treated if confirmed with TB	Frequency (N=120)	Percentage (%)
Infecting other members of the family	88	73.3
Getting severe disease	23	19.2
Unexpected death	09	7.5
Total	**120**	**100**

Table 7, (73.3%) showed a great danger of infecting other family members, (19.2%) getting severe disease, and 7.5% unexpected death.

Figure 6: Showing percentages of individuals (N=120)

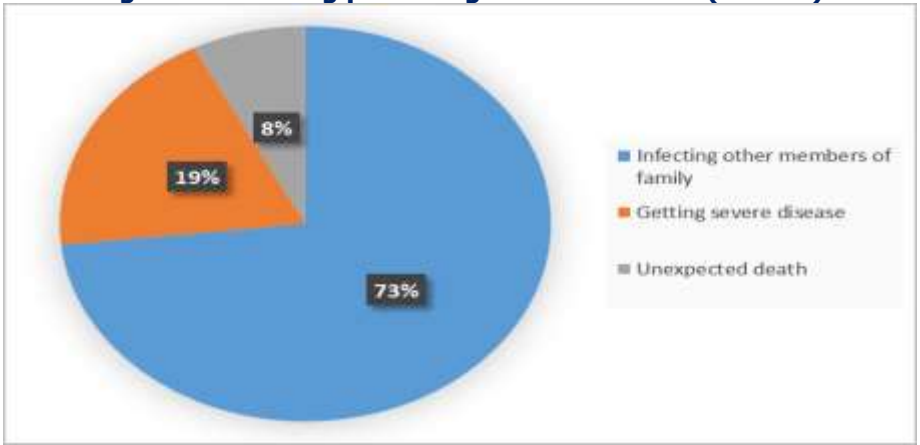

Figure 6, (73%) of the respondents were infecting other members of the family while (19%) of the respondents were getting severe diseases and the least (8%) were unexpected deaths.

Discussion

Individual Factors associated with Pre-diagnostic Loss-to follow-up of presumptive TB patients.

All respondents (100%) were aware of TB and could define it correctly. 58% learned it from school and a minority 4% learned it from parents. Respondents were able to mention between 2 to 4 signs and symptoms of Tuberculosis, (34.2%) mentioned more than 4 signs and

symptoms, and (10.8%) were able to mention at least one sign or symptom. This revealed good knowledge of the disease among the respondents and would act as a motivation for them to seek treatment with the awareness of its treatability when one adheres to the diagnosis and treatment criteria. Good knowledge is therefore linked to lower chances of dropping out from being followed up for routine tests among those presumed to be with tuberculosis. This is similar to Kumar et al., (2018) who found out that patients with a higher level of education status were more likely to have a better knowledge of the disease and return for their scheduled reviews at the TB clinic as compared to the ones of low or no formal education.

The majority of the respondents, (70%) could freely give samples for routine testing, and 36(40%) said no. This revealed a gap in attitude towards knowing one's diagnosis after presenting with signs and symptoms. Regarding the importance of routine testing if one has not been confirmed with TB, (50.8%) of the respondents said there was no need for more tests when the first test is negative; O, only (40%) said it helps to identify the disease and (15.8%) said it helps to protect relatives' home. This implies some degree of poor attitude among some of the presumptive TB patients which is highly linked to dropping out of the follow-up similar to the poor attitude revealed unwillingness to give morning sputum samples for the follow-up tests or restarted on drugs among previously treated patients who presented with signs and symptoms of the disease in a study by Youli Jiang et al., (2018).

Regarding the dangers of not getting treated if one is confirmed with TB, the majority of respondents, (73.3%) said it risks infecting other members of the family, (and 19.2%) linked delayed treatment to getting severe disease and unexpected death reported by (7.5%) of the respondents. This revealed good personal knowledge of the dangers of tuberculosis to the community.

Conclusion

The individual factors influencing the drop-out rates were knowledge about TB and individual welfare.

Recommendation

The health care providers for Ndejje Health Center IV should encourage presumptive TB patients to provide telephone contacts to the TB clinic staff to assist in follow-up activities in case the patient misses an appointment. But also, if the patient has no telephone, they can provide contacts of their closest relative, their immediate neighbor, or even the LC1 of their village.

The study recommends that the TB clinic staff at Ndejje Health Center IV conduct a detailed evaluation and manage patients appropriately.

Acknowledgment

I thank God for enabling me to complete my research

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List of Abbreviations

AFBs	Acid Fast Bacilli
HIV	Human immunodeficiency virus
TB	Tuberculosis
WHO	World Health Organization

Source of funding

The study was not funded.

Conflict of interest

No conflict of interest was declared.

Author Biography

Ronald Kazibwe is a student undertaking a diploma in clinical medicine and community health at Kampala School of Health Sciences.

Prosper Mubangizi is a lecturer at the Kampala School of Health Sciences.

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