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FACTORS CONTRIBUTING TO POOR ADHERENCE TO ANTITUBERCULOSIS DRUGS AMONG PATIENTS ATTENDING TUBERCULOSIS CLINIC AT KAMULI GENERAL HOSPITAL, KAMULI DISTRICT, A CROSS-SECTIONAL STUDY.

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Abstract

Background

Tuberculosis (TB) remains a major public health challenge, particularly in low- and middle-income countries such as Uganda. Despite the availability of effective treatment, poor adherence to antituberculosis drugs continues to undermine TB control efforts. Therefore, this study aimed to assess the factors contributing to poor adherence to Ani-Tuberculosis drugs among Tuberculosis Patients at Kamuli General Hospital.

Methodology

A cross-sectional study was conducted at Kamuli General Hospital in Kamuli District, utilizing a Simple random sampling technique with 50 respondents. Quantitative data was collected using a structured questionnaire and analysed using Microsoft Excel.

Results

The study included 50 respondents, of whom a majority, 64%, were alcoholics, 64% were discriminated against, 46% failed to meet transport costs due to long distances to the hospital of greater than 4 kilometers, and 22% of respondents were reported to have used herbal medicine. Most of the respondents forgot to swallow drugs (42%), majority of about 72% of patients reported about waiting for more than an hour before being attended to, more than half 52% of the patients reported that the health workers were not friendly, most of patients had other chronic illness (40%), 8% of the respondents were reported being allergic to the drugs.

Conclusion

High percentages of respondents were not adherent to their medication. The community and demographic factors included Age, Marital status, and education level. Health-related factors included an unfriendly relationship with health workers.

Recommendation

Health care providers should educate all patients with TB before the initiation of treatment on the duration of treatment in the language locally used.

Keywords: *Poor Adherence, Antituberculosis Drugs, Tuberculosis Clinic, Kamuli General Hospital.*
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Background of the study

Tuberculosis (TB) is an infectious disease caused by Mycobacterium tuberculosis, accounting for more than 10 million cases and 1.3 million deaths annually. Transmission of tubercle bacilli occurs when a patient suffering from TB expels them into the environment through coughing, sneezing, and exhalation, and the air containing droplets with bacilli is inhaled by another person. The droplets are small enough to be inhaled into the lungs and deposited into the alveolar. Transmission is easier in closed environments where ventilation is poor (Bea1 et al., 2021).

Tuberculosis is a disease caused by the bacterium Mycobacterium tuberculosis that spreads from person to person through the air. TB usually affects the lungs but can affect other parts of the body, like the skin, kidneys, abdomen, and others (Rianto et al., 2024).

According to the study that was carried out in Ethiopia about the factors associated with poor adherence to anti-tuberculosis drugs, tuberculosis (TB) is a major global public health problem and one of the leading causes of death among infectious diseases (Chen et al., 2020). Although TB can be cured with a first-line antibiotic treatment of 6 months regimen, non-adherence to the treatment remains the main challenge for TB prevention and control and treatment (Nezenega et al., 2020).

Non-adherence refers to patients' inability or refusal to take the medication as prescribed by the health practitioner. It is one of the main reasons why TB treatment programs fail (Rianto et al., 2024).

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According to the study that was conducted in China about factors associated with non-adherence to treatment among migrants with MDR-TB in Wuhan, China, tuberculosis (TB) is one of the three most fatal infectious diseases worldwide and a major health threat, especially in low- and middle-income countries. For that matter therefore, the World Health Organization (WHO) and the United Nations (UN) are working together to achieve the goal of ending the TB epidemic by 2030; however, this goal is challenged by the increasing burden of multidrug resistant tuberculosis which is most attributed to poor adherence to anti-tuberculosis drugs (Xiang and Lin 2024).

Methodology

Study design

A cross-sectional descriptive study design with an exploratory aspect using a quantitative approach was employed because of the specific time my research was carried out.

Study area

The study was carried out in the TB clinic in Kamuli General Hospital, located along Kamuli Road in Kamuli district. Kamuli district is bordered by Buyende district in the north, Luuka to the east, Kayunga to the west, and Jinja to the south in Eastern Uganda. The geographical coordinates of Kamuli general hospital are latitude 0.9475°N and longitude 33.1250°E.

Study population

The study population was tuberculosis patients between 12-69 years who have been on treatment for more than one month, attending TB clinics in Kamuli general hospital who will consent to participate in the study.

Sample size determination

The sample size was calculated using Burton's formula (1905); S=2(QR) O: where;
S=required sample size
Q=number of days spent while collecting data R=maximum number of people per day
O= maximum time the researcher spent each participant
= 2(5days×10 respondents ×0.5hrs)
= 50
Therefore, the sample size used was 50 respondents

Sampling technique

A simple random sampling technique was used.

Sampling procedure

The study particularly involved a simple random sampling. This was applied to TB patients who had been on TB treatment for more than one month, and they met the eligibility criteria. Rolled papers numbered from 1- 50 were put into the basket, the respondents picked a paper, and the basket was shaken before the next pick. Only those who picked numbers from 1-50 participated in the study.

Data collection methods

During data collection, the questionnaire method was used. The questionnaire contained closed-ended questions that required the respondents to tick or circle the right answer since it had several optional answers for the respondent to choose from. In this data collection technique, the respondent had enough time to give accurate responses, and that was advantageous because it was free from the bias of the respondents since the answers were given in the respondents' own words.

Data collection tool

Data was collected using a semi-structured questionnaire with both closed-ended questions written systematically in sections according to the study objectives. The questionnaire was used because it subjected all participants to the same set of questions in a predetermined order to collect subjective and objective information and make data collection easier and faster.

Data collection procedure

After obtaining consent from the respondents, the researcher fully explained the questions to the respondents. Interpretation was done for respondents who didn't know how to read and write in English. Self-administered questionnaires were used to collect data. Each filled-in questionnaire was checked for accuracy and completeness by the researcher.

Study variable

Dependent variable

The dependent variable was adherence to TB treatment among TB patients attending the TB clinic at Kamuli General Hospital in Kamuli district.

Independent variable

Factors contributing to poor adherence to anti-tuberculosis drugs among patients attending the TB clinic at Kamuli General Hospital

Quality control

This is aimed at reducing the errors in research for trustworthy results.

Training of research assistants

The researcher trained two research assistants who were fluent in speaking Lusoga and English before the study, and how to use structured questionnaires.

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Pre-testing the questionnaire
There was pre-testing of the questionnaire was done one week before the data collection day to determine the feasibility, validity, and reliability of the questionnaires

Data Management
The data obtained was stored in notebooks, computers, compact discs, and a flash disk as a backup copy. All the questionnaires filled in were kept in a cupboard waiting for data analysis.

Selection criteria
This included the inclusion and exclusion criteria.

Inclusion criteria
All TB diagnosed males and female patients between 12 to 69 years who had been on TB treatment for at least one months from tuberculosis clinic at Kamuli general hospital in Kamuli district.

Exclusion criteria
The study excluded all critically ill, mentally unstable, below one month on treatment of tuberculosis, and patients below 12 years and above 69 years of age.
Patients without tuberculosis.

Data analysis and presentation
The data collected was edited very well to detect errors and omissions and classified into simple classes based on common characteristics. The researcher then summarized and tabulated the information to facilitate comparison, which was done using the Excel spreadsheets. The study findings were presented in tables and figures to find out the frequencies and percentages of the responses and opinions. Data was compiled, presented, and discussed appropriately in a descriptive manner. The results generated for the interpretations enabled the researcher to draw conclusions and recommendations.

Ethical consideration
Clearance was obtained from Kampala School of Health Sciences, and I requested the institute to give me the introductory letter that was presented to the district health officer, who, in turn, gave me an acceptance letter permitting me to undertake my research study in Kamuli General Hospital. I presented the letter to the concerned officer of Kamuli general hospital, who allocated me to the Tuberculosis clinic department to allow me to conduct the research freely in the process of data collection. I was therefore equally required to observe the professional ethics of code of conduct, consent, privacy, confidentiality, proper and good language used, decent dressing, and a judgmental aspect when collecting data from the respondents.

Limitations of the study
Limited funds; the process involved buying stationery, feeding, allowance to the research assistants, transport to the field, accommodation and refreshments, typing, printing, and binding of research work, among others. However, I obtained loans from friends and family to cover the research costs.
Time constraints, time allocated to the researcher was limited, and since the research topic had limited literature, the researcher needed to adjust their time in order to visit other sources, such as the internet, local government documentations on rural electrification transmission programs.
Language barrier: not all respondents understood English, and illiterate respondents were knowledgeable, so we needed to hire an interpreter.

Results
Demographical factors contributing to poor adherence to anti-tuberculosis drugs among patients attending the tuberculosis clinic at Kamuli General Hospital

Table 1: Table showing demographic data about the respondents

Variable	Category	Frequency	Percentage (%)
Age	12 to 19	11	22
	20 to29	9	18
	30 to 30	6	12
	40 t0 49	10	20
	49 and above	14	28
religion	Catholic	15	30
	Protestant	11	22

	Moslem	5	10
	Others	19	38
marital status	Married	35	70
	Single	15	30
education level	no formal education	7	14
	Primary	21	42
	Secondary	16	32
	Tertiary	6	12
Occupation	Professional	6	12
	Peasant	9	18
	self-employment	20	40
	Others	15	30

Source: primary data (2024).

From the table1, most of the respondents 14(28%) were above the age 49yrs, 11(22%) were 12 to 19 years of age,10(20%) were 40 to 49 years of age, 9(18%) were aged 20 to 29 years and then the least number came from 30 to 39 which was 6(12%). The majority of the respondents were married, 35(70%), and only 15(30%) of the respondents were single. Most 21(42%) of the respondents had a primary education level, 16(32%) had a secondary education, 7(14%) of the respondents had no formal education, and only 6(12%) of the respondents had a tertiary education. Most 20(40%) were self-employed, professionals were 6(12%) of the total respondents, peasants were 9(18%) of the total, and other occupations contributed to 15(30%) of the respondents. Very few of the respondents were moslem 5(10%), 11(22%) were protestants, Catholics were 15(30%) and others took the highest percentage of 19(38%).

Individual factors that contributed to poor adherence to anti-tuberculosis drugs among patients attending the tuberculosis clinic at Kamuli General Hospital in Kamuli district

Table 2 shows patients' responses on whether tuberculosis is curable or not, and if patients have ever forgotten to swallow drugs

Variable	**Category**	**Frequency**	**Percentage**
is it curable	Yes	39	78
	No	11	22
Total		**50**	**100**
Have you ever en to take drugs	Yes	21	42
	No	29	58
Total		**50**	**100**

From table 2, majority 39(78%) of the respondents knew that TB is curable while 11(22%) of the respondents didn't know that TB is curable More than half 29(58%) of the respondents never forgot to take medication while most 21(42%) of the respondents forgot to take the medication.

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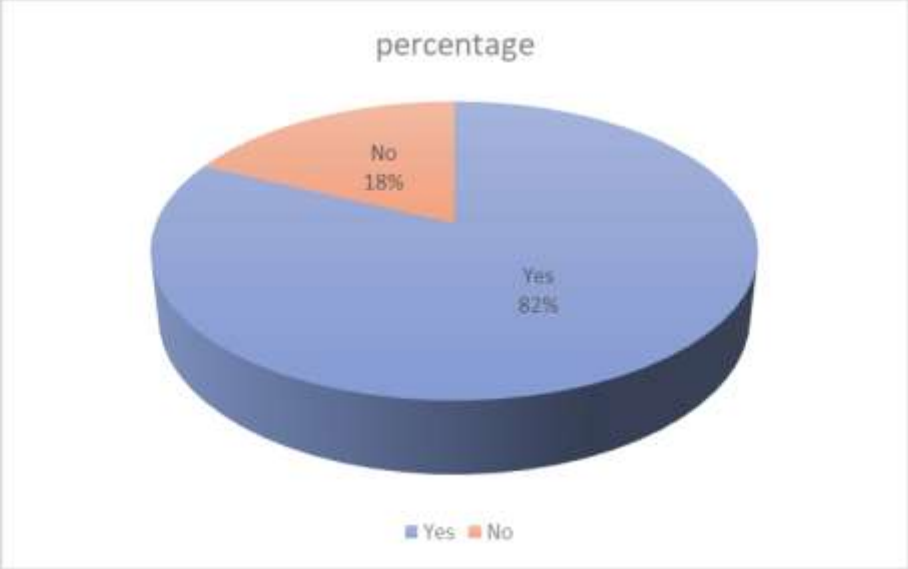
Figure 1: A pie chart showing whether patients were comfortable during the study.



The majority of 41(82%) of the respondents are comfortable talking about this, while 9(18%) are not comfortable with the discussion.

Table 3 shows the number of doses respondents missed per week by respondents.

Doses missed per week	frequency	percentage (%)
0	30	60
1 to 2	18	36
more than 2	12	24
total	**50**	**100**

From Table 3, the majority, 30(60%) of the respondents, did not miss any dose, 18(36%) of the respondents missed one to two doses, and 12(24%) of the respondents missed more than two doses per week.

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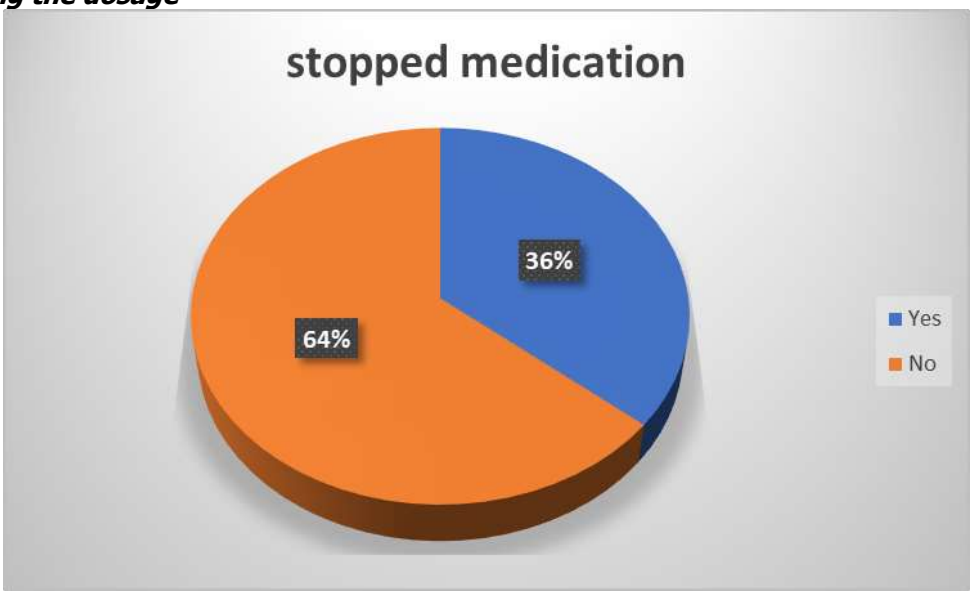
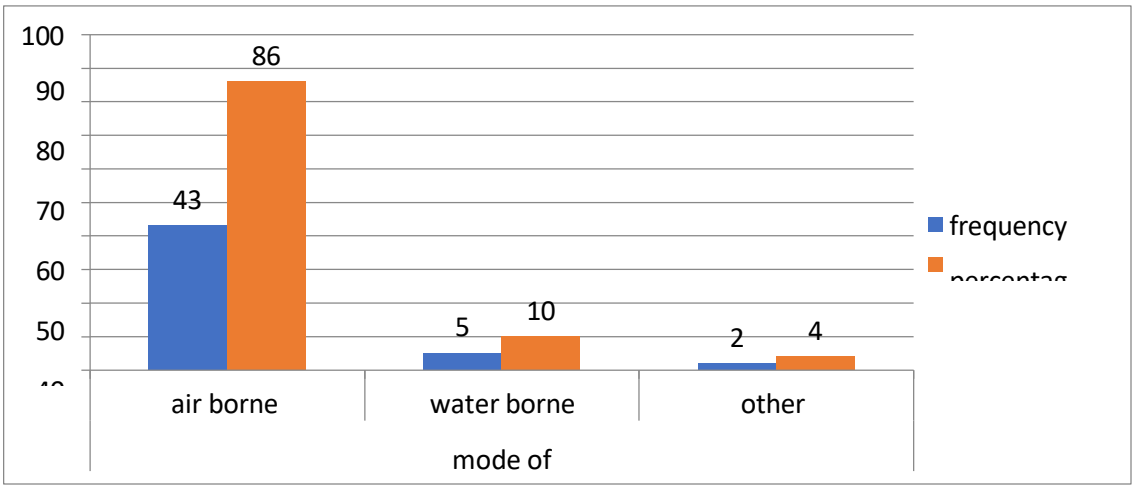
Figure 2: A pie chart showing whether the patients had ever stopped medication before finishing the dosage



From Figure 2, the majority, 32(64%) of the respondents had ever stopped medication because of feeling well, while 18(32%) of the respondents had never stopped medication because of feeling well.

Figure 3: A bar graph showing frequencies and percentages of respondents according to the mode of transmission of tuberculosis



From Figure 3, 43(86%) of the respondents said that TB is airborne, 5(10%) of the respondents said that TB is waterborne, and 2(4%) of the respondents said other modes of transmission.

Table 4: A table showing reasons why some respondents forgot to swallow their medication

why they forgot	Frequency	percentage (%)
Busy	11	52.4

Drugs were misplaced	4	19
Others	6	28.6
Total	21	100

Source: primary data 2024.

According to Table 4, more than half 11(52%) of the respondents forgot to take their medication because they were busy, 4(19%) of the respondents forgot to take their medication because drugs were misplaced, and 6(29%) of the respondents forgot to swallow their medication for other reasons

Health-related factors contributing to poor adherence to anti-tuberculosis drugs among patients attending the tuberculosis clinic at Kamuli General Hospital in Kamuli district

Table 5 shows allergic reactions and whether patients were health educated at the facility before being given medication

Variable	**Category**	**Frequency**	**Percentage**
are you allergic to drugs	Yes	4	8
	No	46	92
Total		**50**	**100**
ou health educated at the TB clinic	Ye	31	62
	No	19	38
Total		**50**	**100**

Source: primary data 2024.

The majority, 31(62%) of the respondents were health educated at the facility, while 19(38%) of the respondents were not health educated. The majority, 46(92%) of the respondents were not allergic to drugs, while 4(8%) of the respondents were not allergic to drugs.

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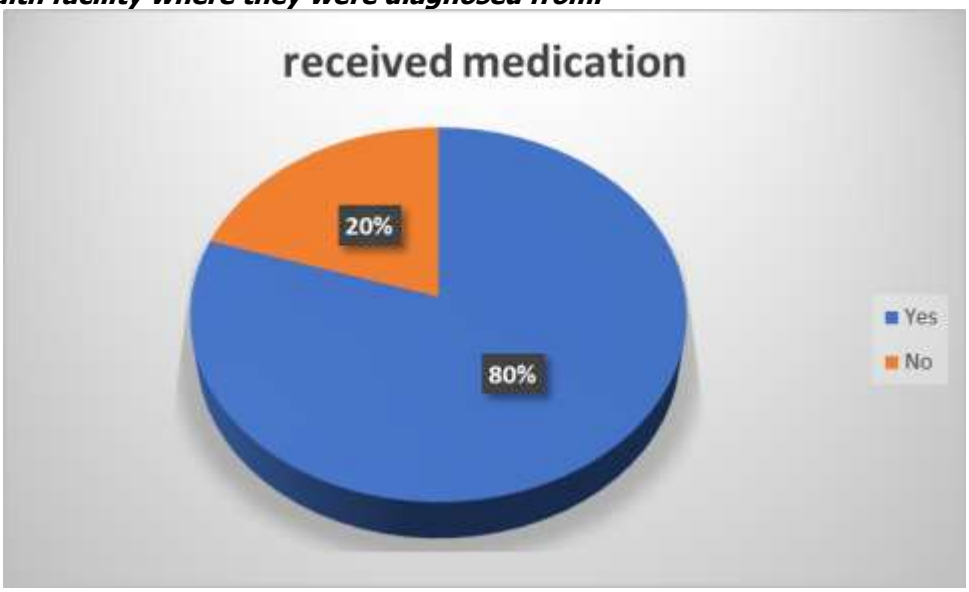
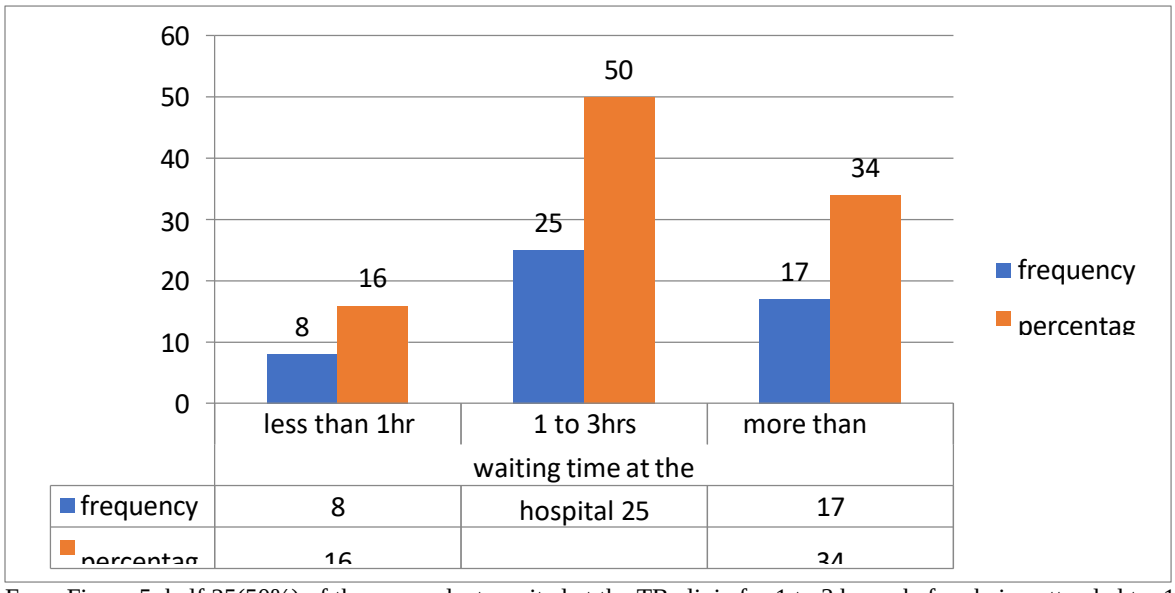
Figure 4: A pie chart showing the percentage of respondents who received medication from the health facility where they were diagnosed from.



From Figure 4, the majority, 40(80%) of the respondents got the medication from the health facility, while 10(20%) of the respondents were referred to other health facilities for the service.

Figure 5: A bar graph showing frequencies and percentages of respondents according to waiting time at the hospital.



From Figure 5, half 25(50%) of the respondents waited at the TB clinic for 1 to 3 hours before being attended to. 17(34%) of the respondents waited for more than 3 hours, and 8(16%) of the respondents waited for minutes to an hour before being attended to

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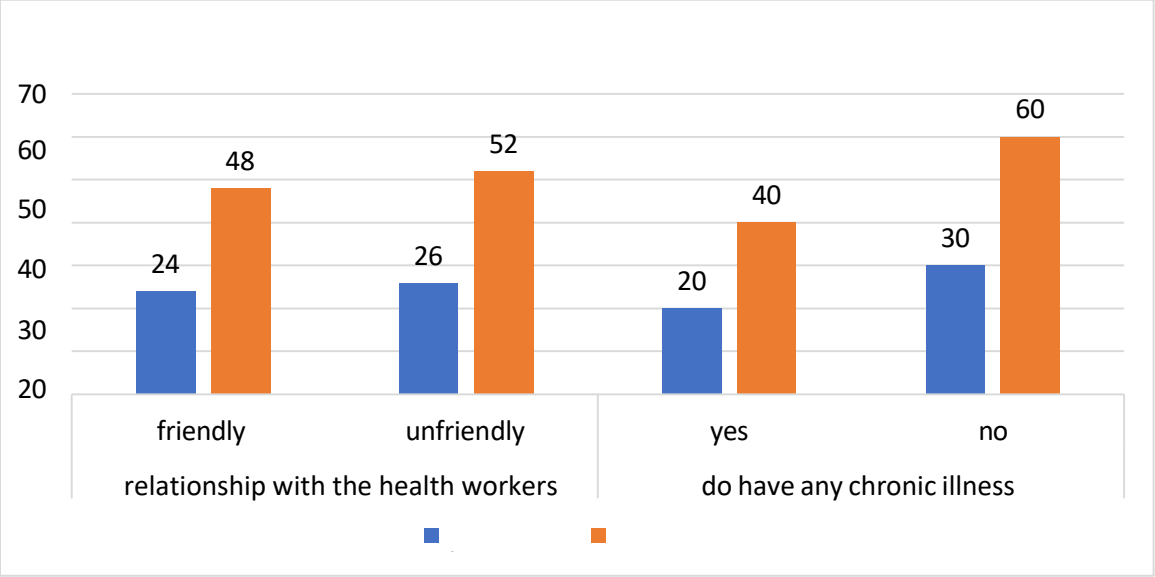
Table 6 shows the number of times respondents go for a review at the hospital.

visits for review	frequency	percentage (%)
0	14	28
1 to 2	30	60
more than 2	6	12
Total	50	100

From Table 6, more than half 30 (60%) of the respondents went for review at clinic 1 to 2 times,6(12%) more than 2 times, and 14(28%) did not at all.

Figure 6: A bar graph showing the relationship between the health worker and either the absence or the presence of chronic illnesses among the respondents



From Figure 6, more than half 26(52%) of the respondents reported that the health workers were not friendly, while most 24, 48%) of the respondents were friendly. 20(40%) of the respondents had chronic illnesses while 30(60%) of the respondents had no chronic illness.

Table 7 shows patients' responses when asked if they were given review dates when they gave them the drugs at the health facility.

Were you given a review dates	**Frequency**	**Percentage (%)**
Yes	42	84
No	8	16
total	**50**	**100**

From table 7, the majority, 42(84%) of the respondents were given review dates, while 8(16%) of the respondents were not given review dates.

Community factors contributing to poor adherence to anti-tuberculosis drugs among patients attending the tuberculosis clinic at Kamuli General Hospital in Kamuli district

Table 8 shows whether patients met their transport costs to the hospital and if there was any discrimination towards them in the society.

Variable	**Category**	**Frequency**	**Percentage**
do you meet your transport costs	Yes	23	46
	No	27	54
	total	**50**	**100**
do you face any discrimination in the society	Yes	32	64
	No	18	36
	total	**50**	**100**

From table 8, 23(46%) of the respondents met their transport costs to the facility, while more than half, 27(54%) of them did not meet the transport costs. The majority, 32(64%) of the respondents are discriminated against in society, while 18(36%) are not discriminated against in society.

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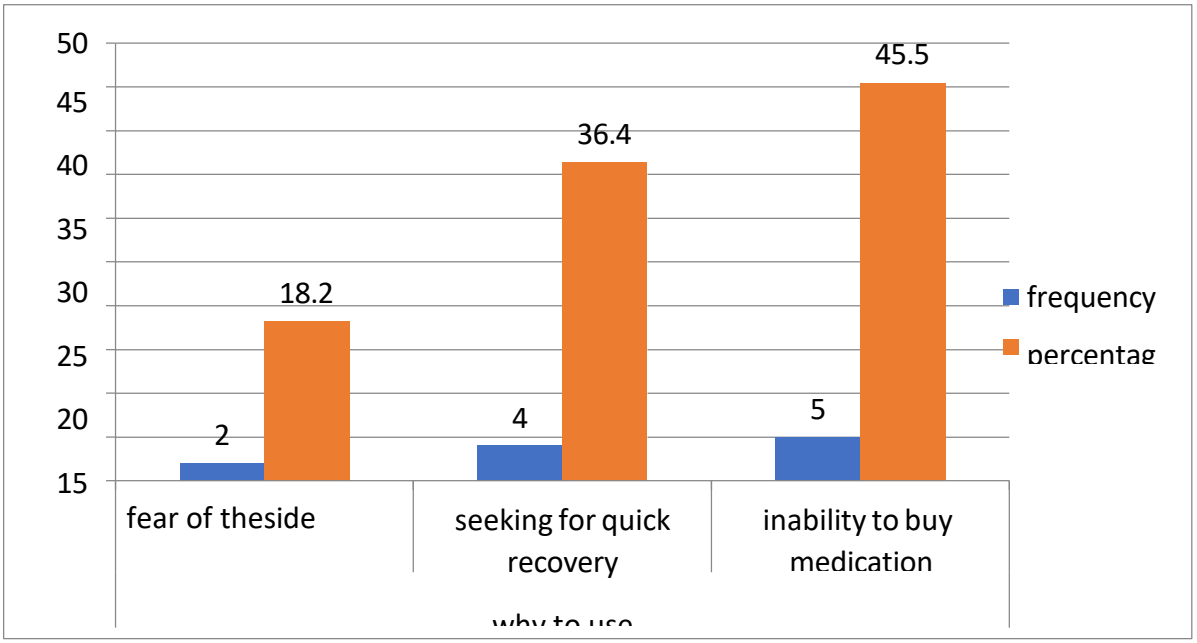
Figure 7: A bar graph showing frequencies and percentages for the reasons why patients go for herbal medicine.



From figure 7, most 5(45.4%) of the respondents who had used herbal medicine did so because they didn't have money to buy the medication, 4(36.4%) of them were seeking a quicker cure, and 2(18.2%) of them were afraid of the side effects of the prescribed medicine.

Table 9 shows the distance travelled by patients to the hospital for medical attention.

distance to the hospital	frequency	Percentage
less than 2.5km	12	24
2.5 to 4km	15	30
4 to 5km	13	26
more than 5km	10	20
Total	50	100

According to Table 9, most of the respondents travelled 2.5 to 4 km to reach the facility, 13(26%) of the respondents travelled 4 to 5 km, 12(24%) of the respondents travelled <2.5 km, and then 10(20%) of the respondents travelled more than 5km.

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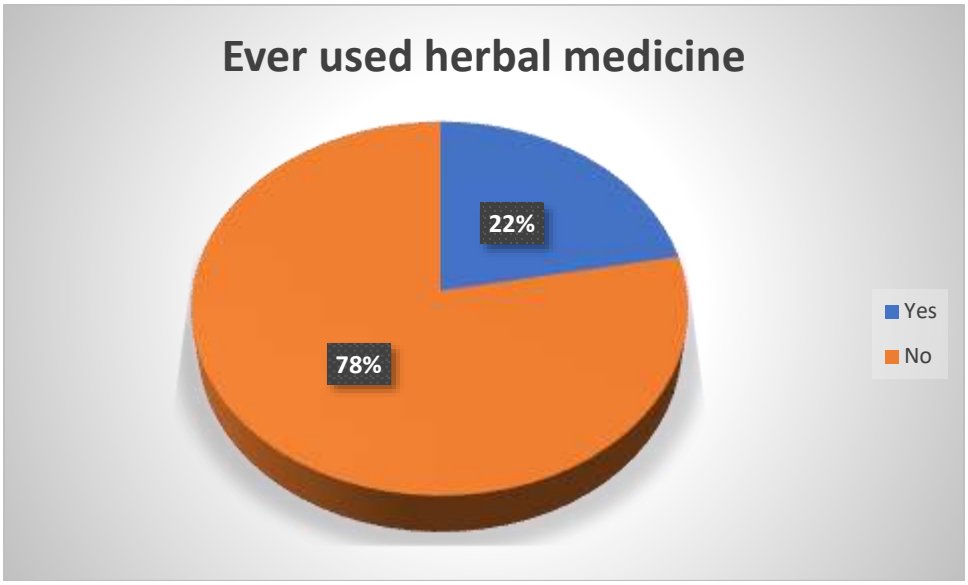
Table 10 shows whether patients had ever used alcohol in the previous six weeks.

Have you ever used alcohol	Frequency	percentage (%)
Yes	32	64
No	18	36
Total	50	100

From table 10, the majority, 32(64%) of the respondents had taken alcohol in the previous 6 months, while 18(36%) of the respondents had not taken any alcohol in the past 6 months.

Figure 8: A pie chart showing whether patients had ever used herbal medicine other than the prescribed medication.



The majority, 39(78%) of the respondents, had not used herbal medicine instead of the prescribed medication, while 11(22%) of the respondents had used herbal medicine instead of the prescribed medication

Discussion

Demographic factors contributing to poor adherence to anti-tuberculosis drugs among patients attending the tuberculosis clinic at Kamuli General Hospital in Kamuli district

Most of the respondents were aged 40 years and above. This was because the majority of them had coexisting illnesses that predisposed them to tuberculosis. This was in line with a study that was conducted by Bhattacharya et al. (2018) in which people aged between 30 and 45 years showed the highest percentage of non-adherence, 32(58%)

The majority, 35(70%), who were married, showed a higher percentage of adherence than the single ones. This is because, out of fear of spreading the infection to their loved ones, they decide to adhere to the treatment till they get cured. This was in contrast with a cross-sectional study that was conducted by Nezenega et al. (2020), in which only 23% of the respondents were married.

According to the study, the patients who had professional jobs adhered to the medication because they had enough knowledge about the prognosis of tuberculosis. This was in agreement with A Cross-Sectional Study by Xiang and Lin 2024), which revealed that 9% of the patients with professional jobs adhered to their medication, and 79 % of the patients with non-professional jobs did not adhere to their medication.

Individual factors contributing to non-adherence to anti-TB drugs among TB patients attending tuberculosis clinic at Kamuli general hospital in Kamuli district

In this study, the majority of the respondents reported knowing tuberculosis in terms of its transmission 43(86%).

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This finding was, however, not coherent with a study by Gebreweld et al. 2020), which found that 50% of the patients lacked knowledge about the cause, transmission, and duration of treatment of TB.

Forgetting to swallow the medication contributed to poor adherence to anti-tuberculosis drugs. 21(42%) of the respondents forgot to swallow medication. This was because the majority, 11 (52.4%), were busy, at least 4(19%) of them misplaced the drugs, and 6(28.6%) gave other reasons like forgetting to pack medication during travel and having no caretakers to differentiate medicines for them. This was in agreement with a Study by Xiang and Lin 2024), which reported that patients forget to take anti-tuberculosis drugs during treatment. Of the 934 patients that were sampled, 31.4% reported that they missed some days

18(36%) of the respondents stopped medication because they were feeling well and their symptoms had reduced. These results were in agreement with those by Bisara et al. (2023), who reported that a feeling of wellness among 29% after taking medication for a short period tempted the TB patients to stop the treatment.

More than half of the patients 30(60%) missed their doses of the drugs because worrying symptoms had stopped and fear of the side effects as one of them narrated that "my uncle was put on anti- tuberculosis drugs after diagnosis and with time he stopped feeling his right leg and when he stopped the drugs he recovered fully". This was in agreement with a study by Schacht et al. (2019), which revealed that 51% of the total respondents missed their drug doses.

The majority of the respondents were comfortable discussing their health state 41(82%). This was because they trusted health workers. This was in disagreement with the qualitative study by Schacht et al. (2019), in which 70% of the respondents reported fear of talking about their health status with other people.

Health-related factors contributing to poor adherence to anti-tuberculosis drugs among patients attending the tuberculosis clinic at Kamuli General Hospital in Kamuli district.

Absence of drugs at the nearby health centers where the tuberculosis disease was diagnosed contributed to poor adherence because people were referred to other health centers for medication, which were relatively far, 10(20%) of the respondents. This was incoherent with a cross-sectional study by Hilka et al. 2016), which stressed that most of the cases of non-adherence were not resulting from a shortage of drugs from the center of diagnosis, as 90% of those who didn't adhere to treatment received their drugs from the point of diagnosis.

The time spent at the clinic waiting for health workers' attention contributed to poor adherence to anti-tuberculosis drugs because those who waited beyond 3 hours did not come back for review 17(34%). This was in line with a qualitative study by (Schacht et al., 2019) which revealed that 42% of the respondents waited for more than 2hours before being attended to by health workers.

More than half 26(52%) of the respondents reported that the health workers were not friendly, while most 24, 48%) of the respondents were friendly. Good relationship with the health worker allows the patient to disclose each and everything about their heath at any time without fear hence getting right directions this was in line with a cross sectional study by (Boru et al., 2017) that revealed that Poor client-provider interaction as reported by 40% of the respondents was found to be one of the reasons for poor adherence.

The majority, 31(62%) of the respondents were health educated at the facility, while at least 19(38%) of the respondents were not health educated. Giving health education influenced the patients' adherence to anti-tuberculosis drugs since health education sensitizes patients about the dangers of breaking the medication prescription. This was coherent with a cross section studies by (Hilka, et al. 2016) that revealed that having not received any education from TB nurses and TB knowledge (cause of TB, how TB is transmitted and the consequence of incomplete TB treatment) were also significant risk factors associated with poor adherence as 19% of the respondents were not health educated.

The majority, 42(84%) of the respondents were given review dates, while at least 8(16%) of the respondents were not given review dates. This made some of them miss out on drug doses because they never minded going back to the hospital. This was in disagreement with a cross-sectional study by Boru et al. (2017), which reported that failure to give review dates to 71% of the patients was one of the leading factors to non-adherence.

Most 20(40%) of the respondents had other chronic illnesses for example diabetes mellitus hypertension and HIV which require daily medication so there erupted the issue of pill burden to the patients making it hard for them to adhere to the medication this was in line with a Cross- Sectional about Study by (Xiang and Lin 2024) that reported that pill burden due to presences of other chronic illness in 64% of the total respondents.

Community factors contributing to non-adherence to anti-TB drugs among TB patients attending tuberculosis clinic at Kamuli general hospital in Kamuli district

Alcohol intake, use of herbal medicine, and discrimination in the community were some of the factors contributing to poor adherence to anti-tuberculosis drugs. The majority, 32(64%) of the respondents had consumed alcohol in the previous six months. This was contrary to a study carried out by Xiang and Lin 2024), which involved 727 new TB cases and indicated that alcohol drinkers accounted for 18.5%

At least 11(22%) of the respondents had used herbal medicine instead of the health workers' prescriptions. This was because some of them 4(36.4%) were seeking for quicker recovery, least 2(18.2%) feared the side effects

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associated with the medication and most 5(45.4%) were unable to buy the medication this was not in line with a study by (Nezenega et al., 2020) found out that use of local herbal medicine (50% of the respondents) was one of the major social factors that influenced non-adherence to TB medication.

The majority, 32(64%) of the respondents were discriminated against in the community, creating fear to swallow the medication, which was incoherent with a cross-sectional study that was conducted by (Bea1, et al. 2021), which indicated that only 23.5% of the 526 participants that were sampled were discriminated against in the community.

Most 46% of the respondents were travelling more than four kilometers to reach the hospital, and some could not meet the transport costs, so they quit medication for a while because some of the patients were unable to reach the hospital to get the medication due to long distances and transport costs. This was in line with the cross-sectional study by Bisara et al. (2023), who also found that one of the factors that contributes to non-adherence to anti-TB drugs among TB patients is distance to the health facility.

Conclusions

High percentages of respondents were not adherent to their medication. Factors that affected adherence were; Age, Marital status, occupation, level of education, Smoking, drinking alcohol, knowledge about TB, Medication availability in the hospital, awareness about the mode of transmission of tuberculosis distance from the hospital and co morbidity, missing medication doses, using herbal medication and hostility of the health workers and these contributed a big gap

to the factors contributing to poor adherence to anti-tuberculosis drugs among patients attending the TB clinic at Kamuli General Hospital.

Recommendations

Health care providers should educate all patients with TB before the initiation of treatment on the duration of treatment, possible side effects, and how to deal with them in the language locally used.

Health care providers should be trained on customer care and on how to handle patients, and also on the recruitment of more health workers to reduce the waiting time in the hospital. Health care providers should initiate flexible hours for the TB clinic so as to cater to patients' needs. Intensives such as television programs in the waiting area to create room for them to interact with each other, and gifts to those who don't miss drugs.

Strengthen the facility DOT for patients staying close to the health facility. This would enable as many patients as possible to be observed by the health worker when swallowing their drugs.

Promote task shifting of the nurses, such as dispensing drugs to counselors at the TB clinic. This would alleviate the burden of work that is often experienced by the nurses at the health facility and improve efficiency, as patients will not have to wait for long hours.

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List of Abbreviations

AFB:	Acid Fast Bacilli
AIDS:	Acquired Immuno deficiency syndrome
CDC:	Center for Disease Control
DOT:	Directly Observed Therapy
DR-TB:	Drug resistant tuberculosis
FDC:	Fixed Dose Combination
HIV:	Human Immunodeficiency virus
MTB:	Mycobacterium Tuberculosis
PTB:	Pulmonary Tuberculosis
TB:	Tuberculosis
XDR-TB:	Extensively Drug-Resistant Tuberculosis

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Conflict of interest

The author declares no conflict of interest.

Author contributions

Michael Mubiru, principal investigator and data analyzer.
Niwagiira Mulodokayi, supervised the research.

Data availability

Data is available upon request.

Informed consent

All the study participants consented to this study.

Author Biography

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