Quality of Tuberculosis Services in Lusaka, Zambia; Patients' Perspective

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Abstract

Zambia is among the 30 countries with high Tuberculosis (TB) burden, with an estimated 455 new cases per 100,000 people annually. Zambia and its partners are committed to accelerating the response to end TB through the provision of good quality of TB services, among other things. Despite the coordinated effort in addressing TB, little is documented about patients' perceptions regarding the quality of TB services in Zambia. This study was conducted to assess the quality of TB services from the patient's perspective. A facility-based cross-sectional study that utilized both quantitative and qualitative data collection. The study sample was 352 randomly selected patients on TB treatment and 58 purposefully selected TB treatment support persons. The patient's perceived quality of care was measured by their perceived satisfaction of TB services in relation to accessibility of the TB clinic, timeliness of service provision, availability of qualified service providers, access to health education, the perceived attitude of service providers, and availability of drugs. Results revealed a high level of perceived good quality of TB services. The TB patients were more satisfied with the attitude of service providers, followed by the timeliness of service provision. Overall, 94.9% of the TB patients reported being satisfied with TB services. There is a high perception of good quality of TB services among the patients. Despite the high level of good quality, the study revealed limitations with regard to drug dispensation and the availability of qualified staff.

Keywords: Perceived Quality, Consumer, Tuberculosis, Standards.

Introduction

The 2020 Global Tuberculosis (TB) Report shows that TB is one of the top 10 causes of death worldwide, and it remains the world's top infectious disease killer (ranking above HIV/AIDS) despite being a preventable and treatable disease [1-4]. Close to 85% of people who develop TB disease can be treated with a 6-month drug regimen. About 10 million people fell ill with TB worldwide in 2019, of which 5.6 million were men, 3.2 million were women, and 1.2 million were children, and a total of 1.4 million people died from TB in the same year, including 208 000 people with HIV/AIDS [2].

The bold commitments made by the nations of the world at the 2018 United Nations high-level meeting on TB to accelerate the response to end TB have provided hope for ending the death and suffering being experienced by many people who are infected and affected by TB. The number of people reached with TB preventive treatment has substantially increased from 1 million in 2015 to over 4 million in 2019, indicating huge achievements. However, equitable access to quality and timely diagnosis, prevention, treatment, and care remains a challenge [2].

The World Health Organisation ranks TB as the number 3 cause of death among

communicable, maternal, neonatal, and nutritional diseases in Zambia. An estimated 59,000 people developed TB in Zambia in 2019; 28,000 were co-infected with HIV, 16,424 were diagnosed with both HIV and TB disease, and about 6,400 of them were children. In addition, close to 15,400 TB deaths were recorded in 2019. Missing people with TB were about 22,850 (3,927 were children). Those who developed drug-resistant TB (DR-TB), a form of TB more difficult to diagnose, treat and cure, were estimated at 2,700, and the missing people with DR-TB were 2,200 [2].

The government of Zambia and its partners are committed to accelerating the response to ending TB. The 2020-2022 Global Fund allocation, for instance, indicates an allocation of US$ 16,568,354 for TB programming in Zambia for the period 2021-2023 and an additional US$ 6 million for finding missing people with TB [5]. Despite the continued commitment and investment in TB programming, little is known about the quality of TB services from the consumer's perspective. This study was therefore conducted to assess the quality of tuberculosis services offered to patients at Matero level 1 Hospital from a consumers' perspective to inform the TB programme on how to improve the quality of TB service delivery. Quality of care undoubtedly plays a vital role in the fight against TB by influencing timely diagnosis, treatment adherence, and treatment completion [6].

Methods

Study Area

This study was conducted at Matero Level 1 Hospital in Matero Township, Lusaka, Zambia. Matero Township or constituency has a population of over 300,000 people from five administrative wards (Muchinga, Lima, Mwembeshi, Kapwepwe, and Matero). Matero level 1 hospital was recently upgraded and elevated to treat approximately 247,000 patients/clients annually [7]. The Health Management Information System (HMIS) records showed that in 2017 there were nine thousand and twenty-six (9026) patients/clients on TB treatment at Matero Hospital [8]. This paper assessed the quality of TB services being offered at Matero Level 1 Hospital in comparison with the Donabedian Model of Quality Care and the WHO Standards of care.

Study Design and Population

This was a facility-based cross-sectional descriptive study that applied both quantitative and qualitative data collection techniques. The target population included TB patients' (direct consumers of TB services) on treatment who had come for drug refill on the interview date and TB treatment support persons who accompanied them (indirect consumers of TB services). Interviewer-administered semi-structured questionnaires were used for interviews with TB patients, while key informant guides were used for interviews with TB treatment supporters. TB treatment support persons are family members whose roles include accompanying TB patients for drug refill, collecting drugs for patients when they are not able to and encouraging the patient to take the drugs according to prescription.

Sampling Procedure

Matero Level 1 hospital was conveniently selected because of its high TB disease burden. The sample size of 369 for TB patients was determined using the confidence level of 95%, confidence interval of 5%, response distribution of 50%, and TB patient population on the treatment of 9,026. Furthermore, fifty-eight (58) TB treatment support persons who escorted the patients to the clinic were conveniently sampled, and it was expected that saturation would be reached by participant number 58.

Data Analysis

Epi-data version 3.1 was used for entry and validation of quantitative data, and SPSS version 16 was used for data analysis. Descriptive statistics and mean scores were used to summarize data for continuous variables and percentiles/proportions for categorical variables.

Chi-Square tests were done to determine the statistical levels of significance.

Qualitative data analysis involved manual assigning of codes to text segments in the data collection tools to come up with themes from participants' narratives to facilitate thematic analysis. Cross-validation of data was done to integrate findings from both the quantitative and qualitative data sets as this study had mixed study analysis owing to the types of respondents.

Results

Socio-Demographics for Primary Respondents (n=352)

A total of 352 TB patients were interviewed, representing a 95% response rate. Results showed that the majority of the respondents were males (69.9%). The median age for the respondents was 38 years, with the oldest being 82 years old and the youngest 15 years old. The results also showed that the majority of the respondents were married (43.5%). Furthermore, all the respondents had some religious affiliation within Christianity, and that the majority of the respondents (37.2%) were unemployed, while 35.8% of them were self-employed and were mainly involved in personal businesses. In addition, most of the respondents

were from high density (83.2%), and slightly over half (51.7%) of them had a family size of 5-8 people (39.2%) followed by those with a family size of 1-4 people (39.2%). Fifty-eight (58) TB treatment support persons were interviewed, and the majority were females (82.8%), and many of them lived-in high-density areas (81%). Similar to the TB patients, the majority of TB treatment support persons had a family size of 5-8 members. Results also revealed that the majority of the TB treatment support persons were spouses.

Patient's Satisfaction with TB Services

The patient's perceived quality of care was measured by the patient's perceived satisfaction of TB services considering the accessibility of the TB clinic, timeliness of service provision, availability of qualified service providers, health education, perceived attitude of service providers, and availability of drugs. Figure 1 shows that close to 95% of patients were satisfied with the TB services and perceived the services to be of good quality. However, about 18 (5%) of TB patients were not satisfied with the services they were receiving at Matero Level 1 Hospital and perceived the services to be of poor quality.
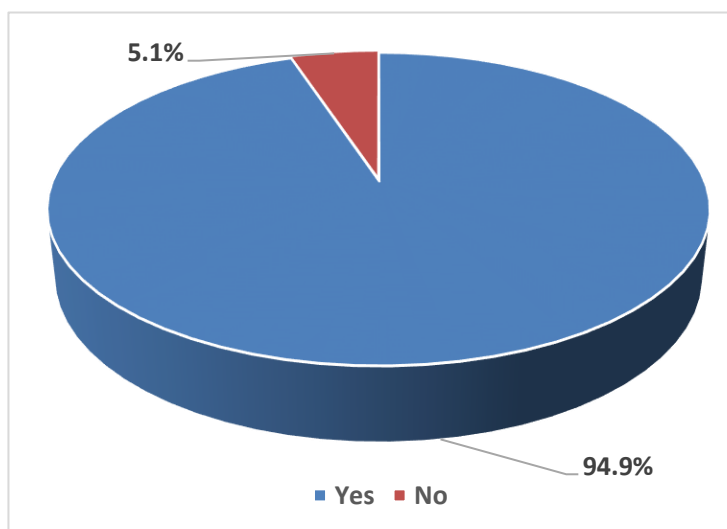
Figure 1. Patient Satisfied with Service (n = 352)

The 403 TB patients who reported being satisfied with the TB services were further asked to indicate their areas of the highest satisfaction.

The attitude of the service providers scored the highest as 29.5% of TB patients reported that TB clinic staffs were very helpful and friendly.

Closely related was timely service provision which scored 23.6% followed by health education at 20.3%, availability of medicine (15.9%), and provision of medicine for a longer period (see table 1).

Table 1. Areas of Patient Satisfaction (n = 403)

Areas	Responses	%
Health Education	82	20.3%
Given medicine/availability of medicine	64	15.9%
Given medicine for long period	43	10.7%
Attitude of staff at clinic very helpful and friendly	119	29.5%
Timeliness-Received quick service at clinic	95	23.6%
Total	403	100.0%

Information from the TB treatment support persons also shows that patients were satisfied with the attitude of TB clinic staff and were happy to receive medication for longer periods of time. See quotes below:

"These people are good, they allow us to collect medicines for our patients, and they do not trouble us. And when they give you medicines, they explain on how to give the medicines. Like this morning they told us that we should give medicines to the patient first, wait for some time like 30 minutes after the patient has taken medicines then give the patient food. What more can we expect, they try" (**TB treatment support person).**

"Just a greeting is enough, they talk to us nicely" (**TB treatment support person**).

The majority (50%) of patients who perceived the quality of TB care to be poor attribute the poor quality to the untimely provision of drugs, followed by the provision of drugs for shorter periods (16.7%), lack of empathy (11.1%) and unfriendliness (11.1%) on the part of service providers, lack of health education for late comers (5.6%) and delay in the change of medicine. See Table 2 below. These findings were in line with information from the TB treatment support persons.

The TB treatment support persons indicated a long waiting time at the TB clinic as an area of poor quality of care. Some TB treatment support persons had the following to say:

"*It pains to see them chatting amongst themselves when you are waiting, they think we don't have things to do, they should feel pity for us, Tuberculosis sickness gives "ma" pressures* (*TB treatment support person*).

"Sometimes they make us stay long because if they know that you were in clinic before, and you were sent for either laboratory or X-ray when you come back, they should help so that you don't have to re-join the queue" But no, sometimes they just look at you" (*TB treatment support person.)*

Table 2. Reasons Patient was not Satisfied (n = 18)

Reasons	n	%
Take too long to give medicine	9	50.0%
Not given enough drugs	3	16.7%
Not asking how patient felt	2	11.1%
Delay change of medicine	1	5.6%
No Health Education for late comers	1	5.6%
Not friendly	2	11.1%
Total	18	100.0%

Table 3 below shows the patient's perceptions on the quality of TB care by their demographics. The results show that the patients from medium-density locations were more likely to report poor quality of tuberculosis services (p-value=0.036) while those with smaller family sizes were more likely to report good quality of Tuberculosis services (p-value=0.049). However, sex, marital status, religion, and occupation did not influence patients' perceptions on quality of care (p-value>0.05).

Table 3. Demographics by Quality of Services

Respondents	Patient's Perception on Quality of TB Services				P
	Poor		Good		
	n	%	n	%	
Sex					
Male	90	64.7%	156	73.2%	0.114
Female	49	35.3%	57	26.8%	
Total	139	100.0%	213	100.0%	
Marital status					
Single	56	40.3%	69	32.4%	0.090
Married	56	40.3%	97	45.5%	
Divorced	13	9.4%	34	16.0%	
Widowed	14	10.1%	13	6.1%	
Total	139	100.0%	213	100.0%	
Residence					
High density	108	77.7%	185	86.9%	0.036
Medium density	31	22.3%	28	13.1%	
Total	139	100.0%	213	100.0%	
Household size					
1 – 4	50	36.0%	88	41.3%	0.049
5 – 8	70	50.4%	112	52.6%	
>8	19	13.7%	13	6.1%	
Total	139	100.0%	213	100.0%	

About 81.8% of TB patients reported that they did not face any challenges with accessing the Matero Level 1 from their houses, implying that the distance from their households to the hospital was not a challenge and the hospital was easy to locate. When asked about how easy it was for them to locate the TB clinic within Matero Level 1 Hospital, 84.7% of them indicated that it was easy, while 15.3% of them reported that it was difficult, as shown in figure 2 below. Three-quarters (75%) of the respondents further reported that verbal direction was the most commonly used method by hospital staff to assist patients in locating the tuberculosis clinic. Only a quarter (25%) of the participants indicated that signposts aided patients in locating the TB clinic.
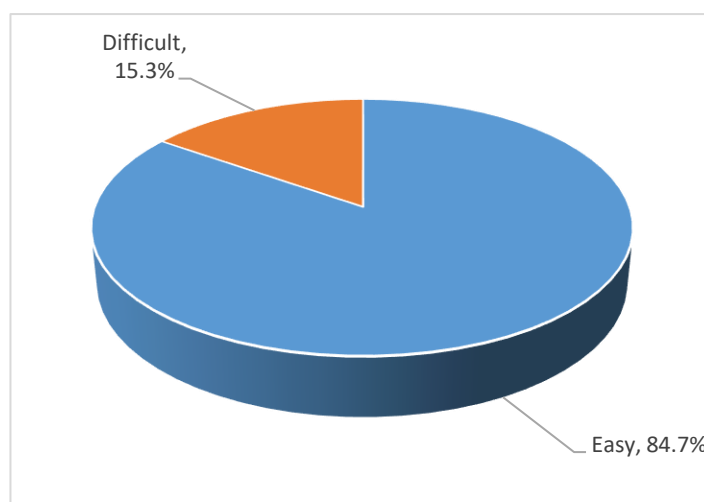
Figure 2. Accessibility of TB Clinic within the Hospital (n = 352)

Table 4 shows that most (81.5%) of the respondents indicated that they had spent an hour or less in the clinic before being attended to by any staff and 70.6% of them spent an hour or less from the time they came into the TB clinic up to when they received full treatment and were ready to go back home.

Table 4. Tuberculosis Treatment (n = 352)

Treatment	n	%
Time spent in clinic before attention		
One hour or less	287	81.5%
More than one hour	65	18.5%
Total	352	100.0%
Who attended to patient day of interview		
Nurse	111	31.5%
Doctor	3	0.9%
Not sure	12	3.4%
Tuberculosis Treatment Suporter	226	64.2%
Total	352	100.0%
Response to tuberculosis Treatment		
Responding to medication	348	98.9%
Too early to say	4	1.1%
Total	352	100.0%
Time in clinic from coming in to leaving		
One hour or less	248	70.5%
More than one hour	104	29.5%
Total	352	100.0%

The findings further showed that the majority of the patients were attended by TB treatment supporters based at the clinic. Additionally, almost all respondents indicated that they were responding to medication, and they all indicated that they received their prescribed medicines for tuberculosis on the day of the interview. They further indicated that it was not common for them not to be given their prescribed treatment when they came for drug refill, which was

contrary to the reported drug shortages by health workers.

Tuberculosis treatment support persons who came to collect medicines on behalf of their patients also reported that their patients were responding to treatment and that they were given the prescribed medicines which they came to collect on behalf of their patients, as shown in the quote below.

"They always give me medicines when I come to collect for my patient, they know me because I started coming to the clinic with the patient from the time she was diagnosed. She is now *better she can even walk, when we came here at first, we were just lifting her. The medicines work though they are too strong"* (**TB treatment support person**).

Although most of the respondents affirmed that they received health education, 142 (40.3%) of them indicated that they did not receive any health education because they came late. Of the ones who indicated that they received health education, they indicated that the health education they received was adequate and appropriate (Table 5).

Table 5. Health Education on Day of Interview

	N	%
Patient was given Health Education (N=352)		
Yes	210	59.7%
No came late	142	40.3%
Total	352	100.0%
Health Education information was adequate (N=210)		
Yes	210	100.0%
Health Education information was appropriate (N=210)		
Yes	208	99.0%
No	2	1.0%
Total	210	100.0%

Discussion

The study results indicate a high level of perceived good quality of TB services. The TB patients were satisfied with most aspects of TB care at Matero hospital, including ease access to the TB clinic, timely receipt of good and complete care, availability of staff with positive attitudes towards patient care, and available and assured stocks of TB drugs. Many studies were conducted on the perceived quality of TB services.

Location of the TB Clinic

The tuberculosis clinic at Matero Level 1 Hospital was reported to be easy to locate, and mainly it was by the simple verbal direction that patients were able to locate the clinic. This was due to the fact that the clinic is situated along the road from the main entrance to the main hospital buildings. Studies have been conducted on the importance of the location of health facilities and amenities [9]. Bhatnagar reported that tuberculosis services should be more acceptable and more efficient; therefore, construction of a tuberculosis clinic should involve designing of an individualized schedule with the patient, and the location of the clinic should be done with the consideration that the service should be logistically feasible and emotionally desirable to patients in order to promote adherence [9]. Our results also showed that 94% were satisfied with the location of the clinic. This seemed to have been the concept for designing the tuberculosis clinic at Matero Level 1 Hospital as the tuberculosis clinic is easily accessed and provides an easy drop-off for patients as it is situated near the main entrance [9]. This is in line

with the Donabedian quality of care concept, which emphasizes structural visibility for easy access to the clinic [10].

Limited Healthcare Provider

The data shows that majority of the patients spent less than an hour to complete their overall visit to the hospital. We assume that this was possible because health care providers were striving to limit patient contact time in line with WHO TB standard 20, which prescribes that health care facilities should develop and implement an appropriate infection control plan to minimize transmission of TB [11].

While in the clinic, the majority of the patients were first attended to by the TB treatment supporters. The clinic has only one qualified nurse who is assisted by nine TB treatment supporters. On a typical day, the TB treatment supporters collected cards from patients to prepare for the drug refill, after which individual cards were called out, and either the patient or the TB support person would come forward to collect the medicines. Only patients requiring special attention were seen by the nurse due to shortages of staff. A study done in Zambia [12] confirms the shortage of qualified staff in health facilities and its negative effects on patient outcomes [12].

Shortage of staff in any health facility poses challenges in maintaining a good quality of services as one health personnel can only attend to those patients which he/she can manage, leaving out the others to either be attended by unqualified health personnel or worse still return home un-attended to [13]. This observation was supported by a study that observed that shortage of staff in health facilities resulted in work overload on existing staff, and this adversely affected their ability and morale to provide quality care. It further made providers to shorten the consultation time, making it difficult for patients to ask questions [13] and receive information at the same time about their condition. A study conducted in the Philippines revealed inconsistencies in relation to the information given to patients on TB treatment, side effects, infection control, counselling, and contact tracing [14].

WHO report showed that Africa being one of the world's poorest regions, has the lowest density of health workers per 1000 population. Zambia is not an exception; hence consequently, Matero Level 1 Hospital had only one nurse. The shortage of staff negatively affects adherence to the WHO standards TB services. The Donabedian Quality of Care Theoretical Model also emphasizes on the importance of adequate personnel [11].

The results from this study showed that the majority of patients reported that their response to treatment was good. Some TB treatment support persons attributed this to factors associated with good quality of care, such as availability of prescribed TB drugs and health education. Some studies have shown that good quality of care improves patient outcomes through; timely diagnosis, adherence, and treatment completion [6].

Health Education Adequacy and Appropriateness

Although the overall majority of the patients reported receiving health education on the day of the interview, a good number did not because they arrived after the clinic had started. Every day at the start of the clinic by 08:00 hours, TB treatment supporters gave group health education to all patients who usually started arriving at the clinic as early as 06:00 hours.

This timing of the health education disadvantaged some patients who arrived at the clinic from 08:00 hours because once the clinic started, there seemed to be no efforts by the TB treatment supporters or health workers to repeat the health education or to give health education to individual patients. The hospital is, however, a bureaucratic organization that operates on time and schedules, meaning all who do not observe the time are bound to miss out, hence the need for encouraging patients to present early for their tuberculosis clinic visits as Shifting the time

would disadvantage those who come early, and the limited staffing levels cannot allow for multiple sessions. The late coming of patients is a common challenge in health facilities the world over, and some studies have recommended the use of other platforms such as social media for health education [15].

On the other hand, it was expected that when patients came for drug refill, staff see it as an opportunity to reinforce messages on adherence to treatment and to identify challenges that the patients were experiencing while on treatment. However, this was not the case at Matero Level 1 Hospital. This was not being done in line with patients' right to information which is stipulated in the national patients' rights.

A number of studies have been conducted globally on the importance of health education and flexibility of clinic times, especially as related to Direct Observed Treatment Strategy. Who reviewed a number of studies and reported that patients felt frustrated or felt lost when they received inadequate information related to their disease and prevention, tests and their results, treatment, side effects, including complications because they believed that health education and communication from health workers helped them be informed and better equipped to manage themselves including side effects [9].

Other studies showed that patients appreciated the flexibility in DOTS schedule and understanding by providers so that a few minutes late coming did not deny the patient of the much-needed information. Further information indicated that patients were dissatisfied with the non-suitable opening time of Directly Observed Treatment Strategy centers and that provider communication facilitated information giving for many patients. It also revealed that the patient-centeredness of TB services was important and needed to be negotiated in partnership with the user while bearing in mind unique individual needs and circumstances. Results further showed that flexibility was more acceptable as it made adherence by patients as long as it was logistically feasible and emotionally desirable to the patient. The article said many times patients found the timing for clinic services inconvenient when it conflicted with work and daily activities because in all these, the patient was at the Centre as it affected their life and daily living. As a result of this and in an effort to manage everything, patients needed to adjust their daily routine and, in some instances, had to endure pain and breathlessness to reach the clinic in order to manage all the activities [9].

Arsenault, C. Roder-DeWan indicated that there was an increasing acknowledgment that expanding diagnosis and treatment alone would not suffice to achieve a Tuberculosis free world but that systems put in place needed to be sensitive to quality as patients went through a long and complex process of treatment hence the service needed to be patient-centered especially in stigmatized conditions such as Tuberculosis that mainly affected vulnerable social groups in the communities [16]. WHO TBs standards for treatment No. 9 also emphasizes on a patient-centered approach to promote adherence, improve quality of life, and reduce suffering [17]. This is contrary to our findings which show that what was seen as binding was mainly the clinic policy and not much of the patient needs, national guidelines or WHO TB standards.

Patient's Satisfaction

Patients who indicated that they were satisfied with the Tuberculosis services cited receiving health education, receiving medicines, staff being helpful and friendly, quick service at the clinic as the reasons why they were satisfied with the service. Results from a study indicated that patient satisfaction was associated with how happy the patient was when attended to by staff at a particular clinic and that a reliable supply of medicines and diagnostic equipment and supplies were cardinal to patients and resulted in both positive and negative experiences for patients [9]. Another study conducted in South Ethiopia indicated that shorter waiting times, routine observation, checking the daily TB drug

intake, and treatment by the same health provider independently predicted overall patient satisfaction [18].

Another reason given for the satisfaction by patients in this study was that they were given an unusual large medicine supply, and they were elated that this would reduce the frequency of clinic visits. This action of giving medicinal supplies for a longer period was as a result of the outbreak of the COVID-19 pandemic in the country, and the giving of more medicines was seen as one of the measures to reduce the number of patients in the hospital, thereby minimizing the spread of the disease. Patients felt relieved of the many challenges they faced when coming to the clinic and were happy that they would be able to do other things.

Frequent visits to the clinic are not only costly to the patient but also take away a lot of freedom from the patient. Having large quantities of medicine supply would therefore be seen to reduce costs of transport on the part of the patient hence the satisfaction [19].

Although fewer patients indicated that they were not satisfied with the services, it is worth noting that to achieve the Tuberculosis free world; every patient's concern should be taken into account. The reasons cited for dissatisfaction included taking too long to be given medicines, not being given enough drugs, not being asked how they felt, delay in changing medicines, not being given health education, and staff not being friendly. Many studies have been conducted to look at factors that cause patients' dissatisfaction with health care, and results revealed that, in addition to lack of equipment, poor quality of services result from long queues coupled with long waiting time [19].

Results also reported that prolonged times spent at the health facility prevent patients from engaging in other daily productive activities [20]. Delays in attending to patients is also not in line with the World Health Organisation standard of Tuberculosis No. 1, which emphasizes on the responsibility of providers to be aware of individual and population risk factors for Tuberculosis and ensure prompt clinical evaluations and appropriate diagnostic testing for persons with symptoms and findings consistent with Tuberculosis [18]. The Donabedian Quality of Care Theoretical Model also emphasizes on the process in relation to diagnostic or treatment services that are rendered to patients.

Conclusion

Ensuring the quality of TB services plays a very important role in the fight against TB as it influences the timely diagnosis, treatment, adherence, and treatment completion. This study assessed the quality of TB services from the patient's perspective. The parameters of quality included accessibility of the TB clinic, timeliness in service provision, the attitude of service providers, health education, availability of medication, inter alia. The study has demonstrated that the majority of patients perceive TB services to be of good quality and that residence and family size tend to influence one's perception of quality. The study has further identified two main areas of improvement, which include health education for those who come late to the facilities and shortage of staff.

Acknowledgements

Conflict of Interest

The authors of this manuscript have no conflict of interest.to declare. Co-authors have seen and agree with the contents of the manuscript, and there is no financial interest to report. We certify that the submission is original work and is not under review at any other publication.

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