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Patient satisfaction with Tuberculosis treatment services at Kawaala Health Centre III, Kampala, Uganda, January-June 2017: A cross-sectional study.

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ABSTRACT

Introduction

Supervised treatment of TB in an urban setting (Urban Directly Observed Therapy) is part of a support package that is sensitive and supportive of patients' needs. Patient satisfaction with DOT is one of the measures to support patient adherence and treatment completion, thus its importance to treatment outcomes. Assessing patient satisfaction with urban DOT and applicability of the service quality tool (SERVQUAL) hasn't been done, and so, there is insufficient knowledge for implementers of the strategy. We determined the level of patient satisfaction and applicability of the tool at Kawaala Health Centre III, Rubaga division, Kampala, Uganda.

Methods

We conducted a cross-sectional study in June 2017 and collected quantitative data using the SERVQUAL tool. We used factor analysis and reliability testing to determine the tool's applicability among TB patients and mean score analysis to determine the level of patient satisfaction. Patients aged ≥18 years with confirmed smear-positive pulmonary tuberculosis (PTB) and on treatment under Urban DOT at Kawaala Health center III were included in the study.

Results

We found the SERVQUAL tool to have Cronbach's alpha coefficients of 0.83 for expectations and 0.76 for perceptions. A quality gap of -0.46 was also found.

Conclusion

The tool applies to TB patients in a Ugandan urban setting. Forty-six percent of patients were dissatisfied with tuberculosis treatment services. We recommend improvement in the dimensions of urban DOT components, reliability, and responsiveness.

Recommendation

Effective diagnostics, such as a functional genexpert machine, should be explored to improve service delivery.

Keywords: Patient satisfaction, DOT, SERVQUAL, Tuberculosis
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INTRODUCTION

Tuberculosis (TB) is among the top 10 killer diseases globally. According to the World Health Organization (WHO), 1.8 million people died of TB in 2015. Africa contributes 26% of all new TB cases globally and is second to Asia. According to the 2016 TB prevalence survey report, there are 253 cases of TB per 100,000 population in Uganda. (1,2).

TB is a curable disease if effective treatment is correctly and consistently taken for the duration recommended by a health worker. (1). Due to challenges in TB treatment, the WHO recommended the Directly Observed Treatment Short-course (DOTS) strategy. One of the components of

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DOTS is supervised treatment or Directly Observed Therapy (DOT), which involves watching patients as they take TB drugs, especially in the intensive phase of treatment, monitoring, and follow-ups to ensure that patients take drugs in the right combinations and time for the appropriate duration.

In Uganda, DOTS was adopted and incorporated into the Health Sector Strategic Plan by the Uganda Ministry of Health in 2000, as a national policy to ensure patient adherence to treatment to yield positive outcomes. Such supervised treatment is done at the facility, where it is referred to as facility-based DOT, where patients on TB treatment are observed and monitored daily by a health worker at a health facility during the intensive phase of treatment. The treatment can also be supervised at the community level, where it is referred to as community-based DOT (CB- DOT). CB-DOT is found mostly in rural areas, where a sub-county health worker monitors community treatment supporters such as village health teams (VHTs) or relatives who ensure treatment observation and supervision in addition to referring patients for follow-up sputum smears and monitoring patients for side effects (3).

However, an urban setting such as Kampala had challenges of extending TB care to underserved areas, high loss to follow-up rates, and adverse treatment outcomes. (4) Kampala Capital City Authority (KCCA) teamed up with Track TB, a project that was developed to support the prevention and treatment of TB. The project worked to strengthen health systems and communities to provide quality and patient-centered TB care in Kampala. One of the ways through which such care is provided is urban DOT. Using this strategy, community linkage facilitators were recruited to strengthen the connection between health facilities and urban communities through facility and community-based DOT. Through this strategy, community linkage facilitators identify treatment supporters who are mostly family members or close friends of TB patients and work with them to ensure TB treatment completion. The community linkage facilitators provide adherence counselling at treatment initiation, routine health education, monitor patient records, make home visits, and follow up patients both on the telephone and physically. In some cases, the community linkage facilitators observe patients while they swallow their TB medicines and carry out contact tracing, especially starting with people close to a TB patient (5). With such services that are patient-centered, patients ought to be satisfied to encourage efficient utilization of the service.

In addition, such a strategy makes a patient an important player in the treatment course, and so quality care to ensure satisfaction with the treatment process is of importance. Donabedian suggests that patient satisfaction should be as necessary to assessments of quality as to the design and management of health care systems. Satisfaction can be explained through disconfirmation, i.e., a difference between patients' expectations and experiences of a service. Service expectations are desires or wants a patient feels a health worker should offer, and experiences are based solely on what a patient receives or perceives from the service. Some studies have indicated that satisfaction is often a result of how a patient's expectations are fulfilled through the experience of services. A study done by Bowling et al shows that patients with low expectations are easily satisfied with the service than those with high expectations. Understanding the difference between these two concepts helps providers to identify any gaps in delivering services with quality that could ensure satisfaction. In the case of long treatment courses such as TB treatment, service providers who consistently satisfy their customers enjoy higher retention levels due to increased clients' loyalty and trust compared to those who don't (6–8).

Studies done in Uganda have focused on factors associated with non-adherence, risk factors for multi-drug resistance (MDR)-TB, but there is inadequate information regarding the patient satisfaction level with DOT in an urban setting. In addition, there is inadequate information on the evaluation of the SERVQUAL, a tool that assesses patient satisfaction, among TB patients in a Ugandan setting. (5,9). We determined the level of patient satisfaction with urban DOT services and the applicability of the SERVQUAL tool at Kawaala Health Centre III, Rubaga division, Kampala district, to improve the delivery of TB care.

METHODS

Study design

A cross-sectional study was done at Kawaala Health Centre (HC) III

Study setting

The study was conducted at Kawaal Health Centre III in Rubaga division, where TB treatment and care are provided at no cost. Rubaga is one of the divisions with a high TB burden in Kampala district. In 2016, the division notified 1133 new cases of TB, and out of these, 334 cases were notified by Kawaala HC III. (10).

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Study population

The study population was all patients aged ≥ 18 years who were started on the Urban DOT strategy at Kawaala HC III between January and June 2017. All patients who were started on the Urban Directly Observed Therapy strategy were included, and all those who had been lost to follow-up were excluded.

Sample size determination

A sample size determination formula by Kish and Leslie was used to obtain 384 participants. However, there was a total population of 240 patients on urban DOT in the past year, and a finite population correction term (11) was used to obtain 120 TB patients whom we enrolled and interviewed. Systematic sampling, with a sampling interval of two, was used until the required number was obtained from the TB registers of Kawaala HC III from January to May 2017.

Interviews were conducted on the day patients came for TB drug refills, medical consultations, or for sputum follow-up smears. The community linkage facilitator ticked out every patient who had been interviewed to avoid a double interview of a patient.

The SERVQUAL patient satisfaction tool was adapted and modified to collect data about patient satisfaction. (12). This tool was developed by Parasuraman to measure service quality and market research, but it has been applied to other settings, including health. It has evolved to currently consist of five dimensions of satisfaction; 1. reliability (ability to perform the promised sevice dependably and accurately), 2. empathy (caring and individual attention to clients), 3. responsiveness (willingness to help clients promptly), 4. assurance (knowledge and courtesy of service provider and ability to inspire confidence and trust to clients) and 5. tangibles (physical facilities, equipment, and staff appearance). Though the tool has been used among different populations to measure service quality and patient satisfaction of health care delivery, there is insufficient information regarding its use among TB patients in Uganda. (13–15).

The tool had two parts to cover patient expectations before and experiences after the service, and was customized to TB DOT by substituting the tangibles to reflect the DOT essential components like referral of patients, patient follow-up, record of patient details and treatment, routine health education, and observation while swallowing drugs. Each of the five dimensions of the tool had statements whose responses were weighted on a Likert scale ranging from strongly disagree (1) to strongly agree (5). Because of such modification of the tool, its reliability had to be tested to ensure that its scale measured what it was intended to measure among TB patients in Uganda.

Our data was tested using the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy to determine the proportion of variance in satisfaction that may be caused by the assessed elements in the tool. This determined if factor analysis was an appropriate analysis for our data. Our KMO was 0.74, which showed that our data was fit for factor analysis to be applied (13). We used exploratory factor analysis to reduce the 27 items into fewer factors that most explain patient satisfaction. This was done separately for expectations and experiences. We extracted items that loaded with Eigenvalues of 0.45 and above on particular factors. These were renamed into meaningful dimensions that explain satisfaction. Cronbach's alpha coefficients were used to test the reliability of the emerged dimensions (how closely the items were related for each emerged dimension). According to literature, a Cronbach alpha of 0.5 is considered the lowest acceptable coefficient of a good scale, while 1 is the highest. However, studies have indicated that a coefficient of 0.7 and above is good enough and acceptable (16). The Cronbach alpha coefficients for experiences and expectations were determined separately. The level of patient satisfaction was determined by obtaining a quality gap score by calculating the mean score difference. We obtained the quality service gap (Q) by subtracting expectation mean scores from the experience mean scores (Q=P-E). This defined the level of satisfaction. A negative gap score would indicate that the actual service (perceived score) is less than expected (expectation score), hence dissatisfaction. A positive gap score indicated that clients were satisfied with urban DOT.

Ethical clearance from the Higher Degrees, Research and Ethics Committee of Makerere University School of Public Health was obtained. Administrative approval was obtained from KCCA and Kawaala Health Centre III.

RESULTS

Of the 120 respondents, 61% were male, 38% were aged 25-34 years, while 13% were aged 45 years and above. The majority of the respondents were employed 72%, and 69% had experienced side effects from TB drugs (Table 1).

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Table 1: Demographic characteristics of study participants at Kawaala HC III, January - June 2017 (n=120)

Characteristic	Number	Percentage
Sex		
Male	73	61
Female	47	39
Age		
<25	23	19
25-34	46	38
35-44	35	29
45+	16	14
Occupation		
Employed	91	76
Unemployed	29	24
Education level		
No education	6	5
Primary	43	36
Ordinary level	54	45
Advanced or more	17	14
Marital status		
Married	23	19
Cohabiting	39	33
Single	58	48
Religion		
Catholic	38	32
Moslem	27	23
Protestant	42	35
Others	13	10
HIV status		
Negative	99	82
Positive	21	18
Side effects		
Yes	83	69
No	37	31

Patient satisfaction with urban DoT at Kawaala Health Centre 111

Our results indicated that the total expectation mean scores (23.58) exceeded the total experience mean scores (23.12), and this gave an overall negative gap of -0.46. This showed a low level of satisfaction, as 46% of the patients under the Urban DOT were dissatisfied with such TB care services, as shown in the table below.

Table 2: Dimension mean scores of study participants at Kawaala HC III, Jan – June 2017

Dimensions	Experiences	Expectations	Quality gap
Reliability			
Community linkage facilitator (CLF) and health workers promised to do something within a certain time, and they did it	4.47	4.58	-0.11
CLF advises or refers me when I am unwell	4.72	4.88	-0.16
CLF and health workers were confident of what they were doing	4.79	4.83	-0.03

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Provided service in the time promised	4.62	4.74	-0.13
Gave me my sputum follow-up smear results in time	4.33	4.76	-0.43
Total scores	22.93	23.78	-0.85
Average scores	**4.59**	**4.76**	**-0.17**
Responsiveness			
Helped whenever I called	4.48	4.62	-0.13
CLF was available to help me	4.64	4.65	-0.01
CLF showed goodwill	4.64	4.74	-0.10
Explained doubts I had about my sickness	4.75	4.85	-0.10
Prompt service and care	4.63	4.70	-0.08
Total scores	23.14	23.56	-0.42
Average scores	**4.64**	**4.72**	**-0.08**
Empathy			
CLF and health workers were sympathetic	4.83	4.84	-0.01
CLF and health workers paid attention	4.81	4.77	0.04
Focused on providing me the best service and care	4.80	4.75	0.05
Understood my specific needs	4.79	4.73	0.06
Provided personal care and support	4.64	4.78	-0.14
Total scores	23.88	23.88	0.00
Average scores	**4.78**	**4.78**	**0.00**
Assurance			
Instilled confidence in me when I went for treatment	4.81	4.77	0.04
Feel safe when I talk to the CLF or visit the health facility	4.84	4.87	-0.02
Treated me with courtesy	4.63	4.58	0.04
Had the knowledge to answer my questions	4.80	4.83	-0.03
Gave me individual attention	4.75	4.75	0.00
Total Scores	23.83	23.80	0.03
Average Score	**4.77**	**4.76**	**0.01**
Urban Dot Components			
Referred when I got side effects and sputum follow-up smears	4.54	4.82	-0.27
Made a follow-up during my treatment	4.28	4.57	-0.28
Made a home visit to ask about the progress of my treatment	3.98	4.64	-0.67
Recorded details of when I swallow pills	4.68	4.60	0.08
Urban Directly Observed Treatment services are beneficial to me	4.90	4.86	0.04
Provides routine health education	4.56	4.73	-0.17
Observed while swallowing pills	3.43	3.71	-0.28
Total Scores	30.37	31.92	-1.55
Average Scores	**4.34**	**4.56**	**-0.22**

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Table 3: factor loadings and eigenvalues for expectations-Rotated Component Matrix

	Component				
	1	2	3	4	5
E1					.564
E2			.562		
E3					.667
E4					.488
E5					.665
E6			.628		
E7					
E8			.503		
E9					
E10					
E11	.801				
E12	.706				
E13	.591				
E14				.669	
E15			.699		
E16		.579			
E17		.684			
E18					
E19				.695	
E20		.598			
E21	.453		.572		
E22	.491	.600			
E23	.484	.568			
E24	.462	.483			
E25	.749				
E26	.457				
E27		.707			

Table 4: factor loadings and eigenvalues for experiences-Rotated Component Matrix

	Component				
	1	2	3	4	5
P1					.568
P2					
P3		.536			
P4		.657			.490
P5					.639
P6		.704			
P7		.730			
P8		.542			
P9	.585				
P10		.461			
P11	.679				

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P12	.743				
P13	.761				
P14	.628				
P15	.691				
P16				.590	
P17				.479	
P18					.529
P19	.492				
P20		.574			
P21	.698				
P22					
P23			.806		
P24			.647		
P25				.669	
P26			.487	.561	
P27			.522		

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization

Factors explaining the low level of satisfaction

Empathy and assurance were the dimensions with positive mean gap scores of zero and 0.01, respectively. Responsiveness, reliability, and urban DOT components had negative mean scores of 0.08, 0.17, and 0.22, respectively.

Of the total 27 items of the tool, seven items had positive gap scores. These were; the community linkage facilitator paid attention to the patient; the community linkage facilitator was focused on providing the patient with the best care; the community health worker understood the patient's specific needs; the community linkage facilitator instilled confidence into the patient; the community linkage facilitator treated the patient with courtesy; urban DOT services were beneficial to the patient and the health worker recorded details of when a patient swallowed pills. Other items had negative gap scores as shown in Table 2 above.

Reliability of the SERVQUAL tool among TB patients at Kawaala Health Centre III

After factor reduction with varimax rotation, five factors were extracted, and these had a cumulative total variance explained of 54% with factor 1 having 23% of the variance explained for experiences. Expectations had 53% with factor 1 having 25% of variance explained. The extracted factor loadings and eigen values for expectations included; linkage to care (E11, E12, E13, E21, E22, E23, E24, E25, E26), patient centeredness (E16, E17, E20, E22, E23, 24, E27), responsiveness (E2, E6, E8, E15, E21), Assurance (E14, E19) and reliability (E1, E2, E3, E4, E5). Factor loadings and eigen values for experiences included; empathy (P9, P11, P12, P13, P14, P15, P19, P21), responsiveness (P3, P4, P6, P7, P8, P10 P20), linkage to care (P23, P24, P26, P27), assurance (P16, P17, P25, P26) and reliability (P1, P4, P5, P18) (Table 3 and 4).

In addition, some elements didn't load on the same factor as they were for expectations; these included 14, 15, 19, and 21. Some elements loaded on more than one factor; these included E4 and P2 (Table 6).

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Table 5: Retained items and emerged factors for expectations

Emerged factors	Retained items	Label for the emerged factor
1	E11-health workers should be sympathetic to the patient. E12- Health workers should pay attention to the patient. E13 The CLFs should be focused on providing the best service to the patient. E21- The CLF should refer the patient to a facility when he gets side effects. E22- The CLFs should make a follow-up during the treatment period. E23- The CLF should make a home visit. E24- the CLF and treatment supporter should record details of whenever a patient swallows pills, E25DOT is beneficial to the patient E26- routine health education	linkage to care
2	E16-health workers should instill confidence in the patient. E17-the patient should feel safe visiting the facility. E20-the health workers should give the patient individual attention. E22-the CLF should make a follow-up during the treatment period. E23, the CLF should make a home visit. E24-the CLF and treatment supporter should record details of pill swallowing. E27-the patient prefers being observed while swallowing pills.	patient centeredness
3	E2-Whenever the patient is unwell and presents to CLF, he should advise or refer the patient. E6-the CLF should help the patient every time he or she calls. E8-the CLF should show goodwill in helping the patient. E15-the CLFs should provide personal care and support to the patient. E21-the CLF should refer the patient to the facility when he/she get side effects.	Responsiveness
4	E14-the CLF should provide personal care and support to the patient. E19-the CLF should be knowledgeable to answer patients' questions.	Assurance
5	E1-the CLF should do what he promised to do at a certain time. E2-Whenever a patient is unwell and presents self to the CLF, he should advise or refer the patient. E3-the CLF should be confident enough to help the patient. E4-the CLF should provide services in the community at the time promised. E5-the health workers should give the patient's sputum follow-up results in time.	Reliability

Table 6: Retained items and emerged factors for experiences

Emerged factors	Retained items	Label for the emerged factor
1	P9-the CLF was always willing to explain the patient's doubts. P11-the CLF was sympathetic. P12-the health workers paid attention to the patient. P13-the health workers were focused on providing the patient with the best care and service. P14-the health workers understood a patient's specific needs. P15-the CLF provided personal care and support. P19-the CFL had the knowledge to answer the patient's questions.	Empathy

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	P21-the CLF referred the patient to the facility when the patient got side effects and sputum, followed by smears.	
2	P3-The health worker who treated me was confident of what he was doing. P4-The CLF and health worker provided the service on time. P6-the CLF promised to help whenever a patient called him. P7-the CLF was always available to help the patient. P8-the CLF showed goodwill in helping the patient. P10-the CLF gave the patient prompt service. P20-the CLF gave the patient individual attention	Responsiveness
3	P23-the CLF made a home visit. P24-the CLF and treatment supporters recorded details of pill swallowing. P26-the CLF provided routine health education. P27- The patient preferred being observed while swallowing pills.	Linkage to care
4	P16- The CLF instilled confidence in the patient whenever he came for treatment. P17- the patient felt safe talking to the CLF. P25-Urban DOT services are beneficial to the patient. P26-The CLF provided routine health education	Confidence
5	P1-When the CLF promised to do something within a certain time, he did it. P4-The CLF provided the service in the time promised. P5-The health worker gave the patient his or her sputum follow-up smear results in time. P18-The health worker treated the patient with courtesy	Reliability

Results from a reliability test for the reduced dimensions using Cronbach's alpha showed coefficients of 0.75 for perceptions and 0.79 for expectations, as shown in Table 7.

Table 7: Reliability test for Emerged factors for experiences and expectations

Emerged factor for experiences	Number of items	Cronbach's alpha
Empathy	8	0.83
Responsiveness	7	0.77
Linkage to care	4	0.57
Assurance	4	0.56
Reliability	4	0.52
All dimensions	25	0.75
Emerged factor for expectations	Number of items	Cronbach's alpha
Linkage to care	9	0.81
Patient centeredness	7	0.70
Responsiveness	5	0.70
Assurance	2	0.55
Reliability	5	0.56
All dimensions	21	0.79

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DISCUSSION

A quality gap score of -0.46 was found. This implies that 46% of respondents were not satisfied with urban DOT. The negative mean scores may explain this from the dimensions of responsiveness, reliability, and urban DOT components. This means that there is always a need for improvement in the process of health care delivery to improve satisfaction. Such a negative quality gap using the SERVQUAL tool has also been found in studies done in HIV and malaria in Uganda by Kwesiga et al and Tumuhamye et al. (14,13). However, in contrast to studies that show that there is always a negative quality gap in the delivery of care, a patient satisfaction study done in the United States of America showed a positive quality gap in a preoperative assessment clinic (22). The dimension of assurance recorded the biggest positive gap score; this could have been due to the community linkage facilitators, who always talked to and counseled the patients about the treatment process and side effects. This gave patients confidence and trust that they would get better, especially following the disappearance of symptoms and side effects after a few weeks of treatment, which increased satisfaction. The urban DOT dimension recorded the biggest negative gap score, and this may be explained by the fact that many patients reported not liking being observed while swallowing TB drugs for fear of stigma. Patients also perceive that it's their responsibility to take drugs and get better. In addition, health education wasn't routine; it was a one-time activity for some patients, and this contributed to a negative gap score for this dimension. Reliability also had a negative gap score, and this may be explained mainly by the long turnaround time for sputum results, as shown by the low scores for the item of timely receipt of sputum results. Such delays frustrate patients, leading to dissatisfaction. The time factor has also been found to impact satisfaction in several studies done elsewhere. (19,23). The dimension of responsiveness had a negative gap too, and though it was the smallest, it may be explained by the fact that there were low scores for the item of availability of community linkage facilitators whenever they were called by patients.

The SERVQUAL tool had a substantial internal consistency, which was determined by the reliability scale before and after factor reduction, and 46% of the respondents were dissatisfied with urban DOT. Our results showed that after factor reduction, 5 factors emerged and were renamed in regard to the items that loaded on them for experiences and expectations. However, factors like reliability, linkage to care, and responsiveness were found to exist for both experiences and expectations. These had several similar items making up these factors. Such a similarity and higher correspondence may be of importance in explaining patient satisfaction with such TB treatment at Kawaala Health Centre III. These factors have been highlighted in studies elsewhere as important in explaining patient satisfaction. Bonsu et al, whose study was done in Ethiopia, highlight the reliability of treatment supporters and client follow-up, which is part of linkage to care, as major drivers of satisfaction with TB treatment. In another study done in 2011 by Ahmad et al, responsiveness was also found to be a major factor for patient satisfaction with health care (17,18). Patients reported empathy in experiences, unlike patient-centeredness in expectations. Empathy comprised items like: health workers being sympathetic to patients, health workers having the will to explain doubts about the treatment of TB, individual attention given to patients, personal care and support, and community linkage facilitators who understood patient-specific needs. This may be explained by the fact that those items are more subjective and appeal more to patients than the correct process of care delivery, which focuses on patient-centeredness. This is similar to a study done by Nezenega et al in Ethiopia, who found empathy as one of the main drivers of satisfaction. This differs from Woldeyes et al, who found that in their study, patients perceived patient-centeredness as a major driver of patient satisfaction with TB care in Ethiopia. (19,20).

In addition, some items loaded on more than one dimension, for example, E2, E21, E22, E23, and E24 for expectations and P4, P26 for experiences. This may be explained by the fact that the SERVQUAL may not be the most accurate tool to measure satisfaction because similar items are expected to load on a single factor. This finding was also highlighted by Chinganga et al in their study of customer satisfaction with grocery stores in Umea. (21).

Our findings should be interpreted in line with the following limitations: the study was cross-sectional in design, patient evaluations are usually subjective, and thus, the associations may not be causal. The study was also conducted in one health facility, and so it may not be generalized to other settings.

Conclusion

The SERVQUAL tool applies to TB patients in a Ugandan setting because of its reliability. Overall, 46% of the respondents were dissatisfied with the supervised treatment of TB in an urban setting. This was a result of negative quality gaps in some dimensions regarding the delivery of care.

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Recommendation

We recommend improvement, especially in the dimensions of urban DOT components, reliability, and responsiveness. In addition, exploring efficient diagnostics such as a genexpert machine should be explored to reduce the time spent waiting for results. This will decrease the negative quality gap and thus increase satisfaction.

Competing interest

The authors declare that they have no competing interests.

Authors' contribution

RM- formulated the study, statistical analysis, and was the lead author of the manuscript.
FS and DK-Active supervision during all the stages of the study and manuscript writing
FM and CO- data collection, analysis, and literature review
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REFERENCES

1. Organization WH, others. Global tuberculosis report 2016. 2016 [cited 2017 Sep 21]; Available from: http://apps.who.int/iris/bitstream/10665/250441/1/9789241565394-eng.pdf
2. Elizeus Rutebemberwa. The Uganda National Tuberculosis Prevalence Survey, 2014-2015.
3. MoH U. Health sector strategic plan III 2010/11-2014/15. 2010;
4. Sendagire I, Van der Loeff MS, Mubiru M, Konde-Lule J, Cobelens F. Long delays and missed opportunities in diagnosing smear-positive pulmonary tuberculosis in Kampala, Uganda: a cross-sectional study. PLoS One [Internet]. 2010 [cited 2017 Sep 21];5(12):e14459. Available from: http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0014459 https://doi.org/10.1371/journal.pone.0014459
5. TRACK TB. Implementation of DOTS in an urban Setup: Experience from Kampala City. Management sciences for health; 2016.
6. Donabedian A. The quality of care: how can it be assessed? Arch Pathol Lab Med. 1997;121(11):1145.
7. Bowling A, Rowe G, McKee M. Patients' experiences of their healthcare in relation to their expectations and satisfaction: a population survey. J R Soc Med. 2013;106(4):143-149. https://doi.org/10.1258/jrsm.2012.120147
8. Oliver RL. Customer satisfaction research. Handb Mark Res Uses Misuses Future Adv. 2006;1. https://doi.org/10.4135/9781412973380.n27
9. Lukoye D, Adatu F, Musisi K, Kasule GW, Were W, Odeke R, et al. Anti-Tuberculosis Drug Resistance among New and Previously Treated Sputum Smear-Positive Tuberculosis Patients in Uganda: Results of the First National Survey. PLOS ONE [Internet]. 2013 Aug 1 [cited 2017 Sep 21];8(8):e70763. Available from: http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0070763 https://doi.org/10.1371/journal.pone.0070763
10. Tuberculosis Registers. Kampala Capital City Authority; 2015.
11. Naing L, Winn T, Rusli BN. Practical issues in calculating the sample size for prevalence studies. Arch Orofac Sci [Internet]. 2006 [cited 2017 Sep 21];1:9-14. Available from: http://www.dental.usm.my/aos/docs/Vol_1/09_14_ayub.pdf
12. Parasuraman A, Zeithaml VA, Berry LL. Servqual: A multiple-item scale for measuring consumer perc. J Retail. 1988;64(1):12.
13. Kwesiga D. A comparative analysis of client satisfaction among people receiving HIV/AIDS care from public and private health facilities in Kabale District [Internet]. Makerere University; 2010 [cited 2017 Sep 21]. Available from: https://www.mak.ac.ug/documents/Makfiles/theses/Kwesiga_Doris.pdf
14. Zaim S, Tarim M, Zaim H. An Evaluation of SERVQUAL and Customer Satisfaction in Health Care Industry, 2014, 1 Page 3; 2014. p. 27.
15. Khamis K, Njau B. Patients' level of satisfaction with quality of health care at Mwananyamala hospital in Dar es Salaam, Tanzania. BMC Health

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Serv Res. 2014;14(1):400. https://doi.org/10.1186/1472-6963-14-400
16. Tavakol M, Dennick R. Making sense of Cronbach's alpha. Int J Med Educ [Internet]. 2011 Jun 27 [cited 2018 Mar 12];2:53-5. https://doi.org/10.5116/ijme.4dfb.8dfd
17. Bonsu F, Afutu F, Hanson-Nortey NN, Ahiabu M-A, Amo-Adjei J. Satisfaction of tuberculosis patients with health services in Ghana: Views of healthcare professionals. Int J Health Care Qual Assur. 2017;30(6):545-553. https://doi.org/10.1108/IJHCQA-10-2016-0146
18. Ahmad I, Nawaz A, Khan S, Khan H, Rashid MA, Khan MH. Predictors of patient satisfaction. Gomal J Med Sci. 2011;9(2).
19. Nezenega ZS, Gacho YH, Tafere TE. Patient satisfaction with tuberculosis treatment service and adherence to treatment in public health facilities of Sidama zone, South Ethiopia. BMC Health Serv Res [Internet]. 2013 Mar 22 [cited 2017 Sep 21];13:110. Available from: https://doi.org/10.1186/1472-6963-13-110 https://doi.org/10.1186/1472-6963-13-110
20. Woldeyes BG. Evaluation of directly observed tuberculosis treatment strategy in Ethiopia: patient centeredness and satisfaction [PhD Thesis]. 2016.
21. Chingang Nde D, Lukong P. Using the SERVQUAL Model to assess Service Quality and Customer Satisfaction.: An Empirical Study of Grocery Stores in Ume\aa, 2010.
22. Pakdil F, Harwood TN. Patient satisfaction in a preoperative assessment clinic: an analysis using SERVQUAL dimensions. Total Qual Manag Bus Excell [Internet]. 2005 [cited 2017 Sep 21];16(1):15-30. Available from: http://www.tandfonline.com/doi/abs/10.1080/1478336042000255622 https://doi.org/10.1080/1478336042000255622
23. Ssengooba W, Kirenga B, Muwonge C, Kyaligonza S, Kasozi S, Mugabe F, et al. Patient satisfaction with TB care clinical consultations in Kampala: a cross-sectional study. Afr Health Sci. 2016;16(4):1101-1108. https://doi.org/10.4314/ahs.v16i4.28

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