Patients' Perspectives on Tuberculosis Services in Urban Area, Indonesia: An Assessment Using QUOTE TB Light

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Authors contributions

SRR: study implementation, led the data analysis and interpretation, editing, and review manuscript. LF: study implementation and review manuscript, CM: study implementation and review manuscript. ANAM: analyzing data, interpretation, writing, and editing manuscript, HSF: analyzing data, interpretation, writing, and editing manuscript. TDC: collecting and in putting data, FJ: collecting and in putting data.

Competing interest

The authors declare that they have no competing interests, and all authors confirm accuracy.

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Ethics approval

This research has been approved by the Health Research Ethics Commission of Universitas Negeri Semarang with the number: 089/KEPK/EC/2020. Participation in this study was voluntary and there was no coercion based on the respondent's ability to provide written consent.

Availability of data and materials

The data sets analyzed during the current study are available from the corresponding author on reasonable request.

Significance for public health

This study describes one of the efforts that must be made by Indonesia to achieve "End TB" is by improving the quality of TB (Healthcare) services in both public and private health facilities. TB services can be said to be of good quality, including being able to provide TB services in accordance with the expectations of patients as consumers. Therefore, the perspective or perspective of the patient is an important element in improving the quality of TB services. In so doing, this article provides public health policy makers with an invaluable and updated review of the improving the quality of TB (Healthcare) services in both public and private health facilities. Such information should be extremely helpful to planning current and future health intervention strategies designed to control and reduce the burden of illness posed by tuberculosis.

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Abstract

Background

The quality of TB services is a major component in achieving the "End TB" target in Indonesia. Patient involvement in assessing the quality of TB service is an effort to improve the continuum of care. The purpose of this study was to assess the quality of TB services from the patients' perspective at Public Health Center (PHC), Semarang City.

Design and Methods

This descriptive cross-sectional study was conducted in PHC, with a total of 138 patients. The criteria for respondents were all registered TB patients and receiving TB treatment at the PHC. Data is collected by interview using the QUOTE TB Light instrument which contains 9 dimensions of service quality assessments. The data were analyzed descriptively.

Results

The results were the aspects of service with the same staff, duration of the discussion, problem-solving, TB-HIV relationship, availability of drinking water, toilets, and patient priorities, professional competence, and support, need for improvement (QI>1).

Conclusions

So, there is still a need for improvement in the quality of TB services at PHC. It is hoped that providers can make this a consideration for improving the quality of TB services because it is an effort in TB control to achieve "End TB".

Keywords: Tuberculosis, Quality of TB services, QUOTE TB Light, Patients' perspective

1. **Introduction**

Tuberculosis (TB) is an infectious disease that is a health threat in the world because it is the top 10 deaths. Globally, the World Health Organization (WHO) estimated that 10 million people would contract TB in 2018. A total of 1.2 million cases of TB deaths and 251,000 TB-HIV deaths occurred in the same year. This figure was decreasing compared to 2017, which was 1.3 million deaths and 300,000 TB-HIV deaths. However, the burden of TB disease in the world reached 130 new cases per 100,000 population.

Indonesia is one of 8 countries that accounts for 2 per 3 total TB cases in the world. TB cases ranked 3rd in the world, which was 8% in 2018 with a TB incidence rate of 316 / 100,000 population. The coverage of TB patient treatment was only 67%. WHO with the "End TB" strategy defined 3 indicators and targeted that must be achieved. The target was to reduce the number of TB deaths by 95% by 2035, the incidence of TB by 90% by 2035, and there is no family of TB patients would be burdened with medical expenses by 2035. One of the efforts that must be made by Indonesia to achieve these targets is by improving the quality of health services and ensuring that patients received high-quality services (Scott KW,2014; Kruk ME 2016; Cazabon D,2017).

Health service providers must provide their best services to improve health status (Cazabon D,2020). The quality of health services could be seen from various aspects such as employee quality, administrative processes, clinical service processes, comfort, security, patient's trust, accommodation, easy access, communication, infrastructure, transparency of information, the quality between divisions, and infrastructure (Pai YP,2011; Aagja JP,2010; Padma P,2010; Eticha BM,2014). These aspects could be assessed from the perspective of the patient as a service user. The patient's perspective could determine the quality of a health service.12Patients will give a good assessment of the health services quality if they meet their expectations (Lateef F., 2011). Patient involvements in assessing is a way to improve the continuum of care as an effort to handle cases. The impact occurs if the continuum of care on TB treatment is not optimal until there is an increase in drug-resistant TB cases (Tetart M, 2020).

The failure to provide quality health services in particular TB contributes to the failure of the right to access health services, the result of increasing disease's transmission due to late diagnosis and treatment; increasing mortality and excessive morbidity as the result of inappropriate treatment; and increasing drug's resistance because of incomplete treatment. Hence, the assessments of the TB's quality services are needed to be done. The previous studies had assessed that the quality of services implemented was still general in an agency, and those had not focused on TB services from the patient's perspective yet. The dimensions used in the previous studies such as reliability, responsiveness, assurance, tangibles, and empathy (Castelnuovo B.2010; Dangisso MH, 2015; Mehra C, 2020). However, it had not linked it to other dimensions specifically for TB such as the HIV-TB relationship, infrastructure, affordability (cost), assistance for patients, and stigma that have been the obstacles to TB programs found in Indonesia. This study contributes to determine the quality of TB health services using the QUOTE TB Light instrument that had not been developed in Indonesia, especially in Semarang. So with this research, it is expected to improve TB health services in achieving the target of "End TB" (Ruru Y,2018).

2. Methods

2.1 Study design

We conducted a descriptive cross-sectional study at PHC, Semarang, Indonesia, since July until October 2020. Semarang City has been chosen as the research's main point because it is one of the urban areas which is the place for referrals and examples of health programs, but still has high TB cases. The total number of patients who became respondents in this study is 138 patients. We use purposive sampling to select respondents in our study. The criteria determined are TB patients who have or are currently undergoing TB treatment and had been registered at the PHC, have the history of TB treatment at least 3 weeks at the PHC to make a diagnosis or treatment, and patients with a loss to follow-up or drug resistance are also included.

2.2 Collecting data

This study has been conducted to assess 9 dimensions of TB service quality through direct interviews with patients while visiting the PHC for treatment. For dropout patients, we conducted interviews at the patient's home because the patient had not received TB treatment. The instrument used in the interview was QUOTE TB Light, which was developed by KNCV with USAID. QUOTE TB Light is an assessment tool in the form of a questionnaire containing questions related to the quality of TB services in 9 dimensions. These dimensions include: (1) availability of TB services; (2) communication and information; (3) patient-provider interactions and counseling; 4) HIV-TB relationship, (5) infrastructure, (6) professional competence; (7) affordability; 8) support; and (9) stigma. This instrument has been tested in Indonesia in 2013 especially in West Java Province and 4 other countries with a high TB burden.

2.3 Data analysis

The data was edited, coded, and inputted to Ms. Excel which was then analyzed descriptively. We used the calculation of the performance score (P) and importance (I) to determine the service quality score, which in this study was called Quality Impact (QI). The performance score was the percentage of patients who answered questions with negative answers, while the importance score was the percentage of patients who think it was very important. The quality impact (QI) score was obtained by multiplying the performance score and importance divided by 1,000. If a QI score is above 1, it was necessary to improve services. A maximum score of 10 indicated that 100% of patients perceived the poor performance of these aspects of TB care. The higher the QI value the higher the needed for improvement.

3. Results

3.1 Demo graphic characteristics

A total of 138 patients with an average age 43.02 agree to do interviews and all responded well by answering all the questions given, presented in table 1.Mostofthepatients were men (55.8%). The education all evels of these 138 patients varied from those who were not in school to having higher education. Thirty-five-point five percent (35.5%) or at most high school education and as much as 14.5% did not receive a formal education. Most of them do not work or housewives (51.1%). Forty-five-points even percent (45.7%) of patients were diagnosed with TB after about 3 weeks of the on set of symptoms and about 72.5% started TB treatment after 2 days of diagnosis.

Table 1. Frequency distribution of patient characteristics (N = 138)

.Characteristics	N	Percentage (%)
Age (mean, SD)	43.02; 17.42	
Sex		
Male	77	55.8
Education Level		
None	20	14.5
Primary School	30	21.7
Junior High School	29	21.0
Senior High School	49	35.5

Tertiary School	10	7.2
Occupation		
None	76	51.1
Daily labor (including fishermen, farmers, etc.)	24	17.4
Entrepreneur	17	12.3
Non/Government Employees	18	13.0
Civil servants	3	2.2
Time of diagnosis after symptoms develop		
3 weeks	63	45.7
3-8 weeks	35	25.4
>8 weeks	40	29.0
Start treatment after diagnosed		
2 days	100	72.5
1 week	29	21.5
>1 week	9	6.5

3.2 Availability of TB Services

In the dimension of service availability, the aspect most complained of by patients, which is reflected in the high-performance score at the same provider. Some of them complain that they were often served by different officers every time they came for TB treatment. This service aspect is based on the value of quality impact (QI), which is a value of more than one (QI = 1.15).It means that in the patient's experience, the aspect of service with the same staff is the most important aspect that needed improvement (Table 2). The staff's services that are often changed would be able to influence patients to make visited. Sometimes, patients feel comfortable and opened by one officer while they have been served by different officers in carrying out treatment of counselling, taking medication, etc. It gives effect to the patient's behaviour in treatment.

Table 2. Importance score (I), Performance score (P), and TB service Quality Impact (QI) score from the patient perspective

Dimension - Aspect	**Importance Score (%)**	**Performance Score (%)**	**Quality Impact (QI)**
	I	**P**	**{(IxP)/1000}**
Availability of TB Services			
Waiting times	44	3.6	0.16
Same provider	44	26.1	1.15*
Convenient hours	44	4.3	0.19
Drugs available	44	5.8	0.26
Language barrier	44	0.7	0.03
Other health care	44	7.2	0.32
Easy to reach	44	10.1	0.44
Provider available	44	1.4	0.06
Communication and Information			
Infectiousness	33	11.6	0.38
Curability	33	2.2	0.07

Regular DOTS	33	2.9	0.10
Side effects	33	6.5	0.21
Regular sputum tests	33	5.8	0.19
Duration treatment	33	1.4	0.05
Store drugs	33	7.2	0.24
Next visit	33	1.4	0.05
Patient-Provider Interaction and Counseling			
Respect	56	1.4	0.08
Listen carefully to me	56	7.2	0.40
Explain things	56	8.7	0.49
Sufficient time for discussion	56	36.2	2.03*
Deal with problem	56	35.3	1.99*
Discrimination	56	1.4	0.08
Privacy respected	56	1.4	0.08
TB affects life	56	14.5	0.81
TB-HIV Relationship			
Link TB and HIV	89	60.9	5.42*
Prevent HIV	89	59.4	5.29*
HIV test	89	22.2	1.99*
Availability ART	89	85.5	7.61*
Infrastructure			
Drinking water	78	84.8	6.61*
Usable Toilets	78	20.7	1.61*
Benches	78	1.1	0.09
Cough priority	78	54.3	4.24*
Professional Competence			
Laboratory services	67	15.2	1,02*
Home-based DOT	67	32.6	2.18*
Physical exam	67	5.4	0.36
Sputum examined	67	4.3	0.29
Days results	67	50.0	3.35*

Contact examined	67	60.9	4.08*
Treatment observer	67	25.0	1.68*
Affordability			
Pay for services	11	4.3	0.05
Pay a tip	11	0.7	0.01
Transport	11	2.2	0.02
Support			
Transport	100	75.4	7.54*
Food	100	84.1	8.41*
Money	100	69.6	6.96*
Stigma			
Equal treatment	22	2.2	0.05
Friendly	22	6.5	0.14
Direct communication	22	1.4	0.03
Dignity	22	1.1	0.02

In the some studies, it was stated that the availability of TB services in the form of distance access and inconsistent availability or supply of drugs could contribute to the low success of TB treatment and even resulted in the high patient loss to follow-up. Patients would comply with treatment if health facilities were consistent in providing good service. Also, the availability of TB services which easily affected the high TB case notification rate (CNR). This is important in achieving the target to tackle TB, especially in Indonesia, where the availability of TB services is an indicator of the minimum standard of service for a health facility.

4. Discussions

4.1 Communication and Information

The information delivered by officers is considered good enough, presented in table 2. It can be seen from the low-performance score in all aspects of the communication and information dimensions which also affects the low QI value (QI <1). It means that many patients have received clear information exposure from health workers about TB disease, treatment, transmission, side effects, how to store OAT, and the need for a return visit. The delivery of clear and complete information about the disease and medical advice given by health workers to patients can influence patients to behave as expected (Finlay A,2012; Bhatnagar H.2019).

The health communication is one of the important keys to the get success of patient's treatment. The information conveyed by correct communication would be able to increase knowledge and understanding of patients about the disease that they are experiencing and they adherence to medical advice given. Their adherences to this medication would be able to change the patient's quality of life and health status (Farr K,2019). Conversely, the failure of delivery information by health workers give an impact to the patient who has lack of understanding of the disease and medical actions that would be or is being undertaken, failure to reassure the patient (failed reassurance), to non-compliance with medical advice and treatment (Nezenega ZS,2013).

4.2 Patient-Provider Interaction and Counseling

In contrast to the dimensions of communication and information, in the dimensions of patient-health care worker interaction and counselling that based on the experiences obtained by patients, several aspects were considered lacking by patients (Table 2). These aspects include sufficient time for discussion (QI = 3.04) and deal with problem (QI = 2.98). Most patients who need an improvement in TB services at the PHC where they receive treatment consider these two aspects. They feel that there was not enough time for discussions and counseling with health workers regarding TB disease. Counselling with officers to find solutions related to the problems that they experiences is often not found quietly with the officers.

Staff-patient interaction is a very strong indicator of the quality of health care that could determine self-management behaviour and outcome of patient treatment. Staff-patient interaction is a very strong indicator of the health care quality that could determine self-management behavior and outcome of patient treatment. They usually want to be able to talk, discuss problems experienced during the visit, and participate more in decision making during treatment. The effectiveness of these interactions would has an impact on expected treatment outcomes and increase treatment adherence.19This was necessary for the treatment of TB, where a long treatment period and treatment adherence is very important to cure patients and reduce transmission to others.

4.3 TB-HIV Relationship

One may be interested in the causative factors behind the observed correlations. One such factoris co-infection with HIV (Klotz A,2012).The TB-HIV relationship is the most important aspect and needs improvement, shown in table 2. This was seen in the TB-HIV relationship (QI = 6.48), HIV prevention (QI = 6.28), HIV testing (Q = 1.44), and HIV treatment (QI = 6.97) having a QI score>1. Patients feel that the staff does not provide information regarding TB-HIV relationships, HIV prevention in TB patients, offers for HIV testing, or explanations for HIV treatment when they need it. Even when we asked HIV-related questions, many of them does not understand about the disease and their lack of knowledge regarding TB-HIV.

These findings are in line with studies in Ethiopia, where TB patients does not get clear and optimal information regarding TB-HIV, so patients does not have enough information and knowledge about HIV and its prevention (Girma A, 2010). Likewise, another study states that TB patients are also not regularly offered HIV counseling and test (HCT). Some of the reasons for the low rate of HIV testing in TB patients are due to the low number of counselors, poor inter-clinical referrals, different HIV clinic schedules with TB, and inadequate skills of HCT staff (Okot-Chono R, 2009). TB and HIV are interrelated diseases. WHO reports, there were 10 million people with TB in 2018, of which 251,000 deaths were HIV positive TB people.

People with HIV had a 19 times greatered risk of becoming infected with TB and developing active TB. It is due to the progressive decrease in the number and function of CD4 cells in people with HIV and the malfunctioning of macrophages and monocytes. Macrophages and CD4 has an important role in the defensed system of the human body, where if this occured the disorder would easily contract other diseases, one of which is TB (Murray CJL, 1990).TB people diagnosed with HIV and it has not received HIV treatment, has a high risk of dying and this occurs early in TB treatment (Aung ZZ,2019). There are many programs to solve increasing TB-HIV cases.

4.4 Infrastructure

The patients assess infrastructure as an important dimension that needed improvement in TB health services in Semarang City, presented in table 2. Aspects in infrastructure with a value of QI> 1, including the availability of safe drinking water (QI = 6.61), the availability of usable toilets (QI = 1.61), and priority for patients who come with a severe cough condition (QI = 4.2). Some of the patients explained that according to their experience, they had medical treatment at the PHC. There was rarely any drinking water provided in the patient's waiting room, even if they felt thirsty, they had to buy drinks from the canteen or small traders at the PHC which cost them money. Besides, many of them complained about the toilets in uncomfortable and unusable conditions at the PHC. For patients who came with a cough, the officers were not prioritized for an examination; they must continue to queue according to their previous registration.

Facility resources including physical condition, organizational components, technical components are very important for providers in offering quality health services.28Facility resources including physical condition, organizational components, technical components are very important for providers in offering quality health services. A study in Brazil concluded that to achieve satisfactory TB control, major improvements needed to be made to the infrastructure aspect of health facilities. Likewise with other studies which found that the comfort and cleanliness of the health facilities they felt were predictors of patient satisfaction during treatment.29

4.5 Professional Competence

The results of the patient's assessment of professional competence are known that almost all these dimensions, according to the patient, required fix and improvement (Table 2). Five of the 7 aspects have a value of Q>1. These aspects include the availability of sputum examinations in the laboratory (QI = 1.02), TB treatment offers at home (2.18), duration of obtaining sputum examination results (Q = 3.35), and close contact examinations (Q = 4.08), and observation of taking OAT. from the officer (Q = 1.68). Professional competence is the ability and skills of health workers in carrying out predetermined service standards in terms of patient examination, medical assistance, and matters relating to providing services to patients (Stallworthy G, 2020). As a study in Ethiopia revealed that professional service acceptance was a predictor factor for patient satisfaction in carrying out treatment (Nezenega ZS,2019).

4.6 Affordability

There are not many patients who complained about the affordability of TB services (Q <1) (Table 2). Most of them think that TB treatment do not cost a lot of money; this is because PHC provide TB treatment free. WHO states one of the efforts to achieve the target of "End TB" in the world by ensuring that every region in a country could reach health services, both distance, and cost. That way the community can take TB treatment without being hampered by access. Although based on the patient's assessment, there are not many complaints and a good assessment of the affordability of treatment costs, this should still be the concern of health service providers. Cost affordability is an important factor in patient adherence to treatment, which could lead to treatment failure, (Long Q, 2011) and increased household transmission to death (Xu L,2010). A study in Ghana found that spending on TB care led to a significant increase in the proportion of families living in poverty (Xu L,2018). Meanwhile, in our study, some of the patients said that even though TB treatment is free, they still incurred other costs such as transportation costs, accommodation, and replacement costs during treatment because they could not work.

4.7 Support

The support is the dimension that the patient considers the most important dimension (I = 100%)(Table 2). They considered that the PHC did not provide much support such as transportation assistance, food, and money. Therefore, in the aspect of transport support (Q = 6.30), food support (Q = 7.71), and money support (QI = 5.76), need improvements, presented in table 2.TB treatment is a treatment with a long duration of at least 6 months (Daniels B, 2017) with side effects of OAT that are not small, causing the patient to feel worse (Sariem CN,2015). This causes most patients to be unable to perform strenuous activities, so they have to stop working which resulted in the absence of income to make ends meet (McIntyre D,2006). As it had been explained in the aspect of affordability, the patients reveal that they continued to spend outside of treatment during treatment. This is what makes it possible to base the need for help and support from the health center due to their condition. This aspect is also possible to influence patient medication adherence.

4.8 Stigma

On the stigma dimension, patients in this study rated it well. This could be seen from the low importance value (I = 2.2), which means that they consider this dimension not very important for repairs. The QI score in all aspects gets a QI score <1, this means that patient feel the treatment, friendliness, communication responses that received by patients from health workers at the PHC they have visited are good and there was no need for improvement. The attitude of officers to them is friendly, do not differentiate from other patients, and acts fairly, which made them comfortable in taking medication at the PHC. Stigma in health facilities is important to provide quality health care and services and to achieve an optimal degree of health. In contrast to several studies found, the occurrence of stigma in health facilities include refusal of service to patients, provision of substandard services, harassment of patients, and allowing patients to wait a long time and not got professional treatment (Ross CA,2009; Nyblade L,2009; Dodor EA2009). The existence of stigma that occurs in health facilities would affect the diagnosis, involvement, and success of patient treatment (Nyblade L, 2019). Conversely, reducing the stigma of patients in health facilities will improve the quality of care by health workers, stigmatize patient treatment outcomes, and reduce the social risk to patients during treatment.

5. Limitations

Limitations of these analysis include the lack of access to unsuppressed data on TB diagnoses. Many respondents do not want to be interviewed due to their fears of others would find out about their health status and stay away from it.

6. Conclusion

From the patient's perspective, the PHC in Semarang, Indonesia needed fix and improvement in the quality of services in aspects. It includes the services by different officers every time they take medication, time for discussion feel to be lacking by officers who are considered less capable in solving patient problems and lack of explanation by officers about the influence TB in the patient's life. The TB-HIV relationship is related to information that officers do not provide much about TB-HIV, prevention, HIV testing, or HIV treatment. The condition of the PHC facilities also needs improvement such as drinking water that is not provided, cleanliness, and availability of adequate toilets, as well as priority for patients who come with severe coughs. Patients also have a perception that there is a need for an increase in the availability of sputum examinations, offering TB treatment at home, the duration of the examination results that are considered long enough, examining the patient's close contacts, and observers taking drugs. The most important thing in the patient's perspective is the need for improvement in TB services at the health center, namely transportation assistance, food, and money.

The existence of this assessment can provide recommendations and suggestions to service providers in this case the PHC to improve the quality of TB services, so that patient compliance in TB treatment increases. Further research is needed with a wider range of respondents to find out clearer results. Research on service quality which has an important relationship to treatment adherence is also conducted to determine the reasons for patient adherence whether it is due to the quality of TB services.

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