Patient Satisfaction with Pulmonary Tuberculosis Treatment Services at Community Health Centers: An Exploratory Study

Kepuasan Pasien terhadap Pelayanan Pengobatan Tuberkulosis Paru di Puskesmas: Sebuah Studi Eksploratif

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ABSTRAK

Tuberkulosis (TB) masih menjadi masalah kesehatan utama di Indonesia, dengan Kota Makassar melaporkan jumlah kasus tertinggi di Sulawesi Selatan. Penelitian ini bertujuan untuk menilai kepuasan pasien terhadap pelayanan pengobatan TB. Penelitian menggunakan pendekatan kuantitatif deskriptif dengan melibatkan 60 pasien TB yang dipilih melalui teknik purposive sampling. Pengumpulan data dilakukan menggunakan kuesioner QUOTE TB Light yang telah dimodifikasi. Sebagian besar responden berjenis kelamin laki-laki, berusia dewasa, beragama Islam, bersuku Makassar, dan berpendidikan terakhir sekolah menengah atas. Beberapa aspek yang menunjukkan ketidakpuasan pasien meliputi keterbatasan jam operasional layanan (QI = 1,41), kurangnya komunikasi dari petugas (QI = 1,00), kurang memadainya integrasi layanan TB–HIV (QI = 4,65), pencegahan HIV (QI = 4,73), serta layanan tes HIV (QI = 4,33). Selain itu, fasilitas penunjang seperti ketersediaan air minum (QI = 1,75) dan toilet yang layak digunakan (QI = 1,66) juga dinilai kurang memadai. Ketidakpuasan lainnya terkait dengan pemantauan pemeriksaan dahak dan pengobatan (QI = 6,67), serta kurangnya dukungan transportasi (QI = 6,19), makanan (QI = 6,08), dan bantuan finansial (QI = 6,19). Temuan penelitian ini menunjukkan bahwa diperlukan peningkatan dalam aspek komunikasi, akses pelayanan, infrastruktur, serta dukungan sosial ekonomi guna meningkatkan kepuasan pasien dan keberhasilan pengobatan TB.

Kata Kunci: Kepuasan Pasien; Kualitas Pelayanan; Tuberkulosis

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ABSTRACT

Tuberculosis (TB) remains a major health problem in Indonesia, with Makassar City reporting the highest number of cases in South Sulawesi. This study aimed to assess the patient satisfaction with TB treatment services. A descriptive quantitative approach was used, involving 60 patients with TB selected through purposive sampling. Data were collected using a modified QUOTE TB Light questionnaire. Most patients were male, adult, Muslim, Makassarese, and high school graduates. Key areas of dissatisfaction included limited operating hours (QI=1.41), lack of staff communication (QI=1.00), inadequate TB-HIV relationship (QI = 4.65), HIV prevention (QI = 4.73), HIV testing (QI = 4.33), inadequate provision of drinking water (QI = 1.75) and usable toilets (QI = 1.66), poor monitoring of sputum examination and treatment (QI=6.67), and lack of transportation (QI=6.19), food (QI=6.08), and financial support (QI=6.19). The findings suggest that improvements in communication, service access, infrastructure, and socioeconomic support are needed to improve patient satisfaction and treatment outcomes.

Keywords: patient satisfaction; quality of service; tuberculosis

1. INTRODUCTION

Tuberculosis (TB) is a major public health challenge in Indonesia. The disease not only affects the physical well-being of patients but also imposes significant psychological and social burdens. According to the Global Tuberculosis Report 2023, Indonesia ranks second globally in terms of estimated TB cases, with approximately 1,060,000 cases and 134,000 deaths annually (World Health Organization, 2023). This underscores TB's continued priority status of TB in infectious disease control in Indonesia. Regionally, data from the 2023 Tuberculosis Information System (SITB) indicate that Makassar City recorded the highest number of TB cases in the South Sulawesi Province. This high incidence rate highlights the need for focused

attention on TB control in Makassar, extending beyond case detection and treatment to include the evaluation of the quality of TB treatment services that patients receive.

Under the national TB program, Puskesmas are required to provide standardized diagnostic services, DOTS-based treatment supervision, sputum monitoring, health education, and adherence support (Masita et al., 2025). Patient satisfaction with these components is crucial because gaps in counseling, monitoring, or follow-up directly affect treatment adherence and outcomes. Patient satisfaction is a key indicator for assessing the quality of healthcare services. This metric is particularly vital in the context of Universal Health Coverage, as it reflects the effectiveness of health services. Patient satisfaction stems from their subjective assessment of the care process, personal experience, perceived value, and overall perception of the services delivered by health facilities (Endalamaw et al., 2022). Measuring satisfaction among patients with TB is crucial to ensure that the provided treatment services adequately meet their therapeutic needs, thereby contributing to enhanced treatment outcomes, prevention of drug resistance, and improved community transmission control.

However, the implementation of effective healthcare standards continues to face significant challenges in improving service quality, including TB treatment (Letaief et al., 2021). Patient satisfaction can decline significantly when healthcare services are perceived as unjust, uneven, or unresponsive to patient needs (Mercan & Mersin, 2025). Among the factors influencing satisfaction, the duration and quality of consultation time were highly impactful. Given the long-term and complex nature of TB treatment, patients frequently experience stress, anxiety, and reduced quality of life. This highlights the critical need for humane, informative, and supportive services from healthcare professionals (Duko et al., 2020).

Research Rezkiani et al. (2021) in Makassar shows that needs are often unmet due to operational challenges at Community Health Centers (Puskesmas), such as high staff workloads and limited human resources for TB programs, which leads to less interaction time between patients and staff and exacerbates socioeconomic barriers to treatment adherence. These operational and structural barriers directly raise questions about how patients the recipients of services assess the quality and effectiveness of the care they receive.

Although Makassar is the city with the highest TB burden in South Sulawesi, empirical evidence regarding patient satisfaction with TB treatment services at Makassar Community Health Centers (Puskesmas) remains very limited. To date, no research has specifically examined patient perceptions of the quality of TB services in this region. Furthermore, no research has explored the subjective experiences of TB patients, leaving a knowledge gap regarding the extent to which services provided meet patient expectations and needs.

Evaluating patient satisfaction with TB treatment services in Makassar City is crucial for obtaining a realistic picture of the quality of existing services. Therefore, this study aims to assess patient satisfaction and identify priority areas for improvement using the QUOTE TB Light framework, thus providing a basis for strengthening the TB service system and supporting policy development at the local and national levels.

2. METHODS

This study employed a descriptive quantitative design to systematically and objectively portray the level of patient satisfaction with tuberculosis (TB) treatment services in Makassar City, Indonesia. The quantitative approach was chosen for its ability to measure patients' perceptions numerically, allowing for statistical analysis, while the descriptive aspect facilitated a detailed overview of service quality from the patients' perspective. The study was conducted between March and June 2025 at selected public health centers (Puskesmas) that implemented the national TB control program.

Participants were selected using purposive sampling based on the inclusion criteria relevant to the study. The target population was TB patients with TB registered at public health centers in Makassar City. The sample size of 60 was determined using Slovin's formula with a 10% margin of error to ensure an adequate representation. A total of 60 respondents were selected based on the following inclusion criteria: aged ≥ 18 years, currently undergoing or having completed at least one month of TB treatment, and willing to participate in the study. Patients with hearing impairment or severe comorbidities, were excluded. Eligible participants received a comprehensive explanation of the study's aims, procedures, and their rights before they provided written informed consent.

The primary data collection instrument was a structured questionnaire adapted from the Quality of Care Through the Eyes of the Patient (QUOTE TB Light) tool. QUOTE TB Light is a validated instrument specifically developed to assess TB service quality from the patient's perspective. It covers nine core service dimensions, including accessibility, staff interaction, infrastructure adequacy, and TB-HIV service integration.

For this study, the instrument was used in two formats: (1) as a guide for Focus Group Discussions (FGDs) to assess the relative importance of each service dimension and (2) as an individual interview questionnaire to evaluate patients' experiences and perceptions of service quality. The instrument was culturally adapted to the local context to ensure clarity and relevance for the respondents.

Prior to data collection, each participant was provided with a clear oral and written explanation of the study's objectives, benefits, procedures, and ethical considerations, including the right to withdraw at any stage without consequence. Only those who agreed to participate voluntarily and signed an informed consent form were included in the study, in compliance with standard ethical research practices. The first phase involved a Focus Group Discussion (FGD) with selected patients to determine the importance of each of the nine service dimensions included in the QUOTE TB Light instrument. During the discussion, participants were asked to rank the dimensions according to their perceived importance using illustrated cards to support their understanding. The second phase consisted of individual interviews using a structured questionnaire adapted from the QUOTE TB LIGHT tool. The interviews were conducted in a private and comfortable setting to allow the patients to freely express their views on the quality of TB services they received. The questionnaire assessed the perceived performance of healthcare services across the previously ranked dimensions. Data from both the FGDs and interviews were compiled and prepared for analysis, enabling the identification of service aspects that were important to patients and perceived as underperforming.

The collected data were analyzed using the Quality Impact (QI) score methodology. The QI score for each service dimension was calculated by multiplying the importance score (derived from the FGDs) by the poor performance score (from the individual interviews). A QI score greater than 1.00 indicates that the dimension is considered important by patients but is underperforming, thus identifying it as a priority area for improvement. Conversely, a QI score of ≤ 1.00 suggests that the service meets or exceeds patient expectations. This analytical approach provides a comprehensive overview of service quality from the patient's perspective and guides evidence-based improvements in the delivery of TB services.

This research had received ethical approval from the Ethics Committee of the Faculty of Nursing, Hasanuddin University, on April 28, 2025, with approval number 31X/UN4.18.3/TP.01.02/2025.

3. RESULTS
3.1 Frequency Distribution of Respondent Demographic Data

Table 1. Frequency Distribution of Patient Demographics (n=60)

Characteristics	Frequency (f)	Percentage (%)
Age		
Adult	50	83.3
Elderly	10	16.7
Gender		
Male	39	65.0
Female	21	35.0
Religion		
Islam	59	98.3
Christian	1	1.7
Ethnicity		
Makassar	55	91.7
Bugis	2	3.3
Javanese	1	1.7
Others	2	3.3
Last Education		
Elementary School	20	33.3
Junior High School	12	20.0
Senior High School	22	36.7
Never Attended School	6	10.0
Occupation		
Daily Laborer	14	23.3
Homemaker	18	30.0
Trader	2	3.3
Unemployed	9	15.0
Others	17	28.3
Type of Pulmonary TB Suffered		
Bacteriologically Confirmed Pulmonary TB	41	68.3
Clinically Diagnosed Pulmonary TB	15	25.0

Drug-Resistant Pulmonary TB (DR-TB)	4	6.7
Year of TB Diagnosis		
2025	27	45.0
2024	29	48.3
2023	4	6.7
Duration of Treatment		
1 Month	3	5.0
2 Months	10	16.7
3 Months	11	18.3
4 Months	3	5.0
5 Months	1	1.7
6 Months	1	1.7
Treatment Completed	31	51.7

Based on Table 1, a total of 60 patients with TB participated in this study, which was conducted at Puskesmas in Makassar City. The respondents were predominantly adults in the productive age group, with males forming the majority. Most were of Makassar ethnicity and Muslim, reflecting the local population served by the Puskesmas. Education levels varied, although the largest group consisted of high school graduates. Patients most commonly had bacteriologically confirmed TB, with nearly half diagnosed in 2024 and more than half having completed treatment. These demographic characteristics provide an overview of the patient population accessing TB care in Makassar.

The predominance of adults and males is consistent with global TB patterns, where occupational exposure, mobility, and behavioral risk factors contribute to higher susceptibility. Lower educational attainment among some respondents may influence health literacy and engagement with treatment, which is relevant when interpreting satisfaction levels. Most patients were in the continuation phase of treatment, which is relevant as satisfaction may differ between intensive and continuation phases due to changes in service frequency and symptom improvement.

3.2. Assessment of TB Service Quality Based on 9 Dimensions of Quote TB Light

Based on Table 2, the analysis of the TB service quality assessment involving 60 patients at Puskesmas revealed that several indicators had QI values ≥ 1.00, indicating priority areas for improvement. In the Service Availability dimension, the indicator "convenience of opening hours" obtained a QI of 1.41, meaning that patients felt the service operational hours were not fully aligned with their needs. This highlights the necessity of adjusting service schedules to be more flexible and responsive to patients' socioeconomic conditions, especially for those who work or have specific time constraints.

In the Patient-Staff Interaction dimension, two indicators showed QI values above the threshold: "explanation by staff" (QI: 1.00) and "discussion about patient problems" (QI: 1.33). These findings indicate that some patients felt insufficiently involved in two-way communication with their healthcare providers. Suboptimal interaction quality can impact patients' understanding of their disease and treatment. Improving the quality of counseling and empathy in communication is necessary so that patients feel heard and have greater trust in the services they receive.

The TB-HIV Relationship dimension was one of the dimensions with the highest QI scores, including "TB-HIV relationship" (QI: 4.65), "HIV prevention" (QI: 4.73), and "HIV testing" (QI: 4.33). High QI values in this aspect indicate perceived limitations in information and access related to HIV among patients, despite its close connection with TB. A lack of information or education on this matter is a significant concern, as it can affect the success of patient management for those at risk or co-infected.

Furthermore, in the Infrastructure dimension, indicators such as "provision of drinking water" (QI: 1.75) and "usable toilets" (QI: 1.66) were also above the threshold, indicating a lack of basic facilities that support patient comfort. In the Professional Competence dimension, two important indicators, "duration of sputum examination" (QI: 6.67) and "monitoring of OAT intake by staff" (QI: 2.44), showed that the technical aspects of service also need improvement. Lastly, the Assistance dimension recorded the highest QI scores for all its indicators: "transportation assistance" (QI: 6.19), "food assistance" (QI: 6.08), and "financial assistance" (QI: 6.19), confirming an urgent need for socioeconomic support to bolster TB treatment success. These findings underscore the importance of comprehensive interventions encompassing structural, technical, and social support for patients.

Table 2. Assessment of TB Service Quality Based on 9 Dimensions of QUOTE TB Light

9 Dimensions (Aspects)	Quality Impact (QI)
B-1 Availability Of Tuberculosis (TB) Services	
Waiting time	0.42
Consistent service	0.85
Convenience of opening hours	1.41*
Availability of medication	0.42
Communication difficulties	0.71
Going to other facilities	0.14
Easily accessible	0.28
Timely service	0.56
Staff readiness to serve	0.56
B-2 TB Transmission	
TB transmission	0.00
TB is curable	0.00
Treatment supporter/DOTS supervisor (PMO)	0.00
Side effects	0.00
Sputum examination	0.00
Duration of treatment	0.11
How to store medication	0.00
Return visits to TB services	0.33
B-3 Patient-Staff Interaction and Counseling	
Staff respect patients	0.33
Staff listen carefully to patients	0.83
Explanation by staff	1.00*
Enough time for discussion	0.50
Discussion about patient problems	1.33*
Service discrimination	0.00
Respecting privacy	0.00
Staff explain the impact of TB on life	0.00
B-4 TB-HIV Relationship	
TB-HIV relationship	4.65*
HIV prevention	4.73*
HIV testing	4.33*
How to get HIV treatment	0.00
Support for HIV treatment adherence	0.00
B-5 Infrastructure	
Room cleanliness	0.55
Provision of drinking water	1.75*
Usable toilets	1.66*
Comfortable seating	0.00
Priority for patients arriving with severe cough	0.06
B-6 Professional Competence	
Availability of sputum examination in the laboratory	0.00
TB treatment at home	0.00
Physical examination	0.55
Sputum examination	0.00
Duration of sputum examination	6.67*
Staff conduct contact investigation	0.44
Staff monitor OAT intake	2.44*
B-7 Affordability	
Cost of TB examination	0.43
Cost of TB services	0.00
Transportation cost	0.00

B-8 Assistance

Transportation assistance	6.19*
Food assistance	6.08*
Financial assistance	6.19*

B-9 Stigma

Equal treatment across services	0.08
Staff friendliness	0.25
Staff communication response to patients	0.00
Staff respect patients	0.00

4. DISCUSSIONS

The demographic pattern of this study aligns with global TB epidemiology, where adults in productive age groups and males are disproportionately affected, largely due to occupational exposure, mobility, and behavioral risks (Fox et al., 2021). These characteristics suggest the importance of targeted health promotion for working-age men, particularly those in informal employment sectors (MacNeil et al., 2020).

Most patients had lower educational backgrounds and unstable socioeconomic conditions—factors known to influence health literacy, service access, and treatment adherence (Washington et al., 2023; Cazabon et al., 2020; Nutbeam et al., 2018). This highlights the need for simplified, culturally appropriate education and flexible service delivery models to support vulnerable groups. Additionally, the predominance of local ethnic and religious groups underscores the relevance of community-based and culturally sensitive TB interventions shown to enhance program acceptance and treatment success (Bbuye et al., 2024).

Based on the analysis of TB patients, it was found that several service aspects showed Quality Impact (QI) values above the standard, indicating that these dimensions are important to patients but are still perceived as suboptimal. In the Service Availability dimension, the "convenience of opening hours" indicator suggested that the operational hours of health facilities were not fully aligned with patient needs. This impacts patients' accessibility to services, particularly for those who work or have time constraints. A study by Chaiya et al. (2022) supports this finding, stating that inflexible operational hours and less responsive service systems directly influence TB patient satisfaction and treatment adherence. Furthermore, dissatisfaction with the long duration of sputum examination and OAT monitoring reflects the perception of inefficiency and lack of priority given to TB protocols, which increases the time and financial burden on patients. Amorim et al., (2024) showed that an active and supervised DOTS system can increase cure rates, emphasizing the need to revitalize the monitoring system, including the involvement of families and community health workers.

In the Patient-Staff Interaction dimension, the indicators "explanation by staff" and "discussion about patient problems" reflected a lack of effective communication and sufficient discussion time between the staff and patients. Poor communication can reduce patients' understanding of their disease, therapy, and the importance of adherence. Arulchelvan and Elangovan (2017) emphasized the importance of empathy, active listening, and two-way communication as foundations for quality service. In many global contexts, failure to establish meaningful communication has been shown to reduce patient trust in the system and worsen treatment outcomes. From the patient's perspective, this creates the impression that they are being rushed, poorly listened to, and not given sufficient space to discuss the psychosocial barriers they experience, including stigma and treatment side effects.

The TB-HIV Relationship dimension recorded the highest QI in this study, specifically for the indicators "TB-HIV relationship," "HIV prevention," and "HIV testing." These values indicate low patient understanding and access to integrated TB-HIV services, despite co-infection being a strategic issue in global TB control. Other studies suggest that the effective integration of TB and HIV services can improve HIV screening and preventive education among TB patients (Awaidy et al., 2025). However, challenges persist in many developing countries, including Indonesia, owing to insufficient socialization, staff training, and information system support.

From the Infrastructure aspect, indicators such as "provision of drinking water" and "usable toilets" suggest that patients complained about inadequate basic facilities. Clean and proper facilities are part of the service experience that determines patient comfort and satisfaction. Li et al. (2022) and Pratiwi et al. (2025) underscore that primary care infrastructure, including sanitation, ventilation, and waiting areas, significantly influences perceptions of service quality. Patients with TB are prone to physical exhaustion due to drug side effects; thus, poor facilities would worsen their experience.

In the Professional Competence dimension, the indicators "duration of sputum examination" and "monitoring of OAT intake" reflect process inefficiencies and a lack of intensive supervision. Slow examinations and loose monitoring increase the risk of delayed diagnosis and treatment dropout. Amorim et

al., (2024) indicate that active and supervised DOTS systems can improve cure rates. This emphasizes the need to revitalize monitoring systems, including the involvement of families and community health workers.

The Social Assistance dimension recorded very high QI scores for "transportation assistance," "financial assistance," and "food assistance." These findings reinforce the understanding that economic and logistical support is crucial for patients with TB, especially those from socially vulnerable groups. A lack of financial support hinders patients' routine access to services and potentially leads to delayed or interrupted treatment (Wells & Severn 2021). Previous research, including a meta-analysis, has proven that providing financial incentives and food assistance significantly increases TB treatment retention, particularly in low- and middle-income countries (Amorim et al., 2024).

Conversely, some dimensions, such as TB Transmission and Stigma, recorded low QI values, and even zero for some indicators. This can be interpreted in two ways: first, patients felt that these dimensions were adequately addressed; second, these dimensions were not fully understood or perceived as important by patients. In the context of exploratory studies, a low QI on the Stigma dimension is the most critical area for reflective interpretation, as it does not necessarily mean that stigma is absent. Rather, it indicates that stigma is often internalized, normalized, or too sensitive to be expressed openly through standard survey indicators. Duko et al. (2020) and Chaiya et al. (2022) emphasize that even when services appear to be functioning well, subtle stigma and misconceptions about transmission remain hidden threats. Therefore, continuous education on prevention and stigma remains necessary as a long-term strategy.

Overall, these findings suggest that TB service dimensions need simultaneous improvement, ranging from infrastructure, communication, and HIV service integration, to social assistance. Patient- and community-based approaches, along with cross-sectoral interventions, are necessary to enhance the quality of services and the success of TB treatment in urban areas such as Makassar.

5. CONCLUSION

The majority of TB patients at the community health center (Puskesmas) are adult males of Makassar ethnicity with diverse educational and occupational backgrounds. Evaluation using the QUOTE TB Light instrument revealed that several service aspects, such as operating hours, staff communication, TB-HIV education, infrastructure, and social support, remained suboptimal. The highest Quality Impact (QI) scores were found for economic assistance needs and technical service aspects, such as sputum examination duration. These findings highlight the urgent need for comprehensive improvements in TB service quality, particularly in terms of communication, social support, and facility infrastructure, to enhance patient satisfaction and treatment success. TB service programs should prioritize integrating TB–HIV education, increasing staff capacity in patient counseling, ensuring timely diagnostic processes, and developing ongoing support schemes to support consistent treatment adherence and improve patient satisfaction and outcomes.

LIMITATION

The relatively small sample size and the use of purposive sampling techniques limit the ability of this study to be generalized to the entire TB patient population in Makassar and other regions.

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