



# Patient characteristics and satisfaction across different dimensions of healthcare for tuberculosis: A study at Puskesmas Polonia, Medan

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## ABSTRACT

**Background:** High-quality healthcare is vital for effective TB management. Patient satisfaction reflects service quality and influences treatment adherence. This study investigates the characteristics and satisfaction levels of pulmonary TB outpatients at Puskesmas Polonia, Medan, a high-burden facility. **Aims:** To describe the demographic characteristics of TB patients and analyze their satisfaction across various healthcare service dimensions (tangibles, reliability, responsiveness, assurance, empathy, and operational satisfaction). **Methods:** A cross-sectional study was conducted from December 2024 to January 2025, involving 82 pulmonary TB outpatients selected via purposive sampling. Data on patient characteristics and satisfaction (overall and by dimension, using a dichotomous scale) were collected through questionnaires and analyzed using univariate statistics. **Results:** The majority of the 82 TB patients were male (63.4%), with the largest age groups being 21-30 and 31-40 years (24.4% each). Most had upper secondary education (32.9%). Overall, 76.83% of patients reported satisfaction. Satisfaction levels varied across dimensions: assurance (83.0%) and reliability (79.0%) were highest, while operational satisfaction (67.0%) and responsiveness (71.0%) were lower. **Conclusion:** While overall satisfaction was high, specific service dimensions, particularly operational processes and responsiveness, require attention to enhance the patient experience for TB patients at Puskesmas Polonia. These findings can inform targeted interventions to improve service quality and support TB control efforts.

**Keywords:** tuberculosis, demographic characteristics, service dimensions, patient satisfaction

## Introduction

High-quality healthcare provision is a critical indicator in evaluating the success of a nation's health system.<sup>1</sup> Service quality encompasses not only clinical aspects, such as diagnostic accuracy and treatment efficacy, but also non-clinical dimensions including communication, comfort, and the responsiveness of healthcare professionals.<sup>2</sup> For patients with pulmonary tuberculosis (TB), optimal service delivery is particularly crucial given the complexity of managing this disease, which necessitates long-term treatment adherence.<sup>3,4</sup> Consequently, evaluating healthcare service quality from the patient's perspective represents a vital step in enhancing the accountability and performance of healthcare facilities, especially at the primary care level, such as community health centres (Puskesmas).<sup>5,6</sup>

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Pulmonary tuberculosis remains a significant public health concern in Indonesia, including the city of Medan. Indonesia ranks third globally in TB cases after India and China. In 2022, 717,941 cases were reported (74% of the 85% target), with an 86% treatment success rate, an increase from 397,377 cases in 2021. While below the WHO's 90% target, Indonesia's rising treatment success offers hope for ending TB. Eastern Indonesia accounts for the largest share of cases (44%), followed by Sumatra (33%) and Java-Bali (23%).<sup>7</sup> North Sumatra saw 34,714 TB cases in 2022, up from 19,147 in 2021, with men (64.69%) having a higher incidence than women (35.31%) across all districts/cities in the province.<sup>8</sup> Puskesmas Polonia, as a primary healthcare centre in Medan, plays a strategic role in TB control through the Directly Observed Treatment Short-course (DOTS) programme.<sup>9</sup> However, the success of this programme depends not only on the availability of medication and facilities but also on patients' perceptions of the services provided. Patient satisfaction is a subjective indicator that can reflect the acceptability and quality of the care received.<sup>10,11</sup>

Patient satisfaction is influenced by various factors, including waiting times, staff attitudes, physical facilities, and the information provided by healthcare professionals. For TB patients, dissatisfaction with services can have serious consequences, such as reduced motivation to adhere to treatment, potentially leading to treatment discontinuation (drop-out).<sup>12-14</sup> This can worsen recovery rates and increase the risk of TB transmission within the community.<sup>15,16</sup> Therefore, understanding the relationship between service quality and patient satisfaction among pulmonary TB patients at Puskesmas Polonia is important for identifying areas for improvement that can support the success of TB control efforts.

Previous research has indicated that patient dissatisfaction is often linked to inadequate communication between healthcare professionals and patients, as well as limitations in the infrastructure of healthcare facilities.<sup>10,17,18</sup> However, specific studies evaluating the satisfaction of pulmonary TB patients at Puskesmas Polonia remain limited. Findings from such research could provide valuable insights for Puskesmas management in designing more patient-centred interventions. Based on data obtained from the Polonia Medan Community Health Centre, there has been an increase in the number of pulmonary tuberculosis (TB) patients seeking treatment and care at the facility. In 2021, the number of pulmonary TB patients at the Polonia Medan Community Health Centre was recorded as 300, with an upward trend in 2022 to 320. In 2023, the number of patients further increased to 350. These figures indicate a substantial healthcare burden for pulmonary TB patients at the Polonia Community Health Centre. Furthermore, the Polonia Medan Community Health Centre recorded the highest number of pulmonary TB patients among all community health centres in the city of Medan during this period. Consequently, This study aims to describe the characteristics of tuberculosis patients and analyse their satisfaction levels across various dimensions of healthcare services at Puskesmas Polonia, Medan.

## Method

This research employs an analytical observational approach with a cross-sectional design, enabling simultaneous measurement and observation at a single point in time. The study aims to determine the level of satisfaction among pulmonary tuberculosis outpatients regarding the quality of healthcare services at the Puskesmas Polonia in Medan, and conducted from December 2024 to January 2025. The study population comprises all pulmonary tuberculosis outpatients receiving healthcare services at the Puskesmas Polonia, Medan. The study sample of 82 patients was selected using purposive sampling based on pre-defined inclusion and exclusion criteria. This sample size was calculated using Slovin's formula from a total population of 470 patients, with a margin of error of 10%. Primary data will be collected through direct interviews using a questionnaire, while secondary data will be obtained from relevant documents and records.

This research employed a questionnaire as the primary instrument to assess patient satisfaction and healthcare service quality. Patient satisfaction was measured using a dichotomous scale (Satisfied/Not Satisfied) comprising five questions. Respondents were categorised as satisfied if they answered "Yes" to more than half of the questions (score  $\geq 3$ ) and not satisfied if they answered "Yes" to half or fewer (score  $\leq 2$ ). Service quality was evaluated through the five dimensions of SERVQUAL (Tangibles, Reliability, Responsiveness, Assurance, Empathy) and an additional dimension (Operational Satisfaction), each assessed with five dichotomous scale questions identical to those used for patient satisfaction. The data collected via the closed-ended questionnaires underwent a processing sequence involving data editing, data coding, data entry into a statistical software package (e.g., SPSS), and data cleaning. Data analysis was conducted using univariate statistics to describe respondent characteristics and variable distributions.

## Results

Table 1 presents the characteristics of 82 tuberculosis (TB) patients. The data includes information on their gender, age, education level, and occupation. Regarding gender, the majority of the TB patients in this study were male, accounting for 52 individuals (63.4%). The remaining 30 patients (36.6%) were female. The age distribution of the patients showed a wide range. Ten patients (12.2%) were under 20 years old. The largest age groups were those aged 21-30 years and 31-40 years, with 20 patients each (24.4% for both). Fifteen patients (18.3%) were between 41 and 50 years old, while 17 patients (20.7%) were over 50 years of age.

In terms of education level, the largest group of patients (27 individuals, 32.9%) had attained upper secondary education. Following this, 18 patients (22.0%) held a Bachelor's Degree, and 15 patients (18.3%) had only completed primary education. Twelve patients (14.6%) had lower secondary education, and 10 patients (12.2%) held a Diploma (D1-D3). Finally, the occupational distribution of the TB patients revealed that the largest categories were those working in the private sector, self-employed individuals, and those classified as "Other," each comprising 20 patients (24.4%). Twelve patients (14.6%) were civil servants, and 10 patients (12.2%) were students.

**Table 1. TB patient's characteristics (n=82)**

Variable	N	%
<b>Gender</b>		
Male	52	63,4
Female	30	36,6
<b>Age</b>		
< 20 years	10	12,2
21-30 years	20	24,4
31-40 years	20	24,4
41-50 years	15	18,3
> 50 years	17	20,7
<b>Education level</b>		
Primary Education	15	18,3
Lower Secondary Education	12	14,6
Upper Secondary Education	27	32,9
Diploma (D1-D3)	10	12,2
Bachelor's Degree	18	22,0
<b>Occupational</b>		
Civil Servants	12	14,6
Private Sector	20	24,4
Self-Employed	20	24,4
Students	10	12,2
Other	20	24,4

Looking at the data (Table 2), the majority of the patients expressed satisfaction. Specifically, 63 out of the 82 patients reported being satisfied. This number corresponds to 76.83% of the total patient population included in this study. Conversely, a smaller proportion of patients indicated dissatisfaction. There were 19 patients who reported being dissatisfied, which represents 23.17% of the total of 82 patients surveyed. In summary, the data from this table indicates that a significant majority of the patients (76.83%) reported being satisfied, while a notable minority (23.17%) expressed dissatisfaction with their overall experience. This suggests a generally positive level of patient satisfaction within the studied group, although there is still a segment of patients whose needs or expectations were not fully met.

**Table 2. Overall patient satisfaction (n=82)**

Variable	n	%
<b>Satisfaction level</b>		
Satisfied	63	76.83
Dissatisfied	19	23.17

The data presented in Table 3 provides a detailed overview of patient satisfaction levels across various dimensions of healthcare service. The table breaks down satisfaction into "Satisfactory" and "Unsatisfactory" categories for each dimension, along with the number of respondents (n) and the corresponding percentage (%) for each category. Starting with tangibles, which encompass the physical aspects of the healthcare

facility such as cleanliness, modern equipment, and the comfort of the waiting area, the data indicates that a significant majority of patients, 60 out of 82 (73.0%), reported a satisfactory level of experience. However, a notable portion, 22 patients (27.0%), found these tangible aspects to be unsatisfactory.

Table 3. Patient satisfaction levels by healthcare service dimension

Dimension	Indicator	Satisfaction level	n	%
Tangibles	Cleanliness of facilities, modern equipment, waiting area comfort	Satisfactory	60	73,0
		Unsatisfactory	22	27,0
Reliability	Consistency and accuracy of service delivery	Satisfactory	65	79,0
		Unsatisfactory	17	21,0
Responsiveness	Speed of response to patient needs	Satisfactory	58	71,0
		Unsatisfactory	24	29,0
Assurance	Knowledge, courtesy, and sense of security perceived by patients	Satisfactory	68	83,0
		Unsatisfactory	14	17,0
Empathy	Personal attention provided to patients	Satisfactory	63	76,8
		Unsatisfactory	19	23,2
Operational satisfaction	Service processes and flow	Satisfactory	55	67,0
		Unsatisfactory	27	33,0

In terms of reliability, which refers to the consistency and accuracy of service delivery, the satisfaction level was even higher. Out of the 82 respondents, 65 patients (79.0%) expressed satisfaction, while only 17 patients (21.0%) reported dissatisfaction with the reliability of the services. Regarding responsiveness, which measures the speed of response to patient needs, the satisfaction level was slightly lower compared to reliability and tangibles. Here, 58 patients (71.0%) found the responsiveness satisfactory, while a larger proportion, 24 patients (29.0%), indicated dissatisfaction. The dimension of assurance, which relates to the knowledge and courtesy of healthcare providers and the sense of security perceived by patients, showed the highest level of satisfaction among all dimensions. A substantial 68 patients (83.0%) reported satisfactory assurance, with only 14 patients (17.0%) expressing dissatisfaction. For empathy, which focuses on the personal attention provided to patients, the satisfaction level remained relatively high. Sixty-three patients (76.8%) were satisfied with the level of empathy shown, while 19 patients (23.2%) reported an unsatisfactory experience in this regard. Finally, operational satisfaction, which pertains to the service processes and flow within the healthcare facility, recorded the lowest satisfaction level among the dimensions examined. Only 55 patients (67.0%) found the operational aspects satisfactory, while a considerable 27 patients (33.0%) expressed dissatisfaction with the service processes and flow.

In summary, the table reveals varying levels of patient satisfaction across different dimensions of healthcare service. While assurance and reliability show the highest levels of satisfaction, operational satisfaction and responsiveness indicate areas where a larger proportion of patients reported dissatisfaction. tangibles and empathy fall in between, with a clear majority expressing satisfaction but a notable minority indicating dissatisfaction. These findings highlight specific areas where the healthcare provider may need to focus efforts to improve the overall patient experience.

## Discussion

A study conducted at the Polonia Community Health Centre (Puskesmas Polonia) in Medan successfully identified a significant correlation between healthcare service quality and the satisfaction levels of tuberculosis (TB) outpatients. The in-depth analysis encompassed various dimensions of service quality, including tangibles, reliability, responsiveness, assurance, empathy, and satisfaction with operational aspects. The findings of this research provide a detailed account of patient perceptions regarding the quality of received care. Evaluation of the tangible aspects, which included facility cleanliness, the sophistication of medical equipment, and waiting room comfort, indicated that the majority of respondents (73%) provided a positive assessment. Nevertheless, 27% of patients perceived shortcomings in this area, suggesting a need for improvements in facility maintenance and the provision of more representative amenities to enhance patient comfort.<sup>7,19</sup> Regarding the reliability of services, 79% of respondents rated positively the consistency and accuracy of the care provided by healthcare professionals. However, 21% of patients reported experiencing inconsistencies in service delivery. These findings underscore the importance of enhancing the standardisation of service procedures to ensure greater uniformity and accuracy of care.<sup>20</sup>

In the dimension of responsiveness, 71% of patients felt that healthcare professionals had adequately addressed their needs. However, 29% of patients believed that the speed of response still required improvement. Optimising the service delivery system is crucial to ensure that patient needs can be addressed more efficiently, promptly, and appropriately.<sup>21</sup> The assurance aspect recorded the highest satisfaction level at 83%, reflecting patients' positive perceptions of the competence and professionalism of healthcare professionals, as well as the sense of security they felt while receiving care. Despite this, 17% of respondents still had expectations that were not fully met. Enhanced communication and the strengthening of trust between healthcare professionals and patients are necessary to reinforce a sense of security in the care provided.<sup>19,20</sup> The assessment of empathy showed that 76.83% of respondents appreciated the attention and concern shown by healthcare professionals. However, 23.17% of patients felt that the personal approach in service delivery was suboptimal. This indicates a need for the development of interpersonal communication skills and the implementation of a more humanistic approach in providing care to patients.<sup>20</sup>

Finally, concerning operational satisfaction, 67% of patients gave a favourable assessment of the service procedures at the Polonia Community Health Centre. However, a dissatisfaction rate of 33% suggests potential obstacles in the efficiency of administrative procedures, inter-departmental coordination, and the overall smoothness of the service flow. Overall, this research highlights the importance of continuous improvement across various dimensions of service quality to enhance the satisfaction of TB outpatients at the Polonia Community Health Centre in Medan. The research findings can serve as a basis for the development of more targeted and effective intervention strategies to improve healthcare service quality.

## Conclusion

A majority (76.83%) of the 82 TB patients at Puskesmas Polonia were satisfied, though satisfaction varied by service dimension. Assurance (83.0%) and Reliability (79.0%) were highest, while Operational Satisfaction (67.0%) and Responsiveness (71.0%) were lower, indicating key areas for improvement. The patient sample was predominantly male, with most being young to middle-aged adults and having upper secondary education. Enhancing operational processes and responsiveness, alongside tangibles and empathy, can further improve patient experience at this primary healthcare center.

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