

Association between clinical pathology laboratory services quality and outpatient satisfaction

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Abstract

Clinical pathology laboratory services play an essential role in supporting patient diagnosis, treatment, and recovery. The high number of outpatient visits to laboratories poses challenges in terms of timeliness, facility availability, and staff responsiveness, which can affect patient satisfaction. This study aims to analyze the relationship between the quality of clinical pathology laboratory services and the satisfaction of outpatients at Restu Ibu Hospital in Balikpapan. The study design uses a quantitative correlational approach with a cross-sectional method, involving 175 respondents selected through purposive sampling. The research instrument was a questionnaire covering service quality and patient satisfaction, with data analysis using Spearman's correlation test. The results showed that most patients rated the laboratory services as good and expressed satisfaction with the services received. Additionally, a significant positive relationship was found between service quality and patient satisfaction. These findings emphasize the need for continuous improvement in physical facilities, service quickness, and empathetic communication by medical personnel to strengthen service quality and increase patient satisfaction.

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1. Introduction

Hospital laboratory services are one of the medical support units that support the diagnostic process, therapy planning, evaluation of treatment results, and clinical decision-making. Therefore, laboratory services must maintain consistent quality through accurate test results, timeliness, and accountability in responding to patient complaints (Angraeni et al., 2019). This process requires effective communication and precise information delivery to ensure smooth service and a positive patient experience.

The Clinical Pathology Laboratory at Restu Ibu Hospital in Balikpapan is a unit that operates 24 hours a day to support further examination of patients. This unit's outpatient visits reach more than 100 people per day. The high volume of visits demands fast, accurate, and patient-oriented services. However, various obstacles are still encountered, including limited staff, relatively long waiting times for laboratory results, inadequate waiting room facilities, and suboptimal responsiveness from staff. Other complaints that have also arisen include incomplete examination equipment, unclear communication of examination results, and waiting room cleanliness and comfort that do not meet expectations. These conditions have implications for the risk of decreased patient satisfaction and emphasize the need for systematic evaluation of laboratory service quality.

Patient satisfaction is a key indicator of service quality and healthcare organization performance. High patient satisfaction enhances the hospital's image and encourages patient loyalty, contributing to financial sustainability through repeat visits and word-of-mouth promotion (Angraeni et al., 2019; Yanti, 2019). Conversely, dissatisfaction caused by long waiting times, unprofessional staff behavior, or limited facilities can undermine public trust, reduce interest in using services, and damage the hospital's reputation (Triwardani, 2017; Yanti, 2019). Previous studies have also confirmed that service quality significantly influences patient satisfaction in various healthcare contexts (Anwary, 2020; Yusra, 2020; Rahma, 2022; Maarif, Haeruddin, & Sumiati, 2023).

A commonly used conceptual framework for assessing the quality of health services is the ServQual model developed by Parasuraman et al. (1988). This model divides service quality into five main dimensions, namely tangibles, reliability, responsiveness, assurance, and empathy (Tjiptono & Chandra, 2017; Yanti, 2019). Previous studies have proven this model's relevance in the health context. Anwary (2020) found that the reliability and empathy of staff were the dominant factors influencing patient satisfaction at community health centers. Yusra (2020) reported that low service quality was directly associated with BPJS patient dissatisfaction, while Rahma (2022) showed that laboratory service quality affected outpatient satisfaction by up to 84.6%. Furthermore, Maarif et al. (2023) identified patient complaints based on the ServQual dimensions, including reliability, guaranteed availability of medicines, cleanliness of rooms, friendly attitude of staff, and timeliness of service.

Although several studies have been conducted, research on the relationship between the quality of clinical pathology laboratory services and the satisfaction of outpatients in Indonesian private hospitals, particularly in Balikpapan City, is still limited. Therefore, this study aims to analyze the relationship between the quality of clinical pathology laboratory services and the satisfaction of outpatients at Restu Ibu Hospital in Balikpapan. The findings of this study can provide empirical evidence for applying the ServQual model in health laboratories and strategies for improving patient-oriented service quality in clinical pathology laboratories.

2. Method

2.1 Research Design and Participants

This study used a quantitative design with a correlational analytical design and a cross-sectional approach to examine the relationship between laboratory service quality and patient satisfaction in a single observation period. The study location was the Clinical Pathology Laboratory at Restu Ibu Hospital in Balikpapan, with the study population comprising all outpatients who accessed laboratory services during the study period. The sample size was set at 175 respondents using the Slovin formula at a 5% error rate, which was determined using purposive sampling techniques. The inclusion criteria included patients aged ≥ 17 years, who had completed laboratory tests, and were willing to provide informed consent, while the exclusion criteria included patients with emergency conditions, cognitive impairments that hindered questionnaire completion, or who refused to participate. The selected respondents represented demographic variations based on age, education level, and occupation, thus providing an overview of the characteristics of outpatients at the hospital.

2.2 Instruments and Data Collection

The research instrument was a structured questionnaire consisting of a service quality questionnaire and a patient satisfaction questionnaire. The service quality questionnaire consisted of 15 items with five ServQual dimensions: tangibles, reliability, responsiveness, assurance, and empathy. Meanwhile, the patient satisfaction questionnaire comprised 10 questions to assess satisfaction with laboratory services. All items in the instrument were measured using a 5-point Likert scale. Validity and reliability tests were conducted beforehand at the Beriman Balikpapan Regional General Hospital with 30 respondents. The validity test showed that all items on the service quality questionnaire (15 items) and patient satisfaction questionnaire (10 items) had a corrected item-total correlation value greater than r table (0.361), while the reliability test results showed a Cronbach's Alpha value > 0.70 . Data was collected directly at the Clinical Pathology Laboratory of Restu Ibu Hospital in Balikpapan using questionnaires distributed by researchers and enumerators briefed on this study. Respondents were explained the purpose and benefits of the study and asked to sign an informed consent form before completing the questionnaire and after finishing their laboratory tests.

2.3 Data Analysis

The collected data were checked for completeness to ensure no missing data. The data were analyzed using SPSS software version 26. Univariate analysis was performed to describe the characteristics of the respondents (gender, age, education level, and occupation) and the distribution of service quality and patient satisfaction variables, which were presented in the form of frequency distributions and percentages (Subhaktiyasaa et al., 2025). Furthermore, bivariate analysis using the Spearman Rank Correlation test was performed to examine the relationship between laboratory service quality and patient satisfaction. The Spearman test was chosen because the data were normally distributed and ordinal in scale, with a significance criterion set at $p < 0.05$. The strength of the correlation was determined based on the correlation coefficient value $r = 0$ (no relationship), $0.1 \leq r < 0.3$ (weak), $0.3 \leq r < 0.5$ (moderate), or $r \geq 0.5$ (strong).

2.4 Ethical Considerations

This study has obtained ethical approval from the Ethical Committee of STIKES Wira Medika Bali with approval number: 474/E1.STIKESWIK/EC/IV/2025.

3. Results and Discussion

3.1 Results

This study's respondents were 175 outpatients who met the inclusion and exclusion criteria. Demographic characteristics are shown in Table 1, which includes gender, age, highest level of education, and occupation. These characteristics were evaluated to provide a contextual overview of the respondents' profiles to explore the relationship between laboratory service quality and patient satisfaction.

Table 1. Respondent characteristics

Characteristics	Category	Frequency (f)	Percentage (%)
Gender	Female	78	44.6
	Male	97	55.5
Age	17 - 25 years	26	14.9
	26 - 35 years	60	34.3
	36 - 45 years	51	29.1
	46 - 55 years	30	17.1
	56 - 60 years	8	4.6
Education	Elementary	10	5.7
	Junior High School	9	5.1
	Junior School/Senior	77	44.0
	Diploma	26	14.9
	Bachelor	53	30.3
Occupation	Lecturer/Teacher	12	6.9
	Student/University Student	16	9.1
	Private Sector Employees	56	32.0
	Self-Employed	39	22.3
	Servant/Military/Police	22	12.6
	Other	30	17.1

Table 1 shows that the majority of respondents were male (55.5%), aged 26–35 years (34.3%), had a high school education (44.0%), and worked as private employees (32.0%). Furthermore, the level of service quality and patient satisfaction is shown in Tables 2 and 3.

Table 2. Frequency distribution of service quality

Service Quality	Frequency (f)	Percentage (%)
Good	134	76.6
Not Good	41	23.4
Total	175	100

Table 3. Frequency distribution of patient satisfaction

Patient Satisfaction	Frequency (f)	Percentage (%)
Satisfied	129	73.7
Less Satisfied	46	26.3
Total	175	100

Table 2 indicates that most respondents (76.6%) rated the quality of laboratory services as good, while 23.4% rated it as poor. Table 3 shows that 73.7% of respondents were satisfied with laboratory services, while 26.3% were dissatisfied.

Table 4. Frequency distribution of the relationship between service quality and patient satisfaction

Service quality	Patient satisfaction					
	Satisfied		Less satisfied		Total	
	(f)	(%)	(f)	(%)	(f)	(%)
Good	123	70,3	11	6,3	134	76,6
Not Good	6	3.4	35	20	41	23.4
Total	129	73.7	46	26.3	175	100

Table 4 indicates that of the 134 respondents who rated the quality of laboratory services as good, 123 people (70.3%) expressed satisfaction, and 11 people (6.3%) expressed dissatisfaction. Meanwhile, of the 41 respondents who rated the quality of service as poor, 6 (3.4%) were still satisfied, and 35 (20.0%) were dissatisfied.

Table 5. Spearman's rank test on service quality with patient satisfaction

Variable	n	p-value	r _s
The relationship between service quality and patient satisfaction	175	0.000	0.742

Table 5 shows that the Spearman Rank test results indicate a strong and statistically significant positive relationship between the quality of clinical pathology laboratory services and patient satisfaction. A p-value of 0.000 (< 0.05) confirms that the relationship between the two variables is statistically significant, while a correlation coefficient of 0.742 indicates a strong positive relationship. Thus, the better the quality of laboratory services provided, the higher the level of patient satisfaction tends to be.

3.2 Discussion

The results of the study indicate a strong and significant positive relationship between the quality of clinical pathology laboratory services and the satisfaction of outpatients at Restu Ibu Hospital in Balikpapan. The findings confirm that improvements in service quality, including the ServQual dimension, tend to contribute to increased patient satisfaction. It confirms that service quality is a key strategy in improving patient satisfaction in hospital laboratory units, in line with the ServQual conceptual framework by Parasuraman et al. (1988) and its application in healthcare by Tjiptono and Chandra (2017) and Yanti (2019).

Rahma (2022) reported a significant effect of laboratory service quality on outpatient satisfaction, supporting the findings of Yusra (2020) and Anwary (2020). These findings support Kotler's (2019) view that service quality is a comparison between patient expectations and the services received. The alignment between expectations and services will result in satisfaction. The results of this study also reinforce Aditya's (2021) argument that service quality has implications not only for satisfaction but also for patient loyalty to health services.

Analysis based on the ServQual dimensions suggests that tangibles contribute to patient satisfaction. It aligns with the research of Andoko et al. (2022) and Renaldi (2021), who found that physical facilities, waiting room comfort, and the completeness of facilities are crucial determinants of patient satisfaction. In the reliability dimension, the findings of this study are in line with Fitriani (2021) and Hidayat (2021), who emphasize that the reliability of medical personnel in providing services as promised and on time correlates with patient satisfaction. Similarly, the responsiveness dimension proved to be

significant, consistent with the studies by Marmeam (2021) and Fahrozy (2020), which demonstrated that the speed and clarity of information provided by staff greatly influence patient perceptions. The assurance dimension also supports the results of research by Fahrozy (2020) and Pathak (2020), which emphasize the importance of the knowledge, politeness, and ability of health workers in building patient trust. Meanwhile, in the empathy dimension, the results of this study are consistent with Wahid (2021) and Amrullah (2020), who emphasize that an empathetic, friendly attitude and non-discriminatory service are key to creating a quality service experience.

This result reinforces the validity of the ServQual model in the context of clinical pathology laboratories, particularly in private hospitals, which have not been widely researched previously. The results illustrate that continuous improvement of physical facilities, strengthening of technical and communication competencies of staff, and service time management are important strategies in improving patient satisfaction. Ariyanti (2024) and Niko et al. (2022) explain the importance of quick response, empathy, and waiting time management as determining factors of patient satisfaction in the healthcare system.

This study confirms that improving service quality based on ServQual dimensions is an effective strategy for increasing patient satisfaction. Therefore, continuous quality improvement programs, empathetic communication training, and an integrated patient satisfaction evaluation system are needed. However, this study has limitations. The research was only conducted in one hospital, so the results cannot be generalized to other hospitals. Furthermore, the study only used questionnaires to explore patient experiences, which may have resulted in perception bias. Hence, future research needs to expand its scope to various hospitals with different characteristics and combine quantitative and qualitative methods to obtain a more comprehensive picture.

4. Conclusion

This study confirms a strong and statistically significant positive relationship between the quality of clinical pathology laboratory services and outpatients' satisfaction at Restu Ibu Hospital in Balikpapan. These results support the ServQual framework, which emphasizes the role of tangibles, reliability, responsiveness, assurance, and empathy in shaping patient satisfaction. These findings reinforce the relevance of the service quality concept in clinical laboratories and emphasize the importance of hospital management to consistently improve service quality by strengthening the competence of health workers, improving infrastructure, and managing patient-oriented services. However, this study has limitations in its cross-sectional design, the use of questionnaires that have the potential for bias, and the scope of the study, which is limited to one hospital. Therefore, further research needs to be conducted using a longitudinal design, involving more hospitals, and considering a mixed methods approach to obtain a more comprehensive picture of service quality and patient satisfaction dynamics.

Conflict of Interest

The author declares no conflict of interest.

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