

Clinical Laboratory Service Satisfaction of Physicians and Nurses

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ABSTRACT

Background: Medical laboratories play a crucial role in healthcare, providing diagnostic data essential for clinical decision-making. Physicians, as primary users of laboratory services, rely on accurate, timely, and comprehensive test results. Understanding their satisfaction with these services is key to identifying areas for improvement.

Methods: A cross-sectional study was conducted across 60 public healthcare facilities, involving 348 physicians. Data were collected via a pre-tested, structured, self-administered questionnaire covering aspects such as laboratory staff courtesy, test availability, result timeliness, and critical value reporting. Satisfaction was measured using a five-point Likert scale. Data analysis included descriptive statistics and binary logistic regression to identify factors influencing satisfaction.

Results: Of the 327 respondents (94% response rate), 55% expressed overall satisfaction with laboratory services. While most physicians were satisfied with laboratory personnel availability (86.2%) and the clarity of reports (61%), significant dissatisfaction was reported regarding the absence of laboratory handbooks (87.5%), limited test menu options (67.89%), delays in urgent services (33%), and inconsistent service quality across shifts (71%). Logistic regression revealed no significant associations between demographic factors and satisfaction levels.

Conclusion: Nearly half of the physicians were dissatisfied with laboratory services, citing inadequate resources, communication gaps, and service inconsistencies. Addressing these issues through enhanced communication, regular satisfaction surveys, and targeted improvements is essential for meeting physicians' needs and improving laboratory performance. These findings provide a baseline for future interventions aimed at optimizing clinical laboratory services.

Keywords: surveys, staff courtesy, test availability, result timeliness

INTRODUCTION

Medical laboratories are a fundamental part of healthcare systems, serving as critical facilities where diagnostic tests are conducted to provide accurate and reliable information regarding a patient's condition (1). The results generated by laboratories often form the foundation for clinical decisions and management strategies developed by physicians (2). Medical laboratories cater to diverse clients, whose expectations must be effectively met. Among these, physicians are the primary users of laboratory services, requesting tests and depending on precise, clinically meaningful data delivered in a timely manner (3).

Delivering high-quality laboratory services involves complex processes that require collaboration from clients, healthcare providers, laboratory personnel, management teams, and other stakeholders. From a physician's perspective, multiple aspects of laboratory services can be evaluated, including but not limited to, the reliability of test results, availability of skilled staff, accessibility of laboratory managers or pathologists, adequacy of test

options, responsiveness of laboratory management, timeliness of results, and proper notification of critical values (4). Among these, the accuracy of test results and the availability of a comprehensive test menu are often prioritized (5). Physicians also need reassurance regarding the laboratory's adherence to protocols, including accurate sample collection procedures, the use of validated methods, well-trained personnel, and robust process controls (3).

Research highlights that effective communication and interaction between laboratory professionals and clinical teams significantly influence physicians' diagnostic and treatment practices. Poor communication serves as a barrier to effective healthcare delivery, whereas fostering collaboration can enhance the use and trust in laboratory diagnostic services, ultimately benefiting patient care (6).

Customer satisfaction in the context of clinical laboratories is a key indicator of a quality management system and is required by laboratory quality standards such as ISO 15189: 2012. Satisfaction is subjective, reflecting an individual's perception based on their specific experiences rather than being a static metric (7). It represents the attitudes and perceptions clients hold regarding their overall experience with healthcare services (8). Understanding physicians' perspectives is crucial, as it provides laboratory managers with insights into areas that need improvement (4). Several studies have explored the satisfaction levels of physicians with laboratory services to identify shortcomings and propose enhancements (4, 8, 9).

Clinical laboratories are tasked with evaluating physicians' satisfaction to refine their services continually. However, there is limited information available at a national level concerning physicians' satisfaction with laboratory services in certain regions. This highlights the need for studies aimed at assessing physician satisfaction to identify potential areas for improving clinical laboratory services. These findings could inform strategies to enhance the quality and effectiveness of these essential services.

MATERIALS AND METHODS

This institution-based cross-sectional study was conducted. The study targeted a healthcare system with a significant rural population and a network of facilities that included hospitals, health centers, and health posts. Based on prior reports, the physician-to-population ratio was estimated at one to seventeen thousand one hundred sixty (10). These healthcare institutions offered a variety of clinical and laboratory services, such as microbiology, parasitology, serology, electrolyte measurement, hormone analysis, and monitoring for chronic diseases. The study population consisted of all physicians on duty during the data collection period.

Data Collection Procedures

Data were collected through a pre-tested, structured, self-administered questionnaire. The questionnaire was trialed in similar settings not included in the study, and it covered variables such as socio-demographic information, laboratory staff courtesy, test availability, critical value reporting, courier service efficiency, test reliability, and timeliness of results.

Ensuring Data Quality

Data collectors and supervisors underwent training on participant selection and data collection methods. A pilot test involving thirty-three participants (ten percent of the sample size) was conducted at selected sites to identify potential issues with the questionnaire. Daily supervision, spot checks, and review of completed questionnaires were performed by regional supervisors. To ensure accuracy, double data entry was performed for fifteen percent of the responses.

Data Entry and Analysis

The data were entered into Epi Info version seven point two and analyzed using SPSS version twenty-three. Descriptive statistics were used to summarize the findings. Satisfaction levels were assessed using a five-point Likert scale, where responses ranged from very dissatisfied (one point) to very satisfied (five points). Participants with a mean score of three or less were categorized as dissatisfied, while those with a score greater than three were considered satisfied.

Binary logistic regression analysis was conducted to identify factors influencing physicians' satisfaction with laboratory services. Variables with a p-value less than or equal to zero point two zero in the univariate analysis were included in the multivariate model. Statistical significance was determined at a p-value less than zero point zero five, and the results were presented as Adjusted Odds Ratios (AOR) with ninety-five percent confidence intervals (CI).

RESULTS

Out of the 348 distributed questionnaires, 327 were completed and returned, resulting in a response rate of 94%. The participants were selected from 60 public healthcare facilities. Among them, 78.9% were male, and 42.5% were married. The median age of respondents was 29 years, with an interquartile range of 27 to 32 years. Approximately 68% of respondents had less than five years of professional experience, and 10% were specialists

in various fields (Table 1).

In total, 55% of the respondents expressed satisfaction with the laboratory services provided by public hospitals. A majority reported being content with the design of laboratory request forms, the clarity and completeness of laboratory reports, and updates regarding newly available tests and test interruptions. However, dissatisfaction was noted regarding the absence of laboratory handbooks, limited test menu options, lack of referral or backup services, inadequate notification of turnaround times (TAT), panic result reporting, delays in urgent services, insufficient access to expert advisory services, and inconsistencies in service quality across different shifts.

As outlined in Table 3, 86.2% of physicians were satisfied with the presence of laboratory personnel during work hours. However, 87.5% of respondents reported not receiving a laboratory handbook. Regarding the request form, 69.42% of participants were satisfied with its current format. On the availability of laboratory tests, 67.89% expressed dissatisfaction, citing limited options to meet patient management needs. Additionally, 38% of respondents had access to referral or backup laboratory services, and among them, 59.5% expressed satisfaction with the quality of these services (Tables 2).

Regarding interactions with laboratory personnel, 38% of respondents were satisfied with the level of engagement. Positive feedback was given for the timely communication of newly introduced tests (77.7%) and test interruptions (70%), although only 44.6% were satisfied with how panic results were handled. Moreover, 33% expressed dissatisfaction with the timeliness of urgent services, while 43% were satisfied with the availability of timely expert advisory support. Lastly, 42.5% had a favorable view of the laboratory's responsiveness to complaints (Tables 2).

Forty-six percent of participants reported receiving predefined turnaround times for laboratory tests, with 67% confirming that reports were delivered within the stipulated timeframe. Additionally, 61% of respondents expressed satisfaction with the clarity and comprehensiveness of laboratory reports. However, 71% perceived inconsistencies in service quality across shifts, including day, night, weekends, and holidays. Among these, 12.5% were unsure about the overall quality of services, while 87.5% lacked confidence in the quality of tests conducted during overtime shifts.

Bivariate logistic regression analysis was conducted to identify potential predictors, and variables with a p-value less than 0.20 were included in the multivariate logistic regression model. However, factors such as sex ($p = 0.10$), age ($p = 0.22$), marital status ($p = 0.32$), educational background ($p = 0.14$), and years of experience ($p = 0.97$) were not significantly associated with physicians' overall satisfaction with laboratory services

Table 1. Distribution of socio-demographic characteristics of respondents at public hospitals.

Characteristics	Number (n = 327)	Percent
Sex		
Male	258	78.9
Female	69	21.1
Age Group		
24–29	183	56.0
30–40	130	39.8
>40	14	4.3
Marital Status		
Single	188	57.5
Married	139	42.5
Educational Status		
MD	292	89.3
Specialized	35	10.7
Experience (years)		
1–4	223	68.2
≥5	104	31.8

MD = Medical Doctor

Table 2. Participants' frequency and percentage distribution of laboratory services at selected public hospitals.

Characteristics	Number (n = 327)	Percent
Availability of updated Laboratory handbook		
No	286	87.5
Yes	41	12.5
Presence of lab personnel at bench work		
No	45	13.8
Yes	282	86.2
Availability of backup/referral Service (222)		

No	138	62.16
Yes	84	37.84
Comfortable with backup service (84)		
No	34	40.50
Yes	50	59.50
Availability of TAT of available tests in your work area		
No	176	53.8
Yes	151	46.2
Receive laboratory report within agreed TAT (n = 151)		
No	50	33.1
Yes	101	66.9
Immediate notification of panic results		
No	181	55.4
Yes	146	44.6
Notification during new tests are introduced		
No	73	22.3
Yes	254	77.7
On time notification during test interruption		
No	98	30
Yes	229	70

DISCUSSION

Physicians serve as key users of hospital laboratory services, and their assessment of service quality plays a crucial role in identifying areas for enhancement. Surveys evaluating satisfaction provide an opportunity for physicians to highlight shortcomings and recommend improvements. This study sought to evaluate the satisfaction of physicians with laboratory services in public hospitals.

The findings revealed that 55% of physicians expressed satisfaction with the laboratory services provided. This satisfaction rate aligns closely with outcomes from other institutions, such as Millennium Medical College (60%), a hospital in Gondar (51.5%), Pusan National University Hospital (58.1%), and a study conducted in Saudi Arabia (53.3%) [13, 14, 15, 2]. However, it was lower compared to findings from other settings, such as a referral hospital (65%) and selected hospitals in another region (80%), as well as a College of American Pathologists study involving 81 institutions in 2016 [16, 11, 5]. The discrepancy could be attributed to variations in study participants and sample sizes. While the current study exclusively included physicians, other studies incorporated a broader range of healthcare providers.

Collaboration between laboratory staff and physicians is critical for optimal patient outcomes. Such collaboration may occur via direct interaction, reports, protocols, or digital communication methods. In this study, physicians were generally satisfied with aspects such as the clarity of laboratory reports (61.16%), the notification of newly introduced tests (77.70%), updates on service interruptions (70%), and the availability of standardized request forms (69.42%). However, prior studies have emphasized that poor communication between clinicians and laboratory staff remains a persistent barrier to effective healthcare delivery [6, 17, 18, 19, 20]. Strengthening communication is essential to improving physicians' trust in diagnostic processes and fostering greater utilization of laboratory tests, ultimately benefiting patient care [6].

A comprehensive test menu is a critical component for effective patient management. Here, 67.89% of physicians were dissatisfied with the available test options, indicating that the services provided did not meet their expectations. This observation is consistent with findings from studies conducted in various settings, including Tanzania, Egypt, and Korea, which also identified inadequacies in the test menu [21, 22, 15, 14, 16]. Similarly, earlier investigations in different hospitals identified a gap between the available test options and physicians' requirements.

Access to a well-organized and user-friendly laboratory handbook is another necessity for physicians. This study showed that 87.5% of physicians lacked access to such handbooks. According to ISO standards, laboratories are required to provide comprehensive guides detailing essential information, such as test lists, working hours, sample handling procedures, and acceptance criteria for test requests [23]. A lack of such resources can hinder effective utilization of laboratory services.

Furthermore, the study revealed that approximately 30.6% of physicians were dissatisfied with the current laboratory request forms. Since these forms are a primary mode of communication between physicians and laboratories, they must be designed to accommodate all necessary patient and test details to facilitate accurate testing and result interpretation [23].

Timely notification of critical results and urgent services is a significant factor influencing satisfaction. In this study, 55.4% of physicians reported delays in receiving panic results, and 30.89% were dissatisfied with the timeliness of urgent services. Additionally, nearly 54% of respondents were unaware of the turnaround time (TAT) for laboratory tests. Previous studies from Tanzania, Alexandria, Korea, and other regions reported similar concerns regarding delayed notifications and the untimely provision of urgent services [21, 22, 15, 14, 16, 18, 5]. Effective communication between laboratories and physicians remains an ongoing challenge, underscoring the need for stronger collaboration in all aspects of patient care.

Inconsistent service quality across different shifts was another issue, with 71% of physicians perceiving variability in laboratory performance. This finding is consistent with previous reports from various countries and regions [21, 22, 14, 16, 18].

Interestingly, no significant association was found between physicians' demographic characteristics and their overall satisfaction. This aligns with findings from Egypt, where satisfaction levels were not influenced by factors such as age, gender, specialty, or professional experience [24].

Laboratories in public hospitals are managed by skilled professionals who receive training to ensure technical and managerial competence. Regular assessments based on ISO standards help maintain service quality.

CONCLUSION

The survey highlighted that nearly half of the physicians were dissatisfied with laboratory services. Key factors contributing to dissatisfaction included the lack of laboratory handbooks, limited test options, delays in communicating critical results, insufficient urgent services, and inconsistent service quality across shifts. Addressing these gaps requires enhanced communication between laboratory staff and physicians, alongside regular satisfaction surveys to identify and rectify issues. Responsible authorities should prioritize improving these areas to better meet physicians' needs and ultimately enhance service quality.

This survey is among the first to provide comprehensive insights into physicians' satisfaction with laboratory services, offering a valuable baseline for future interventions aimed at improving laboratory performance.

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