

Physicians' and Nurses' Satisfaction with the Clinical Laboratory Service

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Abstract

Background: Medical laboratory service is a critical component of the quality health care system and provides essential data for diagnosing diseases, guiding treatment, determining drug resistance, disease prevention and control, identifying diseases. The study aim: To assess physicians' and nurses' satisfaction with the service provided by the laboratory service. Methods: A cross-sectional study was conducted involving 195 nurses and physicians from January to March 2022. Results: Overall level of satisfaction was 51.1% for nurses and 51.5% for physicians. Lack of consistency in the quality of laboratory work, absence of a timely report of critical values, test turnaround time, acceptability of results released, and reporting of reference ranges with test results were areas mentioned as sources of dissatisfaction. Conclusions: The study showed wide room for improvement. The laboratory needs to improve in a wide variety of areas as well as engage physicians and nurses in the process. In addition to taking intervention, root causes of dissatisfaction need to be investigated and means of improving the satisfaction level should be designed and implemented. Further research to understand the root causes of customer dissatisfaction in the laboratory is warranted to improve the quality of the laboratory.

Key words: Customer satisfaction, Laboratory service, Quality improvement.

Introduction

Monitoring physicians' and nurses' satisfaction with laboratory service is an important indicator of the quality management system and required by international laboratory standards⁽¹⁾. Medical laboratories are essential component and one of the most important departments at any healthcare services where medical tests and investigations are done in order to generate reliable and accurate information regarding patient's health⁽²⁾. Laboratory reports are usually the bases of medical decisions and possible management plans

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considered by physicians ⁽³⁾. Medical laboratories have customers whose need should be addressed efficiently. Physicians, the principal client of medical laboratories initially request the services. Health care providers are expected to have access to accurate, clinically relevant information that can be understood and used in a timely manner ⁽⁴⁾.

Satisfaction is considered one of the desired outcomes of health care, and it is directly related to use of health services ⁽⁵⁾. Satisfaction with perceived service quality tends to influence utilization of service as well as compliance with practitioner recommendation ⁽⁶⁾. Therefore, monitoring customer satisfaction is an important and useful quality improvement tool for clinical laboratories and health care organizations ⁽⁷⁾. Satisfaction towards clinical laboratory service is influenced by the quality of service and professionalism of the staff, provision of adequate information to collect specimen and when and how to receive laboratory results, waiting time to receive laboratory results, availability of ordered laboratory tests, cleanness of the laboratory room, location of laboratory room, availability and accessibility of latrine ⁽⁸⁻¹¹⁾.

Measurement of customer satisfaction brings customer preferences into the quality assessment process and corrects for mistaken assumptions about which particular aspects of service customers value most ^(12, 13). These measurements have also been instrumental in helping government agencies identify target groups, clarify objectives, define measures of performance, and develop performance information systems ⁽¹⁴⁾. Physicians and nurses are among the primary customers of laboratory services, and obtaining their feedback provides laboratory managers with opportunities to identify areas for improvement. Hence, the aim of this study was to assess physicians' and nurses' satisfaction with the service provided by the laboratory from January to March 2022 at healthcare facilities in Makkah, KSA.

Materials and Methods

A cross-sectional study was conducted involving 196 nurses and physicians at healthcare facilities in Makkah, KSA. A questionnaire-based cross-sectional study was conducted from January to March 2022. A total of 131 nurses and 64 physicians were randomly selected to participate in the study.

Data Collection and Analysis

Data were collected through a paper-based self-administered questionnaire that contained both closed and open-ended questions. The questionnaire had a total of 20 questions, including those on socio-demographic characteristics of the participants (4 questions), level of satisfaction (10 questions), and possible factors related to satisfaction (6 questions). The questions used to assess the level of satisfaction were analyzed using a 5-point Likert scale (1 = strongly dissatisfied to 5 = strongly satisfied). Respondent satisfaction scores given for the items under each component were averaged to create a mean satisfaction score; for analytical purposes, scores equal to and above the mean were taken as an indicator of users' perceived satisfaction. Data were double entered and analyzed with SPSS version 28 computer software. Results were summarized as percentages and frequencies and presented in tables.

Ethical Consideration

Ethical clearance was obtained from the ethical review committee of University. Informed consent was obtained from each respondent, and confidentiality was maintained throughout the study.

Results

Table (1) shows the survey was distributed to 69 physicians and 134 nurses, of whom 64 (92.8%) physicians and 131 (97.8%) nurses responded, giving an overall response rate of 96.1%. The sex distribution of the participants included 99 men and 96 women. The age of the study participants ranged from 19 to 47 years, with a mean age of 25 years. The participants served the hospital for a minimum of less than 2 years and a maximum of greater than 11 years, with the majority (69.7%) serving 0 to 2 years.

Overall, 51.3% of the study participants were satisfied with the activities of the laboratory. The level of satisfaction across the two professions was similar: 51.1% for nurses and 51.5% for physicians. Table (2) presents laboratory service satisfaction differences between physicians and nurses. Sixty-seven percent of the physicians were dissatisfied with the quality of work, 50% with the availability of requested tests, and 48% with the reporting of reference ranges, 48% with the clinician handbook, and 44% with the timely reporting of critical values. On the other hand, nurses were dissatisfied with the accessibility of laboratory results (58%), the compatibility of laboratory results with the patient's condition (51%), the reporting of reference ranges (46%), and the quality of the laboratory work (44%). Turn-around time was mentioned as an area of dissatisfaction by 61% of physicians and 62% of nurses.

Participants of this study were also asked to respond to 6 questions expected to have an association with satisfaction. Accordingly, 86.7% have faced lost laboratory results, 66.7% responded that the numbers of laboratory personnel are not proportional to the workload of the laboratory, and 62.6% stated that laboratory personnel are not available to answer their questions. Of the factors we investigated, only laboratory management's concern with providing good customer service showed a statistically significant association ($\chi^2 = 12.37$, $P < .001$) with satisfaction (Table 3).

Table (1): Characteristics of Physicians and Nurses Who Participated in the Study

Variable	No. (%)	
Profession	Physicians	64 (32.8)
	Nurses	131 (67.2)
Sex	Male	99 (50.8)
	Female	96 (49.2)
Age, y	20-30	184 (94.4)
	31-40	9 (4.6)
	41-50	2 (1.0)
Service, y	0-2	136 (69.7)
	3-5	49 (25.1)
	6-8	8 (4.1)
	>9	2 (1.0)

Table (2): Satisfaction Level of Physicians and Nurses with the Service Delivered by the Laboratory

Variable	Satisfied, No. (%)	Not Satisfied, No. (%)	X ² (P Value)
Routine turnaround time			
Nurses	50 (38.2)	81 (61.8)	0.01 (.90)
Physicians	25 (39.1)	39 (60.9)	

Variable	Satisfied, No. (%)	Not Satisfied, No. (%)	X ² (P Value)
Easy and clear laboratory reports			
Nurses	62 (47.3)	69 (56.7)	22.4 (<.001)
Physicians	53 (82.8)	11 (17.2)	
Compatible results with patient condition			
Nurses	64 (48.8)	67 (51.2)	6.46 (<.01)
Physicians	19 (29.6)	45 (70.4)	
Easily accessible laboratory results			
Nurses	55 (41.9)	76 (58.1)	1.04 (.31)
Physicians	22 (34.4)	42 (65.6)	
Availability of requested laboratory tests			
Nurses	76 (58)	55 (42)	1.1 (.29)
Physicians	32 (50)	32 (50)	
32 (50)			
Easy to understand clinician handbook			
Nurses	42 (32)	89 (68)	6.9 (<.01)
Physicians	33 (51.6)	31 (48.4)	
Consistent quality of work			
Nurses	74 (56.5)	57 (43.5)	9.65 (<.01)
Physicians	21 (32.8)	43 (67.2)	
Accessibility of results released			
Nurses	94 (71.8)	37 (28.2)	1.73 (.19)
Physicians	40 (62.5)	24 (37.5)	
Reference range reported			
Nurses	71 (54.2)	60 (45.8)	0.12 (.73)
Physicians	33 (51.6)	31 (48.4)	
Panic values reported in time			
Nurses	49 (37.4)	82 (62.6)	0.72 (.39)
Physicians	28 (43.7)	36 (56.3)	

Table (3): Responses Given by Physicians and Nurses on Possible Causes of Dissatisfaction and Association with Level of Satisfaction

Variable	Level of Satisfaction		
	Satisfied, No. (%)	Not Satisfied, No. (%)	X ² (P Value)
Lost laboratory result			
Yes	86 (50.9)	83 (49.1)	0.08 (.84)
No	14 (53.8)	12 (46.2)	
Number of laboratory personnel proportional with workload			
Yes	38 (58.5)	27 (41.5)	2.01 (.17)
No	62 (47.7)	68 (52.3)	
Laboratory personnel competent enough in their professional skill			
Yes	49 (59)	34 (41)	3.84 (.08)
No	51 (45.5)	61 (54.5)	
Management of laboratory concerned with providing good customer service			
Yes	73 (61.3)	46 (38.7)	12.37 (<.001)
No	27 (35.5)	49 (64.5)	
Laboratory personnel are available to answer questions			
Yes	35 (53)	31 (47)	0.12 (.76)
No	65 (50.4)	64 (49.6)	
Laboratory personnel act in a professional manner			
Yes	44 (60.3)	29 (39.7)	3.78 (.06)
No	56 (45.9)	66 (54.1)	

Discussion

In this study, half of the nurses and physicians in the hospital were satisfied with the overall service delivery of the laboratory. This result was less than that reported in Tanzania, where 75% of the health personnel were satisfied with the laboratory service ⁽¹⁵⁾. The difference may be attributable to the variation in the areas covered by the study. In our study, the level of satisfaction for nurses was 51.1%, which was less than that reported from the United States, in which 76% of nurses were usually satisfied (mean Likert scale score, 3.5 out of 5) ⁽⁷⁾.

The difference may be the small sample size used in our study and also the difference in the level of laboratories under investigation ⁽⁷⁾. Even though the level of satisfaction was different, areas of most dissatisfaction were similar. The turnaround time was mentioned as one area of dissatisfaction. A College of American Pathologists' Q-Probe study of satisfaction in the United States commented that turnaround time is an area of dissatisfaction ⁽¹²⁾. It is interesting to note that even with a computerized system such as that used in the United States; physicians will find that results do not reach the chart as fast as they would like ⁽¹²⁾. This indicates that, even though improving the turnaround time is not a simple task, more work has to be done in the area since clinicians judge the adequacy

of laboratory services by the speed with which results are reported, as indicated by other studies⁽¹⁶⁻¹⁸⁾.

Moreover, turnaround time is one of the most noticeable aspects of laboratory service and is often used as a key performance indicator⁽¹⁹⁾. In our study, a statistically significant different level of satisfaction was demonstrated between nurses and physicians with regard to easy and clear reports, compatibility of results with patient status, an easily understandable clinician handbook, and consistency of quality of laboratory work. This difference may be due to the knowledge difference between the two professions, which can be an important target area of intervention to improve the satisfaction level. Involvement of laboratory personnel in physician and nursing rounds and sessions should strengthen communication with both groups and foster an understanding of what the laboratory does.

According to the results of this study, most (86.7%) physicians and nurses have encountered the loss of laboratory result reports. This loss of results may be caused by the manual nature of the process because results are still given to the clinicians by human transporters and because the laboratory information system is not linked to the clinicians. Although statistical analysis could not show a significant association between loss of results and level of satisfaction, loss of results may be a possible cause of dissatisfaction that will also compromise the maximum care that can be provided to patients. To improve this situation, attention should be given to linking the laboratory information system with clinicians. On the other hand, commitment of the laboratory managers to improve customer satisfaction has had a positive impact on the satisfaction level of physicians and nurses, as shown by our study.

Conclusion:

At a time when clinicians have more options for their diagnostic testing, a laboratory cannot afford to have unhappy customers. The laboratory needs to manage clinician expectations and demonstrate that it is meeting those expectations. Our survey demonstrates that the laboratory needs to improve in a wide variety of areas as well as engage physicians and nurses in the process. We believe that a stronger managerial orientation should be introduced in the laboratory to help deliver quality services and improve clinician satisfaction. But this will not be a first step activity and responsibility of the laboratory personnel only; the clinicians also have an important role in developing improvements based on consensus with laboratory personnel. Having defined areas of dissatisfaction provides the laboratory management with opportunities for improvement. Further research to understand the root causes of customer dissatisfaction in the laboratory is warranted to improve the quality of the laboratory.

References:

- Hailu HA, Yalew A, Desale A, Asrat H, Kebede S, Dejene D, Abebe H, Gashu A, Moges B, Yemanabrhan N, Melese D, Ayele BT, Kebede A, Abate E. Physicians' satisfaction with clinical laboratory services at public hospitals in Ethiopia: A national survey. *PLoS One*. 2020; 15(4):e0232178. doi: 10.1371/journal.pone.0232178. PMID: 32353001; PMCID: PMC7192407.
- Hassemer DJ. Wisconsin State Laboratory of Hygiene's role in clinical laboratory improvement. *WMJ*. 2003; 102: 56–59.
- Rana G. Zaini1 and Rania G. Zaini. Physician's Satisfaction from Laboratory Services in Maternity and Children Hospital in Makkah. *Int J Lab Med Res* 2015; 1: 101.
- Laboratory quality management system: a handbook. World Health Organization 2011, SBN 978 92 4 154827 4 (NLM Classification: QY 25) Version 1.1.
- Smith M, Engelbrecht B. Guide to Assessing Client Satisfaction at District Hospitals. Durban, South Africa: Health Systems Trust; 2001. <http://www.hst.org.za/sites/default/files/clientguide.pdf>.
- Bernhart MH, Wiadnyana IGP, Wihardjo H, et al. Patient satisfaction in developing countries. *Soc Sci Med*. 1999; 48:989-996.

- Jones BA, Walsh MK, Ruby SG. Hospital nursing satisfaction with clinical laboratory services: a College of American Pathologists Q-Probes study of 162 institutions. *Arch Pathol Lab Med.* 2006; 130:1756-1761.
- Abera RG, Abota BA, Legese MH, Negesso AE. Patient satisfaction with clinical laboratory services at Tikur Anbessa specialized hospital, Addis Ababa, Ethiopia. *Patient Prefer Adherence.* 2017; 11:1181.
- Bekele MTS. Assessment of patients' satisfaction towards general medical laboratory services at Shenen Gibe Public Hospital, Jimma Town, South West Ethiopia. *J Health Med Nurse.* 2016;31:78–84.
- Georgieva E, Tsankova G, Kaludova V, Ermenlieva N. Patient's satisfaction with laboratory services at selected medical-diagnostic laboratories in Varna. *J IMAB Ann Proc Sci Pap.* 2014; 20(2):500–1.
- Thomas J. Patients' satisfaction with clinical laboratory services in a secondary health care facility, ondo west local government area, Nigeria. 2015.
- Jones BA, Bekeris LG, Nakhleh RE, et al. Physician satisfaction with clinical laboratory services: a College of American Pathologists Q-Probes study of 138 institutions. *Arch Pathol Lab Med.* 2009; 133:38-43.
- Oja PI, Kouri TT, Pakarinen AJ. From customer satisfaction survey to corrective actions in laboratory services in a university hospital. *Int J Qual Health Care.* 2006;18:422-428.
- Andaleeb SS. Service quality perceptions and patient satisfaction: a study of hospitals in a developing country. *Soc Sci Med.* 2001; 52:1359-1370.
- Mfinanga SG, Kahwa A, Kimaro G, et al. Dissatisfaction with the laboratory services in conducting HIV related testing among public and private medical personnel in Tanzania. *BMC Health Serv Res.* 2008; 8:171.
- Oja PI, Kouri TT, Pakarinen AJ. Utilisation of customer feedback in a university hospital laboratory. *Accred Qual Assur.* 2009; 14:193-197.
- Howanitz JH, Howanitz PJ. Laboratory results: timeliness as a quality attribute and strategy. *Am J Clin Pathol.* 2001; 116:311-315.
- Steindel SJ, Howanitz PJ. Physician satisfaction and emergency department laboratory test turnaround time observations based on College of American Pathologists Q-Probes studies. *Arch Pathol Lab Med.* 2001; 125:863-871.
- Hawkins RC. Laboratory turnaround time. *Clin Biochem Rev.* 2007; 28:179-194.