

Evaluation of Patient Satisfaction with Clinical Laboratory and Phlebotomy Services in a NABL Accredited Laboratory in a Tertiary Care Hospital, Eastern India: A Cross-sectional Study

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ABSTRACT

Introduction: Clinical laboratories play an indispensable role in patient care. Laboratory results help in approximately 70% of medical decision making. Patients are the best source of information on quality of service provided by an Institute, as their feedback can help in future planning and taking corrective action.

Aim: To evaluate patient satisfaction with clinical laboratory and phlebotomy services in a National Accreditation Board for Testing and Calibration Laboratories (NABL) accredited laboratory in a tertiary care hospital in Eastern India.

Materials and Methods: This was a hospital-based cross-sectional study, conducted from May 2021 to June 2021, on the patients visiting the central laboratory of Kalinga Institute of Medical Sciences (KIMS), Bhubaneswar, Odisha. A total of 265 participants above the age of 18 years were included in the study. They were provided with a feedback questionnaire (13 questions). A 5-point Likert scale rating of very dissatisfied, dissatisfied, neutral, satisfied and very satisfied was used. Descriptive statistics such as number and percentage were used to present the data.

Results: Out of the total, 96% was the response rate, hence, the complete questionnaires analysed were of 254 participants (130 males and 124 females). Out of the total 254 participants,

155 (61%) were very satisfied, 61 (24%) were satisfied, 28 (11%) were neutral and 10 (3.93%) were dissatisfied with the overall laboratory services. Laboratory test results were reliable scored very high and was reported to be very satisfactory by 177 participants (69.68%), satisfactory by 51 participants (20.07%) and 165 participants (64.96%) were very satisfied and 58 participants (22.83%) were satisfied with staff courtesy, skill and behaviour. However, none of the participants were very dissatisfied and 10 (4%) were dissatisfied, expected the laboratory services to be little better. For explanation of test results 79 participants (31.10%) were very dissatisfied and another 114 participants (44.88%) were dissatisfied. A total of 34 participants (13.38%) were very dissatisfied and another 50 participants (19.68%) were dissatisfied with the given information about location and time of report collection.

Conclusion: Patient satisfaction is an important indicator of the quality of service delivered. The overall satisfaction level with the laboratory service was 85%, showing a majority of the participants were satisfied or very satisfied with the overall services of the laboratory. There is a need to improve on cleanliness and more emphasis is to be laid, on transmission of accurate and adequate information to the patients.

Keywords: Medical diagnosis, National accreditation board for testing and calibration laboratories, Patient care

INTRODUCTION

Clinical laboratories play an indispensable role in patient care. Laboratory results help in about 70% of medical decision making [1]. Inaccurate laboratory result may lead to wrong medical diagnosis or delay in diagnosis [2]. Quality and safety in diagnostic testing are utmost important for achieving safe and high quality healthcare. One of the most important quality indicators in laboratory medicine is customer satisfaction. Measuring and improving patient satisfaction with clinical laboratory services are essential aspects of laboratory management [3].

Patient satisfaction is measured by perception of services received as compared to the services expected by the patient. Analysis of patient satisfaction is relevant because a satisfied patient is more likely to comply with the treatment regimen. Patients who are not satisfied with the services may have worse clinical outcome as compared to the satisfied patient [3,4].

The International Standard (ISO) 15189 also requires monitoring of patient satisfaction as an indicator of quality management system [5]. Maintenance of quality laboratory services requires continuous support and effort from patients, clinicians, laboratory personals and management. National Accreditation Board for Testing and Calibration Laboratories (NABL) administers laboratory accreditation

under the direction of the Assessment Team and Accreditation Committee. NABL is a signatory to Asia Pacific Accreditation Cooperation (APAC) and International Laboratory Accreditation Cooperation (ILAC) Mutual Recognition Arrangements (MRA). [5] These are based on mutual evaluation and acceptance of other MRA partner laboratory accreditation systems. Such international arrangements allow acceptance of test/calibration results between MRA partner countries. The NABL Accredited laboratories are required to comply with all the requirements listed in the International Standard Organisation (ISO 15189:2012) (Medical laboratories-Requirements for Quality and Competence) [5].

Patients are the best source of information on quality of service provided by an institute and their feedback can help a lot in future planning as well as in taking corrective action. The factors that influence patient satisfaction of laboratory services includes competence and etiquettes of laboratory personals, availability of sufficient, clear and accurate information at different counters like registration, sample collection, report collection. Waiting time is also an important indicator of patient satisfaction [6].

Cleanliness and infection control measures in patient waiting area, sample collection area and toilet are also very crucial especially during these times of Coronavirus Disease 2019 (COVID-19) infection. Although, there are many studies on pre-analytical

errors in medical laboratory, there is scarcity of research that assesses actual patient experiences at the medical laboratory units of hospitals in India. Gupta A et al., reported the highest rate of satisfaction (76%) in case of parameter-ease to find collection sample room and lowest rate of satisfaction (22%) was scored by the parameter-staff's wearing proper uniform [7]. Dawar R identified five areas in which there is a need for improvement namely ability of the phlebotomist to put patient in ease; ability of the phlebotomist to answer questions; increasing toilet cleanliness and comfort; availability of all the tests requested by physician and information about bruise [8]. Therefore, the present study was planned to analyse patient satisfaction with clinical laboratory and phlebotomy services in a NABL accredited laboratory in a tertiary care hospital in Eastern India.

MATERIALS AND METHODS

This was a hospital-based cross-sectional study, conducted from May 2021 to June 2021 at the sample collection unit of central laboratory of Department of Biochemistry, Kalinga Institute of Medical Sciences (KIMS), Bhubaneswar, Odisha, India. Informed consent was obtained from the participants. Institutional Research and Ethics Committee clearance was obtained for the present study (letter no KIIT/KIMS /IEC/715/2021).

Sample size calculation: Required sample size was calculated using the following formula:

$$n = z^2 P (1-P) / d^2$$

Where n was the sample size, Z=95% was the statistic corresponding to level of confidence, P=94% was assumed patient satisfaction obtained from a similar study done in Delhi, India and d=3% was precision or margin of error between the sample and the population [6]. The calculated sample size was 241 participants. Assuming a non response rate of 10%, sample size required is 265.

Inclusion criteria: Participants above the age of 18 years, who visited the sample collection centre of the central laboratory during the study period, were included in the study.

Exclusion criteria: Patients with critical illness, psychiatric disease and paediatric patients were excluded from the study.

Questionnaire

The participants were provided with a feedback questionnaire, (13 questions), which was self-designed based on previous studies [6-10]. The questionnaire was prepared in English language and internal consistency was checked using Cronbach's alpha coefficient and it was found to be 0.874 (Cronbach's alpha coefficient >0.7 is acceptable). The satisfaction level was measured using a 5-point Likert scales ranging from very dissatisfied to very satisfied (1 to 5 points). The questionnaire was given and filled by the participants at the time of report collection.

STATISTICAL ANALYSIS

Microsoft (MS) Excel spreadsheet was used to create the database. Descriptive statistics such as number and percentage were used to present the data.

RESULTS

A total of 265 participants were included in the study and the response rate was 96%. Hence the total questionnaires and responses analysed were of 254 participants. There were 130 males and 124 females. The mean (\pm SD) age of participants was 42 (\pm 21) years. The number and percentage of participant's satisfaction and dissatisfaction are presented in [Table/Fig-1]. Out of the total 254 participants, 155 (61.02%) were very satisfied, another 61 (24.01%) were satisfied, and 28 (11.02%) were neutral

with the overall laboratory services. Only 10 (3.93%) participants were dissatisfied with the overall laboratory services. Majority of the participants 177 (69.68%) were very satisfied with the reliability of the test results. A large number of participants 165 (64.96%) were very satisfied with staff courtesy, skill and behaviour. The highest dissatisfaction rates were observed for explanation of test results with a rate of 31.10% followed by information about location and time of report collection was given with a dissatisfaction rate of 13.38%.

S. No.	Questions	Very satisfied	Satisfied	Neutral	Dissatisfied
1.	The reception, sample collection room and toilet were easily accessible.	160 (62.99%)	59 (23.22%)	25 (9.84%)	5 (1.96%)
2.	Waiting time for registration and blood collection	144 (56.69%)	76 (29.92%)	28 (11.02%)	3 (1.18%)
3.	Waiting room was clean and comfortable	114 (44.88%)	61 (24.01%)	63 (24.80%)	10 (3.93%)
4.	Staff was courteous, skilled and well-behaved	165 (64.96%)	58 (22.83%)	23 (9.05%)	4 (1.57%)
5.	Sample collection procedure was comfortable	140 (55.11%)	81 (31.88%)	12 (4.72%)	15 (5.90%)
6.	Privacy during sample collection	100 (39.37%)	76 (29.92%)	50 (19.68%)	15 (5.90%)
7.	Sample collection area and toilet was clean	25 (9.84%)	28 (11.02%)	123 (48.42%)	53 (20.86%)
8.	Cost for the test offered	41 (16.14%)	20 (7.87%)	137 (53.93%)	30 (11.81%)
9.	Availability of all tests requested	152 (59.84%)	64 (25.19%)	29 (11.41%)	9 (3.54%)
10.	Information about location and time of report collection was given	34 (13.38%)	50 (19.68%)	86 (33.85%)	50 (19.68%)
11.	Laboratory test results were reliable	177 (69.68%)	51 (20.07%)	20 (7.87%)	3 (1.18%)
12.	Laboratory test results were explained well	5 (1.96%)	6 (2.36%)	50 (19.68%)	114 (44.88%)
13.	Overall satisfaction	155 (61.02%)	61 (24.01%)	28 (11.02%)	10 (3.93%)

[Table/Fig-1]: The number and percentage of the participant's satisfaction and dissatisfaction on 5-point Likert Scale; Rest of the subjects in each questionnaire category were in very dissatisfied score.

Very dissatisfied- Score 1; Dissatisfied-Score 2; Neutral-Score 3; Satisfied- Score 4; Very satisfied- Score 5

DISCUSSION

The present study was designed with the aim to evaluate Patient satisfaction with clinical laboratory and phlebotomy services in a NABL accredited laboratory in a tertiary care hospital in Eastern India. The present study revealed that the overall satisfaction level with the laboratory service was 155 (61.02%) were very satisfied and another 61 (24.01%) were satisfied which showed a majority of the participants were satisfied with the overall services of the laboratory. The index result is in concordance to the studies done by Khatri A and Sharma S, and Gupta A et al., who reported an 86% and 94% overall satisfaction, respectively, both of which were on the patient satisfaction about the phlebotomy services [7,11].

The study laboratory is NABL accredited since last six years, so a lot of focus is given on improvement of quality of services, therefore, participants satisfaction was recorded to be high.

The reception, sample collection room and toilet were easily accessed by 86.21% participants showing that, the location of the laboratory services was user-friendly and well-labeled. Majority of the patients were satisfied with the waiting time at reception and blood

collection. This finding could be due to the Hospital Information Management System (HIMS) and bar-coding system in the hospital. This is in concordance with the study done by Khatri A and Sharma S and Dawar R who reported a high satisfaction level 91.6% and 99%, respectively, with the waiting time at registration and sample collection [8,11]. Accessibility of different hospital facilities like the reception, sample collection room, site of laboratory, toilet and others can influence patients' gratification regarding the hospital service. In a previous study done by Hailu HA et al., patients complained that they lost a long time by searching for the locations and were very disappointed [12].

Laboratory test results were reliable scored the highest level of satisfaction in the present study, which is indeed very encouraging. Reliability of the test result is the most important factor which affects the participant's satisfaction level. This finding is in agreement with the study done by Koh YR et al., they reported participant's satisfaction level of 66.7% for reliability of test results [13]. The 55.11% of the participants reported that the sample collection procedure was comfortable. Privacy during sample collection was taken care well, as only 12 (4.72%) participants were dissatisfied and very dissatisfied with the privacy issue. This finding is the result of frequent training and assessment of the laboratory staff which is a routine protocol according to NABL accreditation. However, majority of the participants 123 (48.42%) were neutral regarding the cleanliness of sample collection and toilet. Gupta A reported a high level of satisfaction with cleanliness of sample collection and toilet, 304 (25.3%) participants were very satisfied and another 492 (41%) were satisfied with cleanliness [7]. Contrary to the present study, Khatri A and Sharma S, reported a high score for dissatisfaction (35.8%) for toilet cleanliness and comfort. Health facilities are meant to provide healthcare as well as promote preventive health behaviour amongst patients by inculcating clean and hygiene practice among the patients [11].

Cost of the test is also a very important parameter which decides the satisfaction level of the patients; in this study only 24.01% of the patients were highly satisfied and satisfied with the cost of the test. A study done in public hospitals of Ethiopia by Hailu HA et al indicated that 83% of the respondents were satisfied with the payment of the services, while 17% of the respondents perceived that laboratory test charges were not fair [12]. Study done by Lee SI and Koh YR et al has also reported, cost to negatively affect the satisfaction level [13,14]. Studies done in India by Khatri A and Sharma S, and Gupta A et al have not taken cost into account as these were done in the government hospital setting where cost is taken care by government, while hospital in the present study is privately owned and operated therefore cost to run a NABL Accredited laboratory is high which will result in high cost for the tests [7,11].

A total of 152 (59.84%) participants were very satisfied and 64 (25.19%) were satisfied with the availability of all the test requested. Dawar R also reported a high level of satisfaction 68% with the availability of test results [8]. Majority of the participants were dissatisfied with the information about the location, and time of report collection and explanation of test result, which is consistent with the study done by Hailu HA et al., they reported 26% of the respondents were unsatisfied with the explanation or advisory services provided for them before sample collection, nearly 18% of the participants did not get clear and adequate information, where, when and how much specimen has been collected. 20.8% of the respondents were not informed clearly when, where, and how they will receive their laboratory results [12]. Clear and smooth communication is a vital for patient satisfaction. If a patient feels estranged, uninformed about the

service and test results, it may affect their recovery process. Hence, it is important to inform patients, prior to the procedures, by the laboratory personnel. Short description of test results can be added in the test report.

Turnaround Time (TAT) is one of the important quality indicators. Although TAT is well established in the study laboratory and taken care of, but, it was not intimated to the patients probably due to negligence and lack of written SOP (Standard Operating Procedure) for the same. A study done in Tanzania associated inadequate explanations regarding laboratory procedures to anxiety in patients [15]. Explanation of test results should be taken care of, either, in written or verbal form to the participants.

The laboratory services play an indispensable part in diagnosis and management of various healthcare services, therefore, laboratory and hospital management should pay immediate attention to the areas which need improvement in order to improve satisfaction level of the patients.

Limitation(s)

There were no open-ended questions and the researchers did not collect data about the number of needle pricks and bruise size in the phlebotomy service survey.

CONCLUSION(S)

Patient satisfaction is important indicator of the quality of service delivered. The overall satisfaction level with the laboratory service was 85.03%, showing a majority of the participants were satisfied with the overall services of the laboratory. Cleanliness of sample collection and toilet, explanation of test results and cost of the test scored very low on satisfaction scale. There is a need to improve on cleanliness and more emphasis should be given to transmission of accurate and adequate information to the patients.

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