

Physician's satisfaction with clinical laboratory services of District Headquarter hospitals of Azad Jammu & Kashmir

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Author's Contribution

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⁴ Review the article critically

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A B S T R A C T

Introduction: Laboratory services are critical to the quality of patient treatment. For proper patient management, clinical services and physician decisions are heavily reliant on laboratory test results. As a result, physician satisfaction with laboratory services is a critical indicator of service quality, emphasizing the importance of improving laboratory services to benefit patients.

Objectives: To determine physician satisfaction and factors affecting physician satisfaction with laboratory services in Azad Jammu & Kashmir (AJK).

Methodology: Data were collected in all the seven DHQs of AJK over three months. This cross-sectional study included all the practitioners and clinicians. Intern or undergraduate medical students in training programs along with other healthcare providers were excluded from this study. Data was collected through a structured questionnaire from (N=202) physicians using a non-probability convenient sampling technique. Chi-Square tests were used to determine the factors which showed a statistically significant relationship with outcome.

Results: A total (N=202) of respondents included in the study with an overall mean score of physician's satisfaction with clinical lab services was 38 ± 9.6 ranging from a minimum score of satisfaction 22 to a maximum of 56. A statistically significant association was found between the age of the Physicians, area of residence, and their level of education with a satisfaction level of lab services with the p-value= 0.013, 0.013, and 0.001 respectively.

Conclusion: It is concluded that physician satisfaction with laboratory services in public hospitals of AJK was very low, more than 50% of the patients showed dissatisfaction with the services. The main factors which affect the overall satisfaction of physicians with laboratory services were the absence of the assistance handbook, laboratory request form, and turnover time of the reports.

Keywords: Azad Jammu Kashmir, COVID-19, DHQ Hospital, Laboratory services, Physician satisfaction

Introduction

Physician satisfaction is considered the most important and desired outcome of the healthcare system and it is directly related to the use of healthcare services.¹ Satisfaction of physicians is associated with different healthcare outcomes, including healthcare quality, patient satisfaction and adherence to treatments, and

interpersonal aspects of patient care.^{2,4} Physicians are considered the primary client of the laboratory services, and their satisfaction level with services is the key quality indicator in most quality assurance programs.⁵ The client's (Physician, nurses) satisfaction with the laboratory services is the requirement for the certification by the

College of American Pathologists (CAP) and the joint commission on accreditation for healthcare organizations.⁶ Hospital laboratories where confirmatory tests and investigative procedures are used to determine the patient's health are an essential component of the healthcare services as it greatly contributes to the diagnostic decision-making and patient health management.⁷

Laboratory services are one of the best indicators of the quality and quantity of the health care services in hospitals and incorporation of this indicator plays a massive role in quality improvement planning for services in the hospitals.⁸ Provision quality of laboratory services is a challenging process that needs help from clients, clinical service providers, laboratory professionals, and other stakeholders. Physician's satisfaction with clinical laboratory services can be measured using standardized tools according to the prior studies. Quality and validity of the test results, staff coordination, accessibility and responsiveness of laboratory management, test menu availability, lab courier services and turnaround time (TAT), clinical report format, phlebotomy services, quality of laboratory results, accurate collection manual, and many more are the vital features could be inspected from the physician perspective and are used in many previous studies.^{9, 10}

The discipline of laboratory medicine is evolving day by day. New reimbursement models, as well as new or improved electronic health records and laboratory information system, is being created and the number of laboratories available test continues to expand so assessment of important clinical parameters on regular basis is important for comparison of results over time and the evaluation of the efficacy of the instruments. A physician satisfaction survey in this regard helps to assess the limitation and efficiency of the laboratory instruments. The survey result should prompt the laboratory results and implement the plans through proper plans and improve the quality of services and contribute to the high-quality management. There is a dire lack of adequate data on this matter in Azad Jammu & Kashmir (AJK) to the best of the authors' knowledge, and the availability of this data can be vital for the health system strengthening in AJK. Hence, this study aims to assess physician satisfaction with

laboratory services provided and factors associated with it at District Headquarters Hospitals (DHQ) of AJK.

Methodology

This study was conducted at District Headquarters hospitals (DHQ) of Azad Jammu & Kashmir (AJK). AJK is the liberated part of Jammu & Kashmir, situated in the north of Pakistan, and has a total area of 13,297 square kilometers.¹¹ It is divided into ten administrative districts but only seven of them have DHQ hospitals namely Neelum, Hattian Bala, Pallandari, Bagh, Kotli, Bhimber, and Mirpur.¹² These health facilities provide different medical, therapeutic, and investigative services to its catchment population of over 4.04 million.¹³ A public hospital laboratory provides all basic (urine test, blood sugar test, blood pressure test), routine (blood complete picture), and advanced diagnostic tests (histopathology, microbiology, biochemical profile, lipid function, renal function).¹⁴

This cross-sectional study included all the practicing/on-duty general practitioners and clinicians from all departments in the hospital. Clinicians and general practitioners who were off-duty or who did not wish to participate in the study were not included. Intern or undergraduate medical students in training programs along with other healthcare providers (e.g., paramedical staff) were excluded from this study. By using a consecutive non-probability sampling technique, data was collected from the physician over three months from January to March 2020. Although initially the study was planned for a longer duration, we had to reduce it due to the start of the COVID-19 pandemic. The sample size was not predefined as we wanted to include all participants fulfilling the study criteria during the study duration. This will allow a more accurate analysis of the factors associated with physician satisfaction. A structured questionnaire was used for data collection which was based on similar studies published previously and was finalized after doing a pilot study in a similar setting which was not included in the study.^{8, 15}

The outcome variable of the study was physician satisfaction with laboratory services which was measured on a 15-items scale. A 5-point Likert scale was used ranging from very dissatisfied to very satisfied, with the former having the lowest score (1) and the latter having the maximum score (5). The first part of the questionnaire collected information about the independent variables like

socio-demographics of the physician while the second part included questions the about satisfaction of the physician with three major sections which included statements on services, accessibility, and information provided by the laboratories. The questionnaire was written in the English language initially but it was translated into the local language to ensure comprehension of the participants.

Permission was also taken from the Ethical review committee of Al-Shifa trust eye hospital (reference no. ERC 47/AST-20) and the health ministry of the AJK government before data collection and also from the medical superintendent of every hospital. Moreover, verbal informed consent was also taken from every participant in this study. Face and content validity was checked by circulating it to experts in the field. Few questions were found redundant and unclear to interpret, which were then removed or modified. All the interviews conducted during the pilot study were done by the primary researcher and these interviews were observed by the individuals who conducted interviews afterward.^{16, 17}

Confidentiality of the physician’s data was maintained and ethical values of research were properly considered and followed at every step of the study. The responses recorded in the questionnaire were recorded and analyzed using SPSS version 21. Reliability analysis of the scale demonstrated a Cronbach’s alpha value of 0.92 for the physician satisfaction scale. The descriptive analysis was done on the categorical and continuous variables. The percentages and frequencies were reported for categorical variables, and mean scores, as well as minimum and maximum values, were reported for continuous variables. Mean scores were calculated for each item on the scale, and an overall score was computed and categorized into two variables using the cut-point of the 38. The Chi-square independence test was applied in the inferential part of the analysis to check the association between dependent and independent variables. A Binary logistic regression model was performed to identify predictors of physicians’ laboratory services.

Results

A total of 202 physicians participated in the study, out of which 53% (n=107) were female. The respondents were divided into 3 age groups, of which the majority i.e. 56% (n=114) were 24 to 29 years old. Forty-two percent (n=85)

individuals were residing in rural areas of Kashmir district, the majority of whom i.e. 72% (n=146) were married (Table 1).

Table 1: Socio-demographic profile of respondents (N=202)

Variable	Categories	Percentages	Frequency
No of Physician from hospitals	Neelum	13.9	28
	Hattian Bala	3.5	7
	Kotli	15.8	32
	Pallandari	13.9	28
	Bagh	14.4	29
	Bhimber	11.9	24
	Mirpur	26.7	54
Gender	Male	47.0	95
	Female	53.0	107
Age (years)	24-29	56.4	114
	30-40	25.2	51
	More than 40	18.3	37
Residence	Urban	57.9	117
	Rural	42.1	85
Marital status	Married	72.3	146
	Unmarried (Single, Divorced, Widowed)	27.7	56
Educational status	MO	59.4	120
	Specialist	21.8	44
	Consultant	18.8	38
Years of experience	1-2	42.1	85
	2-5	38.1	77
	More than 5	19.8	40
Current work station	OPD	41.6	84
	Wards	23.3	47
	Emergency	35.1	71

On the 5-point Likert scale physician gave different responses related to satisfaction of laboratory services. The majority 149 (73.8%) of the physician showed dissatisfaction with the availability of the Handbook for assistance while a minimum of 49 (24.3%) dissatisfaction showed towards the lab clinical interface. Further details are given below

Table: 2 Physician’s satisfaction Variables (N= 202)

Variable	Very Dissatisfied	Dissatisfied	Neutral	Satisfied	Very Satisfied
Assistance of Hand book	24.8	73.8	1.5	0	0
Availability of Lab staff at working Hour	13.9	26.2	12.4	43.6	4.0
Ability to resolve complaints	12.9	33.7	14.9	36.6	2.0
Lab request form	17.3	69.3	12.9	0.5	0
Availability of test menu	2.5	32.2	15.3	50.0	0
Legibility and completeness of lab reports	24.3	35.6	10.9	28.2	1.0
Provision of urgent report timely	20.3	19.3	13.4	47.0	0
Lab Clinical Interface	0.5	24.3	24.3	48.5	2.5
TAT is adequate for outpatients	4.0	68.8	15.3	11.9	0
TAT is adequate for inpatients	3.0	71.8	13.4	11.9	0
Attitude towards research projects	10.9	32.2	16.3	39.1	1.5
Lab workers promptly answer the phone calls	32.2	49.5	7.9	10.4	0
Lab reports are convenient to read	10.4	43.6	15.8	30.2	0
Manual Reporting	36.1	48.0	9.4	6.4	0
Overall satisfaction	23.3	29.2	18.3	29.2	0

The overall mean score of “Physician’s satisfaction with clinical lab services” was 38 (+9.6) on a scale of 15 to 75, ranging from a minimum score of 22 to a maximum of 56. The 60% of respondents covered a range of 28 to 129. The mean scores were dichotomized into dissatisfied and satisfied with clinical lab services using a cut-off limit of 38, revealing that 52% (n=104) of physicians dissatisfied were with the clinical lab services (Table 2).

When asked whether the respondents had an updated lab handbook, the response was a unanimous No. Similarly, all the respondents denied the availability of a backup or referral system, immediate notification of critical results by the lab, or notification by the lab if there is an interruption in time. All the physicians voted in affirmation for an electrical patient record system.

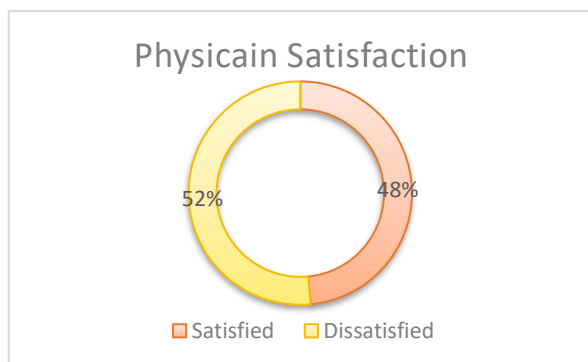


Figure 1: Physician satisfaction with laboratory Services

A Chi-square test of independence was run to check the association between socio-demographic variables and physician’s satisfaction with clinical lab services. A preliminary analysis was performed to check that there is no violation of assumptions. A statistically significant association was found between the age of the Physicians and their satisfaction levels with clinical lab services [$\chi^2 (2) = 8.654$; p-value= 0.013]. Similarly, residence of the physicians [$\chi^2 (1) = 6.208$; p-value = 0.013], level of education [$\chi^2 (2) = 14.589$; p-value = 0.001] and years of experience [$\chi^2 (2) = 9.430$; p-value = 0.009] also exhibited statistically significant association with the outcome i.e. Physician’s satisfaction with clinical lab services. All the other variables had no statistically significant association with the outcome (Table 3).

Binary logistic regression was performed to assess the impact of a number of factors (i.e., statistically significant independent variables) on the likelihood that respondents would be more satisfied with the clinical lab services. The preliminary analysis was to check that there was no violation of assumptions. The model contained four predictor variables (age, residence, educational status, and years of experience). Overall, the model was statistically significant, $\chi^2 (7, n= 202) = 27.109$; p<0.0005, indicating that the model was able to distinguish between respondents who were satisfied and dissatisfied with the clinical lab services. The model as a whole explained

between 12.6% (Cox and Snell R square) and 16.8% (Nagelkerke R squared) of the variance in Physician's satisfaction and correctly classified 63.4% of cases. However, only 2 of the independent variables made a unique statistically significant contribution to the model (residence and educational status).

Table 3: Association of Socio-demographic characteristics with the Physician's Satisfaction with clinical lab services

Socio-demographic characteristics	χ^2 (df)	p-value
Gender of Participants	0.201 (1)	0.654
Age (in years)	8.654 (2)	0.013*
Residence	6.208 (1)	0.013*
Marital status	0.011 (1)	0.917
Educational status	14.589 (2)	0.001*
Years of experience	9.430 (2)	0.009*
Current work station	1.183 (2)	0.554

Significant at $\alpha = 0.05$ with $p < 0.05$

Discussion

The study was conducted on physicians working in 7 districts of AJK ages diverse ages, experience, and qualifications to assess physician satisfaction with clinical lab services.

The current study shows half of the participants were satisfied with the available clinical lab services in AJK. Similar findings were reported in a national survey of Ethiopia using the same questionnaire where overall physician satisfaction was 55% same findings were observed in a Korean study of lab services where physician satisfaction was 58.1%.^{18, 19} Whereas the study conducted in Rwanda the satisfaction was even lower at 36% and the major reasons were the Staff unavailability in the laboratory and non-responsiveness which is quite similar to our study.²⁰

In this study, the male physicians were more dissatisfied than female physicians working at AJK hospitals this result is not far from the study conducted in Ethiopia where only 39.6% of the male physician were

satisfied with the lab services.²¹ The reason could be the male physicians were more at specialist & consultant posts and looking for more advanced lab services. Urban physicians were found more satisfied with lab services as compared to rural residents the reason could be the quality of lab services in urban and city areas. Similar findings were observed in the Indian Study where physicians working in city areas are more satisfied as compared to villages due to lack of physician training, lack of infrastructure, and poverty in rural areas.²²

The physicians who are currently working in OPDs were comparatively found more satisfied as compared to physicians working inwards and emergency where quick lab reports are required. The possible reason could be the delay in lab result reporting. The Ethiopian and Arabian studies show similar findings where the physician working in emergency 44% was satisfied with the panic results and only 33% satisfaction with the time they reported in the emergency department.^{10, 20} The unique area of focus and the region where the study was conducted helps us to address an important gap in the existing body of literature. Therefore, it can be used to develop evidence-based health policy recommendations targeting health care services at the DHQ level of AJK.

Conclusion

It is concluded that physician satisfaction with laboratory services in public hospitals of AJK was very low, more than 50% of the patients showed dissatisfaction with the services. The main factors which affect the overall satisfaction of physicians with laboratory services were the absence of the assistance handbook, laboratory request form, and turnover time of the reports. So targeted strategies are needed to improve the overall quality of these services.

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