Assessment of Patient Satisfaction towards Radiological Services at A Tertiary Care Hospital in Rajasthan: A Cross-Sectional Study

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Abstract—

Introduction: *Patient satisfaction has emerged as a critical quality indicator, directly influencing patient compliance, treatment outcomes, and overall perception of healthcare services. The aim of this research was to evaluate patient satisfaction with the Radiological services provided at tertiary care Hospital in Rajasthan.*

Methodology: *This cross-sectional study was conducted sto assess patient satisfaction with radiological services in the radiology department of a tertiary care hospital located in Rajasthan from 1st December 2021 to 28th February 2022 among 400 patients who underwent radiological procedures, including MRI, CT scan, ultrasound, and X-ray using a predesigned questionnaire.*

Results: *Among the 400 participants in the study, 52% were female and maximum 68% were of the age group 18–45 years. Education level of maximum participants was higher secondary education (31.5%), followed by graduation (27%). Most frequently availed service was USG (29%) followed by X-ray (26%), MRI (24.75%) and CT scan (20.25%). 81.75% reported healthcare facility accessible. Waiting time for procedures was 15 minutes (40.25%), 15–30 minutes (19.75%) and more than 1 hour (24.25%). 64.5% were satisfied with comfort of waiting chairs while 35.5% were dissatisfied. Staff was courteous (20%) and very courteous (65%). 76% satisfied and 5% very satisfied with cleanliness and hygiene, though 9% expressed dissatisfaction. Procedure was clearly explained among 72%. 62% were satisfied, 3% were very satisfied with privacy and comfort during procedures. 44.5% showed dissatisfaction with turnaround time for reports. Most patients (90%) confirmed receiving instructions during the examination. Overall satisfaction with services was among 72.25% including 19.5% very satisfied and 52.75% satisfied, 15.25% neutral while 12.25% dissatisfied and 0.25% were very dissatisfied.*

Conclusion: *Addressing waiting times and report turnaround times is crucial for enhancing patient satisfaction and ensuring patient-centered care.*

Keywords— Patient Satisfaction, Radiology, Radiological Services, Diagnostic Imaging, MRI, CT Scan, Ultrasound, X-Ray, Tertiary Care Hospital, Rajasthan.

I. INTRODUCTION

Radiological services including diagnostic imaging techniques like X-ray, ultrasound, CT scans, and MRI, play a pivotal role in disease diagnosis, treatment planning, and monitoring.[1] Ensuring a positive patient experience within radiology departments is paramount for optimizing healthcare delivery and achieving patient-centered care. A high standard of care not only ensures better health outcomes but also strengthens the trust between patients and healthcare providers.[2]

Patient satisfaction has emerged as a critical quality indicator, directly influencing patient compliance, treatment outcomes, and the overall perception of healthcare services.[3] Patient satisfaction is a measure of the extent to which a patient is content with the healthcare they received from their healthcare provider.[4] It is an evaluation that reflects the perceived differences between expectations of the patient to what is actually received during the process of care.[5]

Patient satisfaction is influenced by various factors, including accessibility of the department, waiting times for procedures and reports, the comfort and cleanliness of the facilities, the behavior and communication skills of the staff, the clarity of explanations provided about procedures, and the privacy afforded to patients. Dissatisfaction in any of these areas can negatively impact the patient's overall experience and potentially lead to reduced adherence to recommended treatment plans. Further, higher patient satisfaction was found to be associated with decreased use of specialty care, hospitalization, and laboratory services.[6]

In the Indian context, where healthcare resources are often stretched and patient volumes are high, assessing and improving patient satisfaction in radiological services is particularly crucial. This study focuses on a tertiary care hospital in Rajasthan, a region with unique healthcare challenges and demographics. Understanding the specific factors that contribute to patient satisfaction within this setting can inform targeted interventions to enhance service quality and patient outcomes. By identifying areas of strength and areas needing improvement, this research aims to provide actionable recommendations for improving the delivery of radiological services and ensuring a positive patient experience. The findings can contribute to the broader effort of promoting patient-centered care and enhancing the quality of healthcare services in Rajasthan and similar settings. The aim of this research was to evaluate patient satisfaction with the Radiological services provided at tertiary care Hospital in Rajasthan.

II. METHODOLOGY

This cross-sectional study was conducted to assess patient satisfaction with radiological services in the radiology department of a tertiary care hospital located in Rajasthan, India from 1st December 2021 to 28th February 2022. The study population comprised patients who underwent radiological procedures, including MRI, CT scan, ultrasound, and X-ray at the specified hospital.

2.1 Inclusion Criteria:

- Patients aged 18 years and above.
- Patients who provided informed consent to participate in the study.
- Patients who had undergone at least one radiological procedure of MRI, CT scan, ultrasound, and X-ray at the hospital.

2.2 Exclusion Criteria:

- Patients unwilling to participate in the study.
- Patients with cognitive impairments that affected their ability to respond to the questionnaire accurately.

Sample size was calculated at 95% confidence level assuming overall satisfaction among 50% participants to take maximum variance. At a relative allowable error of 10%, minimum 400 participants were required as sample size. Notional sampling frame was used and all consecutive eligible consent giving participants were enrolled in the study. A total of 400 patients were included in the study, providing a representative sample from the available patient pool during the study period of 3 months.

Ethical approval was obtained from the institutional ethics committee before commencing the study. Informed consent was obtained from all participants before their inclusion in the study. Participants were assured of the confidentiality of their responses, and data were anonymized to protect their privacy.

A predesigned questionnaire was used to collect data at the time of exit of patient. The questionnaire consisted of two sections: [a] **Sociodemographic Information** including questions on age, gender, education level, residence (urban/rural), and the type of radiological service availed (MRI, CT scan, ultrasound, X-ray). [b] **Satisfaction Assessment** including questions assessing various aspects of the radiological services, including [1] Accessibility of the radiology department, [2] Waiting time for procedures (categorized as < 15 minutes or > 1 hour). [3] Facility and comfort of the waiting area. [4] Staff behavior (rated as courteous or very courteous). [5] Hygiene and cleanliness of the department. [6] Communication regarding the explanation of procedures. [7] Privacy and comfort during the procedure. [8] Satisfaction with the report turnaround time. [9] Instructions

given during examination. [10] Overall satisfaction with the radiological services (rated as very satisfied, satisfied, neutral, or dissatisfied).

Data thus collected were entered in Microsoft excel software and were analysed using SPSS version 23 (SPSS Inc., Chicago, IL). Quantitative data were summarized as mean and standard deviation. Qualitative data were summarized expressed as number and proportion and were analysed using chi square test. P value <0.05 was considered as statistically significant.

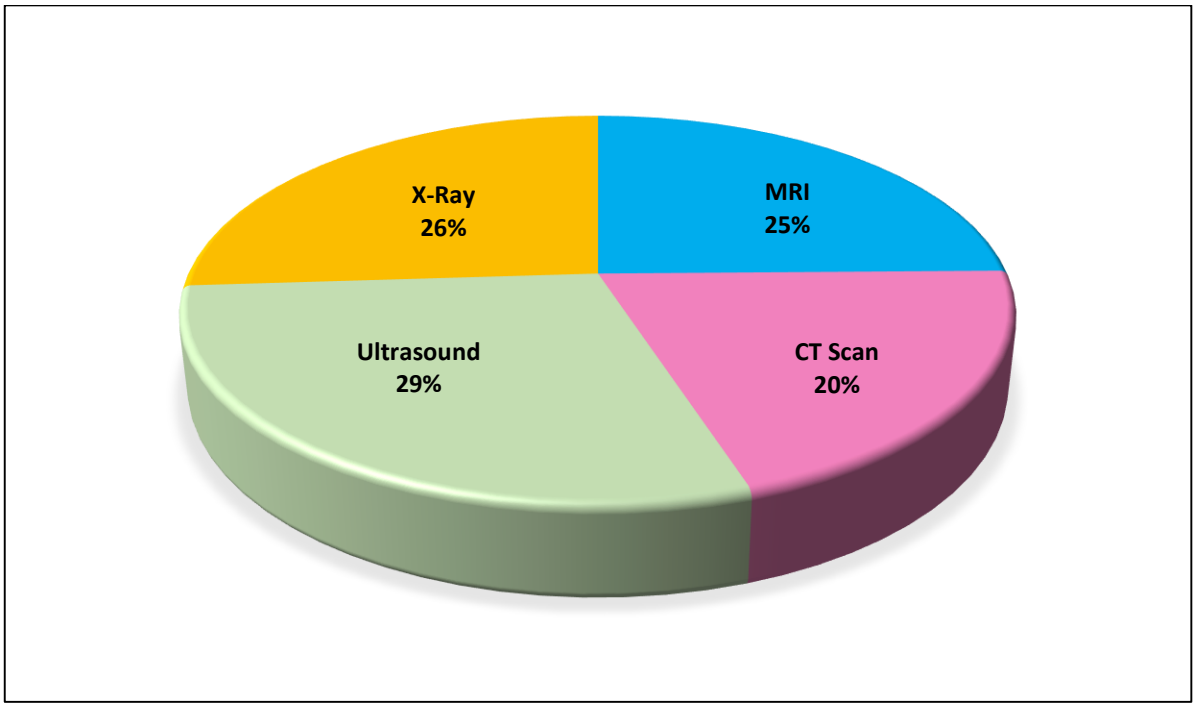
III. RESULTS

This study assessed patient satisfaction with radiological services at a tertiary care hospital in Rajasthan, with a sample size of 400 patients. The findings reveal insights into various aspects of the patient experience, including sociodemographic characteristics, accessibility, waiting times, facility comfort, staff behavior, hygiene, communication, privacy, report turnaround time, and overall satisfaction.

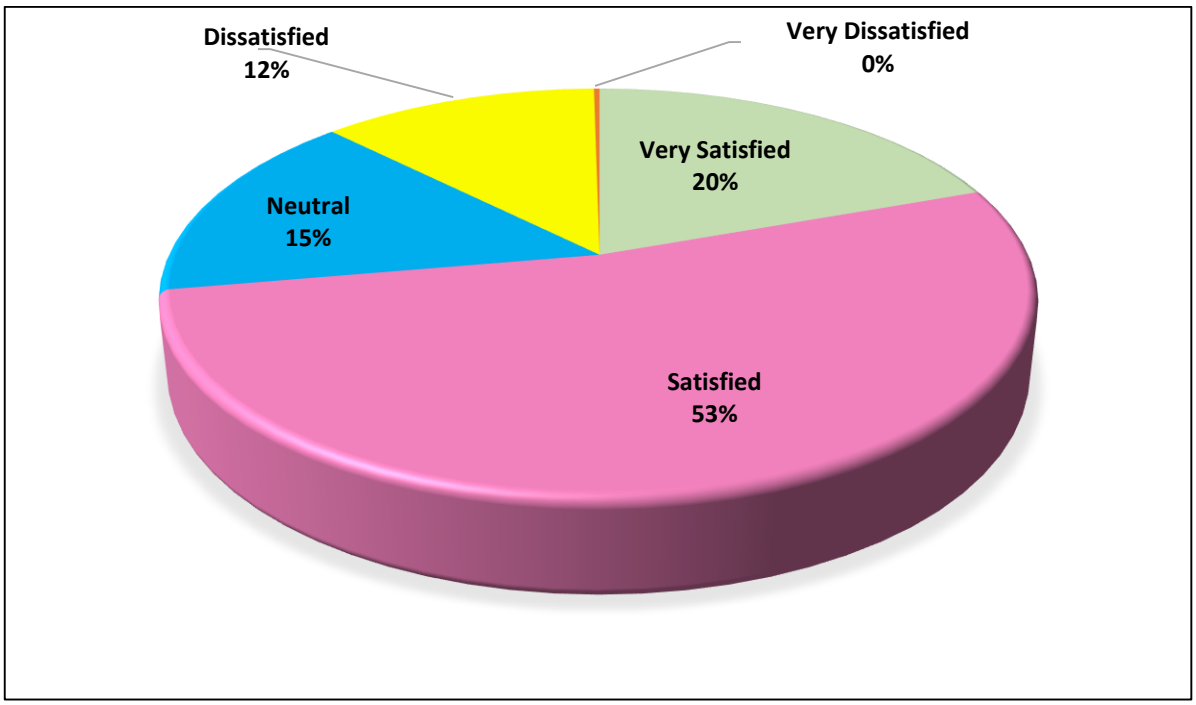
TABLE 1
SOCIODEMOGRAPHIC CHARACTERISTICS OF PARTICIPANTS (N=400)

Characteristic	Category	Frequency (n)	Percentage (%)
Age	18-30 years	152	38.0
	31-45 years	120	30.0
	46-60 years	88	22.0
	>61 years	40	10.0
Gender	Male	192	48.0
	Female	208	52.0
Education	Illiterate	25	6.25
	Primary	46	11.5
	Secondary	95	23.75
	Higher Secondary	126	31.5
	Graduate & Above	108	27
Residence	Urban	262	65.5
	Rural	138	34.5
Service Availed	MRI	99	24.75
	CT Scan	81	20.25
	Ultrasound	116	29.0
	X-Ray	104	26.0

Among the 400 individuals enrolled in the study, the majority (68%) were within the age range of 18–45 years (38% in 18-30 year age group and 30% in 31-45 year age group), followed by 22% in the 46–60 years group, and 10% aged above 60 years. The gender distribution revealed a slight female predominance, with 52% (n=208) being female and 48% (n=192) male. 31.5% of participants had completed higher secondary education, 27% were graduate & above, 23.75% had secondary education, 11.5% had attained primary-level education, and 6.25% were illiterate. Around one third participants (262 participants) were from urban areas (65.5%) and 138 participants (34.5 %) were of rural background. Most frequently availed service was ultrasonography (USG) by 116 participants (29%) followed by X-ray by 104 participants (26%), magnetic resonance imaging (MRI) by 99 participants (24.75%) and computed tomography (CT) scan by 81 participants (20.25%). [Table-1, Graph-1].



GRAPH 1: Radiological services availed by study participants



GRAPH 2: Overall satisfaction level of study participants

TABLE 2
PATIENT SATISFACTION WITH RADIOLOGICAL SERVICES (N=400)

SN	Aspect	Satisfaction Level	Frequency (n)	Percentage (%)
1	Accessibility	Easy to Locate	327	81.75
		Not easy	73	18.25
2	Waiting Time for procedure	< 15 minutes	161	40.25
		15-30 minute	79	19.75
		31-60 minute	63	15.75
		> 1 hour	97	24.25
3	Facility & Comfort of waiting chairs	Satisfied	258	64.5
		Not satisfied	142	35.5
4	Staff Behavior	Very Courteous	80	20.0
		Courteous	260	65.0
		Neutral	56	14.0
		Rude	4	1.0
		Very rude	0	0
5	Cleanliness and Hygiene	Very satisfied	20	5.0
		Satisfied	304	76.0
		Neutral	40	10.0
		Dissatisfied	28	7.0
		Very Dissatisfied	8	2.0
6	Procedure explained before test	Clearly Explained	288	72.0
		Yes, but not clearly explained	112	28.0
		No	0	0.0
7	Privacy & Comfort	Very satisfied	12	3
		Satisfied	248	62.0
		Neutral	112	28
		Dissatisfied	20	5
		Very Dissatisfied	8	2
8	Overall waiting Time for report turnaround time	Very satisfied	28	7
		Satisfied	48	12
		Neutral	166	41.5
		Dissatisfied	158	39.5
		Very Dissatisfied	20	5
9	Instructions given during examination	Yes	360	90
		No	40	10
10	Overall Satisfaction	Very Satisfied	78	19.5
		Satisfied	211	52.75
		Neutral	61	15.25
		Dissatisfied	49	12.25
		Very Dissatisfied	1	0.25

Out of 400 participants, 81.75% reported that the healthcare facility was easy to locate, indicating good accessibility, while 18.25% faced difficulty. Regarding waiting time for procedures, 40.25% were attended within 15 minutes, additional 19.75% within 15–30 minutes. However, 24.25% of patients had to wait over an hour, suggesting room for improvement in patient flow management. When asked about the comfort of waiting chairs, 64.5% were satisfied, while 35.5% expressed dissatisfaction. Staff behavior was rated positively by most participants, with 20% describing staff as very courteous and 65% as courteous; only 1% reported rude behavior. Cleanliness and hygiene were well-rated, with 76% satisfied and 5% very satisfied, though 9% expressed dissatisfaction.

In terms of communication, 72% of patients reported that the procedure was clearly explained before the test, while 28% felt the explanation lacked clarity. Regarding privacy and comfort during procedures, 62% were satisfied, 3% were very satisfied, while 7% were dissatisfied to varying degrees. The turnaround time for reports emerged as a concern, with 41.5% expressing neutrality and 44.5% dissatisfaction, indicating delays in report delivery. Most patients (90%) confirmed receiving instructions during the examination, whereas 10% did not. Overall satisfaction with services was among 72.25% including 19.5% very satisfied and 52.75% satisfied, while 12.25% reported being dissatisfied and 0.25% were very dissatisfied. 15.25% were neutral about overall satisfaction level. [Table-2, Graph-2]

IV. DISCUSSION

This study, conducted at a tertiary care hospital in Rajasthan with a sample size of 400 patients, revealed moderate to high overall patient satisfaction with radiological services. The key findings highlighted strengths in accessibility, staff behavior, hygiene, and privacy, while also identifying areas needing improvement, specifically waiting times and report turnaround time.

In this study maximum 38% were within the age range of 18–30 years similar to the study of Mishra D[2] (38.2% aged 18-30 years), while in study of Kumar V et al[7] maximum 43.9% were of 30-65 year age group. There was slight female predominance in our study (52% female) consistent with study of Kumar V et al[7] (49.2%), Adhikari M et al[8] (52.9%) and Mishra D[2] (46.3% females) while in study of Kumar CN et al[9], 79% were males while 21% were females. In our study maximum 31.5% had higher secondary education followed by 27% graduates. In study of Kumar CN et al[9], maximum 28% had secondary education followed by 22% graduates. USG was the most frequently availed service in our study (29%) followed by X-ray (26%), MRI (24.75%), CT scan (20.25%). In comparison, Kumar V et al[7] reported X ray (37%) and USG (28.8%) as most common while Mishra D[2] reported MRI (26.9%) and CT scans (25.6%) as predominant.

In our study, 81.75% reported that the healthcare facility was easy to locate, similar to the study of Adhikari M et al[8] (97%) and Kumar CN et al[9] (80.5%). 58.3% were satisfied, and 8.2% were very satisfied regarding accessibility in study of Kumar V et al[7]. Mishra D[2] in a study observed that 32.6% found services accessible and 19.6% reported very accessible services. Regarding waiting time for procedures, 40.25% were attended within 15 minutes, additional 19.75% within 15–30 minutes. However, 24.25% of patients had to wait over an hour in our study. In study of Kumar V et al[7], 61.4% were satisfied and 7.2% were very satisfied and Mishra D[2] in their study observed short waiting time (42.6%) and very short waiting times (32%), 74.5% were satisfied in study of Kumar CN et al.[9] 64.5% were satisfied with comfort of waiting chairs in our study similar to the study of Mishra D[2] (32.3% satisfied, 31.8% very satisfied).

Regarding staff behavior, similar results were obtained by various studies as ours (20% describing staff as very courteous and 65% as courteous), study of Mishra D[2] (42.1% rated staff as professional and friendly, and 35.1% very professional and friendly), study of Kumar CN et al[9] (77.5% were satisfied) and study of Adhikari M et al[8] (96% very friendly and courteous). Cleanliness and hygiene were well-rated, with 76% satisfied and 5% very satisfied similar to the study of Mishra D[2] where 41.9% found the environment clean and comfortable, 23.8% rated it as very clean and comfortable. 72% of patients reported that the procedure was clearly explained before the test in this study and similar results were observed by Kumar CN et al[9] (86.5%) and Adhikari M et al[8] (92%). Mishra D[2] in a study observed that 55.0% felt the procedure was very clearly explained, while 27.1% thought it was described somewhat clearly. Regarding privacy and comfort during procedures, 62% were satisfied, 3% were very satisfied. Similarly in study of Mishra D[2] 38.0% rated the procedure as very comfortable, while 33.6% found it comfortable. In this study, overall satisfaction with services was among 72.25% similar to the study of Mulisa T et al[11] (71.6%), Efanga SA et al[10] (94.8%). Mishra D[2] in a study observed that 43.9% were satisfied, while 31.0% were very satisfied.

The results emphasize the importance of addressing waiting times and report turnaround times to improve patient satisfaction. Potential strategies include optimizing appointment scheduling, streamlining workflows, and implementing efficient reporting systems. Enhancing communication between staff and patients is also crucial for managing expectations and addressing concerns.

V. CONCLUSION

This study provides valuable insights into patient satisfaction with radiological services in a tertiary care hospital in Rajasthan. Addressing waiting times and report turnaround times is crucial for enhancing patient satisfaction and ensuring patient-centered care. Studies with larger, more diverse samples are needed to confirm these results and explore factors influencing patient satisfaction as this study focused on a single tertiary care hospital in Rajasthan. This may limit the generalizability of the findings to other settings.

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