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Patient Satisfaction with Emergency Department Services: A Cross-Sectional Study at a Tertiary Care Hospital in North India

Anuj Kumar[1], Anshul Jain[2*]
1.Master of Hospital Administration Programme, Amrita Vishwa Vidyapeetham, Faridabad, Delhi NCR, India
2.Assistant Professor, Department of Emergency Medicine, Amrita Vishwa Vidyapeetham, Delhi NCR, India

ABSTRACT

Patient satisfaction is a key indicator of service quality in hospital emergency departments (EDs), where care is delivered under time pressure across multiple service touchpoints. This study assessed satisfaction with ED services at a tertiary care hospital and identified specific dimensions requiring administrative attention, A cross-sectional, descriptive study was conducted in the ED of a tertiary care hospital in Faridabad, India, over a 25-day period. A structured, interviewer-administered 15-item questionnaire covering registration, waiting time, doctor and nursing care, facilities, billing, and overall experience was used. Convenience sampling was employed; critically ill or unconscious patients were excluded, with an accompanying relative or attendant responding as proxy. A total of 400 valid responses were analyzed using descriptive statistics, and the association between Left Against Medical Advice (LAMA) discharge status and recommendation intent was tested using Fisher's exact test. Overall, 91.25% of respondents would recommend the ED. Satisfaction was highest for cleanliness (99.8% strongly agree), privacy and dignity (99.8%), and treatment explanation (100% agreement). The weakest item was waiting time for investigation results, with 43.2% dissatisfaction, followed by billing clarity (19.5%). All 35 non-recommenders corresponded exactly to LAMA discharges (Fisher's exact $p < .001$). ED service quality was strong overall, particularly in interpersonal and facility domains. Diagnostic turnaround time was the primary improvement area, and dissatisfaction was concentrated among LAMA cases, indicating a targeted rather than broad-based improvement strategy.

Keywords: Patient Satisfaction; Emergency Department; Hospital Administration; Left Against Medical Advice; Tertiary Care; Cross-Sectional Study

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INTRODUCTION

Patient satisfaction has become one of the most widely used indicators of healthcare quality and service performance, particularly in departments where the patient experience is shaped as much by process efficiency and interpersonal care as by clinical outcome. The emergency department (ED) occupies a distinct position in this regard: patients arrive acutely, often distressed, frequently accompanied by family, and pass through several service touchpoints in quick succession—registration, triage, diagnostics, treatment, and discharge—each of which independently shapes the overall perception of care. Unlike outpatient or elective inpatient settings, ED satisfaction research consistently finds that waiting time, staff communication, and environmental factors weigh disproportionately on how patients and families judge their experience, often more than clinical outcome itself (Welch, 2010).[1]

As a hospital administration function, monitoring ED patient satisfaction serves two purposes: it acts as a proxy indicator of operational efficiency (registration flow, diagnostic turnaround, and discharge process), and it directly affects patient retention and word-of-mouth reputation, reflected in the present study through the recommendation-intent item. Structured, periodic satisfaction assessment allows hospital management to identify specific process bottlenecks rather than relying on anecdotal complaints. In the Indian tertiary care setting, the ED typically functions as the first point of contact for a wide spectrum of patients and often operates under continuous inflow, variable staffing pressure, and a diagnostic workload dependent on laboratory and radiology turnaround. Because the ED experience is shaped heavily by process-design decisions that are within the direct control of hospital administration, it is a particularly instructive department for administrative quality-improvement studies.

While Indian literature on outpatient and general tertiary-care satisfaction is well established (Verma et al., 2020; Yadav et al., 2024)[2,3], dedicated ED-specific satisfaction studies—particularly those examining the relationship between discharge circumstance, such as leaving against medical advice, and overall recommendation intent—remain comparatively limited. The present study addresses this gap by assessing patient and attendant satisfaction with ED services at a tertiary care hospital, identifying the specific service dimensions requiring administrative attention, and examining whether discharge circumstance is associated with recommendation intent.

Conceptual Background

Patient satisfaction research applied specifically to emergency care has been an active area of study for several decades. In a qualitative review spanning twenty years of ED-specific literature, Welch (2010)[1] found that satisfaction in the ED is shaped by a distinct set of

drivers relative to outpatient or inpatient settings—chiefly waiting time, perceived urgency of treatment, and quality of communication—rather than clinical outcome alone. Multiple studies converge on waiting time, both time to first consultation and time to diagnostic results, as among the most consistent predictors of ED dissatisfaction. Using the ED-CAHPS instrument at an academic teaching hospital, Abass et al. (2021)[4] found that the dimension covering arrival, waiting time, and treatment urgency scored lowest among all satisfaction domains and recommended systematic streamlining of patient-flow policies.

Comparable Indian hospital-based research provides useful local benchmarks. Verma et al. (2020) reported that a majority of patients were satisfied with services at a newly established tertiary care hospital in Haryana, while Yadav et al. (2024) applied a fishbone (root-cause) analysis to the lowest-scoring attribute in an outpatient sample at a Faridabad tertiary hospital, an approach directly consistent with the present study's purpose. In an ED-based study in New Delhi, Sachdeva and Kaur (2018)[5] reported an overall satisfaction rate of 55%, with dissatisfaction concentrated in cleanliness, noise, and washroom facilities. Kaur et al. (2020) similarly identified long waiting times and inadequate attention during laboratory and radiology procedures as major domains of dissatisfaction, reinforcing that diagnostic-related waiting time is a recurring theme across the wider Indian literature.

Two conceptual frameworks situate the present findings. Donabedian's (1966)[6] structure–process–outcome model categorises quality indicators into structure (infrastructure, staffing, equipment), process (the interactions and procedures through which care is delivered), and outcome (the effects of care, including satisfaction). Mapped onto the study questionnaire, registration, waiting time, and billing correspond to process indicators; cleanliness, equipment availability, and privacy correspond to structure indicators; and overall satisfaction corresponds to an outcome indicator. The SERVQUAL model (Parasuraman et al., 1988)[7] identifies five dimensions of service quality—tangibles, reliability, responsiveness, assurance, and empathy—several of which are implicitly reflected in the questionnaire, supporting its content validity as a reasonably comprehensive instrument for ED-specific assessment.

MATERIALS AND METHOD

Study Design and Setting

A cross-sectional, descriptive design was adopted to assess patient satisfaction with services rendered in the ED of a tertiary care hospital in Faridabad, Delhi NCR, India. A cross-sectional design was selected because it permits measurement of satisfaction at a single point in time across a representative sample of ED users, an approach widely used in comparable hospital-based studies in India (Verma et al., 2020; Yadav et al., 2024). The study covered

patients who accessed registration, triage, doctor consultation, nursing care, diagnostic services, and discharge processes during the study period.

Study Population, Sample, and Sampling

The study population comprised patients or their accompanying relatives or attendants who received care in the ED. A total of 400 valid responses were collected and analysed. A non-probability convenience sampling technique was employed. The questionnaire was administered by the researcher through structured verbal interviews, with responses recorded directly into an electronic form. This interviewer-administered format was chosen to accommodate respondents who might not have been able to complete a self-administered form independently in the ED setting.

Inclusion and Exclusion Criteria

Patients (or their accompanying relative or attendant) who received care in the ED during the study period and were willing to respond were included. Critically ill or unconscious patients were excluded from direct participation; in such cases, the accompanying relative or attendant responded as a proxy on the patient's behalf.

Data Collection Instrument

Data were collected using a structured, pre-tested, 15-item questionnaire comprising six sections: (A) basic demographic information; (B) registration and waiting time (Items 1–4); (C) doctor and nursing care (Items 5–10); (D) facilities and environment (Items 11–13); (E) billing and administrative process (Item 14); and (F) overall experience, recommendation intent, and open-ended suggestions (Item 15). Responses were recorded on 5-point satisfaction scales (Very Satisfied to Very Dissatisfied) and 5-point Likert agreement scales (Strongly Agree to Strongly Disagree). Operational definitions of the key study variables are presented in Table 1.

Table 1: **Operational Definitions of Key Study Variables**

Term	Operational Definition
Patient satisfaction	The respondent's self-reported rating of a specific service dimension, recorded on a 5-point satisfaction or agreement Likert scale.
LAMA	Left Against Medical Advice—a discharge outcome in which the patient or attendant chose to end the ED episode before treatment was formally completed.
Recommendation intent	A binary (Yes/No) response to whether the respondent would recommend the ED to others; treated as the primary overall-experience outcome measure.
Proxy response	A survey response provided by a relative or attendant on behalf of a patient unable to respond directly (e.g., critically ill or unconscious).
Diagnostic turnaround time (TAT)	The interval between a diagnostic test being ordered and the result being made available to the treating clinician, as perceived by the respondent.

Data Analysis

Responses were exported to a spreadsheet for cleaning and tabulation. Descriptive statistics (frequencies and percentages) were computed for each item, and demographic distributions were analysed separately. The association between LAMA discharge status and recommendation intent was tested using Fisher's exact test, which was appropriate given the small expected cell counts in the 2 × 2 contingency table. A significance threshold of $p < .05$ was adopted throughout. Analyses and figure generation were performed using standard statistical and charting software.

Ethical Considerations

This study was conducted as an in-house institutional quality-assessment exercise. Verbal consent was obtained from each respondent prior to interview, and responses were recorded without any personally identifying information being used in analysis or reporting. The limitations of the ethical-review pathway for this in-house study are acknowledged in Section 5.4.

RESULTS AND DISCUSSION

A total of 400 valid responses were collected and analysed. Of these, 263 respondents (65.75%) were male and 137 (34.25%) were female, with representation broadly spread across adult life stages and a rise in the 60–74-year range, consistent with the epidemiological pattern of ED utilisation skewing toward older patients. Respondents were categorised by relationship to the patient as relative (62.0%), attendant (26.2%), or self (11.8%). Because 88.2% of responses were proxy-reported by a relative or attendant, satisfaction scores should be interpreted as reflecting caregiver perception in the majority of cases—a direct and expected consequence of the study's exclusion of critically ill or unconscious patients from direct interview.

Registration and Waiting Time

For the registration process (Item 1), 259 respondents (64.6%) were satisfied, 79 (19.7%) were neutral, and 62 (15.5%) were dissatisfied. Waiting time before consultation (Item 2) was acceptable to 246 respondents (61.3%). Staff guidance during registration (Item 3) was rated positively by 283 respondents (70.6%). Waiting time for investigation results (Item 4) was the weakest-performing item in the entire survey and the only item where a plurality expressed disagreement: 129 respondents (32.2%) disagreed and 44 (11.0%) strongly disagreed, for a combined dissatisfaction rate of 43.2% (Figure 1). This points to a specific operational bottleneck in laboratory and radiology reporting rather than a general service-quality issue, consistent with the wider literature (Abass et al., 2021; Kaur et al., 2020).

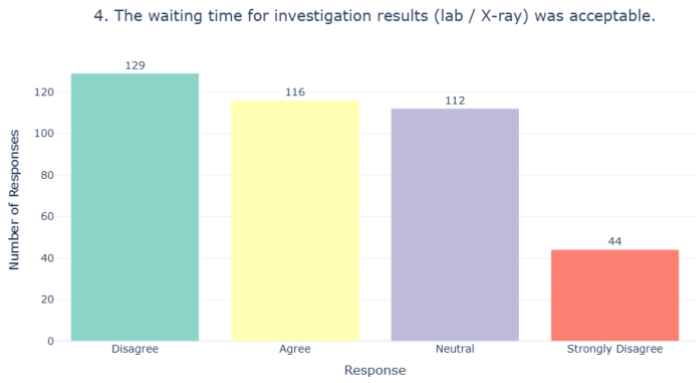

Figure 1: Acceptability of waiting time for investigation results (Item 4).

Doctor and Nursing Care

This section recorded the highest satisfaction levels in the survey. Doctors listening carefully (Item 5) recorded 81.8% strong agreement; treatment explained clearly (Item 7) recorded 100% combined agreement with no disagreement; and discharge instructions clearly explained (Item 10) recorded 77.6% strong agreement with no disagreement. Nursing responsiveness (Item 6) recorded 62.8% strong agreement but also 11.2% disagreement, indicating a smaller but non-trivial subgroup with a negative experience. Pain and discomfort management (Item 9) was the most variable item, with 41.4% strong agreement, 28.4% agreement, 20.4% neutral, and 9.7% disagreement.

Facilities, Environment, and Billing

Facilities and environment formed the strongest-performing section. Cleanliness (Item 11) and privacy and dignity (Item 13) each recorded 99.8% strong agreement, while wheelchair and stretcher availability (Item 12) recorded 80% strong agreement. In contrast, the billing and administrative process (Item 14) recorded 57.9% agreement, 22.7% neutral, and 19.5% disagreement—the second-weakest item after diagnostic waiting time, suggesting billing friction as a recurring administrative pain point.

Overall Experience and Recommendation Intent

For overall satisfaction (Item 15), 50.4% strongly agreed, 19.2% agreed, 20.2% were neutral, and 9.98% disagreed (Figure 2). On the recommendation question, 365 respondents (91.25%) indicated they would recommend the ED to others, while 35 (8.75%) would not.

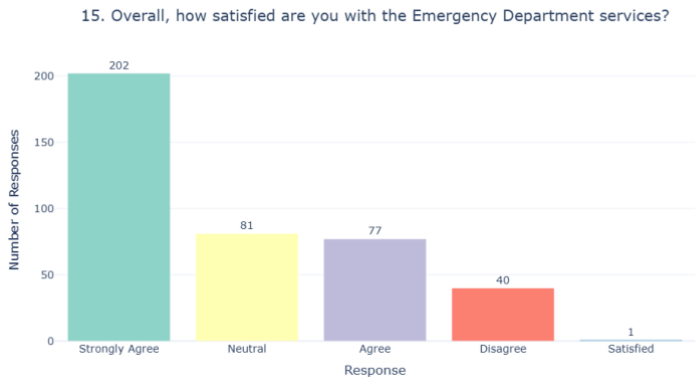

Figure 2:Overall satisfaction with emergency department services (Item 15).

Association Between LAMA Discharge and Recommendation Intent

Cross-verification of the dataset revealed that all 35 respondents who indicated they would not recommend the ED also recorded a LAMA discharge outcome. A 2 × 2 contingency table (Table 2) was tested using Fisher's exact test, which was appropriate because one expected cell count fell below five, violating the assumption required for a standard chi-square test.

Table 2: **Contingency Table: LAMA Discharge Status by Recommendation Intent**

Discharge status	Would recommend	Would not recommend	Total
Non-LAMA discharge	365	0	365
LAMA discharge	0	35	35
Total	365	35	400

Note. LAMA = Left Against Medical Advice. Fisher's exact test, $p < .001$.

The test returned $p < .001$, representing a complete, non-overlapping association between the two variables in this sample. Practically, discharge circumstance fully explained non-recommendation in this dataset: no other surveyed variable needed to be invoked to explain it. This should be read as an expected relationship now formally quantified—since a LAMA discharge is by definition associated with dissatisfaction severe enough that the patient or attendant chose to leave against advice—rather than an unexpected discovery. Its value lies in confirming that dissatisfaction in this ED is concentrated in a specific, identifiable subgroup rather than diffused across the general population.

Sub-group Analysis

Descriptive cross-tabulations were examined to check whether satisfaction varied across sub-groups. Overall satisfaction by patient category (Table 3) showed that respondents answering for themselves reported the highest combined agreement (76.6%), compared with relatives (71.0%) and attendants (62.9%); attendants also showed the highest disagreement rate (15.2%). Recommendation intent remained consistently high (88%–96%) across all age groups, indicating that the LAMA-driven dissatisfaction was not concentrated in any particular age demographic. Female respondents reported marginally higher satisfaction with

registration (69.3% satisfied) than males (62.7%); this difference was modest and descriptive, and no formal significance test was applied as it fell outside the primary hypothesis.

Table 3: **Overall Satisfaction (Item 15) by Patient Category**

Patient category	n	Agree / Strongly Agree	Disagree
Self	47	76.6%	4.3%
Relative	248	71.0%	8.9%
Attendant	105	62.9%	15.2%

DISCUSSION

Overall, this ED demonstrated strong performance in clinical-interpersonal domains (doctor communication, treatment explanation, and discharge counselling) and in environmental and facility domains (cleanliness, privacy, and equipment availability), with 91.25% of respondents willing to recommend the department. The two consistent weak points—diagnostic turnaround time and billing—were both process and administrative bottlenecks rather than clinical or interpersonal shortfalls, an important distinction for directing corrective resources.

Diagnostic Turnaround Time as the Primary Improvement Area

Item 4 was the only question in which disagreement outweighed agreement, mirroring the wider finding that waiting time—particularly for diagnostics—is consistently among the strongest predictors of ED dissatisfaction (Abass et al., 2021; Kaur et al., 2020; Welch, 2010). Because this is a logistics indicator rather than a staff-behaviour one, it points toward a specific, addressable intervention: a laboratory and radiology turnaround-time audit for ED-referred samples rather than a broad staff-training initiative. To move from descriptive findings toward prioritisation, a Pareto analysis was applied to the item-wise dissatisfaction data (Figure 3), which confirmed that diagnostic waiting time, billing, and registration satisfaction together accounted for the majority of recorded dissatisfaction, consistent with the Pareto principle.

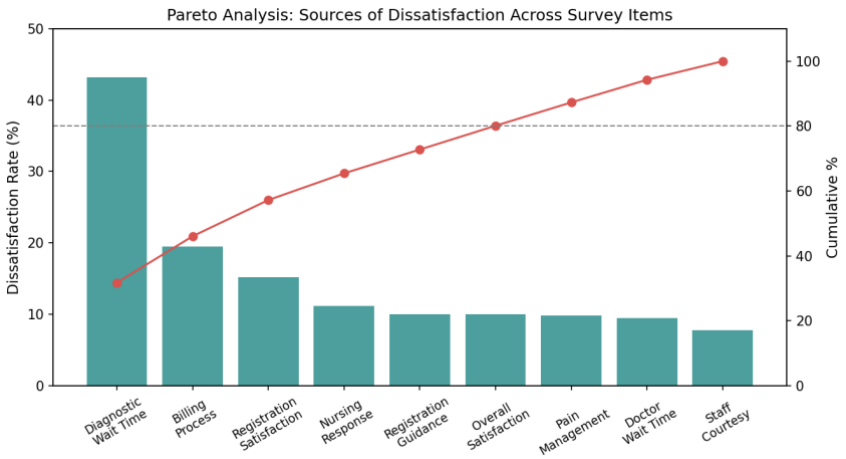

Figure 3:Pareto analysis of the dissatisfaction rate across survey items.

Because diagnostic turnaround time was the single largest contributor, a fishbone (Ishikawa) diagram was constructed to structure the plausible contributing causes across the standard manpower, method, machine, and material categories (Figure 4). This is intended as a starting framework for a dedicated turnaround-time audit rather than a diagnosis in itself, since the present survey did not collect data on which specific cause dominates.

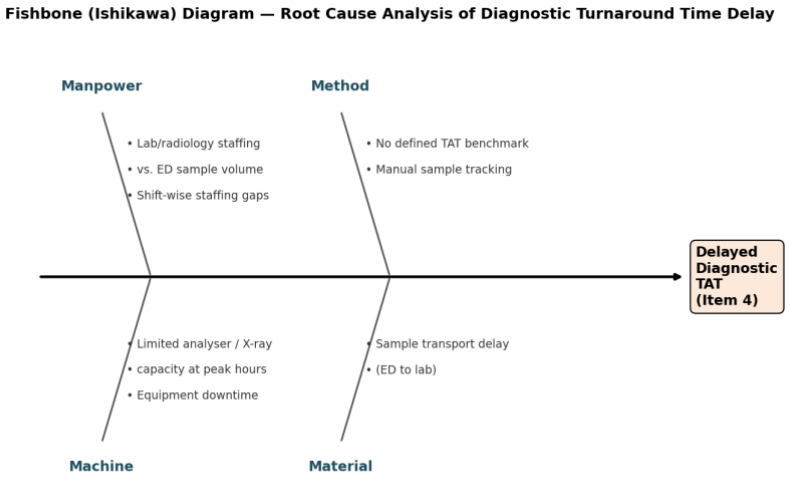

Figure 4: Fishbone (Ishikawa) diagram of plausible contributing causes of diagnostic turnaround-time delay.

The LAMA Finding: Concentrated, Not Diffuse, Dissatisfaction

The most operationally significant finding was that all 35 non-recommenders corresponded exactly to LAMA discharges ($p < .001$). This has two implications. First, dissatisfaction was not spread across the general patient population; the vast majority who completed their ED episode as intended were highly satisfied. Second, it reframes the improvement target: reducing the LAMA rate itself, by addressing underlying causes such as cost concerns, perceived delay, or communication gaps prior to discharge, may do more to move the overall recommendation metric than any single item-specific intervention. Because the questionnaire's open-text field was uniformly populated with "LAMA" rather than a stated reason, a short structured reason-code field at the point of LAMA discharge would allow a future study to identify why these cases occurred.

Comparison with Published Literature

Facility-related satisfaction in this study was notably higher than the cleanliness and physical-environment satisfaction reported by Sachdeva and Kaur (2018)[8] in a comparable New Delhi ED, where cleanliness and washroom facilities were leading sources of dissatisfaction. This suggests the present ED's facility readiness compares favourably against at least one published local benchmark, although a like-for-like comparison would require matched methodology. The recurrence of diagnostic-related waiting time as a dominant driver echoes

both Indian (Kaur et al., 2020) and international (Abass et al., 2021) findings, situating this study within an established body of evidence rather than as an isolated result.

Limitations

Several limitations should be noted. First, convenience sampling limits generalisability beyond this ED and study period. Second, the study was single-site and single-month, so seasonal or day-of-week variation was not captured. Third, 88.2% of responses were proxy-reported, reflecting caregiver rather than direct-patient experience; findings should therefore be interpreted as caregiver-reported satisfaction. Fourth, the open-text field yielded no usable qualitative data beyond the LAMA pattern. Finally, the questionnaire, although mapping well onto established quality frameworks, was not formally psychometrically validated, and formal ethics-committee clearance was not sought given the in-house nature of the exercise.

CONCLUSION

This study assessed patient satisfaction across 400 ED encounters over a 25-day period at a tertiary care hospital in North India. Overall satisfaction was high, with 91.25% of respondents willing to recommend the department. Performance was strongest in doctor and nursing interpersonal care, discharge counselling, and facility domains, and weakest in diagnostic turnaround time and, secondarily, billing clarity. Critically, dissatisfaction was not diffuse but fully concentrated among the small subgroup whose episode ended in LAMA discharge ($p < .001$). The novelty and practical contribution of this work lie in demonstrating that ED dissatisfaction, at least in this setting, can be traced to a specific, identifiable subgroup and a small number of process-level bottlenecks—allowing hospital administrators to pursue targeted, resource-proportionate quality improvement (a diagnostic turnaround-time audit and a structured LAMA reason-code) rather than a broad organisational overhaul. Future work incorporating a structured LAMA-reason survey, a dedicated billing-process study, and a repeat assessment across seasons would substantially extend the actionability of these findings.

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