

Original article

Patient Experiences of Emergency Department Triage and Waiting Times: A Cross-Sectional Study at a Tertiary Hospital in Lahore, Pakistan

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Received: 23 September 2025 | Accepted: 7 December 2025 | Published: 31 December 2025

How to Cite: Noman, M. 2025. Patient Experiences of Emergency Department Triage and Waiting Times: A Cross-Sectional Study at a Tertiary Hospital in Lahore, Pakistan. *Journal of Perioperative and Critical Care Sciences*. 2, 2 (Dec. 2025), 1–7.

ABSTRACT

Background: Emergency department (ED) overcrowding and prolonged waiting times remain major challenges in resource-constrained healthcare systems and may adversely affect patient satisfaction with triage services. **Objective:** To assess patient satisfaction with emergency department triage services at a tertiary public hospital in Lahore, Pakistan, and to examine the association between waiting time, nurse communication, and overall patient satisfaction. **Methods:** A descriptive cross-sectional study was conducted among 115 adult patients attending the Emergency Department of Services Hospital, Lahore, between January to May 2025. Participants were recruited using convenience sampling after completing triage. Data were collected using a structured questionnaire evaluating demographic characteristics, pre-triage experiences, triage communication, waiting time, nurse–patient interactions, and overall satisfaction. Statistical analysis was performed using IBM SPSS Statistics Version 25. Descriptive statistics, Kendall's tau-b correlation, and simple linear regression were used, with statistical significance set at $p < 0.05$. **Results:** The largest proportion of participants were aged 28–48 years (39.1%), and 65.2% were male. Most participants reported positive interactions with triage nurses, including pain assessment (91.3%), respectful communication (73.9%), attentive listening (80.9%), and confidence in the triage nurse (73.9%). However, only 33.0% were informed about expected waiting times and 27.0% received explanations for delays. Overall, 64.4% reported satisfaction scores of 7–10. Waiting time before triage demonstrated a significant inverse association with patient satisfaction (Kendall's $\tau_b = -0.516$, $p < 0.001$), explaining 26.6% of the variance in satisfaction scores ($R^2 = 0.266$). **Conclusion:** Patient satisfaction with emergency department triage was positively influenced by effective nurse–patient communication but was negatively associated with longer waiting times. Improving communication regarding anticipated delays and strengthening patient-centered triage practices may enhance patient experience in resource-limited emergency departments. **Keywords:** Emergency Department; Triage; Patient Satisfaction; Waiting Time; Emergency Nursing; Patient Experience; Pakistan.

EDITORIAL INFORMATION

Author Contributions: Concept: MN, MTRU; Design: MN, MTRU, MZ; Data Collection: MN, MZ; Analysis: MN, MTRU; Drafting: MN, MTRU, MZ.

Ethical Approval: Faculty of Allied Health Sciences, The University of Lahore, Lahore, Pakistan.

Informed Consent: Written informed consent was obtained from all participants

Conflict of Interest: The authors declare no conflict of interest; **Funding:** No external funding; **Data Availability:** Available from the corresponding author on reasonable request; **Acknowledgments:** N/A.

INTRODUCTION

Emergency departments (EDs) constitute the frontline of acute healthcare delivery and play a critical role in ensuring timely assessment and management of patients presenting with illnesses or injuries of varying clinical severity. Increasing patient volumes, workforce shortages, limited inpatient bed availability, and constrained healthcare resources have resulted in widespread ED overcrowding, prolonged waiting times, and compromised patient experiences worldwide (1,2). These challenges are particularly pronounced in low- and middle-income countries (LMICs), where under-resourced health systems and increasing demand for emergency care place substantial pressure on existing services (2,3).

Triage is a structured clinical process used to prioritize patients according to the urgency of their condition, thereby facilitating appropriate allocation of limited healthcare resources while ensuring that critically ill patients receive immediate attention (4). Beyond its clinical role, triage represents the first direct interaction between patients and emergency healthcare professionals and therefore substantially

influences patients' perceptions of the quality, safety, and efficiency of emergency care. Effective triage not only depends on accurate clinical prioritization but also on clear communication, respectful interpersonal interactions, and transparent information regarding anticipated waiting times (5–7).

Patient satisfaction has become an internationally recognized indicator of healthcare quality and patient-centered care. In emergency medicine, satisfaction reflects multiple dimensions of care, including accessibility, communication, responsiveness of healthcare providers, perceived competence, emotional support, and the overall waiting experience (8). Among these determinants, prolonged waiting time consistently emerges as one of the strongest predictors of dissatisfaction, whereas timely communication regarding expected delays and compassionate nursing care have been shown to improve patient experiences even when actual waiting times cannot be substantially reduced (6,9,10). Consequently, improving patient-centered communication during triage has become an important quality improvement target for emergency departments worldwide.

Although substantial evidence describing patient experiences during emergency department triage has been generated in high-income countries, comparable evidence from LMICs remains limited (10,11). Differences in healthcare infrastructure, staffing patterns, patient volumes, and organizational resources limit the direct applicability of findings from developed healthcare systems to resource-constrained settings. In Pakistan, public tertiary hospitals frequently experience overcrowding, high patient turnover, and limited emergency care resources, making efficient triage essential for maintaining patient safety and service quality (2). Nevertheless, published research evaluating patient experiences of emergency department triage within Pakistani public hospitals remains scarce, and few studies have simultaneously examined the relationships among waiting time, nurse communication, and overall patient satisfaction.

Services Hospital Lahore is one of the largest tertiary government teaching hospitals in Pakistan and serves a large urban and peri-urban population requiring emergency medical care. The hospital provides an appropriate setting for evaluating patient-centered aspects of emergency department performance within a resource-limited healthcare environment. Understanding patients' perceptions of triage services may identify modifiable organizational factors that can improve care quality without requiring substantial financial investment.

Therefore, this study aimed to assess patient satisfaction with emergency department triage services among adult patients attending the Emergency Department of Services Hospital Lahore and to examine the association between waiting time, nurse communication, and overall patient satisfaction. The findings are expected to provide context-specific evidence that may support quality improvement initiatives and strengthen patient-centered emergency care practices in Pakistan and other comparable LMIC settings.

MATERIALS AND METHODS

A descriptive cross-sectional study was conducted in the Emergency Department of Services Hospital, Lahore, Pakistan, a 1,500-bed tertiary government teaching hospital providing 24-hour emergency care. Data were collected between January to May 2025. The study is reported in accordance with the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines for cross-sectional studies (12).

Adult patients (≥ 18 years) who had completed ED triage, were clinically stable, and were able to provide informed consent were eligible for inclusion. Patients requiring immediate resuscitation, those with impaired consciousness or cognitive dysfunction, and individuals who declined participation were excluded. The required sample size was calculated using the standard formula for estimating a single population proportion with a 95% confidence level, 5% margin of error, and an assumed prevalence of 50%, yielding a minimum sample of 115 participants, which was confirmed using OpenEpi Version 3. Eligible participants were recruited consecutively using convenience sampling until the target sample size was achieved. Data were collected using a structured questionnaire adapted from previously validated instruments assessing patient experiences of emergency department triage (5,10). The questionnaire included demographic and clinical characteristics, pre-triage experiences, triage-related communication, waiting time, nurse–patient interactions, post-triage waiting-area experiences, and

overall satisfaction. The instrument was available in English and Urdu, and trained researchers administered it to participants requiring assistance. Overall satisfaction was measured using a 0–10 numeric rating scale, where higher scores indicated greater satisfaction.

Data were analyzed using IBM SPSS Statistics Version 25. Categorical variables are presented as frequencies and percentages. The association between waiting time before triage and patient satisfaction was evaluated using Kendall's tau-b correlation, while simple linear regression was performed to determine the predictive effect of waiting time on satisfaction. The coefficient of determination (R^2) was calculated to estimate the proportion of variance explained by waiting time. A two-sided p value <0.05 was considered statistically significant. The study received ethical approval from the Institutional Review Board of the University of Lahore (Ref. No.: DRC/DHPT011/05/25) and was conducted in accordance with the Declaration of Helsinki. Written informed consent was obtained from all participants prior to enrolment, and participant confidentiality was maintained throughout the study.

RESULTS

A total of 115 patients participated in the study. Participants aged 28–48 years constituted the largest age group (39.1%), followed by those aged 18–28 years (34.8%). Most participants were male (65.2%), spoke Urdu as their primary language (61.7%), and presented directly to the emergency department without referral (69.6%). Approximately one-third perceived their illness as serious (33.0%), while 73.0% reported anxiety scores of 6–10 and 44.3% reported pain scores of 6–10 at presentation.

Table 1. Baseline Demographic and Clinical Characteristics of Participants

Characteristic	n	%
Age group (years)		
18–28	40	34.8
28–48	45	39.1
48–68	19	16.5
≥68	10	8.7
Gender		
Male	75	65.2
Female	40	34.8
Primary language		
Urdu	71	61.7
Punjabi	35	30.4
Other	9	7.8
Referral to ED		
Yes	35	30.4
No	80	69.6
Perceived illness severity		
Not serious	27	23.5
Somewhat serious	34	29.6
Serious	38	33.0
Very serious	16	13.9
Anxiety score 6–10	84	73.0
Pain score 6–10	51	44.3

Regarding the triage experience, 57.4% of participants understood the triage process and 47.0% were triaged within 10 minutes. Most reported positive interactions with nurses: 73.9% stated that the nurse was polite, 85.2% felt their concerns were taken seriously, 80.9% said the nurse listened carefully, 75.7% believed the nurse had sufficient time, and 91.3% reported that pain assessment was performed. Overall, 73.9% expressed confidence in the triage nurse. Communication regarding waiting times was less satisfactory, with only 33.0% informed about expected waiting times and 27.0% receiving explanations for delays. Nevertheless, 54.8% believed they received the expected care and 64.4% reported satisfaction scores of 7 or higher. During post-triage waiting, 75.7% were accompanied by family or friends and received pain relief, 60.9% had staff assistance available, only 26.1% received waiting-time updates, and 24.3% felt forgotten while waiting.

Table 2. Patient Experiences During Emergency Department Triage and Post-Triage Waiting

Variable	n	%
Understood triage process	66	57.4
Triaged within 1–10 min	54	47.0
Nurse introduced themselves	29	25.2
Nurse was polite	85	73.9
Nurse took concerns seriously	98	85.2
Nurse listened carefully	93	80.9
Nurse had sufficient time	87	75.7
Nurse assessed pain	105	91.3
Confidence in triage nurse	85	73.9
Informed about expected waiting time	38	33.0
Delay explained	31	27.0
Received expected care	63	54.8
Satisfaction score ≥ 7	74	64.4
Family/friend present	87	75.7
Pain relief received	87	75.7
Staff assistance available	70	60.9
Updated regarding waiting time	30	26.1
Felt forgotten while waiting	28	24.3
Variable	n	%
Understood triage process	66	57.4
Triaged within 1–10 min	54	47.0
Nurse introduced themselves	29	25.2
Nurse was polite	85	73.9

A statistically significant inverse association was observed between waiting time before triage and patient satisfaction (Kendall's τ -b = -0.516 , $p < 0.001$). Simple linear regression demonstrated that increasing waiting time was associated with lower satisfaction scores ($\beta = -0.516$, $p < 0.001$), with waiting time explaining 26.6% of the variation in patient satisfaction ($R^2 = 0.266$).

Table 3. Association Between Waiting Time Before Triage and Patient Satisfaction

Variable	Estimate	p-value
Kendall's τ -b	-0.516	<0.001
Linear regression coefficient (β)	-0.516	<0.001
Coefficient of determination (R^2)	0.266	—

Descriptive subgroup comparisons suggested higher satisfaction among participants aged 28–48 years, male respondents, Urdu-speaking participants, and those reporting positive communication with triage nurses. No inferential subgroup analyses were performed.

Table 4. Selected Demographic and Clinical Factors Associated with Higher Patient Satisfaction

Variable	Observation
Highest satisfaction	Age 28–48 years (68.9%)
Lowest satisfaction	Age ≥ 68 years (50.0%)
Greater triage understanding	Male participants (60.0%)
Higher satisfaction by sex	Male participants (66.7%)
Higher satisfaction by language	Urdu-speaking participants
Clinical factors associated with greater satisfaction	Nurse attentiveness, active listening, and confidence in the triage nurse

DISCUSSION

This study evaluated patient experiences of emergency department (ED) triage services at a tertiary care hospital in Lahore, Pakistan, with particular emphasis on waiting time, nurse–patient

communication, and overall satisfaction. Most participants reported positive experiences with the triage process, especially regarding respectful communication, attentive listening, pain assessment, and confidence in triage nurses. However, communication related to anticipated waiting times and reasons for delays remained suboptimal. A significant inverse association was observed between waiting time and patient satisfaction, indicating that prolonged waiting adversely affected patients' perceptions of care.

Emergency department overcrowding has become an important global healthcare challenge, contributing to prolonged waiting times, delayed treatment, reduced patient satisfaction, and poorer clinical outcomes (1,3,22). These challenges are particularly pronounced in low- and middle-income countries (LMICs), where increasing patient volumes frequently exceed available healthcare resources (2). The present findings therefore reflect challenges commonly reported in resource-constrained emergency care systems.

Approximately two-thirds of participants reported high overall satisfaction despite operational constraints within the emergency department. Similar findings have been reported in previous systematic reviews demonstrating that patients often evaluate emergency care positively when healthcare professionals communicate effectively, demonstrate empathy, and maintain respectful interactions throughout the care process (5,6,8). These findings reinforce the importance of patient-centered care, in which interpersonal communication contributes substantially to patient experience independent of clinical outcomes (6).

The study demonstrated particularly favorable perceptions of triage nurses regarding respectful behavior, attentive listening, and confidence in professional competence. These findings are consistent with previous investigations reporting that patients highly value compassionate communication and clear interpersonal interactions during triage, even in busy emergency departments (5,7). Patient-centered communication has been shown to improve trust, reduce anxiety, and enhance overall satisfaction with emergency services (6,15,16).

Despite these positive findings, communication regarding waiting times represented an important area requiring improvement. Only a minority of participants reported receiving explanations about anticipated delays or expected waiting duration. Previous studies have consistently demonstrated that dissatisfaction frequently arises from uncertainty rather than waiting time alone (9,10,18). Providing regular updates regarding queue progression and expected waiting times has been associated with improved patient satisfaction, reduced anxiety, and greater acceptance of unavoidable delays (18).

The observed negative correlation between waiting time and patient satisfaction further supports existing evidence that prolonged delays remain one of the strongest determinants of poor patient experience within emergency departments (13,14,21). Although waiting time explained approximately one-quarter of the variability in satisfaction, this finding suggests that additional factors including communication quality, staff professionalism, environmental conditions, and organizational efficiency also contribute substantially to patients' overall perceptions of care (8,17).

Improving emergency department efficiency therefore requires organizational as well as interpersonal interventions. Process optimization strategies, effective triage protocols, workflow redesign, and better allocation of clinical resources have been shown to reduce waiting times while maintaining patient safety (17,22). Similarly, strengthening communication practices through routine patient updates and structured information sharing may improve patient experience without requiring substantial financial investment (5,18).

The findings also have important implications for emergency nursing practice. Triage nurses serve as patients' first point of contact and therefore play a critical role in establishing trust and reducing anxiety during emergency care. Previous studies have demonstrated that effective communication, empathy, and patient-centered interactions improve both patient satisfaction and confidence in emergency services (5–7,15,16). Strengthening communication skills through continuing professional education may therefore enhance the quality of emergency care in resource-limited settings.

CONCLUSION

This study demonstrates that patient satisfaction with emergency department triage is influenced by both operational efficiency and the quality of nurse–patient communication. Although participants generally reported positive experiences regarding respectful interactions, attentive listening, and pain assessment, communication about anticipated waiting times and treatment delays remained suboptimal. Longer waiting times before triage were significantly associated with lower patient satisfaction, highlighting waiting time as an important determinant of the overall patient experience.

These findings emphasize that patient-centered communication during triage is as important as clinical prioritization. In resource-constrained emergency departments, interventions such as providing timely updates on waiting times, explaining delays, and strengthening communication skills among triage nurses may improve patient satisfaction without requiring substantial additional resources. Such measures may contribute to improving both the perceived quality and efficiency of emergency care.

Further multicenter studies involving diverse healthcare settings are warranted to evaluate organizational, staffing, and patient-related factors influencing satisfaction and to assess interventions designed to improve communication and reduce waiting times in emergency departments.

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