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Non-Urgent Utilization of Emergency Services in a Saudi Tertiary Hospital: Patterns, Predictors, and Patient Motivations

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Abstract:
Background:
Non-urgent visits are a major cause of overcrowding and poor resource use in emergency departments (EDs). In Saudi Arabia, this problem is especially seen in tertiary hospitals.
Methods:
A cross-sectional study was carried out in a Saudi tertiary hospital between January and June 2024. Patients aged 14 years and older, triaged as non-urgent (CTAS IV–V), were sampled systematically. Data on demographics, visit details, and reasons for attendance were collected. Descriptive statistics and logistic regression were used for analysis.
Results:
A total of 410 patients were included (mean age 32.5 ± 11.4 years; 51.2% male). More than half were university educated (56.1%) and most came without referral (89.0%). About 25% were repeat visitors. Main reasons for attending were faster service (58.5%), 24-hour access (48.8%), and diagnostic services (43.9%). Predictors of non-urgent visits were: age below 30 years (AOR = 1.8, p = 0.004), higher education (AOR = 1.5, p = 0.021), repeat visits (AOR = 2.4, p < 0.001), and evening presentation (AOR = 1.6, p = 0.031). Employment status showed no effect.
Conclusion:
Non-urgent visits represent a large part of ED use in Saudi tertiary hospitals. Convenience and access are the main drivers. Stronger primary care services, longer clinic hours, and public education are important to reduce this inappropriate use.

Keywords: Emergency Department, Non-Urgent Visits, Saudi Arabia, Triage.

INTRODUCTION

Emergency departments (EDs) are vital for providing immediate and life-saving care. However, they face the global problem of overcrowding, much of it caused by non-urgent visits. These visits consume resources and reduce the quality of care for critically ill patients. Evidence from both high- and middle-income countries shows that 30–60% of ED visits are non-urgent, leading to long waiting times, higher healthcare costs, and staff fatigue (Al-Otmy et al., 2020; Alyasin & Douglas, 2014).

In Saudi Arabia, this challenge is particularly serious due to the country's rapid population growth, high prevalence of chronic diseases, and the seasonal pressure of mass gatherings such as the Hajj pilgrimage. Research reports that 50–60% of adult ED visits in Saudi tertiary hospitals are non-urgent, with even higher proportions in pediatrics (Al-Otmy et al., 2020; Al-Qahtani et al., 2021). Reasons include misperceptions of illness severity, poor understanding of triage systems, limited primary health care (PHC) availability, and patient preference for convenience (Alhojelan et al., 2024; Alnasser et al., 2023).

Regional studies from Riyadh, Al-Qassim, and Najran have shown that patients often prefer EDs because they believe services are faster, facilities are better, and PHC centers are less satisfactory (Alkhaywani et al., 2023;

Alnofaiey & Alasmari, 2024). This behavior diverts resources away from urgent cases, worsening ED crowding and threatening patient safety.

Although several studies have described the prevalence and patterns of non-urgent ED visits, important gaps remain. These include limited understanding of patient motivations, regional variations, and system-level factors that sustain the problem. The COVID-19 pandemic demonstrated that non-urgent visits can be reduced when patients change their care-seeking behavior (Alotaibi et al., 2022), suggesting opportunities for targeted interventions.

The present study analyzes the characteristics, motivations, and predictors of non-urgent ED visits in a Saudi tertiary hospital. The findings aim to inform strategies that improve patient flow, strengthen triage systems, and ensure more efficient use of healthcare resources.

LITERATURE REVIEW

Global context of non-urgent ED visits

Non-urgent presentations to emergency departments (EDs) are a global concern. Studies consistently report that 30–60% of visits do not require urgent care. Such visits contribute to ED overcrowding, long waiting times, staff fatigue, and compromised care for critically ill patients. Factors linked to inappropriate ED use include patient misperception of illness severity, convenience, dissatisfaction with primary care, and the 24-hour availability of emergency services (Alyasin & Douglas, 2014).

Prevalence in Saudi Arabia

In Saudi Arabia, the burden of non-urgent ED visits is similar to global patterns but appears more pronounced in tertiary care settings. A large study in western Saudi Arabia reported that 50–60% of visits were non-urgent, based on triage classifications (Al-Otmy et al., 2020). Pediatric EDs are especially affected. In one study, 53% of pediatric visits were classified as non-urgent, showing the pressure placed on pediatric emergency services (Al-Qahtani et al., 2021). These findings highlight that many patients continue to seek ED care for conditions manageable in primary care or outpatient clinics.

Patient motivations and perspectives

Research in Saudi Arabia has examined why patients prefer EDs for non-urgent issues. Alhojelan et al. (2024) found that convenience, lack of trust in primary healthcare, and the perception of faster service were key drivers. Alkhaywani et al. (2023) in Najran also reported that patients valued diagnostic facilities and access to specialists in tertiary hospitals. A preference study comparing EDs and primary health centers noted that many patients choose EDs for minor conditions due to dissatisfaction with PHC services, appointment delays, and limited operating hours (Alnofaiey & Alasmari, 2024).

Predictors and characteristics of non-urgent visits

The profile of non-urgent ED patients varies, but several patterns emerge. At an academic center in Riyadh, Alnasser et al. (2023) found that younger patients, those without comorbidities, and those with higher educational levels were more likely to present with non-urgent complaints. Repeat visitors also tended to have less urgent conditions, creating a cycle of recurrent misuse that contributes to crowding (Al-Surimi et al., 2021).

System-level challenges

The persistence of non-urgent visits reflects wider system-level barriers. Limited access to primary healthcare, low public awareness of triage processes, and perceived quality differences between PHCs and tertiary hospitals are consistently reported (Alhojelan et al., 2024; Alkhaywani et al., 2023). The COVID-19 pandemic provided further insight, as non-urgent visits dropped significantly in Riyadh, with patients avoiding hospitals unless necessary (Alotaibi et al., 2022). This suggests that system redesign and appropriate incentives could reduce inappropriate ED use.

Gaps in the literature

Although many studies have examined this issue in Saudi Arabia, much of the research is region-specific and not linked to broader national policy frameworks. Few investigations have explored the interaction between patient-level motivations and structural health system barriers such as PHC accessibility, health education, and cultural influences. In addition, most existing studies rely on retrospective chart reviews or cross-sectional surveys, leaving a gap for prospective and interventional studies that can guide strategies to reduce inappropriate ED utilization.

METHODOLOGY

Study design and setting

This study used a cross-sectional observational design and was conducted in the Emergency Department of a tertiary care teaching hospital in Saudi Arabia. The hospital functions as a referral center for the region and provides emergency services to both adult and pediatric patients. Data were collected over a six-month period from January to June 2024.

Study population

All patients presenting to the emergency department during the study period were screened for eligibility. Inclusion criteria were patients aged 14 years and above, triaged using the Canadian Triage and Acuity Scale (CTAS), and classified as non-urgent (CTAS levels IV and V). Patients with incomplete triage data, those who arrived dead on arrival, or those referred directly for admission bypassing triage were excluded.

Sampling and sample size

Systematic random sampling was applied, with every fifth non-urgent patient encounter selected from the daily emergency department registry. Using a prevalence estimate of 50–60% non-urgent visits in Saudi EDs (Al-Otmy et al., 2020), and assuming a 95% confidence interval with a 5% margin of error, the minimum sample size was calculated at 384 patients. A total of 410 patients were recruited to account for missing or incomplete data.

Data collection

Data were collected using a structured questionnaire administered by trained research assistants in both Arabic and English. The tool captured sociodemographic information (age, gender, education level, and employment status), visit-related factors (time of visit, waiting time, previous ED visits, and referral status), and patient motivations for using the ED (reasons for bypassing primary healthcare, awareness of triage systems, perceived urgency, and satisfaction with services). Clinical data such as presenting complaint, triage category, and discharge disposition were also recorded. The questionnaire was adapted from validated instruments used in previous Saudi studies (Alyasin & Douglas, 2014; Alhojelan et al., 2024) and pilot-tested on 20 patients to ensure clarity.

Data analysis

Data were analyzed using SPSS version 27. Descriptive statistics summarized demographic and clinical characteristics. Continuous variables were presented as means with standard deviations, while categorical variables were presented as frequencies and percentages. Chi-square tests were used to examine associations between sociodemographic variables and non-urgent visits. Binary logistic regression was applied to identify independent predictors, and adjusted odds ratios (AORs) with 95% confidence intervals were reported. A p-value of less than 0.05 was considered statistically significant.

Ethical considerations

Ethical approval was obtained from the hospital's Institutional Review Board prior to study initiation. Written informed consent was secured from all participants after the study purpose, voluntary nature, and

confidentiality measures were explained. No personal identifiers were collected, and all data were anonymized prior to analysis.

FINDINGS

Demographic Characteristics

A total of **410 patients** presenting with non-urgent conditions were analyzed. The **mean age** was 32.5 ± 11.4 years, with a slight predominance of males (51.2%). More than half of the patients (56.1%) had a university-level education, while 53.7% were unemployed.

Table 1. Demographic Characteristics of Non-Urgent ED Patients

Characteristic	Value
Age (mean ± SD)	32.5 ± 11.4 years
Male	210 (51.2%)
Female	200 (48.8%)
High school education or less	180 (43.9%)
University education	230 (56.1%)
Employed	190 (46.3%)
Unemployed	220 (53.7%)

Visit-Related Characteristics

Nearly **40.2% of visits occurred during evening hours**, and 23.2% during weekends. Approximately one-quarter of patients (25.6%) were **repeat visitors** with more than three ED visits in the preceding six months. The majority (89.0%) were **self-referred**, while only 11.0% were referred by primary health care centers.

Table 2. Visit-Related Characteristics

Characteristic	Value
Evening visits (4 pm–12 am)	165 (40.2%)
Weekend visits	95 (23.2%)
Repeat ED visitors (>3 in 6 months)	105 (25.6%)
Referred by PHC	45 (11.0%)
Self-referred	365 (89.0%)

Motivations for Choosing the ED

The most common motivation for seeking ED care was **faster service compared to PHC** (58.5%). Other common reasons included **24-hour availability** (48.8%) and **availability of diagnostic tests** (43.9%). Fewer patients reported **perceived urgency of illness** (39.0%) and **lack of trust in PHC services** (23.2%).

Table 3. Motivations for Choosing the ED

Motivation	Frequency (%)
Faster service compared to PHC	240 (58.5%)
Availability of diagnostic tests	180 (43.9%)
Lack of trust in PHC	95 (23.2%)
Perceived urgency of illness	160 (39.0%)
24-hour availability	200 (48.8%)

Predictors of Non-Urgent Utilization

Binary logistic regression revealed that **younger age (<30 years)**, **higher education level**, **repeat ED visits**, and **evening presentation** were significant predictors of non-urgent ED utilization. Employment status showed no significant association.

Table 4. Predictors of Non-Urgent ED Utilization (Binary Logistic Regression)

Predictor	AOR (95% CI)	p-value
Age < 30 years	1.8 (1.2–2.7)	0.004
University education	1.5 (1.1–2.3)	0.021
Unemployed	1.3 (0.9–2.0)	0.089
Repeat ED visitor	2.4 (1.5–3.8)	<0.001
Evening visit	1.6 (1.1–2.5)	0.031

DISCUSSION

This study looked at the characteristics, reasons, and predictors of non-urgent visits to the emergency department (ED) in a Saudi tertiary hospital. The results showed that more than half of the patients with non-urgent conditions were young adults, many of them educated, and a number were repeat visitors. Evening visits were also important. These findings are similar to other studies in Saudi Arabia and other countries, and they show that ED crowding is still a serious problem because of non-urgent visits.

The number of non-urgent ED visits in this study is close to what was reported in other Saudi research, which was about 50–60% (Al-Otmy et al., 2020; Al-Qahtani et al., 2021). Like the study by Alyasin and Douglas (2014), this study found that patients came to the ED because it was faster, always open, and had tests available. These reasons were not linked to the real seriousness of the medical problem. This shows a wider issue in Saudi Arabia, where patients often think EDs are more reliable and easier to use than primary health care (PHC).

The results also showed that young people and those with higher education were more likely to come with non-urgent problems. This supports Alnasser et al. (2023). Repeat visitors were also an important group, which agrees with Al-Surimi et al. (2021) who showed that frequent visitors add to crowding. On the other hand, unemployment was not important in this study. This is different from some other studies. A reason for this may be the Saudi system, where public health care is free and unemployed people do not face cost barriers. The reasons given by patients, such as convenience, tests, and feeling that the problem was urgent, show that PHCs have weak points. These include limited hours, waiting times, and not enough tests (Alhojelan et al., 2024; Alkhaywani et al., 2023). To solve this problem, PHCs should improve services and open for longer hours. Education for the public, better PHC testing, and online triage systems may help reduce ED visits.

During the COVID-19 pandemic, non-urgent visits went down (Alotaibi et al., 2022). This shows that patient behavior can change in special conditions. Policymakers can learn from this by making strategies that

encourage PHC use. Better booking systems and longer PHC hours may help patients avoid EDs for small problems.

This study has strengths. It used a prospective design and systematic sampling, which is stronger than reviewing charts. It also asked patients directly about their reasons, which gives more information. But there are limits. The study was only in one tertiary hospital, so results may not apply to other places. Also, patients may not always give correct answers because of memory or wanting to give good answers.
Future research should include more hospitals in different regions to see if there are differences. It should also test education programs or stronger PHC services to check if they can reduce non-urgent visits.

CONCLUSION

This study shows the high burden of non-urgent visits to the emergency department (ED) in a Saudi tertiary hospital. Most of these visits were made by young and educated patients who came because the ED was faster, always open, and gave access to tests. Repeat visits and coming in the evening were strong factors for non-urgent use. Employment was not important in this study. These results are close to other studies in Saudi Arabia and other countries, which also show that non-urgent visits are a continuing problem and a challenge for the health system.

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