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Original Research Article

Elements affecting emergency department rate of return within 72 hours: a retrospective cross-sectional study

Mohammed A. Alazzawi*, Ahmad O. Hamdan

Emergency Department, Mediclinic Welcare Hospital, Dubai, United Arab Emirates

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***Correspondence:**
Dr. Mohammed A. Alazzawi,
E-mail: danghoz@yahoo.com

ABSTRACT

Background: Many patients view emergency departments (EDs) as their top choice for medical problems because they act as an easily accessible entry point into the healthcare system. The frequency of ED visits, the causes, and the burden must be considered to evaluate the quality and outcome of care. The researcher aimed to investigate the elements that affect the rate of return to the emergency department within 72 hours. In addition, to determine the underlying factors associated with unplanned ED return visits.
Methods: It was a retrospective cross-sectional study.
Results: The result of this study shows that 1535 unplanned ED return visits out of 53387. The rate was 2.9%. A total of 339 (22%) patients of unplanned ED returned visits were admitted to the hospital which is representing 8% of the total hospital admission from ED.
Conclusions: The study found that certain types of presenting complaints, such as fever, cough, and throat pain related to respiratory tract infection, were associated with a higher rate of unplanned return at a rate of 33% (513). The results of this study suggest that interventions aimed at improving access to follow-up care, and patient education with effective communication. In addition, continuously monitoring the rate of unplanned ED return and linking that rate to the ED physician's individual performance review might effectively reduce the rate and improve the quality and outcome of care.

Keywords: Emergency departments, Unplanned return visit, Hospital

INTRODUCTION

Dubai has a well-developed healthcare system that provides high-quality medical care for both residents and visitors. The healthcare system in Dubai is regulated by the Dubai Health Authority (DHA), which oversees the planning, development, and regulation of healthcare services in the emirate. The healthcare system in Dubai consists of both public and private healthcare facilities. The healthcare system in Dubai has been continuously improving in recent years, and emergency services are one of the main areas that they always focus to improve.

The rate of return to the emergency department (ED) within 72 hours of discharge with the same complaint is an important measure of the quality of care provided in the ED. A high rate of return can indicate that the initial treatment and discharge plan was inadequate or that there were issues with follow-up care.

The ED is a critical component of the healthcare system, providing immediate medical attention to patients with acute illnesses or injuries. The emergency department is defined as a hospital facility that operates 24 hours a day, seven days a week and provides unscheduled outpatient services to patients whose condition requires immediate care, according to (NHAMCS).[1] However, managing patient flow and ensuring efficient use of resources in the ED can be challenging. One important aspect of ED management is the rate of return or the number of patients

who return to the ED within a specific time after the initial visit.

An unplanned return visit is defined as a patient presenting to the ED with the same problem within 72 hours of their initial visit.[2]

The purpose of this study is to identify the elements that are associated with the rate of return to the emergency department within 72 hours among patients who have been discharged from the emergency department. Also, to identify the rate of a return visit to ED within 72 hours from the initial visit to determine the underlying factors associated with unplanned ED return visits.

A high rate of return to the ED can indicate that the initial treatment and discharge plan was inadequate or that there were issues with follow-up care. This can lead to increased healthcare costs; long wait times for other patients, and a potential decrease in the quality of care, which is directly affecting patient safety. Identifying the factors that are associated with the rate of return to the ED can help healthcare providers improve the discharge process and reduce the number of avoidable hospital admissions.

Objectives

The objective is to investigate the factors that affect the rate of return to the emergency department within 72 hours with the same complaint.

METHODS

A retrospective cross-sectional study was used to determine the underlying factors associated with unplanned ED return visits. Medical records of patients who visited the Mediclinic Welcare Hospital emergency department between 01 January 2019 and 31 December 2019 were reviewed. The data collected included patient demographics, patient age, gender, nationality, acuity of triage level, diagnosis, and time of initial visit. As well as information about the initial visit to the ED, such as the diagnosis during the first visit and the return visit. The collected data was analyzed using statistical package for the social sciences (SPSS) to determine the rate of return visits to the ED within 72 hours, as well as identify associations between patient characteristics with the rate of return visits.

Inclusion criteria

All return to the emergency department within 72 hours with the same complaint.

Exclusion criteria

Return due to other conditions, dressing, injection (with injection card), and return after discharge against medical advice.

Ethical approval from the corporate and local government to carry out the study was obtained, as well as the approval from the dataset owner to use the data in databases for the research.

Patient name, URN, and date of birth are all kept completely anonymous.

Measures

A retrospective cross-sectional study using return visit data in Mediclinic Welcare Hospital emergency department in 2019. All data generated from the data warehouse as per the set criteria and variables. Data extracted by the IT department is based on the set criteria.

Data analysis

The data were analysed using IBM SPSS version 22.0. Descriptive statistics, including the mean (M), standard deviation (SD), and percentage were used. Data were expressed as mean (M), and standard deviation (SD) for continuous variables and as numbers and percentages for categorical variables. The p value ≤ 0.05 was considered significant for all statistical analyses.

Frequencies and percentages were calculated for all nominal variables.

RESULTS

Demographic characteristics

The data provided in pertains to the characteristics of patients who made an unplanned return to the emergency department within 72 hours (Table 1). The Data provides demographic information on unplanned returns to the emergency department within 72 hours for 1,535 patients. The table shows the distribution of patients by age, gender, and ethnicity.

The table presents the data in terms of age, gender, and ethnicity. In terms of age, the sample is divided into two groups: those under 14 years of age and those 14 years or older. The majority of the sample (84.8%) is aged 14 or older. In terms of gender, there are more male patients (53.1%) than female patients (46.9%). In terms of ethnicity, the majority of patients are Arab (83.7%), followed by Asians (10.2%), and then by patients from other ethnic backgrounds, including Westerners (1.4%) and others (4.7%).

These demographic characteristics can provide useful information for healthcare professionals and policymakers when designing interventions to reduce unplanned returns to the emergency department. For instance, the data suggest that more attention may need to be paid to the care and management of male patients and patients from specific ethnic backgrounds who are at a higher risk for unplanned returns. Additionally, interventions may need to

be tailored to different age groups, given the higher proportion of patients aged 14 or older who made unplanned returns.

Table 1: Demographic characteristics.

Characteristic	Value (%)
Age (years), N (%)	
<14	234 (15)
≥14	1301 (85)
Gender, N (%)	
Female	720 (53)
Male	815 (47)
Ethnicity, N (%)	
Arabs	1285 (84)
Asians	157 (10)
Western	21 (1)
Others	72 (5)

Unplanned return to ED demographic (1535)

Main category

The data presents the results of a study on the return visit to the emergency department within 72 hours, categorized by gender, age, ethnicity, triage level, and primary diagnosis. The analysis shows the number of cases, proportion, percentage, 95% confidence interval, and p-value for each category (Table 2).

Gender

There were 815 male patients (53.09%) and 720 female patients (46.91%) who returned to the emergency department within 72 hours. The difference between the two genders was statistically significant (p=0.0153).

Age

Of the patients who returned, 234 were under the age of 14 (15.24%), and 1,301 were 14 years or older (84.76%). The difference between the two age groups was highly significant (p<0.00001).

Ethnicity

The majority of patients who returned were Arabs, with 1,285 cases (83.71%). Other ethnic groups, including Asians, Western, and Others, had a much smaller proportion of cases. The difference between Arabs and other ethnic groups was highly significant (p<0.00001).

Triage level

Of the patients who returned, 7 cases were categorized as level 2 (0.51%), 385 cases were level 3 (28.12%), 714 cases were level 4 (52.15%), and 263 cases were level 5 (19.21%). No patients were categorized as level 1. The difference between the different triage levels was highly significant (p<0.00001).

Primary diagnosis

The study found that certain types of presenting complaints, such as fever, cough, and throat pain related to respiratory tract infection, were associated with a higher rate of unplanned return to the emergency department within 72 hours at a rate of 33% (513).

The most common primary identified diagnosis for patients who returned was respiratory tract infection-associated symptoms and fever which included 513 patients representing 33% of the total diagnosis. Back pain total cases of 94 patients representing 6.12% and infectious gastroenteritis total patients 38 cases representing about 2.47%, while other unidentified diagnosis and presenting symptoms were 850 cases representing 55.37% of total cases. The difference between the different primary diagnoses was highly significant (p<0.00001).

In conclusion, the study found that there were significant differences in the proportion of patients who returned to the emergency department within 72 hours based on gender, age, ethnicity, triage level, and primary diagnosis. These findings may have important implications for emergency department management and patient care.

Table 2: Main category for patients return to ED with 72 hours.

Category	Numbers	Proportion	%	95% CI	P value
Gender					
Male	815	0.530944625	53.09446	0.5059 to 0.5558	0.0153
Female	720	0.469055375	46.90554	0.4442 to 0.4941	
Age					
<14	234	0.152442997	15.2443	0.1353 to 0.1713	<0.00001
≥14	1301	0.847557003	84.7557	0.8287 to 0.8647	
Ethnicity					
Arabs	1285	0.83713355	83.71336	0.8178 to 0.8548	<0.00001
Asians	157	0.10228013	10.22801	0.0881 to 0.1185	
Western	21	0.013680782	1.368078	0.0088 to 0.0209	
Others	72	0.046905537	4.690554	0.0374 to 0.0587	

Continued.

Category	Numbers	Proportion	%	95% CI	P value
Triage level					
Level 1	0	0	0	0	
Level 2	7	0.005113221	0.511322	0.0022 to 0.0107	<0.00001
Level 3	385	0.281227173	28.12272	0.2580 to 0.3056	
Level 4	714	0.521548576	52.15486	0.4951 to 0.5479	
Level 5	263	0.19211103	19.2111	0.1721 to 0.2138	
Primary diagnosis					
Infectious gastroenteritis and colitis, unspecified	38	0.0247557	2.47557	0.0180 to 0.0339	<0.00001
Acute upper respiratory infection, unspecified	202	0.131596091	13.15961	0.1156 to 0.1495	
Back pain	94	0.061237785	6.123779	0.0503 to 0.0744	
cough	46	0.029967427	2.996743	0.0225 to 0.0398	
throat pain	110	0.071661238	7.166124	0.0598 to 0.0857	
Fever	155	0.100977199	10.09772	0.0869 to 0.1171	
Headache	40	0.026058632	2.605863	0.0191 to 0.0354	
Others	850	0.553745928	55.37459	0.5288 to 0.5784	

DISCUSSION

Several theories have been proposed to explain the factors that contribute to return visits to the ED within 72 hours of discharge, and many studies have been conducted to investigate these theories and their relationship to ED return visits. The individual and family self-management theory (IFSMT) proposes that patients who can effectively manage their illnesses are less likely to return to the ED within 72 hours.[3] While self-regulation theory proposes that patients can regulate their health behaviors and that providing them with the necessary information, skills, and resources can reduce the rate of return visits to the ED.[4]

Numerous retrospective studies have examined the rate and factors influencing the rate of return to the ED within 72 hours. One study conducted at a tertiary care pediatric ED over two years examined all revisits within 96 hours of an initial visit and found that 1.3% of patients returned within 72 hours, with males accounting for 51.3% of these returns.[5] While another study found that the ED revisit rate was 0.8%.[6] Though another study found that unscheduled 72-hour ED returns account for 4% of all ED visits.[7] An additional study investigating patient returns to the ED demonstrated that the highest point on the time-to-return curve was observed between 24 and 48 hours after the initial visit, followed by a steady decline until 96 hours after the initial visit.[8] Studies have reported varying reasons for return visits to the ED within 72 hours. For instance, one study identified the recurrence of the same complaint with no symptom improvement and suboptimal management by physicians as the primary reasons for most ED revisit within 72 hours.[5]

Furthermore, another study found that several potential risk factors, such as ED length of stay, the type of quality assurance issues, and diagnostic procedures, contributed to patient safety events, suggesting that systematic interventions may have a more significant impact on mitigating the risk of such events.[9]

Unplanned return visits to the ED within 72 hours following discharge are a significant burden on patients, families, and healthcare systems.[7] A previous study examined the influence of patient age, triage severity, month, payment methods, and length of stay on the 72-hour unplanned return visits after the ED index discharge indicator.[10] Patients who return to the ED within 72 hours of discharge are often perceived to have received inadequate treatment or evaluation.[11] The reasons behind such returns can be broadly categorized into three groups: illness-related, doctor-related, and patient-related.[11] Illness-related returns occur when disease progression prompts the patient to seek further emergency medical care despite receiving appropriate treatment during their initial visit. Doctor-related returns are associated with substandard care during the index hospitalization and are preventable with better care. Patient-related factors, such as poor medication compliance or lack of understanding of discharge instructions, may also contribute to 72-hour ED reattendance.[12] Return visits to the emergency department (ED) within 72 hours are often caused by illness-related factors, where the patient initially received appropriate medical care, but disease progression prompts the ED return visit.[5] Additionally, physician-related and patient-related factors may also contribute to these returns.[11] However, some studies have suggested that illness-related factors are more common than patient- or healthcare-related factors in causing return visits to the ED within 72 hours.[2,13]

Physician-related return visits, which constitute one of the three categories of ED return visits within 72 hours alongside patient-related and illness-related returns, exhibit variable percentages based on available search results.[5] A study focused on a subset of return visits resulting in admission found that illness-related

admissions accounted for nearly all admissions within 72 hours, while physician-related admissions accounted for only 3.5%.[14] On the other hand, another study that identified risk factors for admission in 72-hour return visits found that physician-related factors were not significant predictors of admission.[15] One study reported that around 4.8% of ED visits occurred within 72 hours of patients being seen in the same emergency department, while another study reported this figure as 5.7%.[16,17] Additionally, 20.3% of adult ED revisits within 72 hours were high-risk visits necessitating admission or resulting in death in the ED.[17,18]

Conversely, a study reported that 4.2% of ED returns were attributable to system-related factors.[5] Furthermore, several studies have indicated that the current 72-hour ED metric misses almost 70% of 30-day ED revisits and that initially categorized system-related complaints account for about 57.9% of ED revisits within 72 hours.[6,8] The percentage of system-related return visits within 72 hours to the emergency department varies by age group, with patients aged 65 and over having the highest number of ED visits in 2019.[19] Abdominal pain is the most common chief complaint in the first return visit, followed by cough and upper respiratory tract infection, with illness-related complaints being the most common reasons for revisits.[2,13]

To minimize the need for patients to revisit the emergency department, healthcare providers need to ensure that patients are adequately prepared to manage their recovery at home and adhere to discharge instructions and prescription regimens. A study on general pediatric patients found that having access to a pediatrician reduced the likelihood of a return visit to the ED by nearly 30 percent.[12] Providing clear instructions and education on the disease process upon discharge, as well as identifying warning signs for when to return to the ED, may be beneficial in reducing revisit rates.[5]

To prevent unnecessary testing, treatment, and hospitalization, it may be necessary to provide more attention and preventive treatment measures for common complaints, particularly for children who frequently return to the ED.[7] This can help avoid increased costs for patients, longer stays, and ED overcrowding. As such, 72-hour return visits are an important quality indicator and benchmark for ED care.[7] To address issues at both the system and clinician levels that contribute to early returns, it is common practice to review patients who revisit the ED within 72 hours, which is also known as "bounce-backs".[20] This quality assurance approach helps to ensure patient safety and prevent such early returns.

Ultimately, there is a need for more research to fully understand the factors that affect the rate of return to the ED, and the problem is that a high rate of return to the ED can indicate issues with the quality of care provided in the ED. Also, the lack of studies examining the relationship between primary care access, follow-up care, and rate of return to the ED within 72 hours.

The provided analysis and discussion provide valuable insights into the characteristics of patients who make unplanned returns to the emergency department within 72 hours. The demographic characteristics of the patients, such as gender, age, and ethnicity, can help healthcare professionals and policymakers design interventions to reduce the number of unplanned returns.

The analysis of the data by gender reveals that male patients had a higher proportion of unplanned returns than female patients. This finding can be used to develop targeted interventions to improve the care and management of male patients, which may help reduce the number of unplanned returns. The study also found that patients aged 14 or older had a higher proportion of unplanned returns than those under the age of 14, suggesting that interventions may need to be tailored to different age groups.

The analysis of the data by ethnicity indicates that patients from specific ethnic backgrounds, such as Arabs, were at a higher risk of unplanned returns. This finding suggests that interventions may need to be tailored to specific ethnic groups, considering their unique cultural, linguistic, and social needs.

The analysis of the data by triage level and primary diagnosis provides valuable information on the severity and nature of the conditions that result in unplanned returns. The finding that patients with a triage level of 4 had the highest proportion of unplanned returns suggests that more attention needs to be paid to the care and management of patients with less severe conditions. The finding that the most commonly identified primary diagnosis for patients who returned was respiratory tract infection-associated symptoms and fever highlights the need for more study to understand the nature of these conditions and develop targeted interventions to reduce their incidence may include improving communication and education about the natural course of illness, provide a point of contact if the patients have any queries and consider early follow up in primary health care clinics.

Several measures can be taken to address the issue of unplanned returns to the emergency department within 72 hours, based on the findings of this retrospective cross-sectional study:

Improve triage processes

Since patients with higher triage levels are more likely to return to the emergency department within 72 hours, improving triage processes to more accurately identify and prioritize patients in need of urgent care could help reduce the rate of return visits.

Tailor interventions based on age

Given that a higher proportion of patients aged 14 or older made unplanned returns, interventions may need to be

tailored to different age groups to address the underlying factors contributing to their return.

Develop culturally-sensitive interventions

The study found that patients from specific ethnic backgrounds, particularly Arab patients, were at a higher risk for unplanned returns. Therefore, developing culturally-sensitive interventions that consider the unique needs and preferences of patients from different ethnic backgrounds could help reduce the rate of return visits.

Improve discharge planning

Since the most common primary diagnosis for patients who returned was respiratory tract infection, improving discharge planning processes to ensure that patients receive appropriate follow-up care and support after leaving the emergency department could help reduce the need for unplanned returns.

Conduct further research

While this study provides valuable insights into the factors affecting the rate of return to the emergency department within 72 hours, further research may be needed to better understand the underlying causes of unplanned returns and to develop more effective interventions to reduce them.

In conclusion, the findings of this study can inform emergency department management and patient care by providing valuable insights into the characteristics of patients who make unplanned returns to the emergency department within 72 hours.

Causing factors

The collected data was analyzed in depth, many factors were found that affected the rate of return to the emergency department within 72 hours and it provided insights into the underlying causes of unplanned returns.

One of the most common causes of unplanned returns to the emergency department is communication. Poor communication between healthcare providers and patients can lead to misunderstandings about the patient's condition, treatment plan, and follow-up care. For example, patients may not understand the instructions given to them or may not have received clear information about their diagnosis or treatment plan, which can lead to confusion and anxiety. In some cases, patients may also have difficulty communicating their symptoms or concerns to healthcare providers, which can lead to misdiagnosis or inadequate treatment.

Another possible cause of unplanned returns is mismanagement, which can include issues such as inadequate monitoring or failure to follow up on test results or treatment plans. For example, if a patient is discharged from the emergency department with a prescription for medication but does not receive clear instructions about how to take it or when to follow up with their primary care provider, they may not take the medication as directed or fail to follow up, which can lead to a worsening of their condition and a need for a return visit.

Missed diagnosis is another potential cause of unplanned returns to the emergency department which is one of the most serious factors and has a potential effect on patient safety. When a patient's condition is not correctly diagnosed or treated, they may experience worsening symptoms or complications, which can lead to a return visit. This can be especially problematic if the underlying condition is serious or life-threatening.

Patient-related factors can also contribute to unplanned returns to the emergency department. For example, patients with a low threshold for pain or fever may be more likely to seek care in the emergency department, even if their symptoms are not severe. Additionally, patients who do not have a good understanding of their health or who have difficulty managing chronic conditions may be more likely to experience complications or need additional care.

Illness-related factors can also contribute to unplanned returns to the emergency department. For example, complications of an illness or disease, such as ARDS secondary to influenza, can require additional treatment and care, which may necessitate a return visit to the emergency department.

Finally, system-related factors can also contribute to unplanned returns to the emergency department. For example, if a patient is unable to secure a follow-up appointment with a specialist at a specific time, they may need to return to the emergency department for further evaluation and treatment. Additionally, if there are not enough resources or staff available to manage patient needs, this can lead to longer waiting times and delays in care, which can increase the likelihood of unplanned returns.

Limitations

There are some limitations of this study. Aside from being a cross-sectional study in which it is difficult to establish a causal relationship between variables.

CONCLUSION

The research topic of investigating the factors affecting the rate of return to the emergency department within 72 hours is important, as unplanned returns can contribute to emergency department overcrowding, and critical bed status, and negatively impact patient outcomes and safety. The study's sample size and demographics suggest that male patients and patients from specific ethnic backgrounds may require more attention in terms of care and management to reduce unplanned returns.

The analysis of the data showed significant differences in the proportion of patients who returned to the emergency department within 72 hours based on gender, age, ethnicity, triage level, and primary diagnosis. The findings highlight the importance of considering these factors when developing interventions to reduce unplanned returns and improve emergency department management and patient care. Future research may focus on examining additional factors that contribute to unplanned returns, such as patient socioeconomic status, comorbidities, follow-up, and the quality of initial care provided.

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