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Demographic Characteristics of Patients who Applied to the Emergency Service Green Area

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What is known on this subject?

The waiting times of patients are prolonged due to the intensity of services in the emergency department.

What this study adds?

Determined the peak hours of patients in the emergency department. Therefore, the waiting times of patients can be shortened with additional personnel reinforcement at the specified hours.

ABSTRACT

Objective: Emergency medical care is required at any time of the day, thus emergency services are available 24 h a day, 7 days a week. Additionally, emergency medicine is defined as the specialty that detects and treats the disease and injury that requires sudden medical intervention. The emergency service applications used a triage system to ensure that urgent and serious cases reach immediate medical intervention. The triage system in Turkey used a red, yellow, and green color-coding system.

Material and Methods: This retrospective and descriptive study was conducted by examining the computer-based records of all patients who applied to University of Health Sciences Turkey, Başakşehir Çam and Sakura City Hospital, Emergency Service Green Field Polyclinics between May 1, 2020, and September 30, 2020.

Results: A total of 17,693 patients applied to the Emergency Service Green Area of University of Health Sciences Turkey, Başakşehir Çam and Sakura Hospital between May 1, 2020, and September 30, 2020, when the study was conducted. Of whom, 9,314 (52.8%) were females and 8,379 (47.2%) were males. The mean age of all patients was 36.3±12.8 years. Of whom, the average age of females was 36.3±12.9 years, whereas 36.2±12.7 years in males. The most common age range was 18-29 years, and the number of patients who applied was 6,452 (36.4%). Our study revealed that the most intensive hours were between 13:00-16:00 and 20:00-24:00.

Conclusion: Emergency services personnel should be planned according to the annual number of patients admitted to the emergency department of the hospital. Additionally, at certain times of the day, especially during the rush hours of the emergency services, the number of healthcare professionals, such as specialist physicians, research assistants, general practitioners, nurses, emergency medical technicians, medical secretaries, etc. should be increased.

Keywords: Emergency service, triage system, demographic features

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Introduction

Emergency medical care is needed at any time of the day, thus emergency services are available 24 h a day, 7 days a week (1). Additionally, emergency medicine is defined as the specialty that detects and treats diseases and injuries that require sudden medical intervention.

The Social Security Institution in Turkey defined emergency health practices as follows: These are situations that require medical intervention within the first 24 h from the beginning of the event in cases of sudden emerging diseases, injuries, and similar situations and is accepted as a risk of losing life and/or health integrity in case of urgent medical intervention or transfer to another health institution. However, the study conducted by the emergency medical assistants on 3,000 patients revealed that 62.3% of the total patient admissions were non-emergency situations (2).

In emergency service applications, a triage system is used to ensure that urgent and serious cases reach immediate medical intervention. In the hospital, which has the resources to intervene every patient, patients with non-urgent and urgent conditions that need medical intervention may wait longer (3).

In Turkey, the Ministry of Health Inpatient Health Facilities in the Application Procedures and Principles of Emergency Services for triage in determining the color codes on the following, and seeks to provide more efficient and effective services in the emergency departments. During the application, triage should be performed, using red, yellow, and green colors, depending on the urgency of health problems that require examination and medical and surgical intervention. The triage process needs a physician, emergency medical technician, nurse, health officer, and health personnel with similar qualifications.

The following are the color-coding in the triage:

- The red color code refers to patients with life-threatening conditions and needs immediate evaluation and treatment.

- The yellow color code refers to patients who can wait for a certain time compared to very urgent patients.

- The green color code refers to patients who present with non-urgent health problems and can undergo outpatient examinations and treatments.

This study aimed to organize and plan the most frequent application time for the green area in the emergency and the demographic characteristics of patients who applied to the emergency service to make the work of the green area more effective and efficient.

Material and Methods

This retrospective and the descriptive study examined the computer-based records of all patients who applied to University of Health Sciences Turkey, Başakşehir Çam and Sakura City Hospital Emergency Service Green Field Polyclinics between May 1, 2020, and September 30, 2020.

Our study retrospectively scanned the applications made to the green area between the dates determined in the Turkcell Hospital Information Management System, which is the computer-based system of the hospital, and the age, gender, and application hours of patients were obtained. Informed consent was obtained from the participants.

Inclusion criteria were determined as all patients older than 18 years of age who applied to the green area between the specified dates. Exclusion criteria were defined as missing data in the system and being younger than 18 years of age.

Institutional review board approval was obtained from the University of Health Sciences Turkey, Başakşehir Çam and Sakura City Hospital Ethical Committee (number: 2021.09.185, subject number: KAEK/2021.09.185).

Statistical Analysis

The Statistical Package for Social Sciences for Windows 20.0 program was used for statistical analysis in the evaluation of obtained findings. Descriptive statistical methods (percentage, average, and standard deviation) were used to evaluate the study data, and the Pearson chi-square test was used to compare qualitative data. The independent samples t-test was used for the comparison of quantitative data in the case of two groups to compare the parameters between groups. The One-Way analysis of variance test was used to compare the parameters with normal distribution between groups in quantitative data in the case of more than two groups. Results were bilaterally evaluated at a 95% confidence interval and p values of <0.05 are considered significant (4).

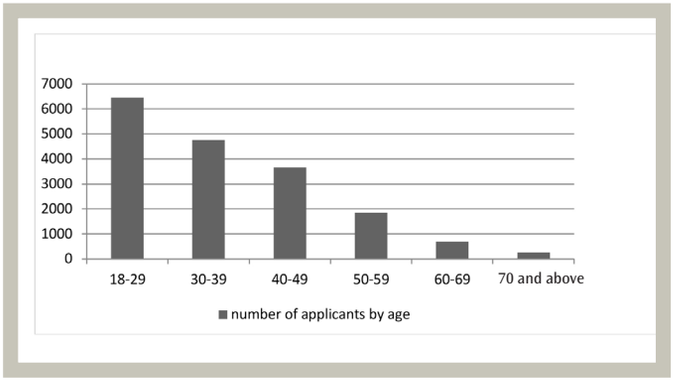
Results

The total number of patients who applied to the Emergency Service Green Area of University of Health Sciences Turkey, Başakşehir Çam and Sakura Hospital between May 1, 2020, and September 30, 2020, was 17,693, of whom 9,314 (52.8%) were females and 8,379 (47.2%) were males.

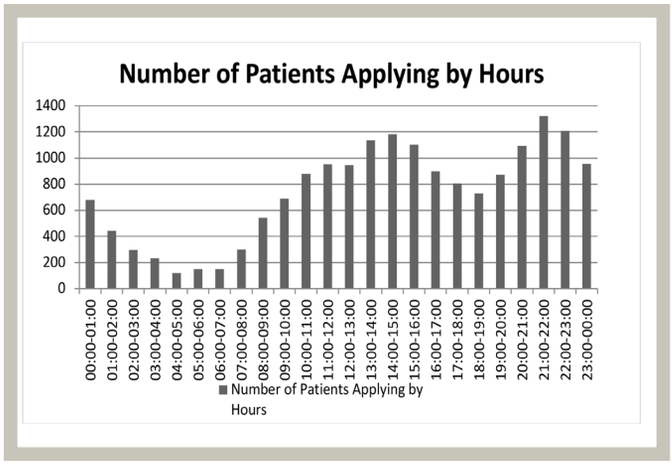
The average age of all patients who applied to the Emergency Service Green Area between the specified dates was 36.3 ± 12.8 years, of which the average age of females was 36.3 ± 12.9 years, whereas 36.2 ± 12.7 years in males.

The participants were grouped according to age as 18-29, 30-39, 40-49, 50-59, 60-69, and >70 years. The age range that most frequently applied to the Emergency Service Green Area was 18-29 years, which accounted for 6,452 (36.4%). The number of applications by age group is inversely proportional to the age; as age increases, the number of green area applicants gradually decreases. The least number of applicants to the green area was seen in the age group of 70 and over, accounting for 1.5% of all applicants (Graphic 1).

One of the most important factors that affect the number of patients who are admitted to the emergency department is the admission time. Many previous studies revealed a significantly decreased number of patients who present to the emergency department between 00:00 and 08:00. Our study revealed that the time with the least emergency service admission is between 05:00 and 07:00, with 301 (1.7%) patients. Additionally, the most frequent number of applicants peaks twice, which were between 13:00-16:00 and 20:00-24:00. The number of applications and percentages between these time zones were 3,422 (19.3%) and 4,579 (25.8%), respectively (Graphic 2).



Graphic 1. Number of patients who applied by age groups



Graphic 2. Number of patients who presented by hours

Discussion

The emergency medical service is the branch where the first intervention is performed in the prevention, diagnosis, treatment, and management of acute diseases or injuries in all age groups. Emergency services are an important unit within the hospital. The evaluation of all patients regardless of the branch, the uncertainty of applications and types, and more than one unit of evaluations (laboratory, imaging, etc.) are factors that affect the emergency service quality since some patients need to be immediately intervened.

In the T.C. Ministry of Health Statistics, the number of emergency department applicants is increasing annually. The number of patients who are admitted to the emergency department in 2010 was 74.2 million, 115 million in 2015, and 140 million in 2018 (5,6,7). University of Health Sciences Turkey, Başakşehir Çam and Sakura City Hospital Emergency Service had 17,693 people who applied to the green area in 5 months, with an increasing graphic monthly. The number of applications to the emergency room is gradually increasing in our country and worldwide. Therefore, the physical conditions of emergency services and the number of qualified personnel should be brought to a sufficient condition.

The rate of female patients who applied to University of Health Sciences Turkey, Başakşehir Çam and Sakura City Hospital Emergency Service Green Area was 52.8%, whereas 47.2% for males. Similarly, Edirne et al. (8) revealed 56.8% females and 43.2% males. Another study revealed similar rates of females and males who presented to the emergency service, wherein 56.5% were females and 43.5% were males (9).

The results of two studies revealed that patients who applied to the green areas were higher in females (9,10). A study conducted in the United States of America (USA) revealed no significant difference between genders in terms of urgency (11). Similar to the literature, the rate of females was higher in our study.

The majority of patients who applied to the Emergency Service Green Area were young population, wherein 6,452 (36.4%) patients were 18-29 years old. The age group that applies least to the green area is people who are 70 years old and over, with only 260 (1.5%) patients. In the USA, according to the National Hospital Ambulatory Medical Care Survey data, the most frequently admitted age group to the emergency department is between 25-44 and 45-64 years old (12).

Considering the application hours of patients, the number of patients decreased significantly between 00:00 and 08:00 hours. The number of patients who do not want to wait in the

conditions of the polyclinic and cannot get an appointment is increasing from 09:00 due to the application to the emergency department. A density mostly was observed between 13:00 and 16:00 although it remained stable on average during working hours. The number of patients who presented to the emergency department between 17:00 and 19:00 is significantly decreasing, probably due to the start of working hours and the traffic density in the city. The intensity of the emergency room significantly increases between 20:00 and 24:00 after the patients apply to the emergency service, which is the most accessible unit after completing their daily work. A study revealed a similar peak hour of emergency services to our study (13). A study conducted in the USA revealed that the most intensive time zone of emergency service applications was between 17:00 and 20:00, accounting for 64.7% of all emergency service applications (14).

Our study revealed that patients who applied to the emergency department were similar to the literature in all their characteristics.

Study Limitations

The most important limitation of our study is its retrospective design. Another limitation is the short period coverage due to the new establishment of the hospital.

Conclusion

With the development of emergency medicine worldwide and in our country, computer-aided national databases should be developed for patient information in all emergency services. With these databases, the necessary information can be easily analyzed and the quality of emergency medical service can be increased.

Emergency services personnel should be planned according to the annual number of patients who are admitted to the emergency department of the hospital. Additionally, at certain times of the day, especially during the rush hours of the emergency services, specialist physician, research assistant, general practitioner, nurse, emergency medical technician, medical secretary, etc. should be increased.

Since the emergency services are open 24 h a day, the working and resting hours of the physicians, nurses, and auxiliary health personnel in the emergency department should be sufficiently planned.

Finally, public awareness and education should be given to reduce the number of unnecessary and urgent emergency service applications. If all these results are taken into consideration and applied, the density in emergency services can be reduced. Additionally, providing services to situations that require real emergency intervention can be provided effectively and efficiently.

Ethics

Ethics Committee Approval: Institutional review board approval was obtained from the University of Health Sciences Turkey, Başakşehir Çam and Sakura City Hospital Ethical Committee (number: 2021.09.185, subject number: KAEK/2021.09.185).

Informed Consent: Informed consent was obtained from the participants.

Peer-review: Externally peer-reviewed.

Authorship Contributions

Surgical and Medical Practices: E.A., R.G., Concept: E.A., R.G., Design: E.A., R.G., Data Collection or Processing: E.A., R.G., Analysis or Interpretation: E.A., R.G., Literature Search: E.A., R.G., Writing: E.A., R.G.

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