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Original Article

Characteristics of non-urgent visits in emergency department

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Abstract

Aim: In recent years, the number of patients using the emergency department is increasing and majority of these patients constitute non-emergency patients. In this study, it was aimed to examine the green field patients who applied to the emergency department of a tertiary hospital by non-urgent reasons and define the socio-demographic characteristics, the reasons for preferring the emergency department, to assess the rate of urgency defined by the participant, and to contribute to the literature by obtaining data for our country.

Materials and Methods: This is a cross-sectional study in which the subjects were selected among the whole green area patients applied to emergency department in between 02 and 11 November 2018. Among these patients, the subjects who did not accept to be included to the study and didn't fulfill the inclusion criteria were excluded. As a result, a total of 716 patients who accepted to be in the study and fulfilled the inclusion criteria were included to the study. Then, a questionnaire for the aim of assessing the socio-demographic characteristics and the reasons for preferring the emergency department, involving a scale to define the self-report of urgency were applied to those 716 volunteered patients.

Results: In our study, 23.9 % of a total of 5644 patients applied to emergency department in between 02 and 11 November 2018 were grouped as non-urgent green area patients by the triage personnel. Of these green area patients those who accepted to be included to the study and fulfilled the inclusion criteria; 356 were female (49.7 %) and 360 were male (50.3 %). When the participants were evaluated according to their level of educations, 5.4 % were illiterate, 4.1 % were literate but had no school graduate, 30.6 % were primary education graduates and 13.4 % were university graduates. According to the reasons for choosing the emergency department, 48.2 % of the patients stated that they applied to the emergency department in need of emergency treatment, 22.5 % of the visitors declared that they were unable to get permission from their work in their working hours and 13.1 % of the visitors applied due to their opinion that things were progressing faster in the emergency department. In addition, the patients were asked to scale their urgency in a 10-point scale and the mean rate of urgency defined by the participants in the self-report scale was found to be 6 points (0-10) and negative correlation was observed between education levels and urgent levels.

Conclusion: In this study, we obtained descriptive data about the green field patients who applied to the emergency department by non-urgent reasons, defined their socio-demographic characteristics, revealed the reasons for non-urgent applications to the emergency department, and assessed the self-rate of urgency defined by the participants. Since it can be predicted that the overcrowding generated by these non-urgent visits has negative effects and consequence on patients and employees; we consider that this study and similar studies may be helpful in describing the current problem, may help to solve the problem by contributing to the literature.

Keywords: Adverse outcomes; care quality; emergency department; green tag patients; length of stay; overcrowding; triage

INTRODUCTION

The emergency department (ED) is the basic element of the health safety network, and is the most important health unit, which provides treatment services for 365 days & 24 hours a year in cases of sudden developing and life threatening events, regardless of the patient's health assurance and considering their urgency (1). In ED, it is the most basic target to provide health service in a short time and in a qualified way (2). Therefore, situations that hinder the functioning of emergency services pose a serious danger to the health system (1).

The workload of the emergency departments in our country and in the world is becoming a global health problem with the increase in the application of non-

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emergency patients, which are increasing day by day. In fact, it has been reported that this situation is considered as a national crisis in some countries (3,4).

In emergency departments, where the latest technologies are used and the costs are higher than other health departments, the aim is to care and treat patients who really need urgent care (5). The number of patients with non-urgent complaints makes the emergency care service and procedures difficult (6).

The aim of this study is determining the reasons why patients apply to ED for non-urgent reasons and why they prefer ED, determining the negative effects and consequences of the overcrowding created by these patients on emergency services, assessing the rate of urgency defined by the participant, assessing this issue in terms of medical, administrative, judicial and ethical responsibilities. It is also aimed to contribute to the literature by presenting solutions on the current problem.

MATERIALS and METHODS

Place and Features of the Research

The study was carried out in a training and research hospital, with 688-bed capacity, where ~ 1.3 million patients apply per year, and ~ 180 thousand of the annually applying patients are treated in the emergency department. The working schedule of the hospital includes two shifts which are between the hours 08:00-16:00 pm and 16:00-08:00 pm. In Turkey, the triage system used in emergency departments group's patients as green, yellow and red, from the less urgent to the most urgent clinical status, respectively. In the first application, blood pressure, pulse and temperature measurements and blood glucose measurements of the patients in the triage section are performed by the assistant health personnel, and the patients are directed to the red, yellow or green area according to the results obtained.

Data Collection

This is a cross-sectional study and also these patients were prospectively recorded. After the approval of the Clinical Research Ethics Committee, volunteers over the age of 18 who applied to ED from 02 to 11 November 2018 and accepted as a green field patient according to the triple triage system of the ministry of health were included into the study. Patients belonging to yellow and red area, patients under 18 years of age, as well as trauma patients were excluded from the study.

A questionnaire for the aim of assessing the socio-demographic characteristics and the reasons for preferring the emergency department, involving a scale to define the self-report of urgency were applied to those 716 volunteered patients. The questionnaire directed to the included patients involves questions about the demographic features such as sex, age, educational status and health assurance of the patients, time of admission to the hospital, the characteristics and duration of the medical complaints, how urgent it feels, and the reasons for preferring the emergency service (non-emergency units). Also subjectively, participants were asked to give their state of urgency a score between 0 and 10. The questionnaire was conducted by an emergency department specialist face to face and consisted of nine questions. The questionnaire was made by the emergency doctor with written consent.

Statistical Analysis

The data of the presented study were analyzed using SPSS 20.0 (SPSS inc, USA) package program. The normality of the distributions was evaluated using appropriate statistical methods (Kolmogorov-Smirnov or Shapiro-Wilk) and visual graphics (Histogram etc.). Independent samples t test or Mann-Whitney U test were used in the comparison of independent groups, taking into account the distributions. In comparison of categorical data, cross tables were created and chi-square test was applied. In evaluating the relationship between independent samples, Pearson or Spearman correlation test was used considering the distributions, and P <0.05 was accepted as the statistical significance level.

RESULTS

According to the data received from the hospital automation system, a total of 5644 patients applied to ED from 02 to 11 November 2018. Totally, 1353 (23.9%) of these patients were accepted as green area patients by triage unit and were directed to the green area for medical examination. But patients those who accepted to be included to the study and fulfilled the inclusion criteria a total of 716 patients. Finally, 716 of these patients who agreed to participate in the study were included in the study. Of those green area patients, 356 (49.7%) were female and 360 (50.3%) were male. Of the patients, 544 (75.9%) were between the ages of 18-45, 154 (21.5%) were between the ages of 46-65, and 18 (2.5%) were over the age of 65. The median age values were found to be 34 (18-82).

Table 1. Presence of health assurance by sex

	With health assurance n (%)	Without health assurance n (%)	Total n (%)
Female	325 (91.3)	31 (8.7)	356 (100.0)
Male	298 (82.8)	62 (17.2)	360 (100.0)
Total	**623 (87.0)**	**93 (13.0)**	**716 (100.0)**

It was found that 87% of the patients had health assurance and 13% did not. It was determined that female patients (91.3%) had a higher rate of health assurance than male (82.3%), and this was found statistically significant (P = 0.001) (Table 1). It was observed that 5.4% of the patients were illiterate, 4.1% were literate but had no school graduate, 30.6% were primary education graduates, 20,9% were secondary school, 25,6% were high school and 13.4% were university graduates. When education status and sexes were compared, it was determined that the majority of illiterate subjects were female and this was found statistically significant (P = 0.011) (Table 2).

Table 2. Distribution of education levels by sex (%)

	Not attending school and illiterate	Not attending school but illiterate	Primary school	Secondary school	High school	University
Female	7.0	4.2	30.9	15.7	28.4	13.8
Male	3.9	3.9	30.3	26.1	22.8	13.1
Total	**5.4**	**4.1**	**30.6**	**20.9**	**25.6**	**13.4**

Table 3. Medical complaints of patients when they apply to the emergency service

Medical complaints	Sex		Total n (%)
	Female n (%)	Male n (%)	
Throat ache	116 (32.6)	148 (41.1)	264 (36.9)
Backache	42 (11.8)	62 (17.2)	104 (14.5)
Headache	57 (16)	25 (6.9)	82 (11.5)
Muscle pain	22 (6.2)	25 (6.9)	47 (6.6)
Joint pain	19 (5.3)	19 (5.3)	38 (5.3)
Cough	18 (5.1)	14 (3.9)	32 (4.5)
Earache	18 (5.1)	10 (2.8)	28(3.9)
Itching	15 (4.2)	7 (1.9)	22 (3.1)
Inflammation	5 (1.4)	13 (3.6)	18 (2.5)
Vision complaints	5 (1.4)	10 (2.8)	15 (2.1)
General body pain	3 (0.8)	10 (2.8)	13 (1.8)
Dysmenorrhea	11 (3.1)	0 (0)	11 (1.5)
Toothache	6 (1.7)	5 (1.4)	11 (1.5)
Drug need	5 (1.4)	5 (1.4)	10 (1.4)
Simple skin problems	4 (1.1)	1 (0.3)	5 (0.7)
Digestive complaints	4 (1.1)	1 (0.3)	5 (0.7)
Urinary tract complaints	2 (0.6)	3 (0.8)	5 (0.7)
Sleep problems	1 (0.3)	1 (0.3)	2 (0.3)
Small incisions	2 (0.6)	0 (0)	2 (0.3)
Check examination	1 (0.3)	0 (0)	1 (0.1)
Hemorrhoid pain	0 (0)	1 (0.3)	1 (0.1)
Total	**356 (100)**	**360 (100)**	**716 (100)**

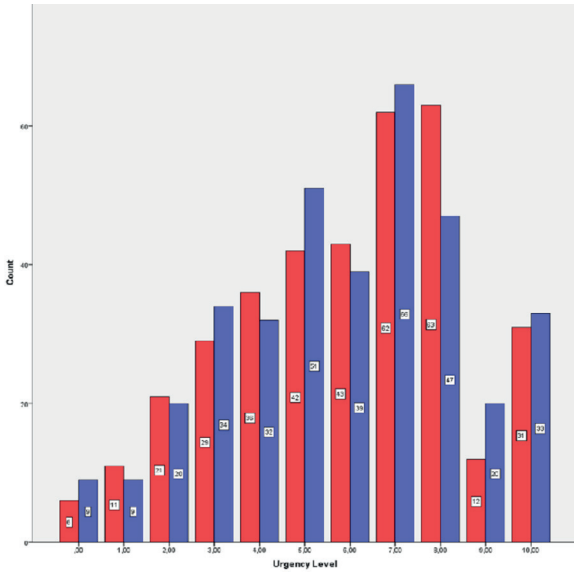

Figure 1. Self description of the urgency level of the participants

While the most common medical complaint of patients applying to ED was sore throat in both sexes, the second most frequent complaint in male was low back pain and headache in female. The medical complaints of the participants applying to ED were shown in the table (Table 3). It was observed that 280 (39.2%) of the patients applied to ED between the hours 08:00-16:00, 359 (50.1%) between 16:00-00:00, and 77 (10.7%) between 00:00-08:00.

Table 4. Emergency service preference reasons of patients

	Sex n (%)		Total n (%)
	Female	Male	
Because of I need to be treated urgently	188 (52.8)	157 (43.6)	345 (48.2)
Because of I could not get permission from my workplace	77 (21.6)	84 (23.3)	161 (22.5)
Because of things are faster in the emergency room	39 (11.0)	55 (15.3)	94 (13.1)
Because of my need for injection or serum treatment	25 (7.0)	34 (9.4)	59 (8.2)
Because of the polyclinic appointment is on a distant date	24 (6.7)	24 (6.7)	48 (6.7)
Because of I did not get an polyclinic appointment	10 (2.8)	27 (7.5)	37 (5.2)
Because of I am not satisfied with the family doctor or polyclinics	19 (5.3)	10 (2.8)	29 (4.1)
Because of I do not have time to wait in the polyclinics	12 (3.4)	8 (2.2)	20 (2.0)
Because of I do not have access to my family doctor	6 (1.7)	8 (2.2)	14 (2.0)
Because of the emergency service is free or low-fee	1 (0.3)	3 (0.8)	4 (0.6)
Because of I was shipped from another center	2 (0.6)	1 (0.3)	3 (0.4)

The time between the start of the medical complaints of the patients and the time they applied to the hospital varied between 30 minutes and 24 days, and the median time was calculated as 48 hours in both female and male, and no statistically significant difference was observed between the sexes (P = 0.405). Also subjectively, participants were asked to rate their urgency between 0 and 10. The median urgency scores were observed as 6 point (0-10) in both female and male. There was no statistically significant difference between urgency scores and sexes (p = 0.83) (Figure 1).

When asked about the reasons for choosing the emergency department; 48.2% of the patients stated that they thought that they needed emergency treatment, 22.5% of them said that they did not get permission from the workplace, and 13.1% stated that they preferred the emergency service because of getting medical care faster from ED (Table 4). When we compare the urgency scores given by the patients to 2 groups, which are less than 5 and more than 5, and compared this groups with their educational status we found that as the education level decreased, the subjective urgency scores of the patients increased, which was found statistically significant (P = 0.002) (Table 5). Similarly, when we compare the urgency scores with the presence of health assurance; we found that the urgency scores of patients without health assurance were higher than those with health assurance, which was statistically significant (P = 0.002) (Table 6).

Table 5. The relationship between urgency and educational status

Educational status	Urgency		Total
	≤ 5 n (%)	>5 n (%)	
Illiterate	10 (25.6)	29 (74.4)	39 (100)
Literate	5 (17.2)	24 (82.8)	29 (100)
Primary school	91 (41.6)	128 (58.4)	219 (100)
Secondary School	57 (38)	93 (62)	150 (100)
High school	85 (46.4)	98 (53.6)	183 (100)
University	51 (53.1)	45 (46.9)	96 (100)
Total	**299 (41.8)**	**417 (58.2)**	**716 (100)**

Table 6. The relationship between urgency and health assurance

Health Assurance Status	Urgency		Total
	≤ 5 n (%)	>5 n (%)	
With health assurance	274 (44)	349 (56)	623(100)
Without health assurance	25 (26.9)	68 (73.1)	93 (100)
Total	**299 (41.8)**	**417 (58.2)**	**716 (100)**

DISCUSSION

In the study presented, the patients who applied to the Emergency Medicine training clinic of a tertiary education research hospital were examined. In the applications made to the hospital at the time of the study, it was determined that 23.9% of the patients were grouped as green area patients. When other studies conducted in our country were reviewed; it was found that 32.9% of the patients have been determined as green area patients by Ersel et al. (7), 47.24% by Kilicaslan et al. (8) and 62.3% by Tayfun et al. (9).

The rate in our study was found to be lower than other studies conducted in other EDs of our country. It was thought that this situation may have been due to the utilization of different triage scales among hospitals, the location of the hospitals or the transportation conditions in the cities where the studies were conducted.

It has been reported that applications made to EDs in the USA exceed one hundred million and this situation causes critical health problems in some regions of the country (1,10,11). In a study conducted by Kim et al. in 2014, it was stated that 141.4 million ED applications were made in the USA and only 7.9% of the patients were hospitalized (3). Another study in California has reported that 90% of EDs are overcrowded, and this workload has become a major problem that threats human health, even in rural hospitals and private hospitals. (10). It has been reported that these patient over-accumulation in EDs is an international problem (12,13). The annual ED application rate compared the population in the United States and the United Kingdom is approximately 41%, while in Australia it is 31%, in Turkey it is more than 100% (14). When the ED reference rates of other countries were considered; it seems to be much higher in Turkey. No studies have been found in the literature regarding the variables that affect the international differences detected in non-emergency patients' applications to the green field. It is thought that this rate of increase in our country is caused by patients applying to ED over and over again for inappropriate reasons. In this study, approximately half of the patients who applied to ED for non-urgent reasons were found to be male and there was no statistically significant difference between the sexes. Similar results are seen in other studies in our country related to emergency applications. Tayfun et al. reported that 51.5% of patients in green area were male (9), while Cevik et al. reported that 50.9% of the patients were female patients (15).

In our study, the median age of patients of green area was 34, 75.9% of the patients were under the age of 45 and 2.5% were above the age of 65. Idil et al. (16) calculated the average age as 38.4, while Sempere-Selva et al. (17) reported that the majority of the patients were under the age of 45. It is thought that the ratio of the patients over 65 years of age among the patients of green area was low in our study since this age group is generally accepted to the yellow area due to the higher presence of chronic diseases.

In our study, it was seen that as the level of education decreased, patients' accepting themselves as emergency patients increased significantly. In a study where Andrews et al. evaluated the variables affecting the unnecessary use of the ED in 2018, it was found that the low socioeconomic level and lower educational level of the patients affected the perception of the disease severity (18).

In this study, it was also revealed that patients with musculoskeletal pain evaluated their urgency with higher scores. It is thought that educating the society about the current issue will contribute to the prevention of inappropriate applications to the ED and to decreasing the overcrowding of EDs.

In this study, it was determined that 87% of patients had health assurance. It was observed that patients without health assurance considered themselves as an emergency patient at a higher rate than those with health assurance. It was reported in the study of Bilisli et al. (19) that the absence of social security was an important reason for ED applications made for non-urgent reasons, and Ersel et al. (7) did not find a significant correlation between the existence of social security and inappropriate applications to ED. In the study presented, the most common medical complaint in both sexes was sore throat, while the second frequency was low back pain in male (17.2%) and mild headache in female (16%). In addition, in our study, the average time interval between patients' complaints and the time they applied to the hospital was reported as 48 hours. Idil et al. have reported in 2018 that the most common complaint of green area patients is musculoskeletal system pain (25.2%) and second common complaint is about respiratory tract (19,7%) (16). Aksel et al. found that the most frequent application reason was complaints about ear, nose and throat problems in the patient group, which they called as rapid examination patients in ED (20). When both the medical complaints of the patients and the duration of admission to the hospital after the complaints begin are evaluated together, it was found that the reported medical problems can be solved in non-emergency units.

In our study, it was determined that 50.2% of patients applied to ED between 16.00-00.00. In the study conducted by Kose et al. (21), it is determined that 60.5% of patients applied to ED between 08:00-17:00, while Aslan et al. have found that 32,6% of the patients apply to ED between 08:00-16:00 and 67,4% of the patients apply to ED between 16:00-08:00. Aksel et al. (22) have reported that 40% of patients apply to ED between 08:00-16:00, and 44% of them applied between 16:00-00:00. It was seen that the data in our study were compatible with other studies in our country.

When the patients included in our study and accepted as green area patients were asked to state the reason why they choose ED, 48.2% of them evaluated themselves as "should receive urgent treatment". In addition, it was observed that the patients gave an average of 6 points when they rated their urgency between 0-10. In the study in which Ersel et al. (7) evaluated the perception of urgency by asking the green area patients to score their urgency between 0-100, it was reported that the patients evaluated their urgency levels as highly urgent. In their study, Idil et al. (16) reported the most frequent reasons for patients' admission to ED as "rapid evaluation in the emergency department" (36.4%) and "having an appointment problem in reaching alternative health units" (30.9%). Arslan et al. (5) stated the reasons for inappropriate use of ED as "difficulty in accessing polyclinics", "long waiting times for examinations", "long periods of time required for performing their tests". In the study of Bas et al. (23), "the narrow scope of family medicine", "lack of knowledge and skills of family physicians", "our health system not directing people to family medicine", "distrust to family physicians" and "personal perceptions of individuals about family medicine" have been reported as the most common reasons for ED application.

LIMITATIONS

Indetermination of the complaints which increase the perception of the patients about themselves as requiring more urgent intervention, the fact that the sample is formed within a short period of time and under winter conditions, lack of evaluating the effects of seasonal differences on patients' applications,

difference of triage scale, being a single-center study can be listed as the limitations of the study.

RECOMMENDATIONS

Later studies should be carried out using objective scales and should be conducted in a multicentre with more patients during whole year.

CONCLUSION

In this study, we obtained descriptive data about the green field patients who applied to the emergency department by non-urgent reasons, defined their socio-demographic characteristics, revealed the reasons for non-urgent applications to the emergency department, and assessed the self-rate of urgency defined by the participants. In studies conducted on green area patients and about overcrowding of EDs in Turkey, it is reported that the overcrowding of the green area adversely affect ED functioning. In the study presented, approximately 1 out of every 4 patients was a green area patient. In addition to the possible legal problems, it is thought that the overcrowding of EDs may lead to many medical and social problems such as prolonged hospital stay, not being able to manage the patients who need to receive emergent medical services on time, the patients' leaving the hospital without examination, physician and patient dissatisfaction, high medical expenses, increased morbidity and mortality. We consider that this study and similar studies may be helpful in describing the current problem, may help to solve the problem by contributing to the literature.

Competing interests: The authors declare that they have no competing interest.

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Ethical approval: This study's ethic protocol was approved by Bozyaka Education and Research Hospital Ethics Board of Clinical Research (Protocol number: 10; Approval date: 17 Oct 2018). This work has been carried out in accordance with the Helsinki Declaration .

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