

## A new type of addiction: Emergency service abuse

Ensar Durmus<sup>1\*</sup>, Fatih Guneyisu<sup>1</sup>

<sup>1</sup> Sakarya University Training and Research Hospital, Dept of Emergency, Sakarya, TR

\* **Corresponding Author:** Ensar Durmus **E-mail:** ensar.durmus@saglik.gov.tr

### ABSTRACT

**Objective:** Patients repeatedly applying to the emergency department have become a common problem for many hospitals. With this study, the demographic characteristics of the patients who applied to an emergency department in 12 or more times in a year, the patients' hospitalization status, and the rate of using ambulance service were retrospectively examined.

**Material and Methods:** This study is a retrospective, descriptive, cross-sectional research article. The study was conducted in the 1300-bed Sakarya Training and Research Hospital (SEAH) adult emergency room (ER), the largest hospital in Sakarya Province, the study period was 2019. Adult patients with 12 or more emergency department applications per year were selected for the study.

**Results:** In the SEAH adult emergency department, 220.296 patients have examined a total of 382.413 times (1.74 per person) during 2019. The applying patients' to the SEAH adult emergency room 12 times or more in a year was 808 in 2019. These patients' emergency examinations' total quantity was 14369, presenting 3.76% of all emergency examinations, 625 (77.4%) were never hospitalized. Of these patients 420 (52%) were male; the median age was 47. The emergency department examinations estimate was 17.78 ( $\pm 10.98$ ) times averagely, the median amount was 15 times, and was between 12-192. Of them, 305 (37.7%) had also applied to the psychiatry outpatient clinic at least once. A weak but notable correlation was perceived between the number of outpatient clinic admissions and emergency service admissions ( $p = 0.001$ ,  $r = 0.245$ ).

**Conclusion:** Frequent users visit the ER and other polyclinics regularly. Limitations should be required on these patients using emergency services in non-emergency situations. It is essential to pay specific attention to frequent emergency room users and investigate the motivations for proceeding to the emergency room.

**Keywords:** Emergencies, patients, emergency service

### INTRODUCTION

One of the busiest places of many hospitals is emergency services which all kind of patients are admitted. For instance, the cases who have chest pain, headache, stomachache, trauma, suicidal thoughts, cardiopulmonary arrest, dyspnea, and more can be encountered at emergency service repeatedly. Therefore, emergency physicians have to struggle with various symptoms, diseases, sufferers, also their relatives.

Various deductions explain the intensity endured in emergency services such as; repeated appeals, inadequate emergency room area, insufficient empty beds for hospitalized patients, not having an appointment system, patients who are hospitalized are waiting in the emergency room due to beds reserved for elective cases, and insufficient primary health care services (1). Although the rate of recurrent emergency admissions among patients examined in the emergency department is low, it is an essential factor that enhances the emergency department's exhaustion (2).

Patients repeatedly applying to the emergency department have become a common problem for many hospitals. In recent years, a concept called "frequent users" has emerged due to repeated admissions to the emergency room. Although some describe patients who apply to the emergency department regularly, for example twice, four times, 12 times, 18 times a year, as "frequent users", there is no generally accepted definition (3-5).

### Research Article

Received 07-02-2020

Accepted 23-02-2021

Available Online: 24-02-2021

Published 24-02-2021

Distributed under  
Creative Commons CC-BY-NC 4.0

**OPEN ACCESS**



Inadequate healthcare services, being uninsured, acute exacerbation of chronic conditions, mental problems (2, 6), fear or uncertainty about their condition (7), substance use (8) can be among the purposes for repetitive emergency service admissions. The higher number of hospitalizations and the exactness of their ailments execute this group more critical for emergency physicians (2).

Considering the emergency services' position in Turkey; more than 20% of patients' examinations in whole state hospitals were performed in emergency departments, and exceeding 90 million cases are inspected annually in state hospitals' adult ER solely (9). For this reason, any thought that will reduce the patient burden of emergency services is of great importance for the health of patients and the sustainability of the quality of health service delivery. Because increasing the emergency room intensity may reduce patient care quality; moreover, expand patient mortality, delay treatments, and a lengthened waiting period in the emergency department (1, 10).

As the emergency services endure more exceeding patients every year, the consequence of "frequent user" enhancing the emergency service's workload, has similarly increased. With this study, the demographic characteristics of the patients who applied to an emergency department in 12 or more times in a year, the patients' hospitalization status, and the rate of using ambulance were examined. Besides, since it is stated in the literature that there is a significant proportion of patients with mental status problems among patients with repeated admissions, the psychiatry outpatient clinic's follow-up status was also investigated (11). It aims to contribute to the current medical literature regarding the problem's solution by discussing the patient group's measures, which need special attention.

## MATERIAL AND METHODS

This study is a retrospective, descriptive, cross-sectional research article.

The study was conducted in the 1300-bed Sakarya Training and Research Hospital (SEAH) adult emergency department, the largest hospital in Sakarya Province; the study period was 2019. This hospital's adult emergency service is established on approximately 2000 square meters; moreover, it is a clinic that admits all emergency applications such as; outpatient, ambulance, trauma, and non-trauma cases.

Eighteen-year-old and older cases applying to the SEAH adult emergency department at least 12 times were included in the research regardless of patients' symptoms. According to the Ministry of Health report, the average number of examinations per person in Turkey was 9.5/year, while for Eastern Marmara, where Sakarya province is located, this figure increased to 9.9/year (12). Among the various interpretations proffered for "Frequent Users" in the literature, considering the average number of examinations in Turkey, patients with 12 or more emergency department applications per year were selected for the study.

Patients confirmed to the pediatric or the gynecology emergency; moreover, those who did not proceed to the ER for examination just particularly had injection or dressing were not consolidated in the study.

If the patient file is abstaining, such as insufficiencies in the patient file or the hospital automation system were not endured to the investigation.

Cases that attained to the ER by ambulance were grouped additionally.

Not with standing the patients' length of stay in the ER, solely one application made in a day was covered in the computations.

There was no referral procedure for patients to apply to the emergency room. Patients could apply to the ER without any limitation when they felt the need, and they could be referred to the ER from primary health care institutions or other hospitals.

The patients had to make an appointment with their means to be examined in the polyclinic. The emergency physician could only advise the patients to make an appointment to the outpatient clinic of the relevant branch during discharge but could not refer the patient without an appointment to the polyclinic.

**Statistical Analysis:** IBM Statistical Product and Service Solutions (SPSS) V21.0 was applied concerning statistical analyses.

Chi-square test was accepted for comparison of categorical data. Results with  $p < 0.05$  were analyzed statistically meaningful.

The skewness and kurtosis marks were required to be in the  $\pm 2$  value range to define whether the decentralized data match the regular distribution (13). An "independent T-test" was adopted to compare independent data with normal distribution within two groups. Results with  $p < 0.05$  were recognized as statistically notable.

Mann-Whitney U test was utilized to compare independent data that did not submit to the normal distribution, and results with  $p < 0.05$  were acknowledged significant. Spearman correlation test was applied to correlate data that did not fit the normal distribution; moreover,  $p < 0.05$  were considered meaningful.

Permission was obtained from Sakarya Training and Research Hospital Chief Physician's Office on 05.02.2021 for this study.

## RESULTS

In the SEAH adult emergency department, 220296 patients have examined a total of 382413 times (1.74 per person) during 2019. The applying patients' to the SEAH adult emergency room 12 times or more in a year was 808 in 2019. These patients' emergency examinations' total quantity was 14369, presenting 3.76% of all emergency examinations.

Of these sufferers, 420 (52%) were male, and 388 (48%) were female. Patients' mean age was 47.96 years ( $\pm 18.82$ ); the median age was 47; furthermore, the age range was 18-108. In comparing the patients' age according to their gender, it was mentioned that the average age of men (mean: 50.65) was significantly higher than women's (mean: 45.04) according to the independent samples T-test [ $t(806) = 4.284$ ,  $p < 0.001$ ]. The distribution of the patients' genders is presented in Table 1.

**Table 1.** Comparison chart by gender

| Category                                | States | Male       | Female     | Total      | p Value <sup>1</sup> |
|---|--------|------------|------------|------------|----------------------|
| <b>Other Polyclinics<sup>2</sup></b>    | Yes    | 369        | 363        | 732        | 0.006                |
|   | No     | 51         | 25         | 76         |                      |
| <b>Psychiatr Policlinic<sup>3</sup></b> | Yes    | 175        | 130        | 305        | 0.017                |
|   | No     | 245        | 258        | 503        |                      |
| <b>Addiction Polyclinic<sup>4</sup></b> | Yes    | 16         | 3          | 19         | 0.004                |
|   | No     | 404        | 385        | 789        |                      |
| <b>Ambulance<sup>5</sup></b>            | Yes    | 169        | 110        | 279        | 0.001                |
|   | No     | 251        | 278        | 529        |                      |
| <b>Hospitalization<sup>6</sup></b>      | Yes    | 94         | 89         | 183        | 0.850                |
|   | No     | <b>326</b> | <b>299</b> | <b>625</b> |                      |

<sup>1</sup>Pearson Chi-Square test, <sup>2</sup>Application status to other polyclinics in SEAH except for emergency service, <sup>3</sup>Application status of SEAH Psychiatr polyclinics, <sup>4</sup>Application status to a specialised polyclinic for addicted patients, <sup>5</sup>Arriving at the emergency room by ambulance at least once, <sup>6</sup>Hospitalization from the emergency department

The emergency department examinations estimate was 17.78 ( $\pm 10.98$ ) times averagely, the median amount was 15 times, and was between 12-192. The patients' gender had no significant impact on emergency room admittances ( $p = 0.626$ ). A weak but meaningful positive correlation was remarked between the patients' ages and their ER examinations ( $r = 0.096$ ,  $p = 0.006$ ). Thus, it can be stated that as the age of the patients increases, their emergency service admissions raise additionally.

183 (22.6%) patients were hospitalized from the emergency room minimum once, besides 625 (77.4%) were never hospitalised. There was a striking association between hospitalization and the number of ER access, and it was discovered that the admission number was higher in hospitalized patients ( $p = 0.001$ ). On the other hand, there was no significant discrepancy between the gender of the cases and the hospitalization status ( $p = 0.850$ ).

732 (90.6%) patients applied to the regular outpatient clinic at least once throughout the research period, and 76 cases (9.4%) did not apply. However, the number of referrals to other polyclinics did not significantly affect the number of admissions to the emergency department ( $p = 0.150$ ). Considering the patients who also applied to other polyclinics among these patients, it was perceived that the count of polyclinic examinations was between 1-95, an average of 16.83 times ( $\pm 16.82$ ), the median value was 10. A weak but notable correlation was perceived between the number of outpatient clinic admissions and emergency service admissions ( $p = 0.001$ ,  $r = 0.245$ ).

Two hundred seventy-nine patients (34.5%) attained to the ER at by ambulance minimum once, despite that 529 cases (65.5%) never arrived at the ER by ambulance. Nevertheless, it was determined that the number of emergency service admissions of patients who attained by ambulance at least once was statistically higher than those who did not ( $p = 0.048$ ).

Of the patients, 305 (37.7%) had also applied to the psychiatry outpatient clinic at least once. It was observed that being examined in the psychiatry outpatient clinic had a significant effect on the number of emergency service admissions; moreover, it was ascertained that the ER visits number was higher in these patients ( $p = 0.001$ ).

## DISCUSSION

The demographic data of our study were compared with similar research in the literature. Eduardo and Elaine's reported that patients who frequently used the emergency room were on average, 40; and, younger than 65 years old, while women were more apparent in their study (2). Lauren et al. similarly remarked that patients who applied to the emergency department were predominantly female, with an average of 48 (11). Roberta et al. and Kristin et al. further observed that frequent users' average age was 40.3 years and 40 years, respectively; most of them were women (3,7). In contrast, Ksenija et al. perceived that most of the patients who frequently applied to the emergency department were men, but the patients' average age was 50.3 years, on average, younger than 65, matching with other publications (6). The patients' average age in our study was less than 65 years and was 47.96 years; therefore, it was related to other studies. In various other analyses, female cases had a noble rate of re-admissions, whereas, in our investigation, males more applied to the emergency room repeatedly, supporting the study of Ksenija et al.

It is believed that the incapacity to attain a specialist doctor appointment in outpatient clinics can enhance emergency departments' intensity. Sara et al. determined in their study that extended outpatient appointment time could raise emergency administrations (14). Garbers et al. also stated that increasing primary health care usage has resulted in a meaningful reduction in unnecessary emergency room applications (15). "If people could make an appointment to outpatient clinics, they would not come to emergency departments unnecessarily," the results of this research do not verify this recognition. It was observed that 90.6% of patients applied to other outpatient clinics at least once in the same year, and the fact that they applied to other outpatient clinics did not have a statistically significant impact on the number of emergency demands of patients. On the converse, as increasing outpatient applications number, it was observed that there was a correlated accretion in applying patients' emergency department. The fact that 65.5% of the patients did not apply to the emergency room by ambulance, 77.4% of the patients were discharged from the emergency service may signify unnecessary emergency service utilisations. These people also had intensive applications to other outpatient clinics; furthermore, it could be assumed that they were heavy

health system users. In other studies, it has been stated that the determination that facilitating outpatient appointments leads to a reduction in emergency applications; in contrast, this did not correspond with this research's results about frequent emergency room patients. Publications report a significant proportion of those with mental state ailments repeatedly applying to the emergency department (2,3,6,11,16). Outcomes of this study showed that 37.7% of the patients were observed from the psychiatry polyclinic; moreover, the results were consistent with the medical literature. Consequently, it may be valuable to evaluate patients frequently applying to the emergency department, but do not have a recognized chronic disease, referring them to the psychiatry outpatient clinic, if they do not have any urgent complaints. Roberta et al. asserted in their study of 100 emergency patients who regularly admitted to the emergency room that the patients had negative health system experiences, low socioeconomic status, and chronic mental-physical diseases (3). In this study, no inquiry was made regarding the causes of repeated emergency admittances and the patients' diagnoses. Because of a limited number of studies in the literature to analyze the reasons for excessively using the emergency room, it is seen that more detailed studies and analyses are needed on this subject.

## CONCLUSION

One of the factors that increase emergency services density is frequent emergency users, even if their numbers are low. Also, this patient group visits other polyclinics regularly. Limitations should be required on these patients using emergency services in non-emergency situations. Releasing an unlimited number of admissions to the emergency room without restriction may result in remarkable patients' abuse of the emergency health system.

It is essential to pay specific attention to frequent emergency room users and investigate the motivations for proceeding to the emergency room. Since the crucial prevalence of mental disorders in such patients can be interpreted as patients necessitate help, it may be profitable to contact psychiatry.

**Author contributions:** ED, FG; Literature search and study design, data collection and analyzes ED; Writing article and revisions

**Conflict of interest:** The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article. This research did not receive and specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

**Ethical issues:** All authors declare originality of research.

## REFERENCES

1. Yarmohammadian MH, Rezaei F, Haghshenas A, Tavakoli N. Overcrowding in emergency departments: A review of strategies to decrease future challenges. *J Res Med Sci* [Internet]. 2017 Feb 16 [cited 2021 Feb 2];22.
2. LaCalle E, Rabin E. Frequent Users of Emergency Departments: The Myths, the Data, and the Policy Implications. *Annals of Emergency Medicine*. 2010 Jul;56(1):42-8.

3. Capp R, Kelley L, Ellis P, Carmona J, Lofton A, Cobbs-Lomax D, et al. Reasons for Frequent Emergency Department Use by Medicaid Enrollees: A Qualitative Study. *Acad Emerg Med*. 2016 Apr;23(4):476-81.
4. Grover CA, Close RJ. Frequent Users of the Emergency Department: Risky Business. *West J Emerg Med*. 2009 Aug;10(3):193-4.
5. Pham JC, Bayram J, Moss DK. Characteristics of Frequent Users of Three Hospital Emergency Departments [Internet]. [cited 2021 Feb 5]. Available from: <http://www.ahrq.gov/professionals/systems/hospital/edenvironmentalscan/researchbrief.html>
6. Slankamenac K, Zehnder M, Langner TO, Krähenmann K, Keller DI. Recurrent Emergency Department Users: Two Categories with Different Risk Profiles. *J Clin Med*. 2019 Mar 9;8(3).
7. Rising KL, Padrez KA, O'Brien M, Hollander JE, Carr BG, Shea JA. Return Visits to the Emergency Department: The Patient Perspective. *Annals of Emergency Medicine*. 2015 Apr;65(4):377-386.e3.
8. Raven MC, Carrier ER, Lee J, Billings JC, Marr M, Gourevitch MN. Substance use treatment barriers for patients with frequent hospital admissions. *Journal of Substance Abuse Treatment*. 2010 Jan 1;38(1):22-30.
9. Alper M. Top 100 Hospitals in Each Branch-2017 Number of Public Hospitals Examination, Hospitalization, Intensive Care, Surgery, Emergency Service and Births [Internet]. Türkiye Cumhuriyeti Sağlık Bakanlığı Kamu Hastaneleri Genel Müdürlüğü İstatistik, Analiz, Raporlama ve Stratejik Yönetim Dairesi Başkanlığı; 2017 [cited 2020 Mar 12].
10. Salway R, Valenzuela R, Shoenberger J, Mallon W, Viccellio A. EMERGENCY DEPARTMENT (ED) OVERCROWDING: EVIDENCE-BASED ANSWERS TO FREQUENTLY ASKED QUESTIONS. *Revista Médica Clínica Las Condes*. 2017 Mar 1;28(2):213-9.
11. Birmingham LE, Cochran T, Frey JA, Stiffler KA, Wilber ST. Emergency department use and barriers to wellness: a survey of emergency department frequent users. *BMC Emerg Med*. 2017 May 10;17(1):16.
12. Soyutun Caglar I. Health Statistics Yearbook 2019 Newsletter (Sağlık İstatistikleri Yıllığı 2019 Haber Bülteni) [Internet]. Internet: Republic of Turkey Ministry of Health; 2020 Sep [cited 2021 Feb 5] p. 5.
13. George D, Mallery P. IBM SPSS statistics 25 step by step: a simple guide and reference. Fifteenth edition. New York ; London: Routledge, Taylor & Francis Group; 2019. 404 p.
14. Nourazari S, Hoch DB, Capawanna S, Sipahi R, Benneyan JC. Can improved specialty access moderate emergency department overuse?: Effect of neurology appointment delays on ED visits. *Neurol Clin Pract*. 2016 Dec;6(6):498-505.
15. S G, P P. Urban Patient Navigator Program Associated with Decreased Emergency Department Use, and Increased Primary Care Use, among Vulnerable Patients. *J Community Med Health Educ* [Internet]. 2016 [cited 2021 Feb 6];6(3). Available from:
16. Slankamenac K, Heidelberger R, Keller DI. Prediction of Recurrent Emergency Department Visits in Patients With Mental Disorders. *Front Psychiatry*. 2020 Feb 25;11:48.

Copyright © 2021 The Author(s); This is an open-access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>), (CC BY NC) which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited. International journal of Medical Science and Discovery.