Homeless Patients in the Emergency Department

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Abstract

Aim: In our study, we aimed to investigate the demographic features and clinical conditions of homeless people admitted to the emergency department (ED).

Materials and Methods: Patients aged ≥18 years who had social service consultations were retrospectively examined. Demographic features, admission time, complaints on admission, length of stay in the ED, clinical tests performed, diagnoses, clinical outcomes (admission to the hospital, discharge, operation, or death) and ED costs were recorded.

Results: The study included 39 patients. The median age of the patients was 63 years [interquartile range (IQR): 55-77 years, minimum: 30 years, maximum: 91 years]; 89.7% of the patients were male and 74.4% were absolute homeless. There were an average of 8.7 admissions per month. The median length of stay in the ED was 277 min. The median ED cost per admission was 103 Turkish Liras. Referral of homeless patients resulted in admission to hospital wards in 32 (9.2%) cases and admission to the intensive care unit in 41 (11.8%) cases.

Conclusion: In addition to acute disease management, specific approaches should be planned for homeless patients in EDs, which are possibly the only health units that homeless patients refer to for their health problems. *(JAEM 2015; 14: 70-4)*

Keywords: Homeless, emergency department, health status

Introduction

Homelessness is a social problem that has increased in the recent times. Homelessness is defined as a state of living in improper places (such as streets, parks, abandoned vehicles, and buildings) for shelter (1, 2). However, apart from this definition, staying in crowded and cheap hostels or prisons, sheltering in substance addiction treatment clinics, or having nowhere to go when being discharged from the hospital is also termed as homelessness (3, 4). Considering that the boundaries of the definition of homelessness are not well defined, its prevalence is not known definitively. However, it has been increasing recently (3).

Homeless people have a potential risk of serious medical problems because of staying in unsheltered places, being easily affected by bad weather conditions, being inadequate in hygiene and self-care, being exposed to physical and moral trauma more frequently, and not benefiting adequately from medical services.

The number of studies researching the issues of homeless people in our country is highly limited (1, 5-7). Furthermore, emergency department (ED) referral of homeless people has not been surveyed. In this study, we aimed to determine the demographic features and clinical conditions of homeless people admitting to the ED.

Materials and Methods

This study was retrospectively conducted in a tertiary care training and research hospital with approximately 180.000 patient admissions per year. The study was approved by the Ethics Committee of Izmir Tepecik Training and Research Hospital.

Patients aged ≥18 years who were admitted to the ED between January 2010 to May 2014 and who had social service consultations were retrospectively examined. Patients who did not have a proper living place as shelter (absolute homeless) and those who were staying in cheap hostels offering shelter only at night (relatively homeless) were considered as homeless. Patients ascertained to have continually proper places to live were excluded from the study. All admissions of the patients included in the study during the study period were examined.

Demographic features, admission time (hours, months), ways of access to the ED, complaints on admission, length of stay in the ED, clinical tests performed, diagnoses, clinical outcomes (admission to

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the hospital, discharge, operation, or death), and ED costs of these patients were recorded in a data collection form.

Statistical analyses

Qualitative data were expressed as frequencies and percentages, whereas quantitative data were expressed as the median and interquartile range (IQR), with minimum and maximum values. The Mann-Whitney U test was used for quantitative data.

Results

Social service consultation was required for 42 patients. Of these, 3 patients were ascertained not to be homeless and were excluded from the study. Thus, the study was performed with 39 patients meeting the inclusion criteria. There were total 347 admissions of these patients during the 40-month study period, with an average of 8.7 admissions per month. The median age of the patients was 63 years (IQR: 55-77 years, minimum: 30 years, maximum: 91 years) and 89.7% of the patients were male. Furthermore, 74.4% of the patients (n=29) were absolutely homeless, whereas the rest were relatively homeless. The patient's complaints on admission are grouped and shown in Table 1.

The median length of stay in the ED was 277 min (IQR: 117-545 min, minimum: 9 min, maximum: 4743 min). The median ED cost per admission was 103 Turkish Liras (TL) (IQR: 26-191 TL, minimum: 3 TL, maximum: 866 TL), whereas the annual costs of all admissions was determined as 14112.3 TL. Furthermore, 77.8% of the patients were admitted by their own means, whereas the others were admitted via ambulance. Five patients presented to the ED more than 10 times per year. The total number of admissions of these 5 patients during the study period was 227. The 39 patients in the study presented to the outpatient clinics of our hospital 204 times in total during the study period.

Table 1. Patients' complaints on admission to the emergency department

Complaints	**n (%)**
Cardiovascular and respiratory system (Chest pain, shortness of breath, palpitation, cough)	147 (42.3)
Neurological system (Headache, dizziness, seizures, altered consciousness, muscle weakness)	43 (12.4)
Gastrointestinal system (Nausea, vomiting, abdominal pain, dark stools)	25 (7.2)
Alcohol intake	6 (1.7)
Pain (General body pain, limb pain, the pain of chronic wound)	89 (25.7)
Trauma (Traffic accidents, gunshot wounds, stab wounds, violence, burns)	24 (6.9)
Others (Fever, anxiety, flank pain, back pain, dysuria, itching)	13 (3.8)

Of the total 347 referrals, 88 were during the weekends. The median length of stay of patients who referred during the weekdays and weekends was 278 min (IQR: 124-541 min; minimum: 10 min, maximum: 4516 min) and 274.5 min (IQR: 93-566.5 min; minimum: 9 min, maximum: 4743 min), respectively (p=0.36).

Referral of homeless patients resulted in admission to hospital wards in 32 (9.2%) cases and admission to the intensive care unit in 41 (11.8%) cases. The median length of stay in the hospital ward and intensive care unit was 5 days (IQR: 3-8 days, minimum: 2 days, maximum: 54 days) and 3 days (IQR: 2-4 days, minimum: 1 day, maximum: 15 days), respectively. In addition, 11 (3.2%) patients were transferred to the intensive care unit of other hospitals. Among the hospitalized patients, 3 died from pneumonia, gastrointestinal bleeding, and malignant neoplasm of the brain and 1 (0.3%) was operated on account of aortic aneurysm. The final diagnoses of patients admitted to the hospital are grouped and shown in Table 2. The frequency of admission of patients is shown in Figure 1 and 2.

It was observed that 19 patients had ≥1 chronic diseases and 12 patients had no chronic disease; presence or absence of a chronic disease could not be determined for 8 patients. The chronic diseases of the patients according to the frequency are as follows: hypertension (n=9), coronary artery disease (n=6), heart failure (n=6), chronic obstructive pulmonary disease (n=6), malignancy (n=5), diabetes mellitus (n=4), chronic renal failure (n=4), atrial fibrillation (n=4), epilepsy (n=3), and others (n=12) (stroke, anxiety disorders, schizophrenia, glaucoma, hyperthyroidism, inguinal hernia, and tuberculosis).

Complete blood count was determined in 64.3% (n=22) of all admissions, whereas electrolyte determinations and kidney and liver function tests were performed in 64.6% (n=224) of all admissions. Abnormal laboratory test results determined in all admissions is shown in Table 3.

Table 2. Final diagnoses of the hospitalized patients

Related systems	**n (%)**
Cardiovascular and respiratory system (Decompensated congestive heart failure, pneumonia, acute coronary syndrome, atrial fibrillation, chronic obstructive pulmonary disease, pulmonary edema)	29 (39.7)
Metabolic causes (Diabetic ketoacidosis, hyperglycemia, electrolyte disorders, acute and chronic renal failure)	25 (34.2)
Neurological system (Malignant brain tumors, seizures, stroke)	4 (5.5)
Gastrointestinal system (Pancreatitis, gastrointestinal bleeding)	3 (4.1)
Alcohol intake (Methyl alcohol poisoning)	1 (1.4)
Trauma (Femur fracture, rib fracture, humerus fracture, lumbar spine fracture)	7 (9.6)
Others (Cellulitis, fever etiology, malignant larynx neoplasm, wound care)	4 (5.5)

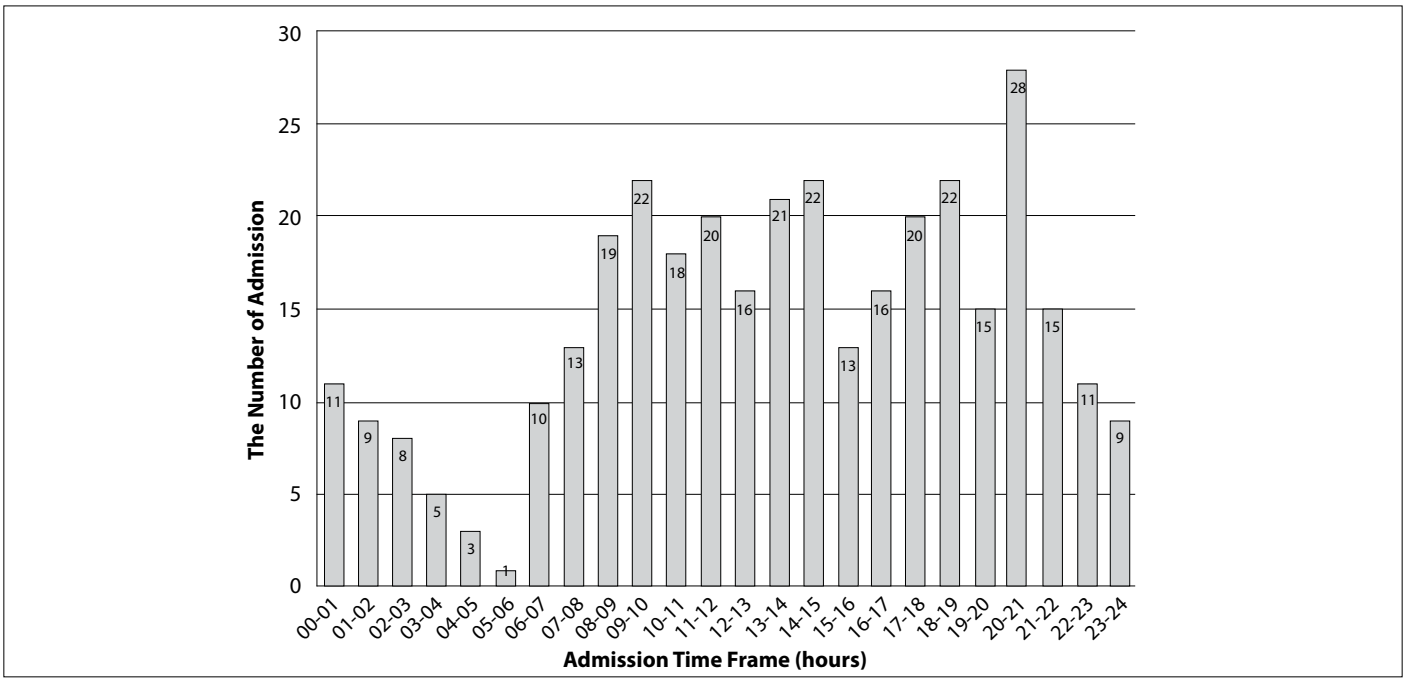

Figure 1. Frequency of admission of homeless patients in hours

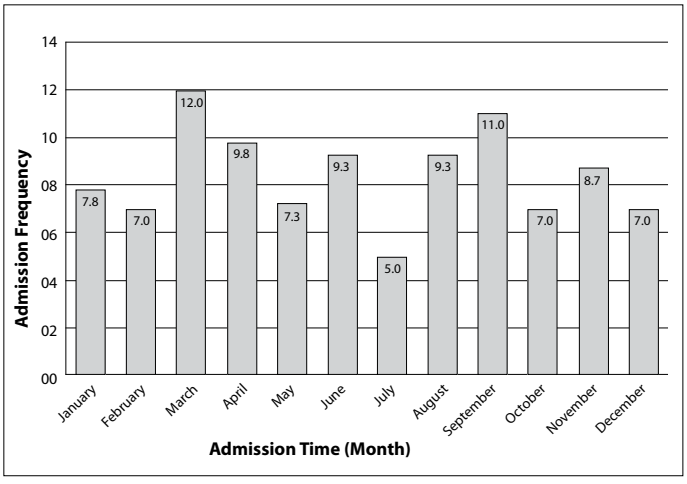

Figure 2. Frequency of admission of homeless patients per month

It was observed that the most frequently ordered imaging study in all admissions was plain radiography, followed by computed tomography, ultrasonography, and magnetic resonance imaging [46.7% (n=162), 15% (n=52), 14.7% (n=51), and 3.5% (n=12) respectively].

Among all referrals, cultures were obtained from 13 (3.7%) patients (4 blood, 6 urine, and 3 wound site). Blood cultures were positive for gram-positive cocci (*Enterococcus faecalis*, coagulase-negative staphylococcus, and methicillin-sensitive *Staphylococcus aureus*); urine cultures were positive for gram-negative bacilli (*Escherichia coli*), gram-positive cocci (methicillin-resistant *S. aureus*) and yeast-like fungi (*Candida albicans and C. tropicalis*). Wound site cultures were positive for gram-negative bacilli (*Enterobacter cloacae* and *Pseudomonas fluorescens*) and gram-positive cocci (coagulase-negative methicillin-resistant *Staphylococcus*).

Table 3. Abnormal laboratory test results*

Laboratory test	Laboratory data	n (%)
White blood cell (K/µL)	<4.1 or >10.7	92 (26.5)
Platelet (K/µL)	<141 or >425	51 (14.7)
Hemoglobin (g/dL)	<14 or >18.2	207 (59.7)
Sodium (mmol/L)	<135 or >147	71 (20.5)
Potassium (mmol/L)	<3.4 or >5.2	79 (22.8)
Calcium (mg/dL)	<8.7 or >10.7	59 (17)
Urea (mg/dL)	<16 or >44	176 (50.7)
Creatinine (mg/dL)	<0.5 or >1.2	159 (45.8)
Aspartate aminotransferase (U/L)	>50	79 (22.8)
Alanine aminotransferase (U/L)	>50	64 (18.4)
Glucose (mg/dL)	<60 or >200	41 (11.8)

*For thresholds, the hospital laboratory values were considered.

Discussion

Homelessness is a growing social problem in our country and around the world. Health problems are common among homeless people because of their poor personal hygiene and inappropriate living conditions. Because they lack health insurance and are admitted to a hospital only in acute situations, they receive almost all of their health services in EDs. We aimed to determine the demographic and clinical characteristics of homeless patients admitted to EDs in this single-center study.

In the United States, the prevalence of homelessness is estimated to be 1% in the general population (8). In our country, although not known definitively, there are approximately 70,000 homeless people (9). In our study, the proportion of males was higher than that of females among the homeless patients, similar to the findings reported by international studies (10, 11).

Hahn et al. (11) emphasized that the mean age of homeless people has shown increment over the years. In most of the studies, the mean age of the homeless people has been reported to range between 45 and 55 years, whereas in our study, the median age of the homeless patients was 63 years (IQR: 55-77 years). This situation may be explained by the more frequent use of the ED by elderly homeless people because of their comorbid diseases. In addition, young homeless people who are capable of self-care are discharged from the ED without social service consultation, which can be another explanation for the observed findings.

Homeless people have frequent ED visits because of high exposure to injuries and violence, poor health status, mental illness, chronic alcohol and substance abuse, and lack of health insurance (12). Chronic diseases, difficulties in access to therapeutic drugs, poverty, and social exclusion can also be listed among the causes of the more frequent use of EDs by homeless people (13). In our country, health insurance is provided for all individuals over 65 years of age by the state. However, such individuals have far more ED admissions than outpatient visits.

The mortality rate among homeless patients is higher than that in the general population in the same age group. Death usually occurs between 42-52 years of age. The most common causes of death in homeless patients over the age of 45 years are cancer and heart and chronic lung disease (14). In a study of the causes of death of homeless individuals in our country, natural deaths were reported to be higher and tuberculosis was reported as the most common cause (15.3%) among natural deaths, followed by cardiovascular disease, pneumonia, and neoplasms. The most common cause of unnatural deaths was acute alcohol intoxication; other common causes were reported as traffic accidents and stab wounds. Alcohol intake is reported in 61.5% of unnatural deaths even when the cause of death is not acute alcohol intoxication (7). The mortality rate among homeless men between 45-64 years of age has been reported to be 1.6-2.3 times higher than that in the general population (15, 16). In our study, all the homeless patients (n=3; 7.7%) who died were males, above the age of 55years, with death occurring due to natural causes.

Approximately 40% of homeless people are reported to have a chronic disease. In our study, for majority of homeless patients, exacerbation of existing chronic diseases constituted the complaint on admission to the ED. This suggests that these patients do not receive sufficient and regular treatment for their existing diseases. Homeless patients' access to their treatment will result in reduction of their ED visits and hospitalizations rates and therefore in cost ratios. To achieve this, certain arrangements can be made by the official institutions for homeless patients on the basis of the disease for providing drugs free of charge considering that most homeless patients do not have any health insurance. Apart from this, attempts should be made for providing care to homeless patients in home conditions, particularly to older patients and those having chronic illnesses such as diabetes, heart failure, acquired immune deficiency syndrome (AIDS), tuberculosis, cirrhosis, or schizophrenia. There is no designated protocol for the ED evaluation of homeless patients. Evaluation of such patients in the ED must be performed in a manner similar to that used for other patient groups and the causes of morbidity and mortality in this patient group must be evaluated in greater detail.

The fact that no statistically significant difference exists between the median length of stay of patients who referred during the weekdays and weekends should not be interpreted as social service consultations do not shorten the follow-up period of these patients in the ED (278 min vs. 274.5 min, respectively). Because we found that for only 83 of the 347 referrals, social service consultation was requested and there are many factors (such as admission of patients for whom social service consultation was not possible, some patients not willing to stay in nursing homes, patients not being able to receive the ambulatory health care services from the outpatient clinics) affecting the admission and discharge of these patients.

In our study, all the laboratory and imaging studies performed for the homeless patients were observed to be planned according to their complaint at ED referral. However, certain diseases are found to be more common in the homeless than in the normal population, such as hepatitis, human immunodeficiency virus infection, tuberculosis, skin and foot problems, and sexually transmitted diseases (17). For homeless patients who refer to the ED for the first time and who have no prior diagnoses, conducting investigations for diseases such as hepatitis, HIV, and tuberculosis in addition to the presenting complaint is crucial.

Study limitations

The study has some limitations such as the retrospective design, small number of patients, and being performed in a single center. Because the study was retrospective, answers to questions such as the drugs being used, causes of being homeless, literacy status, duration of being homeless, marital status, and expectations from health agencies could not be evaluated. We consider that questions about these and similar issues can be answered by prospective studies.

When the abnormal laboratory values were mentioned sodium levels were not calculated as corrected for blood glucose, for potassium results the samples were not evaluated in detail in terms of hemolysis and for calcium levels albumin levels were ignored.

In this study, only homeless people who could not be discharged from the ED for not having appropriate places to stay could be detected.

Conclusion

In addition to acute disease management, specific approaches should be planned for homeless patients in EDs, which are possibly the only health units that homeless patients refer to for their health problems. All homeless patients admitted to emergency services should be determined and their diseases, medical information such as substance abuse should be recorded. In addition to being evaluated for the complaints on admission to the ED, they should be evaluated for diseases commonly encountered in homeless people such as tuberculosis, hepatitis, and HIV.

Ethics Committee Approval: Ethics committee approval was received for this study from the ethics committee of Izmir Tepecik Training and Research Hospital.

Informed Consent: Our study was retrospective the patient informed consent was not taken.

Peer-review: Externally peer-reviewed.

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