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A Retrospective Cohort Study of Elderly Patients with Frequent Visits to A Tertiary Academic Hospital

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Abstract

Objectives: *Frequent visits are one of the main causes of overcrowding in emergency departments of hospitals. Identifying the characteristics of frequent patients will help the managers of the medical service delivery system to provide more effective strategies to reduce the number of visits to the emergency department. This study was designed with the aim of determining the rate and causes of repeated visits of elderly people to the emergency room of a tertiary academic hospital in 2022.* ***Method:*** *This was a descriptive-cross-sectional study. The statistical population of this research included all elderly people who visited the emergency room more than once. Data were recorded in researcher-made checklists. Finally, the data were analyzed with SPSS version 25 software.* ***Results:*** *Of 200 cases included 118 (59%) cases were men and 82 (41%) cases were women. The average age was 85.70 ± 10.76, 190 of cases (95%) had a chronic disease and 10 cases (5%) did not. 144 cases (72%) were married and 56 cases (28%) were single. In terms of education level, most (74%) patients were illiterate. In terms of employment status, 24% were unemployed .72 cases (43%) of the patients lived with their spouses. Abdominal pain was the most frequent reason for visiting the hospital among elderly people. Also, in terms of medical diagnosis, the highest rate (35%) of diagnoses belonged gastrointestinal conditions.* ***Conclusions:*** *The results showed that the most common reason for frequent visiting was abdominal pain. Also, in terms of medical diagnosis, the most diagnosis was gastrointestinal conditions.*

Keywords: *Elderly, emergency room, frequent visits*

1. Introduction

Globally, aging populations are emerging at a rapid pace due to the general increase in life expectancy following medical advances and improvements in health systems in most countries [1]. The United Nations definition of the elderly includes people aged 60 and over [2]. In the 2016 report of the World Health Organization, the global life expectancy was estimated at 72 years: 74.2 years for women and 69.8 years for men [3]. An annual growth of 3% has been observed among the older population [4] and many countries are expected to see a similar trend over the years [5]. In this regard, the global population of elderly people was estimated at 962 million people in 2017, and it is expected to reach nearly 2.1 billion people by 2050, and the majority of them (two thirds) are in developing countries [6]. Aging is associated with a number of medical and social challenges that require appropriate and timely interventions [1] to enable active participation in social development [7]. In fact, studies have shown that elderly people account for 23% of the total global burden of diseases [8]. Also, more evidence, especially from developed countries, shows that older people are hospitalized more often than any other age group, because they usually suffer from more severe types of diseases that are difficult to diagnose and treat [9, 10]. This can be very challenging in low-resource settings because it continuously affects their psychological, social, economic and health system capabilities [11]. Even in developed countries where health services have improved greatly, challenges are common among the elderly [12]. In one

study, it has been reported that one third of elderly patients admitted to the hospital face more complications, including a decrease in functional capacity, compared to the time of hospitalization [13]. The study also showed that approximately 5% of these people die during hospitalization, and 20% to 30% die within a year of hospital discharge. This suggests that there is a much larger hidden problem that needs to be addressed urgently in order to respond to the WHO's call for universal health coverage [1]. This suggests that there is a much larger hidden problem that needs to be addressed urgently in order to respond to the WHO's call for universal health coverage [1].

Although the World Health Organization attributes most of the health problems of the elderly to chronic diseases [14], very few studies have examined the specific types of conditions and the extent of this burden in low-resource countries. To properly address these concerns, it is important to study common conditions in order to develop specific interventions [1]. On the one hand, the elderly are the highest consumers of health and social services, and the amount of this demand will increase day by day, and on the other hand, the health issues of the elderly are completely different from those of the young and middle-aged [15]. Average drug consumption in the elderly is higher than other groups, they mostly suffer from several diseases or complaints [6]. Previous studies have shown that the most common causes of hospitalization of the elderly are cardiovascular diseases, cancers, pneumonia, and cerebrovascular accidents, and the causes of death have been reported in order of prevalence as cancers, cardiovascular diseases, and infections respectively [16].

2. Materials and Methods

This descriptive-cross sectional retrospective study was conducted at an emergency department of a tertiary hospital in the west of Iran to investigate the amount and causes of repeated visits of elderly people to the emergency room during January 2022–December 2022. All elderly patients more than 65 years old who visited the emergency room more than once were included in the study. The following questionnaires were used to collect data related to diagnosis and dependent variables: **Demographic questionnaire** that included demographic information of patients including age, gender, marital status, education level. The trained research assistant created **a checklist** that included information such as health status, patient's reason for referral, diagnosis, type of vehicle, and type of caregiver. After obtaining the necessary permits to record information from the vice president of research and hospital management, the sample size determined and researcher recorded the required information in the relevant checklists that were approved by the faculty members of the department.

The data was computerized and statistically analyzed using SPSS v25. It was summarized by using descriptive statistics methods in the form of one and two-dimensional tables in the form of numbers and percentages and using descriptive statistics indicators in the form of mean and standard deviation. The design was approved by the Ethics Committee of the University of Medical Sciences.

3. Results and Discussion

Of 200 cases included, 118 (59%) were men and 82 (41%) were women. The mean age of the subjects was 85.70 ± 10.76. 95% of the patients had a chronic disease and 5% did not. 72% were married and 28% were single (Figure 1-4). 74% of patients were illiterate.24% were unemployed and 43% of the patients lived with their spouses.

Table 3-1: Frequency distribution of demographic characteristics

variable		Frequency	Percent (%)
sex	male	118	59
	female	82	41
marital status	Single	56	28
	Married	144	72
History of chronic conditions	Yes	190	95
	No	10	5
Level of Education	Elementary	30	15
	high school diploma	17	7.5
	Degree	5	2.5
	illiterate	148	74
Employment status	employee	37	18.5
	private	35	17.5
	unemployed	88	44

variable		Frequency	Percent (%)
Caregivers	other	40	20
	single	28	14
	spouse	72	39
	Spouse and children	50	25
	unmarried child	13	6.5
	married child	34	17
	care center	3	1.5

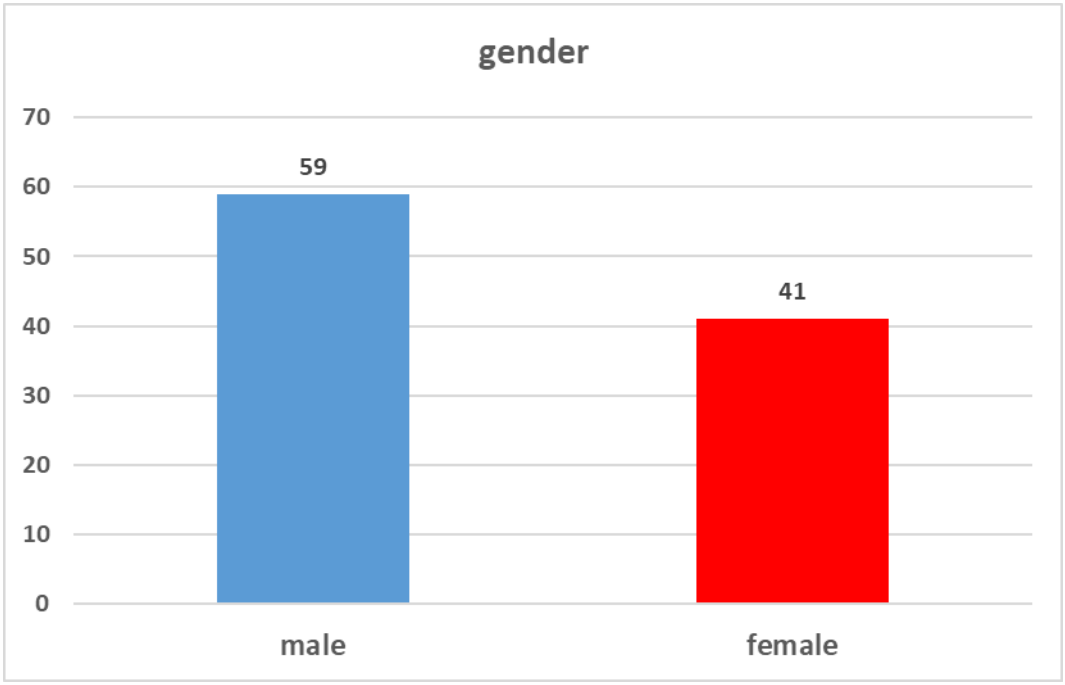

Figure 1-3: Frequency by gender

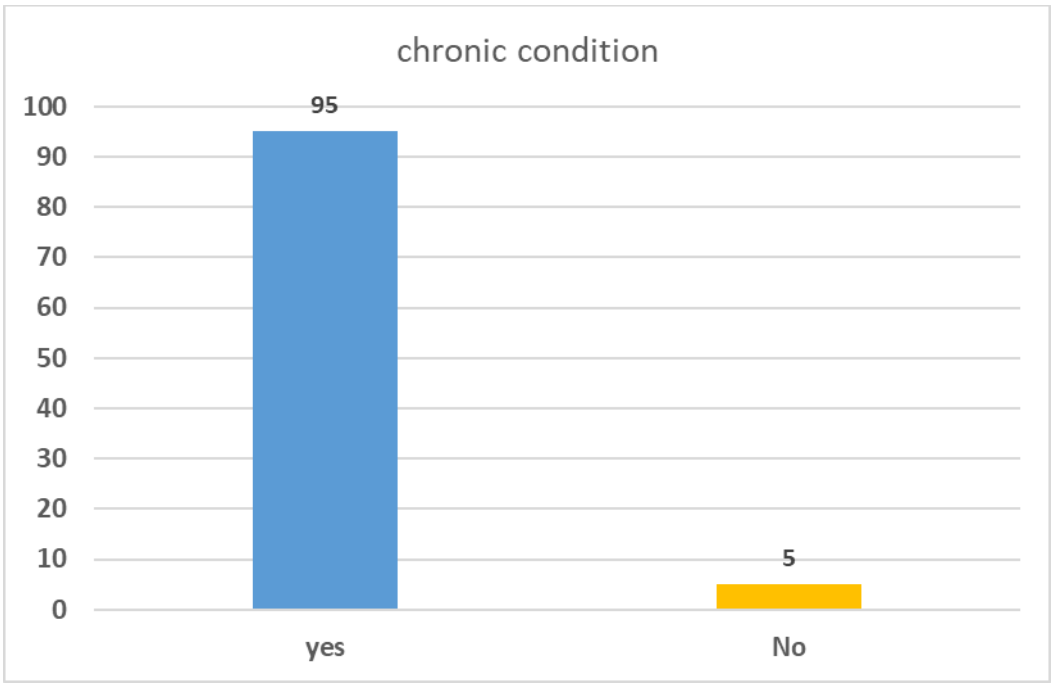

Figure 3-2: Frequency by history of chronic disease

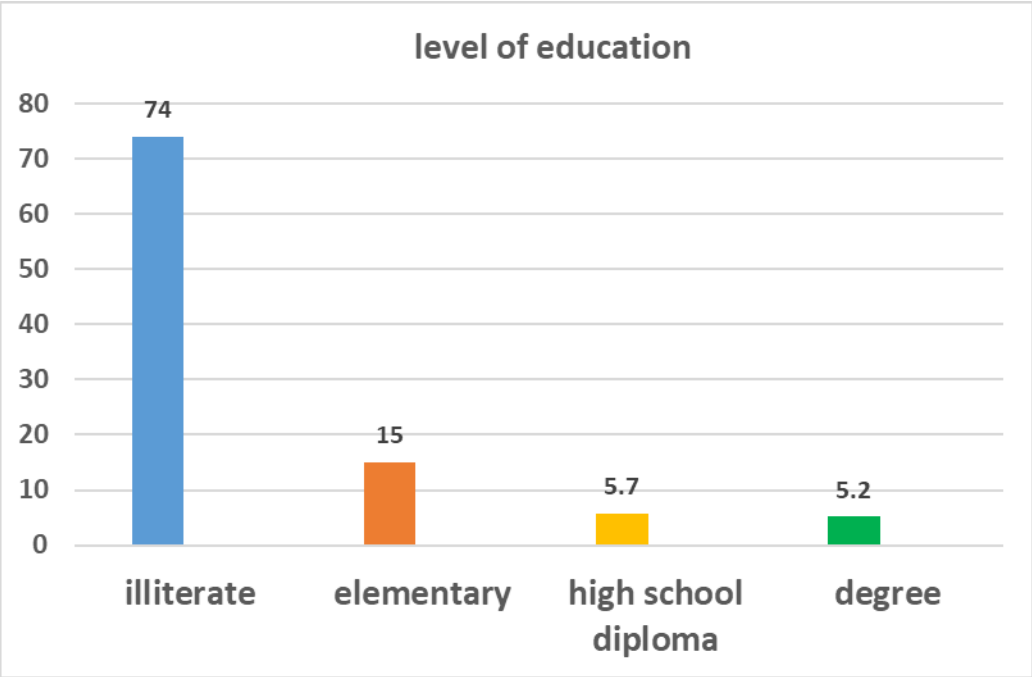

Figure 3-3: Frequency of patients according to education level

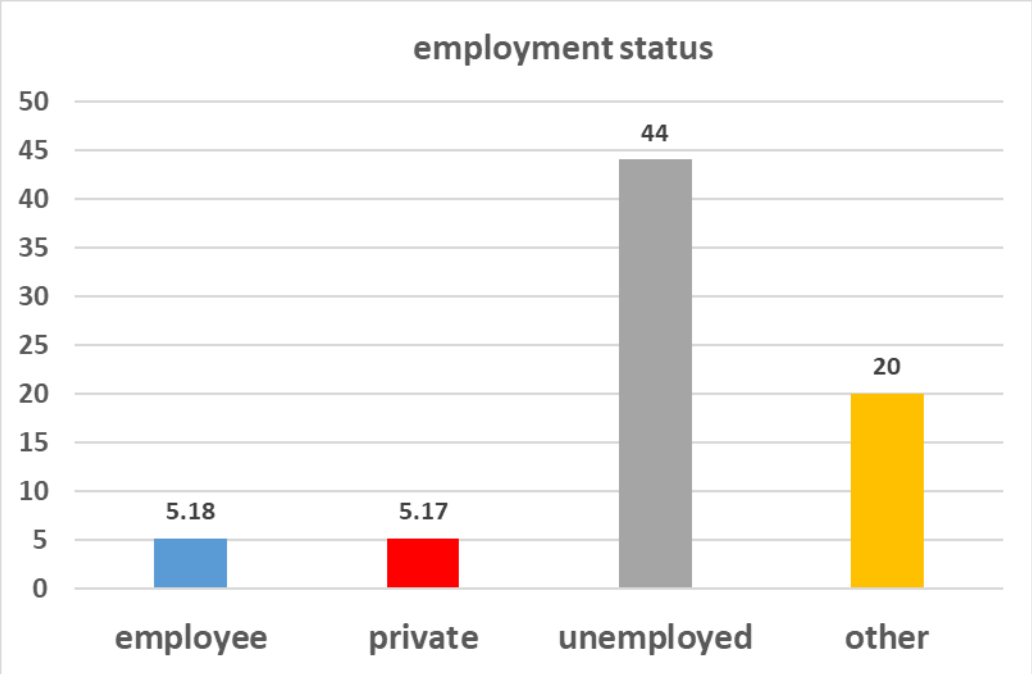

Figure 3-4: Frequency of patients based on employment status

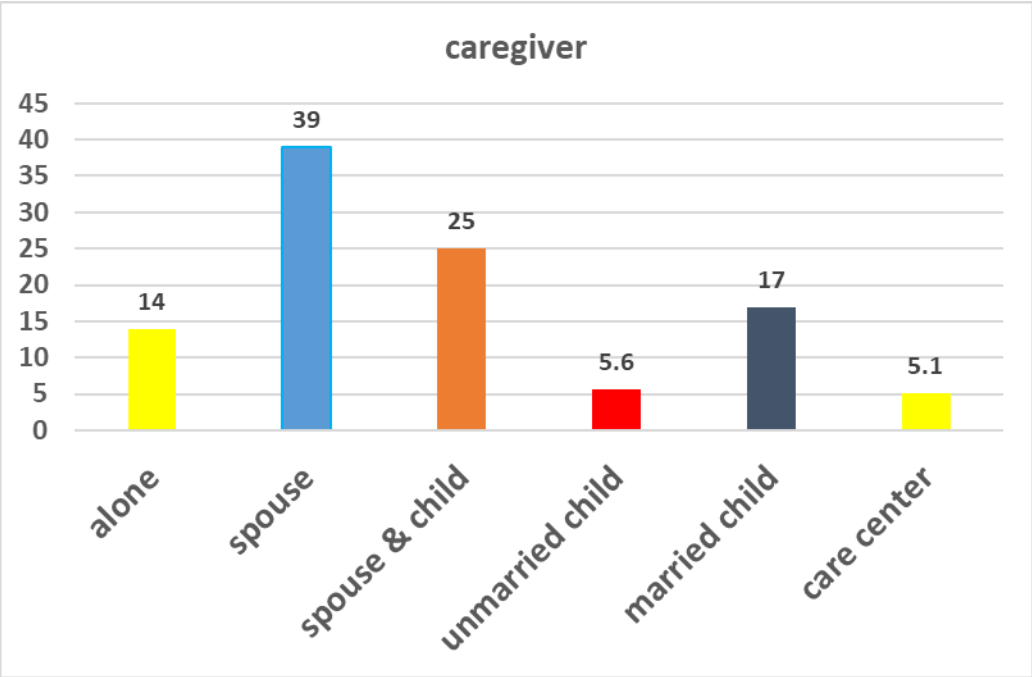

Figure 3-5: Frequency of patients by caregiver

Table 3-2: Frequency of subjects according to medical diagnosis and reason for frequent visits

complaint	(%)	Complaint	(%)	diagnosis	(%)
dyspnea	7	Low back pain	2	Cardiac condition	5
Chest pain	3	Diabetic foot	1.5	Pulmonary condition	8
Abdominal pain	26	incontinency	8.5	Trauma	7
falling	3.5	bleeding	0.5	CVA	14
Limb paresthesia	1	Limb edema	2	Diabetes	6
weakness	5	seizure	2.5	Musculoskeletal pain	3
dizziness	1.5	Flank pain	15	GU condition	21
Fever & malaise	1	Loss of consciousness	2	Cancer	1
fracture	3.5	poisoning	0.5	GI condition	35
syncope	2	Lower limb pain	0.5		
hyperglycemia	1.5	headache	4		
hypertension	3	nausea	2.5		

According to Table 3-2, the results showed that among the reasons for frequent visits of the elderly to the hospital, the most and the least complaints were abdominal pain with 25% and poisoning and leg pain with 1% respectively. Also, in terms of medical diagnosis, the highest and the least diagnosis were digestive conditions with 35% and musculoskeletal pain with 3% respectively (Figures 3-6 and 3-7).

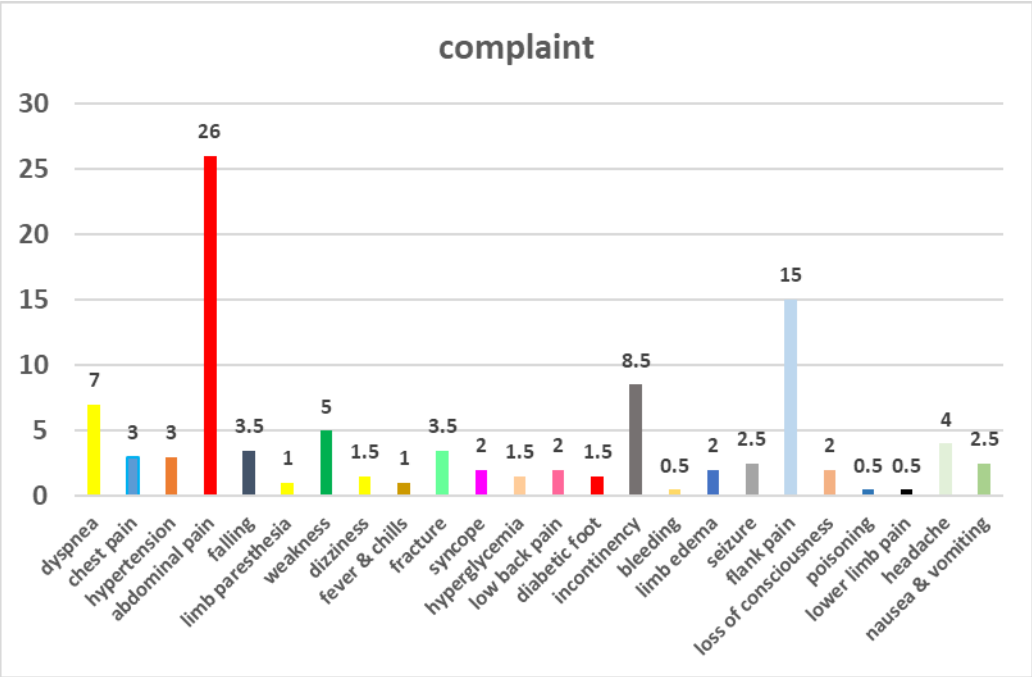

Figure 3-6: The frequency of complaints

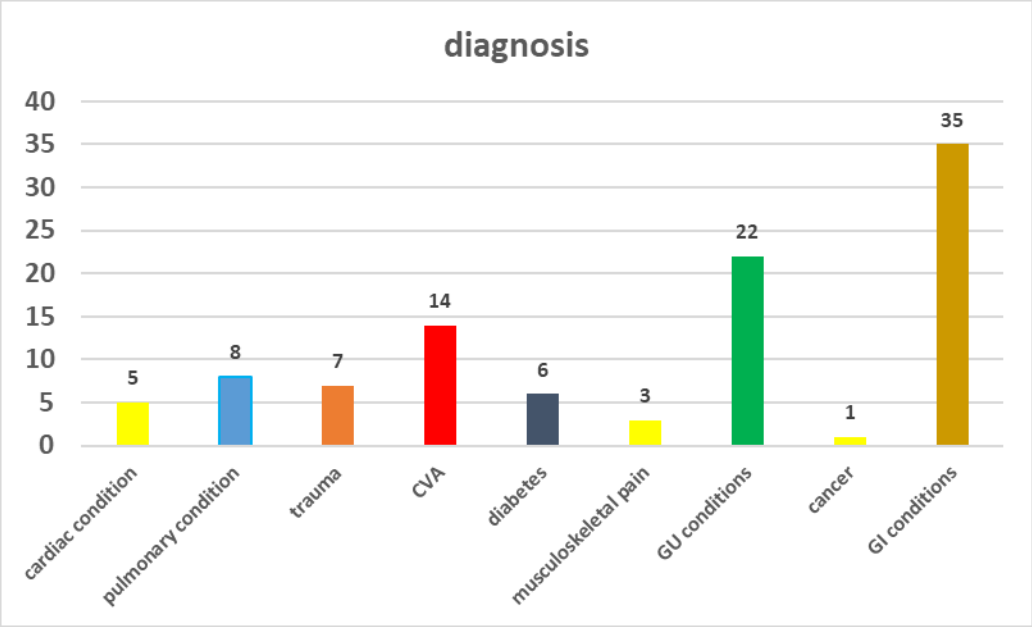

Figure 3-7: Frequency of medical diagnosis

Table 3-3: Frequency distribution of subjects according to the time of revisit

variable		Frequency (%)
Time of revisit	morning	45
	evening	22
	night	33
Type of transport	ambulance	27
	personal vehicle	73

According to Table 3-3, the results showed that the highest rate of revisits were in the morning shift (45%) and the lowest rate belonged to the evening shift. Also, most of the patients (73%) were transported to the hospital by personal vehicles (Figure 3-8).

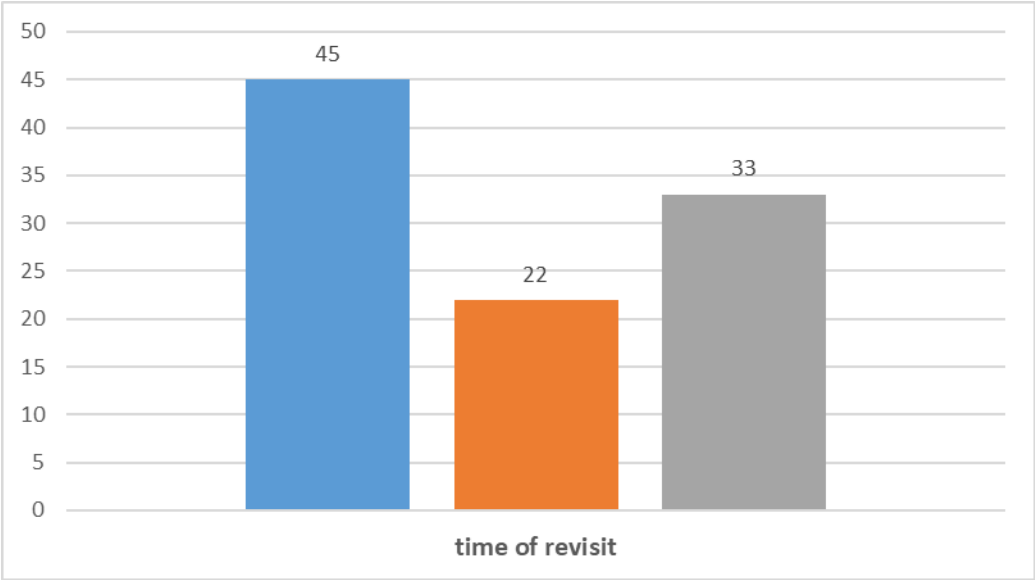

Figure 3-8: Frequency distribution of subjects according to the time of revisit

Table 4-4: Frequency distribution of subjects according to the main caregiver, type of care and companion during transfer

Main caregiver	Type of care	companion during transfer
spouse	daily (home)	Son
child	night (home)	Daughter
Sister-brother	24 hours (home)	Spouse
other	24 hours (care center)	Relatives
	None of above	Friend
		Other

Also, the results showed that the main caregiver of the elderly was mostly their spouse (46%). And 24-hour care at home accounted for the highest percentage of the type of care (52.5%). 56% of patients were accompanied by their sons when visiting the hospital.

4. Discussion

This study was conducted with the aim of investigating the rate and causes of repeated visits of the elderly to the emergency room of a teaching hospital in the west of Iran.

The results showed that most of subjects were male patients. Mohammadi et al.'s study (2016) also showed results similar to ours [17]. This is while studies have shown that women reach old age more than men [18, 19]. The reason for such a difference can be attributed to the sample size and the characteristics of the region. In other words, it is due to geographical, genetic and climatic differences.

Also, the results showed that the most common complaints were digestive and kidney-urinary conditions and these two causes together made up half of the reasons for the elderly to return to the emergency room. This is while other similar studies have also mentioned the high prevalence of digestive problems, which is in line with this study [12, 17, 20-22]. In the study of Asifzadeh et al.,

gastrointestinal and pulmonary diseases were the second and third reasons for elderly people to refer to medical centers [20].

It can be justified that according to some studies, digestive problems are related to improper nutrition and exposure to mental and psychological factors, so the existence of this difference can be attributed to the geographic or cultural conditions and personality characteristics of the population. The type of specialties of providers in clinics and hospitals should not be overlooked either [12, 21, 22].

The findings of this research clearly showes that, in addition to the need for more treatment and medical facilities, the completion and equipping of care facilities in emergency departments is also very necessary and important, because it was determined that about 15% of the hospitalized elderly are unaccompanied and they do not get care to the same extent this can emphasis the need to increase of caregiving personnel and equipments [23]. According to the results of the current research, increasing care arrangements, attendance of specialists as well as a geriatric medicine specialist in the emergency, in order to prevent the process of re-admission of the elderly in the emergency department, could be considered by managers. the statistical population studied in the current research cannot be a complete picture of the Iranian elderly community in emergency rooms to achieve such a society, facilities beyond the scope of the present study are certainly needed.

5. Conclusion

The results showed that among the reasons for the frequent visits of the elderly to the hospital, the most common was abdominal pain. Also, in terms of medical diagnosis, the highest rate of diagnosis belonged to digestive conditions (35%).

Ethical approval

All procedures performed in this study involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

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None.

Author contribution

Dr. Shahrouz Tabrizi: conceptualized and designed the study, drafted the initial manuscript, and reviewed and revised the manuscript.

Dr.Alireza Mehdizade: Designed the data collection instruments, collected data, carried out the initial analyses, and reviewed and revised the manuscript.

Dr.Hooman Rafiei: Coordinated and supervised data collection, and critically reviewed the manuscript for important intellectual content.

Dr.mohamad Reza Rezaii : Coordinated and supervised data collection, and critically reviewed the manuscript for important intellectual content.

Declaration of competing interest

The authors deny any conflict of interest in any terms or by any means during the study.

Guarantor

Dr. Shahrouz Tabrizi

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