

Original Article



Discharge Against Medical Advice From Emergency Department of Sina Hospital: A Cross-sectional Study of the Involved Causes and Factors

Mohammad Shirmohammadi¹ , Hamid Bouraghi², Belal Karimi¹, Ali Mohammadpour^{2*} 

¹Student Research Committee, Hamadan University of Medical Sciences, Hamadan, Iran

²Department of Health Information Technology, School of Allied Medical Sciences, Hamadan University of Medical Sciences, Hamadan, Iran

Article history:

Received: October 27, 2023

Revised: November 2, 2023

Accepted: November 3, 2023

ePublished: November 21, 2023

*Corresponding author:

Ali Mohammadpour,

Emails:

al.mohammadpour@umsha.ac.ir; mohammadpur2000@gmail.com



Abstract

Background: Discharge against medical advice (DAMA) is a significant issue that causes problems for the patient and the hospital. It is possible to improve healthcare quality by examining the causes and factors affecting DAMA. The present study investigated the causes of DAMA in the emergency department of Sina Hospital.

Methods: This cross-sectional study was conducted in the emergency department of Sina Hospital in Hamedan. The research population included 125 patients. A valid checklist was used to collect data. The information collected by the checklist included demographics, information related to hospitalization, and reasons for DAMA and re-admission of the patient after 15 days. Finally, the data were analyzed using SPSS version 24 statistical software.

Results: In this study, 125 DAMA patients were investigated, including 86 males with an average age of 30.48 years and an average length of hospitalization of 6.12 hours. Most of the patients were between 31 and 50 years old (70.4%) and married (62.2%). Furthermore, most of them were hospitalized (51.2%) or discharged (47.2%) during the night shift. The main reason for DAMA was the reasons related to the patient (60.8%), and the reasons related to the hospital staff (22.4%) and the condition of the hospital (16.8%) were in the next ranks. The main reasons related to the patient were the feeling of enough recovery, the desire to continue treatment at home (35.5%), and the desire to visit private centers (18.4%).

Conclusion: Given that the majority of discharge cases were related to patient-related issues, it is possible to reduce the rate of discharge against medical advice by using techniques such as informing patients about the treatment process, the problems of early discharge, equipping the hospital with diagnostic-therapeutic means, and controlling the quality of medical services.

Keywords: Discharge, Discharge against medical advice, Emergency department, Hospital

Please cite this article as follows: Shirmohammadi M, Bouraghi H, Karimi B, Mohammadpour A. Discharge against medical advice from emergency department of sina hospital: a cross-sectional study of the involved causes and factors. *Avicenna J Care Health Oper Room*. 2023; 1(3):84-89. doi:10.34172/ajchor.35

Introduction

The hospital is one of the pillars of the medical organization, one duty of which is to provide healthcare services to the people (1). Since most of the medical expenses are allocated to hospitals in most countries, one of the orientations of modern management is to pay attention to the principle of customer orientation and to satisfy the recipients of health services (2,3). In fact, the quality of hospital services is also evaluated based on patients' satisfaction, and due to competition of hospitals and the admission of more patients in recent years, the evaluation of these service levels has increased based on the patients' opinion and their level of satisfaction with

the provided services. As a result, knowing the results of patient satisfaction surveys allows healthcare providers to understand the patients' needs, identify services that need improvement, and implement plans to provide better services (4).

The emergency department plays an important role in saving the lives of patients in the organization of the hospital. The evaluation of emergency department performance is only possible with accurate and reliable information. Compared to other departments of the hospital, generally, the largest number of patients as well as critically ill patients refer to the hospital's emergency department; therefore, the quality of services provided



in the emergency room can be an indicator of the overall quality of hospital services.)5) On the other hand, one of the important problems in the field of patient dissatisfaction is related to discharge against medical advice (DAMA) (1).

DAMA is a global phenomenon in the health system, and all countries struggle with it in some ways (6). DAMA refers to the situation when the patient despite the doctor's recommendations leaves the hospital earlier than the appointed time. The statistics of DAMA have variations based on geographical location, and this difference can be due to factors such as the culture of that region, social and economic status, belief in alternative treatments, and the like (7). There are various reasons for DAMA, including dissatisfaction with hospital services, drug addiction and abuse, the patient's inability to pay hospital fees, psychological issues, and family problems such as having a child at home (5). The main reason for DAMA in America was the lack of insurance and the poor economic situation. According to global statistics, the rate of DAMA among hospitals in the world is estimated at 1%-3% (8). According to statistics, in an advanced country such as the United States of America, the rate of DAMA is between 0.8% and 2.2% (9). However, in Iran, the percentage of people who left the hospital without completing their treatment and with personal responsibility was about 3%, and it was up to 20% in psychiatric hospitals (10).

The reasons that such patients choose to be discharged by personal consent and leave the hospital are a basic concern for medical centers and are of particular importance (7). DAMA makes it impossible to follow up these patients, and the outcome of their disease remains unclear; therefore, they cause problems in statistical investigations (11). On the other hand, in the group of people who experienced DAMA, the rate of readmission to the hospital within 15 days was significantly higher than that in the normal population (12). Moreover, readmissions of these patients due to the failure to complete the hospitalization period and the increase in mortality and morbidity in this group of patients increase the cost in the health budget and the patient's expenses (12-14). Considering the importance of this issue and the fact that the amount and reasons for DAMA are different in different regions and cultures, the present study aimed to investigate the causes of DAMA in patients referred to the emergency department of Sina Hospital in Hamedan in the first half of 2019.

Materials and Methods

This was a cross-sectional applied study. The research population included all patients discharged against medical advice from the emergency department of Sina Hospital in Hamedan in the first half of 2019. According to the number of discharge cases with personal consent in the emergency department of Sina Hospital, the sample size was 125 people. In other words, sampling was not done, and the research population was equal to the sample.

The tool used to collect data was a checklist. This

checklist was designed based on a previously conducted study (10) and the standard forms of the Ministry of Health. The standard forms were admission, discharge, and discharge with personal consent. The checklist included demographic information (e.g., age, gender, occupation, education, marriage, type of insurance, insurance status, and place of residence), patient admission and discharge information (e.g., reason for referral, length of stay in the emergency room, date of hospitalization, date of discharge, hospitalization shift, and discharge shift), reasons related to the personal issues (e.g., financial problems, not having a companion, fear of continuing the treatment, despair over the improvement of the disease, family issues, parental pressure, and desire to go to private centers), reasons related to the hospital staff (e.g., non-attendance of doctor, the inappropriate treatment, failure to answer the patient's questions, the inappropriate treatment of the staff, the prolongation of the hospitalization time, the operation, and medical care, and non-compliance with the treatment plan), reasons related to the condition of the hospital (e.g., non-observance of cleanliness, improper nutrition educational nature of the hospital, dissatisfaction with the physical space or inappropriate environment, the lack of empty beds in the wards, the lack of a suitable place for the patient's companions to stay, and dissatisfaction with the existing equipment or inappropriate equipment), re-admission to different wards (e.g., eye, skin, neurology, infectious, psychiatric, and internal) in 15 days after discharge with personal consent.

To collect data, the researchers visited Sina Hospital in person and obtained the list of cases of DAMA using the hospital information system. Then, using this system, the information of these cases, including their medical records numbers, was extracted. Afterward, the medical records related to the research population were reviewed, and the necessary data were extracted using the checklist. In addition, if necessary, telephone calls were made to patients or their families to obtain more accurate data. In the descriptive statistics section, mean and standard deviation were used to describe and report quantitative variables. Ratios and percentages were also expressed for qualitative variables, and SPSS version 24 software was used for data analysis.

Results

The participants of this study included 125 patients discharged by personal consent including 86 men (68.8%) and 39 women (31.2%) with an average age of 30.48 years. [Table 1](#) shows the age and other demographic characteristics of the patients. The average length of hospitalization of the patients was 12.18 ± 6.12 hours. [Table 2](#) presents the hospitalization information of the patients.

Examining the findings of the research regarding the insurance status and the reason for the patient's visit showed that most of the studied patients have insurance (83.2%), among which 55.2% have social security

insurance. However, a significant part of the research population (77.2%) did not have supplementary insurance. The reason why most patients went to the emergency department was related to psychiatric specialty (57.6%). Hospitalization information of the research population, including duration, day, and shift along with discharge shift are presented in Table 2.

Table 1. Frequency Distribution of Demographic Variables of the Research Population

Variables	Frequency	Percent
Age (y)	<15	2.4
	15-30 years	7.2
	31-50 years	70.4
	51-70 years	15.2
	>70	4.8
Marital status	Single	28.0
	Married	62.2
	Divorced	9.8
Education	High school	54.4
	Diploma and postgraduate diploma	25.6
	Bachelor's degree	16.8
	Higher	3.2
Job	Free	46.4
	Unemployed	17.6
	Housewife	20.8
	Retired	8.8
	Recruitment	6.4
Address	Urban	72.8
	Rural	27.2

Table 2. Frequency Distribution of Hospitalization Information of the Research Population

Variables	Frequency	Percent
Duration of hospitalization	<6	10.4
	6-12 hours	21.6
	13-18 hours	46.4
	19-24 hours	21.6
	>24 hours	0.0
Day of admission	Saturday	14.4
	Sunday	17.6
	Monday	12.8
	Tuesday	13.6
	Wednesday	8.8
	Thursday	7.2
	Friday	25.6
Admission shift	Morning	28.0
	Evening	20.8
	Night	51.2
Discharge shift	Morning	29.6
	Evening	23.2
	Night	47.2

The findings of the present study revealed that 60.8% of voluntary discharges from Sina hospital's emergency department are related to patients. The sense of feeling better and willing to continue treatment at home was recognized as the most frequent reason (21.6%) for discharge by personal desire (Table 3). Furthermore, 22.4% of cases of personal discharge were due to reasons related to the hospital staff, and inappropriate treatment of personnel (10.4%) was one of the most important reasons for early discharge contrary to medical recommendations in the group of reasons related to hospital staff (Table 4). Moreover, 16.8% of patients requested to be discharged due to issues related to the hospital, among which dissatisfaction with the physical space and inappropriate environment of the hospital (4.8%) can be mentioned as the most important factor for discharge by personal desire (Table 5). The findings of the study also indicated

Table 3. Patient-related Reasons for DAMA From Sina Hospital

Reasons Related to the Patient	Frequency	Percent
Lack of insurance or insurance-related problems	4	3.2
Financial problems	8	6.4
Feeling sufficiently recovered and willing to continue treatment at home	27	21.6
Family issues, personal problems, and family dependence on children or spouse	3	2.4
Not native	1	0.8
Not having a companion	2	1.6
Fear of continuing treatment	5	4.0
Disappointment with the current situation and the improvement of the disease	4	3.2
Parental coercion	3	2.4
Previous experience and negative attitude toward the hospital	2	1.6
Willingness to go to private centers	14	11.2
Alcohol or drug addictions	3	2.4
Total	76	60.8

Note. DAMA: Discharge against medical advice.

Table 4. Hospital Staff-Related Reasons for DAMA from Sina Hospital

Reasons Related to the Hospital Staff	Frequency	Percent
Failure to see the doctor on time	1	0.8
Inappropriate behavior of the doctor and failure to answer the patient's questions	2	1.6
Inappropriate treatment of personnel	13	10.4
Dissatisfaction with the diagnostic and treatment measures and dissatisfaction with the medical and nursing services provided	5	4.0
Prolonging hospitalization and delaying surgery or treatment	6	4.8
Doctors suggestion	0	0.0
Suggestion of nurses and other personnel	0	0.0
Failure to comply with the compliance plan in the treatment of patients	1	0.8
Total	28	22.4

Note. DAMA: Discharge against medical advice.

Table 5. Hospital's Condition-Related Reasons for DAMA From Sina Hospital

Reasons Related to the Hospital's Condition	Frequency	Percent
Dissatisfaction with the physical space or inappropriate environment	6	4.8
Dissatisfaction with existing equipment or inappropriate equipment	4	3.2
Failure to observe cleanliness	1	0.8
Improper nutrition	2	1.6
Lack of empty beds in the ward or intensive care unit	0	0.0
Lack of diagnostic-therapeutic equipment including CT scan	0	0.0
Improper location of companions	3	2.4
The educational nature of the hospital	5	4.0
Total	21	16.8

Note. DAMA: Discharge against medical advice.

that 16 patients returned to the hospital after 15 days. The most common reasons for readmission were psychiatric (43.75%), infectious (25%), and skin and eye (12.5%) reasons.

Discussion

The findings of the present study showed that the average age of patients discharged by personal desire is 30.48 years, and the largest number of them were in the age group of 31-50 years (70.4%), married (62.2%), and male (68.8) because these patients may have social, occupational, and family responsibilities. Therefore, compared to the elderly who need more care, they tend to be discharged with personal satisfaction. Likewise, the studies by Ding et al (11), Tavallaei et al (15), Shirani et al (12), and Ibrahim et al (13) showed that the majority of patients discharged by personal consent are young, male, and married. Of course, in the study by Roodpeyma and Eshagh Hoseyni, there was no correlation between male and female gender and discharge with personal satisfaction (14). In some studies, being single has also been stated as one of the factors for discharge with personal satisfaction, suggesting that single people have less tolerance and are less able to tolerate hospital conditions (16).

In this study, a large percentage of people had health insurance (83.2%), but most people did not have supplementary insurance (77.2%), which is in agreement with the studies of Vahdat et al (2) and Soleimani et al (3). Obviously, the lack of insurance is a factor for voluntary discharge. Therefore, this issue can be attributed to the existence of favorable insurance coverage in Hamedan. On the contrary, in many previous similar studies such as Asgari et al (1), Ismail et al (17), and Windish et al (18), it was found that when it comes to financial and reimbursement issues, patients who have poor economic status and no insurance prefer to leave the hospital with their personal consent, and this issue is more visible in University and Governmental Hospitals. Similar to most of the studies conducted in the country, it was shown that most of the studied patients have Social Security

Insurance. Since Social Security Insurance is the largest insurance organization in Iran, these results are expected.

In terms of the discharge shift, most people (47.2%) agreed to be discharged on the night shift, and the night shift had the highest acceptance (51.2%). The highest admission rate on the night shift may be due to the fact that the duration of this shift is longer than the morning and evening shifts. The reasons for the higher number of DAMA in this shift may be less treatment in the night shift due to the fatigue of the staff and the lack of diagnostic facilities during the night. Additionally, in night shifts, patients expect more from the medical staff in handling and receiving medical services, and this causes them to discharge themselves by personal desire if there is any deficiency. These findings are consistent with Soleimani's study (3) and Vahdat and colleagues' study (2). It seems that the reason for the high number of discharges with personal satisfaction on Fridays in the study is that the hospital personnel are less willing to work on holidays. Patients may also prefer to be at home and with their families on holidays. Mokhtari et al stated that the rate of discharge by personal satisfaction in the evening and night shifts is higher than that in the morning shift, and the main reason for this was the lack of on-call specialist visits; further, the waiting time in the evening and night shifts was more than an hour long, and it took longer than the morning work shift (7). Similarly, in Asgari and colleagues' study, it was found that attendance on non-holiday days decreases the probability of leaving the hospital under personal responsibility. It is obvious that in the shifts and days when there is a sufficient number of specialized medical personnel, the patient does not spend a great deal of time waiting for the service, and the assignment is determined faster, the possibility of leaving the hospital with personal satisfaction will decrease. This indicates the importance of the presence of specialized manpower at all hours and days and its effect on reducing DAMA in the hospital (1).

The findings showed that most of the patients (78.4%) stayed in the hospital for less than 18 hours, and the average length of stay was 6.12 hours. In Soleimani's study, 88.9% of people were hospitalized for less than 24 hours and then consented to discharge (3). In the Glasgow study (19), the average length of stay in the hospital was 6.2 days, which is not consistent with our study. Vahdat et al also reported that the average hospitalization of people was less than 24 hours (2), which is consistent with the present study. It seems that the average length of hospitalization in patients with DAMA depends on the studied population, the type of hospital, and even the studied hospital department.

In the present study, 12.8% of patients were re-hospitalized, which was mainly due to psychiatry, similar to the studies by Asadi et al (4) and Kavousi et al (8). However, in contrast to these studies, in Soleimani's study, cardiac and poisoning patients had the highest frequency of discharge with DAMA, which they mentioned could be due to the patients' lack of awareness of their treatment

process and the lack of correct insight into their clinical conditions (3). In the study of Hayat et al, the highest level of personal satisfaction was found in patients referred for psychiatric reasons (20). The results of our study are in contrast with the study by Hwang et al (21). The difference between the studies can be due to the difference in the type of patients admitted to different hospitals as well as the type of investigated departments.

The main reason for DAMA of the patients in the present study was patient-related reasons (60.8%), which included the feeling of sufficient recovery, the desire to continue treatment at home, and the desire to refer to private centers, respectively. The second most frequent reasons were related to the hospital staff (22.4%), which included the inappropriate behavior of the personnel, prolonged hospitalization time, delayed operation or treatment, and dissatisfaction with the medical and nursing services. Finally, the condition of the hospital (16.8%) was another reason for DAMA, which included dissatisfaction with the physical space or inappropriate environment, the educational nature of the hospital, and the failure of diagnostic and therapeutic equipment, such as computed tomography (CT) scan in order of priority. In the study by Asadi et al, the majority of the reasons for discharge were related to the personal satisfaction of the patient, which means that patients were more willing to leave the hospital with the feeling of recovery and the desire to continue the treatment process in private centers (4). In line with this study, in the study by Hayat et al, the majority of patients were discharged by personal consent for reasons such as feeling sufficiently recovered and the desire to continue the treatment process in private centers, and a smaller number were discharged due to issues related to the hospital staff such as non-compliance in treatment, non-attendance of doctor on time, and prolonged hospitalization, as well as the lack of diagnostic and therapeutic equipment (20). In the study by Rangraz Jeddi and Rabiee, the most common reason for discharge with personal satisfaction was the patients' feeling of recovery, which is consistent with the results of the present study (10). In the study by Estebarsari et al, the main reasons for DAMA were factors related to the patient, among which the feeling of relative improvement of the patient's visit was found to be the first and most common reason for leaving the hospital (22). In the study by Hwang et al, the most common reasons for DAMA were the feeling of the patient's recovery, family issues, and alcohol addiction (21). In the study by Asgari et al, the most common reason for discharge was related to personal satisfaction, including lengthening the hospitalization period and patients' feeling of recovery (1). In the study by Vahdat et al, the prolongation of the hospitalization period was the least frequent cause of DAMA, which is not consistent with the results of the present study, and the reason for this can be attributed to the different research environment and diagnosis of patients (2). In Yarmohammadian and colleagues' study, inability to pay expenses, family and personal problems,

feelings of recovery, dissatisfaction with treatment, and a long period of treatment were mentioned as the most frequent reasons for DAMA (23). Unlike our study, in the studies by Shirani et al (12), Noohi et al (24), and Berger et al (25), the most common factors for voluntary discharge were financial problems and the lack of insurance. In the study by Soleimani et al (3), Choi et al (26), Ding et al (11), Onukwugha et al (27), and Hayat et al (20), the main reason for DAMA is drug addiction and dependence. Furthermore, the results of Piri and colleagues' study revealed that a significant percentage of patients are dissatisfied with the doctors' and nurse's services and the quality of their services (28).

As it is evident, the results of most of the studies are in line with our study, and the main reasons mentioned in most of the studies are similar, however, the slight difference observed in the studies was mainly related to the order of the main factors involved in DAMA from the hospital. The reason for some of the differences can be cultural and social differences such as different lifestyles, values, and habits. Of course, one of the limitations of the current study was related to the studied department, which is emergency. Patients who are referred to the emergency department are more stressed, in pain, and uncomfortable than those who are referred to other departments because of the special conditions they have at the time of their visit. Therefore, there is a possibility of emotional responses. Another limitation of this study was the lack of examination of discharged patients based on the doctor's recommendation in order to perform analytical statistics parameters.

Conclusion

The results of the current study showed that most of the cases of discharge with personal consent are due to issues related to the patient. Since many patients visit the emergency department without any prior planning and sometimes without any choice, it is possible to inform them about the treatment process, provide diagnostic-therapeutic equipment, and control the quality of medical services from the level of dissatisfaction. Reducing the existing gap between the accommodation conditions of private and public hospitals and increasing the number of public hospital beds can help to achieve this goal. Moreover, to avoid increasing the rate of DAMA in hospitals, counseling courses by nurses or assistants should be conducted to inform patients about the problems that they will face in case of early discharge. In addition, the patient's companions should be regarded as part of the target group of these training, especially during the hospitalization of children and women, where the consent of parents and spouse is a condition for carrying out treatment processes and continuing treatment.

Acknowledgments

The study was done with financial support from the Hamadan University of Medical Sciences with the grand No. 9909256656. The authors hereby thank the personnel of the Health Information

Management Department of Sina Hospital who helped to collect the data for the study.

Authors' Contribution

Conceptualization: Ali Mohammadpour, Mohammad Shirmohammadi.

Data curation: Mohammad Shirmohammadi, Belal Karimi.

Formal analysis: Mohammad Shirmohammadi, Hamid Bouraghi.

Funding acquisition: Ali Mohammadpour.

Investigation: Ali Mohammadpour.

Methodology: Hamid Bouraghi, Belal Karimi.

Project administration: Ali Mohammadpour.

Resources: Mohammad Shirmohammadi.

Software: Shirmohammadi, Belal Karimi.

Supervision: Ali Mohammadpour.

Validation: Hamid Bouraghi.

Visualization: Ali Mohammadpour.

Writing—original draft: Mohammad Shirmohammadi.

Writing—review & editing: Ali Mohammadpour.

Competing Interests

None to declare.

Ethical Approval

This study was approved by the Ethics Committee of Hamadan University of Medical Sciences with the Code of Ethics: IR.UMSHA.REC.1399.686.

References

1. Asgari M, Arab M, Rahimi Foroushani A, Ebadi Fard-Azar F, Mousavi SM. Surveying the factors affecting patient's discharge against medicine ward from emergency ward of AmirAlam treatment-teaching hospital in Tehran: 2012. *Journal of Hospital*. 2013;12(2):19-28. [Persian].
2. Vahdat S, Hesam S, Mehrabian F. Effective factors on patient discharge with own agreement in selected Therapeutic Training Centers of Ghazvin Shahid Rajaei. *Journal of Holistic Nursing and Midwifery*. 2010;20(64):47-52. [Persian].
3. Soleimani M, Kazemi M, Vazirinejad R, Ostadebrahimi H, Auobipour N. Assessment of the incidence and reasons of discharge against medical advice in the hospitals of Rafsanjan University of Medical sciences in 2012-2013. *Community Health Journal*. 2017;8(3):64-72. [Persian].
4. Asadi P, Zohrevandi B, Monsef Kasmaei V, Heidari Bateni B. Discharge against medical advice in emergency department. *Iran J Emerg Med*. 2015;2(3):110-5. doi: 10.22037/ijem.v2i3.9038. [Persian].
5. Shafaghat T, Rahimi Zarchi MK, Kavosi Z, Ayoubian A. Study of the causes of discharge against medical advice in a hospital of Shiraz University of Medical Sciences. *Payavard Salamat*. 2017;11(1):31-42. [Persian].
6. Askari R, Arab SM, Afzali F, Sepaseh F. Ranking of causes of discharge of patients with a fuzzy analytic hierarchy process technique. *Health Information Management*. 2016;12(5):557-66. [Persian].
7. Mokhtari L, Korami Marekani A, Madadi M. Studying the rate and causes of being discharged against medical advice in inpatient and outpatient wards of Shahid Madani hospital in Khoy city, 2014. *Nurs Midwifery J*. 2016;14(2):100-7. [Persian].
8. Kavosi Z, Hatam N, Hayati Abbarik H, Bayati M, Nemati J. Factors affecting discharge against medical advice in a teaching hospital in Shiraz, Iran. *Health Information Management*. 2012;9(4):448-56. [Persian].
9. Rangraz Jeddi F, Rangraz Jeddi M, Rezaeiimofrad M. Patients' reasons for discharge against medical advice in university hospitals of Kashan University of Medical Sciences in 2008. *Hakim Res J*. 2010;13(1):33-9. [Persian].
10. Rangraz Jeddi F, Rabiee R. What is rate of respect the rights of patients in government hospital in Kashan. *Behbood*. 2005;9(1):62-71. [Persian].
11. Ding R, Jung JJ, Kirsch TD, Levy F, McCarthy ML. Uncompleted emergency department care: patients who leave against medical advice. *Acad Emerg Med*. 2007;14(10):870-6. doi: 10.1197/j.aem.2007.06.027.
12. Shirani F, Jalili M, Asl-e-Soleimani H. Discharge against medical advice from emergency department: results from a tertiary care hospital in Tehran, Iran. *Eur J Emerg Med*. 2010;17(6):318-21. doi: 10.1097/MEJ.0b013e3283334ef1.
13. Ibrahim SA, Kwok CK, Krishnan E. Factors associated with patients who leave acute-care hospitals against medical advice. *Am J Public Health*. 2007;97(12):2204-8. doi: 10.2105/ajph.2006.100164.
14. Roodpeyma S, Eshagh Hoseyni SA. Discharge of children from hospital against medical advice. *World J Pediatr*. 2010;6(4):353-6. doi: 10.1007/s12519-010-0202-3.
15. Tavallaei SA, Asaari S, Habibi M, Khodami HR, Siavashi Y, Nouhi S, et al. Discharge against medical advice from psychiatric ward. *J Mil Med*. 2006;8(1):24-30. [Persian].
16. Tawk R, Freels S, Mullner R. Associations of mental, and medical illnesses with against medical advice discharges: the National Hospital Discharge Survey, 1988-2006. *Adm Policy Ment Health*. 2013;40(2):124-32. doi: 10.1007/s10488-011-0382-8.
17. Ismail AK, Mohamad A, Che'Man Z. Factors associated with discharge against medical advice from emergency department, Universiti Kebangsaan Malaysia Medical Centre. *Med Health*. 2016;11(1):29-37. doi: 10.17845/mh.2016.1101.05.
18. Windish DM, Ratanawongsa N. Providers' perceptions of relationships and professional roles when caring for patients who leave the hospital against medical advice. *J Gen Intern Med*. 2008;23(10):1698-707. doi: 10.1007/s11606-008-0728-4.
19. Glasgow JM, Vaughn-Sarrazin M, Kaboli PJ. Leaving against medical advice (AMA): risk of 30-day mortality and hospital readmission. *J Gen Intern Med*. 2010;25(9):926-9. doi: 10.1007/s11606-010-1371-4.
20. Hayat AA, Ahmed MM, Minhas FA. Patients leaving against medical advice: an inpatient psychiatric hospital-based study. *J Coll Physicians Surg Pak*. 2013;23(5):342-6.
21. Hwang SW, Li J, Gupta R, Chien V, Martin RE. What happens to patients who leave hospital against medical advice? *CMAJ*. 2003;168(4):417-20.
22. Estebars F, Dastoorpoor M, Mosavi Esfahani H, Mostafaie D. The causes of discharge against medical advice from the emergency department of a teaching hospital of Tehran in 2012. *Health and Development Journal*. 2016;5(3):267-76. [Persian].
23. Yarmohammadian MH, Mojahed F, Gholi Vahidi R, Gholipour K, Shokri A, Rasi V. Clinical audit of self-discharge against medical advice in Dr. Soulati Hospital in Urmia, Iran. *Health Information Management*. 2013;9(7):1006-16. [Persian].
24. Noohi K, Komsari S, Nakhaee N, Yazdi Feyzabadi V. Reasons for discharge against medical advice: a case study of emergency departments in Iran. *Int J Health Policy Manag*. 2013;1(2):137-42. doi: 10.15171/ijhpm.2013.25.
25. Berger JT. Discharge against medical advice: ethical considerations and professional obligations. *J Hosp Med*. 2008;3(5):403-8. doi: 10.1002/jhm.362.
26. Choi M, Kim H, Qian H, Palepu A. Readmission rates of patients discharged against medical advice: a matched cohort study. *PLoS One*. 2011;6(9):e24459. doi: 10.1371/journal.pone.0024459.
27. Onukwugha E, Mullins CD, Loh FE, Saunders E, Shaya FT, Weir MR. Readmissions after unauthorized discharges in the cardiovascular setting. *Med Care*. 2011;49(2):215-24. doi: 10.1097/MLR.0b013e31820192a5.
28. Piri Z, Zohoor AR. Patients satisfaction with provided services in the Akbarabady hospital. *J Health Adm*. 2004;6(14):63-70. [Persian].