Preventive Care in Nursing and Midwifery Journal
2022; 12(2): 39-49

Evaluation of the Fear of Hospitalization and Associated Anxiety and Other Factors among Candidates for Emergency Surgery in the Hospitals Affiliated with Zanjan-Iran University of Medical Sciences in 2020

Roya Mohammadi[1], Nasrin Hanifi[2*], Nasrin Bahrami Nejad[3]

[1]Department of Emergency Nursing, School of Nursing and Midwifery, Zanjan University of Medical Sciences, Zanjan, Iran
[2]Department of Critical Care and Emergency Nursing, Zanjan Nursing and Midwifery School, Zanjan University of Medical Sciences, Zanjan, Iran
[3]Social Determinants of Health Research Center, Zanjan University of Medical Sciences, Zanjan, Iran

Corresponding Author Address: Zanjan University of Medical Sciences , Dr.Sobouti Blvd. School of Nursing and Midwifery, Zanjan, Iran

Tel: 0098-9123422431

Email: nasrinhanifi@zums.ac.ir

Received: 13 July 2021 **Accepted**: 24 Feb 2022

Abstract

Background: Surgery is a stressful event that can be accompanied by a great deal of fear and anxiety, especially in emergency situations.

Objectives: This study aimed to determine the level of fear of hospitalization and associated anxiety and factors in the candidates of emergency surgery referring to the hospitals affiliated with Zanjan University of Medical Sciences.

Methods: This descriptive cross-sectional study was performed on 304 patients admitted to the emergency department and their family members, referring to the hospitals affiliated with Zanjan University of Medical Sciences in 2020. The patients were recruited by convenience sampling. Data collection tools included a questionnaire for demographic information and disease specifications, the hospitalization fear questionnaire (Slobodan M. Jankovic), and the Visual Analogue Scale (10-point) to assess pain and anxiety in the emergency departments. For data analysis, independent t-test, analysis of variance (followed by the LSD post hoc test), Pearson correlation, and stepwise multiple regression were used by SPSS 22.

***Results*:** The results showed that a higher number of the patients (61.4%) experienced anxiety rather than hospitalization fear (23.2%). The pain had a negative correlation with patients' and their companions' fear of hospitalization and a positive correlation with their level of anxiety. Also, the anxiety of the patient's companion increased with the prolongation of the waiting time. The companion's hospitalization fear and anxiety significantly correlated with the patient's level of anxiety ($P<0.05$), and the patient's anxiety was negatively associated with systolic and diastolic blood pressure and the level of consciousness. In addition, fear of hospitalization and anxiety positively and significantly correlated with the pulse rate ($P<0.05$).

Conclusion: According to the results of this study, it is recommended to provide psychological support to the patient and his/her family, try to stabilize the patient's clinical condition, and shorten the waiting time in the emergency department to be able to manage the patient's fear of hospitalization and anxiety.

Keywords: hospitalization, fear, emergencies, surgery

Introduction

Surgery is a source of stress and can trigger physiological and psychological reactions in patients [1]. When the patient enters the hospital, he/she experiences varying degrees of fear and anxiety [2]. In fact, fear and anxiety are among the most frequent events prior to and after surgery [3]. Many patients admitted to surgical wards experience persistent restlessness, which is sometimes so severe that it can seriously interfere

with patient care and the ward's workflow [4]. Recognizing anxiety and determining its level in patients can help better plan and execute nursing care [2].

Various factors can cause fear of hospitalization, so the prevention, diagnosis, and early management of them can facilitate the treatment process [5]. It has been reported that admission in the boring environment of a hospital may cause isolation and fear [6]. Factors such as improper communication between the patient and staff, waiting for surgery, hospitalization, fear of death, happen to know a person who has died of the same disease, and generally, fear of the unknown can contribute to the patient's fear and anxiety [6,7]. Moreover, failure to meet some patient needs in the hospital, or the intensive care unit can exaggerate the patient's anxiety and fear of hospitalization for surgery [8].

Hospitalization can cause anxiety and psychological problems in people, which are even exaggerated in those admitted to high-stress wards, such as the intensive care unit or emergency ward. Most candidates of surgery experience anxiety and fear [2,7], which has been reportedly attributed to the fear of death and fear of the unknown [9]. This seems to be a transient fear subsiding upon the improvement of the clinical condition. In this regard, the levels of pre-surgery anxiety and death anxiety have been associated with fear of hospitalization, more postoperative pain, prolonged hospitalization, and the development of postoperative side effects [10]. Also, the repercussions of this fear and anxiety in the family may worsen the patient's condition and increase the fear of hospitalization and surgery [11]. Fear of hospitalization has been associated with concerns over the disease outcome, being away from the family, and the lack of confidence in the medical team [12].

High levels of fear can culminate in negative consequences for hospitalized individuals. Pre- and post-surgery fear and anxiety have negative impacts on patients' physical, social, and familial functioning, their quality of life, adherence to treatment, as well as their compliance with exercise, job-related, and therapeutic programs [13,14]. According to a study by Martinez et al., fear of hospitalization has been associated with various diseases, including psychological disorders such as Parkinson's and Alzheimer's, so it must be completely resolved in the patients undergoing surgery [15].

A review of studies shows a link between fear of hospitalization and awareness of self-care behaviors, as well as the attitude of nurses [12]. Likewise, various factors such as the level of health literacy and knowledge [16], type of the disease [17], gender [18], and age [19] can affect fear of hospitalization. Also, the level of stress-induced nuisance is a significant determinant of the development of fear of hospitalization and surgery [20]. The results of some studies suggest that the levels of perceived fear and stress are higher before than after surgery [2,7]. Fear of hospitalization is particularly linked with unknown procedures, therapeutic measures, and the attitude of hospital personnel, so plans should be implemented to prepare patients before hospitalization [6], such as familiarization, education, and preoperative counseling, which can be effective in reducing patients' fear of hospitalization [13,21].

Familiarization and education can be particularly helpful in patients who are candidates for elective surgery; however, the situation is different for the patients who need emergency surgery. This is because neither the patient nor the medical team has had enough preparation time. Therefore, identifying the factors contributing to fear in these conditions can help the health team better manage the patient under these circumstances. A better understanding of the patient's condition will allow for providing more appropriate nursing and care measures. Due to the urgency of the situation and the shortage of time before emergency surgeries, less attention is paid to the patient's psychological and mental condition, and the patient's fear of the existing situation is ignored. Therefore, the present study aimed to determine the level of fear of hospitalization and its related factors in the candidates of emergency surgery admitted to the hospitals affiliated with Zanjan University of Medical Sciences.

Methods

This was a descriptive cross-sectional aiming to determine the level of fear of hospitalization and its related factors in the patients scheduled for emergency surgeries in the emergency wards of the hospitals affiliated with Zanjan University of Medical Sciences in 2020. The statistical

population of the present study included all the patients admitted to the emergency departments of the hospitals affiliated with Zanjan University of Medical Sciences (Mousavi, Al-Ghadir, Emdadi, Bouali Sina). The participants' characteristics were: age above 18 years, not being a member of the medical team, fulfilling the criteria for emergency surgery, the attendance of a companion, and willingness to participate in the study.

Due to the unknown number of patients referred for emergency surgeries, convenience sampling was performed in the emergency wards of the hospitals affiliated with Zanjan University of Medical Sciences. Eligible patients referring to the emergency departments during the sample recruitment time were enrolled in the study. A pilot study was performed on 30 people to estimate the sample size. Considering the confidence interval of 95, the study power of 80%, the precision of 0.2, and SD of 0.052, the sample size was calculated 276. Considering a dropout of 10%, a total of 304 subjects were recruited for this study.

Data collection tools included a questionnaire for demographic characteristics and the factors associated with fear, as well as a questionnaire for fear of hospitalization. The questionnaire of demographic features and the factors affecting the fear of hospitalization addressed information about gender, age, marital status, place of residence, history of hospitalization, time to treatment, waiting time in the emergency ward, consciousness level, systolic blood pressure, diastolic blood pressure, and the pulse and respiratory rates. The 10-point visual analog scales (VAS) for pain and anxiety were used. VAS scores higher than 5 reflected high levels of pain and anxiety, and scores lower than 5 indicated low pain and anxiety. The validity of this tool was confirmed by content validity analysis. The questionnaire was given to 10 experts in the fields of emergency and research methodology, and corrections were made based on their opinions.

The Fear of Hospitalization questionnaire, developed by Slobodan M. Jankovic et al. in 2018, was used to assess the fear of hospitalization in patients and their companions [22]. The questionnaire contained 17 questions, scored as disagree=5, somehow disagree=4, neither agree nor disagree = 3, somehow agree = 2, fully agree = 1. The questions 2-9, 10, and 11 of the fear of hospitalization questionnaire are reversely scored (fully disagree = 1, somehow disagree = 2, neither agree nor disagree = 3, somehow agree = 4, fully agree = 5). A mean score of fear of hospitalization above 2.5 reflected low fear, and a score below 2.5 indicated high fear [22].

The permission of Slobodan M. Jankovic was obtained before using the Fear of Hospitalization questionnaire. The questionnaire was initially translated into Persian by two translators who were fluent in both languages. Next, the original text of the questionnaire and the re-translated questionnaire were given to a person fluent in English, and the compatibility between the translated questionnaire and the original one was confirmed. The face and content validity of the questionnaires was confirmed by 10 experts in the field of emergency medicine. The content validity ratio (CVR) was obtained 96%, and the content validity index (CVI) was obtained 93%. The reliability of the questionnaire was assessed by Cronbach's alpha, which was obtained 0.75.

Due to the presence of multiple research centers, two of the researchers accepted the responsibility for sampling. For this purpose, 20 patients were simultaneously examined by the two evaluators, and the kappa agreement coefficient of 97% was designated to assess the rate of agreement between the two assessors' judgments.

After receiving the ethical approval and a letter of introduction from the Research Deputy of the university, the researcher referred to the research environment for data collection. Sampling was performed from March 26 to September 27, 2020. The patients who were eligible were included in the study. Demographic data and related factors were gathered through observation and reviewing patients' files. The levels of pain and anxiety were measured using VAS during the first hour of admission to the surgical service of the emergency department. Simultaneously, VAS was used to assess the levels of patients' anxiety and pain from the perspectives of their companions. For the convenience of the patient and his/her companion, the fear of hospitalization questionnaire was retrospectively completed after surgery and only when the patient's condition was relatively stable.

The data collected were entered into SPSS software and checked for missing information and outliers. Missing data were less than 1% of the total and were replaced based on the mean. The Kolmogorov-Smirnov test was used to evaluate the normality of the data, which showed normal data distribution. The difference in the mean score of fear of hospitalization based on qualitative variables was investigated using the independent t-test, as well as analysis of variance and the LSD post hoc test. Pearson correlation coefficient was utilized to assess the correlation between quantitative variables and the fear of hospitalization. Stepwise multiple regression was also used to determine the predictors of fear of hospitalization. Multicollinearity was checked using variance inflation factor (VIF) and tolerable range for all the variables entering the model. None of the independent variables had a co-linear relationship with each other. The significance level was considered less than 0.50.

Results

In this study, the data of 306 patients and their companions were analyzed. Most of the participants were male, married, and had diplomas (Table 1).

Table 1: The Patients' and Their Companions' Demographic Characteristics

Variables		Patients		Patient companions	
		Frequency	Percentage	Frequency	Percentage
Age (years)	28-18	95	31.0	39	12.7
	39-29	88	28.8	97	31.7
	50-40	59	19.3	116	37.9
	61-51	33	10.8	46	15
	<62	31	10.1	8	2.6
Gender	Male	175	57.2	181	59.2
	Female	131	42.8	125	40.8
Education	Illiterate	28	9.2	13	4.2
	Lower than diploma	59	19	74	24.2
	Diploma	106	34.3	114	37.3
	Bachelor's degree and higher	111	36	105	34.3
Marital status	Single	105	34.3	63	20.6
	Married	85	28.1	243	79.4
Job	Employed	140	45.7	160	52.3
	Retiree	22	7.2	30	9.8
	Unemployed	36	11.8	26	8.5
	Housewife	68	22.2	75	24.5
	Student	38	12.4	15	4.9
Triage level	2	145	46.1	-	-
	3	164	53.9	-	-
Diagnosis	Head trauma	76	24.8	-	-
	General surgery	121	39.5	-	-
	Orthopedic surgery	74	24.2	-	-
	Other	12	4.2	-	-
History of hospitalization	Yes	173	56.9	-	-
	No	131	42.8	-	-

The mean age (SD) of the patients was 38.5 (16) (the range of 18 to >62 years). The mean time to treatment was 89.67(5.7) minutes, and the mean waiting time in the emergency department was 54 (41.3) minutes. The means (SD) of fear of hospitalization, patient anxiety, and patient pain were 2.97 (0.59), 6.06(2.16), and 6.66 (1.86), respectively. Regarding the perspectives of patients' companions on patients' fear of hospitalization, anxiety, and pain, the means ±

standard deviation were 3.01 (0.59), 5.93(2.04), and 6.46 (1.85), respectively. In the present study, 71 patients (23.2%) and 55 patient companions (18%) reported fear of hospitalization, and 118 (61.4%) and 181 (59.2%) of them experienced high preoperative anxiety, respectively. Also, 217 of the patients (70.9%) experienced severe pain. Also, 216 of the patient companions (70.6%) believed that their patients were suffering from severe pain.

The results of the independent t-test showed that the mean fear of hospitalization and anxiety scores were not significantly different based on gender, marital status, place of residence, and history of hospitalization (P>0.05, Table 2).

Table 2: The Results of the Independent T-test for the Comparison of Fear of Hospitalization and Anxiety Scores Based on Demographic Features

Variables			Mean ± SD	Independent t-test		
				df	t	P-value
Gender	FOH	Male	3.0±0.61	303	1.63	0.668
		Female	2.9±0.57			
	Anxiety	Male	5.88±2.26	304	-1.53	0.305
		Female	6.26±2.07			
Marital status	FOH	Single	2.99±0.59	301	0.615	0.518
		Married	2.99±0.59			
	Anxiety	Single	6.09±2.11	303	0.244	0.291
		Married	6.03±2.24			
Place of residence	FOH	Rural	3±0.599	303	1.516	0.605
		Urban	2.98±0.58			
	Anxiety	Rural	5.81±2.19	304	-2.961	0.625
		Urban	6.63±2.07			
History of hospitalization	FOH	Yes	2.96±0.58	303	-0.516	0.56
		No	2.99±0.6			
	Anxiety	Yes	6.08±2.23	303	0.347	0.422
		No	5.99±2.15			
Triage level	FOH	2	2.9±0.59	303	-2.61	0.009
		3	3.08±0.65			
	Anxiety	2	6.79±1.83	302	5.89	0.14
		3	5.38±2.26			

FOH: fear of hospitalization

According to the results of the analysis of variance, the mean ± standard deviation of fear of hospitalization was not significantly different based on the age spectrum, education level, type of the disease, but a statistically significant relationship was noticed between the fear of hospitalization and anxiety scores and occupation (Table 3).

Table 3: The Comparison of Fear of Hospitalization and Anxiety Scores Based on Education, Occupation, and Diagnosis

Variables			FOH Mean (SD)	Independent t-test F	Independent t-test P-value
Age	FOH	18-28	2.95 ±0.57	0.516	0.724
		29-39	2.98 ± 0.61		
		40-50	2.99 ± 0.78		
		51-61	3.11 ± 0.60		
		>62	3.05 ± 0.63		
	Anxiety	18-28	6.45±2.24	2.28	0.6
		29-39	5.70±2.19		
		40-50	6.32±2.07		
		51-61	5.81±2.05		
		>62	5.45±2.16		
Education	FOH	Illiterate	2.99±0.67	0.09	0.96
		Lower than diploma	2.99±0.6		
		Diploma	2.98±0.57		
		Bachelor's degree and higher	2.89±0.63		
	Anxiety	Illiterate	5.95±2.19	0.154	0.857
		Lower than diploma	6.06±2.20		
		Diploma	5.50±0.701		
		Bachelor's degree and higher	5.90±1.701		
Job	FOH	Employed	2.93±0.58	6.52	0.001
		Retiree	3.6±0.84		
		Unemployed	2.95±0.53		
		Housewife	2.91±0.6		
		Student	3.09±0.63		
	Anxiety	Employed	6.09±2.12	2.413	0.049
		Retiree	4.07±2.26		
		Unemployed	6.30±2.27		
		Housewife	6.05±2.16		
		Student	6.34±2.19		
Diagnosis	FOH	Head trauma	2.96±0.73	0.65	0.45
		General surgery	2.89±0.65		
		Orthopedic surgery	2.87±0.56		
		Other	2.99±0.53		
	Anxiety	Head trauma	6.13±2.04	0.41	0.748
		General surgery	5.87±2.4		
		Orthopedic surgery	6.13±1.89		
		Other	6.24±2.33		

The LSD post hoc test showed that fear of hospitalization and anxiety were higher among employed and unemployed patients than retired individuals (P= 0.001).

The results of the Pearson correlation test showed that the patient's fear of hospitalization had a statistically significant positive correlation with the patient's pain (r=0.24) and the companion's perspective on the patient's fear of hospitalization (r=0.78) (P<0.05). Also, the patient's fear of hospitalization significantly and inversely correlated with patient anxiety (r=-0.45), companion perspective on patient anxiety (r=-0.44), companion perspective on patient pain (r=-0.28), and the patient's pulse rate (r=-0.13) (P<0.05, Table 4). Considering that a lower fear of hospitalization score predicted a higher fear, a direct correlation would indicate an inverse clinical relationship and vice versa. According to the results of the Pearson correlation test, patient anxiety significantly and positively correlated with the duration of admission in the emergency

room (r=0.624), patient pain (r=0.164), companion perspective on patient pain (r=0.413), companion perspective on patient anxiety (r=0.669), companion perspective on the patient's fear of hospitalization (r=-0.417), and the patient's pulse rate (r=0.238). However, patient anxiety had a significant but inverse correlation with systolic blood pressure (r=-0.151) and diastolic blood pressure (r=-0.128) (Table 4).

A stepwise multiple regression model was used to identify the predictors of fear of hospitalization and anxiety. Fear of hospitalization was designated as the dependent variable, and other factors related to fear of hospitalization entered the model as independent variables. After running the model in four steps, four predictor variables remained in the model (P<0.05), including patient anxiety, companion \ anxiety, companion perspective on the patient's fear of hospitalization, and duration of waiting in the emergency room. Other factors were excluded from the model due to a lack of a significant relationship with fear. The coefficient of determination (R Square) in this model in the fourth step was 0.545, and the adjusted R Square was 0.538. So, the variables remaining in the model presented a good fit. The variance of the patient's fear of hospitalization was predicted by companion perspective on patient fear (64%), patient anxiety and companion perspective on patient anxiety in the emergency department (3%), and the duration of waiting in the emergency room (2%) (Table 4). Afterward, patient anxiety entered the model as the dependent variable, and other factors related to anxiety were regarded as independent variables. After running the model in six steps, six predictors of fear of hospitalization remained (P<0.05), including companion perspective on patient anxiety, the patient's fear of hospitalization, duration of waiting in the emergency room, triage level, pain severity, and the patient's pulse rate. Other factors were excluded from the model due to a lack of a significant relationship with anxiety. The coefficient of determination (R Square) in this model in the sixth step was 0.524, and the adjusted R Square was 0.515. Therefore, the remaining variables represented a good fit in the model. The variance of the patient's preoperative anxiety was predictable by companion perspective on patient fear (54%), the patient's fear of hospitalization (53%), duration of waiting in the emergency room (0.5%), triage level (37%), pain severity (15%), and the patient's pulse rate (2%) (Table 5).

Table 4: The Relationship of Fear of Hospitalization and Anxiety with Some Related Factors

Variables	Pearson correlation coefficient			
	Fear of hospitalization		Anxiety	
	r	P-value	r	P-value
Age	0.08	0.302	0.036	-0.12
Time to treatment	-0.05	0.357	0.070	-0.104
Duration of presence in the emergency room	-0.07	0.238	0.626	0.001
Patient's pain severity in the emergency room	0.24	0.001	0.164	0.004
Companion's perspective on the patient's pain	-0.29	0.001	0.413	0.001
Patient's anxiety level in the emergency room	-0.46	0.001	1	-
Companion's anxiety level	-0.45	0.001	0.669	0.001
Companion's perspective on the patient's fear of hospitalization	0.78	0.001	-0.417	0.001
Patient's fear of hospitalization	1	-	-	-
Consciousness level	-0.08	0.189	0.009	0.879
Systolic blood pressure	0.06	0.329	-0.151	0.008
Diastolic blood pressure	0.03	0.551	-0.128	0.025
Respiratory rate	-0.01	0.815	-0.018	0.759
Pulse rate	-0.13	0.022	0.238	0.001

Table 5: Multiple Regression Model for Identifying the Predictors of Fear of Hospitalization and Anxiety in Patients

Model		Unstandardized Coefficients		Standardized Coefficients	t	P-value	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
Patient's FOH	Constant	0.98	0.16	-	7.149	0.001	1.107	1.947
	Companion's view on patient's FOH	0.64	0.048	0.608	13.369	0.001	0.55	0.74
	Patient's anxiety level in the emergency room	-0.035	0.017	-0.114	-2.04	0.04	-0.68	-0.001
	The waiting time in the emergency room	-0.02	0.001	-0.098	-2.45	0.015	-0.003	0.001
	Companion's anxiety level in the emergency room	-0.034	0.016	-0.119	-2.176	0.03	-0.66	-0.003
Patient's anxiety	Constant	2.925	1.232	-	2.374	.018	.018	5.350
	Companion's anxiety level in the emergency room	.536	.051	.508	10.581	0.001	.436	.636
	Patient's FOH	-.527	.169	-.143	-3.117	.002	-.860	-.194
	The waiting time in the emergency room	-.005	.002	-.087	-2.065	.040	-.009	.001
	Triage level	-.379	.189	-.089	-2.000	.046	-.751	-.006
	Patient's pain severity	.148	.050	.130	2.932	.004	.049	.049
	Pulse rate	.021	.008	.106	2.553	.011	.005	.037

FOH; Fear of Hospitalization, R Square fear from hospitalization: 0.545, Adjusted R Square fear from hospitalization: 538; R Square anxiety: 0.524, Adjusted R Square anxiety: 515

Discussion

The results of this study showed low levels of fear of hospitalization in the patients and their companions; however, preoperative anxiety was high in patients, based on both their self-reporting and according to their companions' perspectives. The mean score of fear of hospitalization was higher at triage level 2 compared to level 3. Retired individuals had lower fear of hospitalization and anxiety scores than employed and unemployed subjects. The results of this study showed that with the increase of the patient's pain, fear of hospitalization declined in patients and their companions, but their anxiety raised. By the prolongation of the waiting time in the emergency room, the companion's anxiety increased. As the companion's fear of hospitalization and anxiety increased, the patient's fear of hospitalization and anxiety also increased. The patient's anxiety significantly and inversely correlated with systolic and diastolic blood pressure and the level of consciousness, but the patient's fear of hospitalization and anxiety significantly and positively correlated with the pulse rate. The results showed that the patient's and companion's anxiety and the length of waiting in the emergency room predicted the patient's fear of hospitalization. Also, the companion's anxiety, the patient's fear of hospitalization, waiting time in the emergency room, triage level, pain severity, and pulse rate predicted the patient's preoperative anxiety.

In the present study, preoperative anxiety was more common than the fear of hospitalization. In fact, anxiety was more common in the present study than in similar studies [23,24]. The urgency of the situation and the uncertainty of patients and

their families about the situation can exaggerate anxiety.

The findings of the present study showed that there was no significant relationship between most of the demographic characteristics, such as gender, marital status, place of residence, age, and history of hospitalization, and the fear of hospitalization. However, the job status was significantly associated with fear and anxiety, so higher fear and anxiety levels were observed in employed and unemployed patients than in retirees. In contrast, some previous studies have reported a relationship between anxiety and a number of demographic variables, which may be related to the differences between the populations studied. Most previous studies have only assessed the patient's anxiety but not the fear of hospitalization [12,24,25]. Moreover, most previous studies have been performed on the candidates of elective surgery, whose mental and psychological conditions are different from that of the patients undergoing emergency surgery.

In the present study, with the increase of the companion's anxiety and fear of hospitalization, the patient's anxiety and fear of hospitalization also rose. Therefore, it seems that the psychological and mental condition of the patient's family can affect the patient's fear of hospitalization and anxiety. Consistently, Pochard et al. reported that with the elevation of anxiety in the patient's family, the patient's fear of hospitalization and surgery moved upward as well [11]. Also, our results revealed that the patient's pain severity positively correlated with his/her and the companion's anxiety. So, the management of the patient's pain before surgery can be useful in controlling the patient's fear of hospitalization. Nevertheless, the results of a study demonstrated that anxiety could enhance the patient's pain severity [26]. So, it seems that the link between pain and anxiety is reciprocal. In accordance with our observation, another study highlighted that anxiety was associated with preoperative hemodynamic parameters [27]. In our study, an increase in the patient's and the companion's anxiety augmented the fear of hospitalization. Actually, encountering an unknown and perplexing situation seems to be stressful for the patient and his/her family [28]. The results of studies on the parameters associated with fear and stress reduction are contradictory [29-31]. The waiting time in the emergency room was another predictor of fear of hospitalization. We could not find a study on the link of the waiting time and the time to treatment with pre-surgery anxiety and fear, necessitating more studies to confirm the novel findings of our study in this area. Shortening the waiting time as much as possible can clear the patient's condition up sooner and therefore reduce his/her fear of hospitalization.

Of the limitations of this study, one can mention the possible effect of the recall bias when patients were trying to answer the questions by remembering the special situation of the emergency room, which can compromise our findings. This is because we had to distribute the questionnaires after surgery due to ethical considerations and to observe the patient's and his/her family's peace of mind. Due to the fact that this study was conducted in the emergency department, and the recruitment of the subjects was via convenience sampling, the generalizability of the results may be limited.

Conclusion

The results of this study showed that the patient's and the companion's anxiety, the companion's view on the patient's fear of hospitalization, and the waiting time in the emergency room could predict the fear of hospitalization. However, the strongest predictor was the companion's perspective on the patient's fear of hospitalization. Therefore, it is recommended that emergency nurses support the candidates of emergency surgeries and their families psychologically and underline to them the undesirable consequences of not being hospitalized. In this study, increasing levels of anxiety led to the rise of fear of hospitalization. Anxiety can be related to factors such as uncertainty about the disease outcome, fear of death, financial issues, and fear of infection with the Covid-19, which are suggested to be addressed as possible determinants of anxiety and fear of hospitalization in future studies. Also, in this study, we enrolled the patients who were candidates for various types of emergency surgeries. So, it is suggested to investigate the fear of hospitalization with regard to specific types of surgeries in future studies.

Acknowledgments
This study has been extracted from the first author's master's thesis of emergency nursing (code: A-11-148-23) and was approved by Zanjan University of Medical Sciences and Health Services (ethics code: IR.ZUMS.REC.1399.023). Accordingly, the authors would like to thank all the nurses participating in this study.

Conflict of interest
There is no conflict of interest regarding the publication of this article.

Funding:
This research has been done with the personal fund of researchers.

References
1. Farhadian F. Evaluation of the effect of education on reducing patients' anxiety before surgery and painful procedures. 7th National Conference on Sustainable Development in Educational Sciences and Psychology, Social and Cultural Studies; 2018; Tehran. p. 1-5.
2. Zare Marzouni H, Karimi M, Narimi Z, Ghasemi A, Janaki M. Effects of education on reduction of stress and anxiety of orthopedic surgery. Navid No. 2016; 19(62): 62-68.
3. Chevillon. C, Hellyar M, Madani C, Kerr K, Kim SC. Preoperative education on postoperative delirium, anxiety, and knowledge in pulmonary thromboendarterectomy patients. Am J Crit Care. 2015; 24(2): 164-71.
4. Zhong Q, Qu X, Xu C. Effect of preoperative visiting operation room on emergence agitation in preschool children under sevoflurane anesthesia. Int J Pediatr Otorhinolaryngol. 2018; 104(1): 32-35.
5. Fakhari A. Diagnosis and Treatment of Agitation in Hospitalized Patients of General Wards. IJPCP. 2010;16(3); 181-186.
6. Naderifar M, Goli H, Hosseinzadeh M, Ghaljaei F. Adolescents' Experiences of Hospitalization in Pediatric Ward: A Phenomenological Study. J Qual Res Health Sci 2017; 6(2): 124-33. [In Persian]
7. Shini Jabery P, Biranvand S, Baraz S, Asadi S. Level of anxiety in patients undergoing coronary artery bypass graft surgery. Aflak. 2011; 7(24-25): 1-8. [In Persian]
8. Rabie Siahkali S, khaleghduost T, paryad E, atrkar ruoshan Z. Family and anxiety in intensive care units. Holist Nurs Midwifery. 2017; 17 (2) : 1-8. [In Persian]
9. Alavee A. Management and organization psychology. Tehran: Pisheen Pub; 2020. [In Persian]
10. Abedini N, Pourfathi H, Sakha H, Towfighi S, Parish M. Prevalence and factors of the preoperative anxiety in the patients and their family in Shohada Hospital ,Tabriz. Iran J Anaesth Crit Care. 2018; 3(1): 16-24. [In Persian]
11. Pochard F. Symptoms of Anxiety and Depression in Family Members of Intensive Care Unit Patient Before Discharge or Death. J Crit Care. 2004; 20(1): 90- 6.
12. Ezati N. Effect of Knowledge about Self Care Behaviors on Fear and Anxiety in Patients with Coronary Artery Disease. Wom Fam Stud. 2012; 5(17), 107-130. [In Persian]
13. Fahimi K, Abbasi A, Zahedi M, Amanpour F, Gilani M, Ebrahimi H. Investigation of the Effect of Multimedia Education on Anxiety Before and After Surgery in Patients Undergoing Coronary Artery Bypass Graft Surgery. Sci J Hamadan Nurs Midwifery Fac. 2018; 26(3); 137-44.
14. Malmir M, Teimouri F, Pishgooie A, Dabaghi P. The Role of Benson´s relaxation on reducing state anxiety on candidate of open heart surgery patient's. Military Caring Sciences. 2015; 2(3); 182-190.
15. Martinez-Martin P, Rojo-Abuin JM, Dujardin K, Pontone GM WD, Forjaz MJ, Starkstein S, et al. Designing a new scale to measure anxiety symptoms in Parkinson's disease: item selection based on canonical correlation analysis. European J Neurology. 2013;1; 11-23.
16. Katz MG. Patient literacy and question-asking behavior during the medical encounter: a mixed-methods analysis. J Gen Intern Med. 2007; 22(6): 782-86.
17. Gaston C, Mitchell G. Information giving and decision-making in patients with advanced cancer: a systematic review. Soc Sci Med. 2005; 61(10): 2252-64.
18. Levinson W, Kao A, Kuby A, Thisted RA. Not all patients want to participate in decision making: a national study of public preferences. J Gen Intern Med. 2005; 20(6): 531-5.

19. McKinstry B. Do patients wish to be involved in decision making in the consultation? A cross sectional survey with video vignettes. Bmj. 2015;1(1):4.
20. Besharat MA, Ramesh S, Nogh H. The Predicting role of worry, anger rumination and social loneliness in adjustment to coronary artery disease. Cardiovascular Nurs J. 2018; 6(4): 6-15. [In Persian]
21. Ihrig A, Herzog W, Huber CG, Hadaschik B, Pahernik S, Hohenfellner M, et al. Multimedia support in preoperative patient education for radical prostatectomy: the physicians' point of view. Patient Educ Couns. 2012; 87(2): 239-42.
22. Jankovic S, Antonijevic GV, Kragujevac KC, Radojevic MZ. A rating instrument for fear of hospitalization. J Clin Nurs. 2018; 27(1); 1-12.
23. Bedaso A, Ayalew M. Preoperative anxiety among adult patients undergoing elective surgery: a prospective survey at a general hospital in Ethiopia. Patient saf Surg. 2019; 13(1): 1-8.
24. Mulugeta H, Ayana M, Sintayehu M, Dessie G, Zewdu T. Preoperative anxiety and associated factors among adult surgical patients in Debre Markos and Felege Hiwot referral hospitals, Northwest Ethiopia. BMC anesthesiology. 2018; 18(1): 1-9.
25. Celik F, Edipoglu IS. Evaluation of preoperative anxiety and fear of anesthesia using APAIS score. Eur j med res. 2018;23(1):1-10.
26. Bierke S, Petersen W. Influence of anxiety and pain catastrophizing on the course of pain within the first year after uncomplicated total knee replacement: a prospective study. Arch Orthop Trauma Surg. 2017; 137(12): 1735-42.
27. Yilmaz Inal F, Yilmaz Camgoz Y, Daskaya H, Kocoglu H. The Effect of Preoperative Anxiety and Pain Sensitivity on Preoperative Hemodynamics, Propofol Consumption, and Postoperative Recovery and Pain in Endoscopic Ultrasonography. Pain Ther. 2021:1-11.
28. Chien WT, Chiu YL, Lam LW, Ip WY. Effects of a needs-based education programme for family carers with a relative in an intensive care unit: a quasiexperimental study. Int J Nurs Stud. 2006; 43(1): 39-50.
29. Shoushi F, Jannati Y, Mousavinasa N, Shafipour V. The Impact of Family Centered Care on Depression, Anxiety and Stress of Family Caregivers of Patients Undergoing Open Heart Surgery. Iran J Res Nurs. 2017; 3(2): 53-60. [In Persian]
30. Imanipour M, Heidari Z, Seyedfatemi N, Haghani H. Effectiveness of Informational Support on Anxiety among Family Carers of Patients Undergone Open Heart Surgery. Hayat. 2012; 18(3): 33-43. [In Persian]
31. Gammon J, Mulholland CW. Effect of preparatory information prior to elective total hip replacement on post-operative physical coping outcomes. Int J Nurs Stud. 1996;33(6): 589-604.