

The level of awareness of the emergency department nurses of the triage principles in teaching hospitals

Zahra Reisi¹, Bayan Saberipour¹, Mohammad Adienh², Akram Hemmatipour³, Elham Abdolahi Shahvali³

¹Student Research Committee, Ahvaz Jundishapur University of Medical Sciences, ²Department of Nursing, Nursing and Midwifery School, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, ³Department of Nursing, Shoushtar Faculty of Medical Science, Shoushtar, Iran

Abstract

Context: Awareness of types of triage methods in different situations and locations is one of the most important needs of the medical staff, especially due to the high number of patients, and is necessary for nurses in the emergency department.

Aims: This study aimed to determine the level of awareness of nurses working in the emergency department.

Setting and Design: In this descriptive cross-sectional study, conducted in 2017, the study population was all nurses working in the emergency departments of educational hospitals affiliated to Ahvaz University of Medical Sciences, who were included by the census method ($n = 73$).

Materials and Methods: The data collection tool included a questionnaire on individual characteristics and an assessment of the emergency department personnel's awareness level of triage systems in Iran.

Statistical Analysis Used: Data were analyzed using descriptive-inferential statistics in the SPSS version 16.

Results: Totally 47 female nurses (64.4%) and 26 male nurses (35.6%), with a mean age of 30.37 ± 3.83 , participated in the study. The results showed that 64 nurses (87.7%) had poor awareness, 9 nurses (12.3%) had a moderate awareness about different methods of triage, and the mean score of total knowledge of nurses was poor (20.75 ± 8). There was a significant statistical relationship between knowledge score and marital status, employment status, and teaching methods of triage principles ($P < 0.05$).

Conclusion: Due to the employed nurses' knowledge low score, it is necessary to organize training courses of the triage.

Keywords: Awareness, Emergency, Nurses, Triage

Address for correspondence: Mr. Mohammad Adienh, Department of Nursing and Midwifery, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran. E-mail: adineh-m@ajums.ac.ir

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INTRODUCTION

The basic program of the emergency department is the treatment of injured people.^[1] Emergency department crowds are considered a serious problem throughout the country,^[2] resulting in longer waiting times for services and delays in providing care to patients, which will ultimately

affect the level of satisfaction of clients.^[3] Given the congestion and limited availability of available facilities, prioritizing referred patients is important for receiving services. This action is known in the emergency department as triage.^[2]

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The triage system is a high-risk process in the emergency department that has been selected to identify and analyze errors and to check its recoverable strengths. The triage nurse can examine patients' complaints more focused and comprehensive. He categorizes patients according to the severity of the disease in the five classes of the priority, from immediate and delayed treatment.^[4]

The precision and accuracy of triage can affect the achievements of the emergency department.^[5] The speed of delivery of services in the emergency department of the treatment centers is of especial importance, and the seconds and minutes are important and may determine the distance between death and serious disability or productive and productive life. Based on this, the triage is defined for emergency and emergency department.^[6]

Patients' triage does not only necessarily means a faster treatment for all patients, but also provides a fairness at the time of patient treatment and the allocation of emergency facilities based on the severity of the illness and conditions of the patient, and this is true, especially when there are time and resource limitations in the emergency room, for example, due to overcrowding.^[3] In another definition, management of a large number of patients with a limited source when facing injured patients is called triage.^[6] Triage is recognized as one of the pillars of emergency management because if triage is performed properly in the emergency environment, can realize many of the departmental management goals. One of these goals is to determine the work evaluation in an emergency department. In the emergencies and urgencies situations, triage is a difficult and stressing task that is a major challenge in the crisis.^[7] The correctness and timing of the decision-making of the triage process affect the achievements of the crisis and survival of the lives of the people. According to their location, they are divided into types of the triage in normal conditions and triage in disasters.^[8,9] The rapid diagnosis of patients with severe pain and the implementation of the vital measures in the shortest possible time will only be possible by triage and suitable prioritization of the patients.^[10] Nurses play a critical role in disaster planning. They should be familiar with the concept of a wave that means critical conditions beyond the power and should have a mutual understanding of how to protect the health and safety of communities and how to operate it.^[11]

In our country, no national triage scale has been provided for hospitals, and hospitals are self-referencing to the triage system, and there is no comprehensive university course for triage education.^[5] The triage contribution in

the course of nursing lessons in the emergency unit is also one session. The only solution is to hold workshops, brief courses in a small number of hospitals in the country, and refer to the articles published in this area.^[12] Unfortunately, to date, there are serious concerns about the level of knowledge of nurses about triage. Hence, in different studies, knowledge, and performance of emergency medical personnel, nursing students and nurses working in emergency departments were reported to be poor and less than average.^[13,14]

In a study conducted by Aghababaeian *et al.*, the emergency medical staff's knowledge of triage was moderate.^[15] Similarly, in a study conducted by Javadi *et al.*, knowledge and enrollment of nurses working in the Emergency Departments of Shahid Sadoughi University of Medical Sciences in Yazd regarding triage were less than average.^[4] To implement patient care at an acceptable time, triage systems should be ideally designed to reduce patient populations and to distinguish urgent patients from nonfatal conditions and appropriate care, leading to increased patient satisfaction and avoidance of wasting time for the treatment of emergency patients.^[4] Considering the dynamics of triage activities, it is necessary to select the best and most suitable people for this job. Since the triage system has been recently launched in medical centers of the country, therefore, the development and training of triage are necessary at the time of education and thereafter for emergency personnel.^[12,16] In this study, by investigating the nurses' awareness about triage, we tried to identify and introduce the gap in providing services to patients referring to the emergency department with the standards required for knowledge-based triangulation. Therefore, this study aimed to determine the level of knowledge of emergency department nurses about the principles of triage in Ahvaz teaching hospitals in 2017.

MATERIALS AND METHODS

This descriptive cross-sectional study was conducted in three teaching hospitals in Ahvaz in 2017. The study population included all nurses working in emergency departments ($n = 73$), who entered the study by the census method. After obtaining the approval of the research and obtaining the ethics code (IR.AJUMS.REC.1396.171) from the Ethics Committee of Ahvaz Jundishapur University of Medical Sciences, the researcher referred to the nursing office of Ahvaz teaching hospitals, with the research statement and its objectives, with the permission of the authorities and the supervisor of the hospital, received a list of all nursing staff.

The research tool was a checklist for demographic information and a researcher-made questionnaire to assess the level of awareness of emergency personnel of triage systems. Demographic information forms include age, gender, marital status, last degree, last year, employment status, time status of work, and work experience. The nurses' awareness questions were used from the principles of triage. The questionnaire measuring the awareness level of the nurses included questions about triage and how to prioritize patients. This questionnaire contains 39 questions of 4 options and the nurses selected only one option. The correct answer score was 1, and the wrong answer score was 0. Therefore, in this questionnaire, the minimum score was 0 and a maximum of 39, scores were <3.33 as a weak awareness, between 3.3 and 6.66, as awareness knowledge, and scores of 66.6–100 were considered as well awareness.

The only inclusion criterion for entering this study was having a nursing bachelor's degree by the individuals and the exclusion criterion for withdrawal was the participants' dissatisfaction to continue the study. We assured the participants that their deficiencies will be explained personally only to them and their information and scores will remain protected from disclosure during research and afterward. The content validity method was used to determine the validity of the tool. The questionnaire was distributed among the 10 faculty members of Ahvaz Jundishapur Nursing and Midwifery Faculty, which was related to the subject of the study, so that the content, the degree of clarity, and simplicity of each of the terms in the tool were judged and reviewed, and after applying corrective comments, questionnaires were used for research. In addition, for determining the reliability, the questionnaire was completed by 20 nurses working in the emergency department, and then, after 14 days, the questionnaire was again completed for these individuals. In this way, the reliability of the questionnaire was confirmed with a correlation coefficient of 0.91 using the test–retest method, and the same nurses who completed the questionnaire were excluded from the study. In the study conducted by Pishgooie and Aliyari, Cronbach's alpha of this questionnaire was 79%.^[9]

After collecting data and entering them into SPSS version 16 (SPSS Ins., Released 2007 Spss for Windows, Chicago), statistical analysis was performed using descriptive statistics to determine the nurses' performance score and nurses' awareness and using independent *t*-test and one-way ANOVA test. The Pearson's correlation coefficient for the correlation was performed at a significant level of $P < 0.05$. Kolmogorov–Smirnov test showed normality of the data.

RESULTS

According to the results of the study, out of 73 nurses working in emergency departments, 47 female nurses (64.4%) and 26 male nurses (35.6%) participated in the study with a mean age of 30.37 ± 3.83 . Most of the nurses were married with 61% (45 nurses), and 100% were with a bachelor's degree, and most nurses (91%) work as the rotating shift employed in emergency departments [Table 1]. The results of the questionnaire of the emergency nurses' awareness of the triage principles showed that 87.7% (64 people) had poor knowledge and 12.3% (9 people) had moderate knowledge. The average total score of nurses' awareness was at weak level (20.75 ± 8). Using the Pearson's correlation coefficient, a significant relationship was found between the scores of knowledge and the nurses' age ($P = 0.001$, $r = 375$).

The results of Table 1 indicate that using independent *t*-test and variance, there was a significant relationship between marital status ($P = 0.001$), employment status ($P = 0.011$), and the level of knowledge.

Table 1: Demographic information and its relationship with nurses' awareness of triage principles in the emergency departments of teaching hospitals in Ahvaz in 2016

Variable	n (%)	Significance level
Gender		
Female	47 (64.4)	$P=0.842^*$
Male	26 (35.6)	$t=0.201$
Marital status		
Single	28 (38.4)	$P=0.001^*$
Married	45 (61.6)	$t=-3.5$
Employment status		
Permanently employed	3 (4.1)	$P=0.011^{**}$
Fixed contracted	7 (9.6)	$F=4.01$
Contracted for a given task	50 (68.5)	
Included in the workforce project	13 (17.8)	
Status of work time		
Morning work	4 (5.5)	$P=0.470^{**}$
Evening work	00 (00)	$F=0.763$
Night work	2 (2.7)	
Variable	67 (91.8)	
Work experience		
Emergency	51 (69.9)	$P=0.155^{**}$
Emergency and ICU-CCU	14 (19.2)	$F=1.80$
Emergency and other sessions	7 (9.6)	
Emergency and ICU-CCU, etc.	1 (1.4)	
Participation in similar research		
No	69 (94.5)	$P=0.305^*$
Yes	4 (5.5)	$t=-0.512$
How to learn the principles of triage		
University courses	2 (2.7)	$P=0.0001^{**}$
Personal studies	13 (17.8)	$F=21.23$
Participation in workshops and seminars	35 (47.9)	
Clinical experience	23 (31.5)	

*Significance at the level of 0.05 using independent *t*-test, **Significance at the level of 0.001 using variance analysis. ICU: Intensive Care Unit, CCU: Coronary Care Unit

Table 2 shows that there is a statistically significant difference between the employment status of nurses and the level of knowledge ($P = 0.023$). Furthermore, the study of the relationship between how the triage information was obtained and the level of knowledge about the principles of triage showed that nurses who participated in triage-focused seminars had a higher level of awareness than other nurses ($P = 0.001$).

DISCUSSION

The results of this study showed that 87.7% of nurses had poor awareness of triage. In the same way, in the study conducted by Javadi *et al.*, the level of awareness was weak.^[4] The low level of nursing awareness is not far from the mind, and it indicates that nurses' knowledge about triage has not been sufficient and requires retraining and continuing education. In this study, only 12.3% of nurses had a moderate level of awareness. However, in the study conducted by Haghdoost *et al.*, out of 40 employed nurses (72.2%) and, in the study conducted by Göransson *et al.*, 45 employed nurses (57.7%) had a moderate awareness.^[17,18] Unfortunately, in this study, none of the nurses had a high level of knowledge, but in a study by Aloyce *et al.* of 70 nurses, 67% of triage awareness was mentioned above, which is not consistent with the current study.^[19]

In this study, 64.4% of the participants were female. In this regard, in the studies conducted by Haghdoost and Kalantarimebidi, respectively, 90% and 64% of nurses in the emergency department were women.^[14,17] However, in the study conducted by Javadi *et al.*, 62.2% of the samples were male, which is not consistent with the present study.^[4] The reason for this difference is that in this study, more than three-fifths of the research population were female.

Table 2: Evaluation of Scheffe's analysis of variables of method of learning triage principles and employment type with awareness level of nurses in teaching hospitals

Group	Difference in averages	Significance level
Contracted for a given task		
Permanently employed	4.780	0.768
Fixed contracted	5.20	0.409
Included in the workforce project	7.47	0.023
Included in the workforce project		
Permanently employed	-2.69	0.958
Fixed contracted	-2.26	0.938
Contracted for a given task	-7.47	0.023
Academic		
Personal	-2.308	0.966
Seminar	-14.40	0.015
Empiric	-4.56	0.776
Seminar		
Academic	14.40	0.015
Personal	12.09	$P=0.0001$
Empiric	9.83	$P=0.0001$

In determining the factors affecting the level of awareness, there was a significant statistical relationship between marriage and type of employment, type of triage training, and age with the awareness score in this study, which there was a significant correlation between the type of employment and marriage in the Kalantarimebidi study.^[14]

In the present study, the knowledge score of those nurses, who were permanently employed, fixed contract, or contracted employed for a given task in terms of employment status type, was more than nurses who were included in the human workforce project, because the latter was with little clinical experience in therapeutic procedures, and on the other hand, they had little organizational commitment.

In Kalantarimebidi's study, it was found that married people's scores were more than single, but no statistical difference was observed. Nevertheless, in this study, the training workshops have had the most impact on the learning principles of triage, which is in line with the study conducted by Pishgooie and Aliyari.^[9] Participating in workshops will help them learn more effectively. It is suggested that nursing directors provide continuing education courses such as seminars and short courses to better organize the nursing system with the aim of developing and improving the quality of clinical care and informing nurses about ideal care behaviors. In addition, with the appointment of experienced nurses in the management of hospital departments and in the field of clinical education, care for patients provides basic care for the patient. In this regard, it is necessary for authorities to allocate funds and facilities for improving the quality of care and nursing care.

It is obvious that the formation of triage teams with proper physical strength and adequate knowledge about their performance in the emergency room, considering the proportion of the number of patients referring to the emergency department with the manpower employed in those departments and holding training courses to raise the awareness of these individuals will ultimately improve the quality of care provided in the emergency department of the hospital.

It should be noted that in the present study, there was no significant statistical relationship between working experience and working time with awareness level.

In this study, the increase in work experience was not in line with increased awareness of the triage field, which was

consistent with studies conducted by Pishgooie and Aliyari and Greene, because they have concluded that the level of awareness is associated with an increase in the work experience but inconsistent with the studies conducted by Brohani because they concluded that increasing work experience was significantly associated with increasing awareness.^[9,20,21]

In any case, as other studies have suggested, the reason for this disagreement can be attributed to the difference in the study population, the study environment, and the number of participants. Similarly, there is a need for more research in the field of hospital triage awareness, and triage nurse needs at least 6 months of work experience in the relevant department.

Furthermore, in the present study, there was no significant relationship between knowledge and type of work shift, which is consistent with the study by Mirhaghi and Roudbari but not with the studies conducted by Haghdoost *et al.* and Javadi *et al.* concerning the impact of shift work on the consciousness of nurses.^[4,17,22] The reason for this disagreement can be attributed to the difference in society, the research environment, and the number of participants.

Limitations

One of the limitations of the study was that the collection of information was done at different times before the start of the working time or when it was completed; hence, in the subsequent studies, to increase the accuracy of the nurses' response, questionnaires should be completed by nurses before the start of the working time.

CONCLUSION

The present study showed that most of the nurses had poor awareness about the implementation of triage. Therefore, it is suggested to improve the treatment services, organizing triage periodic training workshops, implementing interventions and educational research in this field, and equipping the emergency environment to increase staff awareness.

Conflicts of interest

There are no conflicts of interest.

Authors' contributions

All authors contributed to this research.

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