

# One-day triage course for nurses, it is essential

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## Abstract

**Objective:** Triage procedure is one of the most important aspects of emergency departments as it has an undeniable role on the management of patients. It includes 5 categories based on the Emergency Severity Index (ESI) according to the condition of severity. For better decision making and management, it is important to have skillful and experienced nursing staff. In the current study, we aimed to investigate the effectiveness of a one-day workshop on participants in terms of their triage knowledge improvement.

**Methods:** This is a pre- and post-test trial study. In this study all the nursing staff of Sina hospital participated. The workshop was conducted in a single day for 6 hours. During the one-day workshop, topics such as emergency triage and hospital triage were covered according to START and ESI. In order to evaluate triage knowledge, each participant completed a pre-test before the workshop, and a post-test after the workshop (15 questions). Data were analyzed with SPSS 15.0. Paired *t* test was applied for data analysis.

**Results:** Fifty-five nurses with the mean age of  $35.72 \pm 7.35$  participated in the workshop. The analysis of the data, using paired *t* test based on the pre-test and post-test results, did not show any significant differences ( $P > 0.05$ ).

**Conclusion:** This study suggests that a one-day workshop is not really effective and reliable for triage knowledge improvement. We propose longer planned workshops in order to train more skillful staff.

**Keywords:** Triage, Emergency department, ESI, START

## Introduction

The French word “trier” meaning separating out, is the root of “triage” (1). It is used for 2 patients or more. Triage is divided into 2 subtypes: hospital triage and pre-hospital triage (2). By using Emergency Severity Index (ESI), triage nurses should classify patients into 5 categories (from severe injuries to minor injuries) according to their disease severity in order to manage them perfectly (3). As examining the patients and making clinical decisions is the first role of triage, the triage nurse should take patient's history including chief complaints, present illness, past medical history, and other subjective and objective findings (4). In this regard, the nurse can then determine priority accordingly (5). The successful management of emergency departments (EDs) mostly depends on appropriate triage (6,7). A research in Sweden showed the lack of a standardized triage scale in the EDs. In addition, no evidence-based triage was done by nurses (8). To the best

of our knowledge, there are a few studies about the effect of triage education on nurses' knowledge in EDs in Iran (9,10). In most of the hospitals in Tabriz as well as other cities in Iran, triage is done by nurses who have not appropriate knowledge about this issue. Moreover, there is not a national triage scale to be used by nurses in medical emergencies. It should also be mentioned that although one-session triage training exists in the course syllabus of nursing students but there is not a comprehensive university course regarding this matter. Thus, holding workshops and retrieving articles published in this field are some ways of getting more information so far (11). The aim of this study was to investigate the effectiveness of a one-day triage workshop on nurses' knowledge.

## Methods

This pre- and post-test clinical trial was conducted in Sina hospital of Tabriz University of Medical Sciences.



es. This course was designed based on the Ministry of Health and Medical Education guidelines in the subject of hospital triage.

### Study population

In this study all the nursing staff of Sina hospital (the center of burn and toxicology) participated. We excluded those who left the workshop and also those who did not answer the pre-test or post-test questionnaires.

### Procedure

The workshop was conducted in a single day for 6 hours. During the workshop, topics such as emergency triage and hospital triage were covered according to START and ESI. In addition, the bare essentials, history taking, and nurses' responsibilities were discussed in the workshop. Each participant completed a pre-test before the workshop. The same questions were completed as post-test after the workshop. The questionnaires had 2 sections. The first part included participants' demographic information such as age, gender, and educational qualification. The second part encompassed 15 questions designed for the evaluation of triage knowledge. In this regard, 8 multiple-choice questions were considered for case management, 6 questions for definitions, and 1 question for the purpose. For scoring the questionnaires, one point was given for each correct answer. The overall score ranged from 0 to 15, in which 0 to 5, 6 to 10, and 11 to 15 were respectively indicative of low, moderate, and good level of knowledge.

### Statistical analysis

Data were analyzed by SPSS version 15.0 using paired t test. The pre-test and post-test scores were calculated for each participant.  $P < 0.05$  was considered as significant.

### Results

In the current study, 55 nurses working in all inpatient wards of Sina hospital participated in a one-day triage workshop. The mean age of participants was  $35.72 \pm 7.35$ , and the oldest person was 52 years old and the youngest was 26. The number of staff in each ward is shown in Table 1. In addition, the educational degree and the position of participants are shown in Tables 2 and 3. Participants completed the questionnaires once before the beginning of the workshop and one time after the workshop. Question types and participants' answers are shown in Table 4. Pre-test results regarding ESI triage system, triage environment, triage purpose, and concept indicated that, participants' answers to most of the questions were correct (in average, 37 persons [67%] answered 7 questions of this type correctly), but regarding the management of patients most scores were wrong (in average, 18 persons [33%] answered 8 questions of this type correctly). Posttest results showed that, in average, 49 nurses (89%) answered the first questions (ESI triage system, triage environment, triage purpose, and concept) correctly, and for second type

**Table 1.** Number of nurses participated in the workshop based on the hospital wards

Ward	No. of Participants	%
Emergency	7	12.7
Nursery Office	3	5.5
Intensive care unit	10	18.2
Dialysis	3	5.5
Surgery	5	9.1
Internal medicine	6	10.9
Urology	2	3.6
Burn ward	9	16.4
Plastic surgery	4	7.3
Clinics	2	3.6
Echocardiography	1	1.8
Endoscopy	1	1.8
Infectious disease	1	1.8
Operating room	1	1.8
Total	55	100

**Table 2.** Nurses' educational degree and percentages

Educational degree	MA degree	MS degree	Diploma	Total
Number	2	52	1	55
Percent	3.6	94.5	1.8	100

**Table 3.** Nurses' positions

Position	Supervisor	Head nurse	Nurse	Assistant	Total
Number	3	13	38	1	55
Percent	5.5	23.6	69.1	1.8	100

questions, 31 nurses (56%) answered the questions correctly in average. Based on the results obtained, in the assessment of the participants triage knowledge due to their answers to questionnaires before and after the workshop, only the first type questions had a significant improvement after the workshop, and answers to the other 14 questions did not show a significant difference between participants pretest and posttest performance ( $P > 0.05$ ).

### Discussion

ED is the most crowded part of each hospital. It is necessary to manage ED perfectly by a proper triage. Lack of knowledge of nurses regarding triage is probably because of the paucity of information, and it can be improved by holding specific workshops. Mirhaghi et al (12) believe that holding triage classes during the academic training can enhance the knowledge of nurses about triage. Sedaghat et al (13) also highlight that lack of triage knowledge is not unexpected as there are not any training in this

**Table 4.** Pre-test and Post-test examination results

Question number	Question subject	Answer	Pre-test results		Post-test results		P
			Number	%	Number	%	
1	ESI triage system	True	43	81	50	93	0.005
		False	10	17	3	4	
		Not answered	2	3	2	3	
2	Triage Environment	True	45	82	35	64	0.899
		False	9	16	19	34	
		Not answered	1	2	1	2	
3	Triage purposes	True	50	91	54	98	1.000
		False	5	9	1	2	
		Not answered	0	0	0	0	
4	ESI triage system level	True	32	58	47	85	0.646
		False	20	36	5	9	
		Not answered	3	6	3	6	
5	Patient management and scoring in triage	True	18	32	17	31	0.407
		False	36	66	37	67	
		Not answered	1	2	1	2	
6	Patient management and level	True	35	64	51	93	0.280
		False	19	34	3	5	
		Not answered	1	2	1	2	
7	Triage Facilities	True	33	60	52	95	0.147
		False	21	38	2	3	
		Not answered	1	2	1	2	
8	Patients management and scoring in triage	True	25	45	26	47	0.284
		False	29	43	28	41	
		Not answered	1	2	1	2	
9	Patients management and Scoring in triage	True	16	62	48	88	1.000
		False	34	29	2	3	
		Not answered	5	9	5	9	
10	Patients management and scoring in triage	True	26	47	12	22	0.460
		False	25	46	39	71	
		Not answered	4	7	4	7	
11	Life saver services	True	46	83	51	93	0.885
		False	6	11	1	2	
		Not answered	3	6	3	5	
12	Life saver services	True	8	14	51	93	0.388
		False	46	84	3	5	
		Not answered	1	2	1	2	
13	Patients management and scoring in triage	True	15	27	2	3	0.486
		False	35	64	48	88	
		Not answered	5	9	5	9	
14	Patients management and scoring in triage	True	10	18	46	84	0.681
		False	41	75	5	9	
		Not answered	4	7	4	7	
15	Triage meaning and concept	True	48	88	52	95	0.659
		False	7	12	3	5	
		Not answered	0	0	0	0	

regard. They also stated that this matter was owing to the lack of a national guideline in the country's medical system, and suggested new research and effective solutions in this regard (13). Malekshahi and Mohammad Zadeh (9) reported moderate knowledge of nurses about triage (9). In the current study, among 55 nurses working in different inpatient wards of Sina hospital, we aimed to evaluate the various aspects of nurses and health care system workers in terms of their knowledge about triage before holding any workshops. To meet the study purposes, we evaluated the impact of the workshop on the knowledge and performance of nurses after holding the workshop. Nurses' theoretical knowledge about triage before workshop was 67%, but it was about 89% after the workshop. This shows an improvement in the level of their knowledge based on the pre-test and post-test questionnaires. This finding was the same for the other type of questions: patient management and clinical skills in triage. In this regard, the mean score of participants was 33% before the workshop and 59% after the workshop. Based on the data analysis, after holding the workshop we could not observe a significant relationship ( $P>0.05$ ) and this shows that the workshop did not have any effect on the knowledge and performance of nurses. This shows that the amount of participants' knowledge for both theoretical and practical fields were the same before and after the workshop. This study was designed to find a solution to improve and develop skills of nurses who are involved in triage procedures in different levels.

Although, at first we could identify an improvement in the mean score of participants' test results after the workshop, but in comparison to the results before it, later complementary and statistical analyzes proved that the one-day workshop did not have any effects on participants' performance and abilities. This suggests that, a one-day workshop is not really effective and reliable. Therefore, it is better to plan some stable and long standing programs in order to train more knowledgeable and skillful staff. In future studies, it is better to investigate the relationship between the educational degree of staff with their performance and knowledge before holding triage workshops. In addition, we suggest evaluating the effectiveness of workshops on their knowledge, which helps organizing proper programs for each group of nurses for obtaining the desired performance.

### Conclusion

In the current study, it is estimated that, a one-day workshop cannot be helpful to improve nurses' knowledge about triage. However, employing long standing and complementary programs can be reliable on fulfilling our demands in the field of triage and its staff performance.

### Ethical issues

All the data and the identifications were kept secret.

### Authors' contributions

Ramin azugh, supervision; Samad Shams Vahdati, study design; Fariba Faraji and Malihe Faraji workshop presentation and evaluation; Maryam Ghorbani, analysis and document; Ali Ramuz, writing; Shahrard Tajoddini, critical evaluation.

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