Original Article DOI: https://doi.org/10.18502/fem.v5i4.6695

Hospital Triage Standards: A Qualitative Study and Content Analysis based on Experts' Experiences in Iran

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Published online: 2021-04-22

Abstract

Introduction: The lack of a fixed and clear protocol causes confusion for nurses resulting in care performance delay in the emergency room (ER). Given that the purpose of triage is to examine the patient upon arrival in ER for the rapid classification and prioritization of emergency patients in need of treatment, it seems that the development and implementation of hospital triage standards can greatly affect this purpose.

Objective: The present study was conducted to review the experiences of experts in hospital triage in terms of determining the standards of hospital ER triage.

Methods: This qualitative research was conducted through content analysis method based on Donabedian model. Participants include experts (Politician, Nurse Supervisor, Nurse, Midwife, Faculty of Nursing, Emergency Medicine Specialist) working in educational and private hospitals and single-specialized ERs. Data were collected through in-depth and semi-structured interviews lasting between 25-60 minutes. The main interview questions were: What are the structural standards of a good triage? What are the process standards for a good triage? What are the standards of a good triage? Data analyzed through Content Directed Analysis with Shannon and Hsieh approach.

Results: Totally, 21 experts the mean age of 46.9±1.8 (ranged from 30 to 57) years and the mean work experience of 18.9± 8.21 years were participated, of whom 16 (76.2%) persons were male. From the analysis, we extracted 48 codes, 14 subcategories and 3 main categories of "structural standards", "process standards" and "outcome standards".

Conclusions: Guidelines are needed so that the nurse in charge of triage can quickly and accurately undertake the important responsibility of patient triage. Additionally, having structure and process and outcome standards improves triage performance.

Key words: Emergency Nursing; Expert Opinion; Qualitative Research; Standard of Care; Triage

Cite this article as: Najafi Z, Abbaszadeh A, Vaezi H, Rassouli M, Mirhaghi A, Zohari Anboohi S. Hospital Triage Standards: A Qualitative Study and Content Analysis based on Experts' Experiences in Iran. Front Emerg Med. 2021;5(4):e43.

INTRODUCTION

Triage is a clinical risk management system in emergency rooms (ERs) with the aim of scheduling and/or allocating the resources needed by patients. It helps to decide how to care for patients with urgent needs, caring for critically ill patients with the minimum waiting time, preserving human life and health designed in the form of fair use of medical and care resources (1-3). Today, in developed countries, due to the large number of hospital ER referrals, protocols and triage standards have been considered to reduce the amount of care and treatment errors and to improve the quality and safety of patients (4, 5). In different countries and based on the stablished health system of each country, protocols and standards are available and implemented (1). However, in Iran and other countries in the Eastern Mediterranean region, little attention has been paid to developing the necessary standards in this regard. The initial standards in Iran have been codified by the Ministry of Health that have been set based on the opinions of experts and also the translation of the standards of developed countries; consequently, it may not be sufficiently consistent with triage processes, or it may not be sufficiently consistent with the goals and

expectations of triage in Iranian ERs. For this, the present study was conducted to review the experiences of experts in hospital triage in terms of determining the standards of hospital triage in Iran.

Methods

Study setting

This qualitative research was conducted through content analysis method based on Donabedian model from 5/22/2019 to 11/22/2019 in Tehran, Iran. This model is one of the most widely used models in measuring and evaluating the quality of health care and service evaluation in three scopes of structure, process and outcome; in which structure refers to the context in which services are provided, process means the stages of service delivery, and outcome indicates the impact of services on the health status of patients and people. In the present study, participants include experts (Politician, Nurse Supervisor, Nurse, Midwife, Faculty of Nursing, Emergency Medicine Specialist) working in educational and private hospitals and single-specialized emergencies. The present study was carried after receiving the code of ethics from Shahid Beheshti University of Medical Sciences to the number IR.SBMU.RETECH.REX.1397.817, obtaining informed consent from hospital officials and research participants, providing sufficient explanations about the voluntary nature of participation, maintaining anonymity and confidentiality, ensuring the possibility of withdrawing from the study at any stage, and orally explaining the research objectives for participants.

Participants

Inclusion criteria included people with the ability to express experiences and willingness to participate in the study with at least 5 years of working experience in ER. The first participant was purposefully selected, and this process continued with the inclusion of maximum diversity of participants in terms of age, occupation, education, field of study, clinical work experience, expertise and experience until data saturation.

Data gathering

Data were collected through in-depth and semi-structured interviews lasting between 25-60 minutes. The main interview questions were: What are the structural standards of a good triage? What are the process standards for a good triage? What are the standards of a good triage?

To ensure the validity of the findings, the research team made use of member checking method and the method of permanent and continuous engagement of the research team with the research topic (data collection, interpretation and analysis). In order to ensure the reliability, the method of continuous mental engagement of the research team with data and reviewing method by participants and observers were applied. Research verification was run through full explanation of the stages of research, including data collection and formation of sub-classes in order to provide the possibility of auditing the research by audience and readers (6, 7). In order to provide data transferability, the present study made use of sampling method with maximum diversity of participants (based on age, occupation, education, field of study, clinical work experience, specialization and experience).

Data analysis

Initial analysis and coding of interview data was performed before running the next interview. Then, data were entered in 10 MAXQDA software. Interviews were immediately transcribed and then analyzed through Content Directed Analysis with Shannon and Hsieh approach. Content analysis is aimed to validate, or possibly, implicitly develop a prior conceptual or theoretical framework. The chosen theory can help to focus on the research question. On the other hand, theory can help predict interesting variables or find relationships between variables (8). Deductive content analysis includes three stages of preparation, organization and reporting. In the preparation phase, after converting the interviews into text (transcription), each text was read several times for data immersion. Then, in organization stage, for analysis, the researchers formed an unobtrusive matrix allowing the emergence of new main classes. Data were reviewed several times to find content matched with or be an example for pre-defined categories, and the initial codes were assigned to them. In this way, coding process was also carried on other semantic units not related to the main classes but related to the hospital triage standards, and then, based on conceptual and logical relationship, the possibility of locating these classes into matrix main classes or forming new main classes is checked out (9).

Results

Totally, 21 experts the mean age of 46.9±1.8 (ranged from 30 to 57) years and the mean work experience of 18.9± 8.21 years were participated, of whom 16 (76.2%) persons were male. The information and demographic characteristics of the participants in the present study are shown in table 1. From the analysis of the text of the manuscripts on explaining the experiences of

Table 1: Demographic characteristics of the participants

No.	sex	Work experience (years)	Professional expertise
1	Male	15	Politician
2	Male	14	Politician
3	Male	15	Politician
4	Male	13	Politician
5	Male	10	Politician
6	Male	30	Nurse Supervisor
7	Female	22	Nurse
8	Female	8	Nurse
9	Female	28	Nurse
10	Male	12	Nurse
11	Male	5	Nurse
12	Male	27	Midwife
13	Male	30	Nurse
14	Male	26	Nurse
15	Female	30	Faculty of Nursing
16	Male	31	Faculty of Nursing
17	Female	17	Nurse
18	Male	10	EM Specialist physician
19	Male	16	EM Specialist physician
20	Male	21	EM Specialist physician
21	Male	18	EM Specialist physician

EM: emergency medicine

experts in hospital triage to achieve hospital triage standards, we extracted 48 codes, 14 subcategories and 3 main categories of "structural standards", "process standards" and "outcome standards" (Table 2).

Structural standards

Structural standards are mostly recognized by participants as equipment also including workforce. They explained various dimensions of the equipment, such as medical and non-medical equipment, triage room, as well as office supplies needed for the triage. Four subclasses of increasing job satisfaction of triage nurses include medical and non-medical equipment, triage room, and workforce.

- **Medical equipment**

Participants believed that medical equipment was the main part of the triage room and one of the minimums expected from a triage room. The most important tools that should be included in triage are blood pressure monitor, heart rate monitor, pulse oximetry and temperature monitor. For example, as stated by participant No.1: "The equipment has a series of bases. A series of vital signs, monitoring, pulse oximetry, bed side. These things are mandatory, they have a minimum, but they do not have a maximum. These can be fixed according to the decision of the triage committee of that hospital or university".

- **Non-medical equipment**

Non-medical equipment is also mentioned as a triage equipment that is important along with medical equipment. In general, these items include tables and chairs, patient chairs, wheelchairs and stretchers, computers and printers, needles, sharp objects, trash cans, scales (children can be weighed), and laundry facilities for hand washing. As stated by participant No.3: "Assign a task to the nurse, whose equipment must also be in triage, for example, if he wants to transport a seriously ill patient, he can have a chair, wheelchair, stretcher, loudspeaker, and can record the triage card in a system, so these systemic communication devices must be all or s/he wants to open a simple wound, sees what happened, what to do for the patient, so the dressing device and the bin of the garbage and toilet are necessary".

- **Triage room**

Participants believed in the need to create standards for the triage room in terms of spatial dimensions, location and spatial relationship, and appearance features. As stated by participant No.3: "In different emergencies, according to the annual admission rate and percentage of patients put at the level of 1, 2 and 3 triage, i.e. estimating emergency patients that are critically ill and/or outpatients, the physical space of triage was considered different and can be changed". As stated by participant No.4: "The triage standard should be exactly in front of the code and recovery room and should surround the waiting area and communicate with other emergency departments". As stated by participant No.5: "The location of the triage unit is more important than the space. The dominance to the entire entrance of the emergency room and the patients who enter the emergency room, whether the pedestrians who enter the emergency room on foot or the patients who are brought to the emergency room by EMS pre-hospital, is important. The first place where patient put their steps intentionally or unintentionally is triage room". As stated by participant No.2: "The appearance of triage is definitely important. In addition to having a standard space, triage should have a stylish triage space, very important for motivating patients and their relaxation".

- **Manpower**

According to the participants, it is very important to set standards for triage nurses. They believed that the minimum characteristics should include work experience in the emergency and intensive care units, educational degree, a CV in triage training, management and communication skills,

Table 2: Subject, main categories, subcategories of data analysis and interviewee quotes

Main Categories	Subcategories	Codes
Structural Standards	**Medical equipment**	The necessity of structural standards for medical equipment in triage room
	Non-medical equipment	The necessity of structural standards for non-medical equipment in triage room
	Triage Room	The necessity of structural standards for triage spatial situation and its relationship with other sections
		The necessity of structural standards for physical space
		The necessity of office standards in triage room
	Manpower	The necessity of structural standards for medical equipment in triage room
		The necessity of structural standards for work force qualification
Process Standards	**Nurse Characteristics**	The necessity of professional skills based on ethical qualification
		The necessity of professional skills for making trust by triage nurse
		The necessity of professional skills based on cultural qualification
		The necessity of professional skills based on practical/scientific qualification
		Responsibility
		The need to improve teamwork skills for triage nurses and emergency physicians
		Proper referral and transfer of patients to emergency levels
		The ability of leveling patients by a triage nurse
		The need to employ experienced nurses
	Ethical and legal issues	Considering human dignity
		The importance of legal protections for patients and nurses in the triage unit
		Moral tension in the triage
		Conflict of triage nurse roles
		Existence of verbal and physical violence of patients
	Financial issues	Importance of financial considerations for the triage nurse
		Considering the work difficulty of the triage nurse
	Management issues	The importance of managerial dimensions in triage
		The importance of continuing education planning
		The importance of hospital triage committees to improve the triage process
		The importance of the support system
		The need to delegate authority to the triage nurse to complete the work process
	Technical issues	The need for flexible executive instructions
		The importance of communication defined in the triage unit
		The importance of triage as the basis for subsequent patient care
		Occupational damages in triage
		Separation and revision of the job description of the triage nurse
		Triage error prevention (under triage - over triage)
		The importance of cultural differences in triage
	Patient issues	Increasing public awareness of patients and caregivers of the concept of triage
		The explanation of the process and course of care to patients and the results of triage
Outcome Standards	**Satisfaction**	Increasing the satisfaction with receiving medical and care services
		Increasing job satisfaction of triage nurses
	Unfavorable consequences and mis-triage	Mis-triage decrease (under triage – over triage)
		Monitoring the accuracy of triage
		Reducing mortality and morbidity
		Achieving the most desirable care results
	Timing	Reducing the waiting time for a visit for patients
		Reducing the length of stay of patients at hospital
		Reducing patients leaving without a doctor's visit
	Triage nurse quality	Evaluating the performance of a triage nurse
		Monitoring triage nurse training

critical thinking skills, and the ability to make quick and accurate decisions. As stated by participant No.2: "Nursing workforce in triage is considered to be at least with 5 years of experience not to be an inexperienced nurse who has just entered an emergency room because triage nurses are both information and ballinger at the same time as well as welcoming and patients' coordinators". As stated by participant No.5: "The philosophy of the triage nurse is to be equipped with experience, training and kindness, a kind person who knows anger management and communicates with the

patient and the patient's companions, decides carefully and correctly and determines the patient's level, be informative and an expert". As stated by participant No.2: "The triage officer is the nurse with whom you set the priority of care for a person. When a nurse has the necessary experience, he has worked in the ICU for at least 2 years, sees the patient, and scans a lot of things. In addition, there is a nurse who is good-natured, well-greeting, treating the patient with great motivation at any level. "He can set the patient properly and make the prioritization well. He sends the patients exactly where they need to go. He takes care of what needs to be done and presents the best care for patients".

Process standards

Process standards, from the participants' point of view, are related to the process of triage and the issues affecting it. Among others, the characteristics and skills required by a triage nurse, including professional, ethical, cultural, responsibility and teamwork skills, experience, patient classification, triage technical issues and factors affecting patient care, including executive instructions and job descriptions of triage nurses, communications, occupational injuries, triage errors and cultural differences were of particular importance in the triage process. Participants explained factors influencing the triage process as legal support of patients and nurses, occupational and ethical conflicts, financial considerations and hard work of the triage nurse, managerial dimensions, continuing training programs, support system, hospital triage committee, and raising public awareness. Six subcategories including triage nurse characteristics, ethical and legal issues in triage, financial issues, management issues, technical triage issues, and patient issues were also extracted.

- **Nurse characteristics**

Participants believed that the most important factor in improving hospital triage process is the presence of a nurse in the triage unit with characteristics such as professional skills based on moral, cultural, scientific and practical competence, professional trust, responsibility, teamwork skills, the ability of leveling patients and correctly referring and transferring patients to emergency levels. For example, as stated by participant No.3: "Triage nurse with experience and training and good-natured, and kind to remember anger management and communication with the patient and the patient's companion". As stated by participant No.8: "Doctors are confident in my leveling, very little objected, maybe 1%, they are very confident in my skills". As stated by participant No.3: "Triage personnel need to be different, more agile, more trained, with different behavioral and psychological characteristics, more patient". As stated by participant No.16: "If the triage nurse's knowledge is complete, her clinical reasoning, her diagnosis, and her performance will be correct". As stated by participant No.7: "You have to explain to the doctor and the patient. The patient should not be missed at once. Anyway, we are here to do the patient's work, and to save her". As stated by participant No.21: "Treating patients is a team effort. Doctors would not be successful with useless nursing behavior". As stated by participant No.15: "The nurse runs the triage for the emergency room, instructing the doctor to see which patient first. "The triage nurse directs the patients' visits and leads medical services of nursing and treatment in the emergency department for the patients". As stated by participant No.9: "Leveling is very important, actually, you are setting the priority for one person". As stated by participant No.6: "Triage planners are more likely to employ high-impact nurses, with at least 5 years of experience, working in the emergency room, and fully oriented towards triage".

- **Ethical and legal issues**

From the participants' point of view, creating legal and ethical standards in triage is very necessary because triage environment is very risky and independent for the triage nurse. It can also significantly affect the role of the triage nurse and the triage process. From the participants' point of view, these issues include human dignity, legal protections for patients and nurses, moral tensions, conflicts in nurse roles, and verbal and physical violence of patients. For example, as stated by participant No.17: "The stress in triage is very high, everyone expects you, the triage must have privacy so that the patient understands that you are a therapist". As stated by participant No.4: "Triage is a very crowded and troublesome environment with under and over triage issues. How much are triage nurses supported legally?"; As stated by participant No.4: "Triage may have a low clinical burden, but its psychological burden is very high, you have a lot of challenges with a patient, a very angry patient, a bad one". As stated by participant No.10: "What problems a triage nurse can have and why is she just a secretary now, because she sees she can't do anything right now". As stated by participant No.18: "Triage nurses face physical violence and engagement with patients

and companions because they are at the emergency entrance".

- **Financial issues**

Participants believed that financial issues, including financial considerations and taking the difficulty of the triage nurse's work into account could be a factor in motivating nurses to attend the triage unit willingly and voluntarily. For example, as stated by participant No.5: "One of the motivational methods for triage nurses is to create financial incentives for them". As stated by participant No.3: "Personnel working in the emergency room, including doctors and nurses with 20 years of experience should have the opportunity to retire, i.e. to have a coefficient of 1.5 hard work".

- **Management issues**

As believed by the participants of the present study, the triage unit in hospital is an independent unit and influences the workflow process in the emergency room. In order to improve the triage process and to achieve the desired outcomes for patients' care, in addition to technical and functional issues, management issues should also be taken into account. They emphasized the importance of the observance of managerial issues such as the importance of managerial dimensions in triage, continuing training programs, hospital triage committees, support system, and delegating authority to the triage nurse toward completing the work process. For example, as stated by participant No.1: "Management in triage has 10 principles that make this queue purposeful and manageable, at the same time". As stated by participant No.3: "To re-train those who do triage, the triage committee must meet regularly on a monthly basis. It must provide continuing training". As stated by participant No.5: "There is a hospital emergency committee in every hospital. One of the parts that is discussed there is the triage committee, where they talk about the triage, quality, and all the current issues of a hospital triage, resulting in approvals to be addressed throughout the year". As stated by participant No.15: "Supporting staff is a challenge that should be clearly seen for emergency personnel. I mean, staff must feel that someone cares about them". As stated by participant No.16: " Triage officer is the nurse! The triage nurse has finished her job as soon as she triaged the patient and sent him in".

- **Technical issues**

Triage technical standards is both necessary and important. Participants mention some necessities and standards for triage including the need for flexible executive instructions, the importance of communications defined in the triage unit, the importance of triage as the basis for subsequent patient care, occupational damages in triage, separation and review of triage nurse job descriptions, prevention of triage error (light triage - heavy triage), and the importance of cultural differences. For example, as stated by participant No.1: "In any field, in the discussion of supervision, there are challenges and differences in the implementation of instructions and letters, which is the nature of every emergency and every hospital, they have an inherent difference, it cannot be said that a fixed instruction for all hospitals. Well, every instruction should be localized with the mission and type of a hospital". As stated by participant No.5: "Triage should have contact with in-house staff, outsiders, security guards, paramedics, patients and others". As stated by participant No.11: "There is a triage nurse who says that based on the examination I did on the patients, this is the level! He defines the waiting time and where he should go and how much care should be taken". As stated by participant No.21: "Triage environment stressors cause job illness and burnout, and ultimately job dissatisfaction". As stated by participant No.7: "The description of the nurse's duties and the determination of the nursing staff for the hospital emergency department and triage should be clear". As stated by participant No.18: "Over-triage is always to the benefit of the patient, but under-triage is always to the detriment of the patient. Over triage makes the emergency room busier". As stated by participant No.3: "Triage must be compatible with their cultural conditions, emergency workflow, resources, workforce (general or specialist)."

- **Patient issues**

Participants believed that according to the legal charter of patients in the hospital, it is important to prioritize issues related to patients in the triage unit, including increasing public awareness of patients and caregivers about the concept of triage and explaining the process of care to patients and the results of triage. For example, as stated by participant No.3: "They put up a series of brochures to explain the triage process, the triage room, and for the treatment staff of hospitals and patients themselves, and to show people what triage is". As stated by participant No.16: "The duty of a triage nurse is to accept the patient with a happy face, which means in fact embracing the patient and then examining the patient and finally giving the necessary and sufficient information about the patient's treatment".

Outcome standards

Outcome standards are recognized by participants as the result of accurate and correct triage process demonstrating triage error reduction (light triage - heavy triage), triage accuracy monitoring, reduction of mortality and morbidity, achieving the most desirable care results, reducing patient waiting time, reducing the length of stay of patients, and reducing the number of patients leaving hospital without a doctor's visit. Moreover, increasing satisfaction with receiving medical and care services, increasing job satisfaction of triage nurses, evaluating the performance of triage nurses, monitoring triage nurse training are also among outcome standards. Four sub-categories including unfavorable consequences and triage errors monitoring, timing, satisfaction monitoring, and quality monitoring of the triage nurse were extracted.

- **Satisfaction**

Patients and nurses' satisfaction with triage processes was one of the issues that should be monitored. Monitoring patient satisfaction has always been one of the most important quality indicators of the emergency department. This outcome was explained by the participants as a major outcome. The most important cases of satisfaction monitoring from the participants' point of view were increasing satisfaction with receiving medical and care services and increasing job satisfaction of triage nurses. For example, as stated by participant No.3: "Ranking of patient satisfaction and morbidity and mortality and modification of patient recovery index starts from the triage unit". As stated by participant No.7: "Triage is very effective in improving the emergency situation. We should do the triage so that the patients are saved and the so-called services are provided to them to have the shortest waiting time so that patients' satisfaction increases and nurses are happy with the triage they did".

- **Unfavorable consequences and mis-triage**

Monitoring of unfavorable consequences and triage errors is among the most important outcome standards in evaluation of appropriate triage. Participants believed that the most important factors to achieve the desired results in the triage unit include reducing triage error (light triage - heavy triage), monitoring triage accuracy, reducing mortality and morbidity, and achieving the most desirable care results. For example, as stated by participant No.2: "With the right triage and error reduction, especially under-triage, we can reduce these complications, adversities, and mortality". As stated by participant No.5: "The important issue is how well the triage process is going, the monitoring issue is very important, but if the triage is done properly and monitored, it can really solve the problem of emergency congestion". As stated by participant No.1: "Regularly, I sit next to the triage nurse. I say, 'OK, let's triage together.' If they make a mistake, I'll guide them right there".

- **Timing**

Timing has always been important in emergencies and has been highlighted by participants in the present study. Reduced access time to care services such as reduced waiting time for patient visits, reduced length of stay of patients, and reduction of patients leaving without a doctor visit were expressed by the participants. For example, as stated by participant No.3: "Triage is very important in helping a physician who is in a crowded emergency room to see patients and how quickly to visit them. This shows the patients how much time he has to wait for a visit or how long he has to be in the emergency room". As stated by participant No.20: "The patient comes to you, for example, he wants to see a doctor quickly. It is the triage that determines if he does not have a very acute problem, he must wait, and when the level is correct, the patient will determine each level with his doctor; Therefore, the patient does not get tired, and he does not get bored of leaving the emergency room".

- **Triage nurse quality**

The triage nurse, as the central person in the triage process, must be constantly monitored in order to maintain the qualities required for triage. Participants in the present study believed that to monitor the quality of a triage nurse, performance appraisal and training of a triage nurse are the most important factors. For example, as stated by participant No.3: "The standard training is to go through a 4-hour workshop first and then be updated every 6 months, and in addition, to being regularly given feedback. It means that they are a team. The triage assessment team should monthly monitor these triage sheets and present feedbacks to those who have been mistaken, but it is not often monitored".

DISCUSSION

The present study was carried aiming to review the standards of hospital triage based on the Donabedin model in Iran. These standards could be classified into three parts: structural, process (procedural) and outcome. As stated by the participants, structural standards class consists of four subcategories of medical equipment, non-medical equipment, triage room, and workforce;

process standards class consists of six subcategories of triage nurse characteristics, ethical and legal issues in triage, financial issues, management issues, triage technical issues, and issues related to the patient; and outcome standards class consists of four subcategories including triage errors monitoring and adverse outcomes, timing, satisfaction monitoring, and quality monitoring of triage nurse.

Structural standards

The present study identified structural equipment and standards (medical equipment, non-medical equipment, triage room) and workforce, which have also been confirmed in other existing guidelines and standards. In a number of implementation guidelines and principles of setting up a hospital triage system in the emergency department, triage is considered to have non-medical equipment (table and wheelchair and patient chair, wheelchair and stretcher, computer and printer, dishes for collection of needles and sharp objects, trash cans, children's weighing scales, toilet facilities for hand washing, and privacy) and medical equipment (examination lamp, emergency trolley, ophthalmoscope / otoscope, sphygmomanometer and earphone, dressings, immediate medication). Also, in most of the existing guidelines, the importance of structural standards of triage location and its relationship with other departments, including immediate access and clear marking of triage area, designing for patients referred by ambulance and pedestrian, possibility of transferring patients between triage area / evaluation and follow-up areas including admission, waiting room, resuscitation, treatment and outpatient care and imaging area, ECG examination and diagnosis, have been emphasized and considered based on the number of clients, demographic context, and the physical space of the triage. One of the possible reasons backing the present study and other studies for the importance of structural standards (medical-non-medical equipment) is the fact that correct and fast triage is the key to successful operation in the emergency department. If the triage room is not equipped with the necessary equipment, the triage nurse prioritizes patients incorrectly (10). The study of Bijani considers the structural challenges related to hospital triage as lack of adequate physical space, lack of staff, and inefficiency of workplace safety (11). In the present study, these issues are also considered as important challenges in the structural standards of hospital triage that call for further studies in this regard. Other studies suggest that the triage environment influences how psychiatric patients are evaluated and managed, and tensions arise when the triage environment architecture affects patient behavior, the ability to provide optimal patient care, and how patients are guided in triage. Additionally, triage nurse is affected by triage environment because s/he is responsible for the rapid assessment of patients as well as the management of crowds and noise in waiting rooms (12). The importance of triage environment in the results of studies such as the present study may be due to the fact that understanding the impact of clinical triage environment in emergency departments on patients, especially patients with mental disorders, facilitates how to better support these patients in crowded and complex emergency environments. In the present study, the structural standards of workforce (defined roles and tasks, competencies and criteria required by workforce) is one of the most importan bases of structural standards of a care system and the triage nurse is the first person to encounter a patient in the emergency department. This importance is also recognized by other studies. Mirhaghi et al.'s study showed that patients' prioritization and maximum and minimum agreement in treatment and care interventions is related to triage. Triage nursing, as a relatively newly-defined role for nurses, requires further development in practice and clinical domain. Comprehensive training and research development programs require diagnostic and therapeutic support for triage performance by nurses (13). Other studies, including the study by Bijani et al., showed that the professional competence of a triage nurse consists of three dimensions: clinical competence, psychological competence and professional commitment, and nursing managers should use these dimensions to identify qualified nurses for working in triage and developing programs for professional skills development (14). The study by Usui et al. also states that the professional competence of a triage nurse should include 4 areas of knowledge application and purposeful assessment, interpersonal skills, professional / ethical practice, and multidisciplinary / inter-professional collaboration (15).

Process standards

In the present study, process standards such as the characteristics of a triage nurse, ethical and legal issues in triage, financial issues, management issues, triage technical issues, patient issues were

also identified by study experts which have also been confirmed by other studies.

- **Nurse characteristics**

The professional characteristics of triage nurses in the present study are in line with the majority of other studies (16). The Association of Emergency Nurses emphasizes that the emergency department of a hospital is an unpredictable environment and a large number of patients with various problems comes in abruptly, so it is essential that emergency nurses have the necessary professional skills (17). Other studies indicate that the most important characteristics of a triage nurse are knowledge and awareness, professional skills and communication. With their responsibility and teamwork, triage nurses are able to reduce waiting times for non-emergency patients, so the concept of triage teamwork needs to evolve (13). The results of the present study showed that the triage nurse, in addition to professional knowledge, must have clinical skills including technical and teamwork skills, and the triage nurse, in addition to having inter-professional communication skills, must have the ability to manage and lead others (coordination between departments, organizing and guiding personnel), assigning tasks and managing time in teamwork, which is in line with the results of other studies (14). Chung's study describes interruptions in triage (questions from other patients, a sudden occurrence in the waiting room, or the arrival of new patients), time constraints for accurate patient decision-making, and training (importance of questioning skills to gather accurate information for patient evaluation and updating triage nurse information for monitoring patients' signs and symptoms) are factors influencing the triage nurse's decision (18). The results of Mirhaghi's study indicate that hospital underlying factors have a strong tendency to mislead the triage nurse's decision and violate the principles of severity of patients to prioritize (meaning that patients with acute medical conditions should often be prioritized). The results of the present study and other studies showed that in the characteristics of a triage nurse, decision making is an important component of the professional performance of a triage nurse. Decisions are essential in different treatment and clinical care coordination, though there are fundamental differences in triage decisions for clinical care. The study by Bijani et al. states that the most important challenges related to the characteristics of a triage nurse include lack of clinical competence (professional abilities including sufficient knowledge about how to triage patients, clinical experience, sufficient clinical knowledge in the field of high-risk diseases and emergencies, clinical skills to conduct rapid and accurate clinical examinations in high-risk emergencies, the ability to review patient history and physical examinations, critical thinking skills, clinical decision-making skills, clinical intuition, and inter-professional communication skills) and lack of psychological ability (having emotional stability, the ability to adapt to difficult situations in the emergency department, having high tolerance and composure, and maintaining mental focus in critical situations and controlling emotional behaviors) (11). The participants of the present study stated that triage nurses, in order to perform the triage process correctly and accurately, must have the above-mentioned characteristics. Unfortunately, in Bijani's study, triage nurses do not have these characteristics, which may disrupt the process of triage resulting in more disorders in the outcome of patients' triage. The results of the present study showed that triage nurses should have high self-esteem functioning with high self-confidence and defending their right decisions without fear. On the other hand, triage nurses play a key role in prioritizing patients' needs in critical situations and the need for immediate attention. Therefore, it is necessary to study the characteristics of triage nurses and ways to increase their professional abilities (14).

- **Ethical issues**

Given the fact that the patient and his companions are in the worst mental and moral condition when entering the emergency room, their first encounter with triage nurses may be with abnormal and aggressive behaviors. Therefore, triage nurses must have moral abilities such as tolerance and emotional stability enabling them to control their feelings and emotions and treat patients with patience and tolerance. The competence of the triage nurse for being patient, flexible, adaptable to the harsh conditions of the emergency departments enduring problems and hardships, and to preserve human dignity was elaborated in the results of the present study, which is also in line with the results of other studies. The results of the present study along with those of other studies stated that ethical codes such as treating patients with dignity, maintaining confidentiality and respect for patients' privacy, observing justice and honesty, doing things with responsibly and accountability are the most important components of nurse professional commitment and nature. It is a nursing profession (14). Leene et al.'s study also shows that emergency nurses must have enough

patience and resilience to make effective use of their abilities in critical and emergency situations and take effective clinical actions (19). Committed triage nurses must adhere to organizational discipline, communication principles, and ethical codes. Having a regular, punctual appearance and following the policies and guidelines of the hospital by triage nurses, introducing oneself to patients, treating patients and companions respectfully, considering patients' feelings and concerns, listening to patients' words patiently and responding correctly to their questions are considered as the most important human dignity components expected from triage nurses. Aacharya et al.'s study showed that medical care in the emergency department triage may lead to adverse consequences such as delays in care delivery, disruption of patient privacy, poor physician-patient communication, and failure to provide essential care. These consequences challenge the ethical quality of emergency care and the performance of triage. The four principles of biomedical ethics (principle of respect for patient choice and independence, principle of non-harm, principle of profitability, and principle of justice) provide the starting point and contributing factors for identifying the ethical challenges of the emergency department triage. Providing an integrated clinical and ethical framework for emergency triage planning and a comprehensive ethical perspective that incorporates both principles and care-based approaches based on the four principles of biomedical ethics in the triage ethical care perspective is essential (20). It is noteworthy that most studies show that the role of triage nurses in the emergency is challenging. The description of the roles of triage nurses suffers from a lack of a comprehensive and integrated approach, and studies have suggested that the importance of the key role of triage nurses should be defined and highlighted in improving the triage process (13). Other studies indicate that in response to emergency congestion and to increase the efficiency of the triage process, the role of the triage nurse development should be clearly stated (21). Describing the functional role of triage nurses should be such that we can make the best possible use of them. The results of the present study and those of other studies show that the difficulty of triage nurses affects their performance because triage department is a stressful environment with high workload and fatigue leading to a decrease in nurses' concentration and priority errors. This makes the emergency room more congested lessening the triage nurse satisfaction (11). The results of the present study and those of other studies suggest that in order to improve the role of triage nurse, considering the nurse experience, hard work and written training program for triage nurses, advanced functional roles of nurses can be recommended to improve the flow of patients in the emergency room (22).

- **Legal and financial issues**

The present study showed that considering financial considerations and hard work for emergency nurses can be an incentive to improve the triage process more accurately and with better quality. On the other hand, due to high independence and heavy responsibility of triage nurses, legal protections and supports also play a significant role in patients' triage process. Despite the important role of financial considerations and legal supports of the triage nurses, this issue is not mentioned in any standard and clinical guide except for the findings of the present study, while financial considerations can be used as a way to motivate better performance and improve the quality of care of the triage nurse (13, 23). Legal support for a triage nurse also requires immediate and urgent attention because triage nurses' worries about making wrong judgments can impair their performance and right decisions (24). Studies have consistently reported that the emergency environment is stressful and chaotic. Triage nurses believe that non-emergency patients are a significant source of stress and anxiety that are eager to be admitted to the emergency department, leading to unnecessary insistence and conflict in triage (25). Studies show that the inevitable incidents of patient-related violence in the triage room cause frustration and fatigue in triage nurses (26). Mirhaghi's study indicates that a significant proportion of triage nurses experience anxiety and discomfort above average, and that aggression and violence in the emergency room interfere with their appropriate and correct decisions(20, 27), so considering security systems and paying attention to the occurrence of violence in triage room is one of the most important legal and ethical issues mentioned in the present study which can lead to conflicts in the role of triage nurse and verbal and physical violence. The results of a study by Ramacciati et al. show that the suffering of violent episodes has hidden, serious and severe costs as much as does the direct and tangible costs for triage nurses. Nurses feel that violent episodes are inevitable and are accustomed to a lot of violence. They feel incompetent and suffer from feelings of loneliness in the face of problems and lack of support from the organization, as well as feelings of

hurt, fear, anger, and injustice (28). A study by Ferri et al. showed that 90% of triage nurses have experienced violence during the past year. The perpetrators of violence are primarily relatives or friends of patients (62%) and usually are men. Aggressive male patients account for 31% of episodes of violence. Studies have shown that male nurses suffer only from verbal violence while female nurses suffer from both verbal and physical violence. Triage nurses reported that violence, as a personal or professional injury, leads to resignation due to insufficient organizational support. They believe that "abuse" is an inevitable part of work and that excessive exposure to violence in workplace has adverse effects on nurses'mental health and behaviors at work and home (29).

- **Management issues**

As indicated by the results of the present study, management issues (managerial dimensions in triage, continuing training planning, hospital triage committees to improve the triage process, support system and the need to delegate authority to the triage nurse to complete the work process), in addition to the triage nurse's treatment and care duties, are very important because the main role of organizing and managing the treatment of patients from the entrance of the emergency department is among the responsibilities of the triage nurse, also emphasized by the results of other studies. Management issues take their importance from the fact that triage nurses prioritize patients for receiving services not only based on the urgency assessment, the patient's need for treatment based on objective/subjective evidence and brief examination, but also based on the amount of resources required in the ward. The present study and other triage guidelines believe that since nurses are in charge of triage, the scope of their authority and duties should be clearly defined and written according to the instructions and decisions of the triage committee of the relevant medical center or university. The necessary executive instructions and administrative authorities should be assigned to triage nurses by the triage committee of the center, according to the conditions of different emergencies and completely based on the time of referral, the number of patients, and the type of disease. This means that the executive instructions on triage are flexible depending on the conditions of the hospital and opinion of triage committee of hospitals or universities. The Emergency Society states that training courses, the ability to provide a safe environment for the triage nurse, the existence of interpersonal competencies (experience, interpersonal personality skills, interdisciplinary, critical thinking and communication skills, and decision making) are essential for managerial performance of triage nurses (13). One of the most important challenges related to the management aspects of emergency department triage is related to the challenges of workforce management (lack of personnel), also important for the present study. Rosenberg et al. stated that the shortage of nursing staff is a global challenge, which is addressed by both developed and developing countries. Lack of nursing staff, in addition to its adverse effects on the quality of care, causes other problems such as leaving the job and burnout in nurses(30). Lee et al. also showed that the shortage of nursing staff and the increase in workload and fatigue in the emergency department cause patient dissatisfaction and decrease the quality of medical services (31).

- **Technical issues**

Technical issues in triage (existence of flexible executive instructions, defined communication, basis of post-patient care, occupational damages, revision of triage nurse job description, triage error prevention, and importance of cultural differences in triage) were among important results of the present study, also confirmed by other studies, including those regarding the importance of cultural differences. Mirhaghi's study believes that cultural differences in the context of any society are one of the most important concerns of any emergency department about how to choose a triage system(27). One of the important reasons for this is that triage is an interactive process and is strongly influenced by underlying factors in the emergency department including facilities, doctors, triage nurses, patients and hospital rules going beyond patients' prioritization for receiving care and treatment. Beyond the important role of triage in providing care and treatment, triage is considered a gate for patients with the same culture of special care in each emergency (32). All underlying factors strive to fit triage input criteria for caring adaptable to the majority of patients in line with patient care culture. Therefore, it is worth mentioning that in addition to the importance of triage as an essential part of any emergency, the choice of triage system should also be compatible with the culture of patient care. Other studies have reported that Australian emergency departments have a culture of care based on timeliness, appropriateness and efficiency. But, little is known about how a culture of care can affect a nurse's performance. All nurses develop their own

knowledge systems that are influenced by a culture of care (32). The study by Mirhaghi et al. showed that there are eight main beliefs about the performance culture of triage nurses, which are: mentioning the example, decision making in triage is a matter of taste, specialized emergency facilities are one of the most important factors influencing decision making, not every nurse can be assigned to triage, all patients are emergency, it is necessary to know who is in the doctor shift, triage decision must be accepted by colleagues, and triage guidelines are not operational and the triage nurse must know what to do. Quality care is one of the basic needs of patients to achieve the most desirable health outcomes (33) defined by the World Health Organization in the form of patient-centered and fair, accessible, safe, efficient and effective in an acceptable and safe way (34). On the other hand, in addition to the necessity and importance of care in health system, improving the quality of care has also been considered as an important issue, and if patients do not receive proper triage and effective clinical care in the first few minutes of hospitalization, the system of care and treatment in the coming days cannot provide effective care to these patients (35, 36).

Outcome standards

The present study elaborated on outcome standards based on experts' opinions including triage errors monitoring and adverse outcomes, timing, satisfaction monitoring, quality monitoring of triage nurse, which have also been confirmed by other existing studies. Monitoring and control is one of the main tasks of management so that, without it, other management tasks such as planning, organizing and directing are also incomplete with no guarantee to be performed properly. The ultimate goal of monitoring system is to increase the level of efficiency and effectiveness and thus increase the quality of service delivery. Participants in the present study emphasized that the performance of a triage nurse should be continuously monitored in person and in absentia to identify their errors and make the necessary plans to correct and improve them. If triage nurses are not competent enough, triage errors can occur, which in turn can lead to problems such as increased patient length of stay, delays in transferring patients to other hospital wards, congestion in the emergency room, reduced quality of care, and subsequent complications which sometimes lead to permanent injury or death (15).

- **Satisfaction**

Proper triage increases the quality of patients' medical services and reduces patient waiting time and length of stay, mortality, and ultimately treatment costs (37). Failure to perform proper and effective triage leads to congestion in the emergency department and, as a result, leads to delays in the transfer of patients from the emergency department to other parts of the hospital resulting in dissatisfaction of patients and their companions (38, 39). Other studies suggest that satisfactory triage can reduce the patient's irrational expectations as well as patient and companion concerns about the patient's clinical condition, facilitate and accelerate patient's circulation in the emergency room, and increase satisfaction in both care recipients and caregivers (12, 13). Measuring patient satisfaction with triage nurses' care is a major challenge for care providers in emergency care centers. Mirhaghi's study indicates that the factors affecting patients' satisfaction with the services of triage nurses in the emergency department cannot be determined unless the inherent inconsistencies of triage performance are examined (40). The study by Chau et al. showed that the majority of participants were satisfied with the training and care provided by triage nurses. Patients' satisfaction with triage nursing care is significantly related to age and type of nursing interventions offered. The elderlies are very satisfied with the training provided by the triage nurse. There is no significant relationship between patients 'satisfaction with triage nursing care and nurses' characteristics such as gender, work experience and level of education (18).

- **Unfavorable consequences and mis-triage**

Improving patient safety is possible by preventing triage error (light triage - heavy triage). The majority of triage nurses, due to lack of knowledge about triage, make mistakes in prioritizing patients and placing them at higher or lower levels than the actual condition of patients. Studies show that triage nurses over-triage 25% of patients and under-triage 42% of them (41). Najafi et al.'s study showed that in trauma patients, the amount of under-triage is 1% to 71.9% and over-triage 19% to 79%, and standardization of triage error definitions can make the error rate comparable in different studies and also clarify the role of triage scales (42). In other triage systems, errors have been investigated. For example, a study by Parenti et al. shows that the Manchester triage system has a wide range of inter-raters with good and very good agreement rates. The safety of this triage system is low due to the high amount of under-triage and reduced sensitivity in predicting high emergency levels. The high amount of over-triage

can be the reason for unnecessary use of resources in emergency departments (43). Other studies suggest that efforts to improve sensitivity and reduce under-triage should be continued (44). Since the rate of triage error is directly related to the increased morbidity and mortality, identifying the rate of over-triage and under-triage allows emergency department officials to improve emergency services and develop the situation by obtaining accurate data.

- **Timing**

As far as the outcome standard is concerned, the long waiting time and stay of patients in the emergency department is a result of inefficient workflow in the emergency department due to the lack of an effective triage unit to prioritize patients, as indicated by other studies (45). Prolonged waiting time and length of medical services have a negative effect on the quality of health care and increase the risk of adverse consequences for patients in critical conditions (10). This issue is one of the most important results of the present study and others'. Horwitz et al. showed that a small number of hospitals consistently offered emergency waiting time to emergency department patients, and less than half of the hospitals admitted emergency department patients within 6 hours (46). The study by Oredsson et al. found that directing patients with less deterioration to the fast track area reduced waiting time and length of stay and reduced uninformed out-of-hospital leave. The presence of a physician in the triage team may lead to a reduction in waiting time and length of stay and possibly a reduction in uninformed out-of-hospital leave (47). Hamechizfahm et al. suggest that emergency physician intervention time may be reduced by performing interventions such as peak flowmeters for patients with COPD in the triage room (48). The importance of the concept of time in the results of the present study and other studies may be due to the impact of interventions and care for patients in the treatment process and patient consequences.

- **Triage nurse quality**

The results of studies conducted in Iran show that the professional knowledge of triage nurses is not satisfactory, and because triage nurses do not have enough knowledge about patient prioritization and patient identification, they make mistakes in the clinic, which leads to patient dissatisfaction and triage room congestion (49). Other studies, including Mirhaghi et al, showed that nurses were not suitably familiar with hospital triage knowledge. 39.94% of the nurses' answers to the questions of knowledge level were correct. Nurses' low knowledge about hospital triage can be caused by the lack of formal specialized triage training courses and not requiring emergency departments to make evidence-based decisions. Establishment of a university course regarding triage nursing and development of a national triage scale is recommended (50). The study of Considine et al. found that nurses' knowledge is more important than triage experience in the accuracy of triage decisions. Many triage training programs are supported so that knowledge acquisition improves triage decision-making (51).

Limitations

One of the most important limitations in this study is the data collection method. Another method of data collection in this study was focus group meetings (FGD) in which the busy schedules of experts prevented them from publicly attending a place and group discussion. As a result, the researcher inevitably used individual interviews to make better use of time.

Conclusions

Guidelines are needed so that the nurse in charge of triage can quickly and accurately undertake the important responsibility of patient triage. Additionally, having structure and process and outcome standards improves triage performance.

Acknowledgements

This article is the result of a research project by Shahid Beheshti University of Medical Sciences. The research group appreciates the authorities of the School of Nursing and Midwifery Shahid Beheshti University of Medical Sciences and Hospital Management Center and Clinical Services Excellence Office of the Deputy Minister of Health in Iran Ministry of Health and Medical Education.

Authors' contribution

All the authors met the standards of authorship based on the recommendations of the International Committee of Medical Journal Editors.

Conflict of interest

None declared.

Funding

The author(s) disclosed receipt of the following financial support for the research and/or authorship of this article: This project was supported by funding from Shahid Beheshti University of Medical Sciences.

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