

Nurses Perception Toward Implementation of an Emergency Department Triage System

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Abstract: Triage is an essential step in providing quality emergency care. More than 16 million patients are present each year in the emergency's departments of the Kingdom of Saudi Arabia (KSA).

Objective of the work: to evaluate the implementation of the triage and acuity's scale of Emergency Department in Canada . **Research design:** an exploratory quantitative descriptive design.

Setting: Prince Mutaib Bin Abd El Aziz Hospital in Al-Jouf Region.

Sample: 31 nurses attending the emergency room patients of this hospital included in the study. Tool : a structured questionnaire for interviews and the perception scale of nurses on the implementation of the triage system in the emergency unit.

Results: The results of the study revealed that the most important problems encountered by the emergency's department in relation to the classification of patients before the implementation of the triage and acuity's scale of Emergency Department in Canada were the long waiting times of patients for the doctors, then the patient's dissatisfaction and aggression. Furthermore, the results of the study revealed that respondents indicated that the role of nurses is to prioritize critically ill patients and hence, provide the first aid; however, after the classification was implemented, the nurses who worked in the emergency room felt satisfied. **Conclusion:** most of the participants were satisfied after the implementation of the triage system in the department of emergency .

The study recommended further studies to compare other Triage systems. And it has been emphasized in continuing education in Triage systems and in assessing the effectiveness of the training of nurses and doctors to improve staff training in Saudi Arabia.

Key Concepts: perception, triage, emergency department.

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I. Introduction

Triaging is a sorting of patient depending on the severity of the disease, from a life-threatening condition to a mild illness. Studies have been reported that, about half of victims visiting the emergency department (ED) are not urgent, which generates higher costs and numerous negative effects (Qureshi, 2010; Carter & Chochinow, 2007). Patients coming to the ED must be assessed, and then categorized according to severity of disease by triage system which allocates resources and utilization from ED. There are three interconnected elements that affect decision making for triage; the patient condition, the triage decision-maker and policy of hospital. Triage is essential for saving time and admission rates, enhancing the competence of the ED, increasing patient and family satisfaction, managing funding (Al-Arabi & Al-Shimemen, 2003).

Scales of triage have been designed to help health professionals prioritize critically ill patients and achieve an effective health outcome. The triage scale generally has three to five elements, algorithms or protocols such as the anchor points for decision-making, which are dependent upon the guideline and procedure of triage (Dong, et al., 2007). Nowadays, technology helps the computer classify patients and helps them act to make decisions. The most commonly used scale is the universal rating scale and emergency acuity Canada Department and Australia Rating Scale (ATS) has five elements with the corresponding acuity level of the treatment. Scales of triage that have five elements, their reliability is better than scales that have three elements only (Travers, Waller, Bowling, Flowers and Tintinalli, 2002).

Training in the usage of Triage scales plays an important role in the increase of reliability for scales' usage (Dong, et al., 2007). Therefore, it is important that emergency services use the systematic method in order to prioritize patient's care depending on the clinical urgency. Aljohani, in 2011, cited in his study that, more than

16 million patients are presented to be treated in the departments of emergency (EDs) in Saudi Arabia's Kingdom (KSA) every year and this number is increasing.

Saudi Arabia's Ministry of Health (MOH) has prepared an organization of care centers that, including triage's guidelines to be used in all emergency departments of the Ministry of Health. Regarding the specialized emergency manual assistance which provides the triage, objectives and policies, achieves three elements of triage activity and supplies the workforce, resources, equipment and necessary procedures. (Qureshi, 2010). As far as we know, there are no published studies that have systematically explored the Triage of RME and neighboring countries, although studies in Saudi Arabia and Bahrain have evaluated the use of ED services, waiting times in the sorting area, the profitability, reducing the workload and the use of intensive care unit resources (Al-Arabi & Al-Shimemen, 2003; Fateha & Hamza, 2001).

II. Significance of the study

Sorting of patients is an essential activity and solving the problems for the department of emergency, for example increasing number of critically ill patients furthermore, improving the health outcomes' quality (Elder et al., 2004). In Saudi Arabia, there is little research on triage. Therefore, the sorting should be applied to all treatment centers. additionally, it is essential that hospitals apply Triage system to reduce the burden on the patients and improve patients care health (Aiken, Havens & Sloane, 2000; Dong et al., 2007; Kelly & Richardson, 2001; Göransson, Ehrenberg & Ehnfors 2005). Training in triage research and qualification required for its practice is very limited in the Kingdom and Al-Jouf city. This study highlights and looks to implement further research on the triage system and hence support the training of staff in training programs including medical education studies that help in exploring the perceptions of those critically ill patients (Miles & Naumann, 2004).

III. Aim of the Work

The overall objective of this research was to describe the implementation of the Canadian Emergency department triage and acuity scale, mainly to reduce waiting times for patients and improve the quality of care rendered at this emergency unit.

Research Questions

To achieve the general objective of this study, the following research questions were

- What is the nurse's role in sorting patients in the emergency room?
- What is the triage system's strength that implemented?
- What is the triage system's weakness that implemented?
- What are the triage's guidelines used in the improvement of this system?

IV. Subjects and Method

Design: an exploratory quantitative and descriptive design was utilized.

Setting: It was conducted at the Prince Mutaib Bin Abd El Aziz Hospital in Al-Jouf Region.

Subjects: Purposive sample consisted of all nurses (31 nurses) who introduce care for patients at ED in this hospital and they have the rights of Participating in the study or not

Tools: Structured formats were used to collect relevant data for the study from the participants based on the inclusion criteria, were formulated and tested by the researchers and then by a jury of 5 academic experts for the validity of their content. A pilot study was conducted before starting data collection in 10% of the sample, to evaluate the tentative tools developed for clarity and applicability, as well as to estimate the time required for data collection. Necessary changes have been made. Reliability was tested using the test retest = 84.

1. An interview questionnaire: It was designed by the researchers and consisted of the following sections:

Section A: Sociodemographic and medical data sheet. It included age, gender, educational level, marital status and years of work experience, additional training in emergency department and previous experiences in triage.

Section B: Problems encountered in the department of emergency in relation to classification of patients.

Section C: Perception of nurses' role through the implementation process.

Section D: Training needs.

2. Scale of nurses' perception toward the triage system's implementation in the department of emergency

. It was designed by the researchers to evaluate nurses' perception toward triage system implementation at the emergency unit. The instrument includes 30 items, which are ranked numerically on a 3-point Likert scale, with an interval of: 1 (disagree), 2 (neutral) and 3 (in agreement). Therefore, the overall score of the scale ranged from 30 to 90, in which low level of perception: (30-50). Moderate level of perception: (51-70), and high level of perception: (71-90).

Method

- **Approval to conduct** the study; an official letter was issued to the hospital director.
- **Protection of human rights;** each nurse was informed about the objectives and nature of the study. The nurses were informed that their participation is totally voluntary and confidentiality and anonymity have been assured.
- **Period of the study:** this study was conducted throughout November 2018.

Procedures

- The researchers used structured interviews to fill in the study tools. Once the permit was granted to continue with the proposed study, the researchers started collecting data after presenting and explaining the purpose of the study to the participants. The interview was conducted in small groups to collect data. The used time ranged from 30 to 45 minutes for each group.
- Nurses divided into 5 groups: 4 groups include 6 nurses in each, and the fifth group includes 7 nurses. The researchers met only one group in a day till meets all nurses according their schedule in the emergency unit. Each nurse completes the two tools and elicits data about questionnaire sheet.

Statistical analysis

The results were statistically analyzed using the SPSS package. Quantitative variables were presented as mean (x) and standard deviation (SD). Pearson and Anova correlation. Statistical significance was considered with a value of $p < 0.05$.

V. Results

Table (1) : it is clear that, one third of the studied sample was between 35 and 39 years with a mean age of 31.06, and (35.48%) had worked 6-7 years, (80.65%) of them had Diploma in the faculty of health sciences, and all of them had training course on triage (74.19%) never practiced or experienced triage before.

Table (2): showed that the patients complain about their waiting periods to see the doctor (83.78%), followed by patient dissatisfaction (74.19%) and therefore overcrowding in the waiting room (64.52%).

Table (3): it is evident that The role of the most important nurses during the triage, according to the interviewees, is to give priority to patients (93.55%); establish first aid measures (93.55%), then administer waiting periods, organize patients and provide a brief description of each patient's problem (triage cycles). **Table (4):** concerning nurses feeling responses in percentage distribution during implementation of new triage system in emergency unit. This table describes that (61.29%) mentioned that their morale has improved, (58.06%) I feel more responsible and (45.16 %) of them mentioned that they feel trained but still inexperienced. **Table (5):** regarding to the perception of nurses during the triage system' implementation in the unit of emergency, it is obvious that (77.42%) stated that prioritization of patients is done, waiting periods were managed, patients were organized and a brief description of each patient's problem was provided for each patient's problem are obtained, also, (70.97%) mentioned that the first aid measures of the Institute, were necessary.

Table (6): shows that nurses aged between 35-39 years were having the highest mean score of Perception

Table (7): shows that nurses who had Bachelor degree in nursing sciences were having the higher mean score of Perception

Table (8): shows that nurses who worked 8 – 9 years were having the higher mean score of Perception

Table (9): shows that nurses who had Training Course on Triage were having the higher mean score of perception.

Table (1): Sociodemographic and Medical Characteristics of the Studied Sample

Variables		Total No=31	
		No	%
Age	< 25 years	5	16.3
	25 – 29 years	6	19.35
	30 - 34 years	9	29.03
	35 - 39 years	11	35.48
	Mean + Std. Deviation	31.06	5.35
Total		31	100
Educational Level	Diploma in faculty of health sciences	25	80.65
	Bachelor degree in nursing sciences	6	19.35
	Total	31	100
Years of Experience in ED	4 – 5 years	10	32.26
	6 – 7 years	11	35.48
	8 – 9 years	10	32.26
	Total	31	100

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Additional Training	Cardiopulmonary Resuscitation Course	19	61.29
	Emergency nursing diploma certificate	4	12.90
	Training Course On Triage	31	100
Type of Triage	Not applicable – never practiced / experienced triage before	23	74.19
	Basic triage	8	25.81
	Total	31	100

Table (2): Difficulties encountered in the emergency unit with respect to the classification of patients Prior New Triage Implementation

Items	Agree		Disagree	
	No	%	No	%
Lengthy of waiting times.	26	83.78	5	16.13
Patient dissatisfaction.	23	74.19	8	25.81
Overcrowding in the waiting room.	20	64.52	11	35.48
Unbalanced workloads for nurses.	16	51.61	15	48.39
Wrong decisions by the administrative staff of those who have to sit and wait and who must be assisted by a nurse.	12	38.71	19	61.29
Incorrect follow-up of infection control guidelines, such as blood spills or non-isolated patients with infectious diseases in the waiting area.	11	35.48	20	64.52

Table (3): Perception of the role of Nurses during Implementation of New Triage System

Items	Agree		Disagree	
	No	%	No	%
Prioritization of patients.	29	93.55	2	6.45
Institute of first aid measures when necessary.	29	93.55	2	6.45
The waiting room is managed, the patients are organized and a concise description of each patient's troubles is given (triage cycles).	25	80.65	6	19.35
Assessment (history taking) of patients.	20	64.52	11	35.48
Targeted physical examination and assumption of vital signs..	19	61.29	12	38.71
Documentation.	17	54.84	14	45.16
Control of Infection, such as, the prevention of blood spills and isolation of the infected patients.	13	41.94	18	58.06

Table (4): Nurses feeling responses in Percentage Distribution during Implementation of New Triage System in Emergency Unit

Items	Agree		Disagree	
	No	%	No	%
My morale has improved.	19	61.29	12	38.71
I feel more responsible.	18	58.06	13	41.94
I am qualified, but still have a little experience.	14	45.16	17	54.84
I feel I possess the upper hand on the unit	12	38.71	19	61.29
The unit is running more smoothly.	12	38.71	19	61.29
I don't feel a properly trained	9	29.03	22	70.97
The process still does not flow smoothly.	3	9.68	28	90.32
I feel this is not in my area of practice	0	0	31	100.00

Table (5): Nurses' Perception during implementation of Triage System in Emergency Department

Items	Agree		Sometimes		Disagree	
	No	%	No	%	No	%
Prioritization of patients is done	24	77.42	0	0	7	22.58
The waiting room is managed, the patients are organized and a concise description of each patient's troubles is given (triage cycles).	24	77.42	0	0	7	22.58
Institute of first aid measures when necessary.	22	70.97	0	0	9	29.03
Assessment (history taking) of patients is carried out upon arrival.	20	64.52	0	0	11	35.48
The nurses are on the first line of unit, in a group with the reception / administrative staff, to reduce the decisions of non-medical staff.	17	54.84	0	0	14	45.16
Initiate contact with patients and their families.	14	45.16	0	0	17	54.84

Table (6): Differences of Nurses' Perception Regarding Age

Age	Mean	Std. Deviation	F - p values F= 21.09**
< 25 years	49.80	5.80	
25 – 29 years	61.66	12.16	
30 - 34 years	65.22	7.01	
35 - 39 years	78.18	1.83	

Table (7): Differences of Nurses' Perception Regarding Educational Level

Educational Level	Mean	Std. Deviation	t- p values
Diploma in faculty of health sciences.	63.64	11.49	T = 3.25**
Bachelor degree in nursing sciences.	79.16	1.60	

Table (8): Differences of Nurses' Perception Regarding years of experience in the department of emergency

Years of Experience ED	Mean	Std. Deviation	F - p values
4 – 5 years	56.30	11.82	F = 17.94**
6 – 7 years	65.45	7.85	
8 – 9 years	78.30	1.88	

Table (9): Differences of Nurses' Perception regarding Additional Training in Emergency Department

Additional Training in ED	Mean	Std. Deviation	F - p values
Cardiopulmonary Resuscitation Course	59.42	9.87	F = 20.17**
Emergency nursing diploma certificate	77.00	0.01	
Training course on Triage	78.62	1.99	

VI. Discussion

Triage is a patient classification system to establish which individual specialist require treatment for actual or possible injuries, to provide a rapid response to keep away from the further complications, it is necessary to build up a system to direct the patient to the facility or service appropriate emergency care Unit , so that urgent action can be taken. Triage decisions are rooted in a team approach and are often implemented by prehospital emergency personnel ,who are depending on injury mechanism'knowledge, condition / patient's history, the rapid assessment of the clinical status progress of patients during the transport. (Nicol & Steyn 2004).

The overall objective of this study was to evaluate the achievement of the triage scale and the emergency classification of the Department of Canada, mainly to reduce waiting periods for patients and improve the value of care in the emergency department. The results of the study revealed that the most important challenges before the achievement of the new Triage system were complaints of patients about their lengthy wait to see the doctor (83.78%), followed by patient dissatisfaction (74.19%) and therefore overcrowding . in the waiting room (64.52%), according to the respondents, the most important roles of nurses during triage are patient priorities (93.55%); set up first aid measures (93.55%), then the waiting room management, check for excess numbers and a concise description of each patient's troubles (triage rounds).

In consistent with these results, Augustyn, Ehlers and Hattingh, 2009 reported that ,The significant difficulties founded before the Cape Triage score ' implementation were related to the time-consuming of patients. The main functions of the triage nurse were patients' priority in addition to the establishment of the first aid measures followed by contacting with patients and their families, However, it was considered that the main basic competences of primary nursing assessments were performed and the maintenance of good relationships with patients and families to implement the intervention in crisis situations. Other researchers illustrated that ,nurse-led triage improved patient priority(Gottschalk 2004; Parish 2000)

It is obvious that (71%) of them were satisfied, (61.29%) stated that their morale had improved, (58.16%) I feel more responsible and (45.16%) of them claimed to be trained but not yet experienced. In relation to the excellence of care prior to the triage system implementation of, (58%) of nurses mentioned that it was poor, compared to (65%) of them after the triage system implementation, the excellence of care of nurses said that, it was acceptable. While (35%) of them mentioned it was good.The patients' sorting is essential to reorganize and reduce time of waiting and entry numbers, increase the competence and efficacy of ED, improve satisfaction of the patient and family, improve medical care quality, manage the funds and estimate the efficiency of ED activities (Elder, et al., 2004).

Regarding nurses' perception during the emergency unit triage system implementation, it is obvious that (77.42%) declared that the definition of patients' priorities was carried out, the waiting room was managed and control of overcrowding was obtained and a concise description of each patient's trouble was obtained (cycles Triage). And (70.97%) mentioned that the first aid measures of the Institute, if necessary. The triage of care targets to reorganize load of the ED work. The main problem not to increase or reduce times of waiting in general, but rather the efficiency with which Triage nurses assign shorter times of waiting with a higher priority, thus redistributing the waiting times of patients in based on needs. times of waiting inside emergency room influencethe satisfaction of patient with treatment, other than they can also have a serious complications which are negatively have an effect on outcomes of health.

The extendedtimes of waiting at Triage'areas are the main cause for patients and their families' dissatisfaction (Gerdtz & Bucknall 2000). Long times of waiting show failures in admission and care excellence equally. The reduction in patient 'stimes of waitingmay be utilized as an marker of high-qualityof care and improvedwork by the Department of Education. Nurse selection established to improve satisfaction of the

patients, which is another mark of the excellence of medical care. Also a telephone nurse (Elder, et al., 2004). The new triage system ' implementation has apparently facilitated patient prioritization, since a lot of respondents felt that they are an authoritative personell. comparable results were clarified by Heyns, 2003; Almes, Davis, Elder, & Littlepage (2004).

The results of the present study also revealed that, everyone required further knowledge, practice and direction to perform the patient' sorting. In light of these results, the research indicated that personnel advance and ongoing learning cover a wide range of responsibilities. Health care' organizations have established development of the , sometimes called nursing education. Development of nurses is responsible for many tasks, starting with the direction and training an un experienced newly graduated nurses, to be an expert nurses, so If the nurses follow the educational guidelines and ongoing training programs for triage;' implementation, they will improve patient care' quality and feel with a satisfaction for their achievement (Budd, 2007; Aragon, 2010).

VII. Conclusion

Triage system has a multiple advantages that concise in nurses satisfaction and hence they were mentioned that their morale had improved. According to the participants, the main nurse' role in patients ' sorting is possibly the patients priority, establish first aid measures, then control the room of waiting, monitor excess numbers and a concise impression of each patient's trouble (Triage cycles), the respondents illustrated that, they required further implementation and administration to apply a new triage system.

VIII. Recommendations

Prospect researches focused on this area should evaluate how newly graduate nurses classify patients with ED according to the priority, the design categories for patients, criteria and knowledge they use when they perform therefore:

- Ongoing education on systems of triage for nurses and doctors will develop staff capability in Saudi Arabia and other parts of the eastern Mediterranean region. There must be a continuous assessment of the efficiency of the training programs on triage' perceptions, practice and knowledge for nurses.
- Community campaign are required to promote community confidence in the system of triage with stress on how patients have priority depended up on the severity of the problem in question, rather than on other factors.

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