

Assessment of Knowledge and Performance Regarding Triage Among Nurses Working in Emergency Unit-Al Dawadmi General Hospital: A Cross Sectional Study

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Abstract

Five experts validated the contents of the tools and tested for reliability, using Cronbach's alpha, the tool correlation coefficient was 0.79. The majority of participants (74.46%) were in the age group of < 30 years. More than half of the studied subjects (59.57) are male. The majority of them have BSc and about 70.21% work experience for more than five years. Only 72.34% of them had not attended any form of workshops about Triage. 70.2% of them knowing the purpose of triage, 91.2 % know color used in nonurgent situations, while 91.5% not know the time of Triage.93.6% of them not know the importance of urine analysis in the triage unit. The majority of them (80.90 %) strongly agree that hospital Triage is good. knowledge about triage is a key in triage decision making. The study findings revealed that there were still deficits in the triaging knowledge and skills of nurses.

Key Words: Triage, Emergency Department, Prioritizing, Knowledge, Triage Scale

Introduction

Over the last years, the number of patients entering emergency departments has increased in developed high-income countries, but also in low-income countries, partly due to self-referrals, leading to the overcrowded emergency department ⁽¹⁾.This elevated amount of patients visiting the emergency departments can effect on healthcare quality by channeling funds to people with possibly less requirements for emergency care ⁽²⁾. It raised the need for an urgent scheme that prioritizes patients. In their emergency departments, many hospitals in low-income countries lack a formal triage system ⁽³⁾. Triage is a method used to assess the extent of the disease or injury and to prioritize patients, according to

medical care needs, regardless of their influx order or other factors like race, age, or socioeconomic status ⁽⁴⁾.

The mortality rate in hospitals may be increased. The reason triage is one of the vital elements for offering effective care in emergency rooms, and the death rate of patients has been reported to decline ⁽⁵⁾. This study examined the level of knowledge, nursing duties, and quality of services of nurses working in the Triage Unit at Health Care Centers and Al- Dawadmi Hospital. Because Al- Dawadmi hospital receives patients from many villages near it, the triage process in this hospital is effective to assure the best care in the emergency circumstances.

This study aimed to (1) determines the level of knowledge and nursing duties regarding Triage. (2) Assess the relationship between attending workshops and the level of nurses' knowledge about triage.

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Methods

Study Design: Cross-sectional Descriptive design.

Setting:

The study was carried out in the Emergency Department in Al- Dawadmi Hospital Riyadh, Saudi Arabia.

Sources and Methods of selection of participants:

The total numbers of active members of the nursing staff, working at the Emergency Department study subjects' number is 47 participants.

Variable: Level of knowledge in relating to attendance of workshop, work experience relating to level of education, quality of services and, nursing duties in the triage unit.

Diagnostic criteria, participant selection, are active members of the nursing staff, Saudi and Non-Saudi, male and female nurses; working at the emergency Unit for more than three months.

Data sources: Data collection instruments which consisted of three parts: the first tool consisted of Socio-demographic data, including demographic data. It includes five questions such as age, gender, the level of education, working experience at the emergency department and, attended workshop about the triage. The second tool - consisted of two parts. First part to assess general knowledge of nurses in the emergency department about the triage, it contains six questions. The second one about Canadian and Acuity Scale colors. It provides nationally consistent standards for the maximum time patients are considered safe to wait for the emergency care, which includes categories of colors and maximum waiting time. Tool three, including four questions about Quality of Triage services. Most of these are presented in multiple - choice answers, which may be quickly answered by ticking the appropriate boxes. Each one need only one response and every response will be considered as one.

Bias: A pilot study was carried out on the number of seven nurses that was 7% of a potential sample size to test the clarity and simplicity of the study tools. The necessary modification was done in tools and, subjects who shared in the pilot study were excluded later from

the study sample. The Cronbach alpha test was applied to determine the reliability of the scale. The Cronbach value was 0.79.

Study size: Saudi and Non-Saudi, male and female nurses; working at East and west Al- Dawadmi clinics and the emergency department for more than three months, 47 participants returned out of 100 surveys sent, which gives 47% response rate.

Procedure

Data was collected over a period of February 10 to April 10, 2019. All staff members, male and female nurses who are currently working in the emergency departments Al -Dawadmi hospital were part of the survey. The researchers asked the nursing director for a list, email and, contact number of the nurses working in their department. Then the researchers were contacted with the staff and asked for the convenient time for discussion with them the objective and rationale of the study, those who would voluntarily agree to participate in the study were asked to sign the informed consent. The participants were given enough time to answer the questionnaire and, once they finished answering, they contacted the researchers or put in a sealed envelope and submit it to the nursing service office.

Statistical Methods

Collected data were analyzed by using the SPSS version IBM-23 and were presented in tables and percentages. Descriptive statistics like obtaining frequencies and percentages were used in determining the demographic profile of participants. Chi-square test was used to evaluate the relationship between Levels of knowledge and attendance of about the triage. The level of significant was adopted at $p < 0.01$.

Results

Table 1:- Descriptive data of the studied subjects. The majority of them aged from 21- 30 years 74.46%, 59.57% is male and, 74.46% were attending workshop. Table 2:- Showed level of education of studied subjects in relating to work experience, 70.21% of participants have work experience for more than five years in ER, while 55.27 % of study subjects were BSc; Table 3:- Showed distribution of subjects' general knowledge about Triage. 70.2 % considered that Triage help prevents the death

of patients as one purpose of it. Also, there were highly statistical differences regarding general knowledge by p - value equal 0.001; Table 4:- Showed the nurses' knowledge about the Canadian Triage and Acuity Scale; there washigh percentage 91.2% determine non-urgent color, while 91.5% doesn't determine the time of non-urgent color with high statistical significant differences for three questions by p -value equal 0.001; Table 5:-

Showed that there was high percentage (93.6 %) don't know the importance of urinalysis as nursing duties, with highly significant differences for five out of eleven questions by p - value equal 0.001; Table 6:- Showed distribution of studied subjects relating to the quality of services in the triage Unit. 63.80 %, notsure that the triage is considered not very important. Also, there were highly statistically significant differences relating to three out of four questions by p - value equal to 0.001.

Table 1:-Descriptive data of the studied subjects.

Items		No	%
1.	Age in years:		
	· 21-30	35	74.46
	· 31-40	11	23.4
· 41 -50	1	2.12	
2.	Sex :		
	· Male.	19	59.57
	· Female.	28	40.4
3.	Attend workshop	35	74.46%

Table 2:- Distribution of studied subjects regarding to level of education in relating to work experience.

Level of education			Work experience			
			Less 1 year	1 year	2 years	> 5 years
No	BSc	No	3	1	0	5
		%	6.38%	2.12%	0.0%	10.6%
	Diploma	No	0	0	2	2
		%	0.0%	0.0	4.25%	4.25%
Yes	BSc	No	0	5	9	12
		%	0.0%	10.6%	19.14%	25.53%
	Diploma	No	1	1	2	4
		%	2.12%	2.12%	4.25%	8.5%
Total			8.51%	14.89	27.65%	70.21%

Table 3:-Distribution of studied subjects relating to general knowledge about Triage.

General Knowledge	No		Yes		Pearson Chi-Square	p-value
	No	%	No	%		
Do you know the meaning of triage?	16	34.0%	31	66.0%	14.716	0.001
Purpose of triage is to prevent death of a patient?	14	29.8%	33	70.2%	13.368	0.001
Are the staffs trained in triage?	18	38.3%	29	61.7%	28.953	0.001
Are there written Guidelines regarding Triage System?	15	31.9%	32	68.1%	38.337	0.001

Table 4: Distribution of studied subjects' knowledge about (Canadian Triage and Acuity Scale)

Item	No		Yes		Pearson Chi-Square	p-value
	No	%	No	%		
Determine Resuscitation Color? Time	10	21.3%	37	78.7%	17.392	0.001
	38	80.9%	9	19.1%	4.256	0.039
Determine Emergent Color? Time	19	40.4%	28	59.6%	6.191	0.013
	39	83.0%	8	17.0%	3.686	0.055
Determine Urgent Color? Time	26	55.3%	21	44.7%	6.24	0.012
	39	83.0%	8	17.0%	1.107	0.293
Determine Less-urgent Color? Time	17	36.2%	30	63.8%	31.713	0.001
	43	91.5%	4	8.5%	1.672	0.196
Determine Non urgent Color? Time	16	34.04	31	91.2%	34.818	0.001

Table 5: Distribution of the studied subjects relating to nursing duties in Triage Unit.

Nursing Duties	No		Yes		Pearson Chi-Square	p-value
	No	%	No	%		
Does triage assess ABC?	22	46.8%	25	53.5%	20.421	0.001
Take vital signs?	8	17.02%	39	82.97%	25.215	0.001
Determine level of consciousness?	6	12.7%	41	87.23%	17.989	0.001
Basic life support?	18	38.29 %	29	61.7 %	22.184	0.001
Perform an ECG?	42	89.36%	5	10.6 %	14.634	0.001
Taking and documenting medical history?	32	68.08 %	15	31.91%	0.646	0.422
Perform a urinalysis?	44	93.6 %	3	6.38%	2.437	0.119
Perform a blood glucose measurement?	41	87.23%	6	12.7%	0.111	0.739
Perform a blood hemoglobin measurement?	38	80.85%	9	19.14%	0.164	0.685
Utilize pulse oximetry?	33	70.2%	14	29.78%	0.387	0.534
Secondary assessment (head-to-toe)?	40	85.1%	7	14.89%	0.949	0.33

Table 6: Distribution of studied subjects relating to quality of services in Triage Unit.

		Strongly Disagree	Disagree	Not sure	Agree	Strongly Agree	Pearson Chi-Square	p-value
1. How good do you think the hospital's triage is?	No	-	1	4	4	38	14.252	0.003
	%	-	2.10%	8.50%	8.50%	80.90%		
2. Triage wastes time?	No	-	12	9	18	8	1.534	0.674
	%	-	25.50%	19.10%	38.30%	17.00%		
3. Do you think that there is a shortage of staff duty to perform triage?	No	1	17	16	8	5	22.93	0.001
	%	2.10%	36.20%	34.00%	17.00%	10.60%		
4. Triage is considered not very important.	No	1	9	30	6	1	22.4	0.001

Discussion

Saudi and Non-Saudi, male and female nurses; working at East and west Al - Dawadmi clinics and the Emergency Department for more than three months, 47 participants, majority of them aged from 21- 30 years (74.46%), (59.57%) are male, and 74.46% attending workshop, 70.21% of participants have work experience for more than five years in ER, while 55.27 % of study subjects were BSc.

Limitations of the study: This study has several limitations. First, there were a limited number of experienced nurses in the ED due to the lack of human resources. Therefore, this may affect the results. Next, the impact of shortage in triage role on the quality of services to patients and their outcome was not assessed.

Interpretation: Seconds and minutes are essential for the patient in emergency rooms because this time can determine the distance between the moment of death, severe impairment, or return to life ⁽⁶⁾. Hospitals in public countries have emergency departments facing large numbers of patients with low resources, and many obstacles in personnel training and communication and transportation issues ⁽⁷⁾.

According to^(8, 9) found that if the timeliness of intervention improves when critical patients arrive at the emergency room, the emergency service is improved, and this only happens through the use of triage scales. Also, the waiting time of the patient is significantly reduced by using triage.

Knowledge of nurses according to the CTAS standards are very important to applied care for patients in the emergencies situations ⁽¹⁰⁾. Other factors that influence the accuracy and effectively of the triage application includes hours of nurses training and, the level of education, level of hospital, and the triage mode of delivery ⁽¹¹⁾. Level of education influenced nurses' abilities for case classification. The nurses' level with a bachelor's degree scored above the median compared to those with two years nursing diploma. This difference illustrates the great need for highly educated nurses who worked in emergency departments ⁽¹²⁾. According to the findings of the study, there was 70.21 % of them worked more than five years in the emergency department and 55.27 % of study subjects were BSc, that

reflects that they are experiences in the emergency care while 74.46% attending a workshop regarding CTAS which applied in the hospital. It means high percentages regarding general knowledge for CTAS in Al- Dawadmi hospital including knowing the meaning of the triage, purposes, have exposed to previous training programs, and the hospital have written guide lines about the triage system. The same results were found in some studies which support these findings by experienced nurses have been exposed to emergency situations have a better sense of how urgent the case is with regards to CTAS guidelines. These findings are in contrast with Dallaire , who concluded that experienced nurses, even without recent certification, obtained a low triage score.

According to Reisi, Saberipour, Adienh, Hemmatipour, & Shahvali ⁽¹³⁾, 87.7% of nurses had poor awareness of the triage, and only 12.3% of nurses had a moderate level of awareness. Also, in the study conducted by Javadi, Salimi, Sareban, Dehghani ⁽¹⁴⁾, the level of awareness was weak, it indicates that nurses' knowledge about the triage is low and requires retraining and continuing education. However, according to Haghdoost, Safavi M, & Yahyavi ⁽¹⁵⁾, 40 emergency nurses (72.2%) and, according to Göransson, Ehrenberg, Marklund, & Ehnfors ⁽¹⁶⁾, 45 nurses (57.7%) had a moderate level of awareness. According to the findings of this study, about the Canadian triage scale, there was high percentage 91.2% determines nonurgent color, while 91.5% doesn't determine time.

Conclusion

The present study showed that their many triage education programs are needed to improve accurate triage decision making in nurses. Also, further studies are recommended to assess the impact of triage error on the patients' outcome. Workshops / in- service training on the triage should be organized on regular basis to enhance nurses' knowledge. Sufficient content on triage should be integrated into the nursing curricula. Study results can generalize by large number of study participants.

Ethical Clearance: The Research Ethical Committee at scientific research by ethical approval of both environmental and health and higher education and scientific research ministries in Middle east.

Conflict of Interest: The authors declare that they have no conflict of interest.

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