

## Trauma Triage Protocol Accuracy at Emergency Department: Improving Nurses` Competency and Self- Efficacy

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**Abstract:** An accuracy of triage in trauma patients at the emergency department can assist them to receive appropriate treatment in time leading to decreased mortality and disability.

**Aim:** An accuracy of triage in trauma patients at Emergency Department can assist them to receive appropriate treatment in time leading to decreased mortality and disability. The present study aimed to evaluate the effect of improving nurses` competency and self – efficacy on trauma triage protocol accuracy at emergency department .

**Methods:** The study was implemented through a quasi experimental design , in Surgical Emergency Department at El-Demerdash Hospital affiliated to Ain Shams University and Nasser Institute Hospital .

**Sample:** A purposive sample included 60 emergency nurses, 30 from each hospital , pluse 200 trauma patients (100 from each hospital) .

**Tools:** 1) Self administered questionnaire to assess emergency nurses' satisfactory knowledge (pre/post tests), 2) An observation checklist to assess emergency nurses` satisfactory practices in trauma triage . 3) Nursing competency self-efficacy assessment sheet (pre/post tests) and 4) Patients condition outcomes (post test ) . 5) Patients` satisfaction level assessment sheet ( post tests) .

**Results:** less than half of studied nurses at Ain Shams and Nasser Institute Hospitals had the age from 20 - < 30 yrs. and with diploma degree . As regards studied trauma patients , nearly one third of them had the age from 35- < 50 yrs .. knowledge and practices among studied nurses were improved in post tests . **Conclusion** : The study can concluded that improving nurses` competency (knowledge and practices) and self- efficacy through educational guidelines had a positive effect on the accuracy of trauma triage protocol added to patients` outcomes and satisfaction level .

**Recommendations:** Further studies focused on large number of critical care nurses for results` evidence and generalization .

**Key words:** Emergency nurses` competency - Self- efficacy - Accuracy of trauma triage protocol

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### I. Introduction

On emergency department (ED) arrival, patients require an effective assessment to classify “triage” by genuine acuity and needs into emergent, urgent and non-urgent , so that they would obtain the proper treatment on time, Trauma triage is fundamental and important aspect of patients` care . In recent years, studies found that triage has a positive role on patient / nurse satisfaction level . Criteria for trauma triage are based on physiological parameters, specific anatomical injuries and the underlying mechanism of injury <sup>(1,2)</sup> .

In addition , triage help to optimize patients` waiting time according to medical condition severity , manage quickly the necessary intense symptoms and reduce negative effect of the prognosis . Moreover, decisions of triage process may be based on both vital signs (respiratory rate, oxygen saturation in blood, heart rate, blood pressure, level of consciousness and body temperature) and chief complaints . Triage is often a major determinant of outcome <sup>(3,4)</sup>

Accuracy of triage reduces waiting time for treatment thus it can reduce the burden of trauma patients disability and decrease mortality rates. Triage accuracy assessment is largely based on nurses` decision-making competency. Many research studies reported that nurses` experiences , qualifications , patients` characteristics such as severity of injury, age, co-morbid disease and organ of injury can influence the triage outcomes . Triage is a difficult task requiring experienced staff and having the exact criteria at hand as a check list or protocol when activating the team of trauma may facilitate triage decisions <sup>(5,6)</sup> .

Nurses` Competency that had been developed by the continuing education are shown to cover a very broad expanse of responsibilities . Some researches about stress and coping factors among nurses gives insight into the importance of staff development role that can assist nurses in coping with the unique problems faced in health care milieu today`s . Once , nurses feel they are doing well , report satisfaction with achievements , challenged and learning new skills . Moreover , educational guidelines should be developed to assist the emergency nurses to determine what constitutes a trauma patient and where deliver the most appropriate care level in expeditious manner <sup>(7,8)</sup> .

Self-efficacy is helpful aspect for nurse`s performance in an emergency.

Nurses should have confidence level to perform in a unique situation and how well able to navigate obstacles as found . High level of self-efficacy can lead to successful performance in critical situations . Low self-efficacy occur when nurses do not have the chance to practice skills on regular and careful way . In triage process , anyone cannot perform safely this critical duty. It requires in-depth knowledge and skills to keep nurses oriented with the changes in their roles, functions , modify attitudes and understanding <sup>(9,10)</sup>

### **Significance of the Study:**

Trauma care is important to reduce morbidity and mortality by rapid assessment, stabilization and treatment of the injuries . “The golden hour” is a term to reflect the crucial time period immediately after injury whereas rapid management can provides the victim with large chance of survival and decrease subsequent complications . Moreover , waiting time due to overloaded emergency departments (ED) will risk delayed medical treatment <sup>(11,12, 13)</sup> . In recent years , many triage studies to date have concerned with increasing attendance at emergency departments that presents a major challenge to staff and demands highest level of knowledge and practices to provide safe and competent nursing care . Complex skills nature of triage require a highly competent health care team . The emergency nurses` ability on triage to assess, intervene and communicate effectively helps establish rapport and trust with patient and significant others <sup>(14,15)</sup> .

### **Aim of the study:**

This study aimed to evaluate the effect of improving nurses ` competency and self – efficacy on trauma triage protocol accuracy at emergency department . This aim was achieved through the following:

- Assess studied nurses knowledge and practices regarding trauma triage protocol .
- Assess nurses' level of self – efficacy
- Identify patients` satisfaction level
- Develop and implement the educational guidelines for the studied nurses about trauma triage .
- Evaluate their effects on studied nurses` knowledge and practices , added to patients` health conditions outcomes and satisfaction level .

### **Research hypothesis:**

It was hypothesized that , educational guidelines have a positive effect on competency and self – efficacy of emergency nurses nurses as regards trauma triage protocol . .

## **II. Subjects and Methods**

### **Operational definitions:**

Competency : means nurses ` knowledge and practices

Educational guidelines: means theoretical and practical sessions .

Accuracy : means implementing trauma triage protocol for full initially intended duration by competent way .

### **Design:**

A quasi-experimental design was used in this study

### **Setting:**

This study was conducted in Surgical Emergency Department at El-Demerdash Hospital affiliated to Ain Shams University and Nasser Institute Hospital .

**Subjects:**

A purposive sample included 60 nurses with different ages, education and experiences plus 100 trauma patients with various injuries. They were taken as follows:

- Ain Shams Surgical Hospital (Emergency Department)  
30 emergency nurses and 50 trauma patients
- Nasser Institute Hospital (Emergency Department) :  
30 emergency nurses and 50 trauma patients

**Tools for data collection:**

**1- Self-administered questionnaire sheet** (pre / post and follow - up tests ): It was developed by the researchers after reviewing related literatures and consulting expertise . It was written in simple Arabic language and sorted into the following:

- Characteristics of the studied nurses such as age, gender , qualifications and previous training .
- Nurses` knowledge assessment sheet as regards : definition, assessment, site, level of triage , life saving measures, secondary assessment and nursing intervention .

**Scoring system:**

Nurses` responses were scored as (1) for correct answer and (zero) for incorrect answer . The total responses score was categorized into either satisfactory level (from 70% and more) or unsatisfactory level (less than 70% .

**2- An observation check list (pre / post and follow up tests ):** It was adapted from: Ignatavicius et al. (2018<sup>(16)</sup>), Wilkinson et al. (2016)<sup>(17)</sup> & LeMone et al (2015)<sup>(18)</sup> and used to assess nurses` practices on trauma triage protocol such as : primary assessment, life saving measures, secondary assessment and nursing intervention .

**Scoring system:**

A correct practice or adequate was scored as (1) , while the incorrect or inadequate (zero) . It was scored into either inadequately done (less than 75%) or adequately done (75% and more) . The total score was sorted as satisfactory = 75 – 100, or unsatisfactory = less than 75 .

**3. Nursing competency self-efficacy assessment sheet ( pre / post / follow up tests ) .** It was based on Hasnain et al. (2016)<sup>(19)</sup> to assess self-efficacy and adaptation after experiencing all kinds of stressful life events among emergency nurses as regards ( management skills - communication and collaboration - advocacy and ethical practice - clinical competence - professional accountability and proficiency) .

**Scoring system :**

Answers were made on 4-point scale . Sum up the answers to all 8 items to yield the final composite score with a range from 6 to 24 .

Rating scale ( 1 = Not at all true , 2 = Hardly true , 3 = Moderately true and 4 = Exactly true) . Level of self-efficacy was considered high if the score 60% or more and low if it less than 60%.

**4- Patients` condition outcomes (post - test) :** It was used to obtain the following:

- Characteristics of trauma patients e.g age , gender , triage level , type and injury mechanism .
- Patients` outcomes : It include discharge home – discharge against medical advice – transferred to ward – death)
- Trauma triage tool : Emergency Severity Index Version 4 (*ESI-Version 4*) : It was based on National Institute for Emergency Medicine (2013)<sup>(20)</sup> & Gilboy et al. (2012)<sup>(21)</sup> to determine the expected triage level designations from Levels 1-4 . ESI Level 1 is assigned to patients requiring immediate life-saving intervention . ESI Level 2 represents patients who should not wait due to a high-risk situation, a new onset of alteration of consciousness or show severe pain or respiratory distress. ESI Levels 3 and 4 are assigned to patients requiring more than one, one, or no resources respectively.

**5. Patients` satisfaction assessment sheet ( post test ) .** It was based on Kleefstra et al. (2012)<sup>(22)</sup> and composed of a core questionnaire for the assessment of patient `satisfaction for emergency care (COPS-D) . It was consisted of six dimensions, each dimension covered by two, three or four questions : Admission procedure (3 items), nursing care (2 items), medical care (2 items) , information (4 items), autonomy (3 items) and discharge and aftercare (3 items) .

The COPS-D contain 17 questions . The answers were sorted by a 5-point Likert-scale (1 =unsatisfied, 2=somewhat satisfied, 3=rather satisfied, 4=quite satisfied and 5=very satisfied) . A dimension score composed by adding the item scores and dividing the total score by the number of items as follows :

17 questions × 5 point Likert-scale = 85

High satisfaction ( 51 - 85 ) and

Low satisfaction ( Less than 51 )

#### **Content validity:**

It was ascertained by a group of experts including Medical–Surgical Nursing and General Surgery. Their opinions were elicited regarding to the tools format layout, consistency and scoring system. The tools were tested for the knowledge accuracy, relevance and competence.

#### **Ethical considerations and human rights :**

In planning stage approval was obtained from directors of the study settings . All nurses were informed about the procedure and the rights to decide whether or not participate in the study according to medical research ethics . In addition , a formal consent was obtained from them .

#### **Pilot study:**

A pilot trial was implemented on 10% of the total study sample to test tools` clarity and practicability , in addition to study subjects and settings . Pilot subjects were later involved in the study as there were no tools radical modifications .

#### **Procedure of the study:**

- ❖ Sampling was started and completed within 9 months.
- ❖ Study purpose was simply illustrated to studied nurses pre any data collection.
- ❖ Data were collected by the study researchers 2 days/week, at morning / afternoon shift , from first time of patients` admission using the pre – constructed tools.
- ❖ The guidelines was designed based on analysis of the actual educational needs assessment , written in simple Arabic language , consistent with related literatures and included theoretical and practical sessions
- ❖ Studied nurses were sorted into groups, each group consisted of 5-6 nurses, then orientation of the nurses about training objectives, outline, schedule, expected outcomes and benefits.
- ❖ Theoretical part was implemented through lectures and group discussions using data show and pictures as media , given in 8 hours ( 4 sessions ) and covered two weeks . It covered the following items: definition of triage, primary assessment, site and level of triage, life saving measures, secondary assessment and nursing intervention.
- ❖ The practical part was given in 4 sessions (one session weekly for 3 hours). First : primary assessment and performed through demonstration, redemonstration, role play, simulator manikin, real objects, first aid kits and orthopedic supplies. . Second : life saving measures e.g (CPR, shock, choking, bleeding and wounds trauma). Third : secondary assessment . Fourth : nursing intervention .
- ❖ Evaluation of the guidelines was made as follows : through pre / post and 3 months follow -up tests .
  - Nurses` knowledge , practices and self – efficacy by using pre test then post – test (immediately after guidelines ) and follow- up test ( 2 months later) by using the same tools.
  - Patients` satisfaction level and condition assessment ( post test - during the follow-up period of nurses` assessment .

#### **Statistical analysis:**

Data were presented using numbers, percentages and t- test test . significance level was threshold at 0.05.

### **III. Results**

**Table (1):** Shows demographic characteristics of the studied nurses and trauma patients. Concerning nurses` age and qualifications . As noticed less than half of them at Ain Shams and Nasser Institute Hospitals had the age from 20 - < 30 yrs (42.5% & 41.0% respectively) and diploma degree (45.5% & 46.0% respectively) . As regards the previous training , nearly one third of them had training .

In relation to studied patients` age , nearly one third of them had the age from 35- < 50 yrs (31.5 & 33.5 respectively) . Concerning the gender and ways of transportation , more than half of them were male ( 64.4& 66.5 respectively ) , with ambulance transportation ( 64.0 & 65.0 respectively ) .

**Table (2):** Reveals distribution of trauma patients according to their injuries and triage level . As shown, there is insignificant difference between both studied Hospitals (Ain Shams and Nasser Institute ) as

regards studied patients with different injuries ( 38.8 ± 24.4 & 36.4 ± 24.8 respectively ) with t – test = 0.53 , p > 0.05 .

**Table (3):** Displays nurses' satisfactory knowledge about trauma triage protocol in pre/post tests . Results indicated significant improvement in knowledge of nurses regarding post and follow - up assessment (mean percent = **81 .6 ± 2.9** & **90.9 ± 3.4** respectively) compared to pre – assessment (**35.1 ± 10.4**), with t – test = 82.3 & 16.3 respectively), p < 0.05.

**Table (4) :** Presents nurses' satisfactory practices for trauma triage in pre/post tests . Results showed more improvement in nurses’ practices regarding post and follow - up assessment (mean percent = 77 .6 ± 4.2 & 85.9 ± 2.9 respectively) compared to pre – assessment (44.7 ± 6.2 ) , with t – test = 33.9 & 12.6 respectively), p < 0.05.

**Table (5):** Presents self - efficacy with high level among the studied nurses in pre/post tests . Results reveals a statistically significant difference between the studied nurses` high self efficacy level in pre/post tests , whereas more improvement was indicated in post tests compared to pre test (mean = 72.3 ± 3.2 , 80.4 ± 1.6 & 40.8 ± 3.7 respectively) with t – test = 50.0 & 17.6 respectively), p < 0.05 .

**Table (6):** Reveals distribution of study patients according to their triage level .. As shown, there is an insignificant difference between both studied Hospitals (Ain Shams and Nasser Institute ) as regards triage levels (50.7 ± 8.3 & 51.1 ± **9.8** respectively ) with t – test = 0.24 , p > 0.05 .

**Table (7):** Shows studied patients` health condition outcomes. Insignificant difference was indicated between two hospitals results as regards the following : discharge home , discharge against medical advice , transferred to ward and death with t = 0.68 , p > 0.05 .

**Table (8):** Presents studied patients` satisfaction level in post test as regards trauma triage . As noticed more than half of them were satisfied for the following : Pre-admission visit , admission , emergency department, nursing / medical management , information , autonomy , discharge and aftercare . Moreover , insignificant difference was indicated between two hospitals results with t- test = 0.22 , p > 0.05 .

**I. Studied Emergency Nurses :**

**Table (1): Characteristics of the studied emergency nurses and trauma patients**

Items	Ain Shams Hospital	Nasser Institute Hospital
<b>I. Studied Nurses (n=60)</b>	<b>( n= 30 )</b>	<b>( n= 30 )</b>
<b>Age/yrs</b>		
20 - < 30	48.0	44.5
30 - < 40	36.5	39.0
40 & more	13.5	16.5
<b>Qualification</b>		
Diploma	45.5	46.0
Bachelor	14.2	18.4
Postgraduate	40.3	35.6
<b>Years of experience</b>		
5 - < 10	67.4	65.3
10 & more	32.6	34.7
<b>Previous training</b>	25.0	22.0
<b>II. Studied trauma patients (n = 200)</b>	<b>(n= 50)</b>	<b>(n= 50)</b>
<b>Age / yrs</b>		
20 < 35	46.2	45.1
35 - < 50	31.5	33.5
50 & more	22.3	21.4
<b>Gender</b>		
Male	64.4	66.5
Female	35.6	33.5
<b>Ways of transportation</b>		
Ambulance	64.0	65.0
Private	36.0	35.0

**Table (2): Presentation of trauma patients according to their injuries and triage level**

Items	Studied Patients (n = 100)	
	Ain Shams Hospital (n= 50)	Nasser Institute Hospital (n= 50)
- Head injury	35.3	32.4
- Shocking	33.0	29.0
- Electric shock	12.5	10.2
- Bleeding	48.2	44.3

- Chest injury	23.4	21.0
- Extremity, bone, joint / tissue injury	72.0	74.3
- Back pain	25.2	22.6
- Abdominal injury/ pain	60.1	57.0
- Ear injury	14.0	12.0
- Ear ringing	18.3	16.1
- Wounds	85.0	81.3
<b>Mean % ± SD</b>	<b>38.8 ± 24.4</b>	<b>36.4 ± 24.8</b>
<b>T – value</b>	<b>t = 0.53 ( Insig. )</b>	

**Table (3): Presentation of satisfactory nurses' knowledge about trauma triage in pre/post tests**

Items	Studied Nurses (n = 60)		
	Pre	Post	Follow-up
	%	%	%
- Definition of trauma triage accuracy	46.7	85.2	91.6
- Level and tag of trauma triage	23.1	80.5	87.0
- Site of trauma triage	41.2	86.4	95.3
- Primary assessment	47.5	79.3	86.5
- Life saving measures	35.6	81.0	90.7
- Secondary assessment	25.3	80.4	95.0
- Nursing intervention	26.2	78.5	90.4
<b>Mean % ± SD</b>	<b>35.1 ± 10.4</b>	<b>81.6 ± 2.9</b>	<b>90.9 ± 3.4</b>
<b>T – value</b>	<b>T1 between pre &amp; post tests = 82.3* ( Sig. )</b>		
	<b>T2 between post &amp; follow-up tests = 16.3* ( Sig. )</b>		

**Table (4): Presentation of satisfactory nurses' practices for trauma triage in pre/post tests**

Items	Studied Nurses (n = 60)		
	Pre	Post	Follow-up
	%	%	%
- Primary assessment			
○ Airway/cervical spine	43.5	73.2	86.0
○ Breathing	49.8	76.1	84.3
○ Circulation	50.1	80.3	87.2
○ Disability	33.4	79.6	85.1
○ - Conscious level	47.1	80.4	90.5
-Life saving measures	49.5	82.6	88.4
-Secondary assessment	37.3	70.1	80.6
- Nursing intervention	46.8	78.5	85.2
<b>Mean % ± SD</b>	<b>44.7 ± 6.2</b>	<b>77.6 ± 4.2</b>	<b>85.9 ± 2.9</b>
<b>T – value</b>	<b>T1 between pre &amp; post tests = 33.9* ( Sig. )</b>		
	<b>T2 between post &amp; follow-up tests = 12.6* ( Sig. )</b>		

**Table (5) : Presentation of high self efficacy level among the studied nurses in pre / post tests**

Nursing competency self - efficacy	Studied nurses		
	Pre test	Post test	Follow-up
	%	%	%
Management skills	44.1	70.8	79.1
Communication and collaboration	43.5	67.2	80.3
Advocacy and ethical practice	35.3	73.1	83.4
Clinical competence	42.3	76.0	80.8
Professional accountability	36.8	71.4	78.9
Proficiency	43.1	75.3	80.1
<b>Mean % ± SD</b>	<b>40.8 ± 3.7</b>	<b>72.3 ± 3.2</b>	<b>80.4 ± 1.6</b>
<b>T – value</b>	<b>T1 between pre &amp; post tests = 50.0* ( Sig. )</b>		
	<b>T1 between pre &amp; post tests = 17.6* ( sig. )</b>		

## II. Studied Patients

**Table (6): Presentation of studied patients as regards triage level**

Triage Level	Studied patients	
	Ain Shams Hospital (n= 50 )	Nasser Institute Hospital (n= 50 )
Level I (evaluated immediately).	54.3	51.6
Level II (evaluated within 20 minutes).	46.7	45.0
- Level III (evaluated within 2 hours).	60.4	64.7
- Level IV (non urgent).	41.5	43.1
<b>Mean % ± SD</b>	<b>50.7 ± 8.3</b>	<b>51.1 ± 9.8</b>

T - value	t = 0.24 ( Insig. )
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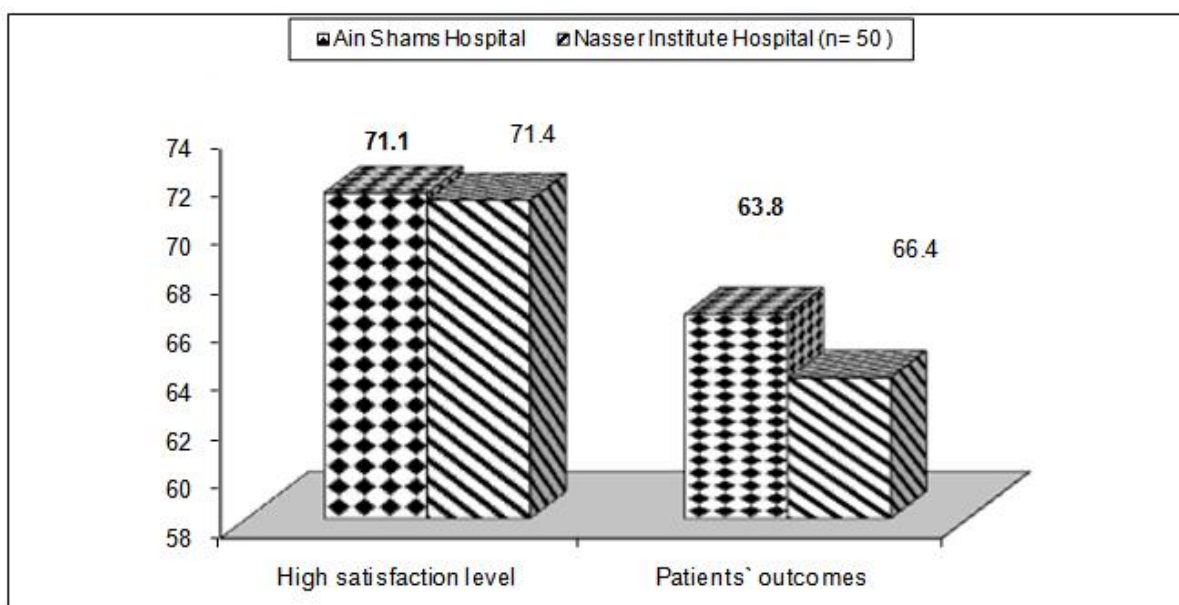
**Table (7): Presentation of studied patients` outcomes as regards trauma triage**

Patients` outcomes	Studied patients	
	Ain Shams Hospital (n= 50 )	Nasser Institute Hospital (n= 50 )
Discharge home	73.3	72.5
Discharge against medical advice	78.5	76.1
Transferred to ward	78.1	75.3
Death	35.3	31.5
<b>Mean % ± SD</b>	<b>66.4 ± 20.1</b>	<b>63.8±21.6</b>
<b>T - value</b>	<b>t = 0.68 ( Insig. )</b>	

**Table (8): Presentation of studied patients` high satisfaction level as regards trauma triage in post test**

Items	Studied patients	
	Ain Shams Hospital (n= 50 )	Nasser Institute Hospital (n= 50 )
Pre- hospital admission (transportation )	74.5	72.5
Admission procedure	73.4	76.1
Emergency department	78.2	75.6
Nursing intervention	72.1	74.5
Medical management	78.6	76.3
Information	68.2	65.4
Autonomy	57.1	55.6
Discharge and after care	72.6	74.2
<b>Mean % ± SD</b>	<b>71.4 ± 7.3</b>	<b>71.1±7.8</b>
<b>T - value</b>	<b>t = 0.22 ( Insig. )</b>	

\*Significant at  $p < 0.05$



**Figure (1): Presentation of studied patients` outcomes and high satisfaction level**

#### IV. Discussion

Triage is a central task in an emergency department, viewed as rating of patients' clinical urgency to identify the order in which care should be given and if there is no queue for care (Lewis et al. 2017 and O'Connor et al, 2014)<sup>(23,24)</sup>. This study aims to evaluate the effects of improvin nurses` competency and self – efficacy on trauma triage protocol accuracy at emergency department . Considering qualifications of the studied nurses, findings revealed that more than two fifths of them had diploma degree. This finding may be interpreted as the knowledge and practices concerning the trauma triage were poor among the studied nurses . Moreover , emergency department need more effect and healthy

personnel to work hard . **Hinkle & Cheever (2018)**<sup>(25)</sup> reported that education has a vital role in improving emergency nurses' knowledge , so improve patients` care .

As regards the previous training , nearly one fifth of them had training . This result may be interpreted as nurses got the feeling and beliefs that they had enough experience which makes them efficient in their performance added to their administrative role . On the same line , more than half of studied patients were male , with ambulance transportation . **Ahmadi et al (2016)**<sup>(26)</sup> stated that it is important that in the pre-hospital phase and during transportation , trained paramedical personnel be able to identify indicators of danger and assess overall status of patient and planning for appropriate transport mode .

In relation to studied nurse's satisfactory knowledge about trauma triage protocol . As indicated significant improvement was noticed in their knowledge regarding post and follow - up assessment compared to pre . This finding may be due to lack of training and absence of orientation programs and shortage of the qualified emergency nurses. **Potter et al. (2019)**<sup>(8)</sup> & **Lewis et al. (2017)**<sup>(23)</sup> clarified that, emergency nurses require a broad knowledge base to provide safe and competent care to patients with a different injuries . Moreover , all emergency nurses had no knowledge before joining about triage, because they were working after graduation in different units, which led them acquiring general knowledge not specific to trauma triage .

Concerning studied nurses' satisfactory practices with trauma triage protocol . Results indicated significant improvement in their practices regarding post and follow - up assessment compared to pre . This finding may be due to shortage of the nurses that cover shifts of afternoon and night , so other nurses from different departments were help in the emergency unit . Moreover , lack of training and absence of triage nurse . **Ignatavicius et al. (2018)**<sup>(16)</sup> & **Wilkinson et al. (2016)**<sup>(17)</sup> reinforces the need for sustained education and training with most recent advances in nursing practices. Moreover, training relieve anxiety and help to build more self` confidence . triage is the fundamental care that require a broad knowledge base to provide safe and competent trauma patients` care .

In addition , emergency nurses experience a variety of problems during their work such as : died patients, shortage of training staff, lack of job description, administrators` biase, bad work organization, lack of policies and procedures, non nursing duties and inavailability of appreciation of good practices and fairness of administrators that promote self-esteem and feeling of security ( **Jordi et al., 2015 & Cameron et al. , 2014**)<sup>(5,3)</sup> .

As regards studied nurses` self-efficacy. There was a significant difference between pre / post guidelines whereas more improvement was observed in post test. **Hasnain et al. (2016)**<sup>(5,3)</sup> & **Jenkins et al. (2013)**<sup>(13)</sup> stated that there was a relationships between self-efficacy level and quality of nursing care. Moreover, work condition was associated with a degree of self-efficacy that is a large part of the personal factors to helps in patients` care. In addition, there are different factors that increase self-efficacy among nurses such as : years of experiences, education and training.

Considering studied patients` health condition outcomes . Results revealed insignificant difference between two study settings post guidelines as regards the following : Discharge home , discharge against medical advice , transferred to ward and death . The previous findings may be related to the efficiency and competency of educational guidelines at the two study settings .

In relation to studied patients` satisfaction level , the present results indicated that more than half of them were satisfied for the following : Pre-admission transportation , admission , emergency unit , nursing / medical care , information , autonomy and discharge . **Negoi et al. (2015)**<sup>(7)</sup> & **Kleefstra et al. (2012)**<sup>(22)</sup> stated that the highest satisfaction score was noticed in clinical skills of medical and nursing staff after intervention . Moreover , trauma triage help to decrease waiting times, improve patient satisfaction, make more efficient use of physician time, concentrate urgent medical care, and streamline traffic . Moreover , the emergency room is important for nurses to make fast, accurate decisions about the seriousness and urgency of the patient. Moreover, in experienced nursing and medical staff who do not use a formal method for assessing urgency will have error rates somewhere.

## V. Conclusion

On light of the current study, it can be concluded that improving nurses` competency (knowledge and practices) and self- efficacy through educational guidelines had a positive effect on the accuracy of trauma triage protocol added to patients` outcomes and satisfaction level .

## VI. Recommendations

- Educational sessions should be held for emergency nurses about trauma triage
- Written instructional guidelines should be given for emergency nurses about trauma triage
- Regular updating in critical care nursing.
- Revision of job description and role specification should be made.
- Specific protocols for trauma patients should be tailored to their needs.



- Further studies should be focused on a large number of critical care nurses for evidence of results and generalization.

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