



## Assessment of the perception of emergency department nurses regarding obstetric triage

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### Abstract

Triage in hospitals typically is associated with emergency departments that aim to categorize and prioritize patients who present for emergent or urgent care before detailed evaluation and management.

**Aim of study:** The study aimed to assess the perception of emergency department nurses regarding obstetric triage.

**Subjects and Methods:** A descriptive design was used to achieve the aim of the current study. The study was conducted at emergency department of Badr University Hospital. Convenience sample was used for this study. All nurses (150 nurses males and females) working at emergency department at Badr University Hospital. Two data collection tools was used to carry out the current study namely; A structured self-administered questionnaire, and nurses' perception questionnaire.

**Results:** Majority of nurses showed good grand total perception (82.7%), while (17.3%) showed poor grand total perception. Nurses had poor knowledge showed higher percentage of poor grand total perception (83.3%), while nurses had either moderate or good knowledge showed higher percentages in good grand total perception (80.6% and 90.3%) respectively.

**Conclusion:** There were no statistical significant differences between the studied nurses' socio-demographic characteristics and groups of total score of knowledge about obstetric triage ( $p > 0.05$  for each item).

**Recommendations:** Periodic assessment for nurses' perception and knowledge regarding obstetric triage in emergency department, providing sufficient training for nurses regarding obstetric triage in emergency department and all nurses in other departments of the hospital.

**Keywords:** perception, emergency department, nurses, obstetric triage

### Introduction

Emergency department represent the highest source of hospital admissions. After arrival to the ED, patients are first sorted by acuity in order to prioritize individuals requiring urgent medical care. This sorting process, called "triage", the obstetric triage unit is the hospital entry point and is an environment where inaccessible medical care is available in emergencies in the field of obstetric and medical care. Obstetric Triage (OT) is defined as a systematic maternal and fetal assessment performed to a pregnant woman looking for medical care to decide priority of medical needs which require immediate action in abide to ensure that both mother and baby remain in a stable physical condition.

### Aim of the study

The aim of the study is to assess the perception of emergency department nurses regarding obstetric triage through the following objective:

1-Assess the knowledge of emergency department nurses regarding obstetric triage. 2-Assess the attitude of emergency department nurses regarding obstetric triage.

### Research question

What is the perception of emergency department nurses regarding obstetric triage?

### Subjects and Method

#### Research design

A descriptive research design was used to achieve the aim of the current study.

#### Research settings

The current study was conducted in the obstetric emergency triage unit at Badr University Hospital.

#### Subjects

The actual sample was 135 nurses (males & females).

#### Sampling technique

Convenience sampling of the total number was 150 nurses 15 of them excluded as a pilot study. There for the actual sample size were 135 nurses. The sample then consisted of all nurses were working in the obstetric emergency triage

unit at Badr University Hospital.

### Tools of data collection

Two data collection tools were utilized to do the current study namely.

#### First Tool: A structured self-administered questionnaire

It was written in a simple Arabic language after reviewing the related literature, it was included two parts:

**Part 1:** Demographic data as age, educational level, years of experiences, employment, income, gender.

**Part 2:** Assessment the knowledge of emergency department nurses regarding obstetric triage including: definition, types, categories, benefits.

#### Scoring system

Knowledge questions included (15) questions, the range of the total scores of the questionnaire were (9 - 26). The complete correct answer was scored as (2) point, the incomplete correct answer was scored as (1) point and don't know was scored as (0) point. The knowledge of studied nurses was considered good if percent score was more than 75%, moderate if percent score ranged from 60% to <75%, and poor if the percent score was less than 60%.

#### Second Tool: nurses' perception questionnaire

This tool adapted by Abd Elhamid (2014) to assess the perception of the obstetric emergency triage nurse.

#### Scoring system

The checklist composed of (74) items. The agree answer was scored "three", the neutral answer was scored "two", and the disagree answer was scored "one". Nurses' responses were summed up and then converted into percent score. Nurses' perception was considered good grand total perception if percent score was 60% or more and poor grand total perception if less than 60%.

#### Validity

Validity of the study tools was tested by jury group consisted of five experts in Maternal and Newborn Health Nursing. The revision of the tools for comprehensiveness, accuracy and clarity in language. Based on experts recommendations correction, addition and / or omission of some items were done.

#### Reliability

Alpha Cronbach's test used to measure the internal consistency (Reliability of the used tool or instrument) the reliability score of tool as above is (0.797, 0.847 and 0.822) for Knowledge, perception and questionnaire respectively, where the minimum reliability coefficient we need is 60%, so is the reliability coefficient for all questions.

#### Pilot study

Pilot study was carried out on 10% (15 nurses) to evaluate the applicability, efficiency, clarity of tools, assessment of feasibility of field work, beside to detect any possible obstacles that might face the investigator and interfere with data collection. The number of the pilot study was excluded

from the study sample.

### Field work

Data collection of this study was carried out once permission was granted to proceed with the study. After establishing a trustful relationship. The investigator started data collection by introducing herself to nurses in the obstetric emergency triage unit and explained the aim of the study for them and reassured them that information collected will be confidentiality and only for the purpose of the research. Data collection was done within the given period of 6 months in the morning shift 3 days / week The investigator started at groups of nurses consisted of (from 7 to 10 nurse) for 20 minutes for every interview at emergency department at Badr University Hospital

### Ethical Consideration

Ethical approval obtained from the Scientific Research Ethical Committee of the Faculty of Nursing - Helwan University. The investigator met the director of emergency department at Badr University Hospital to clarify the aim of the study and take their approval. The investigator also met all nurses of the emergency department to explain the purpose of the study and obtain their approval to participate in the study. They were reassured about the anonymity and confidentiality of the collected data, which was used only for the purpose of scientific research. Nurses right to withdraw from the study at any time was assured Ethics, Values, Culture and beliefs will be respected.

### Data management

The collected data were coded and entered into the Statistical Package for the Social Science (SPSS) version 24 for analysis. Data were presented using descriptive statistics in the form of frequencies and percentages for categorical variables, and means and standard deviations for continuous quantitative variables. Pearson test was used to test the correlation between variables. Statistical significance was considered when P-value < 0.05 and highly significant difference obtained at  $p < 0.01$ .

### Results

Table 1: This table shows that, approximately half of the studied emergency department nurses (46%) aged between 26 to 30 years with mean of  $27.2 \pm 5.1$  years. Majority of them were females (80%), while (48%) of them had technical institute and only (14%) had Nursing diploma. As regards experience, (22%) of them had experience from 5 to 10 years and (66%) had experience less than 5 years. Concerning income, (48%) of them claimed that their income is enough, while (52%) claimed that their income is not enough. Table 2 reveals that the majority of the studied nurses did not had training courses about Obstetric triage (60%). Regarding those who had training courses, nearly two thirds of them (60%) had it at university hospitals, more than two third of them (70%) had the training courses since short time, half of nurses had 3-4 training courses. One hundred of them (100%) had benefits from attending these training courses. Approximately half of studied nurses (48%) past working in obstetric & gynecological emergency, among them. (55.6%) worked at general hospital, and (44.4%) worked at special hospital.

Table 3 and Fig.1 highlights that approximately half of nurses had good and moderate knowledge (48% for each) respectively, while only (4%) of them poor knowledge. Table 4 and Fig. 2 highlights that the majority of studied emergency department nurses had good perception about NIPT (67.3%), while the approximately one third of them (32.7%) had poor perception about NIPT. Table 5 and Fig.3 highlights that the majority of nurses had good perception about obstetric triage (92%), while (8%) of them had poor perception about obstetric triage.

Table 6 and Fig4 highlights that the majority of nurses had good perception about role of triage nurse (90%), while (10%) of them had poor perception about role of triage nurse. Table 7 and Fig.5 highlights that the majority of nurses showed good grand total perception (82.7.%), while (17.3%) showed poor grand total perception. The Mean total score of grand total perception was  $207.1 \pm 19.4$  with a range of 122 to 225. Table 8 demonstrates higher percentage of poor grand total perception (83.3%), while nurses had either moderate or good knowledge showed higher percentages in Good grand total perception (80.6% and 90.3% respectively), however, there was a statistically significant relation with p-value ( $P < 0.001$ ). Table 9 shows that there were no statistical significant differences between the studied nurses' socio-demographic characteristics and groups of total score of knowledge about obstetric triage ( $p > 0.05$  for each item). More than half (55.6%) of older nurses aged 31- 35 years had good knowledge compared to (44.4%) among those of age 25 – 30 years, and the difference was not significant statistically ( $P > 0.05$ ). Although female nurses had higher percentage of good knowledge than male nurses (50% versus 40%) respectively, the difference was not significant statistically

( $P > 0.05$ ). In relation to their education status, there was insignificant statistical difference between nurses had Nursing Diploma and those who had Bachelor regarding their good total score of knowledge (61.9% versus 44.4% respectively,  $P = 0.46$ ).

**Table 1:** Distribution of the studied emergency department nurses according to the Socio - demographic characteristics (N = 150 nurse)

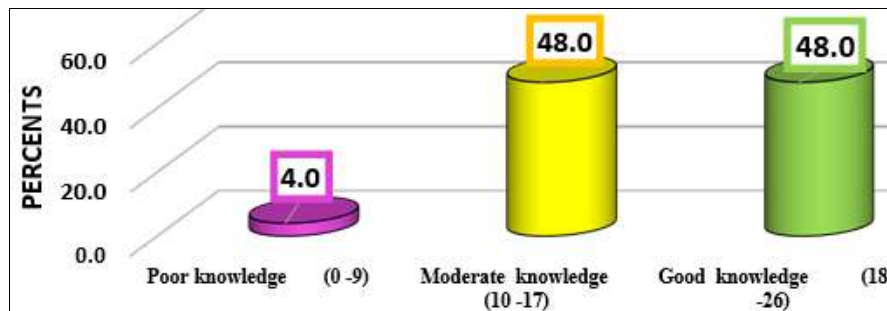
Socio demographic characteristics	no.	%
Age (Years)		
20 – 25 years	54	36
26 – 30 years	69	46
31 – 35 years	27	18
Mean ± SD	27.2 ± 5.1 years	
Gender		
Male	30	20
Female	120	80
Education		
Technical Institute	72	48
Bachelor	57	38
Nursing diploma	21	14
Work		
Bed Side nurse	63	42
Charge nurse	66	44
Head nurse	15	10
Head manger	6	4
Experience		
< 5 years	99	66
5 - 10 years	33	22
> 10 years	18	12
Income		
Enough	72	48
Not enough	78	52
Total	150	100

**Table 2:** Number & percent distribution of studied nurses regarding training status about obstetric triage (N = 150 nurse)

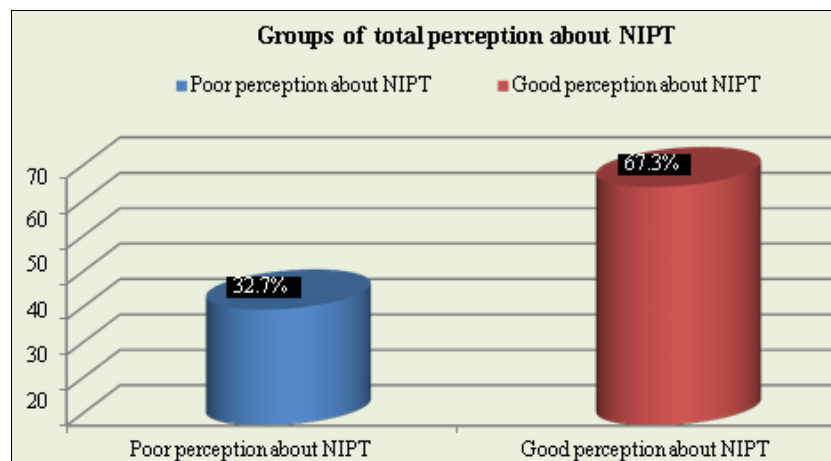
Training status about obstetric triage	no.	%
<b>Training courses about obstetric triage</b>		
Yes	60	40
No	90	60
<b>Place of training (N=60)</b>		
Governmental Hospital	24	40
University Hospital	36	60
<b>Period of training courses</b>		
Short time	42	70
Long time	18	30
<b>Number of the training courses</b>		
< 2 training course	30	50
> 3 training course	30	50
<b>Duration of the training courses</b>		
One week	60	100
<b>The training course was beneficial</b>		
Yes	60	100
<b>Benefits</b>		
1-Triage nurse must observe patients at least 2 minutes	21	35
2-Prioritizing patients must be based on patients acuity 3-	24	40
3-Triage decisions must be made based on evidence	15	25
<b>Past work in obstetric /gynecological emergency c department (N=150)?</b>		
Yes	72	48
No	78	52
<b>Type of hospitals did you work at? (N=72)</b>		
General Hospital	40	55.6
Special Hospital	32	44.4

**Table 3:** Distribution of the studied emergency department nurses according to their groups of total knowledge score (N = 150)

Groups of total knowledge score	Frequency	
	No	%
Poor knowledge	6	4
Moderate knowledge	72	48
Good knowledge	72	48
Total	150	100

**Fig 1:** Distribution of groups of total knowledge score about obstetric triage among studied emergency department nurses (N=150)**Table 4:** Distribution of the studied emergency department nurses according to their total perception about Non- Invasive Prenatal Test (N=150)

Groups of total perception about NIPT	Frequency	
	N0.	%
Poor perception about NIPT	49	32.7
Good perception about NIPT	101	67.3
Mean total score of perception about obstetric triage (10 items) (X±SD)	19.56±3.33 (Range: 10-30)	
Total	150	100.0

**Fig 2:** Groups of total perception about NIPT among studied emergency department' nurses (N=150)**Table 5:** Distribution of the studied emergency department nurses according to their perception about obstetric triage groups (N=150)

Groups of total perception about obstetric triage	Frequency	
	N0.	%
Poor perception about obstetric triage	12	8.0
Good perception about obstetric triage	138	92.0
Mean total score of perception about obstetric triage (28 items)(X± SD)	108.03±18.37 (range: 59-117)	
Total	150	100.0

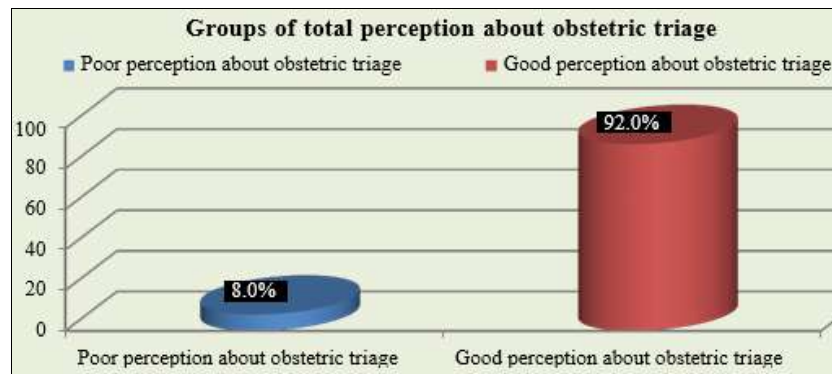


Fig 3: Groups of total perception about obstetric triage

Table 6: Distribution of the studied emergency department nurses according to their perception about role of triage nurse (N=150)

Groups of total perception about role of triage nurse	Frequency	
	N0.	%
Poor perception about role of triage nurse	15	10
Good perception about role of triage nurse	135	90
Mean total score of perception about role of triage nurse (10 items) (X± SD)	73.10±12.43 (Range: 38-81)	
Total	150	100.0

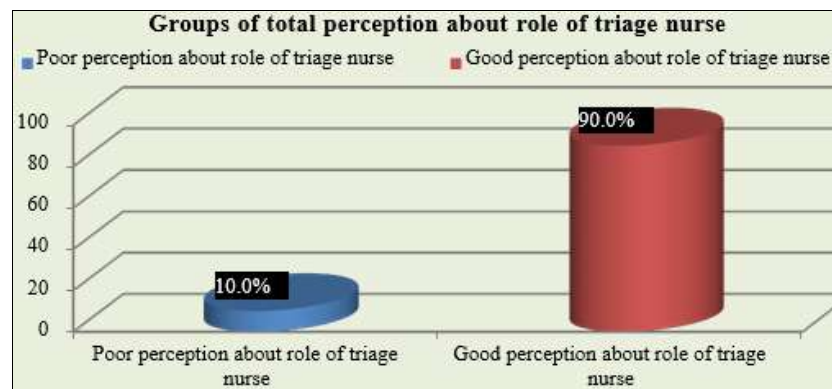


Fig 4: Groups of total perception about role of triage nurse among studied emergency

Table 7: Groups of total perception about grand total perception

Groups of total perception about grand total perception	Frequency	
	No.	%
Poor grand total perception	26	17.3
Good grand total perception	124	82.7
Mean total score of grand total perception 5(X± SD)	207.1 ± 19.4 (range: 122 -225)	
Total	150	100.0

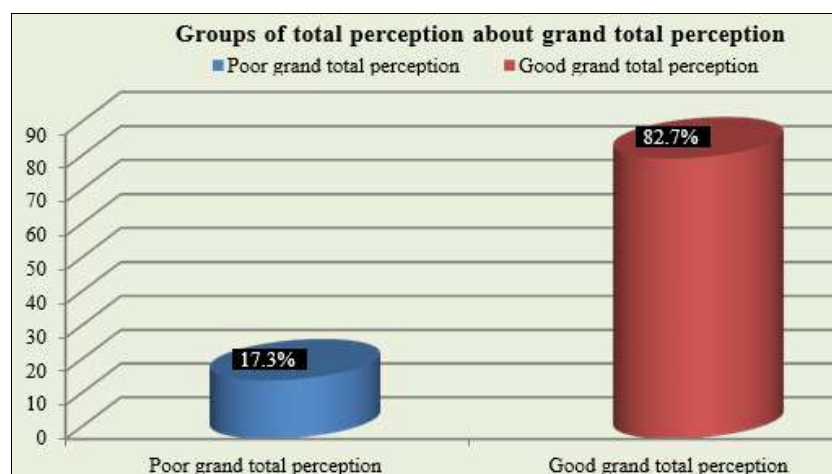


Fig 5: Groups of grand total perception among studied emergency department



**Table 8:** Relation between knowledge and perception groups of nurses working at emergency departments (N=150)

Total knowledge groups	Groups of grand total perception				Total		P value
	Poor grand total perception (77-153)		Good grand total perception (154-231)				
	No.	%	No.	%	No.	%	
Poor knowledge	5	83.3	1	16.7	6	100	x2=21.375, P<0.001 HS
Moderate knowledge	14	19.4	58	80.6	72	100	
Good knowledge	7	9.7	65	90.3	72	100	
Total	26	17.3	124	82.7	150	100	

**Table 9:** Relation between socio-demographic characters and knowledge groups among nurses working at emergency department (N=150)

Total knowledge groups Socio-demographic Characteristics		HG knowledge pre intervention groups							
		Poor know.		Moderate know.		Good know.		Chi-square	
		N	%	N	%	N	%	X <sup>2</sup> / LR	P-value
Age (years)	20 - 25 years(n=54)	3	5.6	27	50	24	44.4	LR=3	=0.55 NS
	26 – 30 years(n=69)	3	4.4	33	47.8	33	47.8		
	31 – 35 years (n=27)	0	0	12	44.4	15	55.6		
Education	Bachelor(n=57)	4	7.0	28	49.1	25	43.9	LR= 3.969	=0.410 NS
	Technical Institute (n=72)	2	2.8	36	50.0	34	47.2		
	Nursing Diploma (n=21)	0	0.0	8	38.1	13	61.9		
Gender	Male(n=30)	1	3.3	17	56.7	12	40	LR=1.1	=0.56
	Female(n=120)	5	4.2	55	45.8	60	50		
Income	Enough(n=72)	3	4.2	35	48.6	34	47.2	LR=0.04	=0.98
	Nor enough(n=78)	3	3.8	37	47.4	38	48.7		
Experience	< 5 years(n=99)	5	5.1	47	47.5	47	47.5	LR=2.2	=0.71 NS
	5-<10 years(n=33)	1	3	17	51.5	15	45.5		
	≥ 10 years (n=18)	0	0	8	44.4	10	55.6		
Total	N=150	6	4	72	48	72	48		

NS = No statistical significance ( $P>0.05$ )

## Discussion

Triage is the process of classifying and prioritizing patients based on the need for examinations. The obstetric triage unit is the hospital entry point and is an environment where inaccessible medical care is available in emergencies in the field of obstetric and medical care. Approximately 1.2–1.5 (in the United States) is served at obstetric triage (in many perinatal services) per birth. The purpose of triage and emergency assessment is to ensure that women, fetuses and newborns receive timely care in their clinical condition

### Part 1: Demographic characteristics of emergency department nurses about obstetric triage

The current study showed that, nearly to half of the studied emergency department nurses aged between 26 to 30 years with mean of  $27.2 \pm 5.1$  years. Majority of them were females, while nearly to half of them had technical Nursing Institute. This result was agreement with McCarthy, *et al.*, (2021) <sup>[1]</sup> who conducted a study entitled “Implementation of an obstetric triage decision aid into a maternity assessment unit and emergency department” and found that more than half of nurses were female, and half of them had ages less than 30 years. Additionally this result was in supported with O'Rourke, *et al.*, (2018) <sup>[2]</sup> who conducted a study entitled “Improving staff communication and transitions of care between obstetric triage and labor and delivery” and found that all of nurses were female, and more than two thirds of them had technical nursing institute. Regarding training status about obstetric triage, the current study revealed that majority of studied nurses did not had training courses about obstetric triage. Regarding those who had training courses, nearly to two thirds of them had the training course at university hospitals, more than two thirds had the training courses since short time, half of nurses had

3-4 training courses, and all of them had training courses for one week and all of them had benefits from attending these training courses.

This result was agreement with McCarthy, *et al.*, (2021) <sup>[1]</sup> who found that majority of nurses weren't attended training courses about obstetric triage. Additionally, this result was agreement with O'Rourke, *et al.*, (2018) <sup>[2]</sup> who found that more than half of nurses were attended training courses about obstetric triage.

### Part II: Knowledge of emergency nurses about obstetric triage

Regarding total knowledge score, the current study revealed that approximately half of nurses had good and moderate knowledge, while only minority of them had poor knowledge. This result was supported with Moudi, *et al.*, (2020) <sup>[3]</sup> who found that majority of nurses had good knowledge about obstetric triage. Conversely, this result was disagreement with Forouzan, *et al.*, (2020) <sup>[4]</sup> who found that more than half of nurses had poor knowledge about obstetric triage. From the researcher point of view, this result may be due to nurses were interested to improve their knowledge about obstetric triage and were attending training courses about obstetric triage.

**Part III:** Distribution of the studied emergency department nurses according to their perception about obstetric triage, Non invasive preterm Test (NIPT), and role of triage nurse Regarding total perception about Non- Invasive Prenatal Test, the current study revealed that the majority of studied nurses at emergency department had good perception about NIPT, while the approximately one third of them had poor perception about NIPT. This result was supported with Seda, (2020) who conducted a study entitled “Nurses'

Knowledge, Perception Regarding the Implementation of Triage System in Obstetric emergency department at Gaza Strip” and found that majority of nurses had good perception about Noninvasive prenatal test (NIPT). Additionally, this result was supported with Wolf, *et al.*, (2021) <sup>[6]</sup> who found that more than one third of nurses had poor perception about Noninvasive prenatal test (NIPT). From the researcher point of view, this result may be due to nurses in emergency department obstetric triage had good perception about Non- Invasive Prenatal Test (NIPT). Regarding total perception about obstetric triage groups, the current study showed that majority of nurses had good perception about obstetric triage, while minority of them had poor perception about obstetric triage. This result was accordance with Wolf, *et al.*, (2021) <sup>[6]</sup> who found that majority of nurses had good perception about obstetric triage. Conversely, this result was disagreement with Froehlich, *et al.*, (2018) <sup>[7]</sup> who conducted a study entitled “Improving obstetric triage emergency treatment in a tertiary care women's emergency department” and found that more than half of nurses had poor perception about obstetric triage. From the researcher point of view, this result may be due to nurses had good perception about obstetric triage and high effective practice about obstetric triage.

Regarding total perception about Role of Triage nurse, the current study showed that the majority of studied nurses reported agree response i about role of triage nurse with the highest percentage, institute of first aid measures when necessary, control of infection such as the prevention of blood spills and isolation of the infected patient and question 23 (Triage Nurses must have empathy toward patients respectively. This result was supported with Moura, *et al.* (2021) <sup>[9]</sup> who conducted a study entitled “Rapid triage performed by nurses: Signs and symptoms associated with identifying obstetric women in the emergency department” and found that majority of nurses had good relationship with women in emergency department. In contrast, this result supported with Ibrahim, *et al.*, (2021) <sup>[8]</sup> who conducted a study entitled “Emergency Obstetric Protocol and its Effect on Practices of Interns Nursing Students” and found that one quarter of nurses hadn't good relationship with women in emergency obstetric department. From the researcher point of view, this result may be due to establish a good relationship with patients and increase patient satisfaction.

Regarding total perception about role of triage nurse, the current study showed that majority of nurses had good perception about role of triage nurse, This result was supported with Quaile, (2018) <sup>[10]</sup> who conducted a study entitled “Implementing an -specific triage acuity tool to increase nurses' perception and improve timeliness of care” and found that majority of nurses had good perception about their role of obstetric triage. From the researcher point of view, this result may be due to nurses were know their role about obstetric triage

Regarding total perception about (obstetric triage, NIPT, and role of triage nurse) among studied Emergency Department' nurses, the current study showed the that majority of nurses showed good grand total perception, This result was supported with Seda, (2020) who found that majority of nurses had good total perception about obstetric triage. On the other hand, this result supported with Wolf, *et*

*al.*, (2021) <sup>[6]</sup> who found that one third of nurses had poor total perception about obstetric triage. From the researcher point of view, this result may be due to nurses had more information about obstetric triage.

#### **Part VI: Relation between the study variables, the current study**

Regarding Relation between knowledge and perception groups of nurses working at emergency department, the current study either moderate or good knowledge showed higher percentages in good grand total perception. This result was accordance with Palos, *et al.*, (2020) <sup>[11]</sup> who conducted a study entitled “Clinical decision support systems for obstetric triage in the emergency department using intelligent systems” and found that majority of nurses had good total perception about obstetric triage. Also, this result was supported with Seda, (2020) who found that majority of nurses had good total perception about obstetric triage. From the researcher point of view, this result may be due to presence relation between nurses' knowledge and their perception.

Regarding Relation between socio-demographic characters and knowledge groups among nurses working at emergency departments, the current study showed that, there were no statistical significant differences between the studied nurses' socio-demographic characteristics and groups of total score of knowledge about obstetric triage.

This result was agreement with Elmashad, *et al.*, (2020) <sup>[12]</sup> who conducted a study entitled “Effect of implementing simulation obstetric triage training on nurses' knowledge and practices” and found that there were no statistical significant differences between the studied nurses' socio-demographic characteristics and groups of total score of knowledge about obstetric triage. In contrast, this result was congruent with Dekker, *et al.*, (2019) <sup>[13]</sup> who conducted a study entitled “Triage conducted by lay-staff and emergency training reduces obstetric mortality in the emergency department of a rural hospital in Northern Mozambique” and found that there were a statistical significant differences between the studied nurses' socio-demographic characteristics and groups of total score of knowledge about obstetric triage. From the researcher point of view, this result may be due to presence relation between nurses' knowledge and their demographic characteristics.

#### **Conclusion**

The current study concluded that there were no statistical significant differences between the studied nurses' socio-demographic characteristics and groups of total score of knowledge about obstetric triage ( $p > 0.05$  for each item). Moreover, the majority of the present studied nurses had good knowledge and perception regarding obstetric triage. Therefore the result of current study answered and support the research question of the study.

#### **Recommendation**

**In the light of results of this study, the following recommendations were suggested:** Periodic assessment for nurses' perception and knowledge regarding obstetric triage in emergency department, Providing sufficient training for all nurses in other departments of the hospital regarding obstetric triage in emergency department and replication of

the study by using large number of nurses and include more than one hospital with different regions in Egypt.

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