

## Emergency Nurses' Core Competencies in the Management of Critically Ill Patients in Emergency Departments

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### Abstract

**Background:** Critical responsibilities for emergency nurses require a diverse set of skills, which is called competence. Competence includes the desire to show prospective personality traits that can be advantageous in specific situations. **Aim:** Assess emergency nurses' core competencies in the management of critically ill patients in the emergency department. **Subjects and Method: Design:** A descriptive research design was conducted in the Emergency Department of General Qena Hospital and Emergency University Hospital, Egypt. **Subjects:** A convenience sampling of 70 emergency nurses was recruited to provide direct care for critically ill patients. **Tools:** three tools used in the study: 1. Core competences of clinical skills and knowledge for emergency nurses. 2. Core competences of communication and teamwork skills for emergency nurses. 3. Core competences of professional development, organization awareness, research, and quality improvement for emergency nurses. **Results:** The emergency nurses' core competencies during respiratory care were 75.14% from General Qena Hospital and 80.36% from the emergency University Hospital. The emergency nurses' core competencies in cardiovascular care were 71.45% from General Qena Hospital and 88.36% from Emergency University Hospital. There were statistically significant differences among the studied nurses from both hospitals in the majority of items. The levels of core competence criteria for emergency nurses were 45.7% in the general Qena hospital but 17.1% in the emergency university hospital. However, the level of core competencies for emergency nurses was good at 45.7% in the general Qena hospital and 80% in the Emergency University Hospital. **Conclusion:** Competency can be used as the cornerstone for evaluating critical nurses' performance. Core competence should be used as a vital tool to evaluate nurses' levels of performance and patient satisfaction.

**Keywords:** Emergency nurses, Core competencies, critically ill patients.

### Introduction

The health care environment today is very complex and presents significant challenges for nurses, especially nurses in critical units. Emergency and critical care concentrates on resuscitating unstable

patients while giving them time for recovery or the impact of particular therapies to enhance outcomes and prevent death. <sup>(1)</sup> Immediate nursing identification, continued monitoring, assessment, and treatment are required in an emergency

room to manage critical illness. The emergency department is where nurses' clinical skills are most needed. <sup>(2)</sup>

Critical responsibilities for emergency nurses require a diverse set of abilities and skills that are acquired through study and practice, which is called competence. Competence includes the desire to show the value of one's skills and prospective personality traits that can be advantageous in specific situations. <sup>(3)</sup> The Emergency Nurses Association defines competency as "helping an individual or a community via the sensible and consistent use of knowledge, clinical reasoning, technical skills, emotional intelligence, and values in everyday practice". <sup>(4)</sup>

Competencies for emergency nurses were issued in 2018 by the American Academy of Emergency Nurse Practitioners (AAENP). Within the domains of emergency nursing practice, these competencies defined the knowledge, tasks, and practices. They illustrated how, within the broader context of practicing standards, clinical practice progresses from novice to expert. The "Emergency Nurse Practitioner Competencies," which were first published by the Emergency Nurses Association in 2019, were later approved by the American Nurses Association in July 2020. <sup>(5)</sup>

Because of the nature of emergency nursing practice, knowledge and experience are needed to handle a variety of patients, situations, materials, equipment, procedures, policies, and processes. In order to effectively assess patients in such high-stress settings, nurses must be able to prioritize critical actions while working quickly and professionally. It is crucial that nurses maintain and improve their clinical competence, duties,

and responsibilities. Nurses and management should also assess these competences to confirm the quality and safety of the care provided. <sup>(6)</sup>

#### **Significance of the study:**

In the Emergency Department, nursing staffing needs have historically been more likely to increase as a result of medical advancements and new technologies. The enlarged use of intensive care beds and the growth in the number of critical patients are examples of improved professional nursing staffing. <sup>(7)</sup> A competency is an expected standard of performance that incorporates knowledge, skills, abilities, and judgments. Depending on the nurse's degree of training and experience, the expected level of performance for an emergency nurse might range from novice to expert. <sup>(8)</sup> So, the researchers of the study wish to assess if the nursing practice in the emergency department will regularly demonstrate both clinical competence and a solid theoretical knowledge base in accordance with nationally approved frameworks.

#### **The aim of this study is:**

Assess emergency nurses' core competencies in the management of critically ill patients in the emergency departments.

#### **Research question:**

What are the core competencies of emergency nurses' as regarding the care of critically ill patients in the emergency department?

#### **Subjects and Methods**

##### **Study design:**

Descriptive research design was used in this study.

##### **Setting:**

This study was conducted at the emergency department of General Qena

Hospital and Emergency Hospital (Elmarzoky Hospital) in Egypt.

**Subjects:**

The total sample of nurses were 70 emergency nurses was selected conveniently because while they were providing direct care for critically ill patients in the emergency department. The nurses from the emergency department of the two hospitals were 35 in each hospital.

**Tools**

The study used three questionnaires.

**1. Core competences of clinical skills and knowledge for emergency nurses.**

This tool was adopted by the Emergency Nurses Association (2019) <sup>(8)</sup> and used to assess the core competencies of clinical skills and knowledge for emergency nurses regarding critically ill patients. It consists of five parts:

**Part one: Assessment of respiratory core competence criteria.** It has sixteen components, including an initial examination of the respiratory system, inspection, palpation, percussion, and auscultation (IPPA). The ability to recognize normal and abnormal breath sounds, evaluate the airway and ventilation, set up various oxygen therapy adjuncts, insert an oral and/or nasopharyngeal airway, insert suction, and demonstrate non-invasive positioning to clear the airway. Demonstrate the ability to care for patients using a bilateral positive airway pressure (BiPap) or continuous positive airway pressure (CPAP) machine. Demonstrates the ability to administer and monitor pharmacological agents related to the respiratory system and the skills to support proper interventions through actual or potential life-threatening disturbances to respiratory function. The ability to aid, set

up, and care for the intubated or ventilated patient, etc.

**Part two: Assessment of cardiovascular core competence criteria.** There are 27 elements, including the primary cardiovascular system assessment. Inspection, palpation, percussion, and auscultation (IPPA), assesses data pertaining to the cardiovascular system, exhibits the ability to perform an electrocardiogram (ECG) with 12 and 15 leads, determines a 12-lead ECG with an acute inferior, anterior, lateral, and posterior wall myocardial infarction (MI), determine the patient's medical needs in order of importance, use an external defibrillator (ED) competently, understand cardiac arrhythmias and recognize life-threatening ones, differentiate between defibrillation and synchronized cardioversion, exhibit the ability to analyses a 6-second cardiac monitor strip, etc.

**Part three: Assessment of neurological core competence criteria.** There are ten components, including the primary neurological system assessment (IPPA) using the Glasgow Coma Scale (GCS). Shows how to apply a cervical collar, helps maintain spinal immobilization and stability, demonstrates skill in evaluating pain using the proper pain scale, and establishes priorities for patients exhibiting hyper acute stroke symptoms, etc.

**Part four: Assessment of gastrointestinal (GI) core competence criteria.** It consists of seven items: the primary assessment of the gastrointestinal system (IPPA), the evaluation and comprehension of data pertaining to GI emergencies, the demonstration of skill in inserting a nasogastric tube and an orogastric tube, the demonstration of the

capacity to recognize and support proper interventions with actual or potential life-threatening changes in GI functions, etc.

**Part five: Assessment Genitourinary (GU) Core Competency Criteria.** It consists of seventeen items, including the primary assessment of the genitourinary system (IPPA) and the demonstration of skill in inserting and removing Foley catheters on male and female patients. The capability to identify and prioritize nursing interventions in an emergency involving the reproductive system serving with appropriate interventions for actual or potential life-threatening changes in the GU system and demonstrating this ability with an emergency childbirth.

Along with the characteristics of emergency care nurses, which involved data about their age, education, training program and years of experience.

**Tool II: Core competences of communication and teamwork skills for emergency nurses.** This tool was adopted from the Emergency Nurses Association (2018) <sup>(9)</sup> and used to assess emergency nurses' communication and teamwork skills as core competencies. It consists of eight items: five to assess communication skills and three to assess teamwork core competencies.

**Tool III: Core competences of professional development, organization awareness, research, and quality improvement for emergency nurses.** This tool was adopted from Emergency Nurses Association (2018) <sup>(9)</sup> and used to assess emergency nurses' core competencies in professional development, organization awareness, and research and quality improvement. It consists of twelve statements: four to assess professional development, three to assess

organizational awareness, two to assess research, and three to assess quality improvement.

**The scoring system of the three tools were as follows:**

The researchers evaluate the core competences of each emergency nurse using tools I, II, and III according to Benner's stages of clinical competence, and the score of each item is assigned as follows:

1. Novice: No experience.
2. Advanced beginner: Knowledge is developing and demonstrates acceptable performance; she has had some real-life experience but requires cueing and support from a mentor.
3. Competent: typically, 2-3 years of experience in one area; lacks the speed and flexibility of a proficient nurse but has some mastery and can rely on planning and organizational skills.
4. Proficient: Perceives and understands situations as whole parts; achieves independence in performing the skill(s).
5. Expert: Performance is now flexible and highly proficient; it operates from a deep understanding of the total situation.

The cut points for the total score of core competencies for each emergency nurse are:

-Good" if the total score is 75% and more.

-Fair if the total score is between Less than 75% to 60%.

-Poor if the total score is less than 60%

**Data collection:**

1. After explaining the purpose of the study to the appropriate authorities at both hospitals, permission was granted for the study to be conducted.

2. A pilot study was conducted on 7 emergency care nurses to test all tools for clarity, objectivity, and feasibility, necessary modifications were carried out, and the results were excluded from the study.

3. The study was thoroughly explained to all emergency care nurses both verbally and in writing, and they had the opportunity to ask any questions or express any clarification concerns.

4. After receiving the required information, the participants' nurses were requested to obtain verbal and written consent to take part in the study.

5. The researchers observed the nurses in the emergency department and assessed the core competences and clinical skills criteria regarding the respiratory, cardiovascular, neurological, gastrointestinal, and genitourinary systems during the management of critically ill patients using tool I; assessed core competences regarding communication and teamwork skills using tool II; and assessed core competencies regarding professional development, organization awareness, research, and quality improvement using tool III.

6. The researchers calculated the score of core competence tools for each nurse and gave "good" if the total score was more than >75%, fair if the total score was between 60% and less than 74%, and poor if the total score was less than 60%.

#### **Ethical consideration:**

A research proposal will be approved by the ethical committee of the Faculty of Nursing at Qena University (SVU-NUR-CRE-3-2-1-2023). The study subjects are not at any risk when the research is used. After presenting the study's nature and objectives to nurses who are interested in

participating, their informed consent will be obtained. The research's data will only be utilized for scientific purposes. Anonymity and confidentiality are guaranteed. Nurses have the right to decline research participation at any time without giving a reason.

#### **Data Analysis:**

The study's data analysis was conducted using the statistical package software (SPSS) version 23. Different aspects of the quantitative data were described using mean, standard deviations, and descriptive statistics like frequency and distribution. The mean percent score for both emergency nurses' core competencies was calculated.

#### **Results**

**Table 1** shows that nurses' age groups of 30–39 years constituted 40% and 51.4%, respectively, of the studied sample in both hospitals. Regarding education, 68.9% and 62.9% of the studied sample, respectively, have diplomas from both hospitals. Concerning their previous training, 71.4% and 82.9% of the nurses in both emergency departments had received sessions to improve their clinical skills. As regards years of experience, 60% and 57% of nurses had 6–10 years of experience in each hospital, respectively.

**Table 2** illustrates that the core competencies of emergency nurses regarding **respiratory care** are reflected in the total score of 80; the studied nurses from General Qena Hospital had a mean and SD of  $60.11 \pm 9.7$ , and the mean and SD of nurses from the Emergency University Hospital were  $64.29 \pm 12.28$ . In terms of emergency nurses' core competencies in cardiovascular care, the total score of 135 is the mean and SD of  $96.46 \pm 17.9$  for the studied sample from

General Qena Hospital. Also, the mean and SD were  $119.29 \pm 21.49$  for the studied sample from Emergency University Hospital.

Concerning the core competencies of emergency nurses regarding **neurological care**, the total score of 50, the studied sample from General Qena Hospital had a mean and SD of  $36.49 \pm 4.91$ . While the mean and SD were  $45.23 \pm 7.35$  for the studied sample from Emergency University Hospital. Regarding the core competencies of emergency nurses' gastrointestinal care, the studied sample from General Qena Hospital had a total score of 30, with a mean and SD of  $21.11 \pm 4.04$ . Also, the mean and SD of the studied sample were  $26.86 \pm 5.01$  for the Emergency University Hospital.

Regarding the core competences of **communication skills**, the total score was 25 and mean and SD of the studied sample from General Qena Hospital was  $(18.17 \pm 3.66)$  while the mean and SD for the studied sample from Emergency University Hospital was  $(23.46 \pm 2.9)$ . Concerning the core competencies of teamwork and collaboration from total score 15, the studied sample from General Qena Hospital had a mean and SD of  $12.29 \pm 2.16$  while the studied sample from Emergency University Hospital had a mean and SD of  $13.97 \pm 1.98$ , respectively.

Regarding core competencies of **professional development**, the total score was 20 but the studied sample from General Qena Hospital had a mean and SD of  $14.29 \pm 3.73$ . While the mean and SD  $18.43 \pm 3.05$  for the studied sample from Emergency University Hospital. Regarding the core competencies of **organizational awareness**, the total score was 15 and the mean and SD for the studied sample from

General Qena Hospital  $9.51 \pm 3.32$ . While the mean and SD  $12.26 \pm 2.96$  for the studied sample from Emergency University Hospital.

Concerning core competences of research from a total score of 10, the studied sample from General Qena Hospital had a mean and SD of  $2.06 \pm 0.34$ . While the mean and SD were  $2.09 \pm 0.37$  for the studied sample from the emergency university hospital. As regards the core competences of **quality improvement**, the total score of 15 in the studied sample from General Qena Hospital had a mean and SD of  $6.49 \pm 2.08$ . While the mean and SD were  $8.54 \pm 2.57$  for the studied sample from the emergency university hospital.

**Finally, the total core competencies** of emergency nurses for the management of critically ill patients were (485) also the mean and SD was  $340.71 \pm 41.4$  for the studied sample from General Qena Hospital. While mean and SD  $(416.37 \pm 63.58)$  for the studied sample from an Emergency University Hospital. Finally, there were a highly statistically significant difference between the studied nurses from both hospitals in the majority of items (P value 0.000\*\*).

**Figure 1** illustrates the levels of core competence criteria for emergency nurses were fair (45.7%) in the General Qena Hospital and (17.1%) in the Emergency University Hospital. However, the level of core competencies for emergency nurses was good (45.7%) in the General Qena Hospital and (80%) in the Emergency University Hospital.

**Table 3** demonstrates the comparison between core competence criteria levels of emergency nurses and nurses' socio demographic data at both hospitals. There

was no correlation between age and level of competence. Regarding the level of the training programme (100%–78.6%), of both hospitals had a high level of competence. and there was no correlation between training and level of competence. In terms of experience years (6–10 years), they had (62.5%–66.7%) fair levels of competence in both hospitals, respectively, while (50–53.6%) had good levels of competence in both hospitals. and there was no correlation between experience years and level of competence.

**Table 1: Distribution of sociodemographic data for emergency nurses in the two hospitals (n =70)**

Items	General Hospital n=35		Qena Emergency University Hospital n=35		Total	
	No	%	No	%	No	%
<b>Age</b>						
18 - < 30 years	7	20.0	6	17.1	13	18.6
30–<40 years	14	40.0	18	51.4	32	45.7
40–49 years	14	40.0	11	31.4	25	35.7
<b>Education</b>						
Diploma	24	68.6	22	62.9	46	65.7
Technical nursing institute	3	8.6	3	8.6	6	8.6
Bachelorette	8	22.9	10	28.6	18	25.7
<b>Training program</b>						
None	10	28.6	6	17.1	6	8.6
Present	25	71.4	29	82.9	64	91.4
<b>Experience</b>						
<5 years	9	25.7	2	5.7	11	15.7
5-10 years	21	60.0	20	57.1	41	58.6
>10 years	5	14.3	13	37.1	18	25.7

Chi square test for qualitative data between the two groups or More\*Significant level at P value < 0.05

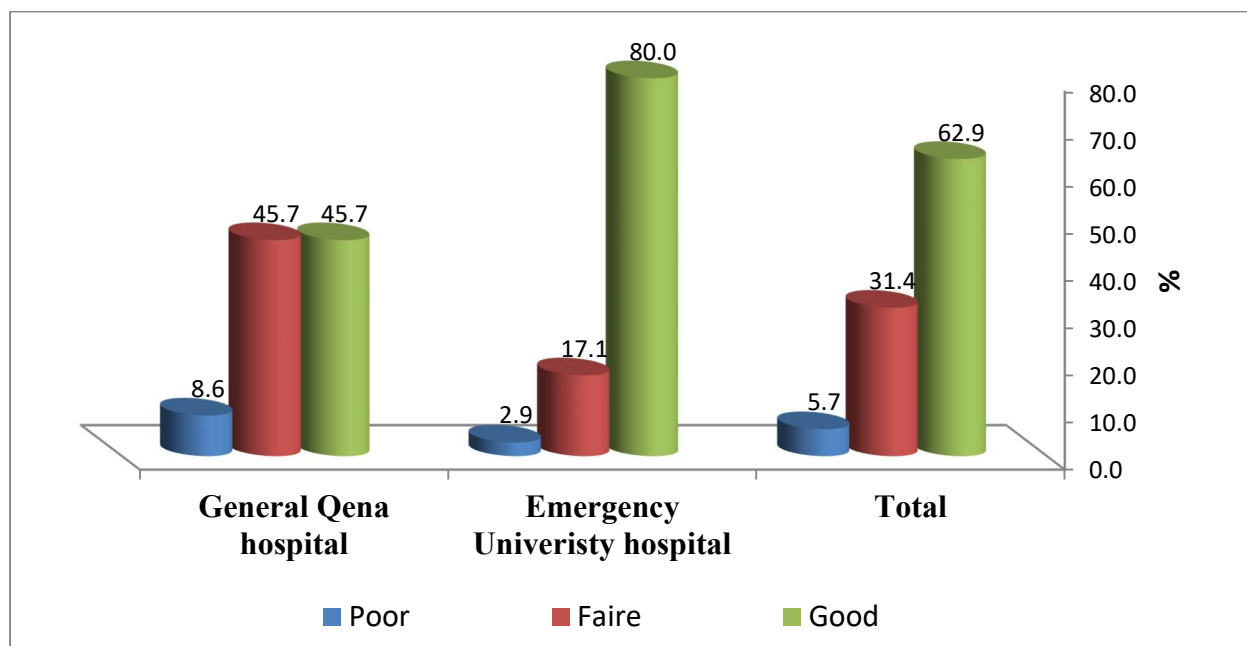
**Table (2): Comparison of the mean score of core competence criteria for emergency nurses between the General Qena Hospital and the Emergency University Hospital (n = 70)**

Core competences	Max Score	General Qena Hospital			Emergency University Hospital			Total			P value
		Mean ±SD	Range	Mean%	Mean ±SD	Range	Mean%	Mean ±SD	Range	Mean%	
Respiratory	80	60.11±9.7	49-72	75.14	64.29±12.28	49-80	80.36	62.2±11.18	49-80	77.75	0.119
Cardiovascular/Circulatory	135	96.46±17.9	71-119	71.45	119.29±21.49	71-135	88.36	107.87±22.75	71-135	79.90	0.000**
Neurological	50	36.49±4.91	29-47	72.97	45.23±7.35	29-50	90.46	40.86±7.61	29-50	81.71	0.000**
Gastrointestinal (GI)	30	21.11±4.04	14-27	70.38	26.86±5.01	14-30	89.52	23.99±5.36	14-30	79.95	0.000**
V: Genitourinary (GU)	45	32.46±7.57	19-43	72.13	41.06±7.18	19-45	91.24	36.76±8.51	19-45	81.68	0.000**
Reproductive Male and Female	45	31.29±4.14	27-42	69.52	40.91±6.44	27-45	90.92	36.1±7.24	27-45	80.22	0.000**
Communication skills	25	18.17±3.66	12-23	72.69	23.46±2.9	14-25	93.83	20.81±4.22	12-25	83.26	0.000**
Teamwork/collaboration	15	12.29±2.16	9-15	81.90	13.97±1.98	9-15	93.14	13.13±2.23	9-15	87.52	0.001**
Professional development	20	14.29±3.73	8-19	71.43	18.43±3.05	8-20	92.14	16.36±3.97	8-20	81.79	0.000**
Organizational awareness	15	9.51±3.32	5-15	63.43	12.26±2.96	5-15	81.71	10.89±3.42	5-15	72.57	0.001**
Research	10	2.06±0.34	2-4	20.57	2.09±0.37	2-4	20.86	2.07±0.35	2-4	20.71	0.738
Quality improvement	15	6.49±2.08	3-11	43.24	8.54±2.57	3-12	56.95	7.51±2.54	3-12	50.10	0.000**
<b>Total</b>	<b>485</b>	<b>340.71±41.4</b>	<b>287-411</b>	<b>70.25</b>	<b>416.37±63.58</b>	<b>287-476</b>	<b>85.85</b>	<b>378.54±65.48</b>	<b>287-476</b>	<b>78.05</b>	<b>0.000**</b>

Independent T-test quantitative data between the two groups\*\*Significant level at P value < 0.01

SD= standard deviation





**Figure 1: Levels of core competence criteria for emergency nurses at the General Qena Hospital and Emergency University Hospital (n = 70)**

**Table 3: Comparison between core competence criteria levels of emergency nurses and nurses demographic data at General Qena Hospital and Emergency University Hospital (n = 70)**

Levels of competences Socio-demographic	Poor (Less than 60 %)				Faire (Less than 75 to 60 %)				Good (75% and more)				P. value
	General Hospital		University Hospital		General Hospital		University Hospital		General Hospital		University Hospital		
	No	%	No	%	No	%	No	%	No	%	No	%	
<b>Age groups</b>													
18–29 years	0	0.0	0	0.0	2	12.5	1	16.7	5	31.3	5	17.9	0.405
30–39 years	2	66.7	1	100.0	8	50.0	5	83.3	4	25.0	12	42.9	
40–49 years	1	33.3	0	0.0	6	37.5	0	0.0	7	43.8	11	39.3	
<b>Levels of education</b>													
Diplome	3	100.0	1	100.0	12	75.0	4	66.7	9	56.3	17	60.7	0.038*
Technical nursing institute	0	0.0	0	0.0	3	18.8	2	33.3	0	0.0	1	3.6	
Bachalorette	0	0.0	0	0.0	1	6.3	0	0.0	7	43.8	10	35.7	
<b>Training program</b>													
None	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	6	21.4	0.356
Present	3	100.0	1	100.0	16	100.0	6	100.0	16	100.0	22	78.6	
<b>Experience</b>													
<5 years	0	0.0	0	0.0	3	18.8	0	0.0	6	37.5	2	7.1	0.447
6-10 years	3	100.0	1	100.0	10	62.5	4	66.7	8	50.0	15	53.6	
(>10 years)	0	0.0	0	0.0	3	18.8	2	33.3	2	12.5	11	39.3	

Chi square test for qualitative data between the two groups \*Significant level at P value < 0.05

**Discussion:**

The study result revealed that more than half of nurses had a low level of perception toward organizational change. From the investigator point of view this is due to high percent of nurses had a low level of planning strategically, focusing on the organization marketability and nursing practice and continuity. Also, more than half of them had a low level in communication for change, shared decision-making process and involvement in policy development. This is may be due to nurses had a lack of information about perception of organizational change and their important roles. Also, most of them didn't participate in committees; this may increase resistance to organizational change.

The study finding is in the same line with study of **Wang & Kebede (2022)**<sup>(36)</sup> who found that nurses had a low level of perception regarding organizational change. Also, **Emam, (2022)**<sup>(37)</sup> finding supports this study, who reported that nurses had a low levels perception for organizational change. On the other line, **Milovanovic, et al., (2022)**<sup>(38)</sup> study is disagree with the current study who showed that nurses had a high level of perception towards organizational change. And **Wang & Kebede (2020)**<sup>(39)</sup> found that nurses had a moderate level of perception toward organizational change.

**Nurses' perception regarding work motivation**

Result revealed that more than half of nurses had a low level of perception regarding work motivation. From the investigator point of view this is due to more than half of nurses had a low level of perception regarding autonomy and recognition dimensions of motivation.

Also, near to half of them had a low level in educational opportunities in organization and communication dimensions for motivation. In addition, one third of nurses had a low level in career development and more than quarter of them had a low level in work characteristics dimensions of motivation.

The study result of **Ogbeivor(2021)**<sup>(40)</sup>, is congruent with current study result who found that nurses' had a low level of motivation. Also, the study finding of **Kamath(2019)**<sup>(41)</sup>, is agreed with the current study finding who reported that nurses were poorly motivated. In the other hand, the study finding of **Leodoro (2021)**<sup>(42)</sup>, is inconsistent with the current study result who found nurses were moderately motivated. The study result of **EL Rahman et al., (2021)**<sup>(43)</sup>, is disagreed with current study result who reported that the majority of nurses had a moderate level of motivation.

**Correlation between levels of nurses' perception regarding and organizational change and their work motivation**

There was a statistically significant positive correlation between levels of nurses' perception regarding organizational change and their work motivation. From the investigator point of view motivation is especially important in the process of managing organizational change. The motivation of nurses in the healthcare organization is one without the other does not lead to a successful change. It is means that neither a motivated manager can make a change without motivated nurses of the health care organization, nor can motivated nurses significantly contribute to a successful organizational change without a motivated nurse<sup>(44)</sup>. On the hand lack of support of management, ineffective

communication channels, inadequate autonomy, a lack of fairness, civility and respect; these all can negatively influence on nurses' motivation and organizational change. So, there was a positive correlation between organizational change and work motivation<sup>(45)</sup>. The current study result is in the same line with Albrecht, et al., (2022)<sup>(46)</sup> who found that there was a positive correlation between organizational change and work motivation.

### Conclusion

Emergency nurses play a vital role in patient management, so core competencies can be used as a reference for nursing education to enhance the level of care delivered. Improving their competency by empowering the nurses with educational programs and workshops will improve patient's quality of care. Further research is needed in order to achieve a reliable and valid instrument.

### Recommendations

In light of the results of the study:

- The core competence tool should be used to evaluate emergency nurses need for further training.
- The core competence tool should be applied to ensure the patient's satisfaction level.
- The hospital's head nurses, and hospital directors use the core competence assessment tool as a reference in evaluating nurses' progress and level of performance.
- The core competence assessment tool should be applied in further research in the future using a large sample.

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