Nurses Knowledge and Practice Regarding Assessment of Critical Ill Patients with Neurological Disorders

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Abstract

Background: Despite the importance of neurological assessment in the detection of disorders among critical ill patients there is a lack of research among nurses' performance regard this issue. **Aim:** Evaluate nurses' performance during assessment of critical ill patients with neurological disorders. **Design:** A descriptive design. **Setting:** This study was conducted at the stroke, emergency and intensive care units at Sohag University Hospital. **Subjects:** convenient sample including (50 nurses). **Tools:** A Structured Interviewing Questionnaire and Nurse Practice Observational Checklists tool. **Results:** Less than halfof the nurses demonstrated a satisfactory .overall level of knowledge More than half of the nurses showed satisfactory practice levels regardingthe assessment of critically ill patients with neurological disorders **Conclusion:** there were statistical significant positive correlation between the total studied nurses' knowledge and practices regarding assessment of critically ill patients with neurological disorders. **Recommendation:** Ongoing in-service training programs are recommended to enhance nurses' performance in neurological assessment within critical care settings.

Keywords: Critically ill patient, Performance, Neurological disorder

Introduction:

The nervous system transmits signals between the brain and the rest of the body, including internal organs.so, the nervous system's activity controls the ability to move, breathe, see, and think and more. The main unit of the nervous system is a nerve cell or neuron. The human brain contains about 100 billion neurons. The neuron had a cell body, which includes the cell nucleus and special extensions called axons and dendrites bundles of axons, called nerves, are found throughout the body. Axons and dendrites allow neurons to communicate, even across long distances **(scheepers et al., 2020).**

The neurologic examination is useful in both ambulatory and emergency settings. It provides the health care provider a tool to recognize neurologic involvement in certain disease states, and thereby allow proper work-up and treatment for these patients. It is also beneficial in intensive care units, particularly in monitoring neurologic sequelae of diseases like strokes, intracranial tumors, and traumatic brain injury. In emergent settings, rapid assessment of the severity of an injury and neurologic involvement is crucial and leads to fast decision-making in patient management, as well as improvement of patient survival rates **(Shahrokhi & Asuncion, 2023).**

Neurological disorders impose a significant burden on individuals, caregivers, households, healthcare systems, and economies worldwide. Neurological disorders can cause varying degrees of disability and impairment, affecting cognitive, emotional and affective function, mobility, communication, and quality of life. The profound impact on quality of life includes physical limitations, cognitive decline, emotional distress, social isolation, and discrimination. Many of these diseases are chronic and progressive, leading to long-term disability and the need for ongoing care and support **(Boon et al., 2025).**

A neurological exam is an evaluation of a patient's nervous system that can be done by the healthcare provider's. There are many aspects of this exam, including an assessment of

motor and sensory skills, balance and coordination, mental status, reflexes, and functioning of the nerves. Neurological testing is essential for screening and diagnosing suspected peripheral neuropathies. Detecting changes in somatosensory and motor nerve function can also have direct implications for management decisions **(Bender & et al., 2023).**

Practical and efficient neurologic assessment skills for the needed are vital for acute illness stage and neurological disorder. During an acute neurologic event, the nurse needs to focus on patient's assessment for the history, to analyze symptoms, perform an immediate head-to-toe survey, eliciting any abnormal signs to identify and report immediately the medical problems. When a patient requires routine monitoring of the neurologic signs, the nurse's should perform the neurologic assessment, collecting and assimilating that data, interpreting the patient problem and notifying the physician with the appropriate and documenting the collected data **(Chicken & Tuuli, 2023).**

Therefore, nurses must possess a comprehensive understanding of the nervous system and its associated disorders to formulate detailed care plans that address the unique needs of each patient. This article aims to explore the underlying pathophysiology of some of the most prevalent neurological disorders and how this informs effective patient assessment and diagnostic strategies **(Teixeira, 2024).**

Significance of the Study:

Neurological conditions are now the leading cause of disability worldwide. The overall amount of disability, illness and premature death (known as disability-adjusted life years, DALYs) caused by neurological conditions has increased by 18% since 1990. Over 80% of neurological deaths and health loss occur in low- and middle-income countries, and access to treatment varies widely: high-income countries have up to 70 times more neurological professionals per 100 000 people than low- and middle-income countries **(World Health Organization, 2024).**

Neurological Diseases (NDs) are human disorders that affect the brain. Neurological illnesses, could effect on the brain, behavioral, or cognitive disorders, which affect also people's abilities to walk, speak, learn, and move. Awareness about these diseases could lessen the mortality rate; however, some acute NDs could cause permanent and partial disability or suffering. The global prevalence of these disorders accounted for 10.2% of the cases. Furthermore, these illnesses had a high causality rate about 16.8 % per year, respectively. These percentages indicate that neurological and neuropsychiatric disorders could higher disability rates than any other human disorders **(Lima et al., 2022).**

The burden of neurological disorders is higher in developing countries due to several factors such as the lack of specialists and health care facilities. In Egypt, according to recent estimates, the overall prevalence rate of stroke is high with a crude prevalence rate of 963/100,000 inhabitants **(Abd-Allah, & et al., 2014).**

The neurological assessment requires the nurse to provide nursing care plan and performance accordingly, which including the care of the mental status, motor function, sensory function, brainstem function, cerebellar function, and spinal cord function. Despite the importance of neurological assessment, there is a lack of research which directed to nurses' skills in performing these assessments **(Bae & Roh, 2020).**

Therefore, the investigator conducts this study to evaluate nurse's performance during the assessment of critical ill patients with neurological disorder to ensure the delivery of high-quality, evidence-based care tailored to the complex needs of these patients, who often present with rapidly changing clinical conditions.

Aim of the study:

This study aimed to assess nurses' knowledge and practice regarding assessment of critical ill patients with neurological disorders

The aim of this study will be achieved through the following objectives:

1.Assessing nurses' level of knowledge regarding assessment of critical ill patients with neurological disorders.

2.Assessing nurses' practices level regarding assessment of critical ill patients with neurological disorders.

Research question:

1) What is the nurses' level of knowledge regarding assessment of critical ill patients with neurological disorders?

2) What is the nurses' practices level regarding assessment of critical ill patients with neurological disorders?

Operational definition

Neurological disorder means that (stroke and Traumatic brain injury).

Subjects and Methods:

1.Research design

Descriptive research design was utilized to achieve the aim of this study descriptive study design is a research method describing the characteristics of the population or phenomenon studied, this method focuses on observing and measuring without manipulating variables **(McCombs et al., 2024).**

2.The study setting:

This study was carried out at the stroke unit, emergency unit and intensive care unit at Sohag University Hospital.

• The stroke unit is located in the fourth floor. It consists of 10 beds which distributed into 2 rooms each room consists of 5 beds.

• The emergency unit is located in the grand floor. It consists of 6 beds which distributed into 2 rooms each room consists of 3 beds.

• The intensive care unit is located in first floor. It consists of 20 beds which distributed into 4 rooms each room consists of 5 beds. **Subjects of the study:**

A convenient sample of available nurses (50 nurses) who are working at the previously mentioned setting during the time of data collection

3.Tools of data collection:

The study data was collected through the following tools:

Tool (I): A structured interviewing questionnaire: Appendix I

This tool was developed by the investigator based on a review of recent and relevant literature, using clear and simple Arabic language, and was adapted from Özçelik & Celik (2022), Khaleel et al. (2021), and Maher (2016). Its validity and reliability were tested. The questionnaire consisted of two main parts**:**

Part (I): Nurses' demographic data: It included 6 items concerning with personal characteristics of the studied nurses as: age, gender, level of education, years of experience, training courses and number of training courses.

:Part IIAssessment of Nurses' Knowledge:
This part aimed to assess nurses' knowledge regarding the assessment of critically ill patients with neurological disorders. It comprised 49 multiple-choice questions :(MCQs) divided into four subcategories

1. **Nervous system and its functions (questions 10)**
2. **Knowledge of neurological disorders (13 questions)**
3. **Neurological assessment (17 (questions**
4. **Role of the nurse during neurological assessment (9 questions)**

❖ **Scoring system**:

The answer was evaluated using model

answer prepared by the investigator, the one was given for the correct answer and zero for the incorrect answer, with total knowledge score (49).

The total level of nurse's knowledge was categorized as the follow:

- ≥85% considered satisfactory level of knowledge = (≥42 grade)

- < 85% considered unsatisfactory level of knowledge (<42 grade)

. **Tool (II): Nurse Practice Observational Checklists:** This is a standard tool adopted from (Shahrokhi &Asuncion 2023), (Wilkinson et al 2019). It was used to assess nurses' level of practice regarding assessment of patients with neurological disorders. It consisted of two parts as follow:

Part (I): Glasgow Coma Scale:: this tool was adopted from (Shahrokhi &Asuncion, 2023). It was consisted of three assessment parts.

♣ Eye opening (4 items) are ranging in its score from 1-4 grades.

♣ Verbal response (5 items) is ranging in its score from 1-5 grades.

♣ Motor response (6 items) is ranging in its score from 1-6 grades.

Scoring system:

Each section was scored as done correctly given one mark and the missed step or step which done incorrectly scored zero. The score of steps summed and the total scores (15) converted into a percent score and classified as the following:

- ≥85% considered satisfactory level of practice = (≥13 grade)

- < 85% considered unsatisfactory level of practice (<13 grade)

Part (II): Neurological assessment observational check list: This checklist was designed to evaluate nurses' practices during the implementation of routine neurological assessments for patients with neurological disorders. (**preparation** (9 steps), **Assess immediate, recent and remote memory** (4 steps), **Assessment of cognitive ability** (3 steps), **Assessment of sensory nerves** (4 steps), **An assessment of motor strength** (4 steps), **Assessment of Coordination and balance** (2 steps), **Assessment of Reflexes** (Biceps reflex (3steps), Triceps reflex (3 steps), Brachioradialis reflex (3 steps), Quadriceps reflex "Knee jerk" (3 steps), and -Achilles reflex "Ankle jerk" (4 steps), planter reflex (3 steps), pupil reflex to light (6 steps), and **post procedure assessment**(6 steps). procedure 6 steps.

Scoring system:

This section was consisted of 57 steps each step was scored one if done correctly and zero if not done/done incorrectly With total score (57). The total nurses' practice was categorized into two categories as the follow:

- ≥85% considered satisfactory level of practice = (≥49 grade).

- < 85% considered unsatisfactory level of practice =(<49 grade).

Preparatory phase:

It included reviewing of related literature, and theoretical knowledge of various aspects of the study using textbooks, articles, internet, periodicals and magazines concerning anatomy and physiology of nervous system, neurological disorder and neurological examination

Validity:

The validity of proposed tools done by using face to face and content validity aimed to inspect the items to determine whether the tools measure what supposed to measure and conducted to determine whether the tools cover the aim. Validity was tested through a jury of 5 of experts in from Critical and Emergency Nursing department, Ain Shams University (2 professor- 1 assistant professor – 2 lectures) the experts revised the tool for clarity, relevancy, comprehensiveness, simplicity, and

applicability, minor modification were done based on expertise's opinion. Validity for each tool was ranged between (80%-100%) indicating a high level of agreement among the experts.

The reliability:

Reliability was done by alpha Cronbach test which used to examine whether the tools had internal consistency. The test done for tool number one nurse knowledge (0.921)

Pilot study:

A Pilot study was carried out on 10 % of the total sample size, they were (5 nurses) who are working at previously mentioned settings, to evaluate the clarity and applicability of the designed questionnaire tools also to determine the time needed to answer the study tools. Subjects included in the pilot study were included in the study as there were no subsequent modifications in the study tools.

Field work:

The purpose of the study was explained to nurses who agreed to participate in the study prior to data collection. Data collection was started and completed within 3 months from beginning of June 2024 to the end of August 2024. The investigator was available at the previously mentioned settings by rotation 3 days per week (Monday) for stroke unit at Sohag University Hospital, (Thursday) for ICU at Sohag University Hospital and (Sunday) for emergency unit at Sohag University Hospital according to availability of cases in the morning and afternoon shift to collect data using the previous tools.

The investigator was interviewed the nurses at the previously mentioned settings to assess their knowledge regarding assessment of critically ill patient with neurological disorder The knowledge questionnaire tool (I) was distributed to the nurses according to availability of cases, the investigator was present all the time during filling the questionnaire Tool one was took about 20_30 minutes to fulfill by each nurse.

The observational checklist Tool (II) were done by the investigator who observing nurses during their work while provided patients care. It was taken from (30-45) minutes to fulfill by the investigator. The investigator was observing actual practice of 1-2 nurses/ day.

Ethical Consideration

The research approval obtained from the scientific research ethical committee Faculty of Nursing, Ain Shams University before starting the study. Written Informed consent obtained from each nurse before inclusion in the study sample and after an explanation of the study's aim in a simple and clear manner. A clear and simple clarification of the study's nature and its expected outcomes explained. They secured that all data collected treated in confidentiality and anonymity. All the study subjects had the right to withdraw at any time from the study.

Ethical code : 25.01.507

Administrative design:

An official letter of approval obtained from the Dean of the faculty of nursing Ain Shams University to director of Sohag University Hospital in which the study was conducted. The purpose of the study was explained by the investigator to obtain permission to conduct this study.

Statistical Design:

The data were collected, coded and entered into a suitable excel sheet. Data were transferred into SPSS. Quantitative data were presented as mean, standard deviation, Chi-square (χ 2) and Correlation coefficient (r), were used to estimate the statistical significant that was considered as follows:

- Non-significant at P-value > 0.05.
- Significant at P-value ≤ 0.05.
- Highly significant at P-value < 0.001.

Results:

Table (1): Shows that, the mean age of the studied nurses was 29.845 ±4.22, (78%) of

them were female and (52%) of them had technical Institute of Nursing respectively regarding years of experience in intensive care and emergency care unit. Also (82%) of the studied nurses were 5- < 10 years, (76%) of them hadn't attended training courses on evaluating nurses' performance during assessment of critically ill patients with neurological disorders.

Figure (1): Demonstrates that, (46%) of the studied nurses had satisfactory total level of knowledge regarding assessment of critically ill patients with neurological disorders, while (54%) of them had unsatisfactory total level of knowledge.

Figure (2): Clarifies that, (52%) of the studied nurses had satisfactory level of practices regarding assessment of critically ill patients with neurological disorders, while (48%) of them had unsatisfactory level of practices regarding critically ill patients with neurological disorders

Table (2): Shows that there were statistical significant relation between the total studied nurses' level of knowledge and their educational level and attended training courses on evaluating nurses' performance during assessment of critically ill patients with neurological disorders at (P= 0.003 and .005) respectively.

Table (3): Shows that there were statistical significant relation between the total studied nurses' level of practices and their years of experience in intensive care and emergency care unit and Attended training courses on evaluating nurses' performance during assessment of critically ill patients with neurological disorders at (P= 0.005 and .002) respectively.

Table (4): Reveals that there were statistical significant positive correlation between the total studied nurses knowledge and their practices and attitude regarding assessment critically ill patients with neurological disorders at (P< 0.05)

Part I: Demographic characteristics of studied nurses

Table (1): Frequency and percentage distribution of the studied nurses according to their demographic data (n=50)

Demographic data	No	%
Age		
20 - <30	41	**82.0**
30- <40	8	16.0
40- <50	1	2.0
Mean ±SD	**29.845 ±4.22**	
Sex		
Male	11	22.0
Female	39	**78.0**
Educational level		
Diploma in Nursing	14	28.0
Technical Institute of Nursing	26	**52.0**
Bachelor's degree in nursing sciences	8	16.0
Postgraduate studies (Master's – Doctorate)	2	4.0
Years of experience in intensive care and emergency care unit		
1- < 5	6	12.0
5 – <10	41	**82.0**
10 - <15	3	6.0
≥ 15	0	0.0
Attended training courses of neurological disorders		
Yes	12	24.0
No	38	76.0

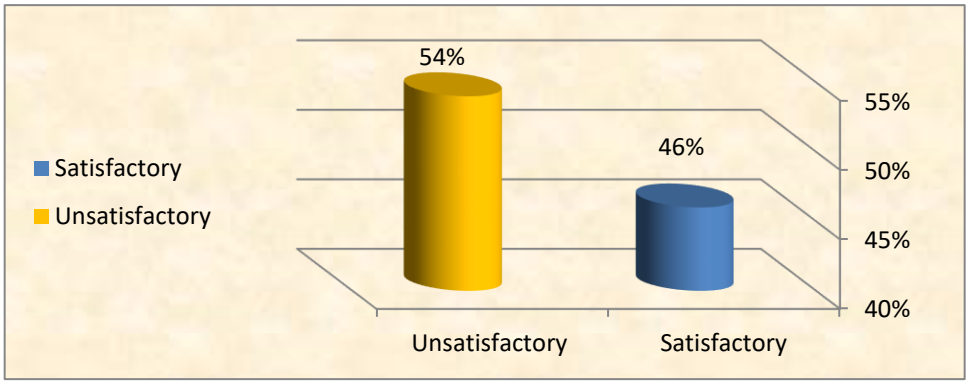

Figure (1): Percentage distribution the studied nurses total level of knowledge regarding assessment of critically ill patients with neurological disorders (n=50)

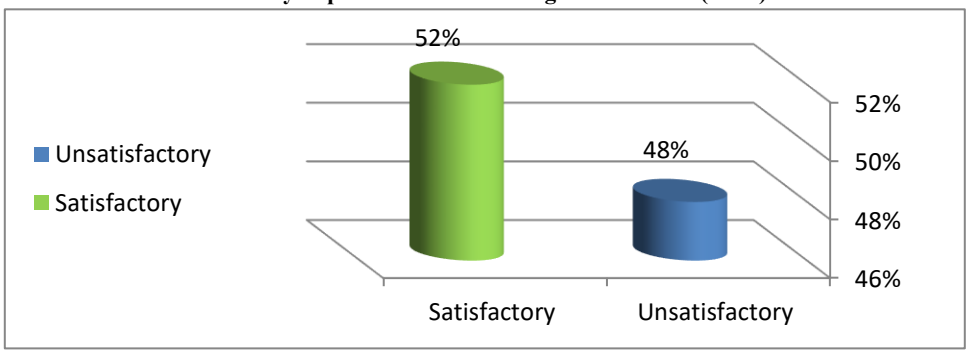

Figure (2): Percentage distribution the studied nurses' total level of practices regarding assessment critically ill patients with neurological disorders (n=50)

Table (2): Relation between nurses level of knowledge and their demographic characteristics (n=50)

Demographic characteristics	Level of knowledge				X^2	p- value
	Satisfactory		Unsatisfactory			
	No	%	No	%		
Age						
20 - <30	19	38.0	22	44.0	1.014	0.602
30- <40	3	6.0	5	10.0		
40- <50	0	0.0	1	2.0		
Gender						
Male	4	8.0	7	14.0	0.334	0.563
Female	18	36.0	21	42.0		
Educational level						
Diploma in Nursing	5	10.0	9	18.0	3.122	0.003*
Technical Institute of Nursing	14	28.0	12	24.0		
Bachelor's degree in nursing sciences	3	6.0	5	10.0		
Postgraduate studies (Master's – Doctorate)	0	0.0	2	4.0		
Years of experience in intensive care and emergency care unit						
1- < 5	2	4.0	4	8.0	3.014	0.2251
5 – <10	20	40.0	21	42.0		
10 - <15	0	0.0	3	6.0		
Attended training courses of neurological disorders						
Yes	2	4.0	10	20.0	0.930	0.005*
No	20	40.0	18	36.0		

*** Statistically significant at P<0.05**

Table (3): Relation between the studied nurses' level of practices and their demographic characteristics (n=50)

Demographic characteristics	Level of practice				X^2	p- value
	Satisfactory		Unsatisfactory			
	No	%	No	%		
Age						
20 - <30	21	42.0	20	40.0	3.75	0.153
30- <40	4	8.0	4	8.0		
40- <50	1	2.0	0	0.0		
Gender						
Male	7	14.0	4	8.0	0.083	0.774
Female	19	38.0	20	40.0		
Educational level						
Diploma in Nursing	2	4.0	0	0.0	5.899	0.6251
Technical Institute of Nursing	3	6.0	5	10.0		
Bachelor's degree in nursing sciences	13		13	26.0		
Postgraduate studies (Master's – Doctorate)	26.0	8	6	12.0		
Years of experience in intensive care and emergency care unit						
1- < 5	22	44.0	19	38.0	0.324	0.005*
5 – <10	3	6.0	3	6.0		
10 - <15	1	2.0	2	4.0		
Attended training courses of neurological disorders						
Yes	10	20.0	12	24.0	0.035	0.002*
No	16	32.0	12	24.0		

*** Statistically significant at P<0.05**

Table (4): Correlation between total studied nurses' score of knowledge, practices and attitude regarding assessment of critically ill patients with neurological disorders (n=50)

Study variables	Knowledge		Practices	
	r	P	r	p
Knowledge	-	-	**0.324**	**0.005***
Practices	**0.324**	**0.005***	-	-

*** Statistically significant at P<0.05**

Discussion:

A comprehensive assessment and effective management of neurological disorders within an evidence-based practice approach are crucial to minimize the risk of complications, improve quality of life and extend life expectancy. Nursing professionals are a key part of this team; they are responsible for assessing patients' needs and developing personalized care plans that address their unique symptoms and concerns **(Teixeira, 2024).**

The current study was aimed to assess nurses' performance during assessment of critical ill patients with neurological disorders through assessing nurse's knowledge and practice during assessment of critical ill patient with neurological disorder.

First, discussion of the finding will cover demographic characteristics of the studied nurses, **Second**, Assessment of nurses' level of knowledge regarding assessment of critically ill patient with neurological disorder, **Third**, studied nurses' level of practice regarding assessment of critically ill patient with neurological, , **Fourth**, relation and correlation between studied variables.

Part I: regarding studied nurses' **demographic characteristics,** the result of the study revealed that the mean **age** of the studied nurses was 29.845 ±4.22 the majority of studied nurses were in the age group 20- < 30 years old. This result can be explained by most of them had technical institute of nursing so they started working at young age. This finding is consistent

with what was reported by **Barde & Upendra (2021)** who carried out "A Study to Assess the Knowledge Regarding Neurological Assessment among Nurses working in Selected Hospitals of Pune City" who reported that the Maximum of the studied nurses were in their 30s years.

Regarding to **gender**, the present study indicated that more than three quarter of the studied nurses were female, from the investigator point of view this result may be due to most of nursing school, technical institute and faculty of nursing students were female and in the past it was exclusively for female in addition to the dominance of females in the nursing profession in Sohag. This result goes in the same line with **Ali &et al., (2024)**, in their study entitled "Knowledge of Nurses regarding Glasgow Coma Scale in Neurological Assessment of Patients in a Tertiary Care Hospital Multan" who found that females represent the predominant group at 75%, while males constitute 25% of the sample.

Concerning **education level**, the current study showed that, more than half of the studied nurses had graduated from technical institute of nursing. This may be due to all the student of technical institute of nursing at Sohag University has assigned to work at Sohag university hospital. This finding was disagreed with a study done by **Bae et al., (2020),** entitled " Training needs analysis of Korean nurses' neurological assessment competency" who, found that, less than three quarter of the staff nurses were Bachelor degree of nursing science.

Regarding to **years of experience** this result revealed that the majority (82%) of the studied nurses were less than 5- <10 years of experience. From the investigator point of view this may be due to the majority of studied nurses were in the age group 20- < 30 years old and more than half of them had graduated from technical institute of nursing. This finding is goes in the same way with a study done by **Barde & Upendra, (2021**) who reported that less than two third of nurses were having more than 5 years of experience..

As regards **attendance of training courses** the finding of the present study showed that revealed that more than three quarters of the studied nurses hadn't attended training courses. From the investigator point of view this may be due to lack of available time of nurses and lack of interest from the organization in addition to absence of specialized training of nurses in critical care coupled with a practice of rotating from one unit to another within the hospital. This finding was supported by **Khaleel et al., (2021)** in a study of "Assessment of the Health Team Performance in the First 24 Hours Regarding Patients with Stroke" who explained that, the less than two third of staff nurses had not attended educational program

Part II: Nurses' level of knowledge regarding assessment of critically ill patients with neurological disorders.

Concerning total level of knowledge of studied nurses regarding to neurological assessment, this result revealed that more than half of the studied nurses had un-satisfactory level of knowledge regarding the assessment of critically ill patient with neurological disorder. According to the investigator, this may be attributed to a lack of specialized training programs and the burden of excessive workload. These results were consistent with **Barde & Upendra (2021)**, who found that more than half of the participants in this study had poor knowledge about the Neurological Assessment.

This result also at the same line with **Y Ms et al., (2018)**, in their study entitled "Registered nurses' knowledge on comprehensive neuro assessment: A pre-experimental design". Who found that more than one third had adequate knowledge regarding neurological assessment in pre- test phase.

Additionally, **Yousef et al., (2021)**, in their study entitled "impact of educational pedagogy on registered nurses 'knowledge in neurological assessment of traumatic brain injury patients" they found that half of nurses had inadequate knowledge in pre- assessment test.

Additionally **Kandula et al., (2022)** in their result entitled "The Effect of Implementing

an Educational Program Regarding Neurological Examination on Nurses at Asella Teaching and Referral Hospital in Oromia Region, Ethiopia: A Quasi-Experimental Study" they found that more than three quarter of the studied nurses had good knowledge in pre-experimental phase

Part III nurses practice regarding assessment of critically ill patient with neurological disorder

Concerning to total level of practice regarding the current study, more than half of the studied nurses had competent level of practice regarding neurological assessment of critically ill patient with neurological disorder. From the investigator point of view this may be due to experiential learning through clinical practice and mentorship from senior colleagues, which enhanced their practical proficiency despite limited formal training. This result goes in the same way with a study done by **Massod, (2024)** who found that more than two third of the studied nurses had satisfactory level of practice regarding care of patient with stroke.

This finding in disagreement with the study **Abdelaziz et al., (2019),**who found that more than half of the studied nurses were incompetent practices regarding nursing care for patient with neurological disorder.

As regard to correlation between total studied nurses' knowledge and their level of practices and attitude. This result revealed that **there was statistical significant positive correlation between** the total studied nurses' knowledge and their level of practices regarding assessment of critically ill patients with neurological disorders. This finding at the same line with **Khaleel et al., (2021)** who found that , there was a positive correlation between the total score of nurses' knowledge and practices

This result also at the same line with **Du et al., (2024)**, who conducted a study about "Knowledge, attitude, skill, and practice of emergency nurses regarding the early management of patients with acute ischemic stroke in Beijing" they found that The knowledge was significantly positively correlated with attitude and skill/practice. There was also a positive correlation between skill/practice and knowledge.

Conclusion:

Based on the results of the present study, it can be concluded that, **less** than half of the studied nurses had satisfactory total level of knowledge. In addition, more than half of the studied nurses had satisfactory level of practices regarding assessment of critically ill patients with neurological disorders. There were statistical significant positive correlation between the total studied nurse's knowledge and their practices regarding assessment critically ill patients with neurological disorders. So, the study aim was achieved and research questions were answered

Recommendation:

Based on the findings of the current study, the following recommendations are proposed

- Developing a simplified & comprehensive booklet including guidelines about assessment of critically ill patient with neurological disorder.

- In service training is needed to improve nurses' performance regarding assessment of critically ill patients with neurological disorders.

- Replication of the study on large sample and in different hospitals settings in order to generalize the result.

- Further study is recommended to evaluate the effectiveness of educational training program on nurses' performance during assessment of critically ill patient with neurological disorder.

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