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Nurses' Performance of Traumatic Brain Injury Patients during Golden Hour of Care

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Abstract:
Background: About over a million visits per year, traumatic brain injury (TBI) is a frequent presentation in emergency rooms. **Aim of the study:** To assess nurses' performance of traumatic brain injury patients during golden hours of care. **Research design**: A descriptive exploratory research design was used in this study. **Setting:** This study was conducted at El Mobara Hospital and Assiut University Hospital in Emergency Department of Trauma. **Sample:** The study subjects were included a convenience sampling of all critical care nurses who works in the previous mentioned setting. **Tools:** Two tools were used in this study. **Tool one:** Nurses Knowledge self-administer tool which divided into two parts as Part I: Demographic characteristics of the nurses and Part II: Nurses' Knowledge regarding trauma patients during golden hour of care**. Tool two:** Nurses' practice observational checklist. **Results:** It was found that the total level score of nurse`s knowledge regarding the care of traumatic brain injury was about 70.9 % the most nurses had good knowledge, 67.28 % from nurses had satisfactory level. The rewash a relation between the total score levels with p. value of 0.019*. **Conclusion:** The most of nurses having good knowledge, and satisfactory level of practice and there was relation between the both total score levels. **Recommendations:** Improving the quality care of the traumatic brain injury in ICU through providing training programme for nurses.

Keywords: Golden Hours of Care, Nurses' Performance & Traumatic Brain Injury Patients

Introduction:
According to **Sudhakar et al. (2023)**, traumatic brain injury (TBI) is one of the major global health challenges. Given the Frontiers in Human Neuroscience, treating TBI and TBI-related co morbidities is difficult for healthcare systems. TBI is linked to multiple health complications in both acute and chronic stages, progressively impacting patients' quality of life **(Turner et al., 2021).**

Critical timeframes in the management of traumatic brain injury (TBI) patients. The "Golden Hour" refers to the critical first sixty minutes after a severe injury, during which timely and proper medical intervention can greatly enhance a patient's likelihood of survival and successful recovery **(Tyron & Steven, 2024).** Therefore, the Platinum 10 minutes and the Golden Hour are crucial in the management of TBI patients because early intervention can significantly enhance patient outcomes **(Bedard et al., 2020).**

The most common causes of traumatic brain injury are falls, blunt force attacks, and auto accidents. Secondary brain injuries may result from insults from highly preventable and treatable causes, including hypoxia and hypotension, or they may develop from primary damage. Depending on where the damage occurs, intracranial injuries can be further categorized **(Oughton & Subramanian, 2023).**

The key objective of the Golden Hour is to administer essential medical treatments that stabilize vital functions and mitigate further brain injury. The Platinum 10 Minutes denote the critical initial phase following a patient's admission to the emergency unit. During this period, healthcare providers must evaluate airway, breathing, and circulation (ABCs) to detect life-threatening issues and promptly initiate necessary interventions. **(Bedard et al., 2020)**

Critical care nurses play a vital role within the multidisciplinary team, influencing the outcomes of traumatic brain injury (TBI) patients due to their proximity in identifying neurological deficits and intervening promptly (**Rita et al ., 2024).** Regular neurological assessments and prompt recognition of shifts in clinical status can significantly impact outcomes. Delayed diagnosis of complications can precipitate a deterioration in TBI clinical condition **(Kalra et al.,2022)**

Significance of the Study:
Globally, approximately 69 million people suffer from TBI annually, equating to around 8,000 cases per hour. In a study involving road traffic accident victims, 58% of patients sustained a TBI. However, only 20.6% of all patients reached a tertiary health center within the golden hour, with the majority (79.4%) arriving after 60 minutes **(Spagnolello et al., 2025).**

Over 75% of the nurses in the study lacked adequate understanding about how to care for patients who

have experienced trauma. Regarding the treatment of traumatic patients, about 75% of the participants in the study shown complete incompetence. Similarly, there is a very statistically significant association between the study participants' overall degree of practice and their level of knowledge. This study was carried out in Egypt at Helwan University. **(EL-Marakby et al., 2020)**

Around **480** cases of traumatic brain injury (TBI) occur each year throughout the world. The trauma department at Assuit University Hospital was experiencing an epidemic of TBI due to various aging demographics. Severe TBI survivors frequently experience impairments in their motor, sensory, and cognitive abilities, which significantly lowers their quality of life **(Assuit University Hospital Record, 2024).**

Operational definition:

The "Golden Hour": refers to the critical first sixty minutes after a severe injury, during which timely and proper medical intervention can greatly enhance a patient's likelihood of survival and successful recovery **(Tyron and Steven, 2024).**

Aims of the study:

The aim of the study to assess nurses' performance of traumatic brain injury patients during golden hour of care.

Research Questions:

- What is the nurses' knowledge regarding care to trauma patients during the critical first hour?
- What is the nurses' performance in providing care to trauma patients during the critical golden hour?

Subjects and Methods

Study Design:

A descriptive exploratory research design was utilized in this study.

Setting:

The study was performed at emergency department El Mobara Hospital which contain 9 bed and Assiut University Hospital in Emergency Department of Trauma that included 550 beds.

Sampling:

The study sample included the available nurses working in all emergency department (ED) of in El Mobara Hospital and Assiut University Hospital. (35) nurses from ED of Emergency Hospital at Assiut University, 20 nurses from ED of El- Mabera Hospital). Total number of the subjects was 55 nurses.

Tools of the Study:

Tool I: Nurses` Assessment Knowledge: It was developed by the researcher based on literature review (**Greaves et al., 2020**), it was designed in Arabic form to avoid misunderstanding and composed of two parts:

Part I: Nurses' Demographics Data: that included eight closed-ended questions about, including their age, sex, marital status, education level, number of years of ED experience, training courses, and course benefits.

Part II: Nurses' Knowledge Assessment regarding Care of patients with raumatic Brain Injury during Golden Hour: There were included (30) multiple-choice questions on it. It was made up of the following:

- Nurses' knowledge of definition, causes, clinical manifestations, pathophysiology, complications of trauma brain injury patients. (20 questions)
- The role of the nurse in caring various injuries in the emergency department. (10 questions)
- Scoring system: The total score for each domain was determined by adding all the items within that domain and then dividing the sum by the total number of items. The scoring was minimum score = 30 and maximum score = 60

correct answer = 2 and incorrect answer =1 (**Greaves et al., 2020**),

Scoring system divided into three levels of knowledge

- Poor less than < 60 %
- Good ranged from 60 to 75 %
- Very good more than 75 %

Tool II: Nurses' Practice Observational Checklist:

The researcher formulated it based on a review of the literature **(Abhilash & Sivanandan, 2020)**. It encompassed the following (29) elements:

- Inserting an oropharyngeal airway.
- Shock assessment and management
- Cardiopulmonary Resuscitation (CPR)
- Defibrillator shock

together all of its components and dividing that total by the number of steps. The scoring was minimum score = 0 and maximum score = 58

- Done correct = 2, done incorrect = 1 and not done = 0
- Scoring system divided into two levels of performance
- Satisfactory (more than 70 %)
- Unsatisfactory (less than 70%)

Methods:

Technique for data collection: the study was conduct through the following phases:

I. Preparatory Phase:

- Official consent was obtained from head to conduct the study of El Mbara Hospital
- The study tools were designed after extensive literature review.

Pilot Study:

In order to test the applicability, feasibility, practicability, and clarity of the constructed tools, as well as to estimate the time required for each subject to complete the study tools, a pilot study was conducted on 10% (n=50 nurses) of the subjects

under the study who were included and chosen at random from the previously mentioned setting before being included in the sample. Based on the results of the pilot study, no changes were made to the study tools because they were determined to be applicable, feasible, and clear.

Content Validity and Reliability

Validity: A panel consisting of five experts in critical medicine and critical care nursing from Assuit University, four professors from the nursing faculty and one professor from the medicine faculty, revised the instruments for clarity in order to ensure the content validity.

Reliability of the study tool: The reliability of the test was be calculated by using correlation coefficient and it was be estimated by Alpha Cronbach′s test for this study.

- Reliability statistics of the study, Cronbach's Alpha was 0.87 in tool one and 0.91 in tool two.

Ethical Considerations:

- Research proposal was approved from Ethical Committee with date 23 January 2024 in the Faculty of Nursing.
- The study was carried out carefully, adhering to ethical guidelines for clinical research, and all participant right were maintained. The study`s proposal was approved by ethical committee, Faculty of Nursing, Assuit University and written consent was obtained all studied nurses. Study adhered to common ethical guidelines in clinical research. The right to decline, withdrew, and participate in the study was underlined, as was the assurance of respondent anonymity and conditionality. Staff nurses were informed by the researcher the all data collected would use only for research purpose.

Phase (II): Data Collection:

- Before beginning data collection, the researcher introduced herself to the nurses and briefly explained the study's goals.
- Data collecting for this study began and was finished in six months (April, 2024).
- To collect the data required for the study, individual interviews were conducted with each nurse.
- The investigator worked morning and afternoon shifts two days a week to collect data.
- It takes roughly 30 to 40 minutes to gather data from each nurse.
- Nurses who were providing patient care through the golden hour of trauma were filling out a self-administered questionnaire to gauge their knowledge.
- The investigator was filling out an observational checklist to evaluate nurses' practices on patient care through the "golden hour" after trauma.
- The investigator was filling out an observational checklist to evaluate nurses' practices on patient care through the "golden hour" of trauma.
- The participants in the study received guarantees that the data they provided would be kept private and utilized exclusively for the purpose of the study.
- Both direct and indirect observation of each nurse as they are caring for a patient during the traumatizing golden hour.

Statistical Analysis:

The Statistical Package for Social Sciences (SPSS) version 27 was employed to code, arrange, categorize, tabulate, and analyze the data that was gathered. To determine whether two qualitative factors were related, data was displayed in tables and figures using numbers, percentages, means, standard deviation, and chi-square. A P-value of less than 0.05 was deemed statistically significant.

Results:

Table (1) :Percentage Distribution of Nurse's Demographic Data (No=55)

Nurses` Demographic Data	No	%
Years of Experience		
From 1 year to less than 5 years	24	43.6
From 5 years to less than 10 years	14	25.5
10yearsor more	17	30.9
Level of Education		
Nursing Diploma	16	29.1
Nursing Diploma + Specialization	2	3.6
Technical Nursing Institute	4	7.3
Bachelor's Degree in Nursing	33	60
Marital Status		
Single	9	16.4
Married	46	83.6
Divorced	0	0
Widowed	0	0
Have You Ever Received Training		
Yes	20	36.4
No	35	63.6

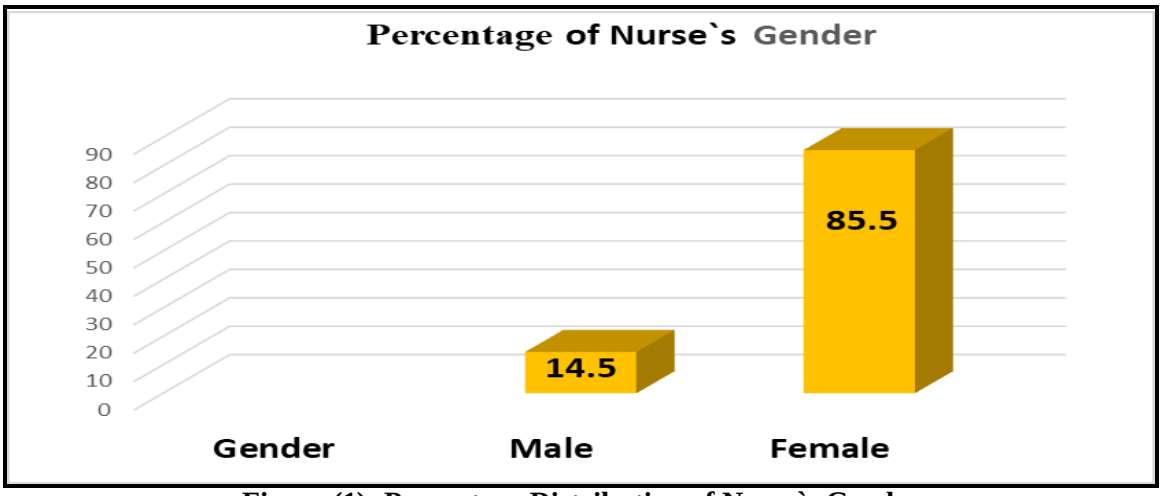

Figure (1): Percentage Distribution of Nurse`s Gender

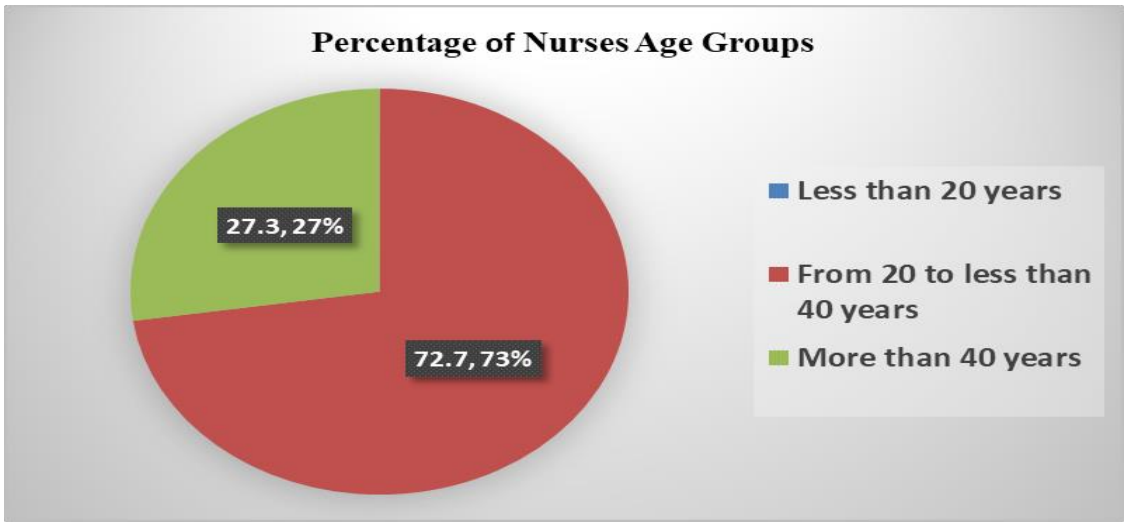

Figure (2): Percentage Distribution of Nurses Age Groups

Table (2): Percentage distribution of Nurses' Practice Observational Checklist for Observational in CPR (No = 55)

Observation a CPR	Done Correct		Done Incorrect		Not Done	
	No	%	No	%	No	%
Check for responsiveness.	44	80	0	0	11	20
Tell someone to activate the emergency response system and get an AED (call help)	46	83.6	0	0	9	16.4
Check breathing and pulse	40	72.7	0	0	15	27.3
Expose chest patient.	42	76.4	0	0	13	23.6
Deliver first cycle of 30 compression	43	78.2	0	0	12	21.8
Give 2 breath, 1second each.	42	76.4	0	0	13	23.6

Table (3): Percentage Distribution of Nurses' Practice Observational Check List about Automated External Defibrillator (No = 55)

Automated External Defibrillator	Done Correct		Done Incorrect		Not Done	
	No	%	No	%	No	%
Turn the AED on, select the proper pads	42	76.4	0	0	13	23.6
Clear the patient to analyze.	42	76.4	0	0	13	23.6
Clear the patient to shock/press shock button.	43	78.2	0	0	12	21.8
Resume CPR: deliver second cycle of compressions	43	78.2	0	0	12	21.8
Give2breath 1secondeach.	43	78.2	0	0	12	21.8

Table(4): Percentage Distribution of Nurses' Practice Observational Checklist for Inserting an Oropharyngeal Airway (No = 55)

Inserting Oropharyngeal Airway	Done Correct		Done Incorrect		Not Done	
	No	%	No	%	No	%
Bring necessary equipment	47	85.5	0	0	8	14.5
Asses oral secretion, lung sound and denture.	47	85.5	0	0	8	14.5
Perform hand hygiene.	41	74.5	0	0	14	25.5
maintain privacy.	43	78.2	0	0	12	21.8
Explain procedure for patient	45	81.8	0	0	10	18.2
Position patient, in semi- fowlers position.	47	85.5	0	0	8	14.5
Suction patient, if necessary.	51	92.7	0	0	4	7.3
Open the patient's mouth using your thumb and index finger	53	96.4	0	0	2	3.6
Rotate the airway180 degree	52	94.5	0	0	3	5.5
Position patient on his side when airway is in place	50	90.9	0	0	5	9.1
Remove gloves and perform hand hygiene	51	92.7	0	0	4	7.3

Table (5): Percentage Distribution of Nurse's Practice Observational Checklist for Shock Assessment (No = 55)

Observational Checklist for Shock Assessment	Done Correct		Done Incorrect		Not Done	
	No	%	No	%	No	%
Observational shock assessment						
The first step in human assessment in a pre-hospital setting begins prior to the patient's arrival.	47	85.5	0	0	8	14.5
Upon patient arrival, the room should remain quiet for the primary survey	47	85.5	0	0	8	14.5
Assess Airway	51	92.7	0	0	4	7.3
Assess Breathing and circulation.	48	87.3	0	0	7	12.7
Assess Exposure for hypothermia.	51	92.7	0	0	4	7.3
Secondary survey.	50	90.9	0	0	5	9.1

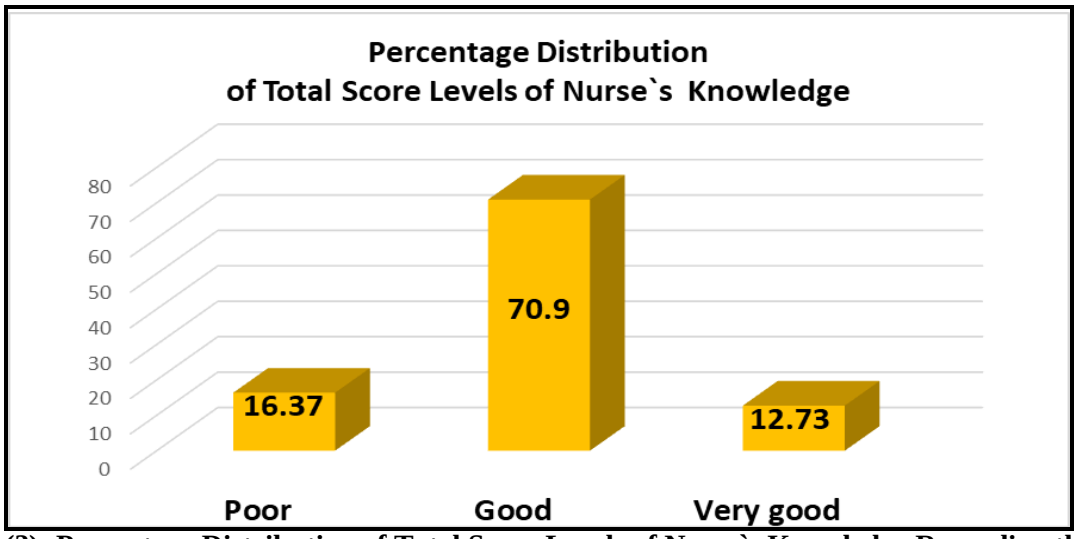

Figure (3): Percentage Distribution of Total Score Levels of Nurse`s Knowledge Regarding the Care of Traumatic Brain Injury Patients during the Golden Hour

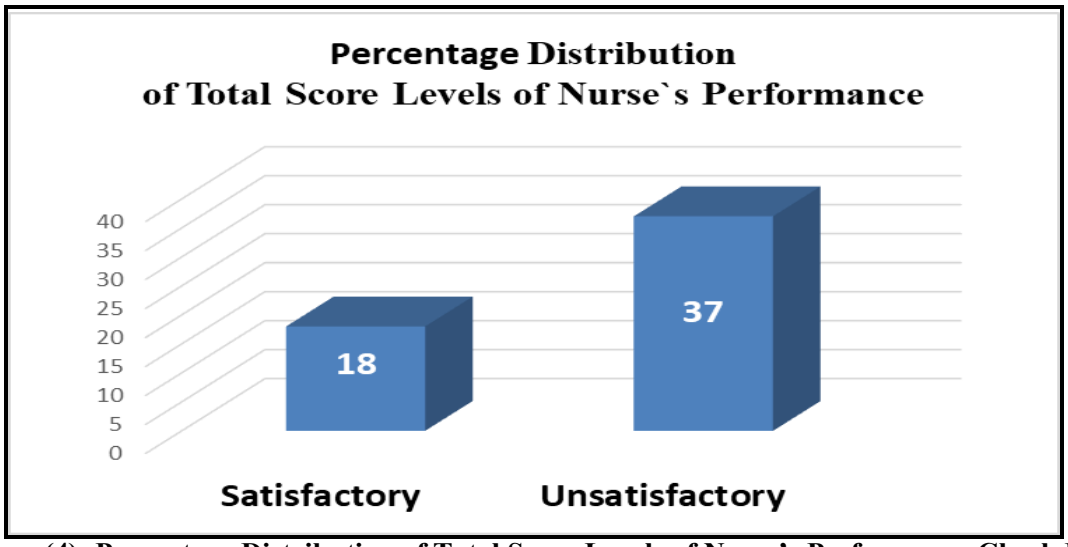

Figure (4): Percentage Distribution of Total Score Levels of Nurse's Performance Check List Related to Traumatic Brain Injury

Table (6): Relation between total score of nurse's knowledge regarding the Care of Traumatic Brain Injury Patients During the Golden Hour and demographic data of nurses (No = 55)

Sociodemographic data	Levels of total score for nurse`s knowledge						p. value
	Poor (9)		Good (39)		Very good (7)		
	No	%	No	%	No	%	
Gender							
Male	8	14.5	8	14.5	8	14.5	0.388
Female	47	85.5	47	85.5	47	85.5	
Age							
Less than 20 years	0	0	0	0	0	0	0.910
From 20 to less than 40 years	40	72.7	40	72.7	40	72.7	
More than 40 years	15	27.3	15	27.3	15	27.3	
years of experience							
From 1 year to less than 5 years	24	43.6	24	43.6	24	43.6	**0.059**
From 5 years to less than 10 years	14	25.5	14	25.5	14	25.5	
10 years or more	17	30.9	17	30.9	17	30.9	

Sociodemographic data	Levels of total score for nurse`s knowledge						p. value
	Poor (9)		Good (39)		Very good (7)		
	No	%	No	%	No	%	
level of education							
Nursing Diploma	16	29.1	16	29.1	16	29.1	0.480
Nursing Diploma + Specialization	2	3.6	2	3.6	2	3.6	
Technical Nursing Institute	4	7.3	4	7.3	4	7.3	
Bachelor's Degree in Nursing	33	60	33	60	33	60	
Marital Status							
Single	9	16.4	9	16.4	9	16.4	0.448
Married	46	83.6	46	83.6	46	83.6	
Divorced	0	0	0	0	0	0	
Widowed	0	0	0	0	0	0	
No	35	63.6	35	63.6	35	63.6	

Chi square test for qualitative data between the two groups or more
**Significant level at P value < 0.05,*
***Significant level at P value < 0.01.*

Table (7): Relation between total score of nurse's performance regarding the Care of Traumatic Brain Injury Patients During the Golden Hour and sociodemographic data of nurses (No = 55)

Variables	Levels of total score				p. value
	Satisfactory (18)		Unsatisfactory (37)		
	No	%	No	%	
Gender					
Male	8	14.5	8	14.5	0.275
Female	47	85.5	47	85.5	
Age					
Less than 20 years	0	0	0	0	0.732
From 20 to less than 40 years	40	72.7	40	72.7	
More than 40 years	15	27.3	15	27.3	
years of experience					
From 1 year to less than 5 years	24	43.6	24	43.6	**0.096**
From 5 years to less than 10 years	14	25.5	14	25.5	
10 years or more	17	30.9	17	30.9	
Marital Status					
Single	16	29.1	16	29.1	0.633
Married	2	3.6	2	3.6	
Divorced	4	7.3	4	7.3	
Widow	33	60	33	60	
level of education					
Nursing Diploma	9	16.4	9	16.4	0.323
Nursing Diploma + Specialization	46	83.6	46	83.6	
Technical Nursing Institute	0	0	0	0	
Bachelor's Degree in Nursing	0	0	0	0	
No	35	63.6	35	63.6	

Chi square test for qualitative data between the two groups or more
**Significant level at P value < 0.05,*
***Significant level at P value < 0.01.*

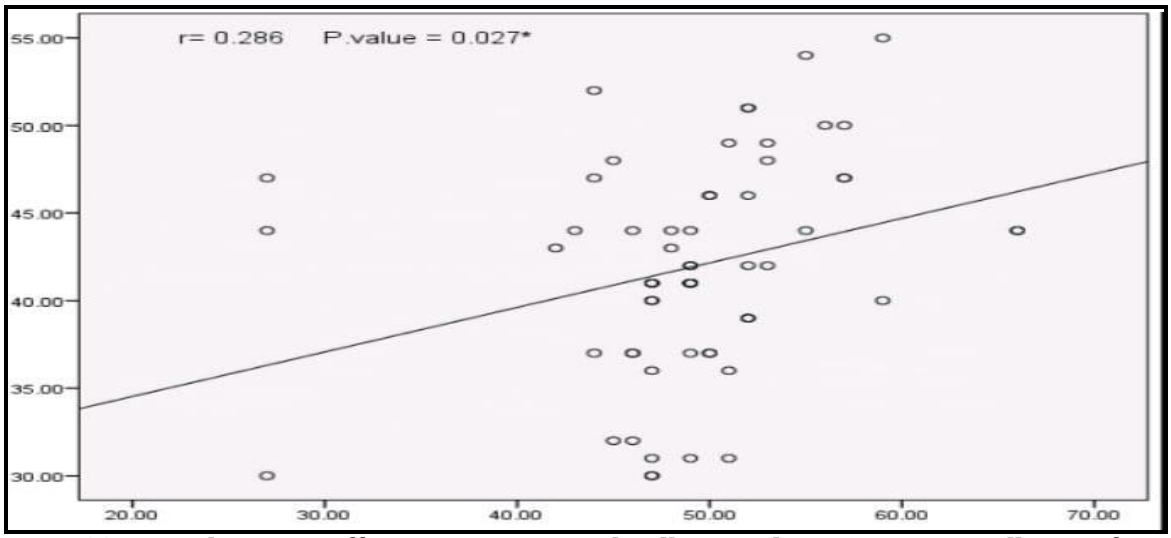

Figure (5): Correlation Co-efficient test, Scatter plot illustrated positive Statistically Significant Correlation hypothetical data for the relationship between total score nurses` knowledge and total score levels of nurses` practice.

Table (1): Revealed that 43.6% from nurse's experience ranged from 1 years to less than 5 years. As regard nurse qualifications, it was observed that the most of the nurse's qualifications were bachelor degree with percentage of 60%. As regard Marital status, it was found that the majority of nurses were married. Regarding training course, it was found that about 63.6 % of nurses hadn`t receiving training courses.

Figure (1): Illustrates that the majority of the nurses were female with the percentage of 85.5%.

Figure (2): Illustrates that the majority of the nurses about 72.7 % from 20 - 40 years old.

Table (2): Show that 80% of nurses done correctly check responsiveness, Additionally, 72.7% of nurses correctly check breathing and pulse. Also, it was noticed that 78.2% of the studied nurses correctly delivered the first cycle of 30 compressions

Table (3): Shows that 76.4% of nurses correctly turned on the AED, selected the appropriate pads, and placed it, and cleared the patient for analysis. Furthermore, It was observed that 78.2% of nurses resumed CPR, delivered a second cycle of compressions, and provided two breaths.

Table (4): Shows that 85.5% of nurses correctly prepared the necessary equipment, assessed each of the following oral secretions, evaluated lung sounds and dentures, and also positioned the patient in a semi-fowler's position. It was noticed that 92.7% of studied nurses correctly suctioned patients, and 96.4% of them correctly opened the patient's mouth using thumb and index finger. Additionally, 94.5% of them correctly rotated the airway 180 degrees.

Table (5): Shows that 85.5% of nurses performed the first step in human assessment before hospital admission. Upon arrival, the primary survey room should remain quiet, and EMS should provide a brief patient report. Additionally, 92.7% of nurses assessed airway patency, 87.3% evaluated breathing and circulation, 92.7% conducted exposure assessment, and 90.9% completed the secondary survey

Figure (3): This figure illustrates that 70.9% of the studied nurses had good knowledge, 16.37 % of them had very good knowledge, and 12.73 % of them had poor knowledge.

Figure (4): Demonstrates that 32.7 % of nurses had an unsatisfactory practice level while 67.28% of them had a satisfactory practice level.

Table (6): Shows relation between total score of nurse's knowledge of the Care of Traumatic Brain Injury Patients During the Golden Hour and sociodemographic data of nurses. It was found that there are statistical significance differences between total score of nurse`s knowledge and demographic data of nurses regarding nurse`s years of experience with p. values = 0.059*.

Table (7): Shows relation between total score of nurse's performance of the Care of Traumatic Brain Injury Patients During the Golden Hour and sociodemographic data of nurses. It was found that there are statistical significance differences between total score of nurse`s knowledge and sociodemographic data of nurses regarding nurse`s years of experience with p. values = 0.096*.

Figure (5): Appositive Correlation Co-efficient between total score of nurse`s knowledge and total score of nurse` s practice regarding the care of traumatic brain injury patients during the golden hour with **r** = 0.268 and P =0.027*.

Discussion:

Early nursing intervention can greatly enhance patient outcomes, the golden hour and the platinum 10 minutes are crucial in the management of traumatic brain injury (TBI) patients. Crucial periods in the treatment of patients with traumatic brain damage **(Bedard et al., 2020).** The first hour following a catastrophic injury is known as the "golden hour," when prompt and effective medical attention can greatly increase a patient's chances of life and recovery **(Tyron & Steven, 2024).**

The current study revealed that the majority of the studied nurses were females. A similar finding was made by **Abd El-kader et al. (2020),** who found that the majority of nurses were female. Additionally, **Shehab et al. (2020)** who recorded that the majority of the nurses were female. Also, **Subramaniam et al. (2022)** who reported that all of the studied nurses were female.

This result contradicted **Shehade et al., (2023),** who reported that in their study, most of the studied nurses were male. The present finding could be attributed to the majority of nursing students admitted to nursing diploma schools and institutes of nursing being female.

Concerning age, it was found that the majority of the nurses of the studied nurses aged between twenty and forty years. The present finding on the same line, **Abd El-kader et al., (2020)**, reported that most nurses ages were between 20 and 40 years. This result contradicts **Subramaniam et al., (2022)** who observed that the majority of them were less than 30 years of age. Also, **Khalifa et al. (2021),** who found that nearly fifty percent of nurses ages were between 20 and 30 years

As regards nurses experience years, The current study revealed that nearly fifty percent of nurses' experience ranged from 1 year to less than 5 years. A similar study done by **Khalifa et al. (2021)** reported that most nurses with years of experience had between one and five years. This result is disagreement with **Subramaniam et al. (2022),** who observed that most of the nurses had less than 10 years of experience. On the other hand, **Shehade et al., (2023** who reported that less than fifty percent have less than 5 years' experience and more than half of them have less than 5 years' experience in the ICU. These results may be attributed to the different setting and sample size.

As regards nurse qualifications, it was observed that most of the nurses' qualifications were bachelor degrees. This results in agreement with **Shehade et al., (2023)**, who reported that most of the nurses had bachelor's degrees. This results in disagreement with **Subramaniam et al., (2022)**, who observed that a huge majority of the nurses had completed a diploma in nursing. Also, disagreement with **Khalifa et al., (2021)**, who found that most of the studied nurses had a secondary nursing diploma, while only ten percent had a bachelor's degree in nursing. Additionally, **Shehab et al. (2020),** who documented that most of the respondents had a diploma in nursing. These findings may be ascribed to the majority of nurses students whom worked in critical setting were diploma in nursing.

Regarding marital status, it was found that most of the nurses were married. This results in agreement with **Khalifa et al., (2021)**, who found that most of them were married. Concerning the received training, it was found that more than fifty percent of nurses had received training. This results in agreement with **Khalifa et al., (2021)**, who found that more than fifty percent of nurses had training courses.

However, **Abd El-kader et al. (2020)** discovered that none of the nurses in the study had ever taken a course on golden hour, which is the first hour following treatment for a traumatic injury. Additionally, as stated by **Shehade et al. (2023),** the most of the nurses in the study stated that their unit lacked training programs or guidelines for golden hour, which is the first hour following severe injury care. The fund that is available in a healthcare context may be responsible for these outcomes.

The present study showed that the total level score of nurses` knowledge regarding care of traumatic brain injury patients during the golden hour was noted to be that most of the nurses had good knowledge concerning care of traumatic brain injury patients during the golden hour. This results in agreement with **Ehwarieme et al., (2024)**, who found that most of the studied nurses have a good level of knowledge concerning the care of traumatic brain injury patients during the golden hour.

This finding contradicts that of **Subramaniam et al. (2022),** who discovered that most nurses had sufficient understanding of TBI standards. Additionally, **Shehade et al. (2023)** documented that most nurses had low knowledge scores when it comes to caring for patients with traumatic brain injury.

This finding contradicts **Subramaniam et al. (2022),** who discovered that most nurses had sufficient understanding of TBI standards. Additionally, **Shehade et al. (2023)** documented that most nurses had low knowledge scores when it came to caring for patients with traumatic brain injury. These findings are consistent with **Khalifa et al. (2021),** who discovered that most of the nurses` knowledge in the research was very little about how to care for patients with traumatic brain injury through the golden hour.

The present research, it was shown that most nurses had unsatisfactory levels of practice concerning the care of patients with traumatic brain injury during the

golden hour. This finding is in agreement with **Shehade et al. (2023),** who noted that the majority of nurses' practice scores for caring for patients with traumatic brain injury are below satisfactory. Also contradicted **Khalifa et al. (2021),** who discovered that over fifty percent of the nurses in the study had inadequate procedures for caring for traumatic patients.

Furthermore, **Khatab et al. (2019)** found that almost three-fifths of the nurses in the study had inadequate procedures for caring for patients who had cerebral strokes during the first golden hours. Additionally, this conclusion was confirmed by **Almarhabi et al., (2020)**, who conducted a study at Ain Shams University in Egypt to evaluate the competence of nurses caring for patients with traumatic brain injury through golden hour.

These findings can be explained by a variety of factors that influence nurses' practice. The majority of nurses did not obtain training, and only a small percentage of them reported having access to competitive rewards, administrative support, and creative chances, as well as a lack of funding for healthcare facilities.

The current study showed a positive correlation between the total score of nurses' knowledge and their practice observational check list scores. Similar findings were made by **Abd El-kader et al. in 2020,** who discovered a correlation between nurses' knowledge and practice scores on the total score for TBI.

The two total score levels were related. There was no statistically significant link between nurses' knowledge and practice regarding traumatic brain injury during golden hour, according to **Shehade et al. (2023),** which contradicts the results of our study. The tiny sample size and various environment may be the cause of these outcomes.

Conclusion:

From the present study's findings, it can be inferred that most of the nurses were female. Also, the most of nurses having good knowledge, and satisfactory level of practice and there was relation between the both total score levels.

Recommendations:

In light of the results of this investigation, it is advised that:

- Provide practice guidelines regarding effect for nurses tending to traumatic brain injury patients in order to lower the likelihood of difficulties
- Construct regularly upgrading nurses' knowledge and skills in treating critically sick patients with traumatic brain injury through periodic orientation programs.

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