

Effect of Education Program on Nurses Performance Regarding Traumatized Patient Care during the Golden Hour in Emergency Room at Zagazig University Hospital

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Abstract

Background: Trauma is the leading cause of mortality in young adults. Many such deaths are preventable if patients are treated effectively. The term "golden hour" is commonly used to characterize the urgent need for the care of trauma patients. **This study aimed to** evaluate the effect of implementing an educational program on nurses' performance regarding Traumatized patient during the Golden hour in emergency room at Zagazig University Hospital. **Subjects and Methods: Research design** A quasi experimental design was utilized. **Setting** The study was conducted at the emergency departments of Emergency Hospital at Zagazig University. **Subjects:** Fifty Emergency nurses. **Tools of data collection** Four tools were used for collection of data, First questionnaire to collect demographic characteristics of study nurses and questions to assess nurses' knowledge regarding trauma patients during the golden hour of care. Second tool was an observational checklist to assess nurses' practice. Third tool to assess the nurse's attitude. Four tool to assess the opinion of nurses. **Results** there was statistical significant difference in study phases were found in nurses' knowledge and their practices throughout program phases. Total nurses knowledge in pre-program (72%) unsatisfactory as well as in post-program (100%) satisfactory, and follow up (88%)satisfactory, Total nurses practices in pre-program phase(100%) unsatisfactory, as well as in post-program (100%) satisfactory and follow up (78%) satisfactory, Total nurses attitude in pre/post and follow up phases (100%) satisfactory. **Conclusion:** The Education Program had Positive effect on nurses performance regarding Traumatized Patient care during golden hour, there were statistical significant differences between nurses knowledge and practices regarding to traumatized patient during golden hour in emergency department after program implementation either immediately or three month later. **Recommended:** Development of Training Program should be conducted periodically for nursing staff in EM; Hospitals should develop evidence based guidelines on Traumatized patient. **Key words:**Trauma Nurses,Golden Hour, Knowledge, Practice, Attitude, Education program.

Introduction:

Over 5 million deaths occur each year as a result of injuries, representing 9% of the world's mortality (1.7 times the total number of deaths due to malaria, tuberculosis and HIV/AIDS combined). Of these injury-related deaths, 90% occur in low and middle income countries (LMICs) ⁽⁴⁾. The Golden hour, also known as golden time, refers to the period of time following a traumatic injury during which there is the highest likelihood that prompt medical and surgical treatment will prevent death While initially defined as an hour the exact time period depends on the

nature of the injury and can be more than or less than this duration ⁽⁵⁾

In the Emergency Medical Services(EMS) pre hospital environment, the focus is on the "platinum 10 minutes the platinum rule as the limitation of on-scene time to 10 minutes. During this time window, assessing, stabilizing, and beginning transport must be complete. This rule is significant considering that no one may know the life sustaining interventions necessary to stabilizes victim. However, in what cases would the platinum 10-minute rule not apply? According to ⁽⁶⁾ in the stable patient, longer on-scene time and focused

care correlated with significantly better patient outcomes. Therefore, accurately assessing the type of trauma present and the patient's hemodynamic stability while in the field is key, The Triage Process. Another practice that is usually under a critical time limitation is the triage processes used an Emergency Department ED The triage process focuses on who needs care first and uses either of two multi-level algorithms to determine level of acuity of each patient⁽⁷⁾

The patient's safety and life are priority in all situations and the ER is one of the many specialties that require attention to detail. Traumas may truncate the time being used for preparation; however, significant focus should be on patient interventions, outcomes and developing a routine on how to safely work within the existing time crunch. Nurses play a major role in today's healthcare and are even found in the ER being ready for whatever comes their way. No matter where the nursing staff is located, they play a large role and should know how the Golden Hour and these time limitations affect their practice⁽⁸⁾

Significance of the study:

In ED, the golden hour (also known as golden time) refers to a time period lasting for one hour, or less, following traumatic injury being sustained by a casualty or medical emergency, during which there is the highest likelihood that prompt medical treatment will prevent death The rate of incidence of accident at highways at the Sharqia Governorate about 471.433 victims and about 6.223 victims who number of what has been transferred though road accidents ambulance⁽³⁾

This is well established that the patient's chances of survival are greatest if they receive care within a short period of time after a severe injury; however, there is no evidence to suggest that survival rates drop off after 60 minutes. Some have come to use the term to refer to the core principle of rapid intervention in trauma cases, rather than the narrow meaning

of a critical one-hour time period⁽¹³⁾ The nurse play an important role in care of patient with trauma to prevent further deterioration so the study will be carried out in attempt to determine the nurses performance during golden hour of care for traumatized patient.

Aim of the study:

The aim of the present study is to evaluate the effect of implementing an educational program on nurses' performance regarding Traumatized patient during the Golden hour in emergency room at Zagazig University.

Research Hypothesis:

An education program on nurses working in emergency department will be enhance their performance and change their attitude toward traumatized patient Hypothesis this study based on achieves the following hypothesis.

H1 –The mean knowledge scores of the nurses post program are higher than their preprogram scores.

H2- The mean practice scores of the nurse post program are higher than their preprogram scores.

H3- The mean attitude score of the nurse post program are higher than their preprogram scores.

Subjects and methods:

Research design:

A Quasi experimental research design was conducted to achieve the aim of the study with pre, post, and follow up evaluation after implementation of education program

Study setting:

The study was conducted in emergency department at the emergency hospital at Zagazig University Hospitals. the emergency department composed of three part first part for general diagnosis (composed for 13 emergency bed) and the second part for surgical diagnosis (composed for 16 bed) and third part for emergency operation (composed of 3 emergency bed).and there are one room for ultrasonic graphic, one room for X ray, one room for CT, one room for nurses, one room for wound

change dressing. There are 78 nurses working in Emergency Department.

Study subjects:

Subjects of this study composed of 50 nurses who are providing direct nursing care to traumatized patient in the above mentioned setting.

Tools of data collection:

Tool I: interview questionnaire:

It was designed in Arabic form to avoid misunderstanding. It was developed by the researcher based on literature review (Baumann Kreuziger, et al⁽⁹⁾, and composed of two parts:

Part I: Personal Characteristics of the Nurses which were composed of 8 closed ended questions including (age, sex, marital status, level of education, total years of experience, year of experience in ED, training courses, and benefit in courses.

Part II: Nurses' Knowledge regard in Trauma patients during Golden Hour of Care. It consisted of 127 multiple choice questions, matching and true or false question. It composed of eight parts.

Scoring system for Tool I: each correct step took one point and zero for wrong one, The total score was calculated for each nurse by adding the score items of questionnaire. The nurse had satisfactory level of knowledge when the total score equal or above 60%, and unsatisfactory when it below 60% based on statistical analysis

Tool II – A structured observational checklist for nurses' practice

Observational checklist included items about assessment of nurses' practice regarding to physical assessment for trauma patient and nursing care based on nursing assessment (inserting an oropharyngeal airway , administering oxygen by mask, administering oxygen by ambo bag, intravenous cannulation, suctioning the oropharyngeal airways, suctioning an endotracheal tube: open system, inserting or indwelling male and female catheter, acute soft tissue injury and bleeding care, shock

assessment and management, cardiopulmonary resuscitation CPR, and infection control), answers were done and not done. It was developed by the researcher based on literature review and opinions of expertise for content of validity; guided by Lewis et al⁽¹⁰⁾

Scoring system for Tool II: each correct step took one point and zero for wrong one. The total score was calculated for each nurse by adding the score items of questionnaire. The nurse had satisfactory level of practise when the total score equal or above 60%, and unsatisfactory when it below 60% based on statistical.

Tool III Nurses Attitude Questioner (Likert Scale)

It was designed in Arabic language and consisted of (35) statement written in a way to explore the nurse attitude toward the traumatic **The Scoring System:-** For attitude given score five for strongly agree and four for agree and three for between and two for disagree and one for strongly disagree. The nurse had satisfactory level of attitude when the total score equal or above 60%, and unsatisfactory when it below 60%.based on statistical analysis.

Tool IV Opinionative Questioner:

It was design in Arabic language to examine the validity of trauma nurse responsibility compose of two part 25question

1st part to assess the opinion of nurses in this field toward the job-description and responsibility to be delegated to the assigned trauma nurse throughout the process of trauma management.

2nd part to assess the opinion of nurses regard the suggested training programs need to develop such specialized trauma nursing career.

For opinion checklist given for each correct answer scored one grades for correct answer and zero for incorrect answer. The total score was

calculated for each nurse by adding the score items of questionnaire. The nurse had satisfactory level of opinion when the total score equal or above 60%, and unsatisfactory when it below 60% based on statistical analysis

Validity and Reliability:

It was established by a panel of five expertise's in nursing and medical staff including: two professor of intensive care unit, two professor of medical surgical Nursing and lecturer of medical surgical Nursing who reviewed the instruments, and designed booklet for clarity, relevance comprehensive, understanding, applicability, and easiness for administration. Minor modifications were required. The reliability of the tool was established by Alpha Cronbach test, which used to measure the internal consistency of the used tool. The reliability scores of the tool were 0.82, which indicates the high tool internal consistency of the used tool.

Field work:

After An official permission was obtained from the dean of the Faculty of Nursing at Zagazig University and from Managers of previously mentioned setting to carry out the study. The agreement for participation of subjects was obtained after the explanation the aim of the study to nurses included in the study. They were given opportunity to refuse to participate. They were notified that they could withdraw at any stage of the research. They were met by the researcher at their available time. As regards the nurse's practices, they were observed individually during their actual work in previously mentioned setting.

The educational program was developed through four phases as follows:

A-Assessment phase: The assessment of nurses' practice was performed before the constructed and implementation of the educational program by observing each nurse to assess their practice (pretest) by using

tool II after explaining the aim of the study and had their approval to participate in the study.

B-Planning phase: Based on the results obtained from observational checklist (from pilot study and assessment phase) as well as reviewing the related literature the educational program was developed by the researcher. Detected needs, requirements and deficiencies were translated into the aim and objectives of the educational program. The contents of the educational module were selected on the basis of identified needs. Teaching methods (lecture, poster, booklet were selected to suit teaching in small groups in the form of lectures, group discussion, demonstrations and re-demonstration. Teaching materials were prepared as PowerPoint and handouts that covered theoretical and practical information.

C-Implementation phase:

The implementation of this program was covered over small sessions, including theoretical, practical content, and trauma assessment developed and selected to meet the participants' needs and correspond to their interaction and level of understanding as stated by the pilot study. It was difficult to decide on the number of nurses at the same time during their working hours. Each session started by a summary of the previous session, and objectives of the new one. Taking into consideration, the use of Arabic language that suits the level of the nurses. Emphasizing and reinforcement during session were used in order to enhance motivation.

The selection of nurses, the collection of data and the implementation of the educational program lasted over a period of 14 months, Data were collected from July 2016 till August 2017. Three months

for pre- test (from the beginning of July 2016 to the end of September, 2016), and 5 months implementing the program, and for posttest (from October, 2016 to February, 2017), 3 months after posttest, 3 month follow up test was done (from the beginning of June 2017 to the end of August 2017). This is in order to ensure the exposure of all nurses to same learning experiences. All members received the same program content using the same teaching methods, discussion, videotape, and same handouts.

The nurses under study were divided into small five groups: about 10 nurses in every session.

The total numbers of sessions were 24 sessions. They were divided as follows: A total of six sessions for the theoretical part, and 16 sessions for the practical part. And two sessions for revision the theoretical sessions were followed by practical sessions. Then, the checklist was performed for every nurse on each procedure, The time needed to complete the checklist depended on the time of the procedures and the quality of nurses in the form of 6 sessions weekly, and 10 nurses in each session.

Education Program on Nurses Performance Regarding Traumatized Patient Care During The Golden Hour In Emergency Room: It was developed according to previously assessed needs of the nurses and designed as a booklet in Arabic language by the researcher based on the related literature and expertise opinions. Included a guidance sheet which covered theoretical and Practical parts through the following items:

The First Part: Theoretical part included:

Introduction to Educational Program, Define trauma, trauma center and trauma nurse, Describe how to prepare trauma center (designation), Identify the component for ideal trauma resuscitation room, primary assessment component, Identify the priorities of care and triage categories Define the pain, Explain the physiologic basis for pain, Explain the important of infection control and the medical asepsis, Identify the most common routes by which microorganism can be transmitted. Manage shock.

The Second Part: Practical Part included:

Administration Intravenous Cannula. Perform oropharyngeal suction .Administer endotracheal tube .How to apply nursing care of wound. Vital signs . Cardiopulmonary Resuscitation. Infection control and universal precaution. Infection control . Urinary catheterization . Chest trauma. Abdominal trauma.Pelvic trauma . Bleeding .Musculoskeletal Trauma . Musculoskeletal Trauma, Multiple Traumas .Head trauma, spinal cord and neck trauma . The field work lasted for 3 months after completion of the program. Teaching methods were lectures, small group discussion, videotape, handout, pen and paper.

D-Evaluation phase: In this phase every nurse of the studied sample were observed individually after implementation of the educational program to assess their practice (posttest) by using toolII.III&IV Also after three months later the nurses of the studied sample reassessed for their practice (follow up) using toolIII.III&IV.

Pilot study:

A pilot study was conducted on 10% of nurses to evaluate the content of the tools, their clarity as well as to estimate the time needed for filling the sheets with the collected data.

Administrative and ethical considerations:

All ethical issues were taken into consideration during all phases of the study: The researcher maintained anonymity and confidentiality of the subject. The inclusion in the study was totally voluntary. The aim of the study was explain to every nurse before participation and an oral consent was obtained. nurses were notified that they can withdraw at any stage of the research: also they were assured that the information obtained during the study would be confidential and used for the research purpose only. An official permission were obtained by submission of formal letters issued from dean of the Faculty of Nursing, Zagazig University to the responsible authorities of the study setting to obtain their permission for data collection.

Statistical analysis:

Data was analyzed using SPSS (Statistical Package for Social Sciences) version 15. Qualitative data was presented as number and percent. Comparison between groups was done by Chi-Square test. Quantitative data was presented as mean \pm SD. Paired t-test was used for comparison within groups. $P < 0.05$ was considered to be statistically significant.

Results

Table 1 Illustrated the personal characteristic of studied nurses. More than half 54.0% of studied nurses in the age group >30-40 years with mean \pm SD 33.3 ± 6.02 . The high percent of study nurses 68.0%, 82.0% was female and were married.

As regard education level, more than half 52% of subjects in study, had diploma degree. Regarding to training it was found that the majority 94.0% of studied nurse have training program

and 66.0% of studied nurses were benefited from training.

Concerning years of experience more than half 62% of study nurse in group 5-15 years with mean \pm SD 11.6 ± 4.8 , Also about 54% of study nurse had more than 5-15 year experience in Emergency department with min 2 years and max 20 years with Mean \pm SD 9.18 ± 4.6 .

Table 2 This table present that in preprogram phase more than two third 72% studies nurses had unsatisfactory level of knowledge while in post and follow up phase all of the nurses 100% in post program and more than three quarters 88% in follow up of them had satisfactory level of their knowledge. There were statistical significant relation between pre/post and pre/follow up phase regard total nurses knowledge (p value 0.001)

Table 3: This table illustrate that in preprogram phase all of studied nurses had unsatisfactory level of practices, while in post phase all of them had satisfactory level of practices and decrease to 78% in follow up phase. there were statistical significant difference between pre/post, and pre/follow-up phase regarding total nurses practices. (p value 0.00).

Table 4: This table illustrate that in pre, post, follow-up program phase all of studied nurses had satisfactory level of attitude, there were no statistical significant difference between pre/post, and pre/follow-up phase regarding total nurses attitude.

Table 5: This table clarified that there was no statistical significant difference relation between nurse's age, marital status, education and nurse's knowledge. On other hand there is statistical significant relation between nurse's sex and benefit of training and their knowledge regarding traumatized patient during golden hour throughout study phase.

Table 6: This table showed that there was negative statistical significant correlation between nurse's experience and total nurse's knowledge, Also there was no

statistical significant relation between nurse's experience in Emergency department and their total knowledge. Regarding traumatized patient during golden hour throughout study phase

Table 7 This table showed that there was no statistical significant relation between personal characteristics data of studies nurses and their total practices, regarding traumatized patient during golden hour throughout study phase

Table 8 This table revealed that there was negative statistical significant correlation between nurse's experience and nurse's total practices, Also there was no statistical significant relation between nurse's experience in Emergency department and their total practices. Regarding traumatized patient during golden hour throughout study phase

Table 9 This table present that there was statistical significant correlation between total nurses practice and total nurses knowledge in pre, post, follow up program regarding traumatized patient during golden hour in emergency department throughout program phase

Discussion:

Traumas are the third most frequent cause of death in the general population, after cardiovascular disease and cancer. In the subgroup of adult patients under 40 years of age, traumas are the main cause of death. In the USA, A traumatic injury is defined as a physical injury resulting from an external force that causes tissue damage, which is a result of emergency transfer that is beyond the body's resilience Baumann, Keenan & Morton⁽⁹⁾

Regarding the nurse's Personal characteristics the present study sample consisted of 50 nurses, who provide direct care for trauma patient during golden hour of care, in the emergency department unites of emergency hospital at Zagazig University. More than half of studied nurses in the age group >30-40 years with Min 20years and max 52years with mean \pm SD 33.3 \pm 6.02. This is

differ from Abd El Moteleb⁽¹⁰⁾ who study the effect of training program on nurses' performance for caring of patients with traumatic brain injury at Ain Shams University. the study found that two third of the nurses their age were less than thirty years and the minority of the them their age were more than thirty years.

Regarding Gender The study sample found that the majority of the nurse female. These agree with Abd El Moteleb⁽¹⁰⁾ who found that the majority of the nurses under study were females. These disagree with Seliman, et al⁽¹¹⁾ who found that all nurses were females.

Regarding marital status and qualification more than two third of study nurses were married it was found also about more than half of them of study nurse had diploma degree. This may be due to majority of the nurses graduated from nursing school and our culture recommended the marriage in early age. . In the same line the study done by Abd Aziz⁽¹²⁾ who found that more than half they had married and diploma qualified.

Concerning years of experience more than half of study nurse in group 5-15 years with min 3 years and max 20 years with mean \pm SD 11.6 \pm 4.8, also about half of study nurse had more than 5-15year experience in Emergency department with min 2 years and max 20 years with Mean \pm SD 9.18 \pm 4.6. In the same line the study done by Abd Aziz⁽¹²⁾ who found more than two third of study nurses had experience 1 to less than 5 years of experience.

Finally Regarding to training it was found that the majority of studied nurse have training program and benefited from training. In the same line the study done by Abd Aziz⁽¹²⁾ also report that the majority of the study nurse attends training program and more than half of study nurse was benefits of training

This disagrees with Mahday, Mersal, & Hessien⁽¹³⁾ in the study about Increased Intracranial Pressure Effect of Educational Nursing

Guidelines on Nurses' Performance in Neuro-Critical Care Unit Ain Shams University, revealed that about more two third of the nurses under the study didn't receive training courses or lectures.

The present study found that in preprogram phase the studies nurses had unsatisfactory level of knowledge while in post and follow up phase all of the nurses in post program and in follow up had satisfactory level of their knowledge. There were statistical significant relation between pre/post and pre/follow up phase regard total nurses knowledge, this inadequacy of nurses' knowledge at this critical stage might be as a result of level of education, lack of refreshment of the nurses' knowledge, and lack of continuous training educational program. This improvement is due to knowledge refreshment through a .program session.

The same finding was indicated with Taha ⁽¹⁴⁵⁾ who was studying the impact of a training program provided for nurses working with the comatose patients in the critical care units at Zagazig university hospital his sample consists 36 nurses working in I.C.U, neurological and emergency medical units the study and reported that an improvement in nurses knowledge scores after implementation of program with highly significant statistical difference.

Also, this finding was in line with Seliman, et al ⁽¹¹⁾ found that improvement in nurses knowledge score were documented in post protocol implementation as compared to their pre protocol with highly significant statistically difference

In contrast, Ahmed, Taha &Zatton ⁽¹⁵⁾ mentioned that more than two third of the studied nurses had unsatisfactory total knowledge. In the same consequence **Hunt et al** ⁽¹⁶⁾ who stated that the majority of nurses had unsatisfactory knowledge regarding signs and symptoms of abdominal trauma.

The results of the study showed that all of studied nurses had

unsatisfactory level of practices' in preprogram phase, while in post phase all of them had satisfactory level of practices and decrease in follow up phase .there was statistical significant difference between pre/post, and pre/follow-up phase regarding total nurse's practices. This could be attributed to lack of nurses' knowledge which reflects on their performance, inadequate continuous training program, lack of qualification as more than half of nurses were diploma nurses, lack of number of nursing staff, lack of close supervision, the doctors did some practice instead of the nurses, insufficient equipment, and increase number of trauma patients.in preprogram and improvement due to effect of education program and refreshment performances.

This agrees with Seliman, et al ⁽¹¹⁾ who found that a highly statistical significant difference in practice among pre- protocol, immediately post, and two months following the protocol implementation. Also In a comparative study conducted at the Intensive Care Unit at Tanta Emergency Hospital by Ghoneim, Alaa Elden, OkabZ& Elsaay, ⁽¹⁷⁾ indicates that the implementing nursing care protocol for moderate head injured patients associated with polytrauma had best effect on minimize the incidence of all systemic complications, decrease morbidity as well as mortality rate. This agrees with EL-Marakby, Taha& Ali ⁽¹⁸⁾ who found that majority of the studied nurses had adequate practice

This finding disagree with Ahmed, Taha &Zatton ⁽¹⁵⁾ showed that more than four fifth of the nurses have insufficient total practice related to the assessment and basic nursing care for trauma patients during golden hour of care. However These findings are disagree with Maarouf ⁽¹⁹⁾ in the study about Nurses' Performance for Patients with Traumatic Head Injury during Golden Hour, a study at Ain Shams University, who found that near two third of the study nurses had unsatisfactory practice regarding

nursing management of patients with traumatic head injury during golden hour.

The third hypothesis in which the attitude score of the studies nurses related to traumatized patient post designed protocol improved significantly especially in the immediate posttest, the present study found that There was no statistical significant different between pre/post and pre/follow up for nurse attitude. This may be due to their convenes that medical or surgical intervention only will affect and cause improvement in patient's condition.

Also Mark and Simon ⁽²⁰⁾ found that the attitudes members of the nursing profession hold towards survivors of brain injury have impact on the level of help and degree of involvement they are willing to have and the subsequent impact this may have on the caring role either contributed, or did not contribute, to their injury. Also, Redpath et al ⁽²¹⁾ reported that increased attitudes of qualified staff are related to a decrease in intended helping behavior, which has the potential to impact negatively on an individual's recovery post-injury while studying healthcare professionals' attitudes towards traumatic brain injury (TBI): The influence of profession, experience, etiology and blame on prejudice towards survivors of brain injury.

This disagree with Mahday, Mersal, & Hessien ⁽¹³⁾ revealed that the minority of them had satisfactory level of attitude pre guidelines implementation. There was highly statistically significant difference among pre – post guidelines implementation. This might be due to the effect of educational guidelines. On other hand Mansour ⁽¹⁶⁾ show that training has a positive impact on knowledge and attitudes.

The current study found that there was statistical significant relation between nurse total practice and total knowledge in pre, post, follow up program regarding traumatized patient during golden hour throughout

program phase. This finding was in agreement Mahday, Mersal, & Hessien ⁽¹³⁾ revealed that there was statistically significant correlation between level of nurses' practice and knowledge pre- and post-guidelines intervention.

The current study clarified that there was no statistical significant difference relation between demographic data (nurse's age, marital status, education) and nurse's knowledge. On other hand there is statistical significant relation between nurse's sex and benefit of training and their knowledge, this could be attributed to that the majority of them acquired their knowledge from easily resources such as from the practical field. And also may be due to the fact that majority of the studied nurses are diploma nurse, lack of refreshment of nurses' knowledge, the doctors did some practice instead of the nurses and lack of continuous training educational programs.

This is agree with Ahmed, Taha & Zaton ⁽¹⁵⁾ found that no significant relationship between total nurses' knowledge with personnel data such as age, training and year's experiences. This disagree with Ahmed, Taha & Zaton ⁽¹⁵⁾ revealed that there was highly statistically significance relation between nurses' performance and attendance of training courses. This is contrary with Maarouf ⁽¹⁹⁾ revealed that there was highly statistically significance relation between nurses' performance (knowledge & practice) and gender. This result may be due to that the number of sample wasn't representative and the result couldn't be generalized whereas, the representation of female nurses more than male nurses.

The current study revealed that there was no statistical significant relation between personal characteristics data of studies nurses and their total practices, there was no statistical significant relation between experience of studies nurses and their total practices regarding traumatized

patient during golden hour throughout study phase. In the same line, Ahmed, Taha & Zaton⁽¹⁵⁾ clarified that Relation's analysis showed no significant relationship between level of knowledge and practice with demographic factors such as age, and year's experiences.

This result disagree with Abd El-Aziz⁽¹²⁾ who stated that Concerning the relationships between nurses knowledge and skills and their years of experience in nurses, they findings statistical significant between diploma & bachelor degree and older nurses with more years of experience and increase of years of experience showed increased of knowledge and practice. Also found that high education nurses (bachelor degree) more knowledge and skills than nurses diploma in all items of oral care procedure pre and post education program.

The current study found that there was statistical significant relation between nurse's experience and nurse's knowledge. On other hand there was no statistical significant relation between nurse's experience in emergency and their knowledge. This may be due to lack of continuous in-service educational program, lack of orientation for newly graduated nurses and level of education. Also, Ahmed, Taha & Zaton⁽¹⁵⁾ mentioned that there was no statistically significant relation between nurses' performance (knowledge & practice) and nurses' educational level.

The current study revealed that Strong positive correlation coefficient between nurses knowledge and practice with statistical significant throughout the program phases, on other hand there was weak negative correlation coefficient, with no statistical significant between nurse knowledge, practice, and their attitude throughout study phase. This agrees with Abd El-Aziz⁽¹²⁾ found that significant positive correlation between knowledge and practice. Also, Ashery, et al⁽²⁴⁾ revealed that there was a positive statistically

significant relation between nurses, level knowledge and their practice which means that when knowledge of nurses increases the performance respectively improved. This finding emphasized that both knowledge and practice are equally important in the work of the nurse, and the focus should be on knowledge utilization clinical nursing requires that the nurse to incorporate knowledge and skills into practice. This again clarified the importance of in-service training, and continuing nursing education.

In the same line Seliman, et al⁽¹¹⁾ reported that there is a positive correlation between nurse's knowledge and practice. This agrees with Shahin, Mohamed & Sayed,⁽²³⁾ Mohammed & Taha⁽²⁶⁾ who stated that a highly statistical significant correlation between participants' scores of knowledge and practice in pre-program, post program, 1 month and 2 months following the instructional program. in the same line Shehab, Ibrahim & Elkader⁽²⁷⁾ who reported that there is a positive correlation between nurses knowledge and practice. In this regard Seliman, et al⁽¹¹⁾ mention that in a study carried out in the USA that aimed to evaluate the effect of an educational intervention on nursing staff knowledge, confidence, and practice in the care of children with mild traumatic brain injury. A 25 trauma core nurses were assessed and then reassessed 1 month post intervention. The results revealed that mean scores of nurses' knowledge before completing the educational module was 33.6%; but after the educational program, the mean scores increased to become 95% and 79.2% respectively. This disagree with Mansour⁽²⁸⁾ found that training has a positive impact on knowledge and attitudes. Cook, et al⁽²⁹⁾ mentioned that various authors and experts have described certain principles of knowledge retention. A principle being identified that knowledge retention generally falls to 75–89% of its original

level after a relatively short 2–3 weeks' time.

On the other hand, findings of the current study reported a gradual decrement in nurse's knowledge by time over three months post protocol implementation. In this respect Mansour ⁽²⁸⁾ emphasized the result reporting a decline with limited value in nurse's knowledge level after 2 months period, than immediately after the program implementation. In contradiction to this study Shahin, Mohamed & Sayed ⁽²⁵⁾ who reported that there was no significant difference between mean post test scores of knowledge and 1 month or 2 months follow up mean scores. Improvements of nurses' knowledge about enteral nutrition were sustainable and maintained for two months.

Conclusion:

Based on the results of the present study it could be concluded that, there were statistical significant differences between nurses knowledge, and practices related to traumatized patient during golden hour in emergency department after program implementation either immediately or three month later regarding attitude pre post and follow there are no statistical significant difference were found. Nursing intervention program had positive effect in improving nurse's knowledge and practices.

Recommendations:

Based upon the findings of the present study, the following recommendations are suggested:

- Development of training program should be conducted periodically for nursing staff in ED which would help to update their knowledge and improve their practice.
- Hospitals should develop evidence based guidelines on Traumatized patient to be available for all nurses in order to follow.
- Improve and update nurse's knowledge and skills about nursing care of traumatic injury through attending national and international conferences and workshops.
- ER nurse managers should be responsible for planning educational programs for the critical care nurses. These programs should be organized and supervised by the emergency nursing and the emergency nursing experts at the hospital
- Availability of well-trained head nurses for, feedback, guidance, reinforcement is highly needed.

For further researches:

- Replication of the study on a larger probability sample selected from different geographical areas in Egypt is recommended to obtain more generalizable data.
- More research is needed to evaluate the effectiveness of early intensive therapy intervention on functional outcomes in traumatic injury during the acute hospitalization.

Table 1: Personal Characteristics of the Studied Nurses (N=50).

Characteristic	No	%
Age		
20-30	19	38.0
>30 -40	27	54.0
>40	4	8.0
Min		20
Max		52
Median		32
Mean± SD		33.3 ± 6.02
Sex		

Male	16	32.0
Female	34	68.0
Marital		
Single	7	14.0
Married	41	82.0
Widow	1	2.0
Divorced	1	2.0
Education		
Diploma	26	52.0
Diploma + specialty	13	26.0
Bachelors	9	18.0
Other	2	4.0
Training		
No	3	6.0
Yes	47	94.0
Benefits from training		
No	17	34.0
Yes	33	66.0
Experience		
<5	4	8.0
5-15	31	62.0
>15	15	30.0
Min		3
Max		20
Mean± SD		11.6± 4.8
Experience in emergency room		
<5	14	28.0
5-15	27	54.0
>15	9	18.0
Min		2
Max		20
Mean± SD		9.18 ± 4.6

(*) Statistically significant at $p < 0.05$ (**) highly significant at $P < 0.01$

Table 2: Total nurses' knowledge regarding traumatized patient during golden hour of care throughout the study phases (N=50)

Total Nurses knowledge	Pre		Post		follow		Pre/post	Pre/follow
	No	%	No	%	No	%		
Satisfactory >60%	14	28.0	50	100.0	44	88.0	0001**	0.001**
Unsatisfactory <60%	36	72.0	0	0.0	6	12.0		

(*) Statistically significant at $p < 0.05$ (**) highly significant at $P < 0.01$

Table 3: Total Nurses' practices regarding Traumatized patient during golden hour of care

Total Nurses practice	Pre		Post		Follow		P	P
	No	%	No	%	No	%		
Satisfactory >60%	0	0.0	50	100.0	39	78.0	0.00**	0.00**
Unsatisfactory <60%	50	100.0	0	0.0	11	22.0		

(*) Statistically significant at $p < 0.05$ (**) highly significant at $P < 0.01$

Table 4: Total Nurses' Attitude regarding Traumatized Patients during Golden Hour of care throughout the study phases (N=50)

Total nurses Attitude	pre		post		follow		Pre v post 0000	Pre v follow 0000
	No	%	No	%	No	%		
Satisfactory >60%	50	100.0	50	100.0	50	100.0		
Unsatisfactory <60%	0	0.0	0	0.0	0	0.0		

Table 5: Relation between Personal Characteristics Data of Studies Nurse and their Total nurses Knowledge throughout the Study Phases (N=50)

Personal Characteristics Data	Total nurses knowledge							
	NO	%	Pre		Post		follow	
			X2	P	X2	P	X2	P
Age:			2.43	0.29	0.00	0.00	0.554	0.758
-20-30	19	38.0						
>30 -40	27	54.0						
>40	4	8.0						
Sex :			9.31	0.002*	0.00	0.00	0.006	0.94
Male	16	32.0						
Female	34	68.0						
Marital			3.99	0.26	0.00	0.00	1.49	0.68
-single	7	14.0						
Married	41	82.0						
-widow	1	2.0						

Divorced	1	2.0							
Education			2.85	0.41	0.00	0.00	1.39	0.7	
-Diploma	26	52.0							
-Diploma +SP	13	26.0							
-Bachelor	9	18.0							
-Other	2	4.0							
Training			2.36	0.12	0.00	0.00	0.43	0.509	
Yes	47	94.0							
No	3	34.0							
Benefits from Training			7.94	0.005*	0.00	0.00	0.001	0.97	
Yes	33	66.0							
No	17	34.0							

(*) Statistically significant at $p < 0.05$ (**) highly significant at $P < 0.01$

Table 6: correlation between personal characteristics data of studies nurses and their total knowledge throughout the study phases (N=50)

personal characteristics data	Total nurses knowledge									
	pre			Post			Follow			
	r	p	Mann Whitney	p	r	p	r	p	t	p
Experience	-.447-**	.001	-3.114	0,003	110-	.446	.323-*	.002	-1.454	0.152
Experience in ER	-.321-*	.023	-2.196	0,035	-.041-	.780	-.204-	.155	-0.269	0.789

*Correlation is (not significant NS at > 0.05 level, significant S at < 0.05 , highly significant HS at < 0.01)

* r: Weak correlation (0.1-0.24) Intermediate correlation (0.25-0.74) Strong correlation (0.75 0.99)

Table 7: Relation between Personal Characteristics Data of Studies Nurses and their Total nurses Practice throughout the Study Phases (N=50)

personal characteristics data	Total nurses practices								
	pre			Post			Follow		
	r	p	r	p	r	p	Mann Whitney	P	
Experience	-.431-**	.002	.293-*	.039	-.411-**	.003	-2.413	0.020	
Experience in ER	-.302-*	.033	.238-	.096	-.302-*	.033	-1.633	0.109	

Table 8: Correlation between personal characteristics data of studies nurses and their total nurses practice throughout the study phases (N=50)

personal characteristics data	Total nurses practice							
	N	%	Pre		Post		follow	
			X2	P	X2	P	X2	P
Age			0.00	0.00	0.00	0.00	1.434	0.448
-20-30	19	38.0						
>30 -40	27	54.0						
>40	4	8.0						
Sex :			0.00	0.00	0.00	0.00	1.23	0.266
Male	16	32.0						
Female	34	68.0						
Marital			0.00	0.00	0.00	0.00	0.94	0.81
-single	7	14.0						
Married	41	82.0						
-widow	1	2.0						
Divorced	1	2.0						
Education			0.00	0.00	0.00	0.00	3.21	0.35
-Diploma	26	52.0						
-Diploma +SP	13	26.0						
-Bachelor	9	18.0						
-Other	2	4.0						
Training			0.00	0.00	0.00	0.00	0.9	0.34
Yes	47	94.0						
No	3	34.0						
Benefits from Training			0.00	0.00	0.00	0.00	0.28	0.59
Yes	33	66.0						
No	17	34.0						

*Correlation is (not significant NS at > 0.05 level, significant S at< 0.05, highly significant HS at <0.01)

* r: Weak correlation (0.1-0.24) Intermediate correlation (0.25-0.74) Strong correlation (0.75-0.99)

Table 9: Relation between Total nurses Knowledge and Total nurses Practice of Studied Nurse throughout Study Phases (N=50).

Total Nurses Practice	Total Nurses Knowledge					
	Pre		Post		Follow up	
	r	p	r	p	r	p
Pre	.986**	.000	.475**	.000	.765**	.000
Post	.054	.711	.857**	.000	.647**	.000
Follow	.497**	.000	.942**	.000	.932**	.000

*Correlation is (not significant NS at > 0.05 level, significant S at< 0.05, highly significant HS at <0.01)

* r: Weak correlation (0.1-0.24) Intermediate correlation (0.25-0.74) Strong correlation (0.75-0.99)

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