

Effect of Scenario Based Educational Program on Critical Care Nurses' Knowledge, Practice and Attitude Regarding Use of Physical Restraints at a Selected Hospital in Cairo, Egypt.

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Abstract

There is still great controversy about the potential benefits, side effects and ethical issues associated with physical restraint (PR) use in critical care settings. Nurses' views and attitudes toward the use of PR in controlling patients' behavior and ensuring patient safety may create conflicts with patients' rights, including their autonomy in making decisions for their own care. **Aim of the study:** To evaluate the Effect of Scenario Based Educational Program on Critical Care Nurses' Knowledge, Practice and Attitude Regarding Use of Physical Restraints at a Selected Hospital in Cairo, Egypt, **Research Design:** A quasi-experimental research design (pre-posttest design), was utilized in the current study. **Research hypotheses:** **H1:** The mean posttest knowledge score of nurses who are exposed to scenario based educational program of physical restraint will be higher than their pretest mean knowledge score. **H2:** The mean posttest practice score of nurses who are exposed to scenario based educational program of physical restraint will be higher than their pretest mean practice score. **H3:** Critical care nurses' attitude towards physical restraint will be positively changed after scenario based educational program. **Setting:** The study was conducted at selected intensive care units in Cairo, Eygept. **Sample:** A convenience sample of 30 critical care nurses working in the selected ICU, who were applying physical restraint to critically ill patients, were included in the current study. **Tools of data collection:** Four tools were used to collect data pertinent to the current study: 1) Critical Care Nurses' Demographic Data Sheet, 2) Critical Care Nurses' Knowledge Questionnaire Regarding Use of Physical Restraint, 3) Critical Care Nurses' Attitude Scale Regarding Use of Physical Restraint. And 4) Critical Care Nurses' Practices Checklist Regarding Use of Physical Restraint. **Results:** The findings of the current study showed that two third (63.3%) of the studied sample were females, less than half (46.6%) of them are in the age ranged between (25-30) years old, more than one third (43.3%) of them had diploma and technical institute nursing degree, two third (60%) of them had nursing experiences ranged from (5-10) years. Moreover, it was observed in the current study that more than third (33.3%) of the studied sample responded correctly to the following statement "Restraints should be released every 2 hours, if the patient is awake" that improved to the majority (86.6%) of them are agreed after scenario based educational program. There were statistically significant differences between the pretest-posttest total mean scores of knowledge, attitude and practice after implementing scenario based educational program. **Conclusion:** The findings demonstrated that scenario based educational program could improve nurses' knowledge, attitude, and practice to use physical restraint.. Reducing physical restraint use leads to a more therapeutic and respectful space with a less violent milieu and greater staff effectiveness. This is in alignment with patient-centered care. The results of this study and the developed educational intervention are applicable for nurses, nursing educators, nursing managers, hospital managers, researchers and hospital policymakers. **Recommendations:** Development of local policies for physical restraints use including detailed descriptions of conditions requiring its use is mandatory. Physical conditions in ICU settings should be improved to provide adequate resources and personal staff. Periodic in-service training advanced care programs based on best practice guidelines for nurses working in ICU is essential to improve nurses' practice regarding use of PR. In addition, it is important to increase awareness among ICU physicians of the advantages and drawbacks, ethical implications of PR and the requirement of written physician's orders to start and remove PR since this will restrict use of PR in critical care settings.

Key words: Physical Restraint, Scenario Based Educational Program, Intensive Care Unit.

1. Introduction

When caring for critically ill patients in the intensive care unit (ICU), both chemical and physical restraints are frequently used to minimize patient discomfort and anxiety. Physical restraints are more commonly used in intensive care units. Physical restraints are defined as any device, material attached to or near patients' body that could not be controlled by patient. Although physical restraints are often seen as a simple solution to the problem of the treatment interference, in critically ill patients one of the common themes is that physical restraints impeding an individual's freedom (Azab & Negm, 2013).

Several studies have documented that the use of physical restraints is a common practice used in various clinical settings and they are mostly used in clinical settings to control disruptive behavior, wandering, maintain treatment plans and prevent patients to fall from hospital beds but by far the most common reason in intensive care was to prevent the removal invasive tubes and devices. However patients who are in ICU, not necessarily are agitated patients. Observational study reports that residents exhibited the same amount or more, agitated behaviors even when patients were restrained (Bai, et al, 2014).

Physical restraint is defined as 'any action or procedure that prevents a person's free body movement to a position of choice and/or normal access to his/her body by the use of any method that is attached or adjacent to a person's body and that he/she cannot control or remove easily. Moreover, physical restraint is a heavily debated procedure because of the questionable ethical and legal issues affecting autonomy and dignity of patients, it can cause physical injuries, death, psychological complications and deleterious social effects. Use of physical restraints also influences the patient's milieu and distracts nursing staff from other therapeutic procedures (Gomez-Cantorna, & Capezuti, 2014).

The harmful outcomes linked to physical restraint include restraint site complications, nerve injury, delirium, post-traumatic stress disorder, greater risks of self-extubation, and a prolonged length of stay in the ICU. To reduce the inappropriate use of physical restraint, numerous guidelines and regulations aimed at minimizing the use of restraints have been developed. The British Association of Critical Care Nurses released a position statement on the use of restraint in adult ICUs. This statement highlights that the use of restraint must not substitute for inadequate human and environmental resources and that restraint should be used only when alternative therapeutic measures have proven ineffective. The clinical practice guidelines produced by the American College of Critical Care Medicine Task Force recommend limiting the use of physical restraints to "clinically appropriate" situations and emphasizing the need to consider alternative methods in the ICU (Joint Commission on Accreditation of Healthcare Organization, 2015).

Decision-making algorithm for physical restraint, includes the risk of falling it is necessary to carry out an evaluation of the situation in order to detect the reasons for the unstead disturbance behaviour of the patient. Based on that evaluation and given the question: Is it dangerous to the patient or to the others? we will have a positive or negative response. If the answer is negative we must treat the cause and try to use alternatives to physical restraint. If this is effective it is not necessary to use the various restraint devices; if, on the contrary, the methods used and the answer to the question referred to above is positive is essential to use physical restraint. As algorithm showed in Figure 1. (Barros et al., 2007).

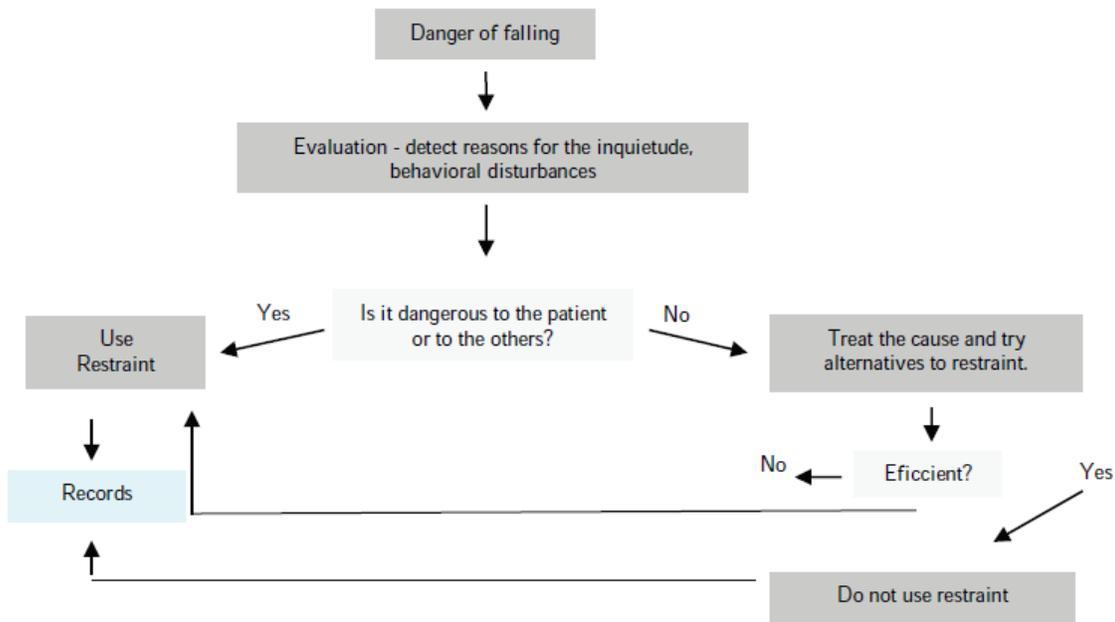


Figure 1 – Decision-making algorithm for physical restraint
Source: Barros et al. (2007, p.60)

Nursing staff play a central role in managing the process regarding physical restraint use in hospitals. Nurses usually begin the decision-making process and point out to physicians the need to order, commence or remove physical restraints. Previously, nurses commonly decided to use and remove physical restraints based on subjective clinical judgment. However, this changed after there were many negative consequences of physical restraint such as death and strangulation due to restraints. Following that, many healthcare organizations demanded that hospitals take actions to decrease the use of physical restraint and even increase the monitoring of restrained patients (Huang, Lin, & Kuo, 2014).

Critical care nurses are the key providers in the application of PR for patient’s safety, especially with agitated patients when they attempt to remove invasive tubes and devices that already in place. So, nurses

should be aware about PR and its consequences regarding to the ethical and legal problems (Kandeel, & Attia, 2013).

One of the educational systems whose philosophy is based upon the learner's learning is the scenario-based learning which is based upon the learning principles of the situational theory and education of adults is a structured approach which reflects the method of conducting a job in a real situation like a mirror. The educational contents are designed based upon the real scenarios in which the learners are obliged to simultaneously use various skills. This educational method puts the learner in such a situation that he may test his hypotheses through research, study and collection of the evidences and arrive at a conclusion. This method results in the achievement and fulfillment of the goals. Furthermore, the learners will become aware of the methods of gaining knowledge and collection of information (Mohler, & Meyer, 2014).

Some universities have created opportunities to develop clinical nursing so that they may run scenario-based learning programs (SBEP). This program enables the learners to adjust their time and resources, apply their knowledge in looking after the patients, identify the new learning demands and move towards independence and self-guidance. This educational method also has a positive influence on the mentality and clinical performance of the nurses. Considering the great importance of the nurses' caring behaviors in the critical care unit and keeping in mind the fact that the nurses in this unit face critical conditions, complicated situations and sensitive patients whose life is in danger, enhancement of the performance and mastering the knowledge of caring is a necessity for all of them (Raguan, Wolfovitz, & Gil, 2015).

1.2. Significance of the study:

One of the important duties of nurses is to protect patients against any injuries. This issue can be a challenge for the critical care nurses units who should create an immune environment for patients with agitation and delirium. More than 80% of the patients in ICUs may experience some degrees of agitation and delirium during the term of hospitalization, the extent of using physical restraint in the ICUs is 24% - 40% higher than that of the general units. Based on the clinical experience the physical the frequency restraint is a common practice in (ICUs). Furthermore, there are no guidelines or policies for this practice.

Although the use of physical restraint is considered as a method of protection for the patient, it is still associated with physical, psychological, ethical and legal problems and could lead to death as a result of inappropriate PR. For example, studies suggested that PR may harm the skin and cause pressure sore, muscular atrophy, nosocomial infection, constipation, incontinence, limb injury, contractures, depression, anger, decrease in physical, cognition state, increase agitation even death (Hatice K., Ozlem, D., 2018)

2. Subjects and Method:

2.1. Aim of the study: To evaluate Effect of Scenario Based Educational Program on Critical Care Nurses' Knowledge, Practice and Attitude Regarding Use of Physical Restraints at Cairo University Hospital

2.2. Research design: A quasi-experimental research design was utilized in this current study (pre-posttest design).

2.3. Research hypotheses:

H1: The mean posttest knowledge score of nurses who are exposed to scenario based educational program of physical restraint will be higher than their pre mean knowledge score.

H2: The mean posttest practice score of nurses who are exposed to scenario based educational program of physical restraint will be higher than their pre mean practice score.

H3: Critical care nurses' attitude towards physical restraint will be positively changed after scenario based educational program.

2.4. Setting: The study was conducted at selected intensive care units in Cairo University Hospitals.

2.5. Sample: A convenience sample consisted of 30 critical care nurses working in the selected ICU, who apply physical restraint to critically ill patients, were included in the current study.

2.5.1. The inclusion criteria: critical care nurses were both sexes, having responsibility concerned direct patient care for more than two years of experiences, and with different educational level.

2.5.2. The exclusion criteria: critical care nurses who refused to participate in the study.

2.6. Tools of data collection:

Four tools were developed by the researchers and used to collect data related to the current study.

2.6.1. Critical Care Nurses' Demographic Data Sheet: to assess data related to age, sex, marital status, years of experiences, level of education, previous knowledge about physical restraint and sources of it.

2.6.2 Critical Care Nurses' Knowledge Regarding Use of Physical Restraint Questioner

It is contains (20 items), the nurses responding is divided into agree, or disagree.

Scoring system: The higher scores indicated higher level of Knowledge, scores <75 % were considered as unsatisfactory, and scores >75% were considered as satisfactory level.

2.6.3. Critical Care Nurses' Attitude Regarding Use of Physical Restraint Scale:

It is contains (13 items). Nurses were asked to respond on a 4-point Likert Scale about whether they strongly agree, agree, disagree or strongly disagree.

Scoring system: Each item was given a score of 4 for 'strongly agree', 3 for agree, 2 for 'disagree' and 1 for strongly disagree on the other hand, negatively phrased items. "High" scores reflected "positive attitudes" and "low" scores reflected "negative attitudes".

2.6.4. Critical Care Nurses' Practices Regarding Use of Physical Restraint Checklist:

It included 28 steps divided into five parts: **Assessing the patient before using physical restraint:** it is contains (4 items), **preparing of physical restraint:** it is contains (2 items), **Applying of physical restraint:** it is contains (5 items), **providing care for patient after using physical restrain:** it is contains (16 items), and **Documentation:** it is contains (1 items).

Scoring system: one score was given for "done" step and zero score was given to "not done" step. The total score of this tool is (28). Higher scores reflect better practices, scores <75 % were considered as unsatisfactory, and scores >75% were considered as satisfactory level.

3. Pilot Study: A pilot study was carried out on five critical care nurses to assess the applicability and clarity of tools. Some modifications were done and the pilot studies of patients were excluded from the actual study.

4. Protection of human rights: An official permission was obtained from the director of Cairo University Hospital and the heads of the Intensive Care Unit departments in which the study was conducted. The aim of the research was explained to the nurses. Verbal consent was obtained from each nurse to participate in the study after clarifying the procedure of the study. Nurses were informed about their right to refuse participation and to withdraw at any time without any consequences. Confidentiality of data was ensured.

5. Procedure:

The study was carried out through three phases (preparation, implementation and evaluation phase):

1.1. Preparation phase: After finalization of the data collection tools the researchers translated the tools into Arabic language then getting official permissions, the researchers started to select the samples. The studied nurses who caring for critically ill restrained patients were interviewed to assess their knowledge, attitudes and practice towards physical restraint before implementing scenario based educational program by using pretest checklist, the time taken was 30 min. to fill out the questionnaire. This was followed by observing their practice with restrained critically ill patients using critical care nurses' practices regarding use of physical restraint checklist tool 3. Each nurse was observed individually before implementation scenario based educational program to evaluate their practices, it took an average of 15-30 minutes for each to complete. Data collection for the current study was carried out in the period from November (2018) to January (2019).

The researchers developed a designed scenario based educational program and teach critical care nurses how to deal with restraint patients through 2 sessions. The objectives of designed program were to

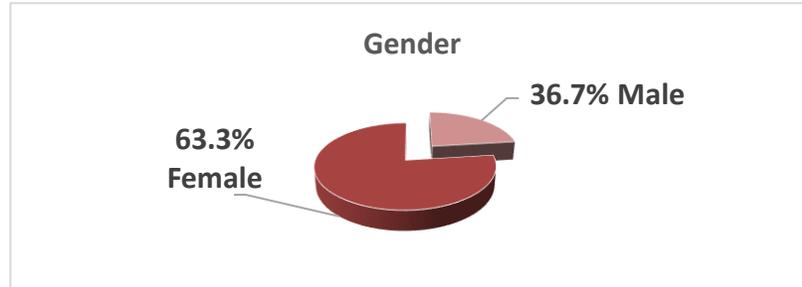
improve nurses' awareness and practice regarding physical restraint. It included demonstration, re-demonstration and covered assessing the patient before using physical restraint, preparing of physical restraint, applying of physical restraint, providing care for patient after using physical restraint and documentation. Also, post restraint care involves range of motion exercise, neurovascular check, capillary refill, hygienic care for restrained parts. Teaching methods involved, small group discussion, demonstration, and re-demonstration and problem solving situations. The teaching media included illustrative pictures, videos and booklet as handouts.

1.2. The implementation phase: In this phase, a booklet containing the component of the guidelines based on evidence based practices and the results of pretest evaluation was prepared in Arabic language and was supplemented by photos and illustrations to help the critical care nurses understanding of the contents. The scenario based educational program was carried out for all nurses. The scenario based educational program consisted of two sessions on two consecutive days for practical part. **Session one:** Included purposes of the scenario based educational program, assessing the patient before using physical restraint, preparing of physical restraint, applying of physical restraint and teach the nurse how to restrain critically ill patients correctly subjects were divided into small groups 5 nurses in each, all groups were exposed to a data show presentation. In addition to demonstrations and re- demonstrations were performed until subjects mastered the PR correctly. Each 5 nurses were given different patients' scenarios. During the scenarios, the investigators considered the mannequin as a real patient, and communicated with "him" each scenario contained written clinically based patient's information with some incomplete, uncertain or insufficient information to better reflecting the reality of clinical practice. Each practice session lasted from 45-60 minutes. Then the immediate post practice test was carried out. An open channel of communication was established between the investigator and nurses to verify any misconception, reinforce correct actions, information, increase the efficiency of their skills and to answer any question or re-demonstration any of skills taught if needed. **Session two:** It included the post procedure care such as assessment of circulation, skin color, and sensation during restraint, range of motion exercise, renewing the order every 2 hours under physician's instruction, and documentation of restraining data in patient's file.

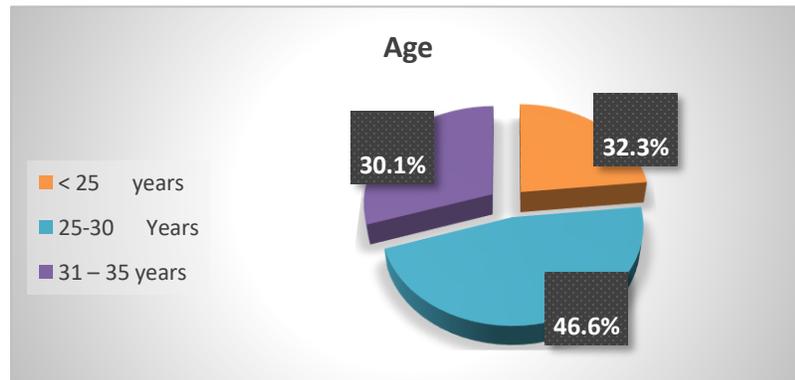
1.3.The evaluation phase: This phase was carried out after implementing the scenario based educational program. Each nurse was evaluated to determine the effect of the scenario based educational program on nurse's knowledge, practice and attitude regarding use of physical restraints after ten days.

6. Results:

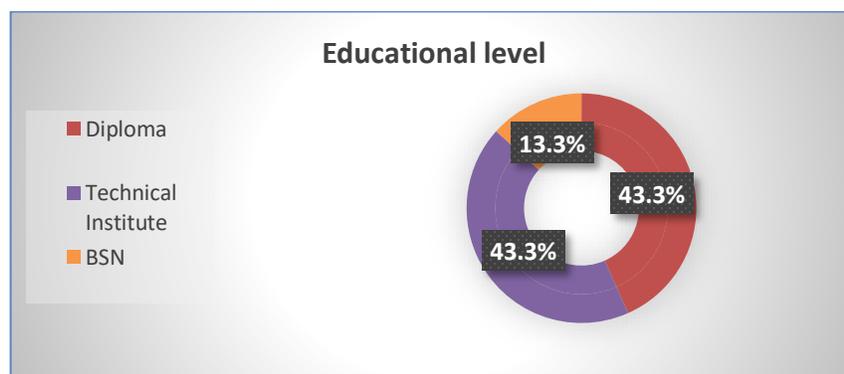
Figure (1): Percentage Distribution of the Studied Sample as Regards Socio-Demographic Characteristics (N=30).



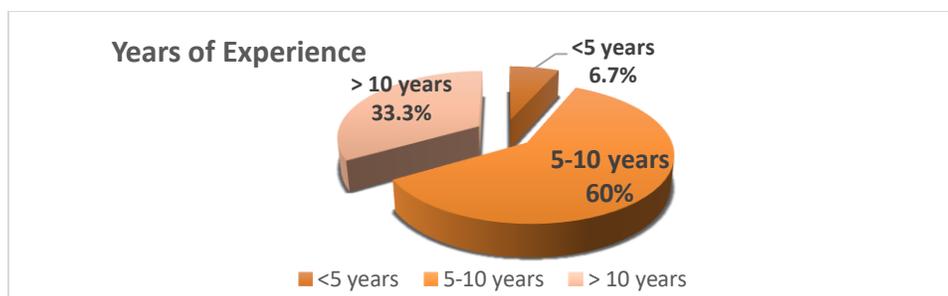
- This figure revealed that two third (63.3%) of the studied sample were females.



- This figure revealed that less than half (46.6%) of the studied sample was in the age ranged between (25-30) years old



- This figure represent that more than one third (43.3%) of the studied sample had diploma and technical institute nursing degree.



- This figure shows that the two third (60%) of the studied sample had nursing experiences ranged from (5-10) years.

Table (1): Percentage Distribution of Critical Care Nurses' Knowledge Regarding Use of Physical Restraint (N=30).

Items	(Pre-scenario based educational program)		(post-scenario based educational program)	
	Agree		Agree	
	N	%	N	%
1-Physical restraint provided for adult patient over the age of 16	11	36.6	20	66.6
2-Confusions or disorientations are good reasons for the use of physical restraint	9	30	16	53.3
3- Physical restraint indicated for patient is a potential risk to themselves or others if unrestrained	20	66.6	25	83.3
4-The patient would requires boluses or infusions of sedatives or psychoactive medication to ensure they are not a risk to themselves or others if physical restraints are not utilized	14	46.7	19	63.3
5-Physical restraint should be fitted and secured comfortably	10	33.3	22	73.3
6-There are many factors that may lead to agitation, disorientation and non-compliance with attempted treatment in a critical care setting such as: hypoxia, dyspnea, airway irritation, pain, full bladder, hypoglycaemia, electrolyte imbalance, sepsis, acute withdrawal from addictive substances, anxiety, constipation, hunger/thirst.	15	50	24	80
7- If physical restraints (safety vest, garment) are to be used, a member of the patient's family is required to sign a consent form	12	40	20	66.6
8-Physical restraint is only allowed if it is required to protect patients from injuries	15	50	22	73.3
9-Physical restraint must be used when a person is not capable of supervising a patient intensively	8	26.7	12	40
10-Patients have the right to refuse to be restrained	10	33.3	18	60
11-Physical restraint requires a doctor's order	13	43.3	19	63.3
12-Records of usage should be kept for each patient who is restrained in every shift	15	50	22	73.3
13-In emergencies, nurses are allowed to use the physical restraint on patients without any doctor's instruction	14	46.6	21	70
14-There have been deaths related to the use of vest physical restraint	5	16.6	9	30
15- Restraints should be released every 2 hours, if the patient is awake	10	33.3	26	86.6
16- When a patient is restrained, there may be any increase in skin breakdown and breathing, circulatory problems	13	43.3	17	56.6
17- When a patient is restrained in bed, the restraint should not be attached to the side rail	3	10	21	70
18- A patient should never be restrained while lying flat in bed because of the danger of choking	4	13.3	23	76.7
19- Placing a restrained patient in a prone position could increase suffocation risk	11	36.6	15	50
20- Consider using restraint only after unsuccessful use of alternatives	9	30	13	43.3

Mean ±SD	9.8 ±1.19	14.9 ±1.71
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Table (1), shows distribution of critical care nurses regarding knowledge to physical restraint, it was observed that more than third (33.3%) of the studied sample responded correctly to the following statement "Restraints should be released every 2 hours, if the patient is awake" that improved to the majority (86.6%) of them are agree after scenario based educational program. The total knowledge score after the program was (14.9 ±1.71).

Table (2): Percentage Distribution of Critical Care Nurses' Attitude Regarding Use of Physical Restraint (N=30).

Items	(Pre-scenario based educational program)				(Post -scenario based educational program)			
	Strongly Agree	Agree	Disagree	Strongly Disagree	Strongly Agree	Agree	Disagree	Strongly Disagree
	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)
1- If I were the patient, I would feel that I should have the right to refuse.	13 (43.3%)	8 (26.7%)	5 (16.6%)	4 (13.3%)	15 (50%)	10 (33.3%)	4 (13.3%)	1 (3.3%)
2- I feel guilty placing a patient in restraints	3(3.3%)	5 (16.6%)	8 (26.7%)	14 (46.6%)	13 (43.3%)	7 (23.3%)	5 (16.6%)	5 (16.6%)
3- I feel that the main reason that restraints are used in the case of short staffed.	10 (33.3%)	7 (23.3%)	10 (33.3%)	3 (10%)	15 (50%)	8 (26.7%)	3 (10%)	4 (13.3%)
4- I feel embarrassed when the family enters the room of a patient who is restrained.	12 (40%)	7 (23.3%)	6 (20%)	5 (16.6%)	14 (46.6%)	12 (40%)	2 (6.6%)	2 (6.6%)
5- I feel that nurses have the right to refuse to place of restraints.	3 (10%)	8 (26.7%)	15 (50%)	4 (13.3%)	10 (33.3%)	5 (16.6%)	7 (23.3%)	8 (26.7%)
6- It makes me feel bad if a patient becomes more upset after restraints are applied.	8 (26.7%)	6 (20%)	4 (13.3%)	12 (40%)	16 (53.3%)	4 (13.3%)	3 (10%)	7 (23.3%)
7- It is important to apply restraints to assure legal protection.	5 (16.6%)	3 (10%)	7 (23.3%)	15 (50%)	5 (16.6%)	9 (30%)	11 (36.6%)	5 (16.6%)
8- I feel that placing a patient in restraints can decrease nursing care time	10 (33.3%)	4 (13.3%)	7 (23.3%)	9 (30%)	6 (20%)	8 (26.7%)	4 (13.3%)	12 (40%)
9-When I feel that the patient does not need to be restrained, I make this suggestion to the doctor	9 (30%)	13 (43.3%)	6 (20%)	2 (6.6%)	15 (50%)	10 (33.3%)	4 (13.3%)	1 (3.3%)
10-I believe that restraints increase the risk of strangulation.	4 (13.3%)	11 (36.6%)	9 (30%)	6 (20%)	17 (56%)	8 (26.7%)	3 (10%)	2 (6.6%)
11- I believe that restraints lead to a reduction in the number of patients who fall.	12 (40%)	6 (20%)	10 (33.3%)	2 (6.6%)	10 (33.3%)	5 (16.6%)	14 (46.6%)	1 (3.3%)
12-I feel that it is important to tell restrained patients that I am concerned about them.	14 (46.6%)	8 (26.7%)	4 (13.3%)	4 (13.3%)	13 (43.3%)	4 (13.3%)	7 (23.3%)	6 (20%)
13-I prefer to give sleeping pills rather than restrain the patients.	15 (50%)	3 (10%)	7 (23.3%)	5 (16.6%)	11 (36.6%)	10 (33.3%)	4 (13.3%)	5 (16.6%)
Mean ±SD	9.18±3.56				13.61 ±4.92			

Table (2), represents percentage distribution of critical care nurses' attitude regarding use of physical restraint, the less than one third (26.7%) of the critical care nurses reported that they are strongly agreed with item number (6) "it makes me feel bad if a patient becomes more upset after restraints are applied" before scenario based educational program which improved to more than half (53.3%) of them after that, Also, the total attitude score was increased to (13.61 ±4.92) that reflect a positive attitude post-scenario based educational program.

Table (3): Percentage Distribution of Critical Care Nurses' Practice Regarding Use of Physical Restraint (N=30).

Items	(Pre-scenario based educational program) Done	%	(Post- scenario based educational program) Done	%
(1) Assessing the patient before using physical restraint:				
1-Indication of applying restraint	8	26.6	13	43.3
2- Try alternative nursing measures before restraining the patient	5	16.6	14	46.6
3- Review physician's order for application of the restraints	7	23.3	16	53.3
4- Assess the site of restraint	10	33.3	19	63.3
(2) preparing of physical restraint:				
1-Preparation of equipment	20	66.7	26	86.7
2- Preparation of patient and family through explain why the restraint is being applied	5	16.7	13	43.3
(3) applying of physical restraint:				
1. padding bony prominences, and securing the restraint accurately	8	26.6	14	46.6
2. didn't restrain patient while lying flat position	5	16.7	7	23.3
3. making sure that restraints is not over an iv line or other device	9	30	15	50
4. attaching the restraint to bed frame, not side rails	6	20	12	40
5. secure restraints with a quick release	7	23.3	26	86.7
(4) providing care for patient after using physical restrain:				
1. respond for the patient at the time of restraining	12	40	7	23.3
2-assess of proper placement of restraint	10	33.3	14	46.6
3-check skin color, capillary refill, pulse of restrained extremities	11	36.6	20	66.7
4-proper body alignment, reposition	4	13.3	22	73.3
5-observe peripheral circulation	6	20	30	100
6-assess movement and sensation	7	23.3	30	100
7-inspect the skin for abrasions or skin tears	2	6.6	15	50
8-perform a quick head-to-toe assessment to help identify areas of concern or conditions that require further monitoring	5	16.6	19	63.3
9-remove restraints for 30 minutes every 2 hours	10	33.3	27	90
10- Renewing orders every 24 hours.	2	6.6	15	50
11-evaluate of restrained body part every 2 hours	6	20	18	60
12-change position frequent	9	30	11	36.6
13-provision of adequate range of motion	7	23.3	13	43.3

14-tell the patient when the restraint will be removed	8	26.6	20	66.6
15-if patient does not need to be restrained, nurse suggest that to physician	5	16.6	15	50
16-assess readiness for restraint reduction or removal at least every 8 hrs	10	33.3	18	60
(5) documentation:				
1-record the type of restraint used, the time, indications, and unexpected outcomes for restraining	5	16.6	14	46.6
Mean ±SD	10.89 ± 3.59		15.34 ± 4.98	

Table (3), represents percentage distribution of critical care nurses' practice regarding use of physical restraint, in relation to the item (4) providing care for patient after using physical restrain, it was noted that less than one third (20%, 23.3%) of the critical care nurses assess movement, sensation and observe the peripheral circulation before the scenario based educational program that increased to all of them (100%) applying that after the scenario based educational program. Also, the Mean ±SD was improved to (15.34 ± 4.98).

Table (4): Paired t-test comparing total knowledge, Attitude, and Practice scores regarding Use of Physical Restraint (Pre-test, post-test) (N=30).

Comparison	Mean ±SD	t-value	p-value
Total mean knowledge score (Pre-Test)	9.8 ±1.19	46.73	0.00
Total mean knowledge score (Post-Test)	14.9 ±1.71	85.25	0.00
Total mean attitude score (Pre-Test)	9.18±3.56	75.2	0.00
Total mean attitude score (Post-Test)	13.61 ±4.92	77.47	0.00
Total mean practice score (Pre-Test)	10.89 ± 3.59	45.36	0.00
Total mean practice score (Post-Test)	15.34 ± 4.98	65.47	0.00

* Significant at P<0.005

Table (4), revealed that there were statistically significant differences between the pretest-posttest total mean scores of knowledge, attitude and practice after implementing scenario based educational program.

Table (5): Correlation Between Sociodemographic Data and Mean Scores of Critical Care Nurses' Knowledge, Attitude And Practices (Pre-Posttest) Regarding Use of Physical Restraint (N=30).

Variables		Gender	Age	Education	Years of experience	Knowledge (pre)	Knowledge (post)	Attitude (pre)	Attitude (post)	Practice (pre)	Practice (post)
Gender	-Pearson Correlation -Sig. (2-tailed)		.157 .409	.170 .368	.233 .215	-.216 .252	-.122 .522	.218 .248	-.127 .503	.022 .908	-.042 .827
Age	Pearson Correlation Sig. (2-tailed)	.157 .409		.197 .298	.772** .000	.163 .389	.257 .170	.112 .555	-.078 .683	.132 .488	-.017 .929
Education	Pearson Correlation Sig. (2-tailed)	.170 .368	.197 .298		.034 .860	-.148 .436	-.158 .405	.290 .120	.106 .575	.231 .219	.366* .047
Years of experience	Pearson Correlation Sig. (2-tailed)	.233 .215	.772** .000	.034 .860		.014 .940	.331 .074	.067 .727	-.150 .430	.111 .558	-.037 .845
Knowledge (pre)	Pearson Correlation Sig. (2-tailed)	-.216 .252	.163 .389	-.148 .436	.014 .940		.437* .016	.009 .963	-.352 .057	.168 .376	.005 .981
Knowledge (post)	Pearson Correlation Sig. (2-tailed)	-.122 .522	.257 .170	-.158 .405	.331 .074	.437* .016		-.120 .528	-.431* .017	-.098 .606	-.256 .172
Attitude (pre)	Pearson Correlation Sig. (2-tailed)	.218 .248	.112 .555	.290 .120	.067 .727	.009 .963	-.120 .528		.105 .580	-.201 .286	.022 .910
Attitude (post)	Pearson Correlation Sig. (2-tailed)	-.127 .503	-.078 .683	.106 .575	-.150 .430	-.352 .057	-.431* .017	.105 .580		.188 .320	.097 .610
Practice (pre)	Pearson Correlation Sig. (2-tailed)	.022 .908	.132 .488	.231 .219	.111 .558	.168 .376	-.098 .606	-.201 .286	.188 .320		.506** .004
Practice (post)	Pearson Correlation Sig. (2-tailed)	-.042 .827	-.017 .929	.366* .047	-.037 .845	.005 .981	-.256 .172	.022 .910	.097 .610	.506** .004	

* Significant at P<0.005

Table (5), revealed that there is positive statistical relationship between the level of education of the studied sample and total mean practice score

7. Discussion

Critical Care Unit is one of the specialized sections of nursing care. Critically ill patients are cared for their life-threatening conditions. One of the nursing care services in Intensive Care Units (ICU) is the appropriate use of physical restraint for prevention of harms for critical ill patients. Use of physical restraint is a common clinical practice in (ICU). Use of physical restraint is usually associated with many adverse effects. In addition, it raises many ethical and practical concerns (Cotter, 2005). Therefore, using and evaluating effect of scenario based educational program about physical restraint is as necessary for the critical care nurses in clinical practice.

Regarding socio-demographic characteristics, the findings of the current study showed that the majority of the study sample was females. This finding was supported by Madalena Cunha et al, (2016) who conducted a study about chemical and physical restraint of the patients and reported that the majority of their study sample was females. Moreover, this high proportion of female nurses was most probably attributed to the fact that the study of BSN in the Egyptian universities and Technical Institutes was exclusive for females only till few years ago, so the profession of nursing in Egypt was mostly feminine. Also, it is worth mentioning that females comprised 90, 78% of the registered nursing personnel in Egypt while males comprised 9.22% (Ministry of Health and Population, 2013).

In this study, educational intervention resulted in a statistically significant increase in the mean knowledge, attitude, and practice scores of nurses towards physical restraint use. Based on these results the research hypotheses were all accepted. These findings came in consistence with Eskandaria, Abdullahb, Zainalc, & Wongd, (2018) who evaluated the effect of educational intervention on nurses' knowledge, attitude, intention, practice and incidence rate of physical restraint use and concluded that educational intervention resulted in a statistically significant increase in the mean knowledge, attitude, and practice scores and a decrease in the mean intention scores of nurses towards physical restraint use. Lower mean intention scores imply a weak intention to use physical restraint by nurses.

In the same line, Younis & Sayed Ahmed,(2017), found that the nurse's mean score of patient's assessment before applying restraint was inadequate before applying clinical guidelines and was increased after guidelines. They also clarified that; this may be attributed to the lack of nurses training about physical restraint, the lack of written policies in ICUs about guiding physical restraining and inadequate supervision. In addition, this result indicated that the majority of nurses did not review physician's order for application of the physical restraints. This due to the absence of written medical order and physicians has no concern about this procedure.

Younis & Sayed Ahmed, (2017), also added that, their study results demonstrated that the nurses' total mean practice score were unsatisfactory and inadequate before applying clinical guidelines. And

explained that, such low standard of performance in physical restraints practice, is due to some factors such as ; no physician’s order that the nurse can follow ,lack of cooperation between nurse and physician or lack of physicians’ knowledge regarding their role in participating in the decision of restraining a patient. On the other hand, the total mean score of physical restraint practice was improved significantly after application of clinical guidelines among nurses regardless their personal characteristics.

In relation to, nurses’ views and attitudes toward the use of PR in controlling patients’ behavior and ensuring patient safety may create conflicts with patients’ rights, including their autonomy in making decisions for their own care. This study showed that half of the study sample believed that if they were the clients, they should have the right to refuse or resist the placing of restraints on them. This finding was in accordance with Azab & Negm, (2013), who reported that 60% of the respondent nurses believed that if they were the clients, they should have the right to refuse or resist the placing of restraints on them despite the majority of them disagreed with the statement that ‘Patients are allowed to refuse to be placed in a restraint’. This response suggests that the respondents might have negative thoughts about the use of restraints of which they were unaware.

On the other hand, a few studies showed that the intervention could not change the knowledge, attitude, and practice of nurses regarding physical restraint. For example, in a study of psychiatric units, Kontio et al. (2011) explored the effect of an e-learning course on psychiatric nurses’ professional competency in physical restraint, but the results did not demonstrate any benefits on knowledge and attitudes of nurses towards physical restraint. In another study by Dermaid& Byrne (2006), the results showed that there was no difference in nurses’ knowledge, attitude, and practice to use physical restraint between the intervention and control groups. In this study, the researchers explained that other environmental factors and nurses’ professional characteristics may have had an effect on nurses’ knowledge, attitude, and behavior, although the units had been matched by some environmental factors. It seems that differences in research design, methodology, duration, content, and teaching strategy might have accounted for the differences in the results between the current study and previous studies (Eskandaria, Abdullahb, Zainalc, & Wongd, 2018).

8. Limitations of the study

1- Data about nurses’ practice were gathered by a self-reported questionnaire. Self-reported data may be influenced by uncontrollable factors in completing the questionnaire, and thus there is a limitation in identifying the actual behavior of nurses in this study.

2-This study was conducted in only one hospital. There are different protocols regarding physical restraint in different hospitals in Egypt, and thus other hospitals were not included in this study. Therefore, the potential for generalization may be limited.

9. Conclusion

The findings demonstrated that scenario based educational program could improve nurses' knowledge, attitude, and practice toward use of physical restraint. Reducing physical restraint use leads to a more therapeutic and respectful space with a less violent milieu and greater staff effectiveness. This is in alignment with patient-centered care. The results of this study and the developed educational intervention are applicable for nurses, nursing educators, nursing managers, hospital managers, researchers and hospital policymakers.

10. Recommendations:

Based on the study findings the researchers recommended the following:-

- Development of local policies for physical restraints use including detailed descriptions of conditions requiring its use is mandatory.
- Physical conditions in ICU settings should be improved to provide adequate resources and personal staff.
- Periodic in-service training advanced care programs based on best practice guidelines for nurses working in ICU is essential to improve nurses' practice regarding use of PR.
- In addition, it is important to increase awareness among ICU physicians of the advantages and drawbacks, ethical implications of PR and the requirement of written physician's orders to start and remove PR since this will restrict use of PR in critical care settings.

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