

Nurses' performance regarding the use of physical restraint among Intensive Care Units (ICUs) at Port Said City Hospitals.

Dena EltabeySobeh

Medical Surgical Nursing, Faculty of Nursing, Port Said University, Egypt

ABSTRACT

The use of physical restraints (PR) is a common practice in various clinical settings; especially in intensive care units (ICUs). 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. **This study aimed to assess** ICU nurses' knowledge, attitude and practice regarding the use of physical restraint in the ICU and factors influencing it. **Research design:** descriptive study design was used. **Settings:** this study was implemented at Port Said general hospital, Port Fouad general hospital and ALzohor general hospital. **Sample:** A convenient sample of 48 nurses working in ICU settings in the previous mentioned setting was selected for this study. **Study tools:** A self-administered structured questionnaire was used to determine ICU nurses' knowledge, attitude and practice regarding use of physical restraint and factors influencing it. **Results:** the majority of nurses had unsatisfactory knowledge, 62.5% of nurses had negative attitude and 83.3% of nurses had adequate practice regarding the use of restraint with. There were no correlation between nurses' practice score regarding the use of physical restraint and their knowledge and attitude score. **Conclusions:** Nurses' knowledge, attitude and practice are in need for improvement. **Recommendations:** Development of local policies for physical restraint use including detailed descriptions of conditions requiring its use and 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.

Key words: physical restraint, ICU, knowledge, practice, attitude.

Introduction

Physical restraints are defined as any devices or materials attached to or near patients' body that could not be controlled by patient (Akansel, 2007). Their use is a common practice in various clinical settings, with 7-17 % of hospitalized patients have been subjected to physical restraints (Evans, et al, 2002). In clinical settings, they help controlling disruptive behavior and wandering, maintain treatment plans, and prevent patients to fall from hospital beds

(Myers, et al, 2001). In intensive care, restraints are most commonly used to prevent the removal of invasive tubes and devices (Choi & Song, 2003). In a study in the United States, the intensive care units (ICUs) accounted for 56% of all restraint days despite having only 16% of all the patient-days (Mion, 2008). Physical restraints are a common practice in healthcare, with prevalence rates ranging between 15% and 66% in nursing homes and between 33% and 68% in hospital settings (Hamers & Huizing, 2005). In intensive care units (ICUs), the main reason for their use is to prevent

dislodgement of medical equipment, and for this reason ICU nurses have positive attitudes towards restraining.

Nurses are closely involved in caring for restrained patients. According to *De Jonghe et al. (2013)* the common absence of medical orders for starting or removing physical restraints indicates that these decisions are mostly made by the nurses. Their roles start with the selection of the least restricting arm restraint device available. Then, they are the ones responsible for modifying the care plan based on hourly assessment of patient's response, and removing the restraints every two hours. Their roles also include frequent change of patient's position, with assistance in activities of daily living, in addition to assessing the patient for any physical and/or psychological effects of restraining. Moreover, they must look for other causes of agitation and treat accordingly, inform relatives of the need for restraint, and review orders every 4 hours (*Lusis, 2000 &The American Geriatrics Society, 2004*).

Since nurses' perceptions and knowledge play an important role in this care practice, it was deemed important to develop a restraint policy and educate nurses to implement it because hospitals in Egypt have not any policies and there are illegal uses of restraint. Recent studies carried out in Mansoura ICUs revealed most of the patient was restrained due to the removal of medical device, and developed pressure sore, limb edema, restricted circulation, and skin laceration at restraint site, lack of knowledge and documentation of physical restraining and recommended that there is a need for standard guidelines and policies for physical restraint practices in Egyptian ICUs (*Hafez, 2011&Kandeel and Attia, 2013*)

In Egypt, physical restraint is a more conventional practice in ICUs. There are no available guidelines or legal regulations

concerning physical restraint use. Reviewing the literature illustrated that only one study conducted by *Al-Khaled et al. (2011)* addressed physical restraint use in Egypt. Most nursing research in Egypt focuses on educational programs for nurses, surveying nurses' views about certain aspects of care, and quasi-experimental studies. It is rare to find a study that investigates practice in order to identify areas that need improvement. From our experience in clinical settings, we observed that nurses do not question practice; they just follow instructions given by doctors. This seems to be a part of the culture of the healthcare system in Egypt. Although research has addressed physical restraint practices in various countries, research in this area is scarce in Egypt. Hence, the aim of this study was to investigate the practices of physical restraints among critical-care nurses in El-Mansoura City, Egypt.

II. Subjects and Methods

Design: descriptive exploratory study

Setting: the study was conducted in Port Said, Port Fouad and ALzohore general hospitals in Port Said city. It included 3 adults ICUs settings.

Subjects: A convenient sample of 48 nurses working in these ICU settings was selected for this study from both genders, with different ages, educational background and years of experience.

Tool for data collection:

A- Self-Administered structured Questionnaire

It was designed based on the questionnaire that was developed by *Janelli et al. (1992)* and it was used to assess ICU nurses' knowledge, attitude and practice regarding use of physical restraint and factors influencing it. The questionnaire was

prepared by the researchers in Arabic language. Then, it was revised by a group of seven experts in medical surgical nursing department, Faculty of Nursing, Port Said University for the content validity. It included five parts;

The first part was concerned with demographic characteristics of the respondent nurses such as age, gender, educational background and years of experience.

The second part: included 15 items to assess nurses' knowledge regarding use of physical restraint (definition, purposes, indications, methods, alternatives, precautions, the need for physician's order before patient restraint, complications, ethical issues, nursing care for restrained patient).

Scoring system: Correct responses were given a score of 1 and incorrect responses were given a score of 0, (potential range: 0–15).

The third part: included 11 items to assess nurses' attitude regarding use of physical restraint. Nurses were asked to respond on a 3-point Likert Scale about whether they 'agree', 'don't have an opinion' or 'disagree'.

Scoring system: Each item was given a score of 3 for 'agree' to 1 for 'disagree' and vice versa for negatively phrased items. Thus, high scores ($\geq 60\%$) reflected positive attitudes and low scores ($\leq 60\%$) reflected negative attitudes (potential range: 11-33).

The fourth part: consisted of 14 items to assess nurses' practice regarding use of physical restraint. Nurses were asked to respond to each of the items on a 3-point Likert Scale about whether they 'always', 'sometimes' or 'never' performed these practices.

Scoring system: 3 for 'always' to 1 for 'never' having adopted such practices. The

negative item was reverse-scored. Thus, a score of 14 indicated the most undesirable practice while 42 indicated the best practice in use of restraints. Adequate practice means score ($\geq 60\%$) and non-adequate means score ($\leq 60\%$).

The fifth part: about self-reporting of the alternative methods that were used before patients' restraint and complications reported by responded nurses.

Procedures of the study: A pilot study was conducted on 5 nurses who were excluded from the study sample. Based on the opinion of a panel of expertise and the result of the pilot study, some modifications were done; and then the final forms were developed.

- The Cronbach's alpha coefficients of parts 2-4 were 0.79, 0.81 and 0.83 respectively.

Administrative design and ethical consideration:

An official permission was obtained from the director of Port Said General Hospitals and the heads of the 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. The researcher visited the previously mentioned hospitals 3 days a week during the three shifts. The data were collected through four months from December 2015 until March 2016.

Statistical analysis: Collected data were tabulated and software IBM SPSS statistics, version 19 was used to calculate frequencies and percentages of the responses to the items on knowledge, attitudes and practices. Pearson correlation test was used to test association between total practice score

Nurses' Performance Regarding the Use of Physical Restrain among Intensive Care Units (ICUs) at Port Said City Hospitals

and both of knowledge and attitude scores. Chi square test was used for statistical comparison of frequencies between the different groups. All reported P values are two-sided ($P \leq 0.05$: significant and $p \leq 0.001$ highly significant)

Results:

Part I: socio demographic data of the studied nurses

Table (1) describes the studied nurses according to age, gender, educational background, years of nursing experience in ICU and previous knowledge about use of physical restrain. 58.3% of them were at age group 18 – < 30 years old, 81.3% of them were female, 58.3% of them were married, 41.7% of nurses were BSc level old education, 54.2% of them had less than 5 years, 77.1% of them had not restrain previous knowledge and 91.7% of nurses had no training courses.

	No.	%
Age		
18 – < 30	28	58.3
30 – < 40	14	29.2
More than 40	6	12.5
Sex		
Male	9	18.8
Female	39	81.3
Marital status		
Single	14	29.2
Married	28	58.3
Divorces	2	4.2
Widow	4	8.3
Educational level		
Diploma	12	25.0
Technical	16	33.3
B.S.c	20	41.7
Experience year		
less than 5 years	26	54.2
5 – 10 years	16	33.3
10 to less than 15	4	8.3
More than 15	2	4.2
Restrain previous knowledge		
No	37	77.1
Yes	11	22.9
Training courses		
Yes	4	8.3
No	44	91.7

Part II: Nurses' total score of knowledge, attitude and practice regarding the use of physical restrain

Table (2): nurses' knowledge satisfactory score regarding the use of physical restrain

	Un Satisfactory		satisfactory		Mean± SD score
	No.	%	No.	%	
Nurses' knowledge	46	95.8	2	4.2	10.79 ± 1.29

Table (2): Clarifies that, the majority of nurses (95.8%) had unsatisfactory knowledge with (Mean± SD, 10.79 ± 1.29)

Table (3): nurses' total score of attitude regarding the use of physical restrain

	Positive		Negative		Mean± SD score
	No.	%	No.	%	
Nurses' attitude	18	37.5	30	62.5	23.54 ± 2.67

Table (3): shows that, 62.5% of nurses had negative attitude about the use of restrain with (Mean± SD, 23.54 ± 2.67)

Table (4):nurses' total score of practice regarding the use of physical restrain

	Not adequate		adequate		Mean± SD score
	No.	%	No.	%	
Nurses' practice	8	16.7	40	83.3	36.27 ± 4.58

Table (4): shows that, 83.3% of nurses had adequate practice regarding the use of restrain with (Mean± SD, 36.27 ± 4.58)

Table (5): correlation between nurses' practice score regarding the use of physical restrain and their knowledge and attitude score.

		Knowledge	Altitude	Practice
Knowledge	r	1.000	0.071	- 0.259
	p		0.633	0.076
Altitude	r		1.000	- 0.033
	p			0.823
Practice	r			1.000
	p			

r: Pearson coefficient

Table (5): illustrates that, there were no correlation between nurses' practice score regarding the use of physical restrain and their knowledge and attitude score.

III- self-reporting of alternative methods that were used before patients' restraint and complications reported by responded nurses.

Figure (1): shows that, 95.8% of studied nurses use medications as alternative methods for restrain while 6.3% of them use diversion actives.

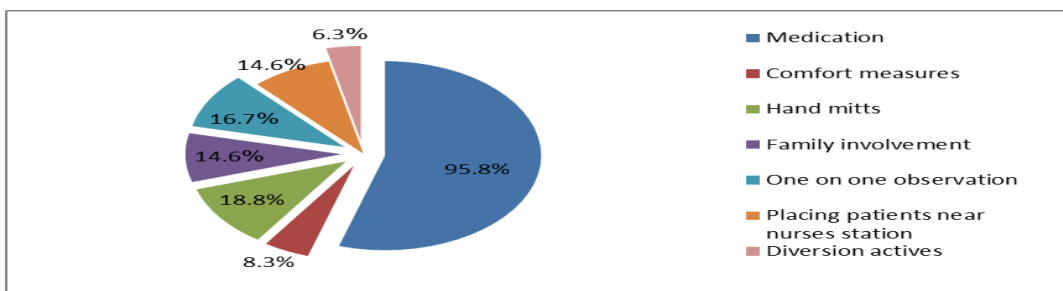
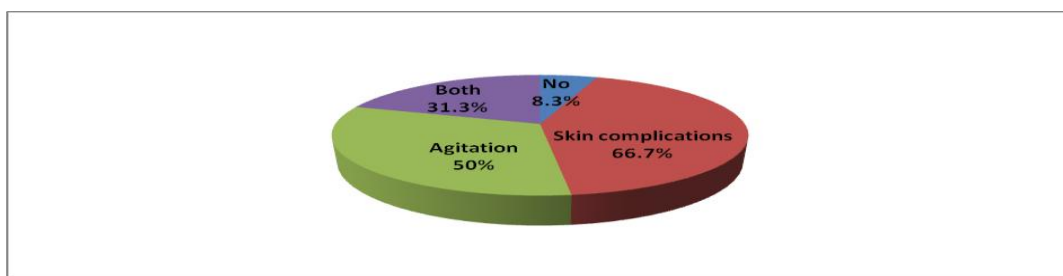


Figure (2): illustrates that, 66.7% of nurses reported skin complication, while 8.3% of them reported no complications



Discussion:

The result of the present study reveals that the more than half of studied patients were at age group 18 – < 30 years old, most of them were female, more than half of them were married, more than two fifths of nurses were B.Sc.nursing level of education, more than half of them had less than 5 yearsof experience, more than three quarters of them had not restrain previous knowledge and the majority of nurses had no training courses.

This study shows that the majority of nurses had unsatisfactory knowledge regarding the use of physical restrain. This is may be due to that, more than half of them

had less than 5 years of experience, more than three quarters of them had not restrain previous knowledge, the majority of nurses had no training courses, and more than half of nurses were diploma and technical institute of nursing which reflect lack of information toward the use of physical restrain. Also, there was no statistically significant relation between nurses' knowledge score and their socio-demographic characteristics.

Taha& Ali (2013), studied physicalrestraints in Critical Care Units: Impact of a Training Program on Nurses' Knowledge and Practice and Patients' Outcomes and concluded thatonly 3 (7.9%)

nurses had total satisfactory knowledge before implementation of the guidelines. The finding of the present study agree with the result reported by *kandeel&Attia (2013)*, who found that most of nurses had unsatisfactory knowledge regarding the use of physical restrain. Also the finding of the study result was in the same line with *Sujata and Kaur (2015)* who studied Knowledge and Practice Regarding Physical Retraining among Nurses Working in Selected Hospitals of Ludhiana, and found that (21.66%) were having poor knowledge regarding the use of physical restrain.

The finding of the study revealed that, more than three fifths of the studied nurses had negative attitude regarding the use of physical restrain. The negative attitude may be due to the majority of nurses had unsatisfactory knowledge score, more than half of them had less than 5 years of experience, more than three quarters of them had not restrain previous knowledge, the majority of nurses had no training courses, and more than half of nurses were diploma and technical institute of nursing which reflect lack of information toward the use of physical restrain.

(*McCabe et al, 2011*), *Hamers et al. (2009)* and (*Fradkin et al, 1999*) found that the attitude of nurses or student nurses towards restraint use was relatively negative. (*Jonathan et al, 2013*) which study focused in the prevalence and attitude regarding physical restraint use in a Dutch acute hospital and who found that physicians and nurses had a relatively neutral to slightly positive attitude towards using restraint. In another study done by (*Lee et al, 1999*) found that, nurses report positive or moderately positive attitudes on restraint use.

The finding of present study shows that, most of nurses had adequate practice regarding the use of physical restrain with statistically significant relations between nurses' practice score. From the point view of the researcher, this may be due to, more than

three quarters of them were female, half of nurses were B.Sc. nursing education, and two fifths of them were 5 – 10 years of experience.

The result of the study was in the same line with (*Al-Khaled, et al, 2011*) who found that the majority of studied nurses had moderate performance regarding the use of physical restrain. This result was disagree with the result of study done by (*Azab and Abu Negum, 2013*) who reported low practice among nurses regarding the use of physical restrain

The result of the present study revealed that there were no correlation between nurses' practice score regarding the use of physical restrain and their knowledge and attitude score. This may be due to most of nurses had adequate practice regarding the use of restrain, the majority of them had unsatisfactory knowledge and more than three fifths had negative attitude about the use of restrain. (*Al-Khaled, et al, 2011*), concluded that there is no statistical significant relationship between nurses' knowledge score concerning restraining performance and their observed performance score. Also the result of this study goes in line with *Azab and Abu Negm (2013)* who found that there were none significant differences in the overall scores for knowledge, attitude or practice.

The respondent nurses in the current study reported attempts of several alternative methods before applying physical restrain; use of sedatives was the most frequent method while diversional activities (TV, magazines, music) were the least frequent used method. Sedation is used most commonly in critical care for patients who are being mechanically ventilated since it help to reduce patient's anxiety, facilitate care (such as ventilation) and reduce myocardial oxygen demands (*Bray et al., 2004*). However, sedation was found to have unwanted side effects such as hypotension,

reduced gastrointestinal mobility and general immobility (*Intensive Care Society, 2003*).

Skin complications were reported by the participant nurses in this study as the most frequent complications of PR application. This may be due to faulty technique or unsuitable equipment. *Azab and Abu Negm (2013)* found that about half of nurses reported occurrence of skin complications (skin abrasions, edema and contusions).

Conclusions:

Based on results of the current present study, the following can be concluded:

- the majority of nurses (95.8%) had unsatisfactory knowledge, more than half of them had negative attitude and most of them had adequate practice regarding the use of physical restrain
- There were no correlation between nurses' practice score regarding the use of physical restrain and their knowledge and attitude score.

Recommendations:

Based on results of the present study the following can be recommended:

1-Development of local policies for PR which contains detailed descriptions of conditions requiring its use.

2-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.

3- It is important to increase awareness among ICU physicians of the advantages and drawbacks, ethical implications of PR

4-Identifying, developing, and testing alternatives to physical restraining are recommended to be the focus of future studies.

5-The hospital should develop evidence based guideline on physical restraining to be available for all nurses and physicians in order to follow.

6-Further studies have to be conducted identifying other factors that may influence restraint utilization.

References

- Akansel N (2007): physical restraining practices among intensive care nurses in one University Medical Hospital in western Turkey. *Health Science Journal* 4.
- Al-Khaled T, El Soussi A, Zahran E.(2011): Nurses' related factors influencing the use of physical restraint in critical care units. *J. Am. Sci*; 7: 13–22.
- Azab, S., M., and Abu Negm, L. (2013): Use of Physical Restraint in Intensive Care Units (ICUs) at Ain Shams University Hospitals, Cairo. *Journal of American Science*;9(4).
- Bray K, Hill K, Robson W, Leaver G, Walker N, O'Leary M, Delaney T, Walsh D, Gager M and Waterhouse C. (2004): British Association of Critical Care Nurses Position statement on the use of restraint in adult critical care units. *Nursing in Critical Care*; 9(5): 199-212.
- Choi E, Song M (2003) : Physical restraint use in a Korean ICU. *J ClinNurs* 12: 651-659.
- De Jonghe B, Constantin JM, Chanques G, Capdevila X, Lefrant JY, et al. (2013) : Physical restraint in mechanically

- ventilated ICU patients: a survey of French practice. *Intensive Care Med* 39: 31-37.
- Evans D, Wood J, Lambert L, Fitzgerald M (2002): Physical restraint in acute and residential care: A Systematic Review Number 22. Joanna Briggs Institute for Evidence Based Nursing & Midwifery, Adelaide.
- Fradkin M, Kidron D, Hendel T (1999): Israeli student nurses' attitudes about physical restraints in acute care settings. *GeriatrNurs*. Mar-Apr; 20(2):101-105.
- Hafez EM (2011): Problems Encountered among Patients Utilizing Physical Restraint in Mansoura University Hospitals, Unpublished, Master Thesis, Faculty of Nursing, Zagazig University.
- Hamers JP, Huizing AR (2005): Why do we use physical restraints in the elderly? *Z GerontolGeriatr* 38: 19-25.
- Hamers PPH, Meyer G, Ko'pke S, Lindenmann R, Groven R and Huizing AR. (2009):
- Attitudes of Dutch, German and Swiss nursing staff towards physical restraint use in nursing home residents, a cross-sectional study. *International Journal of Nursing Studies*; 46: 248-255
- Intensive Care Society (2003): Available at:<http://www.ics.ac.uk/downloads/sedation.pdf>
- Jonathan Koolen a, Michel H.C. Bleijlevens b, Truus G. van der Hooft-Leemans c and Jan P.H. Hamers (2013): The association between the prevalence and attitude regarding physical restraint use in a Dutch acute hospital. *Journal of Clinical Nursing*,
- Janelli LM, Kanski GW, Scherer YK and Neary MA. (1992). Physical restraints: Practice, attitudes/knowledge among nursing staff. *Journal of Long Term Care Administration*; 20(2): 22-25.
- Kandeel NA, Attia AK (2013): Physical restraints practice in adult intensive care units in Egypt. *Nurs Health Sci* 15: 79-85.
- Lee DT, Chan MC, Tam E & Yeung WS (1999): "Use of physical restraints on elderly patients: an exploratory study of the perceptions of nurses in Hong Kong.", *Journal of Advanced Nursing* ; 29: 253-159.
- Lusis S (2000): Update on restraint use in acute care settings. *PlastSurgNurs* 20: 145-150.
- McCabe DE, Alvarez CD, McNulty SR, Fitzpatrick JJ (2011): Perceptions of physical restraints use in the elderly among registered nurses and nurse assistants in a single acute care hospital. *GeriatrNurs*. Jan-Feb;32(1):39-45.
- Mion LC (2008): Physical restraint in critical care settings: will they go away? *GeriatrNurs* 29: 421-423.
- Myers H, Nikoletti S, Hill A (2001) : Nurses' use of restraints and their attitudes toward restraint use and the elderly in an acute care setting. *Nurs Health Sci* 3: 29-34.
- Sujata,N., andKaur, J.(2015):Knowledge and Practice Regarding Physical Retraining among Nurses Working in Selected Hospitals of Ludhiana, Punjab. *Asian J. Nur. Edu. and Research* 5(2): April-June ; Page242-245
- Taha NM, Ali ZH (2013): Physical Restraints in Critical Care Units: Impact of a Training Program on Nurses' Knowledge and Practice and on Patients' Outcomes. *J Nurs Care* 2:135.