

Effectiveness of Training Program on Nurses' Practices toward use of Physical Restraints for Patients at the intensive Care Unit

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Annotation

Intensive care nurses frequently use physical restraints to control agitated and confused patients and maintain eavesdropping devices such as the ventilator tube, enteral tube feeding, urinary catheter, and IV line, where appropriate nurse practices are required to keep the patient from complications using restraints. This study aims to evaluate how effectively the training program has impacted how critical care unit nurses employ physical restraints. A Quasi-experimental study, and non-probability (purposive) samples were conducted on nurses at ICU from (1 December 2023 to 16 March 2023). The study included (40) nurses, who were distributed to the study and the control group, and only the study group received the program. The practices were evaluated by using the observational checklist. The researcher used the split-half to measure the reliability ($r=0.83$) allowing the nurse practices observational checklist to be reliable. The data was analyzed by using (SPSS version 23). the results there is a significant variation between nurses' practices.; in the study group between the pre-and post-test. Conclusion Nurses' practices have gotten better after attending the training program for the study group, the recommendation there should physical restraint education booklets should ben every hospital division that employs restraints.

Keywords: Effectiveness, training program, practice, patients, physical restraints at ICU.

INTRODUCTION

The unit that provides complete healthcare for a seriously ill person who is believed to be recovered is known as the intensive care unit in order to effectively and safely care for dependent patients with dangerous or possible fatal issues, a critical care unit is uniquely built and equipped an institution staffed by professional staff [1]. Most patients in the intensive treatment unit are unresponsive, lack sensation stimulation, and decreased performance due to disability or any other restriction [2]. So unconscious, they are completely unaware of their surroundings and unable to react when they are stimulated [3]. The learning and instruction of nurses in ways and skills of producing successful results for patients at the ICU is one of the numerous aspects that influence their competence [4]. The intensive care unit (ICU) is a specialized location where patients with life-threatening illnesses receive medical treatment Because nurses play such an important role in critical care units around the world, critical care nurses need to have specific skills in order to provide critically ill patients with an appropriate and perfect level of medical care [5]. Intensive care units often employ equipment to stop disoriented distressed or impaired patients from acting rashly and hurting either themselves or others referred to as physical restraints [6]. Physical restraint may be necessary for around

80% of participants in Patients hospitalized in the critical-care unit who are critically ill (ICU) because of unrest, lack of communication, issues falling asleep, and other psychological issues [7]. Patients who are very ill might notice issues with the skin, limb edemas, constrained blood flow, and lesions where the physical restriction was used Nurses should closely monitor patients and make adjustments as necessary. There are different types of physical restraint devices including hand, wrist, jacket, and leg restraints. Nursing practice plans should include routine modifications to the patient's posture, skin care, and a suitable mobility range. Each hour, nurses should observe the patient's condition. Every two hours, the patient should have their restraints removed. Nurses should also keep an eye out for any behavioral or physical negative effects of restraint [8]. Important of study the average usage of restraints in hospitals and other acute care facilities varies between 15% and 66% in residential care facilities and between 33% and 68% in healthcare facilities in the United States of America. ICU nurses have good opinions toward restraining because the main objective of their use in ICUs is to avoid the removal of healthcare equipment [6]. A study has been carried out in three academic medical centers in Baghdad, the capital of Iraq. It revealed that the nursing staff's practices of physical restraint are insufficient and not correct when applied to critical

patients. This study also discovered that gauze is the most commonly used material in intensive care as a percentage (92%) despite the fact that it is deemed unsafe for patients due to potentially fatal effects, including the limitation of the circulatory system and the resulting risk of skin laceration [9]. The goals of this study are for evaluating how effectively the training program has impacted how critical care unit nurses employ restraints physical, and to identify the relation between the efficiency of a training program and the demographics of nursing staff (age, gender, education level, and years of experience in ICU). The hypothesis of the study: there is going to be significant variation between the pre and post-test practice scores of staff nurses regarding the use of physical restraints at the ICU. There will be a significant variation between the posttest practice scores of staff nurses regarding use of physical restraints at ICU with selected socio-demographic factors.

METHODOLOGY

A Quasi-experimental study was conducted from (the first of December 2022 to the 16th of March 2023). The study setting was conducted at intensive care unit in Al-Nasiriya Teaching Hospital, Thi-Qar governorate/Iraq. Study Sample A purposive sample (non-probability) involving (40 nurses:20 control and 20 study group) working at ICU nurses. Ethical consideration the study respondent gave their written agreement to the nurses after the College of Nursing Council at the University of Baghdad and the Ethical

Research Committee accepted it. Instrument of the study Part I: Nurses' socio-demographic Characteristics data This part is associated with collecting demographic variables from the nursing staff and consists of (six) items including age, gender, educational level, years of active experience at the intensive care unit, participation in a training and education program and sources of a training and education program related to use of physical restraints. Part II: nursing staff Practices Checklist regarding to use of physical restraints at ICU. This part was constructed to evaluate the nursing staff's practices with use of physical restraints at the ICU. The researcher observed and checked for correct apply or wrong apply, where the practices checklist included (5) categories: 1: Evaluating of the patient Before using physical Restraints (2 items), 2: Preparing the patient for physical restraint (6 items), 3: Applying Restraint physical procedure on the patient (5 items), 4: Nursing intervention after applying of physical restraints procedures (5 items). 5: nursing documentation (2 items). Validity and reliability of study instrument A panel of 16 professionals with more than ten years of experience in the field of nursing education. To determine the reliability of study tools, split-half reliability was used. The result showed that practices checklist was reliable, where ($r = 0.83$). Statistical data analysis Descriptive and inferential statistics and SPSS (version 23) were used to analysis the data of the study.

RESULTS

Table (1)

Distribution of the Sample According to Demographic Characteristics

Variables	Classification	Study Group		Control Group		Total	
		F	%	F	%	F	%
Age/years	21	2	10.0	0	0.00	2	5.0
	22	1	5.0	1	5.0	2	5.0
	23	2	10.0	3	15.0	5	12.5
	24	2	10.0	1	5.0	3	7.5
	25	8	40.0	5	25.0	13	32.5
	26	1	5.0	3	15.0	4	10.0
	27	2	10.0	3	15.0	5	12.5
	28	1	5.0	2	10.0	3	7.5
	29	1	5.0	2	10.0	3	7.5

	Total	20	100.0	20	100.0	40	100.0
						25.06±1.919	
Gender	Male	11	55.0	12	60.0	23	57.5
	Female	9	45.0	8	40.0	17	42.5
	Total	20	100.0	20	100.0	40	100.0
	Graduate of Nursing Preparatory School	3	15.0	4	20.0	7	17.5
	Nursing institute graduate	9	45.0	9	45.0	18	45.0
	Bachelor of Nursing graduate	8	40.0	7	35.0	15	37.5
	Higher diploma graduate	0	0.00	0	0.00	0	0.00
	Postgraduate graduate	0	0.00	0	0.00	0	0.00

Variables	Classification	Study Group		Control Group		Total	
		F	%	F	%	F	%
Number of years of active experience at the intensive care unit	1	5	25.0	4	20.0	9	22.5
	2	6	30.0	6	30.0	12	30.0
	3	3	15.0	4	20.0	7	17.5
	4	3	15.0	3	15.0	6	15.0
	5	2	10.0	2	10.0	4	10
	6	1	5.0	1	5.0	2	5.0
	Total	20	100.0	20	100.0	40	100.0
Participated in training or education courses on physical restraints	Yes	0	0.00	0	0.00	0	0.00
	No	20	100.0	20	100.0	40	100.0
	Total	20	100.0	20	100.0	40	100.0
	Total	20	100.0	20	100.0	40	100.0

F=Frequency, %: Percent

The majority of the study group age was the 25-year age range. accounted for 8(40.0%), while the control group within the age of 25 year accounted for 5 (25.0%), So the most of total study sample age group were at age group 25 years accounted for 13 (32.5 %) among all study sample. Relatively to the gender of the study sample males accounted for 11(55.0%) study groups and the control group were female accounting for 12(60.0%) and also within total male accounted for 23 (57.5%) of all study sample. Concerning the level of

education, the most of nursing staff in the study group were graduates of nursing institutions 9(45.0 %), while 9 (45.0%) in the control group were also graduates of nursing institutions, and also within total nursing institutes graduates accounted for 18 (45.0%) of all study sample. So a relative number of years of active experience at the intensive care unit the most of the study groups demonstrated that two years accounted for 6 (30.0%), While the control group was 6 (30.0%) that three years of experience at intensive unit, so

relative to the total study sample had two years accounted for 12 (30.0%). Regarding taking part in training or education courses on physical restraints, this study's findings showed that, in terms of percentage

(100.0%), the majority of the ICU nursing staff had not previously participated in training or education courses on physical restraint.

Table 2

Comparison of Pre and Post Practices between Study Sample (Control and Study Groups) of nurses' Toward Use of Physical Restraints for Patients at Intensive Care Unit.

Periods	group	N	Total mean	S. D
Pre-test Practice	Control	20	1.25	0.083
Post-test Practice	Control	20	1.16	0.062
Pre-test Practice	Study	20	1.23	0.080
Post-test Practice	Study	20	1.80	0.106

N=number of a sample, SD=standard deviation.

The finding reveals that the pre-test practice scores were approximately equal for the control groups ($M = 1.25$ and $M=1.16$) respectively at pre- and post-period, while for pre and post-test practice, study group scores

are higher ($M = 1.80$ versus $M = 1.23$), which means effectiveness of training program on nurses' Practices toward the use of physical restraints for patients at intensive care unit for the Study Group

Table 3

Statistical relationship of the Study Group between the Demographic Variables of Nurses and Effectiveness of Training Program on Nurses' Practices Toward the Use of Physical Restraints for Patients at Intensive Care Unit.

No	Demographic Variables Nurse's Practices	Statistics				
		Mean±S.D.	F	d.f.	P. value	Sig
1	Age	26.25± 1.773	0.225	19	0.988	N. S
2	Gender	2.35±0.671	1.754	19	0.253	N. S
3	Educational Level	2.35±0.671	0.854	19	0.621	N. S
4	Years of Active Experience at Intensive	1.85±0.366	4.340	19	0.014	S

$\bar{x} \pm S.D.$ =Arithmetic Mean (\bar{x}) and Std. Dev. (S.D.), F = Fisher test, d.f. = degree of freedom, P = probability value, NS: Non-Significant at ($P \geq 0.05$), S: Significant at ($P < 0.05$).

The finding reveals their no statistically significant differences between demographic variables (age, gender, and educational level) and a training program, while there are statistically significant differences between demographic variable only (years of active experience at intensive care unit) and effectiveness of training program on nurses' practices toward use of physical restraints for patients at intensive care unit, when analyzed by ANOVA.

DISCUSSION

Regarding the nursing staff's age, the study findings demonstrated that less than half (32.5 %) of the study and control group participants were 25 years old. The finding of the current study agrees with a study which

done in Iraq they found a large portion of the subjects' age range (20–30) was taken into consideration (61.4%) for sample study [10]. With regard to the gender of the nursing staff, the recent study outcomes revealed that percentage of males was more than that of females. The outcomes of the recent study agree with study which done in Iraq they found that (64.0%) of the study sample were males [11]. Concerning the level of education received of the nursing staff, outcomes of the recent study demonstrated that nearly all of the study sample of respondents are Nursing institute graduates with a percentage of less than half, (45.0 %). The outcomes of the recent study agree with a study which done in Iraq they found (46.7%) of the study sample, respectively, graduated from nursing

institutes [12]. In terms of the Number of years of active experience at the intensive unit, the outcomes of the current study showed that the majority of the nursing staff for two years of experience, with a rate of (30.0 %). The outcomes of the recent study agree with a study which done in Iraq they found that (70.0%) of study sample were had 1-5 years from expertise at ICU [13]. In regard to participation in training or education programs, the current study shows all nursing staff does not have any program about physical restraints at ICU as rate 100%. The outcomes of the recent study agrees with a study which done in Iraq they found all nursing staff do not have any training course as rate 100%[14]. Regarding nursing staff practices, the finding reveals that the pre-test practice scores were approximately equal for the control groups ($M = 1.25$ and $M=1.16$) respectively at pre and post-period, while for pre and post-test practice, study group scores are higher ($M = 1.80$ versus $M = 1.23$), which means the effectiveness of a training program on nurses' Practices toward the use of physical restraints for patients at intensive care unit for the Study Group. The outcomes of the recent study agree with a study which done in Egypt they found the nurses' performance has improved from their pre-test scores to their immediately post-test scores when compared to their pre-test scores with (M.S for pre-test equal 1.12, M.S for immediately-test equal 1.82, and M.S for follow up -test equal 1.78) [15]. Regarding the relationship between the effectiveness of a training program on nurses' practices and demographic characteristics the outcomes of the present study there were no statistically significant differences between demographic variables (age, gender, and educational level) and a training program, while there are statistically significant differences between demographic variable only (years of active experience at intensive care unit) and training program on nurses' practices toward use of physical restraints for patients at intensive care unit. The researcher also explained these results due to years of experience in intensive care units improving nurses' practices due to an increase in follow-up cases and how to approach them. Additionally, as nurses gain more experience and information from the program, they become more qualified.

CONCLUSIONS

nurses' practices regarding the use of physical restraints at intensive care unit have improved, demonstrating the designed program's efficacy on nurses' practices.

RECOMMENDATIONS

- 1-Written standardized protocols and policies for physical restraints should be prepared for the intensive care unit to improve the nurse's practices regarding restraints procedure at Thi-Qar, Iraq.
- 2-physical restraint educational booklets are readily available in each hospital area that uses physical restraints.

LIST OF REFERENCES

1. Abed HM, Khadim HY. Evaluation of Nurses' Practices toward the Control of Patients' Complications at the Respiratory Care Unit in Baghdad Teaching Hospitals. *Iraqi National Journal of Nursing Specialties*. 2014;1(27):47–58.
2. Abbas NK, Mohammed WK. Nurses' Knowledge Toward Care of Unconscious Adult Patients at Teaching Hospitals in Al-Hilla City. *Iraqi National Journal of Nursing Specialties*. 2019;32(1):90-102.
3. Hattab WAA, Mohammad WK. Nurse's Practices toward Nursing Intervention of Diagnostic Procedures at Neuro Surgical Hospitals in Baghdad City. *Indian Journal of Forensic Medicine & Toxicology*. 2020;14(3):1508-14.
4. Hassan HB, Abbas S, Abdul-Wahab MM. Nurse's Knowledge Toward Cardio-Pulmonary Resuscitation at the critical care unit in Baghdad City. *Journal of Nursing & Health Science*. 2015; 4(4):71-74.
5. Waheed NH, Abdulwahhab MM. Nurses' Knowledge and Practices concerning Physiotherapy Protocol at Intensive Care Units in AL-Nasiriyah City. *Iraqi National Journal of Nursing Specialties*. 2022;35(1):102-109.
6. Kasew T, Dejen Tilahun A, Liyew B. Nurses' knowledge, attitude, and influencing factors regarding physical restraint use in the intensive care unit: A multicenter cross-sectional study. *Journal of Critical Care Research & Practices*. 2020;1-10.
7. Zulian LR, Mori S, Teraoka EC, Miyawaki VYK, Zaneis SSV, Whitaker IY. Factors associated with the use of physical restraint in intensive care patients. *Journal of Revista da Escola de Enfermagem da USP*. 2020;54.
8. Suliman M. Prevalence of physical restraint among ventilated intensive care unit patients. *Journal of Clinical Nursing*. 2018;27(19–20):3490–6.
9. Mohammed SS, Ali MHI. Nurses Practice to Physical Restraint Practices in ICU Units at Three

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- Teaching Hospitals in Baghdad. Kufa Journal of Nursing Sciences. 2015;5(1):1-9.
10. Baiez YK, Mohammad WK. Evaluation of Nursing Staff Performance in Cardiac Care Units at Teaching and Non-Teaching Hospitals in Kirkuk City: A Comparative Study. Iraqi National Journal of Nursing Specialties. 2015;28(1):77-85.
 11. HadiAtiyah H, Abdul-Wahhab MM, AL-Fayyadh S. Nurses' Knowledge toward Essential Care for Adult Patients Undergoing Mechanical Ventilation at Critical Care Unit in Baghdad City. Journal of Nursing & Health Science. 2016;4(8):72-76.
 12. Jaafar SA, Al-Jubouri MB, Alfatlawee DM. Nurses' Knowledge Based on Evidence-Based Practice toward Eye Care for Intensive Care Units Patients. Indian Journal of Forensic Medicine & Toxicology. 2020;14(3):1314-8.
 13. Dahi SJ, Ahmed SA. Effectiveness of an Educational Program on Nurse's Knowledge & Practices Toward Uses of Defibrillation Cardioversion Shock at Critical Care Unit in Imam Al-Hussein Teaching Hospital. International Journal of Psychosocial Rehabilitation. 2020; 24(9): 3312-3320.
 14. Faris HI, Hassan HB. Evaluation of nurses' practices concerning sterile techniques critical care units in Al-Najaf AL-Ashraff city hospitals. International Journal of Scientific & Research Publications. 2016;6(6):664-700.
 15. Younis GA, Sayed Ahmed SE. Physical Restraint and Maintenance of critically ill patient's Safety in Intensive Care Unit: Effect of Clinical practice guidelines on Nurse's Practice & Attitude. Journal of Nursing & Health Science. 2017;6(4):6-2