



## Effectiveness of Education Program on Nurses' Knowledge about the Use of Physical Restraints for Patients in Intensive Care Unit

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### ABSTRACT

**Objective(s):** Evaluation of effectiveness of the education program on nurses' knowledge about the use of physical restraints for patients at intensive care unit.

**Methods:** A quasi-experimental study was conducted on a purposive (non-probability) sample of 40 male and female nurses working at intensive care unit in Al-Nasiriyah teaching hospital from the seventh day of January 2023 to the eighth day of February 2023. An education program was prepared and presented to the nurses and a questionnaire of knowledge was constructed and used to evaluate their knowledge at the pre-and post-test of implementation of the program. The study instrument and education program were presented to 11 experts for the purpose of verifying from validity, as for the reliability of the instrument, it was done through the use of a test-retest method, where the result was = 89. Data was analyzed using SPSS VERSION 23.

**Results:** The study results showed there are statistically significant differences between the pre-and post-test for the study group at  $P < 0.05$ .

**Conclusion:** The study concluded that the education program on nurses' knowledge was effective on study group through improving their knowledge.

**Recommendation:** The study recommend that the current education program should be provided to all nurses in the intensive care unit because of its utmost importance in improving the knowledge of nurses.

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## فاعلية البرنامج التعليمي في معارف الممرضين حول استخدام القيود الجسدية للمرضى في وحدة العناية الفائقة

### المستخلص

**الهدف:** تقويم فاعلية البرنامج التعليمي في معارف الممرضين حول استخدام القيود الجسدية للمرضى في وحدة العناية الفائقة. **المنهجية:** أجريت دراسة شبه تجريبية على عينة هادفة (غير احتمالية) من ٤٠ ممرض وممرضة يعملون في وحدة العناية الفائقة في مستشفى الناصرية التعليمي من تاريخ اليوم السابع من شهر كانون الثاني لسنة ٢٠٢٣ الى اليوم الثامن من شهر شباط لسنة ٢٠٢٣. تم إعداد برنامج تعليمي وتقديمه إلى الممرضين وتم إنشاء استبيان للمعرفة واستخدامه لتقويم معارفهم في الاختبار القبلي والبعدي لتنفيذ البرنامج. عرض أداة الدراسة والبرنامج التعليمي على 11 خبيراً لغرض التحقق من المصادقية وإماتات الأداة تم من خلال استخدام طريقة الاختبار- وإعادة الاختبار حيث كانت النتيجة تساوي ٨٩. تم تحليل البيانات من خلال استخدام الحقيبة الاحصائية نسخة ٢٣.

**النتائج:** أظهرت نتائج الدراسة وجود فروق ذات دلالة إحصائية بين الاختبار القبلي والبعدي لمجموعة الدراسة عند  $P < 0.05$ . **الاستنتاجات:** خلصت الدراسة ان البرنامج التعليمي في معارف الممرضين كان فعالاً على مجموعة الدراسة من خلال تحسن في معارفهم.

**التوصيات:** أوصت الدراسة ان البرنامج التعليمي الحالي يجب ان يزود الى جميع الممرضين في وحدة العناية المركزة لما له من أهمية قصوى في تحسين معارف الممرضين. **الكلمات المفتاحية:** فاعلية، البرنامج التعليمي، معارف الممرضين، القيود الجسدية.

### Introduction

The unit that provides complete healthcare for critical ill patients is known as the intensive care unit (ICU) this unit is considered a unique department and it is equipped with professional nursing staff in order to effectively and safely care for patients with dangerous or possible fatal issues, these may have sudden and severe impairment of an organ, such as the liver, lungs, or kidneys, and more probably these need to be admitted ICU<sup>(1)</sup>.

The majority of patients in this unit are unaware, have a poor perception of their surroundings, lack sensory integration, and have no capacity to perform or move bodily due to serious impairment brought on by a disease or the presence of other restrictions that limit their physical and sensory activity<sup>(2)</sup>.

ICUs are stressful department in hospitals where patients encounter disturbed sleep-wake patterns, a lack of contact with family and friends, and several clinical procedures that put them through various degrees of physical and emotional pain<sup>(3)</sup>.

Lack of knowledge may reflect incorrect and inappropriate nursing care for patients there are many factors that improve

knowledge, The most important of them is education<sup>(4)</sup>.

The knowledge of the nursing staff must be sufficient and keep pace with the development in nursing, as the more knowledge the result of nursing care is at the highest and best levels<sup>(5)</sup>.

physical restraints any object that restricts a person's ability to move or prohibits regular access to their body and there are many type of physical restraints including lap belts, chairs with lap trays, certain sorts of jackets, and enclosed walkers<sup>(6)</sup>.

The majority of critically ill patients are given treatment through intravenous lines, and other necessary devices such as mechanical ventilation, where these patients are more disturbed or involuntary movement and thus hinder the treatment process or this harm themselves or nursing staff, are the reasons for using physical restraints<sup>(7)</sup>. Complications of physical restraints include (physical, psychological, and physiological)<sup>(8)</sup>.

In Iraq, physical restraint is a more conventional practice in ICU and there are no available guidelines or hospital policies concerning using of physical restraint

according to a study conducted at three teaching hospitals in Baghdad, Iraq <sup>(9)</sup>.

The responsible nurse has a huge responsibility when caring for a restrained patient. Therefore, the nurse must have sufficient knowledge about the concept of physical restraints, their types, alternatives, complications, and reasons for their use <sup>(10)</sup>.

The current study aims to determine the effectiveness of the education program on nurses' knowledge about the use of physical restraints for patients at the intensive care unit and to find out the relationship between the effectiveness of education program on nurses' knowledge and their demographic characteristics.

## Method

### Study Design

A Quasi-experimental study was conducted to evaluate the effectiveness of education program on Nurses' Knowledge about the Use of Physical Restraints for Patients in Intensive Care Unit.

### Sample and Sampling

A purposive sample (non-probability) of a total sample size of 40 nurses (20 study group and 20 control group) was chosen by the researcher.

### Study Setting

The study was conducted at the Al-Nasiriya Teaching Hospital in Thi-Qar.

### Data Collection and Study Instrument

The data collection procedure was started from seventh day of January 2023 to

eight day of feburay 2023 to meet the study objectives. The education program and study instrument were constructed from reviewing literature<sup>(11)</sup>.The study instrument composed from two part: the first part include nurses' demographic characteristics of age, gender, educational level, number of years of experience at the intensive care unit, participation in education program, and sources of education program), and questionnaire evaluated nurses' knowledge included (15) close-ended questions (the definition of restraints, their types, reasons, alternatives, contraindication, complication, and some questions related to ethical considerations). The study instrument is of two-level dichotomy scale for correct answers, scored as (2) grades, and for incorrect answers, scored as (1) grade. The study instrument and education program were presented to 11 experts for the purpose of validity. The pilot study was carried out on 10 nurses to determine the reliability, where the result was =89.

### Ethical Consideration

The approval from the Council of the College of Nursing/University of Baghdad, the Scientific Research Ethics Committee was obtained for the implementation of the study and consent has been obtained from nurses to participate in the study.

### Data Analysis

Data was analyzed using SPSS VERSION 23 and using descriptive and inferential data analytical methods.

## Results

**Table 1.** Distribution of Nurses According to their Demographic Characteristics.

The 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
<b>Gender</b>	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
<b>Educational Level</b>	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
	Total	20	100.0	20	100.0	40	100.0
<b>Continue Table (1) .....</b>							

<b>Variables</b>	<b>Classification</b>	<b>Study Group</b>		<b>Control Group</b>		<b>Total</b>	
		<b>F</b>	<b>%</b>	<b>F</b>	<b>%</b>	<b>F</b>	<b>%</b>
Number of years of 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 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

F=Frequency, %= Percent.

Most of the study and control group age was 25-year age old as accounted for 13(32.5 %) among all study sample. With regard to the gender of the study sample, most of the sample was males, at a rate of 23 (57.5%) of the total study sample. In regards to a level of education most of the nursing staff in the study and control group were nursing institute graduates as accounting for 18 (45.0%) of all study sample. With regard to the number of years of experience in the intensive care unit, the results of the study showed that both study and control group had two years of experience, which constituted 12 (30.0%) of the total study sample. The study results showed that majority of nurses haven't participated in physical restraints education courses as accounted 40 (100.0%).

**Table 2.** Effectiveness of Education Program on Nurses' Knowledge about The Use of Physical Restraints for Patients at Intensive Care Unit.

Periods	Group	Total M and S.D.	n	T. test	P. value	Sig.
Pre-test knowledge	control	1.2500±0.0830	20	1.496	0.151	N.S
Post-test knowledge	control	1.2300±0.0810	20			
Pre-test knowledge	study	1.1133±0.0867	20	26.526	0.000	S
Post-test knowledge	study	1.9000±0.0700	20			

M= Mean; SD= Standard Deviation. T=t test, n=number, S= Significant at (P< 0.05). NS= Non-Significant at (P≥ 0.05).

There were no a statistically significant differences between the pre-and post-tests for control group at P≥ 0.05, while there are a statistically significant differences between the pre-and post-tests for the study group at P < 0.05, which proven the education program was effective in improving the study group nurses' knowledge about the use of physical restraints for intensive care unit patients.

**Table 3.** Statistical Differences in Relationship between Demographic Characteristics of Nurses and the effectiveness of education Program on Nurses' Knowledge about The Use of Physical Restraints for Patients at Intensive Care Unit for study group in post-test

No	Demographic Characteristics	The Statistics				
		Mean and S.D.	F	df	P. value	Sig
1	Age	26.25± 1.773	2.652	19	0.074	N. S
2	Gender	2.35±0.671	0.614	19	0.659	N. S
3	Educational Level	2.35±0.671	3.844	19	0.024	S
4	Number of years of experience at the intensive care unit.	1.85±0.366	1.199	19	0.352	N. S

M= Mean; SD= Standard Deviation, P value= probability, F=fisher test, S= Significant at (P< 0.05). NS: Non-Significant at (P≥ 0.05).

There were no statistically significant differences exist between the demographic characteristics of nurses' age, gender, and number of years of experience at intensive care unit and educational program on nurses' knowledge, but there were statistically significant differences only between demographic characteristics of nurses' educational level and educational program on nurses' knowledge about the use of physical restraints for patients at an intensive care unit for study group in post-test, when analyzed by ANOVA.

## Discussion

Regarding the nursing staff age, the study results demonstrated that less than half (32.5 %) of the study and control group was within the age of 25 years old. The results of the present study were agreement with a previous study conducted in Iraq, which found that majority of nurses age working in the intensive care unit ranged between 20 and 29 years old<sup>(12)</sup>. The results of present study showed that males were dominant in both study and control group.

The results of the present study agree with the results of a study conducted in Iraq, where it showed that most of the nursing staff were males (63.3%) among all of the study sample<sup>(13)</sup>.

With regard to the educational level, less than half of the nurses hold a diploma in nursing (45%) among all of the study sample. The results of the present study agree with a previous study which is done in Iraq they found most of the study sample was had Diploma degree in nursing<sup>(14)</sup>.

The results of this study revealed that most of nurses have two years' experience in the intensive care unit (30%). The results of the present study are consistent with a study conducted in Iraq that found that (52%) of the nurses had three years of experience in the intensive care unit<sup>(15)</sup>.

With regard to participation in the educational program, the results of the present study showed that all nursing staff do not have any program on the use of physical restraints in the intensive care unit at 100%. The results of this study are consistent with the results of a previous study conducted in Iraq, which showed that majority of the study sample (80%) did not have educational courses<sup>(16)</sup>. Regarding nursing staff knowledge, the results of present study showed statistically significant differences between the pre- and post-tests for the study

group at ( $P < 0.05$ ), while the study showed no statistically significant differences between the pre- and post-tests for the control group at ( $P \geq 0.05$ ), which indicating that education program was effective on nurses' knowledge. The results of present study were supported by study conducted in Jordan, which showed a significant differences between the pre-test and post-test scores for the experimental group at ( $P < 0.05$ ), while showed no significant differences between the pre-test and post-test scores for control group at ( $p \geq 0.05$ )<sup>(17)</sup>.

Regarding the relationship between effectiveness of education program on nurses knowledge for study group and demographic characteristics of nurses the results of the present study revealed there was statically significant differences between level of education and effectiveness of education program on nurses knowledge at ( $P < 0.05$ ), while there was no statically significant differences between age, gender, and number of years of experience at the intensive care unit and effectiveness of education program on nurses knowledge about the use of physical restraints for patient at intensive care unit. The results of the present study were supported by study conducted in Egyptian showed there was statistical differences between knowledge and educational attainment<sup>(18)</sup>.

Another study conducted in Iraq showed there was no statistically differences between nurses knowledge and age, gender and years of experience, which supported the results of the present study<sup>(19)</sup>.

The researcher interpreted the results of present study that the statistically significant difference between the groups is not due to chance, but rather a real difference according to level of education of nursing staff.

## Conclusion

The study concluded that the education program on nurses' knowledge was effective on study group through improving their knowledge.

## Recommendations

- 1-The study recommend that the current education program should be provided to all nurses who working in the intensive care unit because of its utmost importance in improving the knowledge of nurses.
- 2-physical restraint educational booklet should be readily available in each hospital department that uses physical restraints especially at intensive care unit.

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