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Evaluation of Nurses' Knowledge and Performance toward Physical Restraint at Critical Care Units

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Abstract:

Objective: The study was done to evaluate nurses' knowledge and performance toward physical restraint at critical care units.

Methodology: A quantitative, descriptive design was carried out on nurses who work at critical care unit in Baquba Teaching Hospital-Iraq for period from 27 April 2022 to 1 August 2022. A non-probability (convenience) sample of (50) nurses was selected for the purpose of the study. A questionnaire was used to collect data on knowledge about physical restraint use, and data on their performance of physical restraint were observed and documented using an observation checklist. Content validity of the questionnaire and checklist are determined through a panel of 10 experts. Internal consistency and test-retest reliability is obtained through pilot study. Data are collected through the use of the questionnaire and analyzed through the application of descriptive and inferential statistical approaches which are applied by using SPSS version 22.

Results: The result of this research showed that 90% of nurses had poor knowledge about physical restraint, and 80 % of the nurses had inadequate performance about physical restraint in critical care units.

Conclusion: Nurses' knowledge and performance about physical restraint was poor and inadequate about physical restraint in critical care units.

Recommendation: The study recommended development and formulation specific education program about physical restraints in critical care unit.

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تقويم معارف واداء الممرضين تجاه التقييد الجسدي في وحدات الرعاية الحرجة

المستخلص:

الاهداف: أجريت الدراسة لتقويم معارف واداء الممرضين تجاه التقييد الجسدي في وحدة العناية الحرجة

منهجية البحث: دراسة وصفية اجريت على الممرضين العاملين في وحدة العناية الحرجة في مستشفى بعقوبة التعليمي - العراق للفترة من ٢٧ نيسان ٢٠٢٢ إلى ١ ايلول ٢٠٢٢. وقد تضمنت العينة الغير احتمالية (الملائمة) للحصول على اهداف الدراسة وبلغت عينة الدراسة (٥٠) ممرضاً شاركوا في الدراسة. تم استخدام الاستبيان لجمع المعلومات حول استخدام التقييد الجسدي، ولوحظت بيانات عن أدائهم للقيود الجسدية وتم توثيقها باستخدام استمارة تقويم الاداء. تم تحديد صلاحية محتوى الاستبيان واستمارة تقويم الاداء من خلال عشرة خبراء. تم الحصول على ثباتيه الاداة من خلال التناسق الداخلي وموثوقية الاختبار-إعادة الاختبار من خلال الدراسة التجريبية. تم جمع البيانات من خلال استخدام الاستبيان وتحليلها من خلال تطبيق المناهج الإحصائية الوصفية والاستنتاجية التي يتم تطبيقها باستخدام الإصدار ٢٢ من برنامج الحزمة الإحصائية للعلوم الاجتماعية (SPSS) .

النتائج :أظهرت نتيجة هذا البحث أن ٩٠٪ من الممرضين لديهم معارف قليلة حول التقييد الجسدي، وأن ٨٠٪ من المشاركين كان أداءهم غير كافي حول المقيدات الجسدية في وحدات الرعاية الحرجة.

الاستنتاجات: كانت معارف الممرضين وأدائهم حول المقيدات الجسدية ضعيفة وغير كافية.

التوصيات: اوصت الدراسة بوضع برامج تعليمية حول المقيدات الجسدية في وحدات الرعاية الحرجة.

الكلمات المفتاحية: المعارف الأداء، التقييد الجسدي ,وحدات الرعاية الحرجة.

Introduction

The likelihood that a patient would be extremely vulnerable, unstable, and complex increases with the severity of their illness, necessitating intensive and watchful nursing care [1].

Physical restraint refers to the act of restricting an individual's movement and limiting their access to their body through the use of external means that are either attached to or in close proximity to their body, and which the individual is unable to easily control or remove [2].

The utilization of physical restraint is a prevalent practice in contemporary medical facilities, specifically within the confines of intensive care units. Patients frequently encounter anxiety and restlessness due to the unfamiliarity of the treatment environment, the pain associated with the disease, and the unconventional nature of the treatment. As a result, they may inadvertently dislodge crucial life support tubes, including the tracheal intubation, central venous catheter (CVC), and other drainage tubes [3].

Nurses in critical care units frequently restrain patients physically during nursing procedures to temporarily restrict their activities in order to maintain patient safety and the efficient delivery of care, making this practice more prevalent than it is in general hospital departments [4].

Applying physical restriction to severely sick patients is a difficult choice that is influenced by the patient's personality, the practitioner, and the surrounding circumstances. Numerous restraints, including wrist restraints, mitts, elbow immobilizers, harnesses, vests, leg restraints, and bedside bars, can be used [5].

Mohammed and Ali reported in the study about nurses practice to physical restraint in ICU at Three Teaching Hospitals in Baghdad, perceptions and knowledge of nurses play an important role on the selection of the restraining method [6].

Critical care nurses, who are decision-makers about the implementation of PR in the critical units, reported a lack of clinical practice guidelines) regarding physical restraint, which resulted in the inconsistent use of restraints [7].

In addition, studies have found that the lack of a local restraint-related CPG was associated with limited knowledge and unsafe practices [8].

Nurses perform the most important role among medical professionals in every hospital. A critical patient is treated in the critical care unit, a specialized area. Critical care nurses must possess specialized expertise in order to offer critically ill patients with safe and effective treatment, since they play a significant role in critical care units around the world [9].

The aim of present study was to evaluate nurses' knowledge and performance about physical restraint in critical care unit.

Methodology

A quantitative (descriptive design) study design was used in this research to accomplish objectives of the study during the period from 27 April 2022 to 1 August 2022.

This study was carried out in the Baqubah Teaching Hospital, which is a large public teaching hospital in Diyala Governorate, Iraq.

Sampling of this study is a nonprobability (convenient) sampling method. The minimum sample size is 50 according to the population of 62 nursing staff.

Following the report's acceptance by the Council of Nursing, University of Baghdad, a concise protocol to the Ministry of Planning and the Central Statistical Organization was sent to obtain formal approval for conducting the study. Later, the Baquba Teaching Hospital received the permission, then received the consent of the nurses' representatives through the informed consent.

To evaluate nurses' knowledge and performance toward physical restraint in critical care units, the study tool was utilized to collect data, it consist of three parts:

Part One: Demographic and professional characteristics gained from the nurses from interview questionnaire sheet such as (age, gender, nurses' qualification, years of experience in the nursing, years of experience at the critical care units).

Part two: The knowledge parts of the questionnaire were initially developed by Janelli in the U.S.A for nursing homes; in 2006 they were adopted for all hospital units by the original developers. The knowledge section of the questionnaire consisted of 20 items. A three- level ordinal scale (I know, Uncertain and I don't know) was applied to determine nurses' responses to the items. The responses for knowledge questions are scored and rated on three levels scale; (3) points for correct choice, (2) point for uncertain choice and (1) incorrect choice

Part three: performance checklist developed to evaluate the nurse's practices to physical restraint, then observes and checks for correct or incorrect performance. The response performance checklist (2) points for done correctly and completely, (1) points for done correctly but incompletely and (0) not done or done incorrectly, it is composed of (82) items divided into six content domains.

First domain: (19) items related to Environmental Modifications and Alternatives Before Physical Restraint

Second domain: (3) items related to Monitor Altered Level of Consciousness and Delirium.

Third domain: (48) items related to Restraint Phase.

Fourth domain: (10) items related to Prevent Complication of Physical Restraint.

Fifth domain: (4) items related to After Restraint

Validity of the tool was done by a group of experts (10) to check the relevancy, clarity, comprehensiveness, and applicability of the questions.

Internal consistency reliability was done to ensure the stability of the knowledge questionnaire was 0.94. The calculated Pearson's correlation coefficient for test-retest reliability between time 1 and time 2 of evaluation of the performance score was 0.87, which means that the study instrument is reliable in measuring the study phenomenon at any time in the future.

Those nurses who were willing to participate in the study completed a consent form. Demographic data form was filled by each nurse at critical care. Knowledge part answered by nurses then observe performance by checklist.

The data was analyzed using the Statistical Package of Social Sciences (SPSS), version 22, used for both descriptive and inferential methods of data analysis to analyze the findings.

Results:

Table 1. Nurses' Sociodemographic Characteristics (N = 50)

Characteristics	F	%
Age M±SD= 28. 22±6. 10 Total	 50	 100
Gender		
Male	34	68
Female	16	32
Total	50	100
Nurses' Qualification		
Preparatory	6	12
Diploma	10	20
Bachelor	34	68
Total	50	100
Years of Experience in The Nursing		
Individuals with fewer than five years of professional experience.	30	60
Individuals with more than five years of professional experience.	20	40
Total	50	100
Years of Experience at Critical Care Units		
Individuals with fewer than five years of professional experience.	35	70
Individuals with fewer than five years of professional experience.	15	30
Total	50	100

N= sample size, **M±SD**= mean ± standard deviation

The findings in Table 1 presented the distribution of the study sample according to their demographic characteristics. Results in this table revealed that (28.22 years) mean age of study sample. Males were constituted the higher percentage (68%) of the study sample, and the remaining

were females. Nurses' qualification among nurses presented (68%) were Bachelor, followed by (20%) of them Diploma, and only (12%) of them were prepared. Years of experience in the nursing showed (60 %) of them were working through the range of years less than 5 years in the hospital, also 40 % of nurses have more than 5 years of experience. The study presented that 70% of nurses have less than 5 years' experience at critical care units and 30% have more than 5 years' experience.

Table 2. Evaluation of Nurses' Knowledge Toward Physical Restraint in Critical Care Units

No.	Items	M.s	SD	Evaluation
1	Physical restraint refers to the utilization of a vest or safety attire as a means of preventing injuries. (R)	1.5	0.6	L
2	The use of physical restraint is permissible solely for the purpose of safeguarding patients or other individuals from harm. (T)	1.60	0.7	L
3	The use of physical restraint may be necessary in situations where a nurse is unable to provide constant and close supervision of a patient. (T)	2.13	0.9	M
4	Physical restraint is often considered as the initial approach to impede self-removal of an endotracheal tube. (F)	1.77	0.6	M
5	Patients possess the right to decline the use of restraints. (T)	1.50	0.6	L
6	It is within the rights of families to decline the implementation of physical restraint. (F)	1.37	0.6	L
7	Physical restraint may be considered appropriate in situations where an individual experiences confusion or disorientation. (F)	1.63	0.8	L
8	The administration of physical restraint necessitates a medical prescription. (T)	1.77	0.6	M
9	Physical restraint is frequently employed as a means of managing hyperactive delirium. (F)	1.57	0.7	L
10	The occurrence of complications associated with physical restraint should be assessed every 6h (F)	1.37	0.6	L
11	The use of physical restraint is associated with the development of post-traumatic stress after discharge (T)	1.37	0.6	L
12	The need to remove physical restraint must be assessed every 8h (T)	1.50	0.7	L
13	Patients are not to be restrained while lying down facing up on the bed for fear of spluttering choking. (T)	1.60	0.7	L
14	Fatalities have been associated with the utilization of physical restraints in vests. (T)	1.37	0.6	L
15	It is recommended that restraints be securely fastened to ensure that there is no gap between the restraint and the patient's skin. (F)	1.37	0.6	L
16	Restraining a patient while in a supine position is not recommended due to the potential risk of asphyxiation. (T)	1.5	0.6	L

17	The use of restraints on a patient may result in skin breakdown or heightened restlessness. (T)	2.0	0.7	M
18	It is not advisable to attach the restraint to the side rails when a patient is confined to a bed. (F)	1.37	0.6	L
19	It is imperative to maintain a record for each shift regarding patients who are restrained. (T)	1.5	0.6	L
20	In situations of urgency, a nurse is authorized to apply physical restraints on a patient without the requirement of a physician's prescription. (T)	2.13	0.5	M
	Total	1.54	0.7	L

M.s= mean of score, **SD**= stander deviation, **Ass.**= Assessment; **H**= High (2.34 – 3.0); **M**= Moderate (1.67 – 2.33); **L**= Low (1 – 1.66)

The finding of table (2) showed that most of the items was with low mean of score.

Table 3. Evaluation Overall Nursers' Knowledge toward Physical Restraint in Critical Care Units

Overall Nursers' Knowledge toward Physical Restraint		**Freq.**	**%**	**GMS**	**S.D.**	**Evaluation**
	Poor	45	90	1.60	0.432	Low
	Fair	5	10			
	Good	0	0			

M.s= mean of score, **SD**= stander deviation **H**= High (2.34 – 3.0); **M**= Moderate (1.67 – 2.33); **L**= Low (1 – 1.66).

This table show that the majority of the nurses have poor knowledge about physical restraint at critical care units.

Table4. Evaluation of Nurses' Performance related to Physical Restraint in Critical Care Units

Performance Related to	**Weighted**	**F**	**%**	**M.s ± SD**
Promoting Rest and Sleep for the Critically Ill Patient	Inadequate	28	56	1.02± 0.069
	Fair	16	32	
	Adequate	6	12	
	Total	50	100	
Monitor Altered Level of Consciousness and Delirium	Inadequate	39	88.0	1.2 ± 0.3.3
	Fair	11	12.0	
	Adequate	0	0.0	
	Total	50	100	
Environmental Modifications Before Physical Restraint by nurses	Inadequate	41	82	1.10± 305
	Fair	8	16	
	Adequate	1	2	
	Total	50	100	
Restraint Phase	Inadequate	46	92	1.06± 0.254
	Fair	4	8	
	Adequate	0	0	
	Tota1	50	100	
Assess and Prevent Complication of Physical	Inadequate	37	74	1.23± 0.430
	Fair	11	22	

Restraint	Adequate	2	4	
	Tota1	50	100	
Termination Restraint Phase	Inadequate	44	88	1.13± 0.346
	Fair	6	12	
	Adequate	0	0	
	Tota1	50	100	

F= frequency, **%**= percentage, **M.s**= Mean of score, **SD**= Standard Deviation (Inadequate = 1-1.33; Fair= 1.34-1.66; Adequate= 1.67-2), **S**= significant, **t**= t-test, **df**= degree of freedom

The finding of table 3 showed that total mean of score of participants' answers were MS=1.8 inadequate performance of physical restraint in critical care units.

Table 5: Evaluation Overall Nursers' Performance toward Physical Restraint in Critical Care Units

Overall Nursers' performance toward Physical Restraint		**Freq.**	**%**	**GMS**	**S.D.**	**Evaluation**
	Inadequate	40	80	1.12	0.346	Inadequate
	Fair	9	18			
	Adequate	1	2			

GMS= Grand Mean Score, **SD**= Standard Deviation (Inadequate = 1-1.33; Fair= 1.34-1.66; Adequate=1.67-2).

This table show that most of the nurses have inadequate performance regarding physical restraint in critical care unit.

Discussion:

The study sample revealed mean age 28.22 years old. This finding was consistent with the study found that ages of 28.89 years [(10)], the presence of a large proportion of nurses whose age is less than 30 years as a result of the hospital administration's endeavor to provide a young group capable of bearing the pressures and workloads in critical care units. Another reason is the large number of appointments that occurred on the staff of the Ministry of Health according to conversation that has took place between the researcher and the health care providers in the hospital.

In the current study, male nurses were 68 percent of the participants, with 32 females accounting for the remaining participants. in contrast to a study in Guilan University of Medical showed all 179 (92.7%) of the nurses surveyed were female, and their work in intensive care units was studied to assess their expertise, attitude, and performance in the application of physical restraint of patients and related factors [(11)].

The nurses' qualifications among nursers in this research were bachelor (68%), followed by 20% of them diploma, (12%) of them were Preparatory and only (0 %) postgraduate certifiable. The study result supported with the study that show the majority of nurses (51.7) holding a bachelor degree [(12)].

About years of experience among nurses showed 60% were less than 5 years of experience and 40 % of them were more than 5 years of experience. Similarly, a study conducted to assess nurses in critical ill patients found as a result, overall, the survey group had a median career experience less than 5 years in their current job [(13)].

Years of experiences at critical care units in this study showed the distribution of among nurses the finding revealed that more than half 70% had less than 5 years and other 30% had more than 5 years. This finding similar to study reported that from 36 samples (60.0%) were had 1-5 years experiences and (40.0%) were had more than 5 years at critical care units [14].

Study showed that low level of knowledge in most items scale about physical restraints, according to the score of physical restraint knowledge scale similar to the results of study conducted by Awad, this study was conducted in the three ICUs affiliated to Mansoura Emergency Hospital to evaluate the effect of a designed physical restraint protocol on critical care nurses' knowledge and practices ,showed improvement in general level of knowledge of participants regarding PR after implementation of the protocol (100%) from protocol implementation with statistically significant differences, the age of the participants, the high academic achievement (Bachelor) and their desire to learn and learn about a topic that is not frequently discussed in the curricula or in training courses are all factors that helped in their success in implementing the program and improving their knowledge.

The study result shows that high percentage of nurses at critical care unit had inadequate performance related to promoting rest and sleep for the critically ill patient, monitor altered level of consciousness and delirium, environmental modifications before physical restraint by nurses, restraint phase, assess and prevent complication of physical restraint & termination restraint phase at the pre-test period of measurement before application of instructional program.

The findings showed that before implementing clinical standards, the nurses' overall mean practice score was subpar. Nurses cited a lack of physicians' orders, a lack of cooperation between clinicians and nurses, and doctors' ignorance of their involvement in the decision to restrain patients as reasons for the subpar quality of their physical restraints practice [15].

Conclusion:

The study concluded that the nurse's knowledge about physical restraint in critical care units is poor and inadequate performance toward physical restraint in critical care unit

Recommendations:

The study recommends for the formulation of specific education program for nurses about physical restraints in critical care unit.

References:

1. Kadhim H. 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 Jun 30;27(1):47-58. iasj.net/iasj/download/6652fae48841975a
2. Bleijlevens MH, Wagner LM, Capezuti E, Hamers JP, International Physical Restraint Workgroup. Physical restraints: consensus of a research definition using a modified delphi technique. *Journal of the American Geriatrics Society*. 2016 Nov;64(11):2307-10. https://doi.org/10.1111/jgs.14435
3. Gu T, Wang X, Deng N, Weng W. Investigating influencing factors of physical restraint use in China intensive care units: a prospective, cross-sectional, observational study. *Australian critical care*. 2019 May 1;32(3):193-8. https://doi.org/10.1016/j.aucc.2018.05.002
4. Kaya H, Dogu O. Intensive care unit nurses' knowledge, attitudes and practices related to using physical

restraints. *International Journal of Caring Sciences.* 2018 Jan 1;11(1):61-70.

5. Pan Y, Jiang Z, Yuan C, Wang L, Zhang J, Zhou J, Tao M, Quan M, Wu Q. Influence of physical restraint on delirium of adult patients in ICU: A nested case–control study. *Journal of clinical nursing.* 2018 May;27(9-10):1950-7. https://doi.org/10.1111/jocn.14334
6. 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). Iraqi Academic Scientific Journals - IASJ
7. Mohammed SS, Ali MH. Nurses Practice to Physical Restraint Practices in ICU Units at Three Teaching Hospitals in Baghdad. *KUFA Journal for Nursing Sciences*. 2015;5(1).
8. Perez D, Peters K, Wilkes L, Murphy G. Physical restraints in intensive care–An integrative review. *Australian critical care.* 2019 Mar 1;32(2):165-74. https://doi.org/10.1590/0034-7167-2020-1166
9. Suliman M, Aloush S, Al- Awamreh K. Knowledge, attitude and practice of intensive care unit nurses about physical restraint. *Nursing in critical care.* 2017 Sep;22(5):264-9. https://doi.org/10.33381/dcbybd.2019.2031
10. Fawzy Zaki A, Said Taha A, El Sayed Ghonaem S. Effectiveness of An Educational program on Critical Care Nurses Performance and Patients Outcomes regarding Physical Restraint. *Journal of Nursing Science Benha University*. 2021 Jul 1;2(2):370-83. https://doi.org/10.21608/jnsbu.2021.186502
11. Gheidari Z, Adib M, Mohamadii TK, Kazemnejad E. Knowledge, attitude and performance of nurses in intensive care units in the field of patients' physical restraint use and their related factors. *Journal of Advanced Pharmacy Education & Research*| Apr-Jun. 2019;9(S2).
12. Awad SA. The effect of Designed Protocol about Physical Restraint on Critical Care Nurses' Performance: www.noveltyjournals.com
13. AL-gabri MM, Mohammed OA, Mehany MM, Mohammed MA. Nurses' Knowledge And Performance About Physical Restraints For Critical Ill Patients. *Assiut Scientific Nursing Journal.* 2015 Jun 1;3(5):207-17. DOI: 10.21608/ASNJ.2015.59027
14. Eskandari F, Abdullah KL, Zainal NZ, Wong LP. The effect of educational intervention on nurses' knowledge, attitude, intention, practice and incidence rate of physical restraint use. *Nurse education in practice.* 2018 Sep 1;32:52-7. https://doi.org/10.1016/j.nepr.2018.07.007
15. Hall DK, Zimbro KS, Maduro RS, Petrovitch D, Ver Schneider P, Morgan M. Impact of a restraint management bundle on restraint use in an intensive care unit. *Journal of nursing care quality.* 2018 Apr 1;33(2):143-8. DOI: https://doi.org/10.1097/NCQ.0000000000000273
16. Hamilton D, Griesdale D, Mion LC. The prevalence and incidence of restraint use in a Canadian adult intensive care unit: A prospective cohort study. *Canadian Journal of Critical Care Nursing.* 2017 Sep 1;28(3).