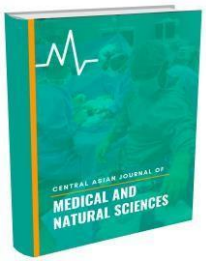

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Article

Environmental Modifications and Alternatives Before Physical Restraint by Nurses

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Abstract: Physical restraint alternatives can be considered as any strategy or method that is used to keep the person safe without resorting to a device or material that would limit the person's physical freedom. The main aim of the study is to assess performance of nurses toward environmental modifications and alternatives before physical restraint. A descriptive study design is carried out at Baqubah Teaching Hospital in critical care unit, from 7th October, 2023 to 22th April , 2024. The instruments were constructed by the researcher for the purpose of the study. Fifty nurses, who were selected by a non-probability (convenient) sampling method. Validity of the study instrument was determined through a panel of experts and reliability of the instrument was determined through Cronbach's Alpha method. The analysis of the data used was descriptive statistics and statistical inferential, in order to find the differences in the study group. The study findings indicate mean of score about environmental modifications and alternatives before physical restraint 1.12 in overall domains regarding. The study concludes most of the nurses' have unsatisfactory performance concerning environmental modifications and alternatives physical restraining at critical care patients, with subsequent reductions in the frequency of related complications among these patients. The researcher recommends that development of local policies for physical restraint use including detailed descriptions of conditions requiring its use is mandatory regarding the use of environmental modifications and alternatives of physical restraint would have added value to the results.

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1. Introduction

the person safe without resorting to a device or material that would limit the person's physical freedom 1. Environmental, physical, psychosocial, physiological, and nursing care treatments have all been identified as potential alternatives to restraint use 2. Solutions such as better lighting, shoes, toileting plans, physical therapy for strengthening or balance, pain management, drug reviews, wheelchair or seating evaluations, activity plans, etc., are all viable alternatives to restraint3.

Each patient has unique care and routine requirements, so it is essential that restraint alternatives be tailored to the individual 4. Nurses assess the patient's age, mental state, communication skills, and the presence or absence of musculoskeletal, neurologic, urologic, cognitive, and cardiovascular degeneration or failure before implementing alternative measures to address challenging behavior. Nurses also collaborate with other medical personnel to determine the most appropriate non-physical form of restraint 5. According to the literature, alternatives to physical restraint exist but consider gap in critical care unit. However, the point is that nurses are usually unaware of the various types of physical restraint alternatives. Thus, one of the most important topics during a restraint minimization program would be to introduce and focus on the use of alternatives to the use of physical restraint 6.

physical restraint alternatives are not applied by nurses because of a lack of knowledge and a negative attitude among nursing students about alternatives and elderly patients in geriatric wards. 7. Disruptive behaviors in 80% of critically ill patients brought to the critical care unit may require physical restraint to prevent the removal of life-supporting medical devices, tumbles, and detriment to the patient or others. The critical unit staff tries to reduce these actions by settling the attendant with patients, lowering bed height, raising bed rails, and giving sedatives before physical restraint8. Nurses use these concepts to recover patient outcomes, reduce illness, mortality, and complications and errors. The highly trained staff benefits ICU patients and their families9. The aim study was done to evaluate nurses' performance about environmental modifications and alternatives of physical restraint.

2. Materials and Methods

A descriptive study design at Baqubah Teaching Hospital in Diyala governorate/Iraq. The population of this research comprised of nursing staff. The sample of this study comprised of critical care unit nurses who work at Baqubah Teaching hospital. The minimum sample size is 50 according to the population of 62 nursing staff and 95% level of confidence with a margin of error of 5. Sampling of this study is a nonprobability (convenient) sampling method. The research sample was distributed as follows: 50 nurses who were exposed to the study

tool and completed the study, six nurses who completed the pilot study and were excluded from the original study. The data for this study were collected using a questionnaire which consisted of two parts (a) socio-demographic characteristics (b) performance checklist. This checklist are used to measure nurses' performance toward Environmental Modifications and Alternatives Before physical restraint in critical care units. The performance checklist for nurses is composed of (19) items. SPSS version (24) was used to analyze the data in order to interpret and explain the study's results.

3. Results

The findings in Table 1 presented the spreading of the study sample according to their demographic physiognomies. 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 1. Distribution of the Sample According to Demographic Characteristic.

Characteristics	**Frequency**	**Percent**
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		

Less Than 5 Years of Experience	30	60
More Than 5 Years of Experience	20	40
Total	50	100
Years of Experience at Critical Care Units		
Less Than 5 Years of Experience	35	70
More Than 5 Years of Experience	15	30
Total	50	100
Attendance of Previous Training Course		
Yes	0	0
No	50	100
Total	50	100
Number of Patient Care Per Day		
2 patients	8	16
3-4 patients	34	68
≥5 patients	8	16
Total	50	100
Working Shift Time		
Day Shift	16	32
Night Shift	0	0
Day and/Night Shift	34	68
Total	50	100

Table 2 and 3 shows that high percentage of nurses have unsatisfactory performance toward environmental modifications and alternatives before physical restraint

Table 2. Shows that there frequency and percentage of nurses performance environmental modifications and alternatives before physical restraint

List	Paragraph	Apply Correctly and Completely		Apply Correctly but Incompletely		Apply Incorrectly and Incompletely	
		Freq.	%	Freq.	%	Freq.	%
1	**Introduce yourself and let the patient know he or she is safe.**	**5**	**10**	**8**	**16**	**37**	**74**
2	**Find an effective method of communicating with intubated or nonverbal patients.**	**19**	**38**	**19**	**38**	**12**	**24**
3	**Keep the bed in the lowest position.**	**27**	**54**	**16**	**32**	**7**	**14**

4	**Minimize the use of side rails to what is needed for positioning.**	**23**	**46**	**12**	**24**	**15**	**30**
5	**Position the call light within easy reach.**	**4**	**8**	**4**	**8**	**42**	**84**
6	**Activate bed and chair exit alarms where available.**	**3**	**6**	**4**	**8**	**43**	**86**
7	**Remove unnecessary furniture or equipment**	**20**	**40**	**20**	**40**	**10**	**20**
8	**Ensure that the bed wheels are locked.**	**29**	**58**	**16**	**32**	**5**	**10**
9	**Optimize room lighting**	**4**	**8**	**5**	**10**	**41**	**82**
10	**Orient the patient to invasive medical equipment.**	**17**	**34**	**11**	**22**	**22**	**44**
11	**Frequently assess the need for treatments and discontinue lines and catheters at the earliest opportunity.**	**20**	**40**	**20**	**40**	**10**	**20**
12	**Ensure that the patient has needed vision and hearing aids.**						
13	**Help the patient explore the equipment by guiding the patient's hand over it. Explain the purpose of the equipment, as well as the meaning of any alarms that may sound.**	**11**	**22**	**10**	**20**	**29**	**48**
14	**Disguise treatments, if necessary (eg, keep IV solution bags out of the patient's field of vision, apply a loose stockinet or long-sleeved gown over IV sites**	**14**	**28**	**12**	**24**	**24**	**48**
15	**Ensure comfort by meeting the patient's physical needs (eg, frequent toileting, skin care, pain management, hypoxemia management, positioning).**	**17**	**34**	**14**	**28**	**19**	**38**
16	**Mobilize the patient as much as possible.**	**22**	**44**	**22**	**44**	**6**	**12**
17	**Allow the patient to make choices and exert some degree of control when possible.**	**27**	**54**	**16**	**32**	**7**	**14**
18	**Use calm, reassuring tones.**	**2**	**4**	**4**	**8**	**44**	**88**
19	**Reorient patients frequently by explaining treatments, medical devices, care plans, activities, and unfamiliar sounds, noises, or alarms.**	**9**	**18**	**23**	**46**	**18**	**36**

Table 3. *Statistical Distribution of the study Sample by their Overall Responses to Performance*

Overall Nursers' Performance	Freq.	%	Ms.	SD
Unsatisfactory	27	54	1.12	0.346
Need Improvement	16	32		
Satisfactory	7	14		

M: Mean, SD: Standard Deviation (Unsatisfactory= 1-1.33; Need Improvement= 1.34-1.66; Satisfactory= 1.67-2), (S): significant, (T test): t-test, (D f): degree of freedom

4. Discussion

The finding showed that a highly percent in the overall responses of the study sample throughout measurement periods unsatisfactory performance, according to the score of performance toward environmental modifications and alternatives before physical restraint scale similar to the results of study conducted by Awad (2019) 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 application of the protocol (100%) from protocol implementation with statistically significant differences. According to the researcher's view, 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[10]. Study conducts a study in Malaysia to assess the effect of educational intervention on the knowledge, attitude, intention, and practice of nurses towards physical restraint, the knowledge, attitude, intention, and practice mean scores of 245 nurses were compared between pre- and post-intervention phases. The results showed that the educational intervention resulted in a statistically significant increase in the mean knowledge[11]. The result shows the study findings reveal that there is a highly significant difference in the overall responses of the study sample throughout two measurement periods (pre-test and follow-up test) with a p-value of less than 0.01, compared to the statistical mean. Additionally, the findings of the study show that there is an retain in the nurses'

knowledge at the follow-up test likened to the pre-test scores according to the score of physical restraint alternatives knowledge scale similar to the results of study conducted by Fawzy Zaki et al. (2021) showed there was statistically significant correlation between studied nurses` total knowledge and patient outcome after one month of program implementation. This indicated that improvement in nurses` knowledge, and patient outcome[12]. The study findings reveal that the nurses' performance has improved from their pre-test scores to their immediately post-test scores when compared to their pre-test scores, this similar study conduct by Eskandaria, (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 practice scores and a decrease in the mean intention scores of nurses towards physical restraint use[11].

5. Conclusion

The study concludes most of the nurses' have unsatisfactory performance concerning environmental modifications and alternatives physical restraining at critical care patients, with subsequent reductions in the frequency of related complications among these patients. Additionally, no significant association was found between the demographic characteristics of nurses and their performance. Development of local policies for PR use including detailed descriptions of conditions requiring its use is mandatory regarding the use of environmental modifications and alternatives of physical restraint would have added value to the results.

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Competing Interest: None

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