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RESEARCH ARTICLE

EFFEC OF EDUCATIONAL GUIDELINES ABOUT PHYSICAL RESTRAINT ON NURSES' PRACTICES AT PSYCHIATRIC HOSPITAL.

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Abstract

Background: In psychiatric hospitals, aggressive and threats of aggressive constitute serious emergencies that may be difficult to control by nursing staff, the physical restraints are the best solution to protect patient and other.

Study design: The one-group pretest-posttest pre-experimental design was practiced.

Aim: This study aimed to evaluate the effectiveness of the educational guidelines about physical restrain on nurses' practices at psychiatric hospital..

Setting: This study was conducted at the two settings: Psychiatric department in the ZagazigUniversity Hospital and Al-Dar Hospital of Psychiatry and Addiction at Zagazig city- at El Sharkia- Egypt. Subjects: A convenience sample of 50 psychiatric nurses involved. Tools of the study:Physical restraint questionnaire was used which contains two parts; Part one: The Nurses' Practices Regarding the Use of Physical Restraint and part two: Socio-demographic and clinical characteristics.

The results: The results demonstrates that about two third of studied nurses have an inadequate practice in applying physical restraints before the educational sessions, while, most of the nurses have an adequate practice in applying physical restrain after implementation of educational sessions and there is a positive significant difference in nursing performance of physical restraint before and after educational sessions

Conclusions:It can be concluded that the majority of the studied nurses' level of practices improved after implementation of educational sessions about guidelines to applying physical restraint, with a highly positive significant statistical differencebetween nurses' level of practices in performing and applying physical restraint before and after educational sessions.

Recommendations: Apply the educational sessions about guidelines of applying physical restraint to improve nursing performance in all psychiatric settings and increase awareness of the mental health team about the importance of the policy of applying physical restraint

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Introduction:-

In psychiatric hospitals, patients' aggressive and threats of aggressive constitute serious emergencies that may be difficult to control by staff. When the alternative procedures fail, hostile patient's behavior may result in placing a patient in physical restraints [1]. Physical restraint used to control violent and maladaptive behaviors, manage patients with severe mental disorders, prevent injury and reduce tension and hostility [2-4]. The main role of physical restraint should always be the improvement and maintenance of a person's health, welfare, and safety. The safeguard of others may be a consideration [5].

Physical restraints any manual approach, physical or mechanical device, or equipment that diminishes a person's ability to move his/her arms, legs, body or head, includes waist, vest, wrist or leg restraints, hand gloves, chairs with table tops, full bed or side rails, 'net beds' or 'enclosed beds', 'freedom' elbow splints, or tucking a patient's sheets so tightly and carefully that the patient cannot move [6]. Additionally, restraints refer to any physical means of controlling a person's freedom of movement, bodily activity or normal access to his or her body [7]. Physical restraints should be withdrawn every 2 to 4 hours in adults aged 18 years and above [8].

The nurse's experience regarding physical restraints uses and expressed that their decision was grounded on the routine of using physical restraints rather than depending on evidence-based [9]. The most common of nurses were not alert that the patient's rights have to reject to apply of physical restraints [10]. Otherwise, if they were a patient, they should have the right to reject and resist when the restraints applied onto them. As for, Evans, Wood and Lambert; and Royal College of Nursing [11, 12], which have adverse effects of physical restraint as limb harm, skin injury, bed sores, muscular atrophy, contractures, constipation, incontinence, depression, anger, a decline in functional and cognitive state and increasing agitation.

As well, utilization of physical restraint is generally considered as a method of protection and to prevent difficulty of treatment [13, 14]. The psychiatric nursing care may be the most health care settings in which physical restraint remains the most common as an indisputable practice, in which it applied as a protective intervention in psychiatric settings [15]. Physical restraint should be viewed as a final option in a hierarchy of therapeutic interventions. When using physical restraint, it is important to note that what is reasonable in the short term, might not be reasonable in the long term as other preventative and/or therapeutic strategies become effective.

The acceptable level of practice, the practice of physical restraints linked to psychological, physical, ethical and legal problems [16]. So, training on applying physical restraint focused on patient safety, individualized risk assessments and safety plans should be established for the patients, this policy of applying physical restraint developed to provide guidance and direction to nursing staff that face aggression/violence whilst at work. The physical restraint should represent a reasonable, necessary and proportionate response to the harm threatened and be implemented with due consideration of the duty of care owed to the patients.

The Significance of the Problem

Physical restraint is the main part of treatment strategies in the psychiatric unit. The physical health of the person is considered in the course physical restraint, There can be significant risks associated with restraint, including emotional trauma, re-traumatization, and death. Physical restraint can only be undertaken by an appropriately trained team. The training must include the utilization of non-harmful techniques. Conducting the educational program on physical restraints for nurses and providing other preventive strategies are important for enhancing psychiatric nurses' practice to apply physical restraints and prevent complications.

The Aim of the Study:

This study aimed to evaluate the effectiveness of the educational guidelines about physical restraint on nurses' practices at psychiatric hospital.

Research Hypotheses

Nurses who attain the educational session will perform physical restraint in a professional and adequate manner

Methodology:-**Research Design:**

A quasi-experimental research design was used. The one-group pretest-posttest design was practiced. Nurses were evaluated at two times before the educational sessions and immediately after it. According to Research Connections, which clarified that one-group pretest/posttest of the pre-experimental design; a single group is analyzed at a single period in time after some management that is presumed to cause change [17].

Setting:

This study was conducted in the following settings:

1. The psychiatric department in the Zagazig University Hospital, which affiliated to Zagazig University, this department provides different inpatients and outpatient services for the patients with a capacity of 60 beds for male and female patients; the total number of nurses is 30 nurses. The psychiatric department provides health care services to El Sharkia, Gharbya, and Daqahlia Governorates. It works 7 days/week, 24hrs/day.
2. Al-Dar Hospital of Psychiatry and Addiction which affiliated to the ministry of health at Zagazig city- at El Sharkia- Egypt with a capacity of 70 beds for male and female patients, the total number of nurses is 50 nurses. The psychiatric department provides health care services to El Sharkia, Gharbya, and Daqahlia and Canal governess. The hospital provides health services for psychiatry and addiction, It works 7 days/week, 24 hrs/day.

Subjects:

A convenience samples consist of 50 psychiatric nurses working in mention above two hospitals (25 nurses from each hospital setting) concerning the following inclusion criteria: Both genders, with different ages, and duration of working in inpatient psychiatric units of experience at least 6 months, and working in different psychiatric departments.

Tool for data collection:**Physical restraint questionnaire:****Part I: The Nurses' Practices checklist regarding the Use of Physical Restraint.**

It was used to determine psychiatric nurses' practice relating to utilize of physical restraint. It originally developed by Janelli, Stamps, and Delles[10]. To assess the nurses' practices concerning the utilize of physical restraint, it contains about 18 items assessing the nursing care provided to patients immediately, before and during physical restraint such as 'explain procedures to patients and their relatives.' The items not be done were scored "0" and the items reported to be done were scored "1". The total scores ranging from 0 to 18 it summed-up of the items and divided by numbers of them, giving a mean score. It's classified as the following:

1. Less than 60% = inadequate performance
2. 60% or more = adequate performance

Part II: Socio-demographic and Clinical Characteristics:

The developed by the researchers, it included seven items concerned with socio-demographic characteristics of the studied nurses such as age, sex, qualifications, educational level, years of experience, the source of knowledge, and complications which occurred from physical restraint

Method:-

1. An official permission to carry out the study was obtained from Dean of the faculty of Nursing to the director of the identified study settings to take their permission to collect data.
2. The study tool was submitted to a jury of five experts in the psychiatric nursing field to test content validity.
3. Cronbach alpha was used to test the internal consistency of the item to test the reliability for the part one was 0.87.

Ethical Considerations

An agreement from the nurses to contribute to the study was considered after explaining the purpose of the study. Confidentiality of the collected data and the right to withdraw from the study at any time was guaranteed. The study nature didn't cause any harm to the entire nurses.

Pilot Study

A pilot study was carried out to assess the clarity and understandability of the study tool before introducing it to the nurses. Moreover, to evaluate the feasibility of the study in terms of acceptability to the participants, it also applied to estimate the approximate time required for interviewing the participants as well as to find out any problem or obstacle that might interfere with data collection. The pilot study was conducted for 5 nurses and they were excluded later from the actual study. According to its results, No modifications were made, therefore

Actual Study:

The study conducted throughout the following phases

Phase One: Assessment Phase

The researchers distributed the tool of the study, after a full explanation of the aim and the scope of the study, it distributed on an individual basis as the initial baseline assessment of their performance level in applying physical restraint. The researchers asked the nurses to fill the tools in the presence of the researchers for any clarification.

Phase Two: Development of Educational Sessions.

The researchers developed the content of educational session about practicing physical restraint after reviewing of the literature

Phase three: Implementing of the Educational sessions

The program was implemented by the researchers; the general objective of the Program was to improve the level of the nurse's performance in applying physical restraint to psychiatric patients. The nurses were classified into small 10 subgroups (5 nurses in each group), the contents of the program were divided into five (5) sessions for each subgroup, each session takes from 45 to- 60 minutes for conducting the nurses' policy of physical restraint.

The Educational Sessions Implemented as the Following:**The First and Second Sessions: They include primary prevention strategies:**

It includes discussion about the responsibility of nursing staff to work with the individual in order to seek to understand the cause(s) of aggression and determine the appropriate preventative measures and reasonable responses to such emotions. Also, include prevention strategies as promoting safe and therapeutic environment and environmental modifications that may be considered include: reducing noise levels, ensuring privacy, ensuring the area is clean, providing orientation to the environment, providing natural lighting where possible, providing access to alternative spaces and providing access to outside areas.

Third and Fourth Sessions:

Restraint is used as an option of last resort (therapeutic application). It involved physical restraint definition, purposes, reasons of restraining, types, general principles, techniques, staff responsibility. This session's focus on restraint is administered safely by a team trained in the application of methods used.

Fifth Session:

Its focus on the nurse role after application of physical restraint, it includes documentation, policy highlight evaluates patient's and nurses reactions and responses (post incidence report).

Phasefour: Evaluate the Educational Sessions

Immediately after the sessions, the researchers observe the nurses' performance throughout the observation checklist for nursing practice reading physical restraint (part II of the tool).

The researchers used different educational methods such as group discussion, power-point media, pictures, videos, and a handout. The study was conducted over a 3-months period throughout May to July 2018.

Statistical Analysis:-

Data were numbered and analyzed using SPSS version 22 (the Statistical Package for the Social Sciences). $P < 0.05$ was considered as statistically significant.

Results:-

Table 1 shows the socio-demographic and clinical characteristic of the studied nurses. It reveals that 70% of the studied sample was female, about half of nurses (48%) aged from 20 to 35 years old, 60% had a nursing secondary school education, with an experience of less than 5 years in working at the mental hospital (64%). The majority of nurses (80%) did not have previous training about physical restraint. Also, most of the nurses (70%) explored the sources of their knowledge about physical restraint obtained by them. However, 24% of the studied sample was aware of the presence of a policy in the psychiatric hospital around physical restraint. Most of the nurses (70%) reported complications occurred from physical restraint and 44% of the studied nurses reported that the major complication of physical restraint was increased nervousness for the patients.

Table 2 represents a comparison between mean scores of practices checklist before and after the application of the program among the studied nurses. Once can notice that, there is a positive significant difference in nursing performance of physical restraint before and after educational sessions, it means there is a significant improvement in nursing performance in applying physical restraint based on educational sessions as in items of; monitor patient cognitive function that leads to unsafe behavior ($p=0.006^*$), explain procedures to patient and significant others ($p=0.046^*$), prepare equipment needed ($p=0.019^*$), provide sufficient staff (at least 3 persons) ($=0.000^{**}$), make sure that the bed is comfortable ($p=0.035^*$), place patient in recumbent position ($p=0.005^{**}$), apply the restraint in such a way that it can be released quickly ($p=0.004^{**}$), provide positive reinforcement ($p=0.038^*$), administer major tranquilizers as ordered ($p=0.048^*$), assessment patient condition 10-15 min ($p=0.038^*$), remove restraints gradually ($p=0.060^*$) and document of intervention ($p=0.019^*$).

Table 3 reveals a comparison between the nurse's level practices before and after the educational sessions. The results demonstrate that about two third of the studied nurses (62%) have an inadequate practice in applying physical restraints before the educational sessions, while most of the nurses (73%) have an adequate practice in applying physical restraint immediately after implementation of educational sessions. Also, there is a highly positive significant statistical difference between nurses' level of practices in performing and applying before and after educational sessions ($p=0.000$).

Table 4 shows the correlation between nurses' level of practices and socio-demographic and clinical characteristic. The results represent that there is a positive significant statistical difference between the nurse's level of practices in applying physical restraint and educational level of nurses, attendance of the training program and knowing hospital policy ($p=0.000$, 0.004 & 0.004^{**} consequently).

Table 1:-Socio-Demographic and clinical Data of the Study Sample (n=50)

Items	Total Nurses	
	N	%
Age (years)		
< 20 years old	15	30
20 to 35 years old	24	48
> 35 years old	11	22
Mean+ SD	27.21+22.43	
Gender		
- Female	35	70
- Male	15	30
Educational level		
- Secondary school of nursing	30	60
- Diploma	9	18
- Technician	6	12
- Bachelor degree	5	10
Years of experience in		
< 5 years.	32	64
5 : 10 years.	8	16
10 : 15 years.	6	12
>15 years.	4	8

Previous training about physical restraint: - Yes - No	15 35	30 70
Workplaces: Critical word Female's word Male's word	12 10 28	24 20 56
Knowing about physical restraint policy Yes No	12 38	24 76
Occurrence of complications from physical restraint Yes No	15 35	30 70
Major complication from physical restraint Blood circulation change Skin ulcer Muscle atrophy Nervousness	10 12 6 22	20 24 12 44

Table 2:-Comparison Between Mean Score of Practices checklist Item Before and After the Application of Educational Sessions Among the Studied Nurses

Item	Pre-program		Post-program		Sig.
	Mean	SD	Mean	SD	
1. Monitor patient cognitive function that leads to unsafe behavior.	0.620	0.490	0.860	0.351	0.006*
2. Explain the reason for intervention to the patient and significant other.	0.460	0.503	0.480	0.505	0.843
3. Explain procedures to patient and significant others	0.420	0.499	0.620	0.490	0.046*
4. Prepare equipment needed	0.660	0.479	0.860	0.351	0.019*
5. Provide sufficient staff (at least 3 persons)	0.420	0.499	0.760	0.431	0.000* *
6. Talk with the client during the procedure	0.600	0.495	0.560	0.501	0.689
7. Make sure that the bed is comfortable	0.560	0.501	0.760	0.431	0.035*
8. Place patient in recumbent position	0.360	0.485	0.640	0.485	0.005* *
9. Make the restraints slack enough	0.520	0.505	0.700	0.463	0.066
10. Fasten the straps of the restraints to the bed frame.	0.580	0.499	0.580	0.499	1.000
11. Apply the restraint in such a way that it can be released quickly	0.580	0.499	0.840	0.370	0.004* *
12. Provide positive reinforcement	0.660	0.479	0.840	0.370	0.038*
13. Administer major tranquilizers as ordered	0.620	0.490	0.800	0.404	0.048*

14. Monitor patient's skin frequently in restrained extremities	0.600	0.495	0.620	0.490	0.840
15. Assessment patient condition 10-15 min	0.660	0.479	0.840	0.370	0.038*
16. Involve patient in making decisions	0.500	0.505	0.520	0.505	0.843
17. Remove restraints gradually	0.560	0.501	0.740	0.443	0.060*
18. Document of intervention	0.560	0.501	0.780	0.418	0.019*

* Significant at $p < 0.05$ ** highly significant at $p < 0.01$

Table 3:-Comparison between Nurse's Level Practices Before and After the Educational Sessions

Variables	Pre-program		Post-program		r	P-value
	N	%	N	%		
Inadequate practice	31	62	13	26	0.363	0.000**
Adequate practice	19	38	37	74		

** highly significant at $p < 0.01$

Table 4:-Correlation Between Nurses' Level of Practices and Socio-demographic and Clinical Characteristic

Items	Level of practices				t	P-value
	Pre-program		Post-program			
	Mean	SD	Mean	SD		
Age (years)						
- < 20 years old	9.93	3.17	11.80	3.76	0.960	0.619
- 20 to 35 years old	9.88	2.52	13.29	2.73		
- > 35 years old	10.09	3.05	13.09	3.21		
Gender						
- Female	9.89	2.70	12.31	3.20	0.384	0.228
- Male	10.07	3.08	13.93	2.91		
Educational background						
- Secondary school of nursing	9.07	2.38	12.67	3.06	24.536	0.000**
- Diploma + specialty	8.67	2.24	10.56	3.64		
- Technician	13.17	0.41	14.50	1.22		
- Bachelor	13.60	1.52	15.60	1.34		
Years of experience						
- < 5 years.	10.41	3.03	13.09	3.16	4.458	0.216
- 5 : 10 years.	9.13	2.23	11.13	3.44		
- 10 : 15 years.	9.00	2.10	12.17	3.37		
- >15 years.	9.25	2.63	14.75	0.96		
Workplaces:						
- Critical word	10.83	2.89	13.00	2.70	3.651	0.161
- Female's word	10.10	2.60	13.20	2.82		
- Male's word	9.50	2.81	12.57	3.54		
Attendance of Training on physical restraint						
- Yes	9.90	2.56	12.80	3.18	9.260	0.004**
- No	9.95	2.87	0	0		
Knowing about physical restraint policy						
- Yes	10.00	2.56	12.80	3.18	9.129	0.004**
- No	9.92	2.89	0	0		
Occurrence of complications from						

physical restraint						
Yes	10.13	2.95	11.17	4.40	1.864	0.172
No	9.86	2.76	13.02	2.97		

** Highly significant at $p < 0.01$

Discussion:-

As well, physical restraint prevalence in nursing care setting varies among countries around the worldwide [18-20]. The prevalence of physical restraints has dramatically increased from more than one-third to one-half of the studied sample [21]. Physical restraint has been defined as a forced measure that must be utilized as the last alternative under any situation to confirm the safety of patients by assuming the designed mechanism to restrict their physical movement [22, 23]. Actually, the nurses are splitting between using physical restraints or not, and they experience a sense of vulnerability of fear when fronting of aggressive patients [24]. The nursing staff needs the guidelines to improve their practice and relieve the debate between using or not of physical restraints when dealing with patients with psychiatric disorder

The aim of this study was to evaluate the effectiveness of the educational sessions about guidelines to apply physical restraint for patients with psychiatric disorders for improving psychiatric nurses' practices. Regarding research hypotheses, the nurses who attain the educational session will perform physical restraint in a professional and a dequate manner. The results of this study come in accordance with this hypothesis as it proved that educational sessions have a great effect in improving nurses' practice in applying physical restraint.

The findings of the present study showed that the majority of nurses did not have previous training program about physical restraint. According to the survey performed by **Cannon, Sprivulis and McCarthy** found that the most common of the nurses did not receive any special or in-service training preparation about physical restraint, which adversely influenced nursing practices [25].

The current study figured out that, nearly one-half of the studied sample reported that the major complication of physical restraint was nervousness. These results were similar to the results revealed by Langsrud, Linaker, and Morken, who highlighted that force restraining the patient, was recurrent in those occasions where more than one body part had been damaged [26]. In this respect, a study of 1014 involuntarily admitted patients, by Husum, Bjørngaard, Finset and Ruud reported that 117 were restrained and there was an increased danger of restraining patients that were hostility and nervousness or had a predisposition to self-harm [27]. The patients distinguish bodily restraints as a stressful experience [28]. Consequently, it increases the risk of nervousness and violent behavior [29]. As well, physical restraints will reason for bodily damage and psychological disturbance to the patients. Also, bodily restraints are reasoned to physical damage, including skin injury, nerve system damage, deep vein thrombosis, pulmonary disease, or even death. Additional types of physical damage are the consequence of coercive immobilization, resulting in functional disability, and impairment of muscle tone [30]. Additionally, such restraints exaggerate the apathy and depression of patients and diminution of their social role [31].

Regarding the level of practice, the results of the present study indicated that nearly two-thirds of the studied nurses have an inadequate practice toward physical restraints before the guidelines teaching, whereas, nearly one-half of nurses have an adequate practice to utilize physical restraints immediately after the guidelines. There was a statistically significant change in nurses' practice toward physical restraint between before and after the guidelines. Those results may be due to the effect of educational sessions and that the nurses respond positively to educational sessions for improving their skills and practices. The nurse enhanced and update their performance and information about physical restraints; indications, policy, preventive measures, therapeutic interventions and patient safety guidelines. This is in line with HooseinrezaeeNouhi, and Taher, who stated that educational programs might be conducted to acquire enhanced practice toward physical restraints [32, 33]. Similarly, the study by **Witt C** [34] explained that the ongoing education for the psychiatric nursing staff to progress their skills, which has a constructive effect on the patient care, should be based on the guidelines, and continuous education and professional level.

In the same stream, these findings are congruent with the studies conducted by [35-37] which stated that continuous training improves personal performances. As well, Agens J [38], who clarified that the implementation of restrictions should be saved for documenting indications, the time must be minimal, and evaluations must be regular for their effectiveness and prevent of the complications.

The results of the present study focused on, nurses should document everything about restraints, as time lasted, indication, any complications and patient status in during it, this is more beneficial for the others nursing staff to deal with that patient. This expansion goes in line with the Egyptian study; about the physical restraint is reported by KandeelNA, and Attia AK. [39], who highlighted that there are no accessible legal guidelines or rules in the practice of physical restraints. As well, the study in Korean nursing homes, conducted by Kim DH, Kim C, Kim E M, Park M S; and Kim J, and Oh H. [40, 41] which founded that the nursing staff were stated that an increased their performance level on physical restraints related to the adverse effects and feel the ethical conflict about applying it. In this respect, Ye et al [42]., explained that nurses' clinical culture determine the level of implementing physical restraints. According to the survey performed by Mahmoud A [37], who reported that the nurses' skills, play a vital role in the progress of psychiatric health team, it was considered significant to progress a policy of restraint and teach the nurses how to apply it.

Conclusion:-

Based on the findings of the present study it can be concluded that the majority of the studied nurses' level of practices, improved after implementation of educational sessions about guidelines to applying physical restraint, with a highly positive significant statistical difference between nurses' level of practices in performing and applying physical restraint before and after educational sessions. Also, the results concluded that there is a positive significant statistical difference between the nurse's level of practices in applying physical restraint and educational level of nurses, attendance of the training program and knowing hospital policy.

Recommendations:-

The following recommendations are yielded from the result of this study:

1. Apply the educational sessions about guidelines of applying physical restraint to improve nursing performance in all psychiatric settings.
2. Increase awareness of the mental health team about the importance of policy of applying physical restraint.
3. Educational workshops and seminars should be conducted regularly for the nurses about dealing with aggressive client and using physical restraint.
4. Further research is necessary to investigate and evaluate the factors that effect on nurses practices and performance.

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