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Original Research

Assess Nurse's practice toward venous thrombosis at Al Sharqat General hospital

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Abstract:

Background:

Pulmonary embolus A blood clot that has broken loose and moved to the lungs, whereas deep vein thrombosis is the name given to a blood clot that is lodged in a deep vein. The most frequent cause of high mortality and morbidity among avoidable illnesses worldwide is thrombotic disorders.

Aim of the study: was to assess nurse's practice toward venous thrombosis at AL-Sharqat General Hospital and relationship between practice and their demographic data.

Methods: a descriptive study is conducted for the periods of 10th November 2023 to 1ed May 2024. This study was conducted at Al-Sharqat General Hospital in critical care unit, emergency department and surgical department. A purposive sample (non-probability) consisting of (25) nurses was selected from nurses who work in the critical care units, emergency department and surgical department. **Results:** The majority of participants, or more than half, were female nurses, according to the results, over half of the participants were Nursing Institute graduates with 1-5 years of experience who had not attended training courses. Results show that nurses practice related to venous thrombosis was poor to moderate and there was no significant relationship between nurse's practice and their demographic data at P-value >0.05.

Conclusion: Nurses working in the surgical department, emergency units, and critical care units had poor practice regarding venous thrombosis because their education level was low and they had not attended training courses.

Recommendation: This study recommended that nurses be required to attend in-service training courses and to raise awareness in order to improve their practices in treating venous thrombosis.

Key-words: Nurse, practice, venous thrombosis.

Introduction

Deep vein thrombosis is the term used to describe a blood clot that is lodged in a deep vein; a pulmonary embolus is a blood clot that has broken loose and moved to the lungs. (1).

The most frequent cause of high mortality and morbidity among avoidable illnesses worldwide is thrombotic disorders. Among patients, deep vein thrombosis is the most risky and serious vascular disorder. It is considered the third primary vascular diagnosis after heart attack and stroke. (2) .

Deep vein thrombosis often arises from complications that arise after orthopedic surgery. According to the Centers for Disease Control and Prevention, chronic medical disorders, slow blood flow, damage to the veins, and a rise in estrogen are all risk factors for DVT(3).

According to the Center for Disease Control and Prevention, 70% of occurrences of hospital-acquired venous thromboembolism (HA-VTE) are avoidable with preventative interventions. Thromboembolism is the sixth most prevalent reason for unexpected hospital readmissions of patients following surgery. ((4)& Yohannes et al., 2022).

The lower extremities are more likely than the upper to get deep vein thrombosis. The symptoms and signs intensify, as does the discomfort, soreness, warmth, redness, or swelling in the upper or lower extremities. Most of them cause long-term issues. Most DVT cases are considered silent killers because they remain undiagnosed. It is a fatal illness that causes harm to those who have it. Thus, it is imperative to develop measures to improve nurses' use of DVT preventive techniques (6).

The main factors contributing to the global rise in VTE prevalence are inadequate training and practice (Silva et al., 2020).

A number of studies revealed inadequate knowledge about the risk of deep vein thrombosis and inadequate methods for preventing it (7)..

According to a recent Indian study, many nurses have a lack of knowledge and practice for preventing venous thrombosis(8).

Aims of the study

This study aims to

1- was to assess nurse's practice toward venous thrombosis
2- relationship between nurse's practice and their demographic data.

Methods:

a descriptive study is conducted for the periods of 2023 to 2024. This study was conducted at Al-Sharqat General Hospital in critical care unit, emergency department and surgical department . Participants in both study and control groups received informed consent, which was distributed to the participants to obtain their permission to conduct the study whether they agree or refused to participate in the study. A purposive sample (non-probability) consisting of (25) nurses was selected from nurses who work in the critical care units, emergency department and surgical department. A questionnaire consists of the following parts :

1- part one: socio-demographic data
2- part two: This section, which was composed of four domains toward venous thrombosis. includes (41) closed ended (True, false) questions to measure nurses' practice about venous thrombosis, divided into:
3- The first domain is a checklist for general preparations, which contains six questions.
4- The second domain is a checklist for respiration, which contains six questions.
5- The third domain is a checklist for deep breathing exercises, which contains seven questions.
6- The fourth domain is a checklist for administering a subcutaneous injection, which contains twenty-two questions.

To make the instrument more valid, it was presented to a panel of (10) experts in the different fields. The self-report and questionnaire are used in the data gathering procedure, and descriptive and inferential statistics are used for analysis.

Results:

Table (1): Distribution of the studied groups according to (SDCv.) with comparisons significant

SDCv.	Groups	Groups				C.S. (*) P-value
	Classes	Study		Control		
Gender	Male	11	44	12	48	C.C.=0.040 P=0.777 (NS)
	Female	14	56	13	52	
Age Groups	< 30 yrs.	6	24	7	28	C.C.=0.207 P=0.525 (NS)
	30 _ 34	10	40	9	36	
	35 _ 39	4	16	7	28	
	> 39 yrs.	5	20	2	8	
	Mean ± SD	29.40 ± 5.97		28.92 ± 5.35		
Education levels	Nursing preparatory school graduate	1	4	0	0.00	C.C.=0.210 P=0.509 (NS)
	Institute graduate	15	60	16	64	
	College graduate	6	24	8	32	
	Postgraduate	3	12	1	4	
Occupation	Emergency hall	7	28	8	32	C.C.=0.052 P=0.936 (NS)
	Internal resuscitation unit	8	32	7	28	
	Surgical halls	10	40	10	40	

Twenty-five nurses has been selected for each group, total number of male in the study group 11(44%), mean age (29.40 ± 5.97), whereas 44(49%) are accounted in controlled, with mean age (28.92 ± 5.35), as well as no significant differences at P>0.05 are accounted between studied groups with respect to gender and age variables.

Most of educational levels of the studied groups has assigned institute graduation, since 15(60%), and 16(64%) are accounted in the study and controlled groups respectively, with no significant different between studied groups at P>0.05, as well as surgical halls are accounted 10(40%) in each group, and the leftover were distributed similarly among emergency hall, and internal resuscitation unit.

Table (1-A): Distribution of the studied groups according to (SRv.) with comparisons significant

SRv.	Groups	Groups				C.S. (*) P-value
	Classes	Study		Control		
Service's years	< 5 yrs.	11	44	12	48	C.C.=0.070 P=0.885 (NS)
	5 _ 9	11	44	11	44	
	> 9 yrs.	3	12	2	8	
Service's years in the specific field	1 _ 2	9	36	11	44	C.C.=0.084 P=0.836 (NS)
	3 _ 4	11	44	10	40	
	> 4 yrs.	5	20	4	16	

Most of total service's years of studied groups has assigned at the first two classes similarly, since they are accounted 22(88%), and 23(92%) in the study and controlled groups respectively, with no significant different at P>0.05 between studied groups, as well as results shows that most of service's years in the specific field of studied groups has assigned at the first two classes similarly, since they are accounted 20(80%), and 21(84%) in the study and controlled groups respectively, with no significant different at P>0.05 between studied groups.

Part2: Assess nursing practices toward Prevention of Venous Thrombosis Domain:

The results of the controlled group has recorded completely immovable responses over the studied periods with a moderate level of assessed generally except for the items that achieved a high level of assessed initially at the studied periods.

Table (2): Descriptive Statistics of the studied groups according to (Assess nursing practices toward Prevention of Venous Thrombosis) Domain along studied periods with comparisons significant

Practices toward Prevention of Venous Thrombosis	Period	No.	Study					Control					C.S. (*)
			MS	SD	RS %	Ass. (*)	C.S. (*)	MS	SD	RS %	Ass. (*)	C.S. (*)	
Observational checklist for General Preparations													
1. Check the physician order	Pre	25	1.00	0.00	100	H	1.000	1.00	0.00	100	H	1.000	1.000
	Post	25	1.00	0.00	100	H		1.00	0.00	100	H		1.000
2. Perform hand washing	Pre	25	0.20	0.41	20	L	0.000	0.20	0.41	20	L	1.000	1.000
	Post	25	1.00	0.00	100	H		0.20	0.41	20	L		0.000
3. Put personal protective Equipment	Pre	25	0.00	0.00	0	L	0.000	0.20	0.41	20	L	1.000	0.050
	Post	25	0.84	0.37	84	H		0.20	0.41	20	L		0.000
4. Identify patient	Pre	25	1.00	0.00	100	H	1.000	0.80	0.41	80	H	0.063	0.050
	Post	25	1.00	0.00	100	H		1.00	0.00	100	H		1.000
5. Close curtains around patient's bed or close door	Pre	25	0.20	0.41	20	L	0.000	0.00	0.00	0	L	1.000	0.050
	Post	25	0.84	0.37	84	H		0.00	0.00	0	L		0.000
6. Explain procedure	Pre	25	0.40	0.50	40	M	0.001	0.80	0.41	80	H	1.000	0.009
	Post	25	0.84	0.37	84	H		0.80	0.41	80	H		1.000
Observational checklist for Respiration													
1. Observe the patient's Respiration	Pre	25	1.00	0.00	100	H	1.000	1.00	0.00	100	H	1.000	1.000
	Post	25	1.00	0.00	100	H		1.00	0.00	100	H		1.000
2. Note the rise and fall of the patient's chest for full minute	Pre	25	0.20	0.41	20	L	0.007	0.40	0.50	40	M	0.302	0.217
	Post	25	0.64	0.49	64	M		0.20	0.41	20	L		0.004
3. Using a watch with a second hand, count the number of respirations for 60 seconds	Pre	25	0.20	0.41	20	L	0.007	0.20	0.41	20	L	1.000	1.000
	Post	25	0.64	0.49	64	M		0.20	0.41	20	L		0.004

4. Note the (a-) depth as (shallow, normal and deep) and (b) rhythm as (regular or irregular) of the respirations	Pre	25	0.40	0.50	40	M	1.000	0.20	0.41	20	L	1.000	0.217
	Post	25	0.44	0.51	44	M		0.20	0.41	20	L		0.128
5. Perform hand washing	Pre	25	0.00	0.00	0	L	0.000	0.00	0.00	0	L	1.000	1.000
	Post	25	0.52	0.51	52	M		0.00	0.00	0	L		0.000
6. Recording and reporting	Pre	25	1.00	0.00	100	H	1.000	1.00	0.00	100	H	1.000	1.000
	Post	25	1.00	0.00	100	H		1.00	0.00	100	H		1.000

Continue …

Practices toward Prevention of Venous Thrombosis	Period	No.	Study					Control					C.S. (*)
			MS	SD	RS %	Ass. (*)	C.S. (*)	MS	SD	RS %	Ass. (*)	C.S. (*)	
Observational Checklist for Deep Breathing Exercise													
1. Ask the patient to sit up (semi-or high fowler's position with the neck and shoulders supported	Pre	25	0.20	0.41	20	L	0.002	1.00	0.00	100	H	0.063	0.000
	Post	25	0.72	0.46	72	H		0.80	0.41	80	H		0.742
2. Ask the patient to place the palms of both hands along the lower anterior rib cage	Pre	25	0.20	0.41	20	L	0.000	0.60	0.50	60	M	0.302	0.009
	Post	25	0.68	0.48	68	H		0.40	0.50	40	M		0.088
3. Instruct the patient to breath in through the nose deeply and hold breath for 3 to 5 seconds	Pre	25	0.60	0.50	60	M	1.000	0.60	0.50	60	M	0.063	1.000
	Post	25	0.56	0.51	56	M		0.80	0.41	80	H		0.128
4. Instruct the patient to exhale through the pursing the lips like when whistling mouth	Pre	25	0.20	0.41	20	L	0.000	0.20	0.41	20	L	0.002	1.000
	Post	25	0.80	0.41	80	H		0.60	0.50	60	M		0.217
5. Instruct the patient that this exercise should be performed every 1 to 2 hours for the first 24 hours after surgery, and as necessary thereafter, depending on risk factors and pulmonary status	Pre	25	0.20	0.41	20	L	0.344	0.00	0.00	0	L	0.000	0.050
	Post	25	0.36	0.49	36	H		0.60	0.50	60	M		0.156
6. Perform hand washing	Pre	25	0.00	0.00	0	L	0.000	0.40	0.50	40	M	0.002	0.001
	Post	25	0.72	0.46	72	H		0.00	0.00	0	L		0.000
7. Recording and reporting	Pre	25	1.00	0.00	100	H	1.000	1.00	0.00	100	H	1.000	1.000

	Post	25	1.00	0.00	100	H		1.00	0.00	100	H		1.000

Continue …

Practices toward Prevention of Venous Thrombosis	Period	No.	Study					Control					C.S. (*)
			MS	SD	RS %	Ass. (*)	C.S. (*)	MS	SD	RS %	Ass. (*)	C.S. (*)	
Observational checklist for Administering a Subcutaneous Injection													
1. Gather equipment Cheek each medication order against the original order in the medical	Pre	25	1.00	0.00	100	H	1.000	1.00	0.00	100	H	1.000	1.000
	Post	25	1.00	0.00	100	H		1.00	0.00	100	H		1.000
2. Prepare medications for one patient at a time	Pre	25	1.00	0.00	100	H	0.500	1.00	0.00	100	H	1.000	1.000
	Post	25	0.92	0.28	92	H		1.00	0.00	100	H		0.490
3. Identify patient and provide and maintain patient privacy	Pre	25	1.00	0.00	100	H	1.000	1.00	0.00	100	H	1.000	1.000
	Post	25	1.00	0.00	100	H		1.00	0.00	100	H		1.000
4. Complete necessary Assessments before administering medication	Pre	25	0.00	0.00	0	L	0.000	0.40	0.50	40	M	1.000	0.001
	Post	25	0.84	0.37	84	H		0.40	0.50	40	M		0.003
5. Select an appropriate administration site	Pre	25	0.40	0.50	40	M	1.000	0.20	0.41	20	L	0.063	0.217
	Post	25	0.44	0.51	44	M		0.40	0.50	40	HM		1.000
6. Assist the patient to the appropriate position for the Site chosen	Pre	25	0.20	0.41	20	L	0.000	0.20	0.41	20	L	0.002	1.000
	Post	25	0.88	0.33	88	H		0.60	0.50	60	M		0.051
7. Identify the appropriate land marks for the site chosen	Pre	25	1.00	0.00	100	H	0.016	1.00	0.00	100	H	1.000	1.000
	Post	25	0.72	0.46	72	H		1.00	0.00	100	H		0.010
8. Syringe Enoxaparin come prefilled Check that the syringe is for the correct dosage Every syringe comes with a small air bubble Do not expel the air bubble unless you have to adjust the dose	Pre	25	0.60	0.50	60	M	0.039	0.20	0.41	20	L	0.302	0.009
	Post	25	0.88	0.33	88	H		0.40	0.50	40	M		0.001
9. Cleanse the area around the injection site with an antimicrobial swab Use a firm, circular motion	Pre	25	0.00	0.00	0	L	0.125	0.20	0.41	20	L	1.000	0.05
	Post	25	0.16	0.37	16	L		0.20	0.41	20	L		1.000

while moving outward from the injection site													
10. Remove the needle cap with the non-dominant hand, pulling it straight off	Pre	25	0.40	0.50	40	M	0.021	0.40	0.50	40	M	1.000	1.000
	Post	25	0.80	0.41	80	H		0.40	0.50	40	M		0.009
11. Grasp and bunch the area surrounding the injection site or spread the skin taut at the site	Pre	25	0.40	0.50	40	M	0.092	0.80	0.41	80	H	1.000	0.009
	Post	25	0.68	0.48	68	H		0.80	0.41	80	H		0.520

Continue …

Practices toward Prevention of Venous Thrombosis	Period	No.	Study					Control					C.S.(*)
			MS	SD	RS%	Ass.(*)	C.S.(*)	MS	SD	RS%	Ass.(*)	C.S.(*)	
Observational checklist for Administering a Subcutaneous Injection													
12. Hold the syringe in the dominant hand between the thumb and forefinger Inject the needle quickly at a 45 to 90-degree angle	Pre	25	0.00	0.00	0	L	0.002	0.40	0.50	40	M	1.000	0.001
	Post	25	0.40	0.50	40	M		0.40	0.50	40	M		1.000
13. After the needle is in place, release the tissue If you have a large skin fold pinched up, ensure that the needle stays in place as the skin is released	Pre	25	0.20	0.41	20	L	0.007	0.20	0.41	20	L	1.000	1.000
	Post	25	0.64	0.49	64	M		0.20	0.41	20	L		0.004
14. Immediately move your non-dominant hand to steady the lower end of the syringe Slide your dominant hand to the end of the plunger Avoid moving the syringe	Pre	25	0.20	0.41	20	L	0.007	0.40	0.50	40	M	0.063	0.217
	Post	25	0.64	0.49	64	M		0.20	0.41	20	L		0.004
15. Inject the medication slowly (at a rate of 10 sec/Ml)	Pre	25	0.20	0.41	20	L	0.000	0.20	0.41	20	L	1.000	1.000
	Post	25	0.88	0.33	88	H		0.20	0.41	20	L		0.000
16. Withdraw the needle quickly at the same angle at which it was inserted ,while supporting the surrounding tissue with your non-dominant hand	Pre	25	0.40	0.50	40	M	0.000	0.20	0.41	20	L	0.302	0.217
	Post	25	0.88	0.33	88	H		0.40	0.50	40	M		0.001
17. Using a gauze square, apply gentle pressure to the site after the needle is withdrawn Do not massage the Site	Pre	25	0.20	0.41	20	L	0.109	0.40	0.50	40	M	0.063	0.217
	Post	25	0.44	0.51	44	M		0.20	0.41	20	L		0.128
18. Do not recap the used needle	Pre	25	0.60	0.50	60	M	0.508	0.60	0.50	60	M	0.302	1.000
	Post	25	0.72	0.46	72	H		0.40	0.50	40	M		0.045

19. Engage the safety shield or needle guard	Pre	25	0.60	0.50	60	M	0.508	0.40	0.50	40	M	0.063	0.258
	Post	25	0.72	0.46	72	H		0.60	0.50	60	M		0.551
20. Discard the needle and syringe in the appropriate receptacle	Pre	25	1.00	0.00	100	H	0.500	1.00	0.00	100	H	0.063	1.000
	Post	25	0.92	0.28	92	H		0.80	0.41	80	H		0.417

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Practices toward Prevention of Venous Thrombosis	Period	No.	Study					Control					C.S. (*)
			MS	SD	RS %	Ass. (*)	C.S. (*)	MS	SD	RS %	Ass. (*)	C.S. (*)	
Observational checklist for Administering a Subcutaneous Injection													
21. Assist the patient to a position of comfort	Pre	25	0.20	0.41	20	L	1.000	0.40	0.50	40	H	0.063	0.217
	Post	25	0.20	0.41	20	L		0.60	0.50	60	H		0.009
22. Document the administration of the medication immediately after administration	Pre	25	1.00	0.00	100	H	1.000	1.00	0.00	100	H	1.000	1.000
	Post	25	1.00	0.00	100	H		1.00	0.00	100	H		1.000

(*) Assessments Intervals Scoring Scales of Relative Sufficiency Coefficient (RS%): [L: Low (0.00–33.33)]; [M: Moderate (33.34 – 66.66)]; [H: High (66.67 – 100)].

Testing are based on McNemar test for testing Pre to Post periods in each group, and Fisher Exact Probability test for testing 2X2 association category dichotomous binary nominal scales of two independent random variables.

Table(3): Relationships (Analysis of Covariance-ANCOVA) for Compliance Regarding to Life Style Modification in the study group and SDCv.

Group	Source of Variations S.O.V.	Type III Sum of Squares	d.f.	Mean Square	F Statistic	Sig. Levels	C.S. (*)
Study Group	Intercept	46506.0	1	46506	1422.9	0.000	HS
	Gender	63.857	1	63.857	1.954	0.190	NS
	Age Groups	53.011	3	17.67	0.541	0.664	NS
	Education Level	12.963	3	4.321	0.132	0.939	NS
	Occupation	163.02	2	81.51	2.494	0.128	NS
	Services yrs.	22.512	2	11.256	0.344	0.716	NS
	Services yrs. at the specific felid	9.641	2	4.82	0.147	0.865	NS
	Error	359.5	11	32.683	R-Square=0.491		
	Total	156063.1	25				

(*) HS: Highly Sig. at P<0.01; Non Sig. at P>0.05; Statistical hypothesis based on Analysis of Covariance (ANCOVA).

Discussion:

1. Discussion of Nurses' the Socio-demographic characteristics in the Control and Study Groups.

The study and control groups are equivalent, according to analyses of the nurses' demographic data, however there are notable distinctions. The study's quasi-experimental approach, which included both a pre- and post-test, accepts these findings.

The medical term "venous thromboembolism" (VTE) refers to a condition in which a thrombus forms in one or more systemic venous system veins (often in the lower limbs, abdomen, or pelvis) and becomes embolized, traveling through the inferior vena cava and right heart chambers to the pulmonary arterial system. The most frequent clinical manifestation of VTE is pulmonary embolism (PE) and deep vein thrombosis (DVT).(9)

If they have competence to change hospital culture, nurses can prevent VTE in a significant way. There is little question that the quality of patient care is improved by their greater level of understanding. Qualified nurses are adept at determining a patient's risk of VTE and making sure preventative measures are implemented. The nurses can start the necessary mechanical procedures even in the absence of a medical professional.(10)

The study's objective was to assess nurses' practices regarding venous thrombosis.

The current study's findings on nurse gender showed that most nurses were female. This might be because there were often fewer male nurses than female nurses in the nursing field.

These results corroborate those of (11) , who performed descriptive research in Egypt to*" assess attitude, subjective norms, perceived behavioral control, and intention of nurses towards prevention of deep vein thrombosis among critically ill patients in intensive care units"*. The research sample mainly consisted of female nurses more than half.

Also These results agreement with the study conducted by (7) *" Assessment of Nurses' Knowledge and Practice about Venous Thrombo Embolism for Cancer Surgery Patients"*

When it regards years of experience, A high percentage of them (more than a third) had been working in nursing for (1-5) years. Most of them (more than half) have experience in the intensive care unit, surgical units, and emergency department for (1-5) years

These results agree with (12) which evaluated *"Effect of An Educational Program on Critical Care Nurses Performance regarding Emergency Care for Patients with Pulmonary Embolism"*.

Also these results agreed with study conducted by (13) "*Critical Care Nurses' Knowledge about Pulmonary embolism in Respiratory Care Unit in Baghdad Teaching Hospitals*"

These results disagree with a study on *"nurses' knowledge of pulmonary embolism prevention measures in AL Nasiriyah City*" (14).

The results of this study indicate that the majority of the study and control samples were to the 30 to 34 year-old age range, with mean ages of (29.40 ± 5.97) and (28.92 ± 5.35) for the study and control groups, respectively. The researcher thinks this outcome might be the result of the demanding nature of work in critical regions, where young adult nurses are needed to combine their severe work load with their energy and strength.

This results disagreed by (15)" *Effectiveness of an Educational Program upon nurses ' knowledge toward The Continuous Positive Airway Pressure (CPAP) Machine in Neonatal Intensive Care Unit at Al-Diwanyia City Hospitals"* he stated that the majority of his study samples ranged in age from 25 to 30 Also these results disagreement with (12) *" Effect of An Educational Program on Critical Care Nurses Performance regarding Emergency Care for Patients with Pulmonary Embolism"*

This result disagreed with the research conducted by (7)who noted that more than half of the study sample was in the age range of 20–29 years old. Their study *"assessed nurses' knowledge regarding the prevention of central venous catheter infection*

in intensive care units at Baghdad Teaching Hospitals".

In terms of educational level, The majority of the nurses in the research sample worked in the critical care unit and held a diploma in nursing.

These results agree with study done by (16) " *Impact of an Educational Program on Nurses' Knowledge and Practice Regarding Care of Traumatic Brain injury Patients at Intensive Care Unit at Suez Canal University Hospital".* who stated that just 10% of the studied nurses have a bachelor's degree in nursing, with the majority having merely diploma.

Also these results agree with study conducted by (17)"

Effectiveness of Nursing Education Program on Nurses Practices Toward Arrhythmia in Kirkuk" stated that the nursing institute constituted the majority of his study sample.

This outcome might be explained by the fact that technical nurses work as bedside nurses in government hospitals, but the majority of bachelor nurses serve as supervisors or head nurses.

As evidenced by the results of the training courses on preventing venous thrombosis, every nurse in the study received no training, and neither did the control group. This indicates that the nurses are not very interested in improving the staff members' pulmonary embolism-related competencies.

These findings support a study by(13) , which *"assessed nurses' knowledge about pulmonary embolism in Baghdad*" through a descriptive study.

Also these study agreement with study done by (18)"

Knowledge and performance among nurses before and after a training programme on patient falls".

who confirmed that the most of the nurses in study had never participated in a training course.

Another study was supported this results (12)" *Effect of An Educational Program on Critical Care Nurses Performance regarding Emergency Care for Patients with Pulmonary Embolism"* who confirmed that the most of the nurses under study had never participated in a training course.

2: Discussion of Effectiveness of the Educational Program on Nurses' practice toward Prevention of Venous Thrombosis Domain in Pre and Post-Tests for The Study and the Control Groups.

The pre-test period's data analysis of nurses' practice checklists regarding to all four domains—general preparations, respiration, deep breathing, and subcutaneous injection administration—showed that both the study and control groups' scores on all pretest items were low to moderate. On the other hand, the nurses who participated in the educational program demonstrated a high degree of application to every item across every domain.

The results of the controlled group has recorded completely immovable responses over the studied periods with a moderate level of assessed generally except for the items that achieved a high level of assessed initially at the studied periods.

By means of data analysis of the general preparation domain observational checklist, it was demonstrated that most practice responses for both the study group and the control group were at a low to moderate level prior to program implementation; however, following program application, the results showed a high level of practices for all items in comparison to the control group, which displayed all items as pre-test practices.These results agree with the study done by Mohammed and Mohamed (2022): *"Nurses' practices toward prevention of pulmonary embolism among patients with Corona virus disease"* He mentioned in his study that the level of practice in the study group before implementing the program was poor.

Also these results support study by (19) *"Nurses' performance regarding preventive measures of pulmonary embolism in Port Said Hospitals*" which discovered that more than half of the nurses under investigation had an overall practice score that was unacceptable, compared to more than third who received a good mark.

Data analysis of the observational checklist of the respiration domain revealed that most practice responses for the study group and the control group were at a low and moderate level prior to the program's implementation, but after the education program was applied, the results showed high levels of practices for all items when compared to

the control group, which showed all items were at the same level as the pre-test. Table (4-2).

The practice domain for deep breathing prior to applying the program was shown to have low levels of practice across all elements, according to the study's results. When comparing the results to the control group, the study program's application resulted in a higher degree of practice than before.

These outcomes support those of (20)" *Nurses' Knowledge and Practice about Measures to Prevent Pulmonary Embolism among Patients in Aga General Hospital*". who found that very little of nurses performed acceptable deep breathing exercises, the majority of nurses performed statistically unsuccessful deep breathing exercises.

As compared to the control group, the study's results showed that after applying the education program, there was a high level of practice in the practice domain related to administering subcutaneous injections, whereas the practice domain prior to the program application was moderately practiced at all items.

These results agree with the study done by (Mohammed & Mohamed, 2022) who found The average point total is low level.

The results of the disagreement by (22)'' Effect of Nursing Care Protocol on Deep Vein Thrombosis Occurrence among Critically Neurological Patients". More than half of nurses do not know enough about thrombolytic therapy. Moreover, a high proportion of them have unsatisfactory protocols for administering thrombolytic therapy.

There is no statistically significant difference in the method that nurses practice observational checklists in the pretest between the study and control groups, according to data analysis of nurses' practice by four domains used to evaluate the effectiveness of an educational program on nurses' practice toward venous thrombosis. Despite this, there was a highly statistically significant difference in the post-test scores between the study group and the control group for all domains, including general preparations for nursing practice, perspiration, deep breathing exercises, and subcutaneous injection administration.

The results of the controlled group has recorded completely immovable responses over the studied periods with a moderate level of assessed generally except for the items that achieved a high level of assessed initially at the studied periods.

These results have come along with the findings of the study of Haza et al (2020) study aimed to *"assess nurses' knowledge and practice about measures to prevent pulmonary embolism*". According to the findings, before to the program's introduction, all nurses received a score of less than 75%, and they all quickly achieved a score of more than 75%. After the program was implemented for three months, 41 nurses received scores of at least 75%, whereas 34 nurses received scores below that amount. Nevertheless. There were statistically significant variations (p-value <0.001) in the practice level between pre, immediately post-program, and three months later. Also these results agreement with study done by (14) " *Nurses' Knowledge toward Preventive Measure of Pulmonary Embolism in AL Nasiriyah City*" who stated In regards to the variations in participant practices between the study and control groups in the pre- and post-practice checklist, a paired t-test analysis revealed that the study group's practices were significantly better (p = 0.000) than those of the control group across all domains.

Results showed that overall main domains has recorded high significant differences at P<0.01 toward effectiveness of a proposed program through raising information grades of studied respondents at the post period, and that could be enable to confirms successfulness of applying a proposed program.

In addition to that, and rather than testing significant are too sensitive to improvements that occurred for repeated measurements statistic in the study group, but all studied main domains illustrated too highly and meaningful changeable with high levels of assessments along pre to post periods.

Conclusion:

Nurses working in the surgical department, emergency units, and critical care units had poor practice regarding venous thrombosis because their education

level was low and they had not attended training courses.

Recommendations:

This study recommended that nurses be required to attend in-service training courses and to raise awareness in order to improve their practices in treating venous thrombosis.

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