

## Nurses' Knowledge toward Preventive Measure of Pulmonary Embolism in AL Nasiriyah City

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### Abstract

**Background:** Pulmonary embolism is a serious disease that leads to death, as it ranks third among cardiovascular diseases after coronary artery disease and stroke. Pulmonary embolism is one of the diseases that can be prevented or avoided. The nursing staff plays a key role in knowing the risk factors, diagnosis, and prevention of pulmonary embolism.

**Aims:** This study aimed to assess nurses` knowledge toward preventive measures of pulmonary embolism, and determine the relationship between nurses knowledge and their socio-demographic data.

**Methods:** A descriptive study is conducted for the periods of 26th November 2020 to 2ed May 2021. The study is carried out at AL-Hussein Teaching Hospital and AL-Haboby Teaching Hospital in AL Nasiriyah City. A purposive sample (non-probability) consisting of (60) nurses was selected from nurses who work in the critical care units and surgical wards.

**Results:** Findings indicate that nurses age at mean 27.2, (80%) females, (40%), secondary nursing school graduated, (71.7%) have 1-5 years of experience and no participated in training sessions. Findings demonstrated that the nurses were poorly knowledge related to pulmonary embolism and preventive measure of pulmonary embolism at mean equal to 0.30, and 0.27 respectively. There were no-significant relationship between nurses knowledge and their demographic data at p-value >0.05.

**CONCLUSIONS:** Nurses working in critical care units and surgical wards expressed poor knowledge toward preventive measures of pulmonary embolism due to low level of education and lack of training.

**Recommendations:** The study recommended the necessity of allocating special training courses for all nurses who work in critical care units and surgical wards to improve the knowledge of nurses toward preventive measure of pulmonary embolism, in addition to increasing the number of professional nurses' graduate from the colleges of nursing to the enrolled in surgical wards

**Keywords:** Knowledge, Nurses, Pulmonary Embolism, Preventive Measure

## **INTRODUCTION**

Pulmonary embolism is the most common predictably lethal acute condition, and the majority of cases go untreated, reducing survival rates, primarily due to relapses. When a patient is suspected of having a pulmonary embolism, thorough laboratory testing are required for diagnosis, and medication must always be delivered in accordance to the patient's benefit / risk.(1). PE is a significant complication of DVT and one of the primary causes of death in many individuals. The majority of PEs are caused by DVTs in the lower extremities, and about half of all DVTs can result in a silent PE (2).

Early diagnosis and treatment of PE reduce morbidity and mortality. If not treated early, a pulmonary embolism can be life-threatening. About one-third of people with undiagnosed or untreated pulmonary embolism die from the condition. Early treatment greatly reduces the risk of death, (3). Prevention is the primary goal of nursing care for patients at risk for developing PE. The best management of pulmonary embolism is through prevention of Deep Venous Thrombosis. The nurse must recognize risk factors for pulmonary embolism and vigilantly monitor patients who are immobilized or have had their activity restricted for unexplained tachypnea, tachycardia, and restlessness.(4). Nurses can have a significant role in prevent of venous thromboembolism VTE (DVT and PE) if well-educated and empowered to change hospital culture. Their increased level of knowledge undoubtedly leads to an improvement in the delivery of patient care. Appropriately trained nurses are skilled in assessing the risk of VTE in their clients and ensuring prophylactic measures are in place for those clients who are particularly vulnerable to developing VTE. Even in the absence of a medical practitioner, the nurses can initiate appropriate mechanical measures (5).

## **AIMS OF THE STUDY**

The study aims to

1. Assess nurses knowledge towards preventive measure of the pulmonary embolism
2. Determine the relationship between nurses knowledge and their socio-demographic data

## **METHODOLOGY**

To assess the knowledge, a descriptive study is conducted for the periods of 26th November 2020 to 2ed May 2021. The study is carried out at AL-Hussein Teaching Hospital and AL-Haboby Teaching Hospital in AL Nasiriyah City. A purposive sample (non-probability) consisting of (60) nurses was selected from nurses who work in the critical care units and surgical wards. A questionnaire consists of

the following parts including:

**Part 1:** Socio-demographic data of nurses

**Part 2:** This part deal with nurses knowledge and divided into two domains include:

**Domain one:** nurses' knowledge toward pulmonary embolism which composed of(15) items

**Domain two:** nurses' knowledge toward preventive measure pulmonary embolism(15)items.

A content validity were achieved through a (13) panel of experts and reliability were achieved through a pilot study. The data collection process uses the self-report and questionnaire and analyzed through the descriptive and inferential statistic.

**RESULTS:**

**Table (1): Distribution of the critical care nurses and surgical nurses by Demographic Characteristics of the Study sample**

Demographic Characteristics	Variables	Frequency	Percentage
Age group (Years)	20-30	51	85.0
	30-40	7	11.7
	40-50	2	3.3
	$\bar{x} \pm S.D.$	27.02 ± 5.037	
Gender	Male	12	20.0
	Female	48	80.0
Educational Level	Secondary Nursing school	24	40.0
	Nursing Institute graduate	18	30.0
	Nursing college graduate	18	30.0
Years of experience in nursing	1-5	43	71.7
	6-10	9	15.0
	11-15	4	6.7
	more than 16	4	6.7
Years of service in critical units or surgical units	1-2	38	63.3
	3-4	13	21.7
	more than 5	9	15.0

<b>Working Unit</b>	<b>ICU</b>	11	18.3
	<b>RCU</b>	12	20.0
		10	16.7
	<b>Surgical unit</b>	27	45.0
<b>Attend training courses to prevent pulmonary embolism</b>	<b>Yes</b>	3	5.0
	<b>No</b>	57	95.0

This table indicate the socio-demographic distribution of nurses in terms of frequencies and percentage.

**Table(2): Nurses' knowledge toward pulmonary embolism**

<b>Knowledge Items</b>	<b>M.S</b>	<b>S.D.</b>	<b>Ass.</b>
1) define Pulmonary embolism as	.81	.393	<b>H</b>
2)Causes of pulmonary embolism	.17	.376	<b>P</b>
3)A risk factor for a pulmonary embolism is all options, except	.08	.279	<b>P</b>
4) The most people at risk of pulmonary embolism are	.22	.415	<b>P</b>
5) symptom of leg thrombosis (DVT ) diseases	.22	.415	<b>P</b>
6) One of the most common symptoms of a pulmonary embolism is	.22	.415	<b>P</b>
7) Pulmonary embolism is diagnosed by:	.27	.446	<b>P</b>
8)A- Which of the following procedures should be performed before surgery to prevent pulmonary embolism	.38	.490	<b>P</b>
8)B_ Which of the following procedures should be performed during surgery to prevent pulmonary embolism	.13	.343	<b>P</b>
8) C_ Which of the following procedures should be performed after surgery to prevent pulmonary embolism	.17	.376	<b>P</b>
9)Medical compression stockings are used to prevent pulmonary embolism for	.12	.324	<b>P</b>
10) When wearing compression stockings, you must make sure that there are no:	.13	.343	<b>P</b>

11) Medications given to the patient to prevent pulmonary embolism:	.70	.462	<b>M</b>
12) Before giving anticoagulants, it is necessary to:	.15	.360	<b>P</b>
13) the medication that must be avoided during anticoagulant therapy	.12	.324	<b>P</b>
14) The maximum period of time for taking anticoagulants to prevent pulmonary embolism:	.08	.279	<b>P</b>
15) Complications of a pulmonary embolism	.63	.486	<b>M</b>
Total mean	.30	.435	<b>P</b>

**M. S= mean of score, S. D=Standard Deviation, Ass=level of assessment ,P = poor(less than 0,5) , M =Moderate (0,5\_ 0,75) , H=High (0,76 \_ 1)**

This table shows that nurses knowledge were poor knowledge at all items, except items number(1) the responses were high and items (11,and 15) were moderate level. By the majority, findings demonstrated that the nurses were poorly knowledge related to pulmonary embolism at mean equal 0.30

**Table (3):Nurses' knowledge about preventive measure of pulmonary embolism**

<b>Knowledge Items of preventive measure of pulmonary embolism</b>	<b>M.S</b>	<b>S.D.</b>	<b>Ass.</b>
1- Moving the patient after the surgery	.55	.502	<b>M</b>
2- Measure the patient's vital signs every 2 hours	.65	.481	<b>M</b>
3- Doing leg muscle exercise 3_5 times a day	.08	.279	<b>P</b>
4- Patient wears compression stocking (anti embolic stocking)	.18	.390	<b>P</b>
5- Do breathing exercises	.20	.403	<b>P</b>
6-Giving the patient anticoagulant drugs before and after surgery	.63	.486	<b>M</b>

7- Early detection of symptoms of deep vein thrombosis (thrombosis) in the legs	.08	.279	<b>P</b>
8- Report any change in urine color of The patient or the stool as it occurs	.03	.181	<b>P</b>
9- Advise The patient not to drink too much liquids	.15	.360	<b>P</b>
10-Stop smoking	.58	.497	<b>M</b>
11- The patient's clothes should be tight in the waist and legs area	.15	.360	<b>P</b>
12- Advise the patient to put one leg on one's leg when sitting	.20	.403	<b>P</b>
13- Educate the patient about the need to move the feet by pulling the fingers towards the knees and then tightening them	.30	.462	<b>P</b>
14- Use laxatives for the patient because they help to absorb vitamin K	.08	.279	<b>P</b>
15- Measuring blood sugar every two hours	.27	.446	<b>P</b>
<b>Total</b>	<b>.27</b>	<b>.387</b>	<b>P</b>

**M. S= mean of score, S. D=Standard Deviation, Ass=level of assessment ,P = poor(less than 0,5) , M =Moderate (0,5\_ 0,75) , H=High (0,76 \_ 1)**

This table shows that nurses knowledge were poor knowledge at all items, except items number (1,2,6, and 10) the responses were moderate level. By the majority, findings demonstrated that the nurses were poorly knowledge related to preventive measure of pulmonary embolism at mean equal 0.27

**Table (4): Relationship between nurses knowledge and their socio-demographic data**

<b>Demographic Characteristics</b>	<b>F</b>	<b>Df</b>	<b>P. value</b>	<b>Sig</b>
<b>Age group (Years)</b>	<b>0.986</b>	<b>51</b>	<b>0.458</b>	<b>NS</b>
<b>Gender</b>	<b>0.937</b>	<b>51</b>	<b>0.495</b>	<b>NS</b>
<b>Years of experience in nursing</b>	<b>1.449</b>	<b>51</b>	<b>0.199</b>	<b>NS</b>
<b>Educational Level</b>	<b>0.381</b>	<b>51</b>	<b>0.926</b>	<b>NS</b>
<b>Years of service in critical units or surgical units</b>	<b>.765</b>	<b>51</b>	<b>0.634</b>	<b>NS</b>

**d.f. = degree of freedom, P = probability value, , NS : Non Significant at P . 0.05 , S : Significant at P < 0.05.**

Findings presented there were no-significant relationship between nurses knowledge and their demographic data at p-value >0.05.

## **DISCUSSION**

Prevention is the primary goal of nursing care for patients at risk for developing PE. The best management of pulmonary embolism is through prevention of DVT.

According to table (1),The present study findings revealed that more than three-quarters(85.0%) of the study sample were in the age group (20–30 years) and the mean age is (27.02). The researcher believes that the large numbers of nurses in the twenties as a result of the enrollment of new graduates from different levels of education for nursing. This finding is agrees with the study carried out by Ahmed et al (2019) pointed in their study to assess nurses' knowledge concerning the prevention of central venous catheter infection in intensive care units at Baghdad Teaching Hospitals, who reported that (52%) of the study sample were in the age group (20-29) years.

Related to gender, the result of the study revealed that female (80%)more participation than males(20%). These findings are agreed with study of Hebeshy (2018) conducted a descriptive study 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 who reported that nurses were predominantly female (59%) of study sample. The researcher believes that the number of female nurses more than males as a result of increasing the acceptance and graduation of females more than males in all educational institutions for nursing in Iraq.

Concerning the educational level, The majority of the nurses(40%) were graduates from the secondary nursing school. These findings agree with Abdellnaser et al (2018) performed a study aimed to assess nurses' knowledge and practice about measures to prevent pulmonary embolism among patients in Aga general hospital who revealed that, more than half of the studied nurses were graduated from nursing schools with diploma degree and at age group 20-30 years.

Concerning the years of experience in nursing, the majority of nurses (71.7%) in the study sample have (1-5) years of employment. While the years of experience in the critical units and surgical departments revealed more than half (63.3%)of nurses have (1-2) years. These findings agree with study of AL Mugheed et al (2018) That determine the knowledge and practices of DVT risks and prophylaxis among nurses. The researcher found most of the nurses had

experience less than five years (57.0%), in the hospital (66.1%) and in the unit (57.6).

Regarding participation in training courses related to preventing pulmonary embolism results indicated the majority of nurses (95%) were had no training. These results goes in line with study done by Najm et al (2019) conducted a descriptive study to assess the nurses' knowledge about pulmonary embolism in Baghdad. Results showed a high percentage (34.3%) of the study sample (1-5) years were employed in nursing, more than half (58.3%) of them were, have experienced in RCU (1-5) years.

By the majority, findings demonstrated that the nurses were poorly knowledge toward pulmonary embolism at mean equal 0.30. These results have come along with the findings of the study of Khedr et al, (2019) conducted a cross-sectional design study, which aimed to assess nurses' performance regarding preventive measures of pulmonary embolism. The study reported that the majority (64.4%) of the studied nurses had an unsatisfactory level of knowledge regarding to pulmonary embolism. These results disagree with study done by Najm et al (2019) conducted a descriptive study to assess the nurses' knowledge about pulmonary embolism in Baghdad who reported that nurses' knowledge concerning PE in RCU had moderate knowledge level.

The data analysis of nurses' knowledge of preventive measure of pulmonary embolism, this domain composed of (15) questions, the data demonstrate all questions was poor knowledge except (Moving the patient after the surgery , Measure the patient's vital signs every 2 hours, giving the patient anticoagulant drugs before and after surgery and stop smoking) presented moderate level of knowledge. These results supported by the study of Abdellnaser et al (2018) performed a study aimed to assess nurses' knowledge and practice about measures to prevent pulmonary embolism among patients in Aga general hospital. The results revealed about half of the studied nurses (40%) had a low score of knowledge related to nursing care of patients with pulmonary embolism and about half of the studied nurses had a low score regarding measures to prevent pulmonary embolism and the majority of the studied nurses had a moderate score of general knowledge, drug knowledge and overall knowledge about pulmonary embolism.

The current research showed there are no statistically significances differences between demographic variables (age, gender, years of service in nursing, educational level and years of service in critical units or surgical units) and nurse's knowledge toward preventive measures of pulmonary embolism. This result is agreement with Najm et al (2019) who indicated that there is no significant association between age, gender, years of experience and nurses' knowledge. These results gone with the study done by Abdellnaser et al (2018) who revealed that there was no significant relationship between the nurses' score of overall knowledge and practice and socio-demographic characteristics such as age,



gender, qualifications and experience.

## CONCLUSION

Nurses who work in critical care units and surgical wards were express poorly knowledge toward preventive measures of pulmonary embolism due to low level of education and lack of training.

## RECOMMENDATIONS

The study recommended the necessity of allocating special training courses for all nurses who work in critical care units and surgical wards to improve the knowledge of nurses toward preventive measure of pulmonary embolism, and booklets should be designated and presented to all nurses in critical care units and surgical wards. In addition to increasing the number of professional nurses' graduate from the colleges of nursing to the enrolled in critical care units and surgical wards.

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