KNOWLEDGE ON DEEP VEIN THROMBOSIS AND PREVENTION PRACTICE AMONG NURSES IN HOSPITAL UNIVERSITI SAINS MALAYSIA.

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by

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Dissertation submitted in partial fulfillment of the requirements for the degree of Bachelor of Nursing (Honours)

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CERTIFICATE

This is to certify that the dissertation entitled “Knowledge On Deep Vein Thrombosis And Prevention Practice Among Nurses In Hospital Universiti Sains Malaysia” is the bonafide record of research work done by Ms. Nur Shahirah binti Mohd Isa during the period from September 2019 to June 2020 under my supervision. I have read this dissertation and that in my opinion it conforms to acceptable standard of scholarly presentation and is fully adequate, in scope and quality, as a dissertation to be submitted in partial fulfillment for the Degree of Bachelor of Nursing (Honours).

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DECLARATION

I hereby declare that this dissertation titled "Knowledge On Deep Vein Thrombosis And Prevention Practice Among Nurses In Hospital Universiti Sains Malaysia" is the result of my own investigations, excepts where otherwise stated and duly acknowledged. I also declare that it has not been previously or concurrently submitted as a whole for any other degrees at Universiti Sains Malaysia or other institutions. I grant Universiti Sains Malaysia is the right to use the dissertation for teaching, research, and promotional purposes.

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LIST OF ABBREVIATIONS

PE- Pulmonary embolism

VTE- Venous thromboembolism

DVT-Deep Vein Thrombosis

Hospital USM- Hospital Universiti Sains Malaysia

KNOWLEDGE ON DEEP VEIN THROMBOSIS AND PREVENTION PRACTICE AMONG NURSES IN HOSPITAL UNIVERSITI SAINS MALAYSIA.

ABSTRACT

Deep Vein Thrombosis (DVT) is a common thrombotic problem that usually affecting patient and it can lead to potentially life-threatening complication. The general objective of the study was to assess the level of knowledge on DVT and prevention practice among nurses in Hospital USM. A cross sectional study was conducted on 62 respondents recruited. A validated questionnaire was given to all respondent that fit with inclusion criteria. Then, the data was analyzed using Statistical Package for the Social Sciences (SPSS) software version 24.0. Descriptive statistic was used to describe the socio-demographic characteristic, level of knowledge on DVT and prevention practice among nurses in Hospital USM. Pearson's Chi Square analyses were used to determine the association between socio-demographic data with level of knowledge on DVT and prevention practice among nurses in Hospital USM. 67.7% of participant had moderate level of knowledge on DVT, while 22.6% had low level and 9.7% had high level respectively. Then, majority of them had high level of practice which is 93.5%. This study also shown that there is no association between level of knowledge and level of prevention practice on DVT. It also revealed that there is no significant association between level of knowledge and prevention practice with sociodemographic data (years of working experience in hospital and previous attending workshop) on DVT among staff nurses in Hospital USM. Thus, increasing the knowledge and practice among nurses will prevent the complication of DVT to occur.

PENGETAHUAN MENGENAI THROMBOSIS DEEP VEIN DAN AMALAN PENCEGAHAN DI KALANGAN JURURAWAT HOSPITAL UNIVERSITI SAINS MALAYSIA.

ABSTRAK

Deep Vein Thrombosis (DVT) adalah masalah trombotik yang biasanya mempengaruhi pesakit dan boleh menyebabkan komplikasi yang berpotensi mengancam nyawa. Objektif umum kajian ini adalah untuk menilai tahap pengetahuan mengenai DVT dan amalan pencegahan di kalangan jururawat di Hospital USM. Kajian keratan rentas dilakukan terhadap 62 orang responden. Soal selidik yang disahkan telah diberikan kepada semua responden yang sesuai dengan kriteria. Kemudian, data dianalisis menggunakan perisian Statistical Package for the Social Sciences (SPSS) versi 24.0. Statistik deskriptif digunakan untuk menggambarkan sosio-demografi, tahap pengetahuan DVT dan amalan pencegahan di kalangan jururawat di Hospital USM. Analisis Pearson Chi Square digunakan untuk menentukan hubungan antara data sosio-demografi dengan tahap pengetahuan DVT dan amalan pencegahan di kalangan jururawat di Hospital USM. 67.7% peserta mempunyai tahap pengetahuan sederhana mengenai DVT, sementara 22.6% mempunyai tahap rendah dan 9.7% mempunyai tahap tinggi terhadap DVT. Kemudian, majoriti daripada mereka mempunyai tahap amalan yang tinggi iaitu 93.5%. Kajian ini juga menunjukkan bahawa tidak ada hubungan antara tahap pengetahuan dan tahap amalan pencegahan pada DVT. Ia juga menunjukkan bahawa tidak ada hubungan yang signifikan antara tahap pengetahuan dan amalan pencegahan dengan data sosiodemografi (pengalaman bertahun-tahun bekerja di hospital dan bengkel yang menghadiri sebelumnya) mengenai DVT di kalangan kakitangan jururawat di Hospital USM. Oleh itu, meningkatkan pengetahuan dan amalan di kalangan jururawat akan mengelakkan komplikasi DVT daripada berlaku.

CHAPTER 1

INTRODUCTION

1.1 Background of Study

Venous thromboembolism (VTE) is a disorder that includes deep vein thrombosis(DVT) and pulmonary embolism(PE) (NHLBI, 2020). DVT commonly occur in the lower limbs such as lower leg, thigh, or pelvis. While, PE occur in the upper extremities in the pulmonary vasculature (Korubo, Ekeke, & Omunakwe, 2015). Both of this type is the common factor for the vascular disorder that lead into morbidity and mortality rate (Ma et al., 2018). But it shown that DVT is more common than PE and may be asymptomatic (Korubo et al., 2015).

There are many risk factor that lead into DVT. For example, inactivity, long-term hospitalization, blood vessel damage, medical problem, post-operative surgery, genetic conditions, pregnancy, contraceptive pills, hormone replace therapy and many more (NHS, 2019). Thus, many preventive measure has been established to reduce the risk for the patient to get DVT. For instance, blood thinners medication, compression stockings, early ambulation, reducing weight, active and passive exercise, elevate leg and positioning (NHLBI, 2020).

As stated by World Health Organization (2018), there are an increase in global of mortality rate for noncommunicable disease including cardiovascular disease. This type of noncommunicable disease had caused 70% of deaths globally, that range between 37% in low-income country to 88% in the high-income country. Thus, VTE that include DVT

and PE is most serious vascular risk for patient yet, this is the third leading vascular diagnosis after heart attack and stroke (American Heart Association, 2019).

Study conducted by Al-Mugheed & Bayraktar (2018), evaluating the nurses had a high level of general knowledge on deep vein thrombosis. However, they had inadequate knowledge on deep vein thrombosis risks, preventive measures, and poor practices with respect to the prevention of deep vein thrombosis. Next, study conducted by Jung-Ah Lee et al (2014) shown that hospital nurses' perceived knowledge and practices of venous thromboembolism assessment and prevention. They showed poor or fair of VTE risk assessment at overall knowledge and recommended to revisit in-service continuous education about VTE risk assessment especially in acute care settings.

1.2 Problem Statement

DVT is a silent killer, which kills more people than AIDS, breast cancer, prostate cancer and road accidents (Antony et al, 2016). The reported incidence of DVT varies between 48/100,000 and 160/100,000. Also, the report from Centre for Disease Control and Prevention (CDC) puts VTE related mortality in United States (U.S) to be approximately 60,000─100,000 annually and proximately 5-8% of the U.S population has one of several genetic risk factors for developing DVT (CDC, n.d).

DVT prevention is very crucial part in nursing care because it can avoid complication of DVT from occur, such as PE. In addition, nurses is the first-line health care provider to determine the risk and symptom of DVT/VTE (Kearon et al., 2012).

As this research is focus among the nurses, there also several finding that focus on knowledge and practice about VTE that encompasses the DVT and PE. According to Hyunjin Oh, Sunjoo Boo, (2017) demonstrated that their respondent which is staff nurses shown low level of knowledge and practice in VTE and most of the respondent lack in identified the treatment and diagnosis but they had moderate understanding in risk factor about VTE. However, their practice toward the patient is lower among the general ward compare to those who working in the critical area. Then, some nurses able to show satisfactory results regarding basic prophylaxis, basic knowledge, and risk assessment for VTE and stated that the more experiences and highly educated nurses had better knowledge (Ma et al., 2018). Then, the other researcher stated that nurses had a high general knowledge level on DVT but, the level of knowledge on risk factor, preventive measure and practice is poor (Al-Mugheed & Bayraktar, 2018). Moreover, other findings claimed that knowledge and practices of healthcare provider about DVT prevention is less ideal (Bhatti, Ahsin, Salim, & Mansoor, 2012).

Thus, the purpose of the study is to explore the knowledge and DVT prevention practice among nurses in Hospital Universiti Sains Malaysia.

1.3 Significance of the Study

DVT can be occur if there is blood clot in the vein. It usually occur in the lower limbs such as thigh or leg. This condition can lead to a serious problem which is pulmonary embolism (American Academy of Orthopedic Surgeon, 2019). This study is more focus on DVT because it known as a silent killer (Vivek, 2009). This condition can occur to anyone that will lead to serious illness, disability, and death (CDC, 2019). Thus, it is important to us know about the risk factor and prevention regarding deep vein

thrombosis. According to CDC (2019), about one-third of patient who having DVT will get long-term complication because of damage of valves in the vein due to blood called as post-thrombotic syndrome (PTS). This syndrome can make a person become disabled. Deep vein thrombosis affect 0.1% of people per year (Kesieme, 2011).

In study done in India noted that no staff nurses were having a good knowledge and a good practice, even though 60% of them were graduates. This study also claimed that about 58% had average knowledge and 42% had poor knowledge regarding prevention on DVT among hospitalized patients. Then, 86% had poor practice and 14% had average practice on preventing DVT among hospitalized patients (Antony A, Ms K, 2016). Then, other study also revealed that basic knowledge of about VTE/DVT especially on prevention is lower. There also stated that nurses that working in intensive care unit (ICU), surgical department and orthopedics had good knowledge in prevention of VTE/DVT because they are exposed more on patient with special condition such as immobilization, central venous catheter placement and other (Ma et al., 2018). In this cases, nurses play a major role in DVT prevention if they are well-educated. Nurses dealing with the patient every day, thus nurses can instruct the patient on the management, prevention, and complication of DVT/VTE. Nurses have important roles in acting as an advocate for the patient by helping him or her to access information relevant to his or her condition. Ensuring the patient is fully informed will increase the individual's confidence, and better prepare him or her for any action that may need to be taken in future (Institute For Innovation And Improvement,2008). Thus, this research is more focus on medical and surgical nurses regarding their knowledge and prevention practice about DVT among nurses in Hospital USM.

1.4 Research Questions

This study will be guided by questions as follows:

1. What is the level of knowledge on DVT among nurses in Hospital USM?
2. What is the level of DVT prevention practice among nurses in Hospital USM?
3. Is there any association between level of knowledge and level of DVT prevention practice among staff nurses in Hospital USM?
4. Is there any association between level of knowledge on DVT and selected demographic data (year of working experience in hospital and previous attending workshop) among nurses in Hospital USM?
5. Is there any association between level of DVT prevention practice and selected demographic data (year of working experience in hospital and previous attending workshop) among nurses in Hospital USM?

1.5 Research Objectives

1.5.1 General Objective

To determine the level of knowledge on DVT and prevention practice among nurses in Hospital Universiti Sains Malaysia.

1.5.2 Specific Objectives

1. To determine the level of knowledge on DVT among nurses in Hospital USM.
2. To determine the level of DVT prevention practice among nurses in Hospital USM.
3. To determine association between level of knowledge and level of DVT prevention practice among nurses in Hospital USM.

4. To determine the association between level of knowledge on DVT and selected demographic (year of working experience in hospital and previous attending workshop) among staff nurses in Hospital USM.
5. To determine the association between level of DVT prevention practice and selected demographic data (year of working experience in hospital and previous attending workshop) among staff nurses in Hospital USM.

1.6 Research Hypotheses

Hypothesis 1:

H°: There is no significant association between level of knowledge and level of DVT prevention practice among staff nurses in Hospital USM.

H¹: There is a significant association between level of knowledge and level of DVT prevention practice among staff nurses in Hospital USM.

Hypothesis 2:

H°: There is no significant association between level of knowledge on DVT and selected demographic data (year of working experience in hospital and previous attending workshop) among nurses in Hospital USM.

H¹: There is a significant association between level of knowledge on DVT and selected demographic data (year of working experience in hospital and previous attending workshop) among nurses in Hospital USM.

Hypothesis 3:

H°: There is no significant association between level of DVT prevention practice on DVT and selected demographic data (year of working experience in hospital and previous attending workshop) among nurses in Hospital USM

H¹: There is a significant association between level of DVT prevention practice and selected demographic data (year of working experience in hospital and previous attending workshop) among nurses in Hospital USM.

1.7 Definition of Operational and Conceptual Terms

Deep Vein Thrombosis (DVT): Deep vein thrombosis (DVT) is a blood clot that develops within a deep vein in the body usually in the lower limbs (NHS, 2109). Venous thromboembolism (VTE), which includes DVT and pulmonary embolism (PE), affects an estimated 1 per 1,000 people and contributes to 60,000–100,000 deaths annually (Stone et al., 2017). In this study, the researcher want to know the level of knowledge and level of prevention practice on DVT among nurses in Hospital USM.

Knowledge on DVT: Knowledge is defined as a fact, information, and skills acquired through experience or education; the theoretical or practical understanding of a subject (English Oxford Living Dictionaries, 2017). In this study, it refer to the level of knowledge on DVT among nurses in Hospital USM. This level of knowledge on DVT will be tested using 34 item of questionnaire(Al-Mugheed & Bayraktar, 2018). Then, it will be divided into three categories which are high, moderate, and low.

Practice on prevention of deep vein thrombosis (DVT): Practice is defined as something that is usually or regularly done, often as a habit (Cambridge English Dictionary, 2020). In this study, it refer to the level of practice on DVT among nurses in Hospital USM. This level of practice will be tested using 13 item of questionnaire and it will be divided into three categories which are high moderate and low(Al-Mugheed & Bayraktar, 2018).

CHAPTER 2

LITERITURE REVIEW

2.1 Introduction

This chapter is a review of the previous literature and studies related knowledge and DVT prevention practice toward deep vein thrombosis.

2.2 Epidemiology of VTE & DVT

VTE disease is a term encompassing DVT and PE or both (Antony et al., 2016). According to American Heart Association (2017),VTE occur due to formation of blood clot in the vein. VTE is the third leading vascular diagnosis after heart attack and stroke, affecting between 300,000 to 600,000 Americans each year. VTE occurs in 1 per 1000 per year but it still under researched and underestimate (Frits R. Rosendaal, 2016).

DVT occur due to formation of blood clot located in deep vein. It usually affects the deep vein such as calf vein, femoral vein, popliteal vein, and vein of pelvis (Kesieme et al, 2011). Whereas DVT commonly occur in pelvis or lower limb (Osman, Ju, Sun, & Qi, 2018). In India, the incidence of DVT is 1% from the adult population after their age of fifty and 15% to 20% of the hospitalized patient's (Antony et al., 2016). While the incidence of DVT is reported 20-35% in western country, 10-9.6% in Sudan, and 11-12% in Malaysia (Tun, Shuaib, Muhamad, Mat Sain & Ressang, 2004). About 4 million patient in every year will be affected by DVT (Antony et al., 2016). Most of DVT can resolves without complication but death related to PE occur almost 300,000 death in United State (Patel & Chun, 2019).Then, In United Kingdom about 25,000 deaths per years is from VTE and DVT occurs in 25% of hospitalized patients (Bevis & Smith, 2016). While, in

Australia about 52 persons per 100 000 annually affects with DVT (Ho, Hankey, & Eikelboom (2008). A study by Fowkes, Price, & Fowkes (2003) indicated that 5 per 10,000 person year having DVT, with similar incidence among men and women. This study also shown that DVT usually occurs in older people.

2.3 DVT /VTE and its risk factors

DVT and VTE have related with each other. There are many risk factor that can contribute in developing DVT.

Pregnancy can increase the risk of DVT. This is because most of pregnant mother had difficulty in mobilization, compression on the inferior vena cava and iliac vein (Bevis & Smith, 2016). Then, hospitalized patient also at higher risk for DVT. According to National Clinical Guideline Centre (2010), surgical patient has more risk compare to medical patient if not giving proper prophylaxis. Next, malignancy is one of risk factor for DVT. It depends on type of cancer the patient having. For instance, ovarian, uterus, brain, pancreas and leukemia cancer are associated in doubling the risk of DVT (Rocha et al., 2007). Moreover, cancer treatment such as chemotherapy can provokes DVT to occur (Bevis & Smith, 2016). Furthermore, obesity also associated with DVT (Klovaite, Benn, & Nordestgaard, 2015). It is because venous return from calf veins is activated by calf muscle pump, while most of obese person not having good lifestyle such as immobilization that can result in venous stasis (National Clinical Guideline Centre, 2010). Taking oral contraceptive pill (OCP) and previous history of DVT/VTE can increase the risk of DVT (Al-Mugheed & Bayraktar, 2018).

The risk factor of DVT can be divided into three which are low, moderate, and high whereas low risk associated with patient who undergo minor surgery and minor trauma. Then, moderate risk is related with patient who had major general, urological, gynecological, cardiothoracic, vascular or neurological surgery that age more than 40 years, major medical illness, heart or lung disease or cancer, inflammatory bowel disease, trauma or illness, patient with history of DVT, pulmonary embolism or thrombophilia and high-risk factor that contribute to DVT are fracture or major orthopedic surgery of pelvis, hip or lower limb, trauma or illness in patient with previous DVT history and lower limb paralysis (Patel & Chun, 2019).

Moreover, risk factors of DVT can be acquired and hereditary. Mostly in adult, the predisposing risk factor are increase in age, chemotherapy treatment, bedridden, stroke or paralysis, previous history of DVT or VTE, congestive heart failure, pregnancy, inflammatory bowel disease, varicose vein, long air travel or nephrotic syndrome (Kesieme et al., 2011).

Beside that the lower risk factor for DVT/VTE are immobilization more than 3 days, increasing age, obesity, and varicose vein (Ho, 2010). Lastly, the diagnosis and treatment is mostly referred to deep vein thrombosis and pulmonary embolism as both of them occur due to blood clot in vein but located in different part.

2.4 Pathophysiology of DVT/VTE

Blood clots that form in the deep veins is known as DVT. Vein is important part in our body as it transports blood from different part of body to our heart. Vein consist of thin wall and irregular lumen. Commonly, vein is low pressure vessel (Anatomy and

Physiology II, 2019). Thus, larger vein usually had valve to prevent backflow of blood from occur. Then, superficial vein usually located near to the surface of the skin but not located near to the corresponding arteries. Lastly, deep vein is located deep within muscle tissue and usually near to corresponding artery (Regina, 2018). Blood clots can happen in vein or arteries.

There are three factor that associated in development of venous thrombosis based on Virchow Triad (1856) (Kushner, William P. West & Pillarisetty, 2019).Firstly, venous stasis is the result of slow or there is any obstruction of the blood flow in the vein. It led to increase in viscosity and formation of microthrombi that cannot be washed away through movement of fluid. Then microthrombi will form thrombus and propagate (Patel & Chun, 2019). Venous stasis usually occur to the patient that who had prolong immobilization, major surgery, and trauma. Secondly, endothelial wall damage can alter the blood flow in vessel. Lastly, the theory also state hypercoagulation can cause blood clot to occur (Malone et al, 2008; Kushner, William P. West & Pillarisetty, 2019). DVT is categorized into two which are lower extremity DVT and upper extremity DVT. Lower extremity (Ho, 2010). DVT resulted from impaired venous return, endothelial injury and hypercoagulation. Upper extremity DVT cause from hypercoagulation state or subclavian decompression at the thoracic outlet or superior vena cava syndrome. Clinical manifestations of DVT mostly can have symptom but sometime can be asymptomatic. Commonly people with DVT will experience lower extremity pain, calf tenderness and lower limb swelling (Khan, 1998). Homans' sign may be shown in people who had DVT (Stone et al., 2017). Despite that, Homans sign can be either sensitive and not sensitive due to it only present in patient who had DVT less than one third of them and found that more in 50% of patient without DVT (Patel & Chun, 2019). According to Wedro, Stöppler

& Shiel, (2019), clinical manifestation of DVT is pain, swelling, warmth, tenderness and redness of arm or leg.

2.5 Complication of DVT

Complication of DVT will occur if we not treated and prevent this disease in their early stage. There are two complication of DVT, which are pulmonary embolism and post-thrombotic syndrome

Pulmonary embolism (PE) is due to embolic occulusion of one or more pulmonary artery (Kruger et al., 2019). Pulmonary embolism occur due to untreated deep vein thrombosis and about 1 in 10 people with DVT will have pulmonary embolism (NHS, 2017). While, almost 50% of patient with untreated symptomatic proximal DVT will develop PE in between 3 months (Ho, 2010) . In addition, PE is known as third most common causes of cardiovascular death in worldwide after stroke and heart (Essien, Rali, & Mathai, 2019).According to British Lung Foundation (2019), causes of PE is due to blood clot in deep vein had travelling up to pulmonary system. PE happen when clot in deep vein become dislodge or break and it travel through heart and lodged at the pulmonary vasculature. Usually, small clot can spontaneously lyse but in larger clot of PE can lead to sudden death and increase in pulmonary artery pressure, thus circulatory collapse and sudden death can occur (Corrigan, Prucnal, & Kabrhel, 2016). Hence, PE is a potentially life-threatening condition but it can be prevented (Kruger et al., 2019).

Post-thrombotic syndrome can occur in half of patient who suffered from DVT (Asharani & Heit, 2009). Symptoms of PTS include swelling, redness, chronic leg pain and ulcers (Bevis & Smith, 2016).In leg there is veins, it contain tiny valves that ensuring

there is no backflow of blood. But if there any blood clot, it cause inflamation that will block blood flow and lead to damages valve. Thus, damaging valves causes fluid to pool around that area (Vazquez & Kahn, 2010).

2.6 Treatment of DVT

The priority goal for treatment of DVT is to prevent the extension of blood clot or thrombus, pulmonary embolism, pulmonary hypertension and post thrombotic syndrome (Kesieme et al., 2011). When the patient is diagnosed with DVT, they will get the anticoagulant medication. This anticoagulant medication prevents the thrombus from getting bigger and prevent it from becoming lodged at the vessel that can lead to serious complication (NHS, 2016).

The anticoagulant medication such as Unfractionated heparin (UFH), low-molecular-weight heparins (LMWH), fondaparinux, oral direct selective thrombin inhibitors and factor Xa inhibitors are effective pharmacological agents to prevent DVT (Kesieme et al., 2011). Warfarin or LMWH is the drug that use for long-term therapy to prevent thrombus formation after acute anticoagulant is achieved (Kesieme et al., 2011). However, LMWH is contraindicated for the pregnant mother (Hyers et al, 2001). Thus, it can increase the risk of bleeding if the patient using the anticoagulant therapy for a long term (Wilbur & Shian, 2012) .

Other alternative is using the vena cava filter (Wilbur & Shian, 2012). Internal vena cava (IVC) filter is small deviced that located in vein, it can be used to trapped the blood clot from goes directly to heart and lung that can cause pulmonary embolism (Elliot DeYoung, 2016).

2.7 Prevention incidence DVT in Hospital

DVT prevention is very crucial part in nursing care because it can avoid complication of DVT from occur, such as PE. DVT/VTE it may lead to effective nursing practice and good prognosis of disease (Ma et al., 2018). Thus, this require appropriate knowledge on risk factor of DVT and it prevention (Al-Mugheed & Bayraktar, 2018).

Firstly, assessment toward the patient for the risk of VTE is important within 24 hours prior to hospital admission (NICE, 2015).Based on the studies shown that, nurses play an important role in preventing VTE through the patient evaluation based on risk stratification (Tietze & Gurley, 2014). The mechanical method of prevention of DVT are compression stockings, intermittent pneumatic compression (IPC) and foot compression devices (Y. F. Ma et al., 2018). This devices can provide continuous blood flow and prevent dilation of venous system in the leg (MIMS, 2019). Next, early ambulation after surgery is very important because it can help to reduce perioperative DVT (Cooray & Lake, 2015). Furthermore, the passive exercise and elevation of the leg for the patient who bedridden can help to promote venous return. Lastly, life style modification such as quit smoking, reduce weight and be active also can lead to reduce DVT from happen (Fanikos, 2004).

2.8 Knowledge on DVT among nurse

Deep vein thrombosis (DVT) is the occurrence of disease that can be prevented it morbidity and mortality from occur among the hospitalized patient. This disease occur because presence of risk factor and lack of prevention. In addition, prevention can lower the incidence of DVT will lead to a lower incidence of PE. In order to begins the

prophylaxis of DVT assessment of risk factor regarding DVT is important (Obalum et al., 2009). Thus, knowledge toward risk factor and prevention of DVT is important to reduce morbidity and mortality.

As stated by some article shown that, the knowledge toward risk factor most of the nurses able to answer it while the knowledge toward prevention is still low (Al-Mugheed & Bayraktar, 2018). Similarly with some study of the knowledge of health care provider about importance of DVT prophylaxis shown that it less adequate (Bhatti et al., 2012). Likewise, according to Antony, Ms, and Dharan (2016), most of the respondent, 50 (50%) had adequate experience and exposure as staff nurse but their knowledge toward DVT seems to be average (58%) to poor (42%) respectively. While other study that had been conducted among the community, shown that their knowledge toward DVT is poor. Most of them did not know that DVT can caused PE (Boulton, Fenton, Loka, Sharif, & Greenfield, 2015). Whereas, based on Ma et al., (2018), most of subject showed satisfactory result regarding basic knowledge on prophylaxis and risk assessment for VTE while, the subject had poorer knowledge regarding physical and pharmacological prophylaxis.

2.9 Practice on prevention of DVT among nurse.

Nurses is the primary line of prevention toward deep vein thrombosis. DVT can be prevented through appropriate prophylaxis of patient who are high risk. Nurses need to be committed to assessment of VTE risk factor and it prevention to reduce it complication (Maclellan, Gibbs & Fletcher, 2010). Nurses also have the primary roles in DVT or VTE prevention that include in educating the patient, administering the

anticoagulant medication and applying mechanical devices in proper ways (Lee et al., 2014). Practice of the healthcare provider about DVT prophylaxis among hospitalized patient is less than ideal adequate (Bhatti et al., 2012). Likewise, the other study reported that nurses practice on DVT prophylaxis is not very good as most of the respondent answered ‘’never’’ for all the item. According to that research, this is due to lack of knowledge and absence of clinical practice guidelines on DVT (Al-Mugheed & Bayraktar, 2018).

2.10 Association between sociodemographic data with knowledge and practice of DVT prevention

2.10.2 Years of working experiences

Nurses with 6 to 10 years of experience had higher correct knowledge than other group based on some items (Al-Mugheed & Bayraktar, 2018). In other study shown that, nurses that had enough experience score 58% which is considered as an averange in knowledge on DVT (Antony, Ms, & Dharan, 2016). There is statistically significant different in experience of nurses with knowledge and practice of DVT (Al-Mugheed & Bayraktar, 2018).

2.10.4 Attending workshop

On practice of nurses toward DVT prevention shown that the majority of nurses answered option ‘’never’’ for all the questionnaire, this due to absence of clinical guideline practice and educational visit (Al-Mugheed & Bayraktar, 2018). while in Lee et al, (2014) study it stated that only 9.3% of participant reported having received in-

service VTE education from their hospital. There is no statistically significant different in attending workshop with knowledge and practice of DVT (Al-Mugheed & Bayraktar, 2018).

2.11 Conceptual framework.

In this study, the researcher planned to use Theory Of Planned Behavior (TPB). This theory will be beneficial for the researcher to understand and identify the nurse's behavior toward knowledge and prevention of DVT. This TPB develop in 1988 by Icek Ajzen. This theory is about how the influences of an individual determine that individual's decision to follow a specific behavior (Norman & Corner, 2017).TPB also assume that people are usually reasonable and make systematic use of information when decide on how to react or behave. Thus, people always think about the outcome of their action before engaging the behavior (Brannon, Feist & Updegraff, 2013).

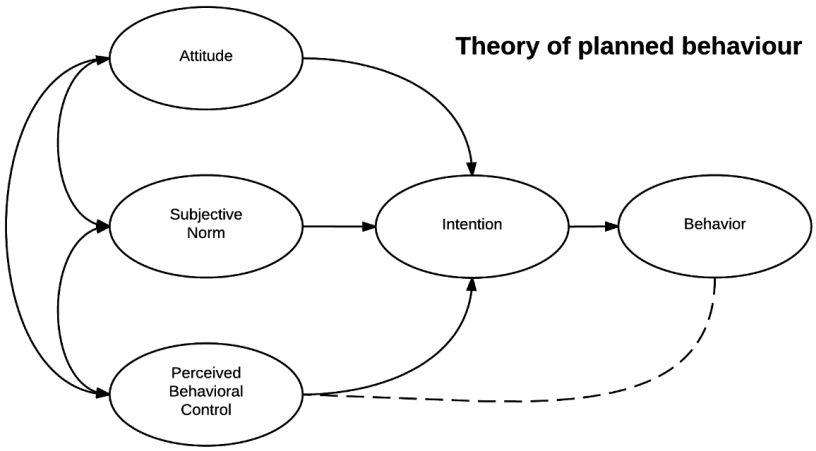

Figure 2.1 The Theory Of Planned Behavior

[Source : Brannon, Feist & Updegraff (2013)]

This theory states that attitudes toward behavior, subjective norms and perceived behavioral control can shaped an individual's behavioral intentions and their behavior. According to TPB, it consist three kind of consideration, behavioral belief, normative belief, and control belief. Next, the behavioral belief produce a favorable or unfavorable attitude toward behavior . Then, normative beliefs can result in subjective norm. While control belief gives rise to perceived behavioral control. Hence, the higher favorable attitude toward behavior and subjective norms and the greater the perceived behavioral control, the stronger the person's intention to perform the behavior (Ajzen, 2002).

In this study, the theory of planned behavior (PTB) will be used to elaborate the nurse's knowledge and DVT prevention practice in Hospital Universiti Sains Malaysia. This theory apply that intention influence behavior the most, this mean that nurse's wanting to prevent the deep vein thrombosis (DVT) from occur. Thus, the nurses will likely prevent it when they had intention and vice versa. Furthermore, behavioral belief will be referred to the practice of nurses in prevent the DVT. The concept of behavioral belief is based on subjective probability that the behavior will produce a given outcome and this will reflect a nurse's positive and negative evaluation of self-performance on specific behavior. Hence, the nurses who score above the mean score of practice in prevention of DVT had good behavioral in practice while, those who score below the mean score considered having poor practice. Moreover, the subjective norms in this study will reflect about the knowledge and prevention of DVT. Even though, it was an individual's perception of social normative pressure, or relevant others' belief that nurses should or should not perform that behavior. Hence, staff nurse that participate in this study will probably perceived that there was a norm to have good knowledge on DVT. Then, perceived behavioral control is third influences in this theory, it can be defined as an

individual's perceived ease or difficulty in performing particular behavior. Thus, this study will be representing by certain associate factor such as, working experience and attending workshop.

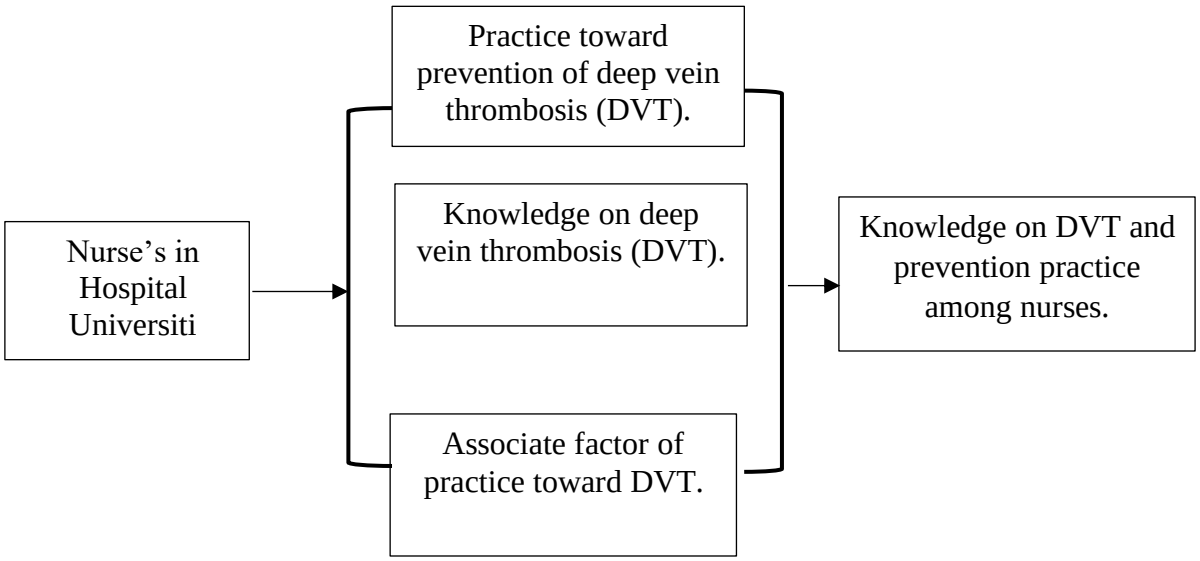

Figure 2.2 Conceptual framework of study about knowledge on DVT and prevention practice among nurse's in Hospital USM.

CHAPTER 3

RESEARCH METHODOLOGY.

3.1 Introduction

This chapter explained about the research methodology and research method that been used in the study. Choices to determines type of research methodology and method is a difficult part but it must base on what the researcher interest (Goulding, 2016). This is consider as necessary for a researcher to plan a methodology for each problem that had been chosen (Mühl, 2014). This chapter begin with the research design, population settings, sampling plan, instrument, variable, ethical consideration, data collection, data analysis and expected outcome from this study.

3.2 Research design

Research design also known as structure of research that consist all the element in a research project together (Md. Inaam Akhtar, 2016). A cross-sectional study had been used to conduct this study in Hospital Universiti Sains Malaysia. This study was carried out by administering questionnaire to respondent for identifying their knowledge and practice on deep vein thrombosis.

3.3 Study setting and population

The study was conducted in Hospital Universiti Sains Malaysia, Kubang Kerian, Kelantan, that focused on nurses that work and provide the care in adult medical ward and adult surgical ward (7U, 7S, 2I, 2Z, 3U&8S).

3.4 Sampling plan

Sampling is the process in which respondent or subject are selected form sample frame (Chua , 2016). It consider as important part in the research as it will affect the validity and reliability of research. Thus, researcher need to be plan it very well.

3.4.1 Inclusion criteria

Specific eligibility requirement for inclusion in this study are as follows:

- Nurses who have been working in medical and surgical ward above six month.
- Nurses that involve in care of patient.

3.4.2 Exclusion criteria

- Nurses that had personal leave or not around during time frame of collection the respondents

3.4.3 Sampling size estimation

Sample size for this study was determined by calculating based on two research objective. It will be estimated by using single proportion formula:

$$\mathrm{n} = Z^2 \frac{P(1-P)}{e^2}$$

n= required sample size

Z= value of the standard normal distribution curve cutting off probability Alpha (α) in one tail for one sided alternative or α/2 in each tail for a two-sided alternative ($Z_{0.05}$= 1.96)

e= Desired level of precision

p= Estimated proportion of an attribute that is present in the population.

(Kasiulevičius, Šapoka, & Filipavičiūtė, 2006)

The parameter for the third objective were as follow :-

Z= 1.96

e= 0.05

p=7.39% (knowledge regarding VTE) (Ma et al., 2018)**.**

$n= (1.96/0.05)^2 \times 0.0739 (1- 0.0739)$

n= 105

The minimal sample size was 105 and after considering 10% drop out, the calculated sample size was 116.

n = 105 + 10% drop out

n = 105 + 11

n = 116.

While the fourth objective, the parameters were as follows :

Z= 1.96

e= 0.05

p= 3.7% (practice regarding DVT prevention) **(**Al-Mugheed & Bayraktar, 2018).

$n= (1.96/0.05)^2 \times 0.037 (1- 0.037)$

n= 55

The minimal sample size was 55 and after considering 10% drop out, the calculated sample size was 61.

n = 55 + 10% drop out

n = 55 + 6

n = 61

Hence, the total calculated sample size will be is based on largest calculate of sample, therefore the sample size in this study is 116.

3.4.4 Sampling method

No sampling method will be used because all the staff nurse was selected as the respondent in this study.

3.5 Research tools

In this study, data from undergraduate student was obtained using self-administered questionnaires.

3.5.1 Questionnaire

This study consists of three different section of questionnaire. The instrument will be divided in Part A, Part B and Part C. Part A consist of demographic characteristics of nurses which are age, gender, current unit, educational level, working experience as staff nurse in hospital and their current unit and having attending workshop of DVT. The Part B is regarding knowledge of nurses on deep vein thrombosis (DVT), it consist about thirty-four questions. By given three choices to the respondent, which is true, false, and do not know. The Part C consist thirteen questions that refer to prevention practices of