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"SCREENING AND RISK FACTOR ASSOCIATED WITH DEEP VEIN THROMBOSIS AMONG FACTORY WORKERS"

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ABSTRACT

Background: Venous thrombo embolism (VTE) its a form of vascular disorder become important disease condition now a days. Basically Venous thrombo embolism is term given for both deep vein thrombosis (DVT) and pulmonary embolism (PE). DVT is defined as a blood clot (thrombus) in a deep vein usually in the legs, often in the calf and thigh veins. It is 3rd largest cause for mortality and morbidity. Deep vein thrombosis results 3 main factor are as: increased "stickiness" of the blood, damage to the blood vessel wall, and sluggish blood flow. Venous thrombo embolism is serious preventable cause of morbidity and mortality in India and other developing countries. Undiagnosed and untreated Deep vein thrombosis of the lower extremities accounts for the vast majority of the 600,000 cases of pulmonary embolism in United States each year, Approximately where as two third manifest deep vein thrombosis alone.

Objectives

1. To screen the deep vein thrombosis among factory workers
2. To assess the risk factor of deep vein thrombosis among factory workers
3. To associate the findings of screening and risk factors of deep vein thrombosis among factory workers with their selected demographic variables

Materials and Methods: An Evaluatory research approach used in cross sectional descriptive study was undertaken screening and risk factor associated with deep vein thrombosis among factory worker of Wardha district. The sample was selected using a non probability purposive sampling method. In this study 120 factory workers from factory of Wardha district as selected as sample. Factory workers fulfilled the inclusion criteria were selected. For screening of deep vein thrombosis standardized clinically validated Well's criteria used and a self-structured questionnaire for assessing the risk factor. **Results*:*** After the detailed analysis: the result of the study shows that factory workers 5(4.17%) were having high probability risk of developing deep vein thrombosis, 49(40.83%) were having moderate probability of developing deep vein thrombosis. Were as 66(55%) of factory workers were having low probability score of developing deep vein thrombosis as per well's criteria. Assessment of risk factors of deep vein thrombosis that 4(3.33%) factory workers were having respiratory disease, 9(7.50%) were having history of heart disease, 2(1.67%) were having family history of deep vein thrombosis, 2(1.67%) were having history of varicose vein, 25(20.83%)were having recent or past history of major surgeries, 9(7.50%) were having history of previous injury or trauma or fracture, 1(0.83%) were having history of inflammatory bowel disease,10(8.33%) were having history of obesity, 61(50.83%) were having long distance travel history, 29(24.17%) were having history of smoking, The association of risk factors with demographic variables shows significant with BMI and association with screening of deep vein thrombosis in relation to food pattern shows statistically significant. **Conclusion:** The findings suggests that the incidence of DVT with the growing epidemics of obesity and food pattern. Hence improved preventive strategies and early recognition of DVT in obese individuals are of critical importance.

KEYWORDS: Deep vein thrombosis, Risk Factor, Screening.

INTRODUCTION

Deep vein thrombosis (DVT) is defined as a blood clot (thrombus) in a deep vein usually in the legs, often in the calf and thigh. A blood clot is a blood clump that is converted into a solid state. Typically, in the thigh or lower leg, deep venous blood clots form, but they may also occur in the other parts of the body.[1]

In the United States, it is the 3rd most prevalent cause of death and it is a common cause of morbidity and mortality in developing nations. Deep vein thrombosis (DVT) is a condition that is characterized by the growth in a deep vein of one or more blood clots, normally in the leg or pelvis. The umbrella term given for both deep vein thrombosis (DVT) and pulmonary embolism (PE) is venous thromboembolism (VTE).[2] Venous thrombo embolism (VTE) is a form of vascular disorder and continues to be a major health concern in the world. The worldwide annual occurrence of the first deep vein thrombosis (DVT) in adults is 1-2 cases per 1000 patient years, and a clinically diagnosable case also occurs in around 1 per 1000 adult patients. It is associated with bed rest or immobility, affecting both hospitalized patients and person who have medical surgical disease conditions. In western nations, deep vein thrombosis (DVT) affects up to 35% of surgical hospital patients, 12% in Malaysia, 9.6% in Sudan, and 2.9% in Nigeria.[3]

In India reported deep vein thrombosis (DVT) incidence rate ranging from 8% to 20%. In Maharashtra have reported incidence rate of Deep vein thrombosis of lower limb observed age of the patients with deep vein thrombosis ranged from 16 years to 75 years (mean 41 years). It observed that incidence of deep vein thrombosis was 7% in males and 2% in females. Among patients diagnosed with venous thromboembolism (VTE) during hospital stay, mortality in India was 7 percent compared with 1 percent in patients diagnosed with venous thromboembolism from 2006 to 2010, the annual deep vein thrombosis (DVT) incidence increased.[4] A major preventable cause of morbidity and mortality around the world is deep vein thrombosis. Like DVT and pulmonary embolism (PE) i.e. venous thromboembolism (VTE) impacts an approximate 1 in 1,000 people and contributes to annual deaths of 60,000-100,000.[5]

Deep vein thrombosis results from a triad of factors : Increased blood "stickiness," damage to the wall of the blood vessels, and sluggish flow of blood. A significant risk factor that affects most hospitalized patients is decreased mobility. Reduced mobility, increased age, obesity, previous history of deep vein thrombosis, multiple acute and chronic medical disorders, such as cancer, inflammatory diseases, acute infections, heart attack, stroke, chronic lung disease, reduced venous drainage, and varicose veins are other causes that raise the risk of deep vein thrombosis (DVT).[6]

Usually, the clot formation process includes a combination of reduced blood flow rate, increased clotting tendency, and blood vessel wall injury. Three variable can lead to venous thromboembolism i.e. changes in endothelial blood vessel, Virchow's triad of venous stasis and hypercoagulability.[7]

The most consequential of those three causes is venous stasis i.e. immune system components activation, status of the micro-particles in blood, concentration of oxygen and potential activation of the platelets are responsible for developing deep vein thrombosis in patients. Patients can be develop to a high, moderate and low risk of deep vein thrombosis (DVT) on the basis of the presence or absence of these risk factors with varying age.

Multiple risk factors contribute for venous thromboembolism (VTE), including genetic and environmental factors.[8]

Signs and symptoms of deep vein thrombosis (DVT) are pain or tenderness, dilation of veins, redness or discoloration, swelling, warmth and cyanosis with fever. Signs and symptoms alone are not sufficiently responsible or reliable to make a diagnosis, but are taken into account in combination with the possibility of pre-testing, they can also help determine the probability of deep vein thrombosis (DVT).[9]

For diagnosis of deep vein thrombosis (DVT), Duplex ultrasonography is used. It is kind of imaging technique that can uses sound waves for explaining the blood flow of veins. A blood test which is d-dimer tests a substance in the blood which is passed when a clot breaks up. Contrast venography is special form of x-ray in which a large vein in the foot or ankle is injected with contrast material (dye) so that the physician can see deep veins in the leg and hip. Magnetic resonance imaging (MRI) studies which can using radio waves and also magnetic field for providing body images and kind of special x-ray test for computed tomography (CT) scans are imaging studies that facilitate doctors in recognizing and treating a variety of medical problems. A risk stratification score and clinical judgment to measure the pre-test chance for deep venous thrombosis are the clinically validated Well's criteria for deep venous thrombosis (DVT). It may be meant for suspicious patients to be paired with non-invasive medical tests. (e.g. Ultrasound or d-dimer).[10]

Deep vein thrombosis (DVT) prevention is very important. Most healthcare providers are under the false impression that in their hospital or even among their patients, this is life- threatening illness. All admitted patients must be checked for their risk of developing deep vein thrombosis. Some common risk factors for deep vein thrombosis are orthopedic surgery, pelvic surgery, immobilization, coagulation disorders, cancer, sepsis etc.[11]

Prophylaxis, both mechanical and pharmacological, should be offered to those at high or very high risk. In

bed-ridden patients and those undergoing surgery, mechanical measures such as elastic graduated compression stockings, intermittent pneumatic compression and venous foot pumps should be used. Pharmacological prophylaxis involves the use of heparin in low doses which are associated with no or little increase in the risk of clinically important bleeding and do not warrant monitoring the coagulation profile.[12]

Deep vein thrombosis (DVT) prophylaxis is effective it reduces the risk of deep vein thrombosis by two-thirds. Deep vein thrombosis (DVT) prophylaxis has been identified as the number one measure to improve the safety of hospitalized patient. Most thrombo prophylaxis mechanical approaches tend to reduce venous stasis and hence the tendency to form clots. They find that in patients at low risk of venous thromboembolism and in those with contraindication to pharmacologic treatment, mechanical procedures should be used.[13]

If clots are either proximal, distal and symptomatic, or upper extremity and symptomatic, treatment for DVT is warranted. The standard care after patients are tested to ensure they are not subject to bleeding is treatment with anticoagulation or blood-thinning medication. Depending on the location of deep vein thrombosis (DVT), however, treatment can vary. For example. Ultrasound screening (a second ultrasound after 2 weeks to check for proximal clots) can be used in cases of isolated distal deep vein thrombosis (DVT) instead of anticoagulation.[14]

However, at high risk of venous thromboembolism (VTE) recurrence, those with isolated distal deep vein thrombosis (DVT) are usually anticoagulation as if they had proximal deep vein thrombosis (DVT).

4 to 6week course of anticoagulation, lower doses, or no anticoagulation at all can be given to those at a low risk for recurrence. Those with proximal deep vein thrombosis (DVT), by comparison, should undergo anticoagulation for at least 3 months.[15]

Preventive health practices, awareness of this disease and understanding its signs and symptoms are more effective and less expensive than the secondary prevention. Encouragement and education for the self-reporting and self-assessment help to the early detection and prevention of deep vein thrombosis (DVT) in hospitalized patient. Guidelines regarding the prevention of deep vein thrombosis are useful for developing awareness in patient and also reducing the incidence of this disease.[16]

BACKGROUND OF THE STUDY

Venous Thromboembolism (VTE) is an obstruction of a vein in which thrombus is composed mainly of erythrocytes in a fibrin mesh with few platelets. Thrombosis is mostly asymptomatic, although there is a possibility of detachment of the thrombus due to a pulmonary embolus. The most frequent manifestation of venous thromboembolism is deep vein thrombosis (DVT) in lower extremities. It is life-threatening manifestation is pulmonary embolism (PE). A deep vein blood clot can break off and move through the blood stream. When this clot travels to the lungs it can causes pulmonary embolism (PE) which can result in sudden death. So the deep vein thrombosis (DVT) is popularly known as “killer legs.”[17]

A prospective research has been undertaken to determine the incidence of deep venous thrombosis (DVT) in the well-defined population of the city of Malmö, Sweden. For the identification of patient groups at elevated risk of deep venous thrombosis (DVT), epidemiological data were analysed. The occurrence of both sexes, i.e. 1.6 per 1000 inhabitants per year, was found to be equivalent. For males, the median age was 66 years, compared with 72 years for females. 19 percent of subjects had a documented malignancy when diagnosed with deep venous thrombosis (DVT), and 5 percent (19 cases) develop new malignancy in 1st year. Males, 29% had DVT after surgery or post-traumatic (fracture), compared to 46% of the females. In only 5 percent of cases, pulmonary embolism (PE) was clinically suspected and confirmed diagnosis was cases of 2%. None of the patients died of pulmonary embolism (PE), but of the 6 patients found to have pulmonary embolism (PE), 4 death occur in after diagnosed with deep vein thrombosis (DVT) 4 weeks.[18]

For patients diagnosed with venous thromboembolism during hospital stay, mortality was 7 percent versus 1 percent in those hospitalised with diagnosed venous thromboembolism. From 2006 to 2010, the annual incidence of DVT increased.[19]

An important reason for deep vein thrombosis and related death is due to unawareness of the hospitalized patient about hospital acquired deep vein thrombosis. A national survey found that 74% of those respondent had little to no knowledge of deep vein thrombosis and 26% of those respondent are aware of deep vein thrombosis, but in this group one third of them are not able to give name for the common risk factors which can leading for deep vein thrombosis. One surveyed of Adults reveals 95% among them never shows deep vein thrombosis with their doctor or health care staff.[20]

Addressing deep vein thrombosis (DVT) awareness and prevention of disease both among health care workers and hospitalized patient is the most suitable response to this disease. Guidelines on the prevention and management of deep vein thrombosis in hospitalized patient and health education regarding deep vein thrombosis among patients and their family members will significantly reduce the risk to patient safety and the overall number of preventable hospital death due to deep vein thrombosis (DVT).[21]

Mortality rates and risk factors of asymptomatic DVT among the medical patients were studied in a retrospective, analysis for development of proximal DVT. 1738 patients were assessed and mortality rates in them were examined, among them 80 patients were reported to have asymptomatic proximal DVT, 118 patients had asymptomatic distal DVT and 1540 patient were found with no DVT. Mortality rates reported in these three categories were 13.75%, 3.39%, and 1.92% percent. The difference in mortality between asymptomatic proximal DVT and patient with no DVT was significant, whereas the difference between patients with asymptomatic distal DVT and patient with no DVT did not reach significance.[22]

NEED OF STUDY

It is also called silent killer Deep vein thrombosis (DVT). It is a very severe threat to surgical recovery and is, after ischemic heart disease (IHD) and stroke, the 3rd most common vascular disease. DVT can be prevent state by national and international consensus groups on the venous thrombo prophylaxis reveals about clinical risk factors and even the overall risk of thromboembolism be measured for hospital patients. Patients then need to be prophylaxes according to their risk groups.[23]

Thromboembolism, pulmonary embolism (PE), post-phlebitis syndrome, and pulmonary thromboembolism are complications of deep vein thrombosis (DVT). Thromboembolism appears to be a significant preventable cause of postoperative morbidity and mortality in the Western country and relatively consideration need pay attention to this condition among Indian patients.[24]

Research study conducted INDORSE i.e. (Indian retrospective survey) shows prevalence of occurring venous thromboembolism (VTE) also prophylaxis in the year of 2009 to 2010 shows 67% of the 7,481 hospitalized patients from 46 hospitals. About 19% the patients were prescribed some form of prophylaxis. Data from national institute of health panel (NIHP) indicates that total occurrence of deep vein thrombosis following elective hip surgery is roughly 45 to 70% of therapeutic pulmonary embolism and 1 to 4 percent of fatal pulmonary embolism.[25]

As reported, the prevalence of deep vein thrombosis in India is 1% of the adult population above age of 40. All patients having abdominal or thoracic surgery, 40% die from deep vein thrombosis, from the blood clot that is transferred to the lungs called pulmonary embolism (PE). Clinical review for assessing frequency of DVT in major limb surgery of Indian patients. The occurrence of patients receiving total knee arthroplasty was 60%.[26]

Research study conducted by F. F. Syed & N.J. Beeching, of the 232 patients studied in research study. Risk factors can include previous history of deep vein thrombosis, smoking, immobility, and Surgery in the last 3 months, Cancer, varicose veins and Use of intravenous **(**IV) drug. Following initial hospital discharge, post-surgical DVT is usually presented by the population. 48.4% of episodes in patients under 40 years accounted for intravenous drug (IV) use. In 68.8% of IV opioid patients, thrombosis was right-sided, compared with 38.2% for others.[27]

Deep vein thrombosis (DVT) can create a threat to hospitalized patients recovery. However, deep vein thrombosis can be a preventable condition, and its care costs are significantly greater than that of its prevention steps. The implementation of the most effective venous thrombo prophylaxis is supported by correct DVT risk assessment. The commitment of health care practitioners is needed to quickly increase the severity of complications. The researcher claims that early diagnosis and avoidance is very necessary in order to minimize the immediate and long-term dangers of DVT.[28]

STATEMENT OF STUDY

Screening and risk factor associated with deep vein thrombosis among factory workers.

OBJECTIVES

1. To Screen the deep vein thrombosis among factory workers
2. To assess the risk factors of deep vein thrombosis among factory workers
3. To associate the findings of screening and risk factors of deep vein thrombosis among factory workers with their demographic variables

HYPOTHESIS

H1: There is a significant association between screening and risk factors of deep vein thrombosis among factory workers.

ASSUMPTION

Factory workers may have risk of development of deep vein thrombosis.

OPERATIONAL DEFINITION

SCREENING: In this study screening is the testing or examining of leg for deep vein thrombosis among factory workers.

RISK FACTOR: In this study risk factors like something that increase a person's chances of developing a deep vein thrombosis like entire leg is swollen, localized tenderness, calf swelling, pitting edema.

DEEP VEIN THROMBOSIS: In this study deep vein thrombosis can be pain, swelling, redness, dilation of leg veins among the factory workers.

FACTORY WORKER: In this study factory workers means a person who can do work in the factory in a standing position.

LIMITATION

1. This study covered only factory workers in steel plants.

ETHICAL ASPECT

The study was approved by the institutional ethical committee (IEC) and the study will be conducted in accordance with the ethical guidelines prescribed by central ethics committee on human research.

- Permission was taken from the ethical committee
- Proper explanation regarding the purpose of the study and nature of observation scale involved in the study was given to the samples
- Information about the sample was handled properly so that confidentiality and anonymity are maintained
- Subject were protected from all type of harm

CONCEPTUAL FRAMEWORK

Concepts are defined as complex mental formulation of an object, property or event that is, derived from individual perception and experience. Conceptual framework is interrelated concepts or abstractions that are assemble in same rational scheme by virtue of their relevance to a common theme.

HEALTH BELIEF MODEL

Health belief model was developed in the 50s by the united state public health services. This model was developed based on operant and cognitive behavioral theory. The health belief model is a social psychological health behavior change module developed to explain and predict health related behavior. Particularly regarding the uptake of health services.

The health belief model suggests that people's beliefs about health problems. Perceived benefits of action and barriers to action, and self-efficacy engagement for lack engagement in health promoting behavior. A stimulus to action, must also be present in order to trigger the health promoting behavior.[29]

- **Perceived severity:** It means that individual who perceive a health related problem those are dangerous are mostly to engage in behaviors to avoid the health problem from causing which will help to reduce the severity of problems.

In my study: The deep vein thrombosis in factory workers may leads of in severe risk of deep vein thrombosis.

- **Perceived susceptibility:** It refers to chances of developing health related issues.

In my study: Deep vein thrombosis among factory workers will leads to complication.

Perceived benefits: Perceived benefits refers to individual assessment of the value or efficacy of engaging in a health promoting behavior to decrease risk of disease.

In my study: The study provides benefits to the factory workers about screening and gain awareness regarding risk of deep vein thrombosis and also severity of health problem and its potential consequences.

- **Perceived barriers:** Perceived barriers refers to an individual assessment of the obstacles to behavior change.

In my study: The perceived barrier can be the knowledge provided and the lack of awareness regarding disease condition.

- **Modifying variables:** Individual characteristics including demographic, psychological and structural variables can affect perception of the health-related behavior.

In my study: The modifying are demographic factors are age, number of standing working hour in factory, food pattern, body mass index (BMI).

- **Clues of action:** The health belief model consist of clue to action means to cause a force that would make a person feels to take an action.

In my study: The clues of action which can be identified are risk factors which are associated with deep vein thrombosis and its signs and symptoms which are need to be prevented.

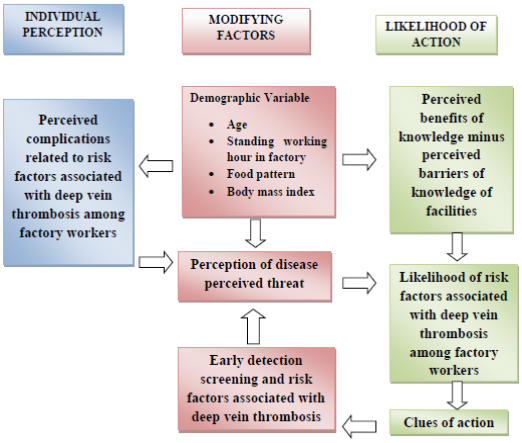


FIG. NO. 1 HEALTH BELIEF MODEL (ADOPTED FROM ROSEN STOCK 1974)

SUMMARY

This section deal with introduction, background of the study, need of the study, problem statement, objectives, hypothesis, assumption, operational definition, ethical consideration and conceptual framework.

CHAPTER - II REVIEW OF LITERATURE

The review of literature is a written summary of given of evidence on the bases of research problem. Aim of review literature is providing readers brief summary of existing proof.

Review can makes benefits of researchers in many ways. It guides researcher for identify content was already present. Put focus on the feasibility of the study and research problem that may be identify by the researcher.

It help to identify and knows methodological tools, gaining important content on increasing the analysis of data. Review key step of processing of research. The main plan of the review is to development strong knowledge bases to carry research and also other non-research scholarly activities.

Review of literature is given in this chapter on the bases of following headings

1. Review related to prevalence of Deep vein thrombosis.
2. Review related to risk factors Deep vein thrombosis among Factory workers
3. Review related to Deep vein thrombosis

1. Review related to prevalence of deep vein thrombosis

Cross sectional study performed for identifying the prevalence of proximal deep vein thrombosis by ultrasound scanning and clinical features for known risk factors in medical and obstetrics–gynecology in two Rwandan tertiary hospitals, Rwanda Kigali University teaching hospitals. 901 participants involved in this study who are 21 years of age and able to give consent for participation. Proximal deep vein thrombosis (DVT) prevalence, clinical characteristics and known risk factors associated with deep vein thrombosis (DVT). The primary endpoint was the prevalence of proximal DVT by compression ultrasonography, with univariate and multivariate regression studies carried out to determine related clinical features and risk factors. The study found that in 5.5 percent of the study population, proximal DVT was found, with comparable rates in medical and obstetrics–gynecology patients. Univariate analysis found that active malignancy, immobilization, prolonged recent travel and DVT history were important risk factors for developing the proximal DVT. Predictive clinical features of DVT were leg pain or tenderness, increased calf diameter, unilateral limb swelling or pitting edema on both univariate examination and multivariate regression (all p values). In two tertiary hospitals in Rwanda, proximal DVT prevalence is high among hospitalized medical and obstetrics– gynecology patients. Study can help for improving Africa-specific clinical prediction tools of DVT and strategies to raise Thrombo prophylaxis use in area for urgently needed to reducing rate of morbidity and mortality.[30]

Cross-sectional study was designed to obtain the current prevalence of deep vein thrombosis (DVT) and analyse related risk factors in patients undergoing lumbar inter body fusion. Medical record data were collected from department of spinal Surgery, The Third Hospital of Medical University, between July 2014 and March 2015. Both univariate analysis and binary logistic regression analysis were performed to determine risk factors for DVT. A total of 995 patients were admitted into this study, including 484 men and 511 women, aged from 14 to 89 years old (median 50, IQR 19). The detection rate of lower limb DVT by ultrasonography was 22.4% (223/995) in patients undergoing lumbar inter body fusion. Notably, average VAS (visual analog scale) score in the first 3 days after surgery in DVT group was more than that in the non-DVT group (Z=-21.69, P<.001). Advanced age, high postoperative VAS scores, and blood transfusion were risk factors for postoperative lower limb DVT. As well, the logistic regression model may contribute to an early evaluation postoperatively to ascertain the risk of lower limb DVT in patients undergoing lumbar inter body fusion surgery.[31]

One Community-based study of the prevalence and incidence of abscesses and cellulitis is in London, UK, and their associations with other health outcomes. Skin infection and soft tissue (SSTI) are common but be avoid cause of morbidity and mortality in people who inject medicine. Abscesses and cellulitis are the most frequent Skin and soft tissue infections (SSTI) presentations. Researchers used data from care and avoid, a London people who inject drugs (PWID) cross-sectional group study. The lifetime prevalence of skin and soft tissue infections (SSTI), infection severity, main risk factors, and associated squeal have been documented. To decide skin and soft tissue infections (SSTI) intensity, pictorial questions were used. The study revealed that 455 people who inject drugs (PWID) were employed.

The lifetime prevalence of skin and soft tissue infections (SSTI) was elevated: 64% reported abscess and/or cellulitis.

More than a one third (37%) reported a serious infection, while 137 (47%) reported hospitalize infection. Risk factors for skin and soft tissue infections (SSTI) can be aged 35 above years, injected once or more times a day, injected subcutaneously, made 4 or more attempts for inject. Other health issued observed more likely to have an abscess or cellulitis, with the risk rise with the number of conditions reported. For their worst skin and soft tissue infections (SSTI), half of them (46 %t) taking self-treatment and 43% waited 10 or more days before getting medical care not taking medical treatment.[32]

One Randomized control research study performed by using a clinical model, doctors identified patients and according categorized to likely or unlikely for deep-vein thrombosis. Patients were then randomly allocated for undergoing ultrasound imaging singly (control group), rather the d-dimer test was negative and deep vein thrombosis was clinically not possible in them no case of ultrasound imaging was conducted. Study revealed that Five hundred thirty patients were randomly assigned to the control group, and 566 to the D-dimer group. The overall prevalence of deep-vein thrombosis or pulmonary embolism was 15.7 percent. Among patients for whom deep-vein thrombosis had been ruled out by the initial diagnostic strategy, there were two confirmed venous thromboembolic events in the D-dimer group and six events in the control group during three months of follow-up. The use of D-dimer testing resulted in a significant reduction in the use of ultrasonography, from a mean of 1.34 tests per patient in the control group to 0.78 in the D-dimer group (P=0.008). Two hundred eighteen patients (39 percent) in the D- dimer group did not require ultrasound imaging. Deep-vein thrombosis can be ruled out in a patient who is judged clinically unlikely to have deep-vein thrombosis and who has a negative D-dimer test. Ultrasound testing can be safely omitted in such patients.[33]

One cross-sectional research was performed at Bydgoszcz University Hospital in Poland to study the prevalence of DVT in patients with Spinal Cord Injury (SCI) more than three months after injury. Sixty-three patients with SCI more than three months after injury were studied in the study. The patients, ranging from 13 to 65 years of age, consisted of 15 women and 48 men, with a mean age of 32.1 years. The injury period ranged from 4 to 124 months. The study showed that D-dimer and venous duplex scans were conducted using clinical evaluation. In five of the 63 patients, the venous duplex scan indicated DVT. 4 of the patients, duration of post injury of 4 and 5 months; 1 patient for 42 months after the injury. Among patients of chronic spinal cord injury (SCI), DVT occurrence primarily of the 6^{th} month of post injury month.[34]

One Cross sectional Research performed for identify incidence and severity of chronic venous disorders in people who work for sitting prolonged or standing postures. 126 workers working in a sitting (96 people) or a standing position were subjected to clinical evaluation and duplex Doppler sonography (30 individuals). 59.4 percent of workers employed in the sitting posture and in 83.4 percent of work in posture standing, evidence of chronic venous disorder was found and in employees work in a standing posture was higher. The study showed that prolonged sitting and standing at work increases the risk of chronic venous disorders growth. Workers who are work in a standing position are at a substantially more risk of chronic venous disorders than those work in prolong sitting position.[35]

One cross sectional study performed on HIV positive patients on anti-retroviral therapy (ART) were from an out-patient HIV clinic at Mulago National Referral Hospital. Aim of study was to identify prevalence and sonographic characteristics of deep vein lower limb thrombosis among HIV-positive patients. Patients choose and enrolled at randomly. Sample size of the study 384 used. Study shows the prevalence of deep vein thrombosis (DVT) among HIV patients on ART was 9.1% (35 out of 384 participants). Latent (asymptomatic) DVT prevalence was 2.3%. 42.8% of the 35 patients with DVT had chronic DVT. 31.1% had acute DVT and the remainder had latent deep vein thrombosis (DVT). Risk factors, the likelihood of DVT occur among patients with prolonged immobility was 4.81 times more than among patients without prolonged immobility. Treatment of second line anti-retroviral therapy (ART) include protease inhibitors (PIs) was linked with higher odds of DVT occurrence compared with first line anti-retroviral therapy (ART). The risk of DVT incidence was 5.36 times as high in patients with lower cluster of differentiation 4 (CD4) counts as in patients with CD4 counts above 500 cells/µl. According to Well's ratings, approximately 48.6 percent of DVT patients had a low danger.10 percent of HIV patients visit outpatient clinic in an urban setting in Uganda, DVT was demonstrated. For compromised HIV patients with ART who are symptomatic with DVT, physicians may have a low tolerance for a lower limb Doppler ultrasound scan.[36]

One cross - sectional study conducted for assess the prevalence of concurrent deep vein thrombosis (DVT) and/or pulmonary embolism (PE) in the patients with superficial vein thrombosis (SVT) of the legs and to find factors significantly and independently associated with coincident DVT/PE. Tertiary referral hospital set-up, superficial vein thrombosis (SVT) patients, vascular clinic presence, physical assessment, laboratory monitoring and leg vein ultrasound. The study shows that 138 patients, mainly with ST on varicose veins (89.9 percent). DVT/PE prevalence was 34.1 percent. There was no substantial difference between the group with isolated superficial vein thrombosis (SVT) and those with coincident DVT/PE in either clinical manifestation. Of all the features of the patients analyzed, only two variables were strongly and separately related to the involvement of concurrent DVT/PE. In the patients with isolated superficial vein thrombosis superficial vein thrombosis (SVT), the body mass index (BMI) was considerably higher. Factor V Leiden (FVL) has been shown to be an independent risk factor with an odds ratio of 2,531 for DVT/PE. The prevalence of simultaneous DVT/PE was 34.1 percent of patients with superficial vein thrombosis (SVT) admitted to the hospital vascular unit. Lower BMI and the existence of Factor V Leiden (FVL) were correlated with concurrent DVT/PE substantially and separately.[37]

2. Review related to risk factors Deep vein thrombosis

A retrospective case-cohort analysis was conducted between 07/2013 and 07/2014 to examine risk factors for postoperative DVT using retrospectively collected data from the spine surgery department. To evaluate risk factors for DVT, univariate analysis and binary logistic regression analysis were used to classify risk factors. However, no substantial difference between the low molecular weight heparin (LMWH) and non- low molecular weight heparin (LMWH) classes was revealed ($\chi 2 = 1.933$, $p = 0.164$). The study showed that the low molecular weight heparin (LMWH) prophylaxis was unsuccessful after spine surgery. The risk factors for postoperative deep vein thrombosis (DVT) have been shown to be advanced age, D-dimer and hypertension in patients undergoing spine surgery.[38]

One case-control study was conducted in patients with deep vein thrombosis (DVT) or pulmonary embolism (PE) to assess the relative risk of sustained seated working immobility. Interviewer-administered questionnaire to collect information on venous thromboembolism (VTE) risk factors, including excessive seated immobility at work. To evaluate the relation between expected variables and the likelihood of being a case or control. Upon hospital discharge for DVT and/or PE, participants attended the Wellington Hospital outpatient venous thromboembolism (VTE) clinic. Controls group included patients < 65 years of age admitted to the Wellington hospital coronary care unit (CCU).

The study revealed that 97 cases i.e. 53 DVT, 29 PE, 15 DVT and PE and 106 controls are observed. The ratio of venous thromboembolism (VTE) for prolonged seated immobility at work in the multivariate study was 1.8 percent. Among number of hours of seating at work was linked with venous thromboembolism (VTE), with the risk increasing with 10 percent more hour of seating. Venous thromboembolism (VTE) was associated with the maximum number of hours seated at work without getting up, with the risk increasing by 20% per hour more seated. This research study that can help to provides tentative proof that prolonged seating immobility at work could be a risk for venous thromboembolism (VTE).[39]

One retrospective study carried out to determine the sex of the patient is not considered to be associated with the risk of recurrent venous thromboembolism. 826 patients had spontaneous venous thromboembolism and removal of oral anticoagulants for an average of 36 months after the first case. The study found that 74 of the 373 men had recurrent venous thromboembolism compared to 28 of the 453 women. The risk remained unchanged following age adjustment, hours of anticoagulation, and first symptomatic pulmonary embolism present or absent. Probability of again risk of occurrence 30.7 percent in males at 5 years, compared to 8.5% among females. Relative risk of recurrence was similar for women who had their first thrombosis time of taking the oral contraception for women of age of same age who are idiopathic 1st time. Among men, risk again occurring venous thrombosis (VTE) is more than women.[40]

A population based case control study was performed for identify independent risk factor for DVT and PE and for predict magnitude risk of single. This research shows that hospital, surgery, trauma, paresis, neurological disease, central venous catheter, varicose veins and also vein of superficial thrombosis can be independent and associate risk factors of venous thrombus embolism (VTE).[41]

A cross-sectional study conducted in 13,000 adults (aged 45-64) over an average of 12 years by population atherosclerosis risk (ARC) found that consuming minimum red meat and more fruits, green leafy vegetables and fish can be making the decreasing the risk of venous thromboembolism (VTE). The higher the consumption of fruit and vegetables, the lower the risk of venous thromboembolism (VTE).[42]

One observational research study was performed in 2013 on the assessment of smoking and the risk of venous thromboembolism. The poor impact were estimated by using meta- analysis technique. This study done by using 32 observational studies in that involvement of 3,966,184 participants and 35,151 venous thromboembolism cases already published. The total cumulative relative risks (RRs) for developing VTE compared to never smokers are ever smokers1.17%, current smokers 1.23%, Former smokers 1.10 percent. 10 cigarettes as per day risk create with 10.2 percent risk. Review of 13 body mass index adjusted studies produced comparatively more among relative risks (RRs) current smokers. An absolute risk increase of 24.3 (95 percent cases per 100,000 people) - years was correlated with smoking. The research found that a substantially higher risk of venous thromboembolism (VTE) is associated with smoking a cigarette. BMI appears to be a confusing factor in the risk calculations. With regard to person screening, risk factor adjustment and primary and secondary prevention of venous thromboembolism (VTE), the relationship between venous thromboembolism (VTE) and smoking has clinical significance.[43]

A retrospective case-control study performed in an institution between January 2014 and March 2017. In order to determine the effectiveness and safety of preoperative therapeutic anticoagulation, patients were split into anticoagulation and no anticoagulation classes. Study revealed that the overall preoperative incidence of venous thromboembolism (VTE) in patients with femoral neck fracture was 18.9%, in deep vein thrombosis 18.9% and pulmonary embolism 1%. Patient 39 of undergoing surgery of femoral neck fracture, shows no significant differences among anticoagulation also anticoagulation groups, but less postoperative

hemoglobin was found among anticoagulation group. Results revealed high prevalence of preoperative venous thromboembolism (VTE) with known risk factors in older patients with neck femoral fracture. Study revealed show direct surgery without of preoperative use therapeutic anticoagulation will not make less risk of thrombus extension, and postoperative anemia use of exacerbate anticoagulation.[44]

A population-based cohort to study the effect on the risk of venous thromboembolism of daily physical activity. The conflicting results may depend on variations in the design of the study and on particular population cohorts (men only, women only and elderly). Among 26,490 age of 25-29years who are took part in a public health survey, research, in 1994-95 we conducted a detailed, design and method risk factors, including self- reported moderate intensity physical activity during leisure time. Incident venous thromboembolic events were recorded until 1 September 2007 during follow-up. Study revealed 460 validated venous thromboembolic events occurred among duration of 12.5 years. Age, body mass index, frequent smoker proportion, total cholesterol, and serum triglycerides less (more physical activity). In comparison, moderate physical activity (1.0-2.9 hours/week) was associated with a substantial reduction in the risk of venous thromboembolism among subjects under 60 years of age and subjects with a body mass index of less than 25 kg/m^2 compared with inactivity. This study found that normal, moderate-intensity physical activity in the general population did not have a major effect on the risk of venous thromboembolism.[45]

One community based research aim of identify to describe the number of cases of calf DVT in community setting. Registered nurses validated the medical records of residents of the metropolitan area of Worcester (MA) with ICD-9 codes consistent with possible venous thromboembolism in 4 study years (1999/2001/2003/2005). Demographic/clinical features of patients, treatment procedures, and outcomes were assessed. 166 (11.1 percent) of 1,495 lower extremity DVT patients were diagnosed with isolated calf DVT. No substantial difference was observed between patients with calf DVT and proximal 6-month DVT in the rates of recurrence of venous thromboembolism (VTE) and pulmonary embolism (PE). The study showed that at 6 months, calf DVT patients had lower rates of severe bleeding compared to proximal deep vein thrombosis (DVT) patients.[46]

One hospital based study conducted in the Germany of prevalence of venous thromboembolism among non-surgical patients who are admitted can be underestimating. Conducted Ultrasound sonography on each patient of internal medicine department duration for three months with an acute illness but not with documented deep vein thrombosis. Previous history of deep vein thrombosis and immobilisation were reported. D-dimer and fibrinogen and computer tomography scans were performed in patients with newly identified DVT. Four weeks and three months of follow-up inquiries were conducted on the deep vein thrombosis community. There were six hundred and seventeen patients (49.3 percent males). Previously unknown thrombosis (2.6%) was observed in 16 patients (men = 7), primarily in patients with acute cardio-pulmonary disease (56%) and elderly patients (56%). There were 8 (50.0%), patients of femoral-popliteal thrombosis 4(25.0%) of femoral thrombosis and 4 (25.0%) of popliteal vein thrombosis, 5(31.3 percent) of PE. 1 patient died due to sepsis in hospital, and 1 patient died home because of cardiac death. 14 patients survived had relapsed. The study shows 2.6% risk of deep vein thrombosis. It indicates that the more chance of DVT among the non-surgical patients. Early prophylaxis in patients with internal medicine, particularly in the elderly, must be considered.[47]

One population based study conducted in Olmsted Country, Minnesota for predicted prevalence rates of deep vein thrombosis and pulmonary embolism among hospital patients and compared these incidence rates in the residents of community. A retrospective review of the complete medical history of a population-based initial cohort of resident patients with a DVT or PE occurrence from 1980 to 1990 was carried out. Research reveals that 911 residents of Olmsted country encountered their first case of definite, possible, or potential venous thromboembolism from 1980 to 1990. Annual age and sex-adjusted incidence of in-hospital venous thromboembolism was 960. 5 per 10,000 person-years, and 7.1 per 10,000 person-years was more than 100 times higher than the incidence in resident's neighborhood. For both classes, the incidence of venous thromboembolism increased significantly with rising age, with PE accounting for much of the rise in in-hospital cases associated with age. Despite a decrease in the average duration of hospital stay between 1980 and 1990, occurrence rates in the two classes have changed little over time. Venous thromboembolism, especially among elderly patients hospitalized, is a major national health issue. This result shows the need for correcting detection of patients at risk of venous thromboembolism in hospitalized patients and a more understanding of the ways occurrence of order to be able to incorporate safe and successful prophylaxis.[48]

One cross sectional study conducted for determine the incidence of DVT among medical and surgical intensive care unit patients.18 old above years who were hospitalized for 2 days in the intensive care unit of Imam Hussein Educational Hospital, Tehran, Iran, were assessed for the occurrence of deep vein thrombosis from August 2008 to July 2011. SPSS 19 was used to evaluate demographic data, comorbidities, acute physiology and chronic health assessment, ICU duration of stay, type of DVT prophylaxis. The analysis reported that 500 (36.04 percent) of the 1387 patient files examined were listed as possible DVT cases. DVT occurred in 3.5 percent of

them. Age and duration of ICU stay were important independent risk factors for DVT incidence. It showed that the incidence of DVT in ICU admitted patients was 3.5%. Independent risk factors of DVT growth were longer intensive care unit stay and older era.[49]

3. Review related to Deep vein thrombosis

One observational research was performed in the surgical intensive care unit to determine the occurrence of occult deep vein thrombosis. Duration research study was 24 months. 294 patients obtained the sample size for the analysis. Research study found that in the 294 patient's survey, there was a 7.5 percent prevalence of major DVT. The absence of all 3 risk factors shows very low risk of DVT (1.1 percent). Due to a high incidence of asymptomatic disease, screening of surgical intensive care unit patients is recommended.[50] One population based study conducted for examining magnitude, risk factor, management strategies with upper as compared with lower, extremity deep vein thrombosis in year of 1999. The research study showed that the age-adjusted upper extremity deep vein thrombosis attack rate (per 100,000 population) was 16 percent confidence interval compared to 91 percent for lower extremity DVT. Patients with upper extremity DVT were substantially possible than patients with lower extremity deep vein thrombosis have undergoing recent central venous catheter placement, a cardiac operation, or an admission in ICU. It indicates that in the community setting, patients with upper extremity deep vein thrombosis represent a clinically significant patient population. Risk factors, pulmonary embolism frequency, and timing and location of recurrence of venous thromboembolism vary from lower extremity deep vein thrombosis in patients with upper thrombosis.[51]

One population-based cohort study of nationwide for obtaining systemic sclerosis (SSc) affected the incidence of DVT and PE in Taiwan. Duration of research study in Taiwan in the year of 1998 and 2010 help of Illness of Catastrophic of Database of patients and National Health Insurance Database. Study reveals ratios of hazard and 95% CIs of DVT and PE in systemic sclerosis (SSc) and as compare cohorts by using Model of Cox proportional hazards regression. This study concluded that systemic sclerosis (SSc) patients exhibited a significantly more risk of develop of DVT as compared PE comparison with general population.[52]

One prospective cohort study conducted on of ambulatory medical intensive care unit patients within 24 h after acute admission. 02 consecutive patients following acute admission to the ICU of medical care. APACHE-II-Scoring, ultrasound compression sonography and laboratory test were performed within 24 hours of admission. Possible determinants was observed for high risk of VTE. The study found that venous thromboembolism reveal 7.8% in 102 patients mean APACHE-II-Score of 14%. In 5 patients, the location of the thrombus was femoro popliteal, iliac in 2 and Peroneal in 1 patient. 5 patients of venous thromboembolism have concomitant pulmonary embolism. Although the relative risk was high history of patients with smoking, immobility and increased the levels of D-Dimer. In acutely admitted ICU patients, prevalent venous thromboembolism and concomitant pulmonary embolism were frequent.[53]

SUMMARY

The review of literature presented in a chapter enabled the investigator to appreciate the seriousness of the problem and gain an insight in to a way of conducting the investigation. These valuable studies were useful in selection and development of the instrument of investigation and deciding upon the research methodology. Besides, it helped the investigator to broaden her understanding and gave insight in to the problem and in planning statistical analysis.

RESEARCH METHODOLOGY

The methodology of research explains activity of research process the way it proceed and how to measure progress. The Methodology shows general trend for arrange the analysis procedure with method of collecting accurate and reliable data by researcher.

The Chapter shows methodology adopted during "screening and risk factor associated with deep vein thrombosis among factory workers.'' In this chapter includes research strategy, research design, setting of study, population, variable, sample, sample size, sampling technique, criteria of sample selection, preparation and scoring of tool, validity and feasibility, collection of data and method of analysis also observing research methodology adopted by the researcher. The above methods are used to organize this research and to collect and analyze data in a systematic way. Some techniques are used to structure this research and collect and analyze information in a systematic fashion.

Researcher has adopted cross sectional research design for screening and risk factor associated with deep vein thrombosis among factory workers. It provides the best framework for the study. This gives first-hand information and enhances in obtaining of accurate and meaningful data.

DEPENDENT VARIABLE

Risk factors of deep vein thrombosis.

DEMOGRAPHIC VARIABLE

Age, Working year, Working Hour, Food pattern, BMI.

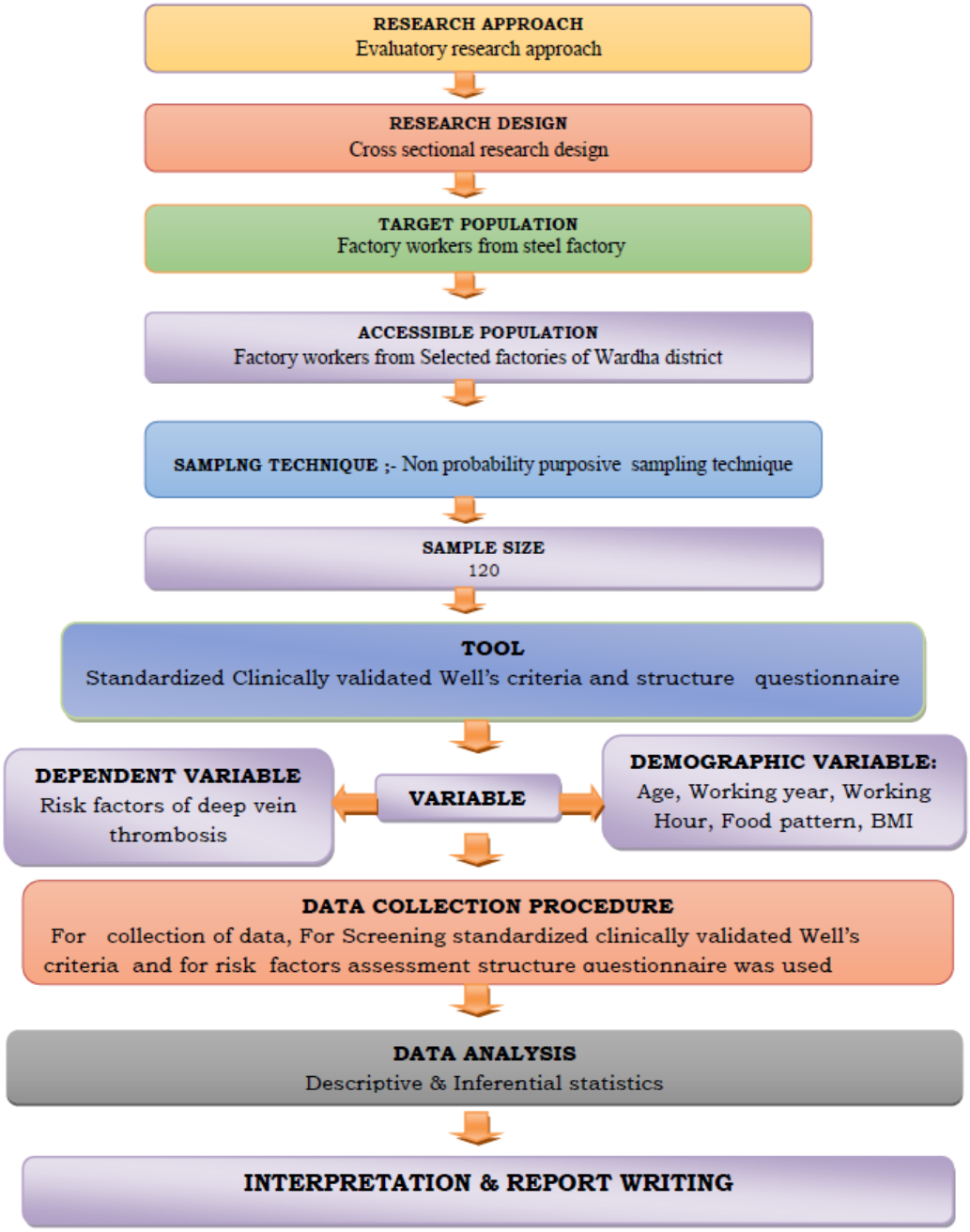


FIGURE NO. 2: SCHEMATIC PRESENTATION OF CROSS SECTIONAL RESEARCH DESIGN FOR THE PRESENT STUDY.

RESEARCH APPROACH

The research approach relates to the way in which the researcher prepares and also designs the research process. Evaluatory research approach used for this study. This approach was selected because of aim of the present study was screening and risk factor associated with deep vein thrombosis among factory workers. With this research approach it would be possible to describe the screening and risk factor associated with deep vein thrombosis among factory workers.

RESEARCH DESIGN

Research design is an overall plan how to obtain answer to the question being studied and how to handle some of the difficulties encountered during research process and also enhance for the specification of the study to be used in the research process. The research design helps the researcher in the selection of the subject, procedure of data collection and the type of statistical analysis to be used to interpret the data.

The researcher has adopted cross sectional research design for screening and risk factor associated with deep vein thrombosis among factory workers. It provides the best framework for the study. This gives first-hand information and enhances in obtaining of accurate and meaningful data.

SETTING OF THE STUDY

Setting refers to the area where the study is conducted. The setting of this proposed study was factory workers from Mahalakshmi steel factory, Deoli, District Wardha.

The researcher found the setting appropriate to conduct the study because adequate number of sample was available which could be taken for the study and also the respected authorities were co-operative and gave permission to conduct study.

POPULATION

A Population is the entire aggregation of cases in which researcher is interested. In this study the population is factory workers from steel factory of Wardha district.

TARGET POPULATION

The target population is aggregate of cases about which the researcher would like to generalize. In this study the target population was factory workers from steel factory.

ACCESSIBLE POPULATION

The aggregate of cases that conform to the eligibility criteria and that are accessible as subject for a study. The accessible population for this study was factory workers from Mahalakshmi steel factory deoli, district Wardha.

SAMPLE

Sample is called as a sub-set of population elements. Basic unit for the data is collected is an element. In nursing study, elements are usually human. In current study, factory workers are sample from Mahalakshmi steel factory, Deoli, Wardha district.

SAMPLING TECHNIQUE

Sampling refers to the process of selecting the portion of the population to represent the entire population.

Non-probability purposive sampling was the sampling method used in this research study. Purposive sampling also called as judgmental, selective, or subjective sampling. It is a form of non-probability sampling in which researchers depend on their own judgment during selection of population of members to involved in the researchstudy.[54]

SAMPLE SIZE

CRITERIAN FOR SAMPLE SELECTION

INCLUSION CRITERIA

1. Factory workers who were completed " 5 years" in steel factory
2. Factory workers who are willing to participate in the study
3. Only Male factory workers working in factory of Wardha district

EXCLUSION CRITERIA

1. Factory workers who are already taking treatment for deep vein thrombosis
2. Factory workers who were participated in similar kind of study.
3. Office workers are excluded in this study

VARIABLES

RESEARCH VARIABLE

Variables of study can be defined as features, attributes, properties or characteristics that are observed and measured without manipulating and establishing a relationship of cause and effect in a natural setting. The research variable in this study risk factor of deep vein thrombosis.

DEMOGRAPHIC VARIABLE

Demographical variables of this research study such as age, number of years working in factory, standing working hour in factory, food pattern, body mass index (BMI).

TOOL PREPERATION

A tool is an instrument is the formal written document or equipment used to collect and record information.

DEVELOPMENT OF THE TOOL

The researcher developed the tool after updating theoretical knowledge regarding the screening and risk factor regarding deep vein thrombosis, experience of researcher, and also guidance from the experts along with the review of literature helped in development of the tool required for the research study.

DESCRIPTION OF THE TOOL

TOOL CONSIST OF FOLLOWING SECTION

Section I - consist of demographic variable such as age, number of working years in factory, standing working hours in factory, food pattern, body mass index (BMI).

Section II- consist of Standardized clinically validated Well's criteria. It consists of 10 questionnaire.

Scoring

- For each Present of factor given as "1"
- For each Absent of factor given as " 0"

Table No. 1: Interpretation of standardized clinically validated wells criteria of deep vein thrombosis.

Score Range	Inference of probability for deep vein thrombosis
-2 to 0	Low Probability
1 to 2	Moderate Probability
3 to 8	High Probability

Section III: -Structured questionnaire consist of 16 questions of assessment of risk factor on deep vein thrombosis.

Scoring

- For each Present of risk factor score 1 given as "Yes"
- For each Absent of risk factor score 0 given as "No"

VALIDITY

Validity refers to the degree of which an instrument measures what it supposed to measure. In research study validity means tools will be send to expert for validations.

For getting validity of content, tool was sent to 10 expert who are included from the field of department of medical surgical nursing, statistician, English tool made according to the suggested and recommended from expert in consultation with the guide.

RELIABILITY

Reliability of the tool is a major criteria for assessing the quality and accuracy. It is degree of consistency with which it measure the attributes.

Analysis has done with help of parallel form method of reliability, it is found to be 0.7522 and hence tool is reliable and valid and feasible.

FEASIBILITY OF THE STUDY

Tool was tested on 12 samples who were eligible for the study and researcher found that tool was feasible. This sample after that not included in the main analysis of research.

PILOT STUDY

Pilot study is a miniature run of the main study. The pilot study was conducted for one week from 12th October to 17th October 2020. As per criteria laid down, selected 10% sample from Lloyds steel factories Bhugaon, District. Wardha by using non probability purposive sampling technique.

On the first day of research study, for screening and risk factor associated with deep vein thrombosis among factory workers, demographic variable, standardized clinically validated Well's criteria and structured questionnaire was given. Screening of each factory worker done by time duration of 20 min.

The pilot study allowed the researcher to imagine practical problems that could be faced during the main study. The pilot study helped the researcher to visualize practical problems. It also provide an insight into real problems face by researcher during collection of data. Sample which used in pilot study are not used in analysis of main research study.

METHOD OF DATA COLLECTION

Data collection is systematic method of collecting information related to the research problem. Researcher will take permission from the selected areas concern authority and then approach the sample she will present herself and inform them about the use and importance of the study to getting better cooperation during data collection. Researcher will explain the planned analysis to the factory workers and how it will help them. She asked about their desire to participate in the research. She will screen each factory worker with Well's criteria then administer the structured questionnaire to them with the interview technique. There will be explanation for doubt. If the questionnaire is finished, the researcher gathers them back to complete the questionnaire. For each factory worker required maximum period of 20 minutes.

The data gathering process began on 2nd November To 21st November 2020. The researcher visited to Mahalakshmi steel factory, Deoli, District. Wardha and obtained the necessary permission from the concerned authorities. In order to ensure better coordination during data collection, the researcher introduced herself and told them about the purpose of the research. The researcher approached the factory workers from the selected area and explained the purposes of the study and explained how they would benefit from it. The researcher personally meets each workers in factory and then makes them relaxed and oriented to the nature of the study and purpose. Participant's willingness to participate in the study and receive consent from them, and administers the questionnaire to them. Explained and clear all the queries. Once the questionnaire was finished, the researcher collected the questionnaire back, to complete assessment with the help of standardized clinically validated well's criteria and filling structured questionnaire, each participant required minimum time 20 minutes. The researcher thanked all the study participant for their co-operation, and authorities too for their administrative support.

PLAN FOR DATA ANALYSIS

Data collection were coded, tabulated and analyzed by using descriptive statistics (mean percentage, standard deviation) and inferential statistics. Association of screening with demographic variable will be done by one

way ANOVA test and unpaired t – test. The data will be given in the way of graphs and tables.

Table No. 2: Data analysis Plan.

Sr. No.	Data analysis	Method	Remark
1.	Descriptive statistics	Mean percentage and standard deviations	Analysis of demographic variable.
2.	Inferential statistics	Unpaired 't" test and one-way ANOVA	Standardized clinically validated Wells criteria and structured questionnaire Association of demographic variable with level screening and risk factor associated with deep vein thrombosis

SUMMARY

In this chapter included research approach, research design, setting of the study, population, variable, sample, sampling techniques, tool preparation, feasibility, method of data collection and data analysis Plan.

ANALYSIS AND INTERPRETATION

This Chapter revealed the analysis and interpretation the data collected with 120 samples of factory workers from selected factory of Wardha district. The present study has been taken up to the screening and risk factors associated with deep vein thrombosis among factory workers.

Standardized clinically validated well's criteria used for screening and structured questionnaire used for assessing risk factor of factory workers for data collection. Analysis and interpretation is based on the objectives of the study and it was done with the help of inferential and descriptive statistics.

OBJECTIVES OF THE STUDY WERE

1. To Screen the deep vein thrombosis among factory workers
2. To assess the risk factors of deep vein thrombosis among factory workers
3. To associate the findings of screening and risk factors of deep vein thrombosis among factory workers with their selected demographic variables

ORGANIZATION OF FINDINGS

The Analysis and interpretation of the observations given as follows:

- **Section A:** Percentage wise distribution of factory workers according to their demographic variables.
- **Section B:** Screening of deep vein thrombosis among factory workers.
- **Section C:** Assessment of risk factors of deep vein thrombosis among factory workers.
- **Section D:** Association of screening score associated with deep vein thrombosis among factory workers with demographic variables.
- **Section E:** Association of risk factor associated with deep vein thrombosis among factory workers with demographic variables.

SECTION A

PERCENTAGE WISE DISTRIBUTION OF FACTORY WORKERS ACCORDING TO THEIR TO DEMOGRAPHIC VARIABLES

This section deals with percentage wise distribution factory workers with regards to their demographic variable. Sample was collected from the study population of 120 factory workers from selected factory of Wardha district. The data obtained to describe the demographic characteristics including age, number of years of working in factory, standing working hours in factory, food pattern and body mass index (BMI) respectively.

Table no. 3: Percentage wise distribution of factory workers according to their demographic Variables.
n=120

Demographic Variables	Number of factory workers	Percentage (%)
Age(years)		
21-30 years	18	15.0
31-40 years	73	60.8
41-50 years	22	18.3
51-60 years	07	5.90
Number of years working in factory		
6-10 years	59	49.2
11-15 years	37	30.8
16-20 years	18	15.0
≥21 years	06	5.0
Standing working hours in factory		

<4 hour	101	84.2
<6 hour	16	13.3
≥8 hour	03	2.5
Food Pattern		
Vegetarian	36	30.0
Non Vegetarian	00	0.00
Mix Diet	84	70.0
Body Mass Index (BMI)		
Underweight	21	16.7
Normal Weight	77	64.2
Pre Obesity	22	19.1
Obesity Class I	00	00.0

The above table no. 3 show percentage wise distribution of sample with regards to age, number of working year in factory, standing working hour in factory, food pattern, body mass index (BMI) regarding the screening and risk factor associated with deep vein thrombosis among factory workers.

Distribution of samples according to age show that 18 (15%) of factory workers age of 21-30 years, 73(60.80%) age of 31-40 years, 22(18.30%) age of 41-50 years, 7(5.90%) age of 51-60 years.

Distribution of sample according to number of working year in factory show that 59 (49.20%) of factory workers were working since 6-10 years, 37(30.80%) were from 11-15 years, 18(15%) from 16-20 years and only 6 (5%) of the factory workers were working from last 21 years.

Distribution of sample according to standing working hour in factory show that 101 (84.20%) of factory workers were having less than 4 hours of working, 16(13.30%) had less than 6 hours and 3 (2.50%) of them had equal to and more than 8 hours of standing working hour.

Distribution of sample according to food pattern show that 36(30%) of factory workers were vegetarian and 84 (70%) of them were mix vegetarian.

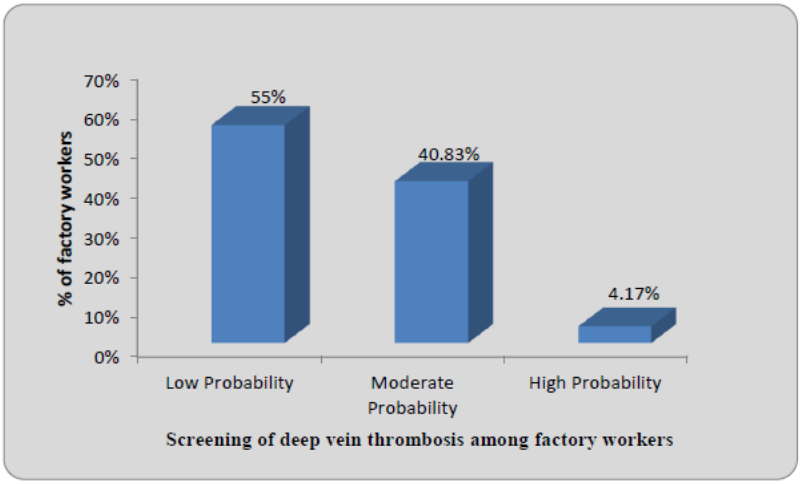
Distribution of sample according to body mass index (BMI) show that 21(16.70%) of factory workers were underweight, 77 (64.20%) of them were normal weight and 22(19.10%) of them were pre obese.

SECTION B
SCREENING OF DEEP VEIN THROMBOSIS AMONG FACTORY WORKERS

This section deals with the screening of deep vein thrombosis among factory workers. The level of screening score is divided under following heading of low probability, moderate probability and high probability respectively as per standardized clinically validated well's criteria.

Table No. 4: Screening of deep vein thrombosis among factory workers.
n=120

Level of Screening	Score Range	Level of Screening	
		Number of factory workers	Percentage
Low Probability	-2 to 0	66	55.00
Moderate Probability	1 to 2	49	40.83
High Probability	3 to 8	05	4.17
Minimum score		0	
Maximum score		3	
Mean screening score		0.57 ± 0.76	



Graph 1: Screening of deep vein thrombosis among factory workers.

The above table no. 4 and graph no. 1 shows that low probability screening score were having 66 (55%) of factory workers, moderate probability screening score were having 49 (40.83%) and high probability screening score were having 05(4.17%) of the factory workers. The minimum screening scoring was "0"and maximum scoring was "3". The mean screening score of factory workers was 0.57 ± 0.76.

SECTION C
ASSESSMENT OF RISK FACTORS OF DEEP VEIN THROMBOSIS AMONG FACTORY WORKERS

This section deals with the assessment of risk factors of deep vein thrombosis among factory workers.

Table no. 5: Assessment of risk factors of deep vein thrombosis.
n=120

Sr. no.	Risk Factors	Yes	%	No	%
1	Do you have history of Respiratory disease?	04	3.33	116	96.67
2	Do you have history of Heart disease?	09	7.50	111	92.50
3	Do you have previous history of Deep vein thrombosis?	00	0.00	120	100.00
4	Do you have family History of Deep vein thrombosis?	02	1.67	118	98.33
5	Do you have history of Varicose vein?	02	1.67	118	98.33
6	Do you suffering from Cancer in past or recent year time?	00	0.00	120	100.00
7	Do you have recent or Past history of major surgery?	25	20.83	95	79.17
8	Do you have history of Previous injury or trauma or fracture?	09	7.50	111	92.50
9	Do you have history of Non-infectious inflammatory disease?	00	0.00	120	100.00
10	Do you have history of Inflammatory bowel disease?	01	0.83	119	99.17
11	Do you have history of Nephrotic syndrome in past or present?	00	0.00	120	100.00
12	Do you suffering from Thrombophilia or stroke in past or recent year time?	00	0.00	120	100.00
13	Do you have History of Obesity?	10	8.33	110	91.67
14	Do you have Long distance Travel History?	61	50.83	59	49.17
15	Do you have History of Smoking?	29	24.17	91	75.83
16	Do you have History of taking Antidepressant?	00	0.00	120	100.00

The above table no. 5 shows assessment of risk factors of deep vein thrombosis that 4 (3.33%) factory workers were having respiratory disease, 9(7.50%) were having history of heart disease, 2(1.67%) were having family history of deep vein thrombosis, 2(1.67%) were having history of varicose vein, 25 (20.83%) were having recent or past history of major surgeries, 9(7.50%) were having history of previous injury or trauma or fracture, 1(0.83%) were having history of inflammatory bowel disease, 10(8.33%) were having history of obesity, 61(50.83%) were having long distance travel history, 29(24.17%) were having history of smoking.

SECTION D

ASSOCIATION OF LEVEL OF SCREENING OF DEEP VEIN THROMBOSIS AMONG FACTORY WORKERS WITH DEMOGRAPHIC VARIABLES

Table no. 6: Association of screening associated with deep vein thrombosis among factory workers with demographic variables.

n=120

Demographic variable	Number of factory workers	Mean Screening score	F-value/t value	p-value
Age (years)				
21-30 years	18	0.55±0.78	0.05	0.98 NS, p>0.05
31-40 years	73	0.56±0.72		
41-50 years	22	0.63±0.90		
51-60 years	07	0.57±0.78		
Number of year working in factory				
6-10 years	59	0.67±0.95	1.07	0.36 NS, p>0.05
11-15 years	37	0.51±0.50		
16-20 years	18	0.50±0.51		
≥21 years	06	0.16±0.40		
Standing working hours in factory				
<4 hours	101	0.57±0.63	0.53	0.58 NS, p>0.05
<6 hours	16	0.50±0.73		
≥8 hours	03	1±1		
Food pattern				
Vegetarian	36	0.33±0.67	2.41	0.018 NS, p<0.05
Non Vegetarian	00	0±0		
Mix Diet	84	0.69±0.78		
Body mass index (BMI)				
Underweight	21	0.45±0.68	0.55	0.57 NS, p>0.05
Normal Weight	77	0.57±0.75		
Pre Obesity	22	0.69±0.87		
Obesity Class I	00	0±0		

The above table no. 6 show that association of level of screening associated with deep vein thrombosis among factory workers with demographic variables.

The association of screening score with age in years of factory workers from selected factories. The tabulated 'F' values was 2.68 (df=3,116) which is much higher than the calculated 'F' i.e. 0.05 at 5% level of significance. Also the calculated 'p'=0.98 which was much higher than the acceptable level of significance i.e. 'p'=0.05. Hence it shows that age in years of factory workers is statistically not associated with their screening of deep vein thrombosis score.

The association of screening score with number of working year in factory workers from selected factories. The tabulated 'F' values was 2.68 (df=3,116) which is much higher than the calculated 'F' i.e. 1.07 at 5% level of significance. Also the calculated 'p'=0.36 which was much higher than the acceptable level of significance i.e. 'p'=0.05. Hence it shows that number of working year in factory workers is statistically not associated with their screening of deep vein thrombosis score.

The association of screening score with standing working hour of factory workers from selected factories. The tabulated 'F' values was 3.07(df=2,117) which is much higher than the calculated 'F' i.e. 0.53 at 5% level of significance. Also the calculated 'p'=0.58 which was much higher than the acceptable level of significance i.e. 'p'=0.05. Hence it shows that standing working hour in factory workers is statistically not associated with their screening of deep vein thrombosis score.

The association of screening score with food pattern of factory workers from selected factories The tabulated 't' values were 1.98 (df=118) is less than calculated 't' i.e. 3.53 at 5% significance level. Calculated 'p'= 0.032 was also less than significance level, i.e.' p'= 0.05. Thus it shows food pattern of factory workers is statistically associated with their screening of deep vein thrombosis score.

The association of screening score with body mass index (BMI) of factory workers from selected factories. The tabulated 'F' values was 3.07(df=2,117) which is much higher than the calculated 'F' i.e. 0.55 at 5% level of significance. Also the calculated 'p'=0.57 which was much higher than the acceptable level of significance i.e. 'p'=0.05. Hence it shows that body mass index (BMI) of factory workers is statistically not associated with their screening of deep vein thrombosis score.

SECTION E

ASSOCIATION OF RISK FACTOR ASSOCITED WITH DEEP VEIN THROMBOSIS AMONG FACTORY WORKERS WITH DEMOGRAPHIC VARIABLES

Table no. 7: Association risk factor associated with deep vein thrombosis among factory workers with demographic variable.

n=120

Demographic variable	Number of factory workers	Mean Risk factor score	F-value/t value	p-value
Age (years)				
21-30 years	18	1.44±0.85	2.01	0.11 NS, p>0.05
31-40 years	73	1.31±0.94		
41-50 years	22	1.36±0.95		
51-60 years	07	2.28±1.88		
Number of year working in factory				
6-10 years	59	1.40±1.14	1.82	0.14 NS, p>.05
11-15 years	37	1.16±0.79		
16-20 years	18	1.83±0.98		
≥21 years	06	1.50±0.54		
Standing working hours in factory				
<4 hour	101	1.45±0.96	1.50	0.22 NS, p>0.05
<6 hour	16	1±1.09		
≥8 hour	03	1.66±2.08		
Food pattern				
Vegetarian	36	1.16±1	1.70	0.09 NS, p>0.05
Non Vegetarian	00	0±0		
Mix Diet	84	1.51±1.02		
Body mass index (BMI)				
Underweight	21	0.80±0.83	4.70	0.011 S, p<0.05
Normal Weight	77	1.55±1.04		
Pre Obesity	22	1.39±0.89		
Obesity Class I	00	0±0		

The above table no.7 show that association of risk factor associated with deep vein thrombosis among factory workers with demographic variables.

The association of risk factor score with age in years of factory workers from selected factory. The tabulated 'F' values was 2.68 (df=3,116) which is much higher than the calculated 'F' i.e. 2.01 at 5% level of significance. Also the calculated 'p'=0.11 which was much higher than the acceptable level of significance i.e. 'p'=0.05. Thus it show that age in years of factory workers is statistically not associated with their risk factors of deep vein thrombosis score.

The association of risk factor score with number of years working in factory workers from selected factory. The tabulated 'F' values was 2.68 (df=3,116) which is much higher than the calculated 'F' i.e. 1.82 at 5% level of significance. Also the calculated 'p'=0.14 which was much higher than the acceptable level of significance i.e. 'p'=0.05. Thus it shows that number of years of working in factory workers is statistically not associated with their risk factor of deep vein thrombosis score.

The association of risk factor score with standing working hour of factory workers from selected factories. The tabulated 'F' values was 3.07 (df=2,117) which is much higher than the calculated 'F' i.e. 1.50 at 5% level of significance. Also the calculated 'p'=0.22 which was much higher than the acceptable level of significance i.e. 'p'=0.05. Thus it shows that standing working hour of factory workers is statistically not associated with their risk factor of deep vein thrombosis score.

The association of risk factor score with food pattern of factory workers from selected factories. The tabulated't' values was 1.98 (df=118) which is much higher than the calculated't' i.e. 1.70 at 5% level of significance. Also the calculated 'p'=0.09 which was much higher than the acceptable level of significance i.e. 'p'=0.05. Thus it shows that food pattern of factory workers is statistically not associated with their risk factor of deep vein thrombosis score.

The association of risk factor with Body mass index (BMI) of factory workers from selected factories. Tabulated 'F' values were 3.07 (df=2,117) less than calculated 'F' i.e. 4.70 at the significance level of 5 percent. Calculated 'p'= 0.011 is also less than acceptable significance level, i.e.' p'= 0.05. It shows that factory workers Body mass index (BMI) is statistically associated with their risk factor of deep vein thrombosis

score.

SUMMARY

This chapter deals with the interpretation and analysis of the calculated data. Descriptive statistics and inferential statistics used to analyze data as per the objective of the study. All relevant information regarding research finding is covered in this chapter.

SUMMARY, FINDINGS, CONCLUSION, IMPLICATION AND RECOMMENDATIONS

This chapter presents summary of the study and also its significant findings. It also includes the implications and the recommendations for further study. Main areas of interest in this chapter are that the results reveal significant interpretations that could influence such definitive approaches and further research in this field.

Research study performed selected factory of Wardha district. Study focused in screening and risk factor associated with deep vein thrombosis among factory workers.

The purpose of this study was to determine whether factory worker have risk of deep vein thrombosis. It is necessary to know about deep vein thrombosis because now a day's deep vein thrombosis is common in world. The researcher had selected this study keeping in mind the necessity to address this situation therefore the purpose of the study is to screening and risk factor associated with deep vein thrombosis among factory workers in factories of Wardha district. The researcher wants to make the factory workers aware about deep vein thrombosis so that they can identify risk factor in early stage itself.

TITLE OF THE STUDY

Screening and risk factor associated with deep vein thrombosis among factory workers.

AIM

The aim of the study to screening and risk factor associated with deep vein thrombosis among factory workers.

OBJECTIVES OF THE STUDY

1. To Screen the deep vein thrombosis among factory workers
2. To assess the risk factors of deep vein thrombosis among factory workers
3. To associate the findings of screening and risk factors of deep vein thrombosis among factory workers with their demographic variables

HYPOTHESIS

H1: There is a significant association between screening and risk factor score of deep vein thrombosis among factory workers.

ASSUMPTION

Factory workers may have risk of development of deep vein thrombosis.

Evaluatory research approach was used in this study. The population was the 120 factory workers from selected factory of Wardha District. Non-Probability Purposive sampling technique was used in this research study. The tool was standardized clinically validated well's criteria for screening and for risk factor assessment structured questionnaire used. The content validity of the tool was done by 10 experts. Reliability analysis done by using parallel form method of reliability, it is found to be 0.7522 and hence tool is reliable and valid and feasible. The pilot study was conducted for one week from 12th October to 17th October 2020. As per criteria laid down, selected 10% sample from Lloyds steel factory Bhugaon, District Wardha. The researcher visited to selected factory of Wardha district region in advance and she took permission from concerned authorities. Analysis was done on the bases of given objective and hypothesis of this study with help of various statistical tests such as frequency, percentage, mean, and standard deviation, unpaired 't' test, ANOVA. The level of significance for testing the hypothesis was 0.05.

MAJOR FINDINGS OF THE STUDY AND DISCUSSION

Major findings of the study given is as follows:

SECTION A

Percentage wise distribution of factory workers with regards to demographic variables

1. Distribution of factory workers with regards age shows that 18(15%) belong to 21-30 years, 73(60.80%) belong to 31-40 years, 22(18.30%) belong 41-50 years and 7(5.90%) belong to 51-60 years.
2. Distribution of factory workers with number of working year in factory show that 59(49.20%) of factory workers were working since 6-10 years, 37(30.80%) were from 11-15 years, 18(15%) from 16-20 years and only 6(5%) of the factory workers were working from last 21 years.
3. Distribution of factory workers with number of standing working hour of factory workers shows that 101(84.20%) of factory workers were having less than 4 hours of standing working hour, 16(13.30%) had less than 6 hours of standing working hour and 3(2.50%) of them had equal to and more than 8 hours of standing working hour.
4. Distribution of factory workers with food pattern shows that 36(30%) of factory workers were vegetarian and 84(70%) of them were mix vegetarian.
5. Distribution of factory worker with body mass index (BMI) shows that 21(16.70%) of factory workers were underweight, 77(64.20%) of them were normal weight and 22(19.10%) of them were pre obese.

SECTION B
SCREENING OF DEEP VEIN THROMBOSIS AMONG FACTORY WORKERS

This section deals with the screening of deep vein thrombosis among factory workers. The level of screening score is divided under following heading of low probability, moderate probability and high probability respectively as per standardized clinically validated well's criteria.

Low probability screening score of deep vein thrombosis were having 66(55%) of factory workers, moderate probability screening score of deep vein thrombosis were having 49(40.83%) factory workers and high probability screening score of deep vein thrombosis were having 05(4.17%) factory workers. minimum screening scoring "0", maximum scoring " 3". Mean screening score of factory workers was 0.57 ± 0.76.

SECTION C
ASSESSMENT OF RISK FACTORS OF DEEP VEIN THROMBOSIS AMONG FACTORY WORKERS

This section deals with the assessment of risk factors of deep vein thrombosis that 4(3.33%) factory workers were having respiratory disease, 9(7.50%) were having history of heart disease, 2(1.67%) were having family history of deep vein thrombosis, 2(1.67%) were having history of varicose vein, 25(20.83%)were having recent or past history of major surgeries, 9(7.50%) were having history of previous injury or trauma or fracture, 1(0.83%) were having history of inflammatory bowel disease, 10(8.33%) were having history of obesity, 61(50.83%) were having long distance travel history, 29(24.17%) were having history of smoking**.**

SECTION D
ASSOCIATION OF SCREENING SCORE OF DEEP VEIN THROMBOSIS AMONG FACTORY WORKERS WITH DEMOGRAPHIC VARIABLES

This section deals with the association of screening score of deep vein thrombosis among factory workers with demographic variables. The association of screening score of deep vein thrombosis with food pattern among factory workers. The 't' values was 1.98 (df=118) is less than calculated 't' i.e. 3.53 at 5% significance level. Calculated 'p'=0.032 was less than acceptable significance level i.e. 'p'=0.05. Hence it shows that factory workers food pattern is statistically associated with their screening score of deep vein thrombosis.

There is no significant association of screening score with age, number of working year in factory, standing working hour in factory, body mass index (BMI) of factory workers from selected factory of Wardha district.

Prospective research conducted on diet on US women and men. Researcher found diet can be risk factor for occurrence of venous thromboembolism (VTE) in 129,430 US men and women. 2,892 cases of venous thromboembolism (VTE) from 1984 to 2008. Researcher concluded that the dietary pattern of western was associated with the increased risk of venous thromboembolism (VTE).[55]

SECTION E
ASSOCIATION OF RISK FACTOR SCORE OF DEEP VEIN THROMBOSIS AMONG FACTORY WORKERS WITH DEMOGRAPHIC VARIABLES

This section deals with the association of risk factor score of deep vein thrombosis among factory workers with demographic variables. The association of risk factor with body mass index (BMI) of factory workers. Tabulated 'F' values 3.07(df=2,117) is less than calculated 'F' i.e. 4.70 at 5% significance level. Calculated 'p'=0.011 less than acceptable level of significance i.e. 'p'=0.05. Thus it shows that body mass index (BMI) of factory workers is statistically associated with risk factor score of deep vein thrombosis.

There is no significant association of risk factor with age, number of working year in factory, standing working hour in factory, and food pattern from selected factory of Wardha district.

A case-control study including 732 patients department, Romania. Risk of venous thrombo embolism (VTE) expressed as odds ratio with 95% confidence interval. Connection between obesity and acquired risk factor has twice the risk of venous thromboembolism (VTE). Result shows that the obesity is the independent risk factor for venous thrombo embolism among the male and female patients. This research study concluded that obesity is an independent and moderate risk factor for venous thromboembolism (VTE).[56]

DISCUSSION

The research study was conducted on screening and risk factors associated with deep vein thrombosis among factory workers in Wardha district. Standardized clinically validated Well's criteria was used as assessment tool, Level of screening score is divide in to three headings i.e. low probability, moderate probability and high probability respectively.

Low probability screening score of deep vein thrombosis were having 66(55%) of factory workers, moderate probability screening score of deep vein thrombosis were having 49(40.83%) of factory workers and high probability screening score of deep vein thrombosis were having 05(4.17%) of the factory workers. Minimum screening scoring "0", maximum score "3". Mean screening score of factory workers was 0.57 ± 0.76.

The association of screening score with age, number of working years in factory, standing working hours in factory, body mass index (BMI) of factory workers is statistically not associated with their screening score of deep vein thrombosis.

Hospital-based prospective study applicability of well's criteria for diagnosis of deep vein thrombosis (DVT) in lower extremities at outpatient department, Kathmandu. Duration of research study was September 2012 to august 2016. To know all the points in Well's criteria, the patients were asked/examined. Doppler ultrasonography confirmed 65 cases as deep vein thrombosis (DVT) (95.6 percent) on the 1st day and the remaining 3 cases were confirmed in repeated Doppler ultrasonography on the 3rd day. In 95.6% cases, pitting edema present. It is the mostly observed clinical characteristic among deep vein thrombosis (DVT) patients. This was accompanied with swelling on whole leg (67.6 percent), localized tenderness in deep venous distribution (64.7%). Well's score was: 3 (high probability) in 51 cases (75%), in 14 cases (20.6%), it was 1-2 (moderate probability) and in 3 cases (4.4%).[57]

Cross sectional research study conducted in trauma service among the admitted patients and gone thorough venous duplex scanning (VDS) institution in year of 2012 to 2013. 298 patients were examined and 18 (6%) were deep vein thrombosis positive patients. There was a linear association between the wells score and deep vein thrombosis. In patients without deep vein thrombosis the mild Wells score was 1 (1-3), relative to Wells score of 2 (1-5) in those with deep vein thrombosis. A Wells score of <1 can reliably rule out the possibility of DVT in the trauma patients. Risk of developing DVT correlates linearly with Wells score, establishing it as a valid pretest tool for risk stratification.[58]

Cross sectional research study conducted for identify prevalence and risk factors of deep vein thrombosis (DVT) among the pelvic and acetabular fractures patients in the department of orthopedics and traumatology, China. Pelvic fracture 48 patients and acetabular fracture 62 patients. Thus among them 32 (29.09 percent) going with sustained deep vein thrombosis 21(19.09 percent) patients proximal thrombosis, and 3 patients suffered with pulmonary embolism (PE). Frequency deep vein thrombosis was slightly high in acetabular fracture patients than in patients of pelvic fracture. In patients with complex acetabular fractures, the rate of proximal deep vein thrombosis (DVT) was slightly higher than in people with simple acetabular fractures.[59]

CONCLUSION

The result of the study shows that factory workers 5(4.17%) were having high probability risk of developing deep vein thrombosis, 49(40.83%) were having moderate probability of developing deep vein thrombosis. Were as 66(55%) of factory workers were having low probability score of developing deep vein thrombosis as per well's criteria. As per 16 structured questionnaire of risk factors of developing deep vein thrombosis, the atom wise analysis has been done. Risk factors such as respiratory disease 4(3.33%), 9(7.50%) were having history of heart disease, 2(1.67%) were having family history of deep vein thrombosis, 2(1.67%) were having history of varicose vein, 25(20.83%)were having recent or past history of major surgeries, 9(7.50%) were having history of previous injury or trauma or fracture, 1(0.83%) were having history of inflammatory bowel disease, 10 (8.33%) were having history of obesity, 61(50.83%) were having long distance travel history, 29 (24.17%) were having history of smoking. The association of risk factors with demographic variables shows significant with body mass index and association with screening of deep vein thrombosis in relation to food pattern shows statistically significant. Hence in conclusion these findings suggests that the incidence of deep vein thrombosis with the growing epidemics of obesity and food pattern. Hence improved preventive strategies and early recognition of DVT in obese individuals are of critical importance.

NURSING IMPLICATIONS OF THE STUDY

Result of research study can have implications for nursing administration, nursing education, nursing research and nursing practice.

NURSING ADMINISTRATION

Result used by the nursing administrator and plans and policies and for providing education to the factory workers. This contributes to the total factory worker care, allowing for detection of dangerous situations, recognition of changes in clinical condition and requests for appropriate interventions.

The study will help the nursing administrator to plan and organize to give continuing education for factory workers regarding deep vein thrombosis and its management.

NURSING EDUCATION

It help for development of insight of nursing students about deep vein thrombosis and implementation of knowledge deep vein thrombosis during dealing with client in various settings.

Student nurse prepared the tool for this study, Also she adopt the information about deep vein thrombosis. This research helps students for gaining knowledge of deep vein thrombosis and how to screen the deep vein thrombosis and their risk factors. Result of research study help nursing student for understand need to be equipped with the adequate knowledge of deep vein thrombosis.

Result of the study will also help faculty of nursing to give importance for plan and organize planned teaching to improve knowledge of clinical practice.

NURSING RESEARCH

Based on the study further research can be conducted related to screening and risk factor associated deep vein thrombosis among factory workers. Nursing research will help to know the nursing role in developing knowledge of screening of factory workers and

developing the risk factor of deep vein thrombosis. Researcher to be conducted to provide the awareness of risk factor of deep vein thrombosis among factory workers.

NURSING PRACTICE

Findings will help nursing person to estimate effectiveness standardized clinically validated Well's criteria.

Findings of the study will help nursing personnel to improve the screening knowledge and to act appropriately while assessing risk factor.

RECOMMENDATIONS

It is recommended that the following research be performed on the basis of the study results

- For better generalization similar research study can performed on large sample
- A similar study on a large scale including more than one factory can be carried out for screening and risk factor associated with deep vein thrombosis among factory workers.
- A hospital base study can be conduct in long stay ICU patient for screening of deep vein thrombosis.
- A comparative study can be conduct in hospitalized patients and community people for screening of deep vein thrombosis.

SUMMARY

The purpose of this study was to screening and risk factor associated with deep vein thrombosis among factory workers. It is necessary to screening the factory workers for deep vein thrombosis because now a day's deep vein thrombosis the problems affected by many people and it is common in world. The researcher had selected this study keeping in mind the necessity to address the situation. The researcher wants that the factory workers be aware about the deep vein thrombosis, its sign symptoms and risk factors.

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