

# A Pre-Experimental Study To Assess The Effectiveness Of An Information Booklet On Knowledge Regarding Deep Vein Thrombosis Among Watchmen In Selected Areas Of Pune City

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## ABSTRACT

**Introduction:** Deep vein thrombosis (DVT) is a serious vascular disorder characterized by the formation of blood clots in deep veins, commonly affecting the lower extremities. It is associated with significant morbidity and mortality due to complications such as pulmonary embolism. Occupational groups that require prolonged standing or immobility, such as watchmen, are at increased risk of developing DVT. Lack of awareness regarding risk factors, warning signs, preventive measures, and early management further contributes to delayed diagnosis and adverse outcomes. The present study aimed to assess the effectiveness of an information booklet on knowledge regarding deep vein thrombosis among watchmen in selected areas of Pune city.

**Title:** A pre-experimental study to assess the effectiveness of an information booklet on knowledge regarding deep vein thrombosis among watchmen in selected areas of Pune city.

**Purpose:** The purpose of the study was to assess the effectiveness of an Information Booklet on knowledge regarding Deep Vein Thrombosis among watchmen.

**Material and Methods:** A quantitative pre-experimental one-group pre-test and post-test research design was adopted. Sixty watchmen aged 20–55 years were selected using non-probability purposive sampling. Data were collected using a structured knowledge questionnaire covering basic information, causes and risk factors, signs and symptoms, and prevention and management of DVT. Following the pre-test assessment, an information booklet was administered, and the post-test was conducted on the seventh day.

**Results:** The findings revealed that prior to the intervention, the majority of watchmen had poor to average knowledge regarding DVT. Post-test results demonstrated a significant improvement in knowledge scores, indicating the effectiveness of the information booklet. Statistical analysis using a paired t-test confirmed a significant difference between pre-test and post-test knowledge scores at the 0.05 level of significance.

**Conclusion:** The study concludes that information booklets are an effective, simple, and economical educational strategy for improving awareness and knowledge regarding deep vein thrombosis among high-risk occupational groups.

**Keywords:** Deep vein thrombosis, watchmen, information booklet, knowledge, pre-experimental study.

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## INTRODUCTION

Deep vein thrombosis (DVT) occurs when a blood clot forms in a deep vein, most commonly in the lower limbs such as the calf, thigh, or hip. The condition may present with symptoms including pain, swelling, warmth, and tenderness of the affected limb; however, some individuals remain asymptomatic. Reduced blood flow due to prolonged immobility, long hours of standing or sitting, surgery, trauma, or underlying medical conditions that increase blood coagulability are major contributing factors for DVT. One of the most serious complications of DVT is pulmonary embolism, which occurs when a clot dislodges

and travels to the lungs, leading to a potentially life-threatening condition.<sup>1</sup>

Although DVT is commonly associated with hospitalized and post-surgical patients, occupational risk factors are increasingly being recognized. Watchmen are required to stand for prolonged periods with limited mobility, predisposing them to venous stasis and clot formation. In India, the burden of DVT is underestimated due to underreporting and lack of awareness. Limited studies have focused on occupational groups such as watchmen, highlighting a gap in preventive education.<sup>2</sup>

Awareness regarding early signs, risk factors, and preventive strategies plays a crucial role in reducing the incidence and complications of DVT. Educational interventions such as information booklets are

cost-effective and easily accessible tools that can enhance knowledge and promote preventive practices. Hence, the present study was undertaken to evaluate the effectiveness of an information booklet in improving knowledge regarding deep vein thrombosis among watchmen in selected areas of Pune city.

### NEED OF THE STUDY

Deep vein thrombosis is a major global health concern, affecting approximately 1 in 1,000 individuals annually. Studies have reported that the incidence of DVT among Indian and other Asian populations may be considerably high. Despite this, awareness regarding DVT remains inadequate, particularly among individuals engaged in occupations requiring prolonged standing or immobility.<sup>3</sup> Watchmen constitute an occupational group that is continuously exposed to risk factors such as prolonged standing, limited movement, advancing age, and lifestyle habits including smoking and tobacco use. Many individuals fail to recognize early symptoms of DVT, resulting in delayed treatment and increased risk of complications such as pulmonary embolism. In India, most available studies on DVT focus on patients undergoing elective orthopedic surgeries, while limited attention has been given to community-based occupational groups.<sup>4</sup>

A study was done to find out knowledge among patients about (DVT) and its prevention. Around 100 participants were included in the study, and data are collected using a question that checked their understanding about DVT, its causes, and prevention methods. The results showed that about 60% had average, 30% < knowledge, and 10% with good knowledge score were depicted. Most of participants were male, about 65%, while females made up around 35%. The study found that many patients had heard about DVT but did not fully understand how it happens or how to prevent it. It concluded that more awareness programs and health education are needed to improve people's understanding and help reduce DVT cases.<sup>5</sup>

Therefore, it is essential to improve knowledge and awareness regarding DVT among watchmen. Providing structured educational material in the form of an information booklet can empower individuals with knowledge related to prevention, early identification, and timely management. The findings of this study may contribute to improved preventive care and serve as a basis for future community-based educational interventions.

### AIM OF THE STUDY

The aim of this study is to evaluate the effectiveness of an Information Booklet on knowledge regarding deep vein thrombosis among watchmen in selected areas of Pune city.

### RESEARCH OBJECTIVES

1. To assess the knowledge of DVT among watchmen before intervention.
2. To assess the knowledge of DVT among watchmen after the intervention.
3. To compare the pre – interventional & post - interventional knowledge of DVT among the watchmen.
4. To determine the effectiveness of information-booklet on DVT among watchmen.
5. To associate pre-interventional knowledge findings & selected demographic variables

### HYPOTHESIS:

#### Hypothesis for effectiveness:

**H<sub>0</sub> 1:** There is no significant differentiation between knowledge score regarding DVT among watchmen pre & post intervention at 0.05 level significance.

#### Hypothesis for association:

**H<sub>0</sub> 2:** There is no association of pre-interventional knowledge and selected demographic variables among watchmen at 0.05 level of significance.

### RESEARCH METHODOLOGY

**Research Approach:** Quantitative research approach.

**Research Design:** Pre-experimental research design.

**Setting of the Study:** The study was conducted in selected areas of Pune city.

**Population:** Watchmen working in selected areas of Pune city.

**Sample Size:** The sample consisted of 60 watchmen

**Sampling Technique:** Non-probability purposive sampling technique.

#### Criteria for sample selection

##### ● Inclusion criteria

1. Watchmen Male & Female who are in age 20-55 yrs.
2. Watchmen who can read, write and understand Marathi or English.

##### ● Exclusion criteria

Watchmen who are not ready to participate in study.

#### Tool for Data Collection

- Section A: Demographic variables
- Section B: Structured Questionnaire

**Validity and Reliability:** The tool was validated by experts in the field of nursing and medicine. Reliability was established using appropriate statistical methods.

**Pilot Study:** A pilot study was conducted to assess the feasibility of the study and the tool.

**Data Analysis:** Data were analyzed using descriptive statistics such as frequency and percentage distribution.

### RESULTS

The result was discussed in three sections

**Section I: Description of samples based on their demographic characteristics in terms of frequency and**

**percentage**

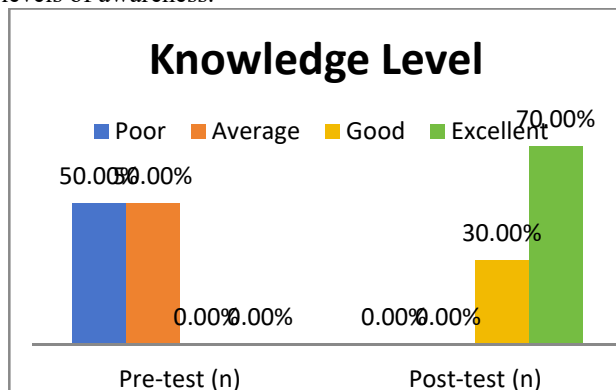
The majority of participants (50%) were aged 41–50 years, followed by 30% in the 51–55-year group. Only 3.33% belonged to the youngest age group (20–30 years). This indicates that watchmen are predominantly middle-aged to older adults, a population inherently at higher risk for DVT due to age-related changes in venous return and prolonged standing. The sample was overwhelmingly male (90%), reflecting the male-dominated nature of the watchman profession in urban India. A significant proportion (87%) reported tobacco use, an important modifiable risk factor for DVT. Baseline knowledge was extremely low, with only 5% having prior awareness and 95% having no knowledge. Similarly, only 5% had a history of DVT, and 22% had undergone.

**Section II: Distribution of knowledge levels regarding deep vein thrombosis among watchmen (pre-test and post-test)**

**Table no. 01: Pre-test and Post-test of knowledge levels regarding deep vein thrombosis among watchmen n=60**

Knowledge Level	Pre-test (n)		Post-test (n)	
	Frequen	%	Frequen	%
Poor	30	50.00%	0	0.00%
Average	30	50.00%	0	0.00%
Good	0	0.00%	18	30.00%
Excellent	0	0.00%	42	70.00%
<b>Total</b>	<b>60</b>	<b>100.00%</b>	<b>60</b>	<b>100.00%</b>

Table 1 shows that in Pre-intervention, 50% of participants had Poor knowledge, and 50% had Average knowledge. No participant demonstrated Good or Excellent knowledge. Post-intervention, 70% achieved excellent knowledge, and 30% achieved Good knowledge, indicating a complete shift from inadequate to adequate levels of awareness.



**Figure No.1: Pre-intervention and post-intervention level of knowledge regarding deep vein thrombosis among watchmen**

- Figure 1 depicts that after the administration of information booklet, the knowledge levels improved dramatically. All participants shifted from Poor/Average categories to Good/Excellent categories.
- The fact that 70% achieved excellent knowledge and 30% achieved Good knowledge indicates that the information booklet was highly effective in enhancing understanding of DVT.

**Section III: Effectiveness of Information Booklet on Knowledge Regarding deep vein thrombosis**

**Table 2: Effectiveness of Information Booklet on Knowledge Regarding deep vein thrombosis**

Param	M B	M A	Mean Difference (x)	% Improved	95% Lower	Upper	t-value	p-value
Know	6.05	16.75	10.70	176.86%	-11.67	9.74	-23.51	1.54131

Table no. 2 presents that the pre-test mean knowledge score (BT = 6.05) was very low. After the intervention (information booklet), the post-test mean score sharply increased (AT = 16.75). There is extremely significant difference between pre-test and post-test knowledge scores demonstrating that the information booklet was highly effective. The mean post-test score (16.75) is almost three times higher than the pre-test score, indicating that participants gained substantial knowledge because of the educational intervention.

**Section-IV: Association of findings with demographic variables**

Findings indicate association which was statistically significant between age and pre-test knowledge regarding DVT. Knowledge levels varied significantly across different age groups. There is significant association exists between years of working and knowledge. Those with 4–6 years of experience showed better knowledge, suggesting occupational experience improves awareness of DVT. Reject the null hypothesis for association. This shows significant association between tobacco use & knowledge. Non-tobacco users had higher knowledge levels, indicating that healthier individuals may be more aware of disease prevention. Reject the null hypothesis for association.

There is no association with the other demographic variables.

This is a significant association was observed. Participants with chronic illnesses had higher knowledge scores, possibly due to increased exposure to healthcare information. Reject the null hypothesis for association.

This is Shows Gender no significant association with DVT knowledge. Both males and females demonstrated similar levels of awareness during the pre-test. Accept the null hypothesis for association.

#### **DISCUSSION**

The present study demonstrated a significant improvement in knowledge regarding deep vein thrombosis among watchmen following the administration of an information booklet. The findings of the pre-test revealed inadequate baseline knowledge, which is consistent with previous studies conducted among occupational and healthcare groups that reported poor awareness regarding DVT and its prevention.

The post-test results showed a substantial increase in knowledge scores, highlighting the effectiveness of structured educational materials. Similar findings were reported in studies conducted among drivers, nurses, and healthcare workers, where information booklets significantly enhanced knowledge regarding vascular conditions such as DVT and varicose veins. The improvement in knowledge can be attributed to the simple language, structured content, and relevance of the information provided in the booklet.

Present study was supported by Study carried to find out how effective an information booklet is in improving knowledge about deep vein thrombosis. The study included 60 drivers, with 80% males and 20% females. A structured questions was used to measure understanding before and after giving the booklet. Before the intervention, only about 46% of participants had adequate knowledge about DVT, its risk factors, and ways to prevent it. After reading the booklet, knowledge increased to approximately 73%, and participants also showed a positive change in attitude toward prevention. The study concluded that a simple information booklet is an effective and easy method to increase awareness, especially for people who spend long hours sitting and are at higher risk of DVT.<sup>6</sup>

Study done to find out how efficacy an information booklet is in strengthening knowledge about varicose veins and their prevention among healthcare workers. Sixty participants were selected, and their knowledge was measured using a structured questionnaire before and after giving the booklet. The results showed that before the booklet, most participants had only average knowledge, but after reading it, their knowledge improved significantly. Statistical analysis confirmed that the

increase in knowledge was meaningful. The study concluded that information booklets are a simple and effective way to educate healthcare workers about varicose veins and their prevention.<sup>7</sup>

The study emphasizes the importance of educational interventions in community and occupational settings. Watchmen, being at higher risk due to prolonged standing, can benefit from targeted health education programs. Improved knowledge may lead to early identification of symptoms, adoption of preventive measures, and timely healthcare-seeking behavior, thereby reducing complications associated with DVT.

#### **CONCLUSION**

The study concluded that the information booklet was an effective educational tool in improving knowledge regarding deep vein thrombosis among watchmen. The study demonstrates that watchmen have extremely low baseline knowledge regarding deep vein thrombosis before intervention .After intervention participants scored in the excellent category & good level of knowledge score. Therefore, the null hypothesis (H<sub>0</sub>) is rejected. Structured information booklets significantly improved knowledge among watchman shifting from Poor/Average levels to Good/Excellent levels post-intervention among watchman. A significant association exists between demographic variables like age, years of working & Smoking, Chronic illness with knowledge regarding DVT. Factors such as age, work experience, chronic illness, and tobacco use significantly influence baseline knowledge, whereas gender, marital status, and prior awareness do not. The findings confirm that written educational interventions are highly effective, practical, and scalable for occupational groups at risk of DVT. The significant difference between pre-test and post-test knowledge scores confirms the effectiveness of the intervention . Educational strategies such as information booklets can be easily implemented in community and occupational settings to enhance awareness and promote preventive practices. Regular health education programs are recommended for high-risk occupational groups to reduce the burden of deep vein thrombosis and its complications.

#### **CONFLICT OF INTEREST**

The authors declare that there is no conflict of interest related to this study.

#### **FUNDING SOURCE**

There was no external funding for this study.

#### **REFERENCES**

1. Cleveland Clinic. Deep vein thrombosis (DVT): causes, symptoms, diagnosis and treatment [Internet]. Cleveland (OH): Cleveland Clinic; 2023 [cited 2026 Jan 22]. Available from:

<https://share.google/hc7Z0YT3BMwTTo3Ql>

2. Sharma R, Gupta P, Verma S. Risk factors, clinical features and prevention of deep vein thrombosis. *Int J Res Med Sci.* 2023;11(5):1560–6. Available from: <https://www.msjonline.org/index.php/ijrms/article/view/14324>
3. World Health Organization. Deep vein thrombosis and pulmonary embolism: prevention and management. Geneva: WHO; 2021.
4. Goldhaber SZ, Bounameaux H. Pulmonary embolism and deep vein thrombosis. *Lancet.* 2012; 379(9828):1835–46.
5. Ali I M, Reddy M V, Shetty V (August 28, 2024) Analysis of Deep Vein Thrombosis: A Prospective Observational Study. *Cureus* 16(8): e68014. doi:10.7759/cureus.68014
6. Patel M, Shah R. Knowledge regarding deep vein thrombosis and its prevention among staff nurses. *Malaysian J Nurs.* 2022;14(2):45–50. Available from: <https://ejournal.lucp.net/index.php/mjn/article/view/2269/2449>
7. Centers for Disease Control and Prevention. Understanding blood clots and deep vein thrombosis [Internet]. Atlanta (GA): CDC; 2022 [cited 2026 Jan 22]. Available from: <https://share.google/Fe1vYukWeoVcQp8Y1>
8. Heit JA. Epidemiology of venous thromboembolism. *Nat Rev Cardiol.* 2015; 12(8):464–74.
7. Anderson FA Jr, Spencer FA. Risk factors for venous thromboembolism. *Circulation.* 2003; 107(23 Suppl 1):I9–16.
9. National Institute for Health and Care Excellence (NICE). Venous thromboembolic diseases: diagnosis, management and thrombophilia testing. London: NICE; 2020.
10. Cushman M. Epidemiology and risk factors for venous thrombosis. *Semin Hematol.* 2007; 44(2):62–9.
11. Moll S, Roberts HR. Overview of venous thromboembolism. *Am J Hematol.* 2008; 83(9):676–82.
12. Ministry of Health and Family Welfare, Government of India. National Programme for Prevention and Control of Deafness and other Non-Communicable Diseases – Occupational Health Guidelines. New Delhi: MoHFW; 2019.