Section: Critical Care Nursing

Original Research Article

NURSE'S COMPETENCIES IN PREVENTING DEEP VEIN THROMBOSIS AMONG BEDRIDDEN PATIENTS

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Abstract

Background: Deep vein thrombosis (DVT) is a prevalent condition observed in patients confined to beds, arising from the obstruction of the venous reflux system. Within the healthcare realm, nurses play a pivotal role as primary caregivers, especially for individuals restricted to bed rest to avert potential complications. The lack of awareness regarding DVT prevention may pose a hindrance to the efficacy of therapeutic interventions. This study aimed to investigate the impact of an instructional program on the knowledge and practices of nurses concerning the prevention of Deep Vein Thrombosis. **Materials and Methods:** A quasi-experimental study employing a one-group pre and post-test design was conducted at a super specialty hospital of Dehradun, Uttarakhand. A total of 140 nurses were purposefully selected using sampling techniques. Data were gathered through a self-structured knowledge questionnaire and a self-reported practice checklist related to DVT prevention. **Result:** The data revealed that, in the pre-test, only 8% of participants exhibited a good level of knowledge, and 88% demonstrated good practice. Following the intervention, 61% displayed a good level of knowledge, and all participants exhibited good practice. The study identified a weak correlation between knowledge and practice scores, and no statistically significant association was found between knowledge and practice with various variables. **Conclusion:** The study concludes that the instructional program effectively enhanced the knowledge and practices of nurses concerning the prevention of DVT among bedridden patients.

INTRODUCTION

Deep vein thrombosis (DVT) manifests as an obstructive condition prevalent among bedridden patients, leading to the formation of blood clots, primarily in the deep veins of the legs. However, it can also occur in the hand, mesenteric, and cerebral veins.[1,2] This ailment ranks as the third most common fatal cardiovascular disease after cardiac arrest and strokes in terms of mortality.[3] Early diagnosis and treatment are crucial for mitigating morbidity, as reduced blood flow constitutes a significant risk factor contributing to deep vein thrombosis.[4-7] Various factors, including bed rest, general anaesthesia, surgeries, strokes, and prolonged trips, induce immobility and heighten the risk.[8,9] Automated firmness or mobility impairment can elevate venous pressure, leading to conditions such as cancer, pregnancy, stenosis, and congenital anomalies that increase outflow resistance.[10,11] Genetic deficits affecting antithrombin III, factor V Leiden, and anticoagulation proteins C and S also contribute to the clotting risk.[12-14] Acquired risk factors encompass malignancy, infection, infarction, cardiac failure, vein inflammation, systemic lupus erythematosus, lupus anticoagulant, burns, oral estrogen use, smoking, hypertension, and diabetes mellitus.[11,15]

DVT and pulmonary embolism (PE) often go undetected or are only discovered during autopsies, resulting in frequent overestimation of prevalence and incidence. It is estimated that there are 80 occurrences of DVT per 100,000 people annually, with lower limb DVT affecting 1 in 1000 individuals in India.1 In the US, over 200,000 people experience venous thrombosis, and 50,000 of these cases are complicated by PE.[16-18]

The anticipation of DVT is crucial and can be achieved through vigilant assessment by well-equipped nurses, reducing the likelihood of DVT.[19] Prevention strategies encompass the use of medications, calf muscle exercises, and intermittent

pneumatic compression devices. A potential barrier to effective therapeutic practices for nurses is a lack of understanding regarding DVT prevention, which can be addressed through proper training.[20,21]

MATERIALS AND METHODS

The current study employed a quantitative research approach with a one-group pre-test – post-test design. The research was conducted in the critical care unit of a multispecialty hospital in Dehradun, Uttarakhand, following the receipt of administrative and ethical approval from the relevant authorities. The sample size comprised 140 nurses selected through purposive sampling technique. Participants were provided with an explanation of the study's purpose, and written consent was obtained.

Data collection involved the use of tools, including a demographic profile, a structured knowledge questionnaire, and a self-reported practice checklist. Subsequently, an intervention was administered to the participants in group sessions. Seven days later, a post-test was conducted using the same set of tools.

RESULTS

Nurses' Demographic Profile: The results indicated that a significant proportion (90%) of the nurses fell within the age range of 22-34 years. A majority of the nursing staff (68%) were female. The predominant educational qualification was a diploma certificate (GNM), with 56% holding this credential. The majority (92%) possessed a total professional experience ranging from 5 months to 10 years, and within this group, 93% had garnered 1 month to 6 years of experience specifically in the ICU. Notably, all nurses had not attended any educational programs focused on DVT.

Knowledge and Practice

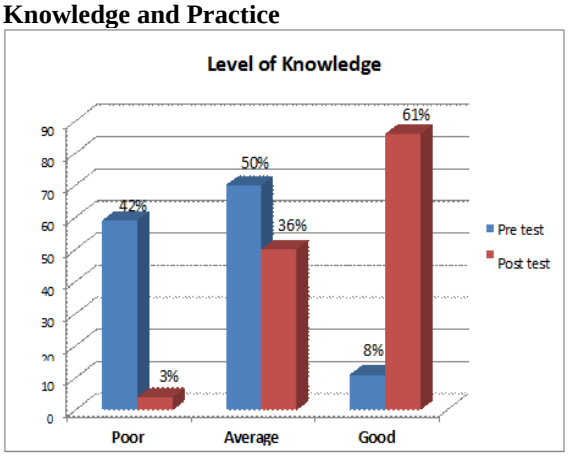

Figure 1: Level of knowledge

The results reveal that the average post-test knowledge score of nurses concerning DVT prevention (22.38±3.87) was notably higher than the average pretest knowledge score (15.56±0.10), indicating a mean difference of 6.82, which was statistically significant at the chosen level. Additionally, it is evident that only 8% of participants exhibited good knowledge regarding DVT prevention before the intervention. However, following the intervention, a substantial increase was observed, with 61% of nurses falling into the "good" category, underscoring the significance of the intervention in enhancing nurses' knowledge. [Table and Figure 1]

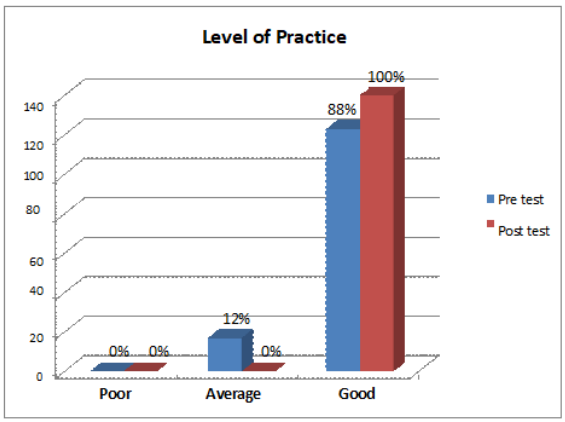

Figure 2: Level of Practice

The data demonstrates that the average post-test practice score of nurses in DVT prevention (9.7±0.62) exceeded the pre-test practice score (8.5±1.51), indicating a mean difference of 1.2, which was statistically significant at the selected level. Prior to the intervention, 88% of participants exhibited good practice. However, after the intervention, there was a noteworthy improvement, with all participants now falling into the "good" category. [Table and Figure 2]

A weak correlation of 0.079 was identified between the knowledge and practice scores of nurses in relation to the prevention of DVT among bedridden patients.

Association between knowledge and practice with the selected socio demographic variables of participants

The study explored the association between knowledge and practice and various socio-demographic variables of the participants. However, statistically, no significant relationships were found between knowledge, practice, and the selected socio-demographic factors.

Table 1: Pre and post-test knowledge score of nurses (n= 140)

Knowledge	Range	Mean±SD	Median	Mean Difference	t- value	P- value
Pre-test	7 – 25	15.56 ± 4.10	15	6.82	19.59*	<0.05
Post-test	10 – 31	22.38 ± 3.87	23			

t139 -1.97, *Significance

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Table 2: Pre and post-test practice score of nurses (n= 140)

Practice	Range	Mean±SD	Median	Mean difference	t- value	P- value
Pre-test	4 – 10	8.5±1.51	9	1.2	27.8*	0.001
Post-test	7 - 10	9.7±0.62	10			

t139 – 1.97, *Significant

Table 3: Correlation between knowledge and practice score

Score	r value	P value
Knowledge	0.079*	0.351
Practice		

*Not Significant

DISCUSSION

The study's findings indicate that, during the pretest, participants generally possessed average knowledge but exhibited a good level of practice. The intervention significantly enhanced both the knowledge and practice of the nurses, aligning with similar outcomes reported in a study by Elkattan BEA et al,[22] on the effectiveness of nursing care guidelines for preventing DVT. Their results demonstrated a substantial statistical difference between pre-test and post-test knowledge and practice scores. Another study by Mohamed A et al,[23] focusing on the impact of an educational protocol on reducing DVT among orthopedic surgery patients, supported the notion that such protocols effectively contributed to DVT reduction. The study recommended interventions such as applying elastic stockings, performing exercises, and various gestures, which positively influenced the decrease in DVT rates.

CONCLUSION

The study concludes that, in the pretest phase, most nurses exhibited average knowledge and good practice in preventing DVT. The implementation of a teaching program had a significant impact on both knowledge and practice among nurses. The study underscores the importance of providing nurses with exposure to teaching and training related to DVT and its prevention. Continuous education and regular updates are deemed essential to fully equip nurses with the necessary competencies, which would ultimately enhance patient care outcomes in both outpatient and inpatient settings.

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