

Evaluate the Effectiveness of Information Booklet on the Prevention of Varicose Veins in Terms of Prevalence, Risk Factors, Knowledge, and Practice among Nurses Working in Govt. Hospital Gandhi Nagar, Jammu: A Pilot Study

Akoijam Sangita Devi¹, Dr. Abdul Latif²

¹Research Scholar, JJT University

Mail ID: akdevi81[at]gmail.com

Contact: 9034311708

²Research Guide, JJT University

Abstract: *Varicose veins are abnormally dilated blood vessels due to weakening in the vessel wall. The aim of the study is to identify the prevalence, risk factors, knowledge, and preventive practices of staff nurses in the prevention of varicose veins. A quasi-experimental method and pre-test post-test control group design were used and the sample consisting of 50 staff nurses (25 experimental and 25 control group) was selected using a purposive sampling technique. The collected data was analyzed with the help of inferential and descriptive statistics. The results reveal that the prevalence of varicose veins was seen among 8 % of staff nurses in the experimental group and in relation to risk factors, most (52 %) in the experimental group had 25 to 30 BMI, and (56 %) in the control group were less than 25 BMI. In the number of daily working hours in a static standing position, all the respondents (100 %) in the experimental and (80 %) in the control group were ≤ 5 hours, in predisposing factors, most (60 %) in the experimental and (48 %) in the control group were having multiple pregnancies. Most (60%) of the staff nurses in the experimental had poor knowledge, and the maximum in the control groups (84 %) had an average knowledge score and preventive practice, maximum (84%) in both experimental and control groups had an average score. The post-test knowledge of 23 ± 3.3 was higher than the pre-test knowledge scores of 12 ± 4.7 and the t-test value was 16.83 in the experimental group suggesting effectiveness at 0.05 level of significance and control group pre-test mean score of 15 ± 3.4 and post-test score 18 ± 3.1 was higher and t value was 9.9. The posttest preventive practices score of 12 ± 1.1 in the experimental group was greater than the pretest score of 11 ± 1 and a t value of 7.56 at a significance level of 0.05. In the control group, the post-test preventive practices score of 11 ± 1.5 was greater than the pretest preventive practices score of 10 ± 1 and the t-value was 5.88 is slightly significant at a significance level of 0.05. The study concludes that the information booklet was effective in enhancing the knowledge of staff nurses and it would provide tips to practice preventive measures.*

Keywords: Prevalence, risk factors, knowledge, practice, varicose veins, information booklet, staff nurses

1. Objectives

- 1) To identify the prevalence and risk factors of varicose veins among staff nurses working in Govt. Hospital Gandhi Nagar, Jammu.
- 2) To assess the knowledge regarding the prevention of varicose veins among staff nurses working in Govt. Hospital Gandhi Nagar, Jammu.
- 3) To assess the practice regarding the prevention of varicose veins among staff nurses working in Govt. Hospital Gandhi Nagar, Jammu.
- 4) To evaluate the effectiveness of information booklet regarding the prevention of varicose veins among staff nurses working in Govt. Hospital Gandhi Nagar, Jammu.

Hypothesis

The hypothesis will be tested at 0.05 level of significance.

H₁: The mean post-test score will be significantly higher than their mean pre-test score of knowledge and preventive practices on prevention of varicose veins among staff nurses working in Govt. Hospital Gandhi Nagar, Jammu.

2. Introduction

Varicose vein formation is one of the chronic venous disorders that leads to permanently dilated, elongated, or twisting superficial veins of the lower extremities, especially in the legs and ankles. Varicose veins are a common venous disorder that affects 20 to 60% of adults globally (Zolotukhin et al 2017). Venous disease is common in Western and industrialized countries compared to developing countries due to alterations in lifestyle and activities (Beebe-Dimmer JL 2005).

In developed countries, the incidence and prevalence of venous insufficiency diseases increases with age and the female population in their 40's is twice as likely to be affected by varicose veins as compared to males (Antani & Dattilo 2023). Evidently, the female hormone estrogen is partly to blame for the increased production of female hormones during pregnancy the amount of blood coursing through the veins increases by a full 20 percent, overworking the valves. In women, symptoms may be worse during menstruation or pregnancy (Centre vein2020 & SamehnDimitri 2023). The incidence of varicose veins and

chronic venous insufficiency is high about 2% per year and increases with age (Rabe et al 2010).

In a study conducted by Aslam MR et al (2022), reported the prevalence of varicose veins varies geographically. Presently, varicose veins affect worldwide about 2%-73% of the population. The predisposing factors for varicose veins comprise multiparity, overweight, constipation, family history, smoking, lifestyle and history of venous thrombosis. Today a lot of occupations have sprung up where people are required to either prolong standing or sitting with legs hanging down such as nurses, surgeons, security guards, beauticians, teachers (Dalboh et al 2020), etc. has been suggested to be a cause of varicose veins. (Shakya et al 2020).

Despite the harmless nature of the symptoms, there may be concerns about the appearance of veins. They feel discomfort like heaviness, tiredness, restlessness, ache and pain, itching, swelling, burning sensation, numbness/tingling, pigmentation, cramps in legs, etc. It may worsen after standing or sitting for a long period of time (Ghosh et al 2023).

Varicose veins should be treated in their early phase to prevent from development of severe complications such as ulcers, deep vein thrombosis, superficial phlebitis, and spontaneous bleeding from legs (Campbell Bruce 2006). Ignorance of the fact present among the staff nurses. Thus, it is necessary to generate awareness of preventive aspects of varicose veins by changes in their nursing practice through educational packages as an appropriate measure.

3. Methods and Materials

A quasi-experimental method and pre-test post-test with control group design was used and the sample consisted of 50 staff nurses (25 in each group) posted in various wards at Gandhi Nagar Govt. Hospital, Jammu, Jammu & Kashmir, was selected using a purposive sampling technique.

The instrument for data collection was a structured self-administered questionnaire, checklist, and assessment of varicose veins. The research instrument was categorized into four parts: Part I-Personal background with items relating to varicose vein-related factors.

Part II-Structured knowledge questionnaire on prevention of varicose veins.

Part III-Checklist to assess the practices for the prevention of varicose veins.

Part IV-Assessment of varicose veins to find out prevalence includes: History collection and Physical examination.

In this study, the researcher developed the information booklet on prevention of varicose veins for staff nurses. The researcher adhered to the principles of beneficence and respect of human dignity during data collection. The data analysis and interpretation were based on the objectives of the research study and analysis done with the help of inferential and descriptive statistics.

4. Finding

Part I: Personal background and items pertaining to varicose veins-related factors

Table 1: Distribution of staff nurses according to personal background and items pertaining to varicose veins-related factors.

N=50

Personal background	Experimental group n=25		Control group n=25	
	f	%	f	%
Gender				
a. Male	1	4	0	0
b. Female	24	96	25	100
Age (in years)				
a. 21-30	6	24	6	24
b. 31-40	6	24	8	32
c. Above 40	13	52	11	44
Educational status				
a. General Nursing and Midwifery	23	92	22	88
b. P. C. B. Sc. Nursing	1	4	1	4
c. B. Sc. Nursing	1	4	2	8
Years of work experience (in years)				
a. 0-10	8	32	13	52
b. 11-20	9	36	9	36
c. Above 20	8	32	3	12
Present area of work				
a. Operation theatre	3	12	3	12
b. Emergency department	1	4	3	12
c. Intensive care unit	0	0	3	12
d. Wards	19	76	15	60
e. OPD	2	8	1	4
Items pertaining to varicose veins-related factors				
BMI				
a. Less than 25	10	40	14	56
b. 25-30	13	52	9	36

c. Above 30	2	8	2	8
Number of daily working hours in the static standing position				
a. less or equal to 5	25	100	20	80
b. less or equal to 10	0	0	5	20
Number of daily working hours in the sitting position				
a. less and equal 5	25	100	25	100
History of predisposing factors to varicose veins				
a. Trauma/injury to the legs	1	4	0	0
b. History of multiple pregnancies	15	60	12	48
c. Constipation	6	24	2	8
d. Oral contraceptive use	1	4	3	12
e. Hormonal replacement therapy use	1	4	0	0
Family history of				
a. Diabetes	13	52	7	28
b. Hypertension	16	64	12	48
c. Coronary artery disease	0	0	3	12

Table No.1 Illustrates the personal background and items pertaining to varicose veins-related factors. The maximum (96 %) of staff nurses in the experimental and control groups (100 %) were female and only (4 %) were male in experimental groups. The highest (52 %) of staff nurses in the experimental and control groups (44 %) were aged above 40, most (24 %) experimental staff nurses and (32%) of the control group were between 31 to 40 years old and equal number (24 %) each were in experimental and control group were aged between 21 to 30 years. Maximum (92 %) in the experimental group and (88 %) control group have General Nursing and Midwifery qualifications, and minimum (4 %) in the experimental group and (8 %) control group have B. Sc. Nursing qualification, equal number (4 %) each in experimental group and control group having P. B. B. Sc. Nursing qualification and no one in study group and control group having M. Sc. Nursing qualification. In years of work experience, (32 %) in the experimental group and most (52 %) in the control group of staff nurses were 0 to 10 years of working experience, an equal number (36 %) in the experimental and control groups were 11 to 20 years of working experience and (32 %) in experimental and (12 %) in the control group were above 20 years of working experience. In the present area of work experience, a maximum (76 %) of the experimental and (60 %) in the control groups were working in different wards, equal number (12 %) in the experimental and control group were working in operation theatre, (4 %) in experimental and (12 %) in control group were working in emergency department, (8 %) in experimental and (4 %) in control group were working in OPD, and no one in experimental and (12 %) in control group were working in ICU.

In relation to risk factors of staff nurses, most (40 %) in the experimental and more than half (56 %) in the control group were less than 25 BMI, nearly half (52 %) in the experimental and (36 %) in control group were 25 to 30 BMI and equal number (8 %) in experimental and in control group were above 30. In number of daily working hours in a static standing position, all the respondent (100 %) in experimental and (80 %) in control group were less or equal to 5 hours and only (20 %) in control group was less or equal to 10 hours. In the number of daily working hours in sitting position, all the respondents (100 %) in the experimental and in the control group were less or equal to 5 hours. In the history of predisposing factors, most (60 %) in the experimental and (48 %) in the control group had having

history of multiple pregnancies, minimum (24 %) in the experimental and (8 %) in the control group had constipation, (4 %) in experimental and (12 %) in control group were used oral contraceptive and only (4%) each in experimental group was trauma/injury to legs and used hormonal replacement therapy, and none are having the history of hereditary and past history of DVT. In family history, most (64 %) in the experimental and (48 %) in the control group had hypertension, nearly half (52 %) in the experimental and minimum (28 %) in the control group had diabetes, and only (12 %) in the control group was having coronary artery disease.

Part II: Description of knowledge of staff nurses on prevention of varicose veins

This section deals with the analysis and interpretation of the data to describe the knowledge of staff nurses regarding prevention of varicose veins. A structured knowledge questionnaire was used to collect the data regarding the knowledge of the participants on the prevention of varicose veins.

The scores obtained by the staff nurses were arbitrarily categorized into three levels as given below: Good 70-100%, Average 40-70%, Poor less than 40%

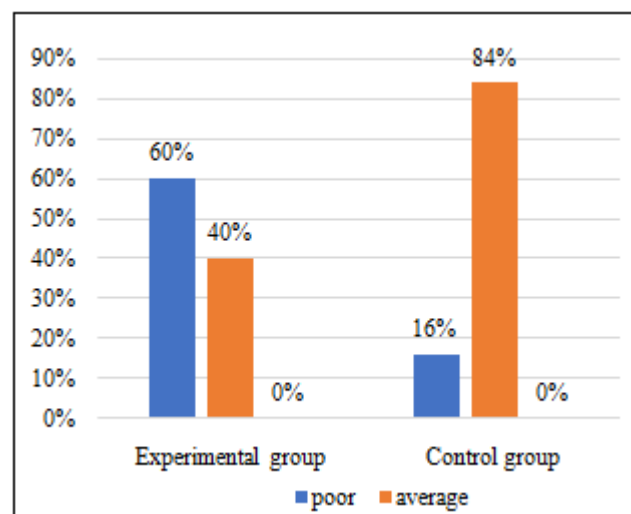


Figure 1: Distribution of participants according to the pre-test level of knowledge scores

The data in fig.1 shows the level of knowledge of the participants. In this majority (60%) of the staff nurses in the experimental and minimum (16%) in control group had a poor knowledge score (0 - 11), minimum (40%) in the experimental and maximum in control groups (84 %) had average knowledge score (12-20) and none of the participants in experimental and control group had good knowledge score (21—30).

Part III: Description of the preventive practice of staff nurses on prevention of varicose veins

This section deals with the analysis and interpretation of the data to assess the preventive practice of staff nurses regarding prevention of varicose veins. A checklist was used to collect the data regarding the preventive practices of the participants on the prevention of varicose veins.

The scores obtained by the nursing officers were arbitrarily categorized into three levels as given below: Good 70-100%, Average 40-70%, Poor less than 40%

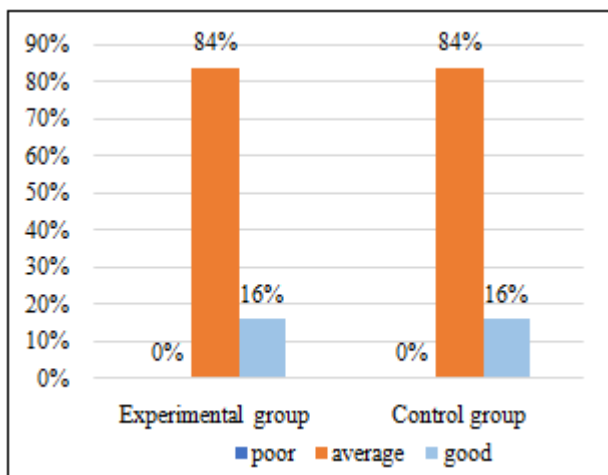


Figure 2: Distribution of participants according to the pre-test preventive practice scores

The data in Fig.2 illustrated that in the pre-test level of preventive practice score of the staff nurses, the maximum (84%) of the staff nurses in both the experimental and control groups had average preventive practice score (7- 11), minimum (16%) in equal number in experimental and control groups had good preventive practice score (12-16) and none of the participants in experimental and control group had poor preventive practices score (1-6).

Effectiveness of information booklet regarding the prevention of varicose veins among staff nurses

Table 2: Significance difference between pre-test and post-test knowledge and practice score after distribution of information booklet regarding prevention of varicose veins among staff nurses, N=50

	Experimental group			Control group		
	Mean	SD	t-value	Mean	SD	t-value
Knowledge Score						
Pre test	12	4.7	16.83*	15	3.4	9.90*
Post test	23	3.3	p <.00001	18	3.1	p <.00001
Preventive practices Score						
Pre test	11	1	7.56*	10	1	5.88*
Post test	12	1.1	p <.00001	11	1.5	p <.00001

*-significant at p<0.05 level of significance

Table No.4 showed the post-test knowledge of 23±3.3 was higher than the pre-test knowledge scores of 12 ± 4.7 in the experimental group and t-test value of 16.83, suggesting the information booklet was effective at 0.05 level of significance and the control group pre-test mean score 15±3.4 and post-test score of 18±3.1 was slightly higher and t value was 9.9. The posttest preventive practices score of 12±1.1 in the experimental group was greater than the pretest score of 11±1 and had a significant t-value of 7.56 at a significance level of 0.05. In the control group post-test preventive practices score of 11±1.5 was greater than the pretest preventive practices score of 10±1 and the t-value was 5.88 is slightly higher at a significance level of 0.05.

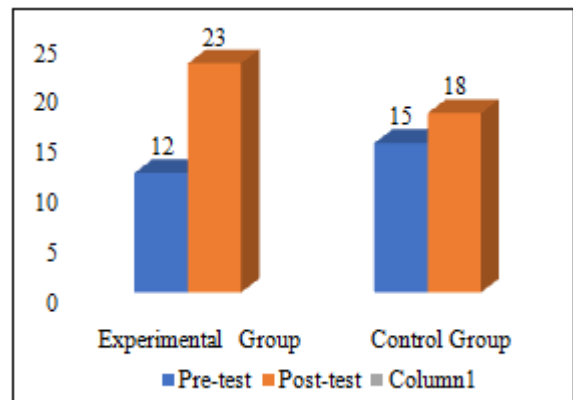


Figure 3: Comparison of participants according to the pre-test & Post-test mean level of knowledge scores.

Part IV: Prevalence of varicose veins

This section deals with the prevalence of varicose veins among staff nurses through the assessment of varicose veins proforma including history collection and physical examination.

Table 3: Findings of history collection N = 50

Finding	Experimental Group n=25		Control group, n=25	
	f	%	f	%
1. Presence of venous abnormalities				
a. Visible abnormal vessels	2	8	0	0
b. Signs and symptoms:				
i. Ache/throbbing	2	8	4	16
ii. Feeling heavy	6	24	5	20
iii. Cramps in legs	7	28	10	40
iv. Burning sensation	1	4	1	4

v. Swelling/edema	2	8	3	12
vi. Numbness/ tingling	5	20	11	44
c. History of pregnancy-related venous abnormalities, if applicable	1	4	0	0
2. History of oedema				
a. Foot	1	4	2	8
b. Ankle	0	0	2	8
c. Whole lower limb	1	4	0	0
Findings of physical examination				
1. Inspection				
a. Visible varicosity	2	8	0	0
b. Telangiectasis	2	8	0	0
c. Swelling around ankles	1	4	0	0
d. Prominent varicose veins	1	4	0	0
2. Palpation				
a. Palpable veins	1	4	0	0
3. Technique of test				
a. Trendelenburg test	2	8	0	0

From table no.3 shows, the clinical features, it is evident that only 8 % had visible abnormal vessels in the experimental group, and none in the control group, 8 % had ache/throbbing in the experimental and 16 % in the control group, 24 % had feelings of heaviness in experimental and 20 % in control group, 28 % had cramps in legs in experimental and 40 % in control group, 4 % had burning sensation in experimental and 4 % in control group, 8% had swelling/oedema in experimental and 12 % in control group, 20% had numbness/tingling in experimental and 44 % in control group, only 4% had history of pregnancy-related venous abnormalities in experimental and none in control group, 4 % each had history of oedema in foot and whole lower limb in experimental group and 8 % each in foot and ankle in control group.

Through inspection, it was found that 8 % had visible varicosity in experimental and none in control group, 8 % had telangiectasis in experimental and none in control group, 4 % had swelling around ankles and prominent varicose veins in experimental and none in control group. In palpation, 4 % had palpable veins in experimental and none in control group. In the technique of the test, it was found that, only 8 % had positive Trendelenburg test and none in the control group.

5. Discussion

The results reveal that the prevalence of varicose veins was seen among 8 % of staff nurses in the experimental group and in relation to risk factors, most (52 %) in the experimental group were 25-30 BMI. In the number of daily working hours in a static standing position, all the respondents (100 %) in the experimental and (80 %) in the control group were ≤ 5 hours, in predisposing factors, most (60 %) in the experimental were having multiple pregnancies. This finding is supported by a study conducted in Eastern Zone India, by Mandal et al, (2022) which reveals that 12.56% were diagnosed with varicose veins and contributing risk factors are age, standing duration, family history of previous surgery in lower.

The finding of the study reveals that the majority (60%) of the staff nurses in the experimental and the minimum (16%) in the control group had a poor level of knowledge score but the maximum in the control groups (84 %) had average

knowledge score. This finding is supported by a study conducted in Chitwan, Nepal, by Sabita Mishra and Soni K. C. (2019) which revealed that (43.9%) of the respondents had an inadequate level of knowledge regarding varicose veins. Similarly, this finding in the control group supported to another study conducted Hubballi-Dharwad, by Sachin Kalpal et. al (2023) which revealed that (78%) of the respondents had average knowledge.

The findings of the study reveal the level of preventive practice score of the staff nurses, (84%) of the staff nurses in both experimental and control groups had average preventive practice scores. This finding is in contrast to a study conducted by B. Babu et. al (2020) which revealed 55.7% were acquainted with better practices for the prevention of varicose veins.

This study finding showed that the post-test knowledge of 23 ± 3.3 was higher than the pre-test knowledge score of 12 ± 4.7 in the experimental group and t-test value of 16.83, suggesting the information booklet was effective at 0.05 level of significance and the post-test preventive practices score of 12 ± 1.1 in the experimental group was greater than the pretest score of 11 ± 1 and a significant t value of 7.56 was slightly effective. This finding is supported by a study conducted in Nagpur by Manju Amrutram S. Pascaline David, Sukare Lata, (2020) which revealed that a self-instructional module was effective in improving knowledge regarding varicose veins.

6. Conclusion

Based on the findings and discussion of the study conclusion has been drawn. This study shows that the prevalence was seen among 8 % of staff nurses, and in relation to risk factors 52 % were 25-30 BMI, 80 % were ≤ 5 hours, and 60 % were having multiple pregnancies. It shows that more than half 60% in the experimental and 84 % in the control groups had an average level of knowledge score and in the case of preventive practice score 84% in both groups had average preventive practice scores. These findings of the study fact that the need to upgrade staff nurses' knowledge through appropriate in-service education, induction programs, and training programs regarding causes, risk factors, knowledge, and preventive practices for the prevention of varicose veins.

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Conflict of Interest Statement

The authors declared no probable conflicts of interest with respect to the research, authorship, or publication of this article.

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