



ISSN: 2091-2749 (Print)
2091-2757 (Online)

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Submitted

20 Feb 2020

Accepted

12 Dec 2021

How to cite this article

Rashmi Joshi, Roshani Agrawal,
Archana Shrestha. Innovative
College of Health Sciences,
Sanepa, Lalitpur. Journal of
Patan Academy of Health
Sciences. 2022Aug;9(2):e1-8.

<https://doi.org/10.3126/jpahs.v9i2.44960>

Knowledge regarding prevention of varicose vein among nurses

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Abstract

Introduction: Varicose veins are usually present in the lower limbs due to high pressures in the veins caused by long hours of standing, for example, nurses. This study was designed to find out the knowledge among nurses regarding risk factors and prevention of varicose veins.

Method: A self-administered questionnaire was used to find out knowledge regarding the prevention of varicose veins among nurses of Patan Hospital, Patan Academy of Health Sciences, Lalitpur, Nepal during May-Jul 2019. A systematic random sampling technique was used. Data were descriptively analyzed for frequency and percentage regarding years of job, workstation, and knowledge about the varicose veins. Ethical approval was obtained for the study.

Result: Out of 211 nurses, 73(34.6%) had an inadequate level of knowledge, 101 (47.9%) had moderate and 37(17.5%) adequate level of knowledge regarding the prevention of varicose veins. One-third, 66(31.3%) had 5-10 y and the same number had >10 y work experiences. The mean knowledge score was 63.1±18.0.

Conclusion: The majority of the respondents 101(47.9%) had a moderate level of knowledge and one-fifth had an adequate level of knowledge regarding the prevention of varicose veins.

Keywords: knowledge, nurses, varicose vein

Introduction

Varicose veins are prominent dilated veins usually present in the lower limbs. High pressures in the veins, leakiness of venous valves, weakness of the vein wall, and inflammation are the key mechanisms that lead to varicose veins.¹ The prevalence of varicose vein was reported in 72.4% (95% CI 65.7–78.4), with women having a higher prevalence compared with men (77.9% vs. 56.9%, $P = 0.004$).² Age, gender, pregnancy, family history and prolonged standing hours are some of the risk factors for varicose vein.³ Haemorrhage and thrombophlebitis may result from the varicose veins themselves; and other complications include oedema, skin pigmentation, varicose eczema, atrophy blanche, lipodermatosclerosis, and venous ulceration.⁴ Nursing profession is perceived as a high-risk occupation; in which positions such as long-time standing and sitting and gruelling physical states are inevitable during the work.⁵ The study reported prolonged standing was found to be a significant factor for varicose veins among nurses.⁵

A descriptive study conducted on knowledge regarding risk factors and prevention of varicose vein among staff nurses found that only 20% nurses had adequate level of knowledge.⁶ Nurse's knowledge plays a vital role for prevention of varicose vein and control of developing of varicose vein. This study aims to find out knowledge regarding prevention of varicose vein among nurses working in a university teaching hospital.

Method

A quantitative cross sectional descriptive design with self-administered questionnaire was used to assess the knowledge regarding prevention of varicose vein among nurses of Patan Hospital, Patan Academy of Health Sciences (PAHS), Lalitpur, Nepal, during May-Jul 2019. The study was approved by the Institutional Review Committee of PAHS, Lalitpur, Nepal (IRC ref. no nrs1903151247).

Self-administered structured questionnaire were used to collect the data regarding prevention of varicose vein. It contained a total of 11 questions; three on demographic information, and eight on knowledge about prevention of varicose vein. Each correct response was given 1-score and incorrect response a 0-score. The total knowledge score ranged from 0 to 8. The level of knowledge was categorized as adequate, moderately adequate and inadequate.

Written permission was obtained from the Nursing director of the Patan Hospital before data collection from nurses who were working in the hospital and were willing to participate in the study. The participation was voluntary.

Identification number was kept on each questionnaire set before the distribution. Systematic random sampling technique was used. The list (sampling frame) of the nurses working at the Patan Hospital was obtained from nursing administration. By dividing the n (total number of nursing staff) by N (sample size), the sampling interval width was established. The sampling interval was the standard distance between sampled elements. The calculated sample size was 211, and thus from a population of 447 ($K = n/N = 447/211 = 2$), every 2nd elements on the list was sampled. We created list according to alphabetic order of all the staff nurses of Patan Hospital ($n=447$). After that we selected the 100 number by use of lottery method from the list of 447 nurses. Our k^{th} elements were 2nd so we started to collect the data from sample no 102, 104, 106 and so on. We collected data till sample no 446 after that we again collected data from sample no 2, 4, 6 and so on. When the selected sample was not available during data collection period because of leave or refused to take part in the study, or had already diagnosed with varicose vein and under treatment, then we took the immediate next number.

Master list of names of the nurses (211) who was randomly selected was matched with the code number kept separately with the principal researcher so that respondents'

names was not on the questionnaire set. The same identification number was put in the questionnaire set so that it could be correlated.

The self-administered questionnaire required approximately 10 to 15 m to complete. The questionnaire was collected on site by researcher and research team. Data was collected during morning and evening shift from 7 am to 1:30 pm and in evening shift from 1 pm to 7:30 pm. The questionnaire was distributed during break time or after duty was over as per conveniences of respondents. Microsoft Excel was used for the descriptive analysis of frequency and percentage.

Result

Out of 211 nurses, 22(10.40%) were working in Maternity ward followed by Medical ward 19(8.5 %), Table 1. There were 124(58.8%) nurses who had completed Bachelor of Nursing courses. One third, 66(31.3%) had five to ten and same number of nurses had more than ten years work experiences, Figure 1.

Regarding knowledge for varicose vein, 168(79.6%) correctly answered that varicose vein is dilated tortuous superficial vein, and 189(89.6%) answered prolonged standing hour as the main risk for it, and 79(37.4%) answered shoes with no hills can reduce the pressure on the vein. Fifty-five (26.1%) respondents answered garlic can help to prevent the varicose vein through decrease of fibrin, and 147(69.7%) answered continuous use of stocking during day time can prevent varicose vein. One hundred forty-seven (67.3%) answered that half an hour of continuous walking 5 days a week can prevent the varicose vein, and 115(54.5%) believed lower leg exercise helps to prevent varicose vein through improving vein emptying, and 169(79.6%) answered that keeping the legs elevated helps to promote blood flow from the legs while sitting, Table 2.

The mean knowledge score was 63.1±18.0, range 12.5 to 100. Out of 211 nurses, 73(34.6%) had inadequate level of knowledge regarding the prevention of varicose vein, Table 3.

Table 1. Demographic characteristic of level of education and work experiences of nurses who participated the study for knowledge regarding varicose vein among nurses. N=211

Characteristic	N	%
Level of Education		
B.N. (Bachelor of Nursing)	124	58.8
B. Sc (Bachelor of Science in Nursing)	9	4.3
PCL	78	37
Work experience (y)		
<1	8	3.8
1-5	71	33.6
5-10	66	31.3
>10	66	31.3

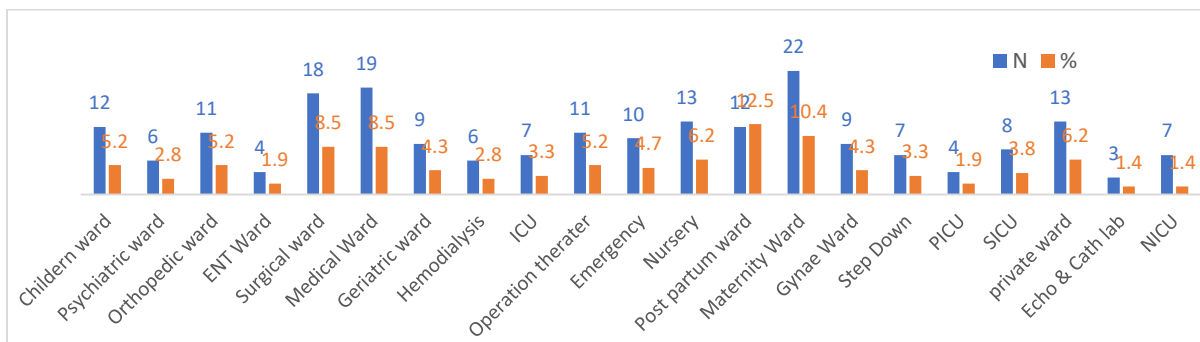


Figure 1. Working station of nurses at the time of their response to the study questionnaire on knowledge of varicose vein, N=211

Table 2. Knowledge of nurses who participated the study for knowledge regarding varicose vein among nurses, N=211

Knowledge regarding varicose vein	Correct		Incorrect	
	N	%	N	%
Meaning of varicose vein	168	79.6	43	20.4
The risk factor for varicose vein is	189	89.6	21	9.9
The measure that can reduce the pressure on the vein	126	59.7	85	40.2
Timing of stocking for prevention of varicose veins	147	69.7	64	30.3
Lower leg exercise helps to prevent varicose vein through decrease of fibrin	115	54.5	96	45.5
Use of Garlic can help to prevent the varicose vein	55	26.1	156	73.9
The time duration of walk to prevent the varicose vein	142	67.3	69	32.8
The measure which help tom promote blood flow from the legs while sitting	168	79.6	43	20.3

Table 3. Total knowledge score of nurses who participated the study for knowledge regarding varicose vein among nurses, N=211

Knowledge Level	N	%
>75%, adequate	37	17.5
50-75%, moderately adequate	101	47.9
< 50%, inadequate	73	34.6

Discussion

In the current study, less than 1/5th of nurses surveyed, i.e. among 211 respondents, only 37(17.5%) had an adequate level of knowledge regarding prevention of varicose vein. A similar finding has been reported by a study from Nagpur, India, which showed that among 60 staff nurses only 12(20%) had adequate level of knowledge.⁷ These finding might be due to inadequate teaching learning on occupation related health issues, like long standing hours as the risk of development of varicose vein among nurses. This requires strengthening the awareness to adopt measures for prevention of varicose vein related to the nature of work.

Slightly better results were reported from the findings from a study conducted in Karda, India, showing 48.0%(192/400) had adequate knowledge regarding risk factors and prevention of varicose vein.⁸ Similar finding has been reported by yet another study from India which showed that among 60 intensive care unit staff nurse, majority 39 (53%) of respondents had adequate level of knowledge.⁹ Also, a study from Saveetha medical college and hospital, Kuthambakkam, India, showed that among 52 health care workers majority of the respondents 32(61.54%) had adequate level of

knowledge.¹⁰ These findings of higher percentage of correct knowledge regarding varicose vein could be due to different study setting, that is among nurses from a specific ward, unlike present study which included all the nurses in the hospital. This shows that in general, the awareness in present population setting require intervention to improve the awareness for knowledge and prevention regarding varicose vein.

In present study 37(17.5%) respondents had adequate knowledge regarding prevention of varicose vein, and in contrast the study conducted in Indore among 30 ICU nurses only 1(3%) respondents had excellent knowledge.¹¹ Likewise the study conducted in Sivaji Nagar, India, among 50 School teacher only 3(6%) respondents had adequate knowledge.¹² A similar finding has been reported by a study from Chiplun, Maharashtra, India, which shows that among 40 industrial workers only, 6(15%) of had excellent knowledge regarding prevention of varicose vein.¹³ A study from Turkey which shows among 60 antenatal mothers 6(10%) respondents had good knowledge.¹⁴ Study from Roma Hospital, Kanpur, India, showed that among 30 Staff nurse no one (0%) had adequate knowledge.¹⁵ A study from Vellore, India, showed that among 100 leather industrial workers no one

(0%) respondents had adequate level of knowledge.¹⁶ Study from Maharashtra, India, showed that among 50 construction workers no one (0%) respondents had excellent knowledge level.¹⁷ Many of these studies were conducted among non-medical personnel, like school teacher, industrial workers, antenatal mothers, leather industrial workers, and construction workers, and may have reported poor knowledge regarding varicose vein. This shows that non-medical persons requiring long hours of standing during work hours and may be at risk of developing varicose vein require awareness for the knowledge and prevention of work related health issues.

In present study, 73 (34.60%) had inadequate level of knowledge regarding prevention of varicose vein. The similar finding has been reported by a study from Saudi Arabia which showed that among 50 staff nurse 13(26%) respondents had inadequate level of knowledge.¹⁸ A study from Egypt showed that among 300 first year nursing student, majority (100%) of the respondents had poor level of knowledge regarding prevention of varicose vein.¹⁹ Thus, even among the health professional, the nurses who have to stand for long hours, need to be aware about risk factors and measures to prevent the development of varicose vein.

The finding reported by a study from Tamil Nadu, India, showed that among 50 Coronary Care Unit Nurses, the mean knowledge score was 41.6.²⁰ In present study we found that the mean knowledge score was 63.09. This shows that, on job awareness and training may be beneficial regarding risk factors for the development of varicose vein and its prevention.

The current study revealed that majority of the respondents 168(79.60%) replied correctly about meaning of varicose vein, i.e. varicose vein is the dilated tortuous superficial vein. Interestingly, a similar finding has been reported from Maharashtra, India, among 50 construction workers showing that 34(68%) respondents knew about meaning of varicose vein.¹⁷ However, the study conducted in

Hyderabad, India, among 30 nursing personnel showed that 56.9% (from the Autonomous Hospital) and 52.3% (from the Private hospital) knew the meaning of varicose vein.²¹ Both health personnel and non-health personnel would benefit from the various intervention regarding knowledge about varicose vein.

The current study revealed that most of the respondents 189(89.6%) correctly replied that prolonged standing as the main risk factor for development of varicose vein. In contrast, a study conducted in Kathmandu, Nepal, among 76 traffic police showed that only 6(7.8%) of the respondents answered that prolonged standing hours is the main risk factors for varicose vein. Thus, non-medical personnel who by their job nature are required to stand for long hours need to be provided with on-job interventions to raise the awareness regarding prevention for the development of varicose vein.²²

Present study reveals that less than half respondents 79(37.4%) replied shoes without heels is a preventive measure which can reduce the pressure on the vein. In contrast, a study conducted in Assam, India, among 185 staff nurses showed that majority of the respondents 165(89.2%) believed that wearing a flat shoe is the preventive measures which can reduce pressure on the vein.²³

Present study revealed that majority of respondents 168(79.60%) replied keeping the legs elevated help to promote blood flow. A study conducted in Egypt among 300 nursing student's showed majority of the respondents 299(99.7%) replied wrong answer regarding leg elevation help to promote blood flow and thus it can prevent the varicose vein.¹⁹ This shows the importance of strengthening the curriculum in nursing schools regarding varicose vein.

We found that more than half of the respondents 115(54.50%) replied that lower leg exercise helps to prevent varicose vein. In contrast a study conducted in Gujarat among 60 staff nurses working in the ICUs showed

only 7(12%) believed that regular exercise helps to prevent varicose vein.²⁴

Some of the limitations of present study include, it was limited to staff nurse of a single hospital and thus the finding may not be generalized in another setting.

Conclusion

The findings of the study among the nurses showed that less than half of the respondents had adequate level of knowledge regarding prevention of varicose vein. Nearly half of the respondents (47.9% among 211) had moderate level of knowledge.

Acknowledgement

We would like to thank Asst. Prof. Dr. Bimala Panthi for her suggestions and support during the study. We thank all the nurses of Patan Hospital for their participation and time they provided to complete the questionnaire.

Conflict of Interest

None

Funding

None

Author Contribution

Concept, design, planning: RJ, RK, AS; Literature review: All; Data collection/ analysis: All; Draft manuscript: All; Revision of draft: All; Final manuscript: All; Accountability of the work: All.

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Supplements

Part I: Socio-demographic characteristics

1. Currently Posting Ward:
 - a. Level of Education
 - b. PCL nursing
 - c. BN
 - d. B.Sc. nursing
2. Work experience
 - a. < 1 year
 - b. 1 to 5 year
 - c. 5 to 10 year
 - d. >10 years

Part II: Questions related to Knowledge regarding prevention of varicose vein among nurses.

Please choose one best answer

1. What is varicose vein?
 - a. Blood clot in a superficial vein
 - b. Destruction of superficial vein

- c. Dilated, tortuous superficial vein
- d. Inflammation of superficial vein
- 2. What is the risk factor for varicose vein?
 - a. Prolong exercise hours
 - b. Prolong immobilize hours
 - c. Prolong standing hours
 - d. Prolong working hours
- 3. Which is the following measure that can reduce the pressure on the vein?
 - a. Using shoes, no heels
 - b. Using shoes with high heels
 - c. Using tight bandage around the leg
 - d. Using tight cloth around the waist
- 4. How long to use stocking for prevention of varicose veins?
 - a. Can remove several times a day
 - b. Continue 24 hours a day
 - c. Continue during a day time
 - d. Continue during a night time
- 5. How lower leg exercise helps to prevent varicose vein?
 - a. Dilating of blood vessels
 - b. Improving vein emptying
 - c. Increasing metabolism.
 - d. Making the vessels thin
- 6. How the use of Garlic can help to prevent the varicose vein?
 - a. Decrease circulation
 - b. Decrease of fibrin
 - c. Increase useful toxins
 - d. Reducing inflammation
- 7. How long should you walk to prevent the varicose vein?
 - a. Half an hour continuous walking, five days a week
 - b. One hour a day continuous walking, two days a week
 - c. Two hour a day continuous walking, one day a week
 - d. Ten minutes continuous walking a day, five days a week
- 8. Which of the following measure help to promote blood flow from the legs while sitting?
 - a. Keeping the feet apart
 - b. Keeping the leg crossing
 - c. Keeping the leg down
 - d. Keeping the legs elevated