



# Knowledge Regarding Risk Factors and Preventive Measures of Varicose Vein among Intensive Care Unit Staff Nurses

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## Authors' contributions

This work was carried out in collaboration between both authors. Both authors read and approved the final manuscript.

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## ABSTRACT

**Background:** Varicose vein has disturbed humans since ancient days as a chronic disorder. According to the current statistics given by the Express health care, approximately 2.7 million people worldwide suffer with varicose veins. If left untreated and undiagnosed, varicose veins can end up with pooling of blood in the venous system and further complications.

**Aim and Objectives:** Aim of the study was to assess the knowledge of staff nurses regarding risk factors and preventive measures of varicose vein. The study objectives were to assess the knowledge of staff nurses working in intensive care units regarding risk factors and preventive measures of varicose vein, to develop an evidence-based information booklet for staff nurses regarding prevention of varicose veins and to find out the association between the knowledge scores of staff nurses regarding risk factors and preventive measures of varicose vein with selected demographic variables.

**Materials and methods:** A quantitative research approach with a non-experimental descriptive survey research design was used to select 60 staff nurses working in the ICUs using convenience sampling method. The data was collected using a structured knowledge questionnaire developed by the researchers. Data was analysed using descriptive and inferential statistics using SPSS.

**Results:** The study results showed that 53% of the staff nurses had adequate knowledge scores

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regarding the risk factors and preventive measures of varicose veins whereas 30% had moderate knowledge, and 17 % had inadequate knowledge scores. Significant association was found between demographic variables such as age, experience and education of staff nurses with their knowledge scores.

**Conclusion:** Approximately only half of the study participants had adequate knowledge regarding risk factors and preventive measures of varicose vein. Hence it is recommended that extensive educational sessions to be conducted for further enhancement of awareness of staff nurses related to prevention and management of varicose veins.

*Keywords: Knowledge; risk factors; varicose vein; staff nurses.*

## 1. INTRODUCTION

Over time of merely thirty seconds the blood travels the length and breaths of the person's body reaching on each single cell out of the trillions of cells in body. Blood acts as a carrier and transporter for oxygen and nutrients to cell and reciprocally it carries off the waste products like carbon dioxide, heat and excess water. It gets next to impossible for the blood to flow through cells without a correct system. Therefore, to facilitate the blood flowing the heart act as a pump and vessels like veins, arteries and capillaries provide a system for blood to move from one place to another. This method of movement of blood within the body by utilizing veins, arteries, capillaries and heart is known as circulation and the system used for circulation is known as the vascular system [1]. There are varied problems occurring to hinder the normal flow of blood which are known as disorders of vascular system due to impairment in flow of the blood or abnormal veins dilatation. Out of all blood vessel disorders varicosity is one of the foremost common vascular disorders. Varicose veins are unhealthy veins that are expanded superficial veins within the lower extremities assumed to be results of blood vessel control insufficiency with reflux or primary dilatation of veins which offers a way of fullness, pressure and pain or hyperesthesia in legs [ 2].

Varicose vein typically happens within the saphenous veins and perforator veins within the ankle joint. Inheritance or family disposition that results in loss of vessel wall snap could be a primary cause. Standing for extended periods, obesity, and gestation are potential contributing factors. Trauma, DVT, and inflammations that ends up in vein valve harm are secondary causes. This disorder typically happens within the veins of the legs, though it may occur in different parts of the body. The people whose job demands standing most of the time on their feet each working day (e.g., nursing staffs, teachers,

sales assistants, traffic police etc.) are at bigger risk of health issues as well as unhealthy veins, poor circulation and swelling within the feet and legs, foot issues, joint harm, heart and circulatory issues and gestation difficulties [3].

A study was conducted by Vipul Agarawal et al (2016) to find out prevalence and risk factors of varicose veins among northern Indian population by skin changes and blood vessel symptoms. Sample frame consisted of four villages from Uttar Pradesh and sample consisted 1012 people who were above 18 years of age who were interviewed to enquire regarding the signs and symptoms of varicose veins. It was found that 46.7% females and 27.8% males were having varicose vein. Hence the study concluded a higher prevalence rate of varicose vein among the general population.

Untreated and unknown varicose veins end up for pooling of the blood within the lower limbs, causing severe itchiness and burning sensation within the feet, sometimes-severe fatigue and psychological disturbances [4].

Current statistics reveal that nearly 2.7 million people worldwide suffer from varicosities and that is ever increasing day by day. As far as India is concerned, experts are witnessing a growth in prevalence rate of varicosities especially among women. Nearly, 15-20 % of women and 10-15 % of men suffer from varicose veins in India [5].

Even though many studies have assessed the knowledge of health workers and other population regarding general aspects of varicose vein and its management, this study specifically focuses on the knowledge regarding the risk factors and preventive measures of varicose vein among the intensive care unit staff nurses as it is always said that it's better to prevent the condition from occurring than to treat it later.

## 2. MATERIAL AND METHODS

A quantitative research approach with a non-experimental descriptive survey research design was used for the present study. The sample of the study consisted of 60 staff nurses working in the ICUs of selected tertiary care hospital who met the inclusion criteria and were selected using convenience sampling method. Required ethical permissions were obtained from the institution ethical committee and also from the study subjects before collecting the data. A structured knowledge questionnaire developed by the researchers was used to collect data from the study participants after getting validation from the subject experts. The questionnaire consisted of 40 multiple choice questions which was administered to the staff nurses which included 7 questions related to general information on varicose veins, 6 questions about the risk factors of varicose veins, 6 questions regarding signs and symptoms/complications of varicose veins, 11 questions related to prevention of varicose vein and 10 questions that covered the diagnosis /treatment of the varicose vein. After the data collection was completed, a pre-validated informational booklet was distributed to the staff nurses that contained information about the risk factors and prevention of varicose veins covering all the questions mentioned in the knowledge questionnaire. Data was analysed using descriptive and inferential statistics using SPSS.

## 3. RESULTS

The data were tabulated in Microsoft excel spread sheet and analysis was done using descriptive and inferential statistics using SPSS according to the objectives of the study. Since the total score of the knowledge questionnaire was 40 as per the number of questions, three categories of knowledge scores were made as:

**0-13 score:** Inadequate knowledge

**14-27 score:** Moderate knowledge

**28-40 score:** Adequate knowledge

The data has been organized and presented in the following sections:

**Section I:** Analysis of Socio demographic variables of the staff nurses

**Section II:** Analysis of knowledge scores of staff nurses regarding risk factors and preventive measures of varicose vein.

**Section III:** Association of knowledge of staff nurses regarding risk factors and preventive measures of varicose vein with selected socio-demographic variables

### Section 1:- Analysis of Socio demographic variables of the staff nurses.

Table 1 depicts that out of total sample 38% belonged to age group of 20-25 years, 40% were in the age group of 26-31 years and 22% belonged to age group of 32-37 years. Education basis distribution showed that 32(58%) had completed B.Sc. nursing and 28(37%) had studied G.N.M. Among total sample 17(29%) had experience less than 3 years, 13(23%) had experience of 4-5 years, 11(17%) had experience of 7-9 years and 19(32%) had experience more than 10 years. Out of the sample, 37 (62%) staff nurses were females and 23(28%) were males. As per the marital status of the sample, 25(42%) of staff nurses were married and 35(58%) were unmarried. 30(50%) staff nurses were from rural area and 30(50%) were from urban area. 7(12%) staff nurses reported that they had the habit of doing exercise regularly whereas 53 (88%) were not doing regular exercise. The findings revealed that 13(22%) staff nurses were under weighted with respect to their BMI, 20(33%) showed normal BMI which was in the range from 18.5-24.9 and 20(33%) belonged to overweight category. 12 of the samples were having BMI above 30 which showed that they were obese. Duty hours of all staff nurses were uniform with an average daily duty of 8 hours.

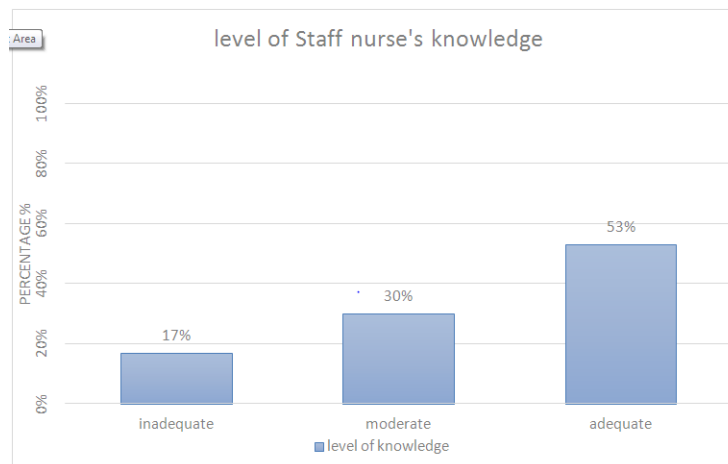
### Section II: - Analysis of knowledge scores of staff nurses regarding risk factors and preventive measures of varicose vein.

Fig.1. depicts that, out of 60 samples of staff nurses, 53 % had adequate knowledge where as 30% were in the moderate and 17% of staff nurses had inadequate knowledge related to risk factors and preventive measures varicose veins.

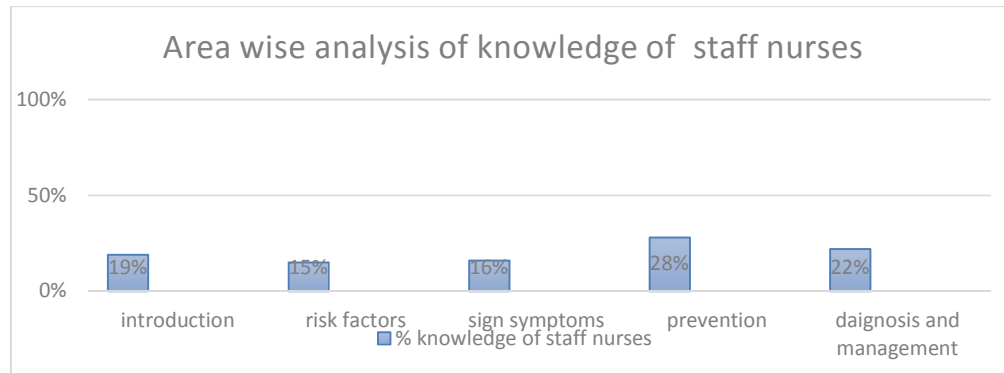
Fig.2. shows that staff nurses had highest knowledge (28%) regarding the questions related to the prevention of varicose veins. 22% of the correct responses were related to the management of varicose veins. The maximum of the incorrect responses were regarding the questions related with the risk factors of the varicose veins (15%).

**Table 1. Distribution of staff nurses according to their demographic data N=60**

Sino.	Demographic variables	Frequency (f)	Percentage (%)
1	<b>Age (Years)</b>		
	20-25	23	38
	26-31	24	40
	32-37	13	22
2	<b>Education</b>		
	GNM	28	37
	B.Sc	32	58
3	<b>Experience</b>		
	<3 YEARS	17	29
	4-6 YEARS	13	23
	7-9 YEARS	11	17
	>10 YEARS	19	32
4	<b>Gender</b>		
	FEMALE	37	62
	MALE	23	38
5	<b>Marital Status</b>		
	MARRIED	25	42
	UNMARRIED	35	58
6	<b>Residency</b>		
	URBAN	30	50
	RURAL	30	50
7	<b>Regular Exercise</b>		
	YES	7	12
	NO	53	88
8	<b>BMI</b>		
	UNDER WEIGHT (BMI LESS THAN 18.5)	13	22
	NORMAL (BMI FROM 18.5 -24.9)	20	33
	OVER WEIGHT (BMI FROM 25-29.9)	20	33
	OBESE (BMI ABOVE 30)	7	12
9	<b>Duty Hours</b>		
	WORKING HOURS, 8 HRS PER DAY	60	100



**Fig. 1. Bar diagram depicting the levels of staff nurse’s knowledge regarding risk factor and preventive measures of varicose vein**



**Fig. 2. Bar diagram depicting the distribution of staff nurses according to their area wise knowledge regarding risk factors and preventive measures of varicose vein**

**Table 2. Association of knowledge scores of staff nurses regarding risk factors and preventive measures of varicose vein with selected socio-demographic variables N=60**

Sl. no.	Demographic variable	Frequency (f)	Level of knowledge			Chi square value	P-value
			Poor (0-13)	Average (14-27)	Good (28-40)		
<b>1</b>	<b>Age (in years)</b>						
	20-25	23	8	11	2	27.141	.00001
	26-31	24	1	6	18	6	9
	32-37	13	1	1	12		
<b>2</b>	<b>Education</b>						
	GNM	28	7	13	8	12.946	.00154
	B.SC	32	3	5	24	4	4
<b>3</b>	<b>Experience</b>						
	<3 years	17	4	11	2	25.334	.00029
	4-6 years	13	4	3	6	3	6
	7-9 years	11	1	3	7		
<b>4</b>	<b>Gender</b>						
	>10years	19	1	1	17		
	Female	37	6	12	19	0.2732	.87231
	Male	23	4	6	13		6
<b>5</b>	<b>Marital status</b>						
	Married	25	4	7	24	2.146	.34197
<b>6</b>	Unmarried	35	6	11	18		6
	<b>Residency</b>						
<b>7</b>	Urban	30	4	9	17	0.525	.76912
	Rural	30	6	9	15		6
<b>8</b>	<b>Regular exercising</b>						
	Yes	7	1	3	3	0.6267	.731
<b>9</b>	No	53	9	15	29		
	<b>BMI</b>						
	Under weight (BMI less than 18.5)	13	2	2	9	4.4121	.62109
	Normal (BMI from 18.5 -24.9)	20	3	5	12		1
	Over weight (BMI from 25-29.9)	20	4	7	8		
Obsessed (BMI above 30)	7	1	4	3			

### **Section III: Association of knowledge of staff nurses regarding risk factors and preventive measures of varicose vein with selected socio-demographic variables**

Table no.2 conveys that the calculated chi-square values were greater than the tabulated value at 0.05 level of significance for demographic variables of staff nurses such as their age, clinical experience and educational degree. Hence it can be concluded that these variables have significant association with the knowledge scores of staff nurses regarding the risk factors and prevention of varicose veins. In case of other demographic variables such as gender, marital status, residency, regular exercise routine and BMI, no significant association could be found with the staff nurse's knowledge scores.

## **4. DISCUSSION**

The present study was carried out to assess the level of knowledge of staff nurses regarding the risk factors and preventive measures of varicose veins. The study findings revealed that the out of 60 samples of staff nurses who participated in this study, only 53 % had adequate knowledge regarding varicose veins where as 30% staff nurses had moderate and 17% of staff nurses had inadequate knowledge related to risk factors and preventive measures of varicose veins. The association of the knowledge scores of staff nurses with selected demographic variables showed significant statistical association with variables such as age, years of clinical experience and the educational degree of staff nurses. This was an expected finding since when the age, clinical experience or educational degree of the staff nurses advances there would be an associated increase in the knowledge of the staff nurses also as naturally they get more exposure to various situations and also learn from their own experiences in preventing the varicose veins. But on the contrary variables such as regular exercising and BMI were not found to have significant association with the knowledge scores of staff nurses.

A similar study was conducted in Indore which aimed to assess the knowledge regarding varicose vein and its management among ICU Nurses and to find out association of knowledge regarding varicose vein among ICU Nurses with selected socio demographic variables. The study results were contrary to the present study

findings as it showed that the ICU nurses had adequate knowledge about varicose veins and no significant association was found between knowledge of staff nurses with their selected socio demographic variables [6].

Another study was done by Blessy Susan Babu, Vaishali Rajsinh Mohite and Rajsinh Vishwasrao Mohite to assess the knowledge and practices of prevention of risk factors of varicose veins and its correlation among staff nurses which found that maximum staff nurses had excellent knowledge related to varicose veins. Also a perfect positive correlation was noted between the knowledge of staff nurses with their practices on the prevention of varicose vein [7].

Pradnya P Dhuri conducted a study among industrial worker at J.K. Files industry to assess the level of knowledge regarding management of varicose veins. The results showed that, of 40 subjects, maximum that is 29(72.5%) had good knowledge and 6 (15%) had excellent knowledge regarding selected management of varicose veins [8].

Dr. Ravindra H.N, Ashish Thakor and Kevin Christian had conducted a similar study at Dhiraj General Hospital Waghodia to assess the knowledge regarding the risk factors and preventive measures of varicose vein among the staff nurses which showed that majority of the staff nurses (70%) had only moderate knowledge. Also, significant association was found between education status of the staff nurses with their knowledge regarding varicose vein risk factors and preventive measures [9].

Khalid Anwer Al-Mugheed and Nurhan Bayrakta had done a study among staff nurses working at northern Cyprus university hospital to determine the knowledge and practices of deep vein thrombosis risks and prophylaxis among nurses and to investigate the relation between descriptive characteristics and knowledge and practices of nurses. The study concluded that the staff nurses had inadequate knowledge on deep vein thrombosis risks, preventive measures, and poor practices with respect to the prevention of deep vein thrombosis [10].

Venisha Pearl Tauro et al conducted a similar study among staff nurses of Mangalore to assess

the knowledge regarding risk factors and preventive measures of varicose vein which showed that 61% of the staff nurses had good knowledge regarding the varicose veins. A significant association was found between the level of knowledge of staff nurses with their marital status, academic qualification, years of experience in the present ward and source of knowledge [11].

## 5. CONCLUSION

The study findings concluded that the staff nurse's knowledge related to the risk factors and preventive measures of varicose vein need to be more emphasized. As members of the health profession and due to the demanding nature of the job, nurses should be made more aware to follow healthy routines and to take care of their own health on a priority basis by incorporating educative sessions related to body mechanics. It is further proposed that a regular monitoring system need to be in place to keep track on the risk of occurrence of varicose vein among the staff nurses in specific areas such as the ICUs.

## DISCLAIMER

Also, the research was not funded by any internal or external agency, rather it was funded by personal efforts of the authors.

## CONSENT AND ETHICAL APPROVAL

The required ethical clearance were obtained for the conduction of the study from the concerned authorities of the institution and also individual informed consent was obtained from the staff nurses of the hospital.

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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