Section: General Surgery

Original Research Article

KNOWLEDGE AND PRACTICE REGARDING VARICOSE VEINS AMONG NURSES WORKING IN A TERTIARY HEALTHCARE CENTRE IN SOUTH KERALA

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Abstract

Background: Varicose veins are a bane to the health and vitality of human life, and in certain professions they are more profoundly seen, such as in the nursing profession. This study was conducted with the long-term goal of promoting the need for further knowledge of varicose veins and the benefit of prevention practices as prophylaxis. To find out the knowledge and practices regarding varicose veins among nurses in a tertiary care centre in south Kerala. **Materials and Methods:** A hospital based cross-sectional study was conducted among 95 nurses in Dr. SMCSI Medical College and Hospital. 95 nurses with more than 10 years of experience in their entire professional career were enrolled for the study. Data was collected using a predesigned semi structured questionnaire. All collected data was entered into Microsoft Office Excel 2019 and analysis was done using SPSS trial version 29. All quantitative and qualitative variables were expressed as frequencies and percentages and using mean and standard deviation respectively. p-value < 0.05 or 95% CI was considered statistically significant. **Result:** The study showed results of 91.6% of the nurses having good knowledge regarding varicose veins. Despite the high knowledge among the nurses, it was noted that only 12% of the nurses participating in the study showed good performance of practices of prevention against varicose veins while the remaining 83% demonstrated poor practices of prevention. The association between genetic predisposition and presence of symptoms of varicose veins was also observed in this study. **Conclusion:** Positive association between genetic predisposition to varicose veins and the presence of symptoms of the same. Better quality of knowledge regarding varicose veins was significantly associated with the number of years of experience.

INTRODUCTION

Varicose veins or varicosities are bulging dilated veins because of the increased pressure in the affected veins.[1] This is usually seen in the veins of the lower body due to activities that require prolonged standing and walking. Varicose veins are caused by weak or damaged walls and valves of the veins. Veins have valves inside them that function to keep blood flowing towards the heart and to prevent backflow. Weak or damaged valves or walls in the veins can cause blood to pool and even flow backward. This is called reflux. The veins may grow larger and become distorted, resulting in the above condition.[2]

Varicose veins disease is one of the most commonly observed medical condition influencing teenagers, adults, and elders around the globe. Developing countries have a lower prevalence rate than developed countries.[3] According to studies conducted within the general population, Globally it is assessed that 33% of the population is affected,[3] within which an estimated 25% of women and 15% of men older than 15 years are affected.[4] This proportion is higher in Asia as compared to up to 30% in the Western world.[5] In India, proportion of

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varicose veins was assessed to be 25% in the southern and 6.8% in the northern parts of India.[6]

In all of recorded history of medicine and its development, nurses have remained the constant cornerstone. They have served tirelessly to benefit their communities and continue to fulfil many essential roles.[7] Nurses promote healthy lifestyle, advocate for patients and promote health education. They also provide personal healthcare and are able to achieve a level of trust and connection with the patients than doctor, who are unable to due to the prolonged period of considering and caring for the patient's needs. Throughout history, there have been a trend of declining health among these nurses working consistently to provide efficient service to their wards while neglecting their own. This declining health encompasses all fields of physical and mental states.

Due to its aetiology being a long periods of time standing or walking, nursing is one of the most likely professions to develop varicose veins as it is the nature of their job. Even so, there are minimal studies regarding knowledge, attitude practice of varicosities in nurses. This study aims to bring to light the knowledge and practices of prevention shared by nurses on the topic of varicose veins. We hope to bring awareness to the need for more information and resources regarding varicose veins to fill the gaps in our current knowledge and to provide beneficial data for the studies that come after us.

MATERIALS AND METHODS

Hospital based cross sectional study. Dr. Somervell Memorial CSI Medical College, Karakonam, Thiruvananthapuram, Kerala, India. Dr. Somervell Memorial CSI Medical College and Hospital was established in 2002. From a 6- bedded dispensary, this esteemed institution has grown into a functional teaching hospital with 672 beds available. It is also equipped with a well-staffed emergency department and a round-the-clock blood bank. It is also a referral hospital for the state government, ESIC, KASP, and Karunya Benevolent Fund. Study was conducted within 6 months (June 2024 to October 2024) after getting Institutional Ethical Committee clearance. Registered Staff Nurses working in the institution were recruited for study.

Inclusion Criteria

- Who have more than 10 years of experience in this profession.
- Those who are willing to give written informed consent.

Exclusion Criteria

- Those who have undergone surgeries in the past 6 months.
- Presence of any impaired neurological conditions.
- Pregnant woman or has been pregnant in the past one year.
- History of varicose veins prior to starting of professional practice.

Sample size Calculation

According to Sushma Pandey et al a study conducted in Mumbai among nurses working in selected hospitals shows that 46% had good knowledge about varicose veins.[8]

Substituting this in the formula,

$N = \{(Z(1-\alpha/2))2x\ P\ x\ (1-P)\}/d2$

$Z1-\alpha/2$ - two tailed probability for 95% confidence interval = 1.96

P (%) – Good knowledge among staff nurses regarding varicose vein = 46% d (%) - precision or allowable error = 10%

$N = 1.96x1.96x46x54/10x10 = 95.4$

95

Hence, this study was conducted among 95 Registered staff nurses satisfying the inclusion criteria. The technique used was Probability Sampling - simple random sampling.

Data collection tool: A pre designed pre tested semi-structured interviewer administered questionnaire containing the following domains was used for the study.

Section A: Socio demographic profile of the study participants.

Section B: Clinical profile of study participants.

Section C: Knowledge regarding varicose vein among study participants.

Section D: Practices regarding varicose vein prevention practiced by the study participants.

The study was conducted after obtaining clearance from the Institutional Ethics Committee and getting permissions from the Medical Superintendent, Principal, HOD of Community Medicine. The list of Registered Staff Nurses who are currently employed in this hospital was collected from the nursing office. From this list, those who satisfy the inclusion criteria was recruited for our study. Out of those eligible, using simple random sampling technique by lottery method, 95 participants were selected and approached for data collection.

Statistical Analysis: Data was entered in the MS OFFICE-Excel sheet and was analysed using SPSS software trial version 26.0. All Qualitative variables was expressed as frequency and percentages and quantitative using mean and standard deviation. KP was measured by assigning scores to the answers such as Yes- 1 and No- 0 for both categories of knowledge and practices. The knowledge category contains a total of 8 questions, 7 of which are taken into analysis and the practices category contains a total of 6 questions, all of which are used for analysis. The study results are then classified into poor and good categories. The association between knowledge and preventive practices of varicose veins and independent variables was assessed using Chi square test. A p-value <0.05 was considered as statistically significant.

RESULTS

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Varicose veins are the bane of medical workers hindering them from performing their duties efficiently to the society that they serve daily. This being our driving force, we conducted a survey among 95 registered staff nurses to assess the knowledge about varicose and whether practices of prevention were followed. The median age of study participants was observed to be 40 years and interquartile range was 31-39. Minimum age of the study participant was 31 years and the maximum age was 58 years.

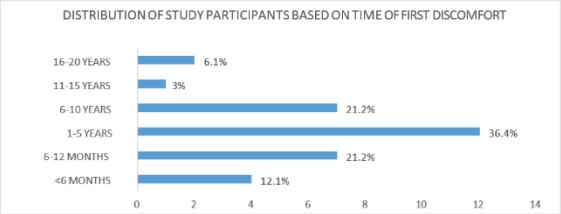

Figure 1: Distribution of study participants based on time of first discomfort (n=95)

The number of shift hours the study participants worked daily ranged from 6 – 12 hrs and it was reported the mean number of hours standing was 5.889 hrs, with a minimum of 2 hrs to a maximum of 6 hrs.

Out of the 95 study participants, 34.7% (33) reported experiencing symptoms of varicose veins while 65.3% (62) said they experienced no such discomfort. Out of the 33 symptomatic study participants, most number of participants noticed their discomfort for the first time 1 – 5 years ago, 36.4% (12) of the participants to be exact, and the least number of participants, 3% (1), noticed their symptoms 11 – 15 years ago.

Table 1: Distribution of study participants based on severity of pain.

Severity of pain	Frequency (n)	Percentage (%)
Mild	11	36.70%
Moderate	14	46.70%
Severe	3	10%
Very severe	2	6.60%

When asked about the severity of their pain, out of 30 study participants who experienced pain due to varicose veins, 36.7% reported mild pain, 46.7% reported moderate pain, 10% reported severe pain and 6.6% reported very severe pain.

Table 2: Association between sociodemographic variables and presence of symptoms of varicose veins

Socio-demographic profile		Presence of symptoms		X^2	P-VALUE
		YES [N=33]	NO [N=62]		
AGE	30 - 39 years	11 (23.4%)	36 (76.6%)	5.46	0.071
	40 - 49 years	17 (47.2%)	19 (52.8%)		
	50-59 years	5 (41.7%)	7 (58.3%)		
BMI	Underweight	1 (33.3%)	2 (66.7%)	1.63	0.85
	Normal	7 (38.9%)	11 (61.1%)		
	Overweight	8 (44.4%)	10 (55.6%)		
	Pre-obese	14 (30.4%)	32 (69.6%)		
	Obese	3 (30%)	7 (70%)		
NO: OF YEARS OF EXPERIENCE	10 - 20 years	17 (25%)	51 (75%)	12.36	<0.001
	21 - 30 years	16 (64%)	9 (36%)		
	31 - 40 years	0 (0%)	2 (100%)		
WORK STATION	Medicine ward	1 (8.3%)	11 (91.7%)	7.33	0.494
	Surgery ward	3 (37.5%)	5 (62.5%)		
	Gynaec ward	7 (43.75%)	9 (56.25%)		
	Pediatrics ward	3 (33.3%)	6 (66.7%)		
	Ortho ward	2 (50%)	2 (50%)		
	OT	1 (50%)	1 (50%)		
	CRITICAL CARE UNIT	8 (44.4%)	10 (55.6%)		
	OPD	7 (29.2%)	17 (70.8%)		
	TEACHING	1 (50%)	1 (50%)		
NO: OF TIME SPENT STANDING	0 - 2 HRS	1 (33.3%)	2 (66.7%)	1.85	0.669
	2.5 - 4 HRS	3 (20%)	12 (80%)		
	4.5 - 6 HRS	16 (37.2%)	27 (62.8%)		
	6.5 - 8 HRS	13 (38.2%)	21 (61.8%)		
MORBIDITY STATUS	DIABETES MELLITUS	3 (42.9%)	4 (57.1%)	0.9	0.943
	Systemic hypertension	3 (33.3%)	6 (66.7%)		
	None	27 (34.6%)	51 (65.4%)		
	Diabetes mellitus and systemic Hypertension	0 (0%)	1 (100%)		
	Present	14 (63.6%)	8 (36.4%)		

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FAMILY H/O VARICOSE VEINS	Absent	19 (26%)	54 (74%)	10.547	0.002

On analysing the association between the age of the nurses participating in the study and the presence of symptoms of varicose veins, among those in the age group of 30-39 years, 23.4% were found to present with symptoms of varicose while the remaining 76.6% did not. Among those in the age group of 40-49 years, 47.2% of the participants presented with symptoms of varicose while the remaining 52.8% did not. And finally among those in the age group of 50-59 years, 41.7% presented with varicose symptoms while the remaining 58.3% did not. There was no significant difference found (p-value = 0.071). On analysing the association between the number of years of experience and the presence of symptoms of varicose veins, among the nurses who had 10-20 years of experience, 25% presented with symptoms of varicose while the remaining 75% did not. Among those who had 21-30 years of experience, 64% presented with symptoms of varicose while the remaining 36% did not. And finally, none of the nurses participating in the study, who had 31-40 years of experience, presented with any symptoms of varicose veins. The difference was found to be significant (p-value < 0.001). On analysing the association between the work station and the presence of symptoms of varicose veins, among the nurses who were posted in the medicine ward, 8.3% presented with symptoms of varicose while the remaining 91.7% did not. Among those who were posted in the surgery ward, 37.5% presented with symptoms of varicose while the remaining 62.5% did not. Among the nurses who were posted in the gynaecology ward, 43.75% presented with symptoms of varicose while the remaining 56.25% did not. Among the nurses who were posted in the paediatric ward, 33.3% presented with symptoms of varicose while the remaining 66.7% did not.

Table 3: Association between knowledge of varicose veins and sociodemographic and clinical profile variables

Socio-demographic and clinical profile		Knowledge of varicose veins		X^2	P- value
		POOR [N=8]	GOOD [N=87]		
Qualification	BSc	0 (0%)	6 (100%)	2.146	0.649
	MSc	0 (0%)	1 (100%)		
	GNM	6 (8%)	69 (92%)		
	ANM	2 (15.4%)	11 (84.6%)		
No: of years of experience	10 - 20 YEARS	3 (4.4%)	65 (95.6%)	6.997	0.022
	21 - 30 YEARS	4 (16%)	21 (84%)		
	31 - 40 YEARS	1 (50%)	1 (50%)		
Work station	Medicine ward	1 (8.3%)	11 (91.7%)	5.055	0.758
	Surgery ward	0 (0%)	8 (100%)		
	Gynaec ward	0 (0%)	16 (100%)		
	Pediatrics ward	1 (11.1%)	8 (88.9%)		
	Ortho ward	0 (0%)	4 (100%)		
	OT	0 (0%)	2 (100%)		
	CRITICAL CARE UNIT	2 (11.1%)	16 (88.9%)		
	OPD	4 (16.7%)	20 (83.3%)		
	Teaching	0 (0%)	2 (100%)		
Family h/o varicose veins	Present	0 (0%)	22 (100%)	2.633	0.191
	Absent	8 (11%)	65 (89%)		
Symptoms of varicose veins	Present	0 (0%)	33 (100%)	4.650	0.047
	Absent	8 (12.9%)	54 (87.1%)		

On analysing the association between educational qualification and level of knowledge regarding varicose veins, all those who have BSc. level of education had good knowledge of varicose veins. All those with MSc. level of education also had good level of knowledge regarding varicose veins. Among those who have GNM level of education, 92% have a good level of knowledge regarding varicose veins and the remaining 8% have poor knowledge regarding the topic. Among those who have ANM level of education, 84.6% have a good level of knowledge regarding varicose veins while the remaining 15.4% have poor knowledge regarding the topic. The difference was not found to be significant (p- value = 0.649)

On analysing the association between the number of years of experience and level of knowledge regarding varicose veins, among the nurses who had 10-20 years of experience, 95.6% have a good level of knowledge of varicose veins while the remaining 4.4% had poor knowledge regarding the topic. Among those who had 21-30 years of experience, 84% have a good level of knowledge of varicose veins while the remaining 16% had poor knowledge regarding the topic. And finally, among the nurses who had 31-40 years of experience, 50% have a good level of knowledge of varicose veins while the remaining 50% had poor knowledge regarding the topic. The difference was found to be significant (p-value = 0.022)

On analysing the association between the presence of symptoms of varicose veins and the level of knowledge regarding varicose veins, all the nurses who reported present had a good level of knowledge of varicose veins. Among the nurses who reported absent, 87.1% had a good level of knowledge of

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varicose and the remaining 12.9% had poor knowledge regarding the topic. The difference was found to be significant (p-value = 0.047)

Table 4: Association between practices of prevention regarding varicose veins among study participants based on socio-demographic, clinical profile and knowledge variables

Socio-demographic, clinical and knowledge profile		Practices of prevention of varicose veins		X^2	P- value
		POOR [N=83]	GOOD [N=12]		
Qualification	BSc	5 (83.3%)	1 (16.7%)	1.247	1
	MSc	1 (100%)	0 (0%)		
	GNM	65 (86.7%)	10 (13.3%)		
	ANM	12 (92.3%)	1 (7.7%)		
No: of years of experience	10 - 20 YEARS	60 (88.2%)	8 (11.8%)	2.709	0.298
	21 - 30 YEARS	22 (88%)	3 (12%)		
	31 - 40 YEARS	1 (50%)	1 (50%)		
Work station	Medicine ward	11 (91.7%)	1 (8.3%)	3.443	0.931
	Surgery ward	8 (100%)	0 (0%)		
	Gynaec ward	14 (87.5%)	2 (12.5%)		
	Pediatrics ward	8 (88.9%)	1 (11.1%)		
	Ortho ward	4 (100%)	0 (0%)		
	OT	2 (100%)	0 (0%)		
	Critical care unit	14 (77.8%)	4 (22.2%)		
	OPD	20 (83.7%)	4 (16.7%)		
	Teaching	2 (100%)	0 (0%)		
Family h/o varicose veins	Present	18 (81.8%)	4 (18.2%)	0.799	0.464
	Absent	65 (89%)	8 (11%)		
Symptoms of varicose veins	Present	26 (78.8%)	7 (21.2%)	3.373	0.102
	Absent	57 (91.9%)	5 (8.1%)		
Knowledge score	Poor	6 (100%)	0 (0%)	1.263	0.385
	Good	9 (90%)	1 (10%)		

On analysing the association between educational qualification and the quality of prevention measures practiced regarding varicose veins, among those who have BSc. level of education, 16.7% practiced prevention measures effectively while the remaining 83.3% practiced them poorly. All those with MSc. level of education had poor standard of practices of prevention against varicose veins. Among those who have GNM level of education, 13.3% practiced prevention measures effectively while the remaining 86.7% practiced them poorly. Among those with ANM level of education, 7.7% practiced prevention measures effectively while the remaining 92.3% practiced them poorly The difference was not found to be significant (p-value = 1).

On analysing the association between the number of years of experience and the quality of prevention measures practiced regarding varicose veins, among the nurses who had 10-20 years of experience, 11.8% practiced prevention measures effectively while the remaining 88.2% practiced them poorly. Among those who had 21-30 years of experience, 12% practiced prevention measures effectively while the remaining 88% practiced them poorly. And finally, among the nurses who had 31-40 years of experience, 50% practiced prevention measures effectively while the remaining 50% practiced them poorly. The difference was found to be not significant (p-value = 0.298)

On analysing the association between the level of knowledge regarding varicose veins of the nurses and the quality of prevention measures practiced regarding varicose veins, all those who had poor knowledge reported having poor quality of prevention practices regarding varicose veins. Among those who had good quality of knowledge, 10% practiced prevention measures effectively while the remaining 90% practiced them poorly. The difference was not significant (p-value = 0.385).

DISCUSSION

From our study we could find out that among the 95 nurses we had selected randomly for the conduction of the survey, 91.6% of them had good knowledge of what varicose veins were and the complications, risk factors as well as the practices of prevention. But on the flip side, although majority of the study participants had good knowledge regarding this topic, only 12% of them properly practiced the methods of prevention that are recommended as prophylaxis for varicose veins, the rest were unable to say that they did so. We were also able to prove that there was a definite association between the prevalence of symptoms of varicose veins and the total years of experience in this profession. There was also a link between the prevalence of symptoms along with positive family history of varicose veins. One of the most important findings that we discovered out of this study was that more the years of experience in the nursing profession, more likely was it to see nurses with a good understanding and knowledge of varicose veins. The knowledge was also seen increased when the nurses presented with symptoms of varicose veins. It was clearly demonstrated that among our study participants, there was absolutely no association between the level of knowledge about varicose veins and the performance of practices

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meant for the prevention of the same breaks as practices of prevention against varicose veins.[9]
Furthermore, a study conducted in Mumbai in K J Somaiya of Nursing also showed similar findings in the knowledge status among the nurses who had participated in the study, most of them had a good to average knowledge on the topic of varicose veins, 46% and 48% respectively while only 6% poor knowledge. Among these study participants it was also noted that 50% used compression stockings regularly.[8] A study performed in Dhulikhel also showed results stating that increased walking and sitting time reduced the risk and severity of varicose veins and hence provided a beneficial effect.[10] On conducting a similar study in Parul University, Vadodara, Gujarat where the study analysed the level of knowledge regarding the risk factors and preventive practices regarding varicose veins among 60 nurses specifically working in intensive care unit, the results showed that 53% of the staff nurses had adequate knowledge scores 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 experience of staff nurses with their knowledge scores which matched our study results.[11] Coinciding results were also found in a study conducted in Dhiraj General Hospital, Waghodia, also in Vadodara in which the results showed that there was no significant association between age and knowledge regarding risk factor and preventive measures of varicose vein. But this study also showed contrasting results in that there was no association between the years of experience and its positive effect in the knowledge scores of the nurses under study. This study also proved a strong association between the level of education of the nurses and its effect on the knowledge regarding risks and preventive practices for varicose veins, which was not seen in our study.[12] On analysing specifically, the knowledge of prevention practices regarding varicose veins among nurses, a study in Patan Hospital in Nepal showed results stating that out of 211 nurses, less than half respondents 73(34.6%) had inadequate level of knowledge, nearly half respondents 101 (47.9%) had moderately adequate level of knowledge and one fifth respondents 37(17.5%) had an adequate level of knowledge regarding the prevention of varicose vein.[13]
Studies conducted in Yozgat, Turkey also showed significant association between the department of work of the nurses and the prevalence and awareness of risk of such disorders and more that affect those in this profession.[14] In a cross-sectional study conducted in King Khalid University in Saudi Arabia, with a smaller sample size of 50, on analysing the knowledge and practices regarding varicose veins among specifically those nurses that work in the operating room, it was clearly that 26% of nurses had inadequate knowledge and 14% of operation room nurses had poor practices. Along with these findings it was also observed that there was positive association between knowledge and practices against varicose,[15] which was not found in our study results. All these studies provided ample evidence supporting that furthering the knowledge and practices regarding varicose veins works to effectively decrease the occurrence or at least, the worsening of varicose veins and other disorders that affect the nursing profession.
The importance of the knowledge of long term effects of extended working hours and harsh labour in the medical field on the health and welfare of its workers is the key to prevention of disorders like varicose veins, and hence ensuring a more effective service and good attitude towards the profession and all the hardship that it entails. This promotes healthier working environment for both the nurses and the patients, hence further creating a productive and more efficient society for the future of the nursing and medical profession as well as the society we live in.
The limitations we faced while conducting the study were as follows:

- The study was conducted in a single tertiary healthcare centre in Trivandrum district.
- The busy schedule of the study participants provided us little time with each participant.

CONCLUSION

The findings of our study resulted as follows:91.6% of nurses have good knowledge regarding the topic of varicose veins. Only 12% of nurses perform adequate practices of prevention against occurrence of varicose veins. Positive association between number of years of experience and the presence symptoms of varicose. Positive association between genetic predisposition to varicose veins and the presence of symptoms of the same. Better quality of knowledge regarding varicose veins was significantly associated with the number of years of experience.
The reasons for these were numerous; such as exhaustion after long shift hours, household chores, taking care of the family, lack of time, lack of resources and so on. These factors hinder them from properly practicing the required exercises or wearing compression stockings inadvertently causing them a great deal of damage to their health. The effects of this may not be felt now but only in the future when only surgical intervention would be the most effective cure; as it is said, prevention is better than cure.

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