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A Study to Evaluate the Effectiveness of Planned Teaching Programme on Knowledge Regarding Prevention and Management of Varicose Veins Among Security Guards Working in Tertiary Care Hospital at Kuppam, Chittoor District, A.P

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ABSTRACT

Background: Varicose veins are one of the most common chronic venous disorders affecting individuals who are required to stand for prolonged periods during their working hours. Occupational groups such as security guards are particularly vulnerable due to prolonged standing, limited mobility, and inadequate rest intervals. Chronic venous insufficiency can lead to pain, edema, skin pigmentation, venous ulceration, and reduced quality of life if not managed appropriately. Studies indicate that prolonged standing and occupational strain significantly increase the risk of developing varicose veins and other venous disorders. (1) Prevention and early management of varicose veins largely depend on adequate knowledge and appropriate lifestyle practices, including leg elevation, regular physical activity, weight management, use of compression stockings, and avoidance of prolonged static posture. Evidence highlights that workplace-related risk factors and lack of awareness contribute substantially to disease progression.(2) Despite the preventable nature of varicose veins, many high-risk workers lack sufficient knowledge regarding preventive measures and early management strategies.(3) Planned Teaching Programmes (PTPs) are structured and evidence-based educational interventions designed to enhance knowledge and promote positive health practices. Educational strategies have been shown to significantly improve knowledge and preventive behaviors among high-risk populations.(4) By providing systematic instruction and practical guidance, PTPs can empower security guards to adopt preventive measures, thereby reducing complications and improving occupational health outcomes. Considering the occupational vulnerability of security guards and the existing knowledge gap regarding prevention and management of varicose veins, this study aims to evaluate the effectiveness of a Planned Teaching Programme on knowledge regarding prevention and management of varicose veins among security guards working in a tertiary care hospital at Kuppam, Chittoor District. The findings are expected to contribute to occupational health promotion and reduction of morbidity among security personnel.

Methods: a Quantitative pre-experimental study was conducted in December 2025 among 60 security guards working in tertiary care hospital at Kuppam samples were selected by using convenient sampling technique, informed consent were taken before the study, security guards knowledge were assessed by using structured self-administered questionnaire.

Results: In regards age Majority of them 26 (43.3%) of the security guards were belongs to age group between 40-50 years old, In regards Gender Majority 48 (80%) of them were Males, In regards Educational Qualification: Majority 26 (43.3%) of them were 10th pass, In regards years of work experience: Majority 27 (45%) of them were having 1-5 years' experience, Majority 22 (36.7%) of the security guards were standing between 7-9 hours, Majority 32 (53.3%) of them were using compression stockings/Socks, about 38 (63.3%) of them are having previous knowledge about varicose vein, about 44(73.3) of the security guards were having no family history of varicose vein , the pre-test knowledge reveals that about 30 (50%) of the security guards were had poor knowledge, 29(48.3%) were had Moderate Knowledge and 1 (1.7%) were had Adequate Knowledge, the post knowledge reveals that majority 50 (83.3%) of the security guards were had adequate knowledge, 9 (15%) were had Moderate Knowledge and 1(1.7%) were had poor Knowledge, Comparison of pre-test and post- test mean, SD "t" and p-values of knowledge scores among security guards. shows that the pre-test knowledge mean were 21.57 with a SD of 3.90 and in post-test knowledge mean were 10.88 with a SD of 3.04, Conclusion: Overall, the Structured Teaching Programme (STP) administered to security guards regarding varicose veins was found to be highly effective. The findings of the study demonstrated that the majority of participants initially had poor to moderate knowledge about varicose veins during the pre-test assessment. However, following the implementation of the structured teaching programme, a significant improvement was observed in the post-test knowledge scores, with most participants attaining adequate knowledge.

Keywords: Varicose Vein, prevention and management of varicose vein, Security guard

I. INTRODUCTION

Varicose veins are dilated, tortuous superficial veins of the lower limbs caused by venous valvular incompetence and venous hypertension. They are the most visible manifestation of chronic venous disease (CVD), which encompasses a spectrum from telangiectasias and reticular veins (CEAP C1) through varicose veins (C2) to skin changes, healed ulceration and active venous ulcers (C3–C6). Varicose veins can cause symptoms including aching, heaviness, swelling, itching, and cramps and in advanced cases, skin changes and ulceration, which negatively affect quality of life and productivity Prolonged standing is a commonly recognized occupational risk factor for the development and progression of varicose veins. Occupations that require extended static standing (security guards, shop attendants, teachers, manufacturing line workers) show higher rates of venous symptoms and varicose veins in many cross-sectional and cohort studies. Mechanisms include venous stasis due to reduced calf 3 Muscle pump activity, increased hydrostatic pressure in the lower limb veins, and microvascular endothelial changes from chronic venous hypertension. Several cross-sectional studies focused on security guards report elevated prevalence and symptom burden attributable to long working hours standing or minimal ambulatory movement at work. Varicose veins result primarily from **venous valve incompetence** in superficial veins (commonly the great saphenous vein and its tributaries) and/or reflux from deep venous system pathways. Valve incompetence leads to retrograde flow, venous hypertension,

vein dilation, and progressive valve dysfunction. Over time, chronic venous hypertension provokes inflammatory changes, capillary leak, lipid deposition, skin pigmentation changes, lipodermatosclerosis and, in severe disease, venous ulceration. Calf muscle pump dysfunction and incompetent perforator veins also contribute. Primary prevention particularly relevant to occupational groups focuses on reducing prolonged static standing, promoting intermittent ambulation, calf muscle exercises, appropriate footwear, job rotation, graduated compression stockings where indicated, and workplace ergonomic interventions (scheduled breaks, seating options, anti-fatigue mats, education). Public health and workplace programs that combine education with practical changes are more likely to reduce risk and symptom burden. Several occupational health studies identify employer-level interventions and worker education as feasible preventive measures. (5) Conservative: Leg elevation, regular exercise, weight reduction if needed, avoidance of prolonged standing, and graduated compression stockings (commonly first-line for symptomatic relief and for patients not seeking or eligible for intervention). Evidence supports compression for symptom relief, edema reduction and aid in ulcer healing. (6) Planned Teaching Programmes (PTPs) are structured, systematic educational strategies designed to improve knowledge, awareness, and health-seeking behavior. By providing scientifically accurate information and practical guidance, PTPs can empower individuals to adopt preventive measures, recognize early symptoms, and seek timely medical care. Such programmes are particularly effective in occupational health settings where prevention plays a vital role. (7)Therefore, considering the high occupational risk, lack of awareness, and preventable nature of varicose veins among security guards, there is a compelling need to evaluate the effectiveness of a Planned Teaching Programme on knowledge regarding prevention and management of varicose veins. This study aims to assess whether a structured educational intervention can improve knowledge levels among security guards working in a tertiary care hospital at Kuppam, Chittoor District, Andhra Pradesh, thereby contributing to better occupational health outcomes and quality of life. (8)

II.METHODS AND MATERIALS

A Quantative pre-experimental study was conducted in December 2025 among 60 security guards working in tertiary care hospital at Kuppam the samples were selected by using convenient sampling technique, informed consent were taken before the study, security guards knowledge were assessed by using structured self-administered questionnaire. Which includes demographic variables and Questionnaire on knowledge regarding prevention and management of varicose vein.

Objectives of the present study includes

1. To assess the pre level of knowledge prevention and management of varicose vein
2. To assess the post-test level of knowledge regarding prevention and management of varicose vein
3. To assess the effectiveness of STP by comparing pre and post –test knowledge
4. To associate the pre-test level of knowledge with their selected demographic variables

Collected data was entered into MS Excel 2013 and analyzed using Epi Info 7.0. Appropriate statistical methods used to find out the results based on the objectives.

III. RESULTS

The results of the study were presented as Tables and graphs as per the objectives of the study.

Section-A: Frequency and percentage distribution of demographic variables.

Table: 1- Frequency and percentage distribution of demographic variables
n=60

S. No	Demographic Variables		Frequency	Percentage
1	Age	a) 20 - 30 Years	12	20
		b) 31 - 40 Years	14	
		c) 41 - 50 Years	26	
		d) Above 50 Years	8	13.3
2	Sex	a) Male	48	80
		b) Female	12	20
3	Educational Qualification	a) Below 10th Standard	13	21.7
		b) 10th Pass	26	43.3
		c) 12th Pass	14	23.3
		d) Graduate and Above	7	11.7
4	ears of Work Experience	a) Less Than 1 Year	3	5
		b) 1 -5 Years	27	45
		c) 6-10 Years	22	36.7
		d) More than 10 Years	8	13.3
5	Hours of Standing per Day	a) Less than 4 hours	5	8.3
		b) 4–6 hours	15	25
		c) 7–9 hours	22	36.7
		d) More than 9 hours	18	30
6	Use of Compression Stockings/Socks	a) Yes – regularly	32	53.3
		b) Occasionally	17	28.3
		c) Never heard of it	9	15
		d) Heard of it but never used	2	
7	Previous Knowledge about Varicose Veins	a) Yes	22	36.7
		b) No	38	
8	Family History of Varicose Veins	a) Yes	14	
		b) No	44	73.3
		c) Not Sure	2	3.3

Table-1 Demographic Variable shows about 26 (43.3%) of the security guards were belongs to age group between 41-50 years old, 14 (23.30%) of the security guards were belongs to age group between 31-40 years old, 12 (20.0%) of the security guards were belongs to age group between 20-30 years old and 8 (13.3%) of the security guards were belongs to age group above 50 years old. Majority 48 (80%) of them were Males and 12 (20%) of them were Females. Majority 26 (43.3%) of them were 10th pass, 14(23.3%) of them were 12th pass, 13(21.7%) of them were in below 10th standard and 1 (11.7%) of them had completed their graduation and above. Majority 27 (45%) of the security guards were having 1-5 years' experience, 22(36.7%) of the security guards were having 6-10 years' experience, 8(13.3%) of the security guards were having more than 10 years' experience and 3 (5%) of the security guards were having less than 10 years' experience. Majority 22 (36.7%) of the security guards were standing

between 7-9 Hours, 18 (30%) of the security guards were standing more than 9 Hours, 15 (25%) of the security guards were standing between 4-6 Hours and 5 (8.3%) of the security guards were standing less than 4 Hours. Majority 32 (53.3%) of the security guards were using compression stockings/socks regularly, 17 (28.3%) of the security guards were using compression stockings/socks occasionally, 9 (15%) of the security guards were never heard of it and 2 (3.3%) of the security guards were never heard of it but never used it. about 38 (63.3%) of the security guards don't have previous knowledge about varicose vein and 22 (36.7%) of the security guards are have previous knowledge about varicose vein. about 44 (73.3%) of the security guards are not having any family history of varicose vein, 14 (23.3%) of the security guards are having family history of varicose vein and 2 (3.3%) of the security guards are not sure about family history of varicose vein

Section-B: Frequency and percentage distribution of the pre-test level of knowledge among security guards

Table: 2- Frequency and percentage distribution of the pre-test level of knowledge among security guards

n=60

LEVEL OF KNOWLEDGE	FREQUENCY (F)	PERCENTAGE (%)
Poor Knowledge	30	50.0
Moderate Knowledge	29	48.3
Adequate Knowledge	1	1.7

Above table-2: Shows that 30 (50%) of the security guard were had poor knowledge, 29 (48.3%) were had Moderate Knowledge and 1 (1.7%) were had Adequate Knowledge.

Section-C: Frequency and percentage distribution of the post-test level of knowledge among security guards

Table: 3 - Frequency and percentage distribution of the post-test level of knowledge among security guards

n=60

LEVEL OF KNOWLEDGE	FREQUENCY (F)	PERCENTAGE (%)
Poor Knowledge	1	1.7
Moderate Knowledge	9	15.0
Adequate Knowledge	50	83.3

Above table- 3: Shows that majority 50 (83.3%) of the security guard were had adequate knowledge, 9(15%) were had in Moderate Knowledge and 1 (1.7%) were had poor Knowledge.

Section- D: Comparison of frequency and percentage distribution of pre-test and post-test level of knowledge among security guard

Table: 4 - Comparison of frequency and percentage distribution of pre-test and post-test level of knowledge among security guard.

n=60

LEVEL OF KNOWLEDGE	PRE-TEST		POST-TEST	
	Frequency	%	Frequency	%
Poor Knowledge	30	50.0	1	1.7

Moderate Knowledge	29	48.3	9	15.0
Adequate Knowledge	1	1.7	50	83.3

Above table-4 shows that comparison between pre-test and post-test knowledge scores in pre-test 30 (50%) of the security guards were had poor knowledge, 29 (48.3%) were had Moderate Knowledge and 1 (1.7%) were had Adequate Knowledge, and in post-test majority 50 (83.3%) of the security guard were had adequate knowledge,9 (15%) were had moderate Knowledge and 1(1.7%) were had poor Knowledge.

Section-E: Comparison of pre-test and post- test mean, SD "t" and p-values of knowledge scores among security guards.

Table: 5 - Comparison of pre-test and post- test knowledge mean and SD "t" and p-values of knowledge scores among security guards.

Knowledge scores on prevention and management of varicose vein among security guards within experimental group	**Number**	**Mean**	**SD**	**t-value**	**P-value**	**Significance**
Pre-t-test	60	21.57	3.90	48.083	<0.001	Yes
Post-test	60	10.88	3.04			

Above table-5 shows that comparison between pre-test and post-test knowledge mean, standard deviation and t, p values, the pre-test knowledge mean were 21.57 with a SD of 3.90 and in post-test knowledge mean were 10.88 with a SD of 3.04

Section-F: Association of pre-test level of knowledge among security guards with their selected demographic variables.

Table: 6 - Association of pre-test level of knowledge among security guards with their selected demographic variables.

S.No	**Demographic variables**		**Level of Knowledge**			**Chi-square Value**	**p-Value**
			Poor Knowledge	**Moderate Knowledge**	**Adequate knowledge**		
1	**Age**	a) 20 - 30 Years	5	6	1	7.083	**0.313**
		b) 31 - 40 Years	8	6	0		
		c) 41 - 50 Years	11	15	0		
		d) Above 50 Years	6	2	0		
2	**Sex**	a) Male	24	24	0	4.138	**0.126**
		b) Female	6	5	1		
		c) Others	0	0	0		
		a) Below 10th Standard	5	8	0		
		b) 10th Pass	15	11	0		

3	**Educational Qualification**	c) 12th Pass	7	6	1	4.875	**0.560**
		d) Graduate and Above	3	29	1		
4	**ears of Work Experience**	a) Less Than 1 Year	0	3	0	4.615	0.594
		b) 1 -5 Years	14	12	1		
		c) 6-10 Years	12	10	0		
		d) More than 10 Years	4	4	0		
5		a) Less than 4 hours	2	3	0	5.977	0.426

S.No	**Demographic variables**		**Level of Knowledge**			**Chi-square Value**	**p-Value**
			Poor Knowledge	**Moderate Knowledge**	**Adequate knowledge**		
	Hours of Standing per Day	b) 4–6 hours	5	10	0		
		c) 7–9 hours	14	8	0		
		d) More than 9 hours	9	8	1		
6	**Use of Compression Stockings/Socks**	a) Yes – regularly	13	18	1	3.217	0.718
		b) Occasionally	10	7	0		
		c) Never heard of it	6	3	0		
		d) Heard of it but never used	1	1	0		
7	**Previous Knowledge about Varicose Veins**	a) Yes	11	11	0	0.599	0.741
		b) No	19	18	1		
8	**Family History of Varicose Veins**	a) Yes	7	6	1	5.526	0.237
		b) No	23	21	0		
		c) Not Sure	0	2	1		

Table 6: Shows that the association of pre-test scores of knowledge on varicose veins with selected demographic variables such as age, sex, educational qualification, years of work experience, hours of standing per day, use of compression stockings/socks, previous knowledge about varicose veins, and family history of varicose veins was not statistically significant, as the p-values > 0.05 for all the variables. This indicates that there was no significant association between the level of knowledge and the selected demographic variables among the participants.

IV. DISCUSSION

The present study assessed the effectiveness of a Structured Teaching Programme (STP) on knowledge regarding prevention and management of varicose veins among security guards. Regarding Objective 1, the pre-test results showed that 30 (50%) participants had poor knowledge, 29 (48.3%) had moderate

knowledge, and only 1 (1.7%) had adequate knowledge, indicating a significant knowledge deficit. These findings are consistent with studies by Menzes et al. (2023), where 51.6% had inadequate knowledge, and Gaire et al. (2020), who reported a high proportion of poor knowledge among security guards. After the Structured Teaching Programme (STP), 50 (83.3%) participants attained adequate knowledge, which is supported by Patel et al. (2024) and Sikder et al. (2020), who also reported marked improvement after educational interventions. For Objective 2, the effectiveness of STP was evident as adequate knowledge increased from 1.7% in pre-test to 83.3% in post-test. This finding is in line with Patel et al. (2024) and Kumar et al. (2023), who demonstrated statistically significant improvement in knowledge following structured teaching programmes among high-risk groups. Regarding Objective 3, no significant association was found between pre-test knowledge and demographic variables. This is supported by Sikder et al. (2020), who reported no association with most demographic factors. However, Elawady et al. (2022) found associations with selected variables like age and BMI, indicating slight variation across studies.

V. CONCLUSION

Overall, the Structured Teaching Programme (STP) administered to security guards regarding varicose veins was found to be highly effective. The findings of the study demonstrated that the majority of participants initially had poor to moderate knowledge about varicose veins during the pre-test assessment. However, following the implementation of the structured teaching programme, a significant improvement was observed in the post-test knowledge scores, with most participants attaining adequate knowledge.

The results further indicated that there was no statistically significant association between the pre-test knowledge levels and selected demographic variables such as age, gender, educational qualification, years of work experience, and hours of standing per day, use of compression stockings, previous knowledge, and family history of varicose veins. This suggests that the improvement in knowledge was primarily attributable to the effectiveness of the educational intervention rather than demographic influences.

The study highlights the importance of structured educational programmes in enhancing awareness and preventive practices related to occupational health problems such as varicose veins. By addressing the knowledge gap, the STP contributes to better self-care practices, early identification, and prevention of complications among security guards who are at higher risk due to prolonged standing hours. Therefore, structured teaching programmes can be considered an effective and practical strategy in promoting occupational health and preventive care.

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