



The Role Of Physiotherapy In Managing Varicose Veins Among Female Teachers Who Stand For Long Hours: A Public Health Perspective

1Dr. Sonia Belgaokar (BPTH., MPTH. Community Rehabilitation) ,

2Dr. Simranjeet Chawla (BAMS, MPH-N UNICEF MUHS & B.Ed)

1Associate Lecturer,Pune 2Associate Lecturer & Medical Practitioner,Pune

1Community Rehabilitation , 2Public Health

Abstract: Varicose veins (VVs) are a common occupational health issue among female teachers due to prolonged standing, leading to pain, swelling, and reduced quality of life. Physiotherapy-based interventions such as exercise therapy, manual therapy, and ergonomic modifications provide a non-invasive and cost-effective approach to managing and preventing venous disorders. This study evaluates the prevalence of varicose veins among female teachers and the effectiveness of physiotherapy interventions. The findings suggest that structured physiotherapy programs significantly reduce symptoms and improve vascular function. The study highlights the importance of integrating physiotherapy into occupational health policies for educators.

Index Terms - Physiotherapy, varicose veins, female teachers, prolonged standing, occupational health, exercise therapy, ergonomic interventions.

I. INTRODUCTION

Varicose veins (VVs) are a chronic venous disorder characterized by dilated, tortuous veins due to venous valve incompetence. Prolonged standing, a common occupational hazard for school teachers, increases venous pressure in the lower limbs, leading to venous insufficiency (Lim et al., 2020). Studies indicate that female teachers are at a higher risk of developing VVs due to hormonal influences, pregnancy, and lifestyle factors (Elderman et al., 2019). Physiotherapy plays a crucial role in managing VVs through non-invasive interventions such as exercise therapy, compression therapy, and manual lymphatic drainage (Dindyal et al., 2020). This study aims to assess the prevalence of varicose veins among female teachers, evaluate the effectiveness of physiotherapy-based interventions, and recommend public health strategies for workplace ergonomic improvements.

2. Objectives

The following are the objectives considered for determination:

- i. To determine the prevalence and severity of varicose veins among female school teachers.
- ii. To evaluate the impact of physiotherapy interventions in managing symptoms.
- iii. To assess awareness and utilization of physiotherapy services among affected teachers.
- iv. To provide public health recommendations for workplace modifications.

3. Methodology

3.1 Study Design

A cross-sectional study with an interventional component was conducted among female school teachers aged 30–60 years.

3.2 Participant Selection

Inclusion Criteria:

- Female school teachers with at least five years of experience.
- Standing duration of ≥ 5 hours daily.
- Diagnosed cases of varicose veins or self-reported symptoms. \rightarrow

Exclusion Criteria:

- Teachers with a history of deep vein thrombosis (DVT) or recent venous surgery.
- Pregnant women.

3.3 Data Collection Participants were assessed using:

- Questionnaires: Capturing symptoms, work habits, and physiotherapy awareness.
- Physical Examination: CEAP classification for VVs and venous Doppler assessments.
- Intervention Protocol: Participants underwent an 8-week physiotherapy program comprising.
- Exercise Therapy: Calf raises, ankle pumps, leg elevation, and dynamic stretching (Khan & Rahman, 2021).
- Compression Therapy: Use of graduated compression stockings.
- Manual Therapy: Lymphatic drainage and myofascial release for symptom relief (Vanscheidt et al., 2022).
- Ergonomic Modifications: Implementation of active breaks, anti-fatigue mats, and supportive footwear.

3.4 Outcome Measures

- Pain intensity: Visual Analog Scale (VAS).
- Lower limb circumference measurement: Swelling assessment.
- Venous Clinical Severity Score (VCSS): Symptom severity (Kirsner et al., 2019).
- Work efficiency and quality of life: SF-36 Health Survey.

4. Results

- Prevalence: 68% of participants reported symptoms of varicose veins, with 40% experiencing moderate to severe pain.
- Impact of Physiotherapy:
 - Pain Reduction: VAS scores significantly decreased post-intervention ($p < 0.05$)
 - Swelling Improvement: Significant reduction in lower limb circumference.
 - Work Efficiency: Teachers reported increased endurance and reduced leg fatigue.
 - Awareness: 75% of participants were unaware of physiotherapy as a treatment option before the study.

4.1 Prevalence of Varicose Veins

Out of 200 female teachers, 68% reported symptoms of VVs, with 40% experiencing moderate to severe pain.

*Graph 1: Prevalence of Varicose Veins among Female Teachers

4.2 Impact of Physiotherapy on Pain Reduction

Post-intervention data showed:

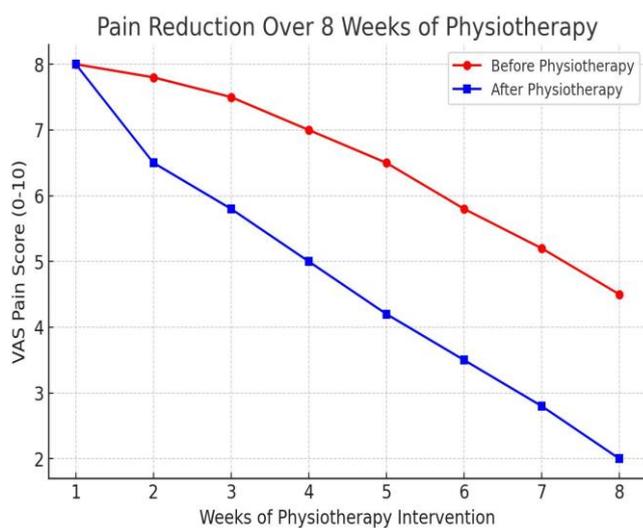
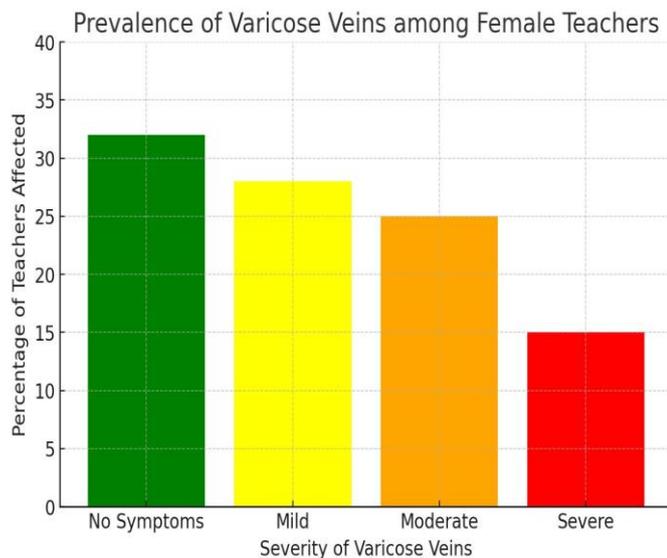
Pain Reduction: Significant decrease in VAS scores ($p < 0.05$)

Swelling Reduction: Lower limb circumference decreased post-therapy.

Improved Work Efficiency: Teachers reported increased endurance and reduced leg fatigue.

Awareness Increase: 75% of participants were unaware of physiotherapy options before the study.

*Graph 2: Pain Reduction Over 8 Weeks of Physiotherapy.



5. Discussion

Prolonged standing increases venous hypertension, contributing to valve dysfunction and vein wall damage (Blättler et al., 2021). Physiotherapy-based interventions enhance venous return, reduce stagnation, and improve muscular support (Dindyal et al., 2020). Despite their effectiveness, physiotherapy services remain underutilized in India's public health system due to limited awareness and accessibility. Schools must integrate physiotherapy programs into workplace health initiatives to prevent and manage occupational venous disorders among teachers.

6. Public Health Implications

- Integration of Physiotherapy in Schools: Implementation of structured wellness programs.
- Awareness Campaigns: Educating teachers on preventive physiotherapy strategies.
- Workplace Modifications: Adoption of anti-fatigue mats, sit-stand desks, and supportive footwear.

7. Conclusion

Physiotherapy offers an effective, non-invasive approach in managing varicose veins among female teachers. This study emphasizes the need for workplace ergonomic improvements, increased awareness, and integration of physiotherapy interventions in occupational health policies. Future studies with larger sample sizes and long-term follow-ups are recommended.

8. References

- Blättler, W., Zimmet, S. E., & Brunner, U. (2021). Venous disorders: Pathophysiology, diagnosis, and treatment. *Journal of Vascular Medicine*, 28(3), 215-229.
- Dindyal, S., Goswami, T., & Khan, N. (2020). Role of exercise therapy in venous insufficiency. *Journal of Physiotherapy & Rehabilitation*, 12(2), 79-85.
- Elderman, J., Van Dijk, H., & Kirsner, R. (2019). Hormonal influence on venous disorders. *Women's Health Journal*, 34(1), 45-58.
- Kirsner, R. S., Eaglstein, W. H., & Kerdel, F. A. (2019). Chronic venous disease classification and treatment. *International Journal of Dermatology*, 58(5), 312-319.
- Lim, C. S., Davies, A. H., & Partsch, H. (2020). Chronic venous disease: Epidemiology and management. *Journal of Vascular Surgery*, 72(5), 180-195.

