

# Prevalence of Varicose Veins among Healthcare Professionals: A Cross Sectional Study

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**Abstract:** ***Background and objectives:** Varicose veins are common in the general population. It is estimated that 15 -20% of Indian population is suffering from varicose veins. Varicose veins are more common in certain occupations like teachers, labourers, nurses, etc. Research on the prevalence of varicose veins among healthcare professionals is scant. The objectives of this study were to describe the current prevalence of varicose veins, associated risk factors and prevalence of its complications among health care professionals. **Materials and methods:** It is a cross-sectional study involving 225 healthcare professionals (nurses and doctors) who were randomly selected. Data was collected using proformas. Positive cases for varicose veins were subjected to clinical examination. **Results:** Two hundred and twenty-five subjects were included in the study of which 23.6% were doctors and 76.4% nurses. Majority of respondents were females (81.8%). Varicose veins were identified in 34.1% nurses and 9.6% doctors. Complications were noted in 23.4%. Most common symptoms were calf pain(81.3%) and muscle cramps(75%). A history of prolonged standing was present in 96.9% of positive responders and 43.8% had a family history for varicose veins. Bilateral involvement was noted in 45% and unilateral involvement in 55%. **Interpretation & conclusions:** Based on the current study, 28% of healthcare professionals are suffering from Varicose Veins. A higher prevalence is seen among nurses compared to doctors. Complications were noted in one-fourths of them. The study also showed strong relation with prolonged standing, pregnancy and family history. Also, the study showed that majority of positive cases was aware of their condition but did not seek medical attention.*

**Keywords:** Healthcare professionals - occupational hazard - Varicose Veins – Vascular surgery

## 1. Introduction

Dilated, tortuous and elongated veins (along lower limbs) are called varicose veins (VV).<sup>[1]</sup> Physiologically, a varicose vein is one which permits the reverse flow of blood through its faulty valves.<sup>[2]</sup> In the clinical scenario, patients present themselves to doctors only after the development of complications rather than just primary VV alone. This is why VV remains an iceberg phenomenon.

The prevalence of VV among healthcare professionals in developing nations like India is largely unknown. Though it is well known that VV is a common occupational hazard in nursing profession, its current status is still in the dark. The same is true for doctors especially in the surgical profession.

This study aims to describe the current status of Varicose Vein prevalence among health care professionals based on various parameters. It also aims to identify the prevalence of complications of VV among health care professionals.

## 2. Literature Survey

A comparative study of the distribution of varicose veins in black Africans and Caucasians revealed that there is 10-18% prevalence in Caucasians.<sup>[3]</sup> Another study claims that 20-25% women and 10-15% men have visible VV.<sup>[4]</sup> Although VV is a well-known occupational hazard, the studies done on this aspect are few in number. One of the surveys on railroad workers showed that those in North India (6.8%) were less likely to develop VV compared to those in the south (25.08%).<sup>[5]</sup>

## 3. Methodology

This is a cross-sectional study involving 225 healthcare staff in 2 teaching hospitals under Kasturba Medical College, Mangalore. The participants were screened for the presence of VV and were duly examined.

Considering the prevalence of VV in general population as 15%, 5% absolute precision, 95% confidence interval and 10% non-responsive error, the sample size for the study was 225. The study was conducted from July 1 2014 to August 31 2014 under the Indian Council of Medical Research-Short Term Studentship [ICMR STS] programme.

The data collection began after obtaining the Institutional Ethics Committee (IEC) approval. The investigator introduced himself and explained the objectives of the study were with the help of the participant information sheet. They were then given an informed consent form with a proforma. The respondents were assured confidentiality of the information provided by them during the interview.

All the health care professionals including doctors and nursing staff who were willing to participate were included in the study. Participants who did not consent for examination and incomplete forms were excluded.

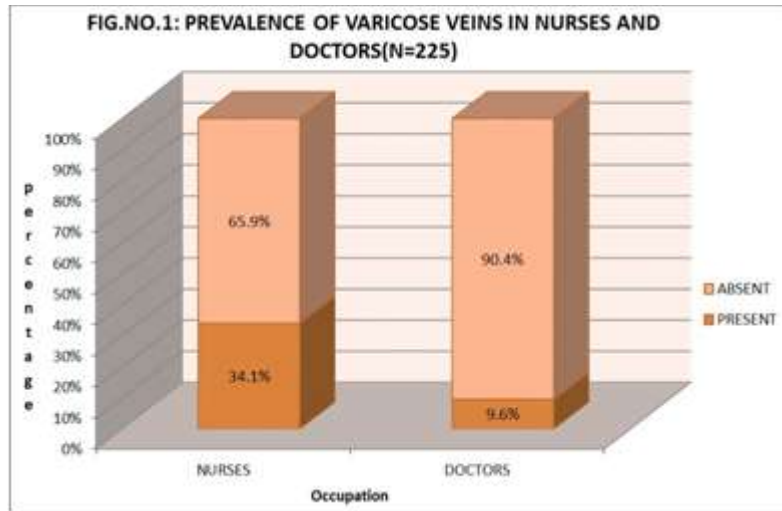
The Proforma included demographic information of subjects, information on the presence of VV and its clinical features and other associated symptoms, personal and family history for presence of predisposition of the disease, parameters like weight and height. Positive responders were subjected to clinical examination by checking limb involvement, subtype of VV and for presence of

complications. The data was entered and analysed using SPSS version 16.

#### 4. Results

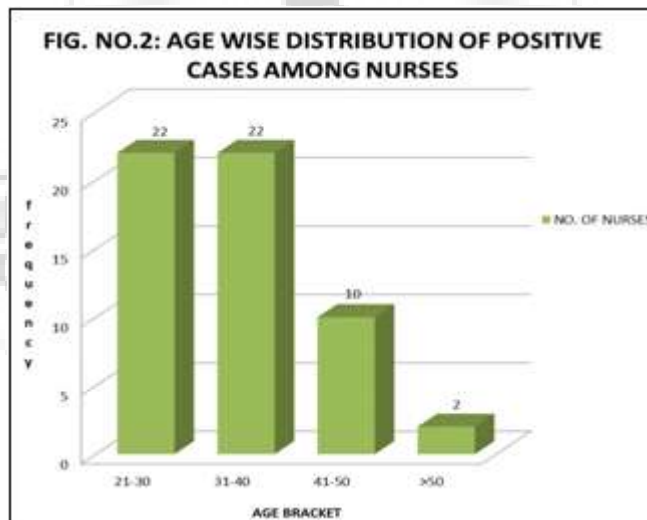
Totally, 225 subjects were included in the study. Majority of the respondents [184, 81.8%] were females and 18.2% were

males. The study involved 2 occupations- doctors and nurses. Of the respondents, 23.6% (52) were doctors and 76.4% (173) were nurses. This proportion was calculated based on probability proportional to size (PPS) approach. Of the study population, 28% (64) were victims to VV. Occupation-wise prevalence is presented in **Fig 1**.



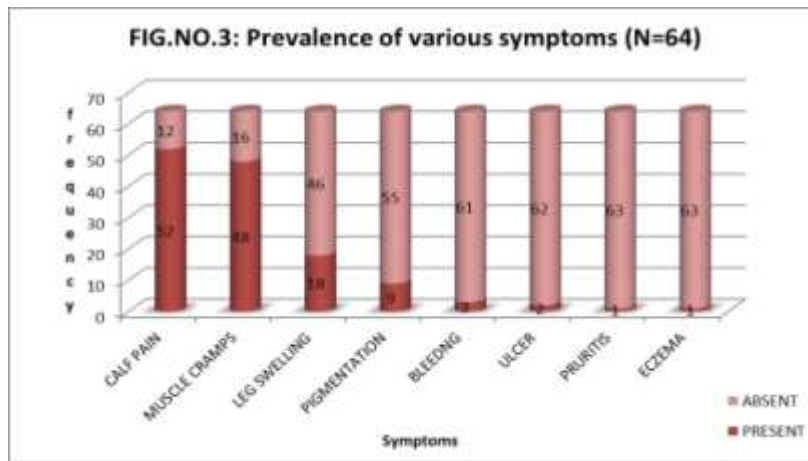
Majority of the VV cases identified in the study belonged to the age groups '21-30' [43.6%] and '31-40' [26.7%]. The

age wise distribution of positive cases among nurses is as shown in **Fig 2**.



Among 64 subjects with VV, 15 [23.4%] were suffering from complications. Most of the respondents (76.9%) had these complications for a period of 1-5 years. Commonest complication noted was pigmentation [60%] followed by

bleeding, ulceration and eczema. Complications were more common in nurses than doctors. Commonest symptoms noted are presented in **Fig 3**.



With respect to predisposing factors, most of the positive cases gave history of prolonged standing (96.9%) which was seen in almost all the nurses. This was followed by history of past surgeries (25%), accidents (10.9%) and prolonged immobilization (9.4%).

A positive family history for VV was observed in 43.8% of the positive cases. Among the 64 positive subjects mere 5 [7.8%] chose to seek medical attention. All of them were using compression stockings.

Clinical examination of the positive cases revealed unilateral involvement in 35[55%] and bilateral limb involvement in 29[45%]. Long saphenous vein was involved in 55[84 %] of the cases, while 9[14 %] had short saphenous vein. Only 1[2 %] had involvement of perforator system. When the positive cases were examined, it was found that about 39 (60.9%) were classic VV while 18 (28.1%) had thread veins and 7 (10.9%) had telangiectasis.

## 5. Discussion

Prevalence of VV in the general population is variable. A study conducted in 1972 by Malhotra S L, on sweepers, involving 323 men from Madras and 354 men from Ajmer, revealed that the overall prevalence of varicose veins was significantly higher among South Indian sweepers (25.08 per cent) than among North Indian sweepers (6.8 per cent).<sup>[5]</sup> Another study conducted in 1969, by Mekky S, Schilling R S F and Walford Jon cotton mill workers, involving 971 women showed that 32.1% of women from England and 4.8% women from Egypt had varicose veins.<sup>[6]</sup> Our study reveals that 9.6% of the 52 doctors and 34.1% of the 173 nurses who participated were suffering from varicose veins. Just like sweepers and cotton mill workers, healthcare professionals also fall in the same risk category, and the results are comparable.

Another study in 1994 by Callam M J, suggested that female sex, increased age, pregnancy, geographical site and race are risk factors for varicose veins; there is no hard evidence that family history or occupation are factors.<sup>[4]</sup> A study in 1987 by Banjo A O, revealed a higher prevalence (10-18%) of varicose veins in Caucasians when compared to Africans (1-2%).<sup>[3]</sup> Based on the varicose veins profile we have obtained from this study, factors such as female sex, increased age, pregnancy and even family history and occupation seem

certain to be risk factors of varicose veins development as most of the positive cases fall in these categories. Our study also supports the study conducted by Banjo A O as we get a high prevalence rate in Caucasians.

Commonest symptoms noted in our study were calf pain, muscle cramps or both. This was followed by leg swelling. Anatomically, the long saphenous was the commonest vein involved. The study also revealed that only 7.8% of the positive cases took treatment or preventive measures for VV indicating poor awareness even among healthcare professionals.

## 6. Conclusion

Prevalence of VV is higher among health care professionals compared to general population. The awareness about VV is poor even among healthcare professionals and majority of them do not seek appropriate medical treatment. It is hoped that in the years to come more awareness among regarding varicose veins is created among doctors and nurses is created so that they can take necessary measures to evade it.

## 7. Future Scope

This study was conducted for 2 months. But there are more avenues where adequate research needs to be done. Further studies with bigger sample size are required get more detailed knowledge about VV and its magnitude in the healthcare sector.

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