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Prevalence of Varicose Veins among Nurses in a Tertiary Care Hospital: A Descriptive Study

Chetan Naik[1] Priya Jyothi Monteiro[2]

[1] Department of Medical-Surgical Nursing, Nitte Usha Institute of Nursing Sciences, Nitte (Deemed to be University), Mangalore, Karnataka, India
[2] Department of Medical-Surgical Nursing, Kanachur College of Nursing Sciences, Karnataka, India

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Address for correspondence Chetan Naik, MSc (Nursing), Department of Medical-Surgical Nursing, Nitte Usha Institute of Nursing Sciences, Nitte (Deemed to be University), Deralakatte, Mangalore, Karnataka 575018, India (e-mail: Chetanpnaik1992@gmail.com).

Abstract

Introduction Millions of individuals worldwide spend significant portions of their workdays standing or in static positions, which can pose health risks such as varicose veins. Globally, varicose vein prevalence ranges from 20 to 60%, with women being at two to three times higher risk compared to men. Varicose veins are characterized by dilated, palpable veins with a diameter larger than 3 mm. Nurses face a 16% risk of developing varicose veins, highlighting the importance of health care professionals' well-being for the effective functioning of the health care system. Therefore, this study aimed to provide insights into the prevalence of varicose vein symptoms among nurses.

Methods A descriptive prospective study was conducted among 210 nurses with more than 1 year of experience, using purposive sampling. Demographic information and varicose vein symptoms were collected through a self-designed questionnaire. Descriptive statistics were employed for data analysis.

Results The study found that 8.6% of nurses were diagnosed with varicose veins. The majority of participants were female (97.6%) with a normal body mass index (86.7%). Prevalent symptoms included worsened leg pain (77.6%), night cramps (62.4%), and throbbing in lower legs (37.6%). Visible spider veins (19.5%) and other symptoms were reported less frequently.

Conclusion A lower prevalence of varicose veins among nurses was identified, possibly due to demographic factors of the study population. It is recommended to conduct health education campaigns tailored for health care professionals, particularly nurses, and implement regular health checkups to screen for varicose veins. These proactive measures are essential for promoting occupational health and ensuring the well-being of the nursing workforce.

Keywords
- varicose vein
- nurses
- long-standing
- prevalence
- awareness
- risk factors

Introduction

A significant portion of the workforce, including millions of employees, spends the majority of their workday in standing or static positions. Standing demands 20% more energy than sitting, and extended periods of standing at work can pose health risks, including varicose veins.[1] A worldwide prevalence ranges from 20 to 60% and women are at two to three times more risk of developing varicose veins than men.[2] Nearly, about 15 to 20% Indian population is suffering from vein-related disease.[3] It is often characterized by swollen palpable, subcutaneous veins which are dilated, tortuous, saccular, and generally larger than 3 mm, posing not only cosmetic concerns but also potential health risks. They

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typically result from weakened or damaged valves within the veins, leading to poor blood circulation. The common symptoms include pain, swelling, and discomfort, which can significantly impact an individual's quality of life.[4] Varicose veins are most commonly observed in the superficial veins of the legs, particularly those under heightened pressure during periods of standing. Vascular blood flow is reserved as the veins widen because the valves are strained and become ineffective. As the calf muscles' ability to pump diminishes and back pressure rises, more venous distension occurs. Further, edema develops when the capillary bed is exposed to the elevated venous pressure. Beyond aesthetic concerns, varicose veins often induce discomfort, particularly during periods of prolonged standing or walking. The development of varicose veins is caused by a variety of factors, including a female gender, the use of hormonal supplements (oral contraceptives), ageing, obesity, pregnancy, and high weight lifting. Workplaces that demand a lot of standing are the biggest culprit.[4,5] Occupations that require prolonged standing, such as teaching, nursing, flight attending, hairdressing, security guarding, and construction work, may contribute to the development of severe varicose veins. A recent survey has shown about 16% of nursing officers tend to develop varicose veins.[6] While varicose veins are a prevalent vascular condition, exploring their occurrence among nurses in tertiary care hospitals is particularly crucial. The challenging nature of nursing duties in such settings, involving prolonged hours of standing and high-pressure work environments, may contribute to an increased risk of varicose veins among health care professionals. As the well-being of health care professionals is paramount for the effective functioning of the health care system, understanding the prevalence and potential risk factors for varicose veins among nurses can contribute valuable insights.[7] The primary goal of this study was to fill gaps in current knowledge and establish a basis for creating precise interventions that enhance the vascular health of nurses working in tertiary care hospitals in future. By concentrating on this particular group, the intention is to illuminate the distinct challenges confronted by nurses in tertiary care environments and the possible consequences of varicose veins on their health and overall welfare. The prevalence of varicose veins among nurses working in different hospital departments ranges from 11 to 47.6%, according to several cross-sectional studies conducted in Saudi Arabia, Egypt, and other countries. The risk factors associated with varicose veins in nurses include female gender, older age, positive family history, increased number of childbirths, long standing hours, lifting heavy objects, and working in certain departments like the medical ward and emergency department. More research is needed to establish the exact prevalence and identify modifiable risk factors to develop targeted prevention strategies for this population.

Materials and Methods

A descriptive survey was conducted in a tertiary care hospital, where we enrolled a total of 210 nurses working in the tertiary care hospital having an experience of more than 1 year through purposive sampling method after obtaining permission from the institutional ethics committee (-NUINS/CON/NU/IEC/2022-23). In this study, demographic pro forma containing 9 items and the symptom checklist containing 10 symptoms of varicose vein were used. All the tools including demographic pro forma and symptom checklist were validated by five subject experts and established content validity. A pilot study was conducted among 21 nurses working in a tertiary care hospital and the tools were found reliable using Cronbach's alpha value ($r = 0.73$) which helped in finalizing the main study.

Data Collection Methods

The study was conducted at a single tertiary care hospital in Mangalore, Karnataka, India from November 15, 2022 to December 31, 2022. After receiving approval from the institutional ethics committee and the hospital authority, the researcher approached the staff nurses, provided them information regarding the study, and obtained their written consent before commencing data collection. Sociodemographic pro forma was distributed to collect information about age, gender, education, marital status, area of posting, duration of duty hours, body mass index (BMI), year of experience, and previous diagnosis of varicose vein. To assess the symptoms of varicose veins we administered a 10-item symptoms checklist which collated the information about worsened leg pain after sitting or standing for a long time, presence of bulging veins, night cramps, throbbing in lower legs, visible spider veins under the legs and ankles, itching, swollen ankles, irregular whitish patches over the ankles, shiny skin or discolored patches near bulged veins, and difficulty in carrying out activities of daily living (ADL).

Data analysis: We summarized the data using descriptive statistics such as frequency and percentage of each variable.

Results

Baseline Characteristics

A total of 210 samples were included in the study. The participants were categorized into age groups: 23 to 31 years (68.6%, 144), 32 to 40 years (19.0%, 40), 41 to 49 years (7.6%, 16), and over 50 years (4.8%, 10). Most of the participants were of 23 to 31 years. Gender distribution indicated that the majority were female (97.6%, 205), while males constituted a smaller percentage (2.4%). Among the 210 nurses, educational qualifications varied, with minimal MSc Nursing completion (0.5%, 1) and more prevalent completion of BSc Nursing (15.7%, 33), General Nursing and Midwifery (77.1%, 162), and Post Basic Bachelor of Science Nursing (6.7%, 14). Marital status revealed 45.2% (95) being married and 54.8% (115) unmarried. The areas of posting were divided into critical areas (36.7%, 77), operating theatre (10.5%, 22), wards (50.5%, 106), and outpatient department (2.4%, 5). Regarding daily duty hours, 27.6% (58) worked 8 hours, 39.0% (82) worked 10 hours, and 33.3% (70) worked more than 10 hours. The distribution of BMI showed 86.7% (182) with a normal BMI, 10.5% (22) classified as overweight,

and 2.9% (6) as obese. The years of experience among the participants showed most of them had an experience of 1 to 5 years (64.8%, 136 nurses), 19.0% (40) having 6 to 10 years, 8.6% (18) having 11 to 15 years, and 7.6% (16) having more than 15 years. Nearly 8.6% (18) nurses were diagnosed with varicose veins (see ►**Supplementary Table S1**).

Distribution of Symptoms of Varicose Veins:

The result of the symptoms related to varicose veins revealed that most of the participants (163, 77.6%) had symptoms of worsened leg pain after sitting or standing for long time. Note that 17.6% (37) nurses had bulging veins. Nearly 62.4% (131) participants experienced night cramps. Also, 37.6% (79) reported throbbing in the lower legs, while 62.4% (131) did not experience this symptom. Visible spider veins under the legs and ankles were reported by 19.5% (41), while the majority, 80.5% (169), did not have visible spider veins. Only 1.9% (4) of the nurses reported itching at the swollen vein. Swollen ankles were reported by 13.8% (29), while 86.2% (181) did not have swollen ankles. Irregular whitish patches over the ankles were reported by only 2.4% (5), and remaining did not have such patches. Shiny skin or discolored patches near bulged veins were reported by 6.2% (13), with 93.8% (197) not experiencing this symptom. In terms of difficulty in carrying out ADL, 10% (21) reported difficulty, while the majority, 90% (189), did not face challenges in performing daily activities (see ►**Supplementary Table S2**).

Discussion

The susceptibility of nurses to developing varicose veins is heightened due to the prolonged periods of standing inherent in their profession. In our study, we identified that approximately 8.6% of the participants were diagnosed with varicose veins. A study conducted in Egypt reported a higher prevalence of 18.4%, and a similar prevalence rate was observed among nurses in the Republic of Korea (16.2%).[8,9] Likewise, studies from India have reported a prevalence rate of 24.1%, with the majority of diagnosed cases occurring in older individuals.[10] A cross-sectional study conducted in Saudi Arabia in 2022 involved 482 nurses, comprising 415 females (86.1%) and 67 males (13.9%), from two hospitals. The study found that 76 nurses (15.8%) had varicose veins, while 406 (84.2%) did not. Among those diagnosed with varicose veins, 67 were female (88.2%) and 9 were male (11.8%).[11] A cross-sectional study was conducted on 181 female nurses at Dhulikhel Hospital in Nepal. The mean age of the participants was 26 years. The overall prevalence of varicose veins among these nurses was 83 (46%).[12] However, in our study, the majority of participants were between the ages of 23 to 31. Regarding anthropometric measurements, most study participants fell within the normal BMI category. Consistent with this, Aly et al did not find any association between BMI and the occurrence of varicose veins.[13] Conversely, other studies have identified obesity and elevated BMI as significant risk factors for varicose veins.[14,15] Furthermore, we evaluated the presence of various symptoms associated with varicose veins, including worsened leg pain after prolonged sitting or standing, bulging veins, night cramps, throbbing in lower legs, visible spider veins, itching, swollen ankles, irregular whitish patches over the ankles, shiny skin, or discolored patches near bulged veins, and difficulty in carrying out ADL. Aly et al reported that the main symptoms associated with varicose veins were the sensation of heaviness in the leg(s) (48.9%), considerable leg pain while standing (62.3%), and pain in the lower extremity at rest (26%).[13] In our study, 77.6% of nurses complained of pain after prolonged sitting or standing, and 37.6% experienced night cramps. While our study reported fewer cases of visible spider veins (19.5%), whitish patches (2.5%), and shiny or discolored skin near bulged veins (6.2%), these findings align with the impact of prolonged standing or sitting on the pathogenesis of varicose veins and the associated painful symptoms. Comparing our findings with previous studies, it is evident that prolonged standing or sitting plays a crucial role in the pathogenesis of varicose veins and the development of painful symptoms. This can significantly impede the daily activities of nurses and adversely affect their overall health.[16–18] Fortunately, the management and prevention of this condition can be achieved through simple measures such as improving standing posture, avoiding unnecessary prolonged standing through sitting and walking, engaging in regular exercise, and utilizing compression stockings.[19] Incorporating these practices can contribute significantly to reducing the burden of varicose veins among nurses, ultimately enhancing their quality of life and professional longevity. It underscores the importance of a comprehensive and proactive health care approach that combines education, awareness, and preventive measures to safeguard the well-being of health care professionals in the face of occupational challenges.

Institutional Review Board Approval

This study is associated with the Nitte Usha Institute of Nursing Sciences, a constituent college of Nitte (Deemed to be University). Institutional Review Board approval was obtained, with the approval number NUINS/CON/NU/IEC/2022-23.

Conflict of Interest

None declared.

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