Research Article

A Descriptive Study to Assess the Risk Factors of Varicose Veins among Street Vendors in Selected Areas of Pune City in a View to Develop Varicose Vein Nurse Assessment Tool [VVNAT]

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Abstract

Introduction: Varicose veins are a common chronic venous disorder characterized by dilated, tortuous, and enlarged veins, most frequently affecting the lower extremities. The condition is associated with prolonged standing, aging, obesity, heredity, and occupational exposure. Street vendors constitute a vulnerable occupational group because their work often requires standing for extended periods, increasing the likelihood of developing venous insufficiency.

Title: The present study was conducted to assess the risk factors of varicose veins among street vendors in selected areas of Pune city and to develop a (VVNAT).

Purpose: The purpose of the study was to assess the risk factors of varicose veins among street vendors in selected areas of Pune City, to develop an information booklet regarding the prevention and management of varicose veins. The study aimed to identify individuals at risk, create awareness about preventive measures, and promote early detection of varicose veins among street vendors.

Materials and methods: A quantitative research approach with a descriptive research design was adopted. Study was conducted among 110 street vendors selected through non-probability purposive sampling. Data were collected using a structured demographic questionnaire, a physical examination protocol tool, a risk factor assessment tool. Descriptive and inferential statistics were used for data analysis.

Result: Findings revealed that the majority of participants (45.45%) belonged to the age group of 31–40 years, 58.18% were male, and 73.64% were married. Most participants (68.18%) had been working as vendors for 5–10 years, while 73.64% worked for 6–8 hours daily. Assessment through physical examination protocol showed that 60.91% of participants were in the moderate-risk category and 38.18% were in the high-risk category for varicose veins. Conclusion: Study concluded that street vendors are exposed to several occupational risk factors that increase their susceptibility to varicose veins. VVNAT facilitates timely identification, prevention of complications associated with varicose veins.

Keywords: Varicose Veins, Street Vendors, Risk Factors, Occupational Health, Venous disorder, Nursing assessment.

Introduction

Varicose veins are enlarged, dilated, and twisted veins that commonly occur in the lower limbs due to impaired venous circulation and valve dysfunction. When the valves in the veins become weak or damaged, blood flows backward and accumulates in the veins, leading to increased venous pressure and vein enlargement. Varicose veins are a common vascular condition affecting millions of people worldwide and are associated with symptoms such as pain, heaviness, swelling, itching, muscle cramps, and fatigue in the legs. In severe cases, they may lead to the skin changes, ulceration, and reduced quality of life. The prevalence of varicose veins varies across different countries and populations depending on age, gender, lifestyle, and occupational factors. Occupational exposure is considered one of the major contributors to the development of varicose veins. Individuals whose jobs require prolonged standing or sitting are at greater risk due to increased pressure on the veins of the lower extremities. Street vendors form a significant part of the informal workforce and play an important role in the local economy. Their work often the requires standing for long hours in fixed positions with limited opportunities for rest. Such working conditions increase their susceptibility to venous disorders, including varicose veins. Despite being a high-risk group, awareness regarding varicose veins and preventive measures remains inadequate among many street vendors.Nurses play a vital role in the prevention and management of the varicose veins through early detection, health assessment, health education, and promotion of the healthy lifestyle practices. Identifying the prevalence and risk factors associated with varicose veins among street vendors can help healthcare professionals develop effective preventive strategies and occupational health interventions. Therefore, this study aims to assess the occurrence and associated the risk factors of varicose veins among street vendors and contribute to improving their vascular health and overall well-being.

Need for the Study

Varicose veins are a common vascular disorder that can significantly affect an individual's physical health, work performance, and quality of life. Street vendors constitute a high-risk occupational group because they spend

prolonged hours standing in fixed positions while conducting their daily business activities. Continuous standing increases venous pressure in the lower limbs, which may contribute to the development of varicose veins and related symptoms such as pain, swelling, heaviness, and fatigue. Despite the high occupational risk, awareness regarding varicose veins and their preventive measures remains inadequate among many street vendors, particularly those working in the informal sector. Lack of knowledge about risk factors, early symptoms, and available preventive strategies may lead to delayed diagnosis and complications. Therefore, identifying the prevalence and associated risk factors of varicose veins among street vendors is important for promoting early detection and prevention.

The findings of this study can help healthcare professionals, especially nurses, to develop effective health education programs and screening initiatives for vulnerable populations. It will also contribute to occupational health planning by providing evidence regarding the impact of prolonged standing on venous health. Early assessment and timely intervention can reduce complications, improve quality of life, and enhance the overall well-being of street vendors.According to the vascular health researchers and occupational health experts, prolonged standing is one of the most significant occupational risk factors for the development of varicose veins. Studies have shown that workers who remain standing for extended periods are more likely to experience venous insufficiency and related complications. Scholars emphasize the importance of early screening, health education, and preventive interventions to reduce disease burden. Nurse-led assessment programs and awareness campaigns have been identified as effective strategies for early detection and prevention. Regular monitoring of high-risk groups, such as street vendors, can help minimize complications and improve vascular health outcomes.

Aim of the Study

To assess the risk factors of varicose veins among street vendors in selected areas of Pune City and to develop a Varicose Vein Nurse Assessment Tool (VVNAT) for early identification, prevention, and management of varicose veins.

Objectives of the Study

1. To assess the risk factors associated with varicose veins among street vendors in selected areas.
2. To find out the association between risk factors of varicose veins and selected demographic variables.
3. To develop a Varicose Vein Nurse Assessment Tool (VVNAT).

Research Methodology

Research Approach: A quantitative research approach was adopted to assess the risk factors associated with varicose veins among street vendors in selected areas of Pune City.

Research Type: Descriptive research study.

Research Design: A non-experimental descriptive research design was employed.

Research Setting: The study was conducted in selected areas of Pune City, Maharashtra.

Target Population: Street vendors working in Pune City.

Accessible Population: Street vendors available in the selected study areas of Pune City.

Sample and Sample Size: A total of 110 street vendors participated in the study.

Sampling Technique: A non-probability purposive sampling technique was employed to select participants.

Inclusion Criteria: Street vendors aged between 20 and 60 years, willing to participate in the study, and engaged in vending activities for at least one year.

Exclusion Criteria: Street vendors already diagnosed with varicose veins and undergoing treatment, as well as those suffering from serious medical or surgical conditions affecting the lower limbs, were excluded.

Description of the Research Tool

A structured data collection tool was used to assess demographic characteristics, physical examination findings, and risk factors associated with varicose veins. The tool consisted of three sections:

Section I – Demographic Variables: Included demographic and occupational characteristics of street vendors.

Section II – Physical Examination Protocol Tool: Used to assess clinical signs and risk categories associated with varicose veins.

Section III – Risk Factor Assessment Tool: Used to assess risk factors associated with varicose veins among street vendors.

Validity: Content validity of the research instrument was established through expert review by nursing professionals.

Reliability: Reliability of the research tool was assessed using Cohen's Kappa (κ) method. The numerical reliability coefficient was not specified in the provided manuscript.

Pilot Study: A pilot study was conducted among 11 street vendors (10% of the sample size) to determine the feasibility and practicability of the research design and data collection tool. No major modifications were required.

Ethical Considerations: Ethical approval was obtained from the concerned institutional authorities. Written informed consent was obtained from all participants, and confidentiality and anonymity were maintained throughout the study.

Data Collection Procedure: Data were collected from selected street vendors using the structured demographic questionnaire, Physical Examination Protocol Tool, and Risk Factor Assessment Tool.

Statistical Analysis: The collected data were analysed using descriptive and inferential statistics. Frequency, percentage, mean, and standard deviation were used to summarize the findings. Chi-square tests were employed to determine the association between selected demographic variables and risk factors of varicose veins.

Results

Section I: Demographic Characteristics of the Sample (N = 110)

The demographic characteristics of street vendors in selected areas of Pune City were analysed using frequency and percentage distributions.

Age: The majority of participants (45.45%) belonged to the 31–40 years age group, followed by 29.09% in the 20–30 years age group, 18.18% in the 41–50 years age group, and 7.27% in the 51–60 years age group.

Gender: The majority of participants (58.18%) were male, while 41.82% were female.

Educational Status: Most participants (47.27%) had primary education, followed by 40.00% with secondary education, 9.09% who were illiterate, 2.73% with higher secondary education, and 0.91% who were graduates.

Marital Status: The majority of participants (73.64%) were married, while 16.36% were single, 8.18% were widowed, and 1.82% were divorced.

Type of Vendor: Half of the participants (50.00%) were vegetable or fruit sellers, followed by food vendors (34.55%), clothing vendors (10.00%), and other vendors (5.45%).

Duration of Work as a Vendor: Most participants (68.18%) had 5–10 years of work experience, followed by 27.27% with less than five years and 4.55% with more than ten years of experience.

Working Hours: The majority of participants (73.64%) worked for 6–8 hours daily, while 18.18% worked less than six hours and 8.18% worked more than eight hours per day.

Monthly Family Income: Most participants (76.36%) reported a monthly income of ₹10,000–20,000, followed by 19.09% earning less than ₹10,000 and 4.55% earning more than ₹20,000.

Family History of Varicose Veins: The majority of participants (96.36%) reported no family history of varicose veins, while 3.64% reported a positive family history.

Overall Interpretation

The demographic findings revealed that the majority of street vendors were males aged 31–40 years, married, and educated up to the primary level. Most were vegetable or fruit sellers, had 5–10 years of vending experience, and worked for 6–8 hours daily. The majority belonged to the ₹10,000–20,000 monthly income category and reported no family history of varicose veins.

Demographic Characteristics of the Sample (n = 55), In Age Majority of participants belonged to the 31–40 years age group (45.45%). A smaller proportion belonged to the 20–30 years age group (29.09%). Few participants were in the 41–50 years age group (18.18%). The least number of participants belonged to the 51–60 years age group (7.27%).

Despite of Gender Majority of participants were male (58.18%). Female participants constituted 41.82% of the sample. Regarding to Educational Status, Majority of participants had primary education (47.27%). A considerable proportion had secondary education (40.00%). Few participants were illiterate (9.09%). Very few had higher secondary education (2.73%) and graduation (0.91%). Regarding to Marital Status Majority of participants were married (73.64%). A smaller proportion were single (16.36%). Few participants were widowed (8.18%). The least number were divorced (1.82%). Type of Vendor, Majority of participants were vegetable/fruit sellers (50.00%). A substantial proportion were food vendors (34.55%) Few participants were clothing vendors (10.00%). The least number belonged to other vendor categories (5.45%). Duration of Work as Vendor, Majority of participants had 5–10 years of work experience (68.18%). A smaller proportion had less than 5 years of experience (27.27%). Very few participants had more than 10 years of experience (4.55%). No participants reported working occasionally. In Working Hours, Majority of participants worked 6–8 hours per day (73.64%). A smaller proportion worked less than 6 hours (18.18%) Few participants worked more than 8 hours per day (8.18%). Respective of Monthly Family Income, Majority of participants had a monthly income of ₹10,000–20,000 (76.36%). A smaller proportion earned less than ₹10,000 (19.09%). Very few participants earned more

than ₹20,000 (4.55%). Regarding to Family History of Varicose Veins, Majority of participants had no family history of varicose veins (96.36%). Only a small proportion reported a positive family history (3.64%).

Table.1 SECTION II – Assess physical examination protocol tool for assessing varicose veins.

Level of Physical examination Protocol (Risk Category)	F	%	Mean	SD
Low Risk (0-10)	0	0.00	20	3.2
Moderate Risk (11-20)	67	60.91		
High Risk (21-30)	42	38.18		
Very High Risk (31-40)	1	0.91		

The above table presents the findings related to the physical examination protocol tool for assessing varicose veins among participants. It reveals that the majority of participants (60.91%) fall under the moderate risk category (11–20), indicating that most individuals have a moderate level of clinical signs associated with varicose veins. This is followed by 38.18% of participants in the high-risk category (21–30), showing a substantial proportion with more pronounced clinical features. Only 0.91% of participants are categorized under the very high-risk group (31–40), while none of the participants fall under the low-risk category (0–10). The mean score is 20 with a standard deviation of 3.2, suggesting that, on average, participants are at the upper limit of moderate risk. Overall, the findings indicate that a significant proportion of participants are at moderate to high risk, highlighting the need for early detection and appropriate management of varicose veins.

Table.2 SECTION III – Assess the risk factors associated with varicose veins among street vendors in selected areas.

Level of Risk Factor	F	%	Mean	SD
Low Risk (0-3)	82	74.55	2.51	1.53
Moderate Risk (4-6)	26	23.64		
High Risk (7-10)	2	1.82		

The above table presents the findings related to risk factors associated with varicose veins among street vendors. It shows that the majority of participants (74.55%) fall under the low-risk category (0–3), indicating that most vendors have minimal exposure to risk factors. This is followed by 23.64% of participants in the moderate-risk category (4–6), suggesting a considerable proportion with a moderate level of risk. Only a very small percentage (1.82%) of participants fall under the high-risk category (7–10). The mean score is 2.51 with a standard deviation of 1.53, indicating that, on average, participants have a low level of risk factors with some variability. Overall, the findings suggest that most street vendors are at low risk for developing varicose veins, although a notable proportion still falls within the moderate-risk group.

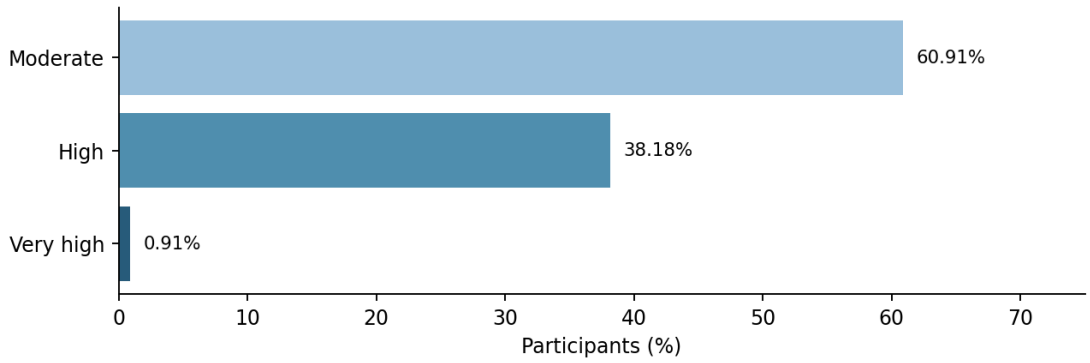


Figure 1. Distribution of physical examination risk categories among street vendors (n = 110).

Discussion

The present study was conducted to assess the risk factors of varicose veins among street vendors in selected areas of Pune city. Street vendors represent an occupational group that is particularly vulnerable to venous disorders due to prolonged standing, limited opportunities for movement, and long working hours. The study included 110 street vendors selected through a non-probability purposive sampling technique, adopted a descriptive research design with a quantitative approach. The findings revealed that several occupational ,lifestyle-related factors contribute to the development of varicose veins among street vendors. Prolonged standing for many hours each day emerged as one of the most common risk factors. This finding is consistent with previous studies, which have reported that continuous standing increases venous pressure in the lower limbs and impairs blood circulation, thereby increasing the risk of varicose veins.

The study highlighted the importance of demographic variables such as age, gender, and years of occupation in influencing the risk of varicose veins. Vendors with longer work experience and extended daily working hours showed a higher level of risk compared to others. These findings support existing evidence that occupational exposure over time plays a significant role in development of venous insufficiency. The results emphasize the need for preventive strategies among street vendors. Health education programs focusing on the importance of periodic rest, leg exercises, maintaining a healthy body weight, and early identification of symptoms can help reduce burden of varicose veins. Regular health screening camps and awareness initiatives conducted by healthcare professionals, especially community health nurses, may contribute to early detection and prevention of complications. The study demonstrated that street vendors are at considerable risk of developing varicose veins due to occupational and lifestyle factors. Appropriate preventive measures and awareness programs are essential to promote vascular health and improve the quality of life of this population.

Conclusion

The present study was conducted to assess the knowledge regarding varicose veins among street vendors in selected areas of Pune City and to develop an information booklet. The findings revealed that the majority of street vendors possessed moderate knowledge regarding varicose veins, while some participants had inadequate knowledge and only a few demonstrated adequate knowledge. The results indicate that although vendors were aware of certain aspects of varicose veins, there were significant gaps in their understanding of risk factors, preventive measures, early signs and symptoms, available treatment options. The study highlighted that prolonged standing, extended working hours, lack of regular physical activity, and inadequate health awareness are important factors that may contribute to development of varicose veins among street vendors. Therefore, increasing awareness through health education is essential for promoting preventive practices and encouraging early detection. The information booklet developed as part of study serves as an effective educational tool to improve knowledge and awareness regarding varicose veins. The study emphasizes the need for regular health education programs, screening activities, awareness campaigns among street vendors. Such initiatives can help reduce burden of varicose veins, promote healthy work practices, prevent complications, and improve overall health and quality life of street vendors.

Conflict of Interest

We, the researchers, understand that conflict of interest refers to situations in which financial or personal considerations may compromise professional judgment in conducting or reporting research. We hereby declare that there is no conflict of interest related to this study.

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