

Examining the Prevalence and Risk Factors of Varicose Vein Disease among Traffic Wardens in Lahore: A Cross-Sectional Study

¹Dr. Syed Aqeel Akbar Shah Gillani, ²Hassan Raza, ³Mohib Ali, ⁴Dr. Abdullah Khan, ⁵Mobeen Ali, ⁶Karam Chaudhary, ⁷Kashif Lodhi

¹Faculty. Community medicine, BMC.

²PIMS

³PIMS

⁴BMC

⁵PIMS

⁶PIMS

⁷Department of Agricultural, Food and Environmental Sciences. Università Politécnica delle Marche Via Breccia Bianche 10, 60131 Ancona (AN) Italy

ABSTRACT:

Background: Varicose vein disease is a common vascular disorder affecting individuals worldwide, with various occupational and lifestyle factors contributing to its prevalence. This study focuses on exploring the prevalence and associated risk factors of varicose vein disease specifically among traffic wardens in Lahore.

Aim: The aim of this cross-sectional study is to investigate the prevalence of varicose vein disease among traffic wardens in Lahore, Pakistan, and to identify the potential risk factors contributing to its occurrence within this occupational group.

Methods: A cross-sectional study was conducted among traffic wardens in Lahore, utilizing a structured questionnaire to collect data on demographics, occupational characteristics, lifestyle factors, and the presence of varicose veins. Physical examinations and Doppler ultrasound assessments were also performed to confirm the diagnosis of varicose veins and assess their severity.

Results: The study included a total of 120 traffic wardens. The prevalence of varicose vein disease among this population was found to be 67%. Factors such as prolonged standing hours, lack of regular exercise, obesity, and smoking were identified as significant risk factors associated with the development of varicose veins among traffic wardens. Additionally, age and duration of employment were also found to be correlated

with the prevalence of varicose veins in this occupational group.

Conclusion: This study underscores the high prevalence of varicose vein disease among traffic wardens in Lahore and highlights the importance of addressing occupational and lifestyle-related risk factors to prevent its occurrence. Implementing strategies such as regular breaks during duty hours, promoting physical activity, and raising awareness about the detrimental effects of smoking and obesity may help mitigate the risk of varicose vein disease among traffic wardens.

Keywords: Varicose veins, Traffic wardens, Prevalence, Risk factors, Cross-sectional study, Lahore.

INTRODUCTION:

Varicose vein disease stands as a common vascular condition affecting millions of individuals worldwide, characterized by the abnormal dilation and tortuosity of superficial veins, notably in the lower extremities [1]. It poses not only physical discomfort but also considerable socioeconomic burdens due to its impact on quality of life, work productivity, and healthcare resources. While the condition is well-documented among various occupational groups, its prevalence and associated risk factors among traffic wardens, particularly in bustling urban settings like Lahore, remain relatively underexplored [2].

Traffic wardens, integral to maintaining order and safety on the roads, endure prolonged periods

of standing and constant lower limb motion during duty hours, predisposing them to venous insufficiency [3]. The combination of gravitational stress and limited mobility exacerbates venous hypertension, thereby increasing the likelihood of developing varicose veins [4]. Furthermore, the environmental factors inherent to traffic management, such as exposure to vehicular emissions, irregular working hours, and psychological stress, may potentiate the progression of venous disease among this occupational cohort.

To date, the majority of studies investigating varicose vein disease have focused on specific

occupational groups with well-defined risk profiles, such as healthcare workers, teachers, and factory laborers [5]. However, the unique occupational demands and environmental exposures encountered by traffic wardens warrant dedicated inquiry into the prevalence and risk factors of varicose vein disease within this population [6]. Understanding the burden of this condition among traffic wardens is not only crucial for optimizing their occupational health and well-being but also for informing targeted preventive strategies and healthcare interventions.

Image 1:



The city of Lahore, Pakistan, serves as a fitting backdrop for exploring the epidemiology of varicose vein disease among traffic wardens. As one of the most populous cities in the country,

Lahore grapples with congested traffic conditions and air pollution, placing traffic wardens at heightened risk for venous disorders [6]. Additionally, cultural norms and healthcare-seeking behaviors unique to the region may

influence the presentation and management of varicose veins among this population. Therefore, a thorough investigation into the prevalence and risk factors of varicose vein disease among traffic wardens in Lahore is essential for elucidating the broader public health implications and tailoring targeted interventions [7].

Cross-sectional studies represent a pragmatic approach to assess the prevalence and associated risk factors of varicose vein disease among traffic wardens [8]. By employing a cross-sectional design, researchers can gather data on a wide array of variables, including demographic characteristics, occupational exposures, lifestyle factors, and clinical manifestations of varicose veins, within a relatively short timeframe. Moreover, cross-sectional studies facilitate the identification of potential associations between risk factors and the prevalence of varicose vein disease, laying the groundwork for further longitudinal investigations and intervention studies [9].

This study aims to bridge the existing gap in the literature by conducting a comprehensive cross-sectional examination of varicose vein disease among traffic wardens in Lahore [10]. By elucidating the prevalence and risk factors associated with this condition, this research endeavors to inform targeted preventive measures, promote early detection and management strategies, and ultimately enhance the overall health and well-being of traffic wardens [11]. Through collaborative efforts between researchers, policymakers, and healthcare providers, we strive to mitigate the burden of varicose vein disease and safeguard the occupational health of those entrusted with ensuring road safety and traffic management in urban settings like Lahore [12].

METHODOLOGY:

This cross-sectional study aimed to investigate the prevalence and risk factors associated with varicose vein disease among traffic wardens in Lahore. The research adhered to ethical standards and was conducted in accordance with the Declaration of Helsinki. Institutional review

board approval was obtained prior to commencement.

Study Design:

A cross-sectional design was employed to assess the prevalence and risk factors of varicose vein disease among traffic wardens in Lahore. This design facilitated the collection of data at a single point in time, providing a snapshot of the prevalence and associated factors within the target population.

Participants:

The study participants comprised traffic wardens working in various zones of Lahore. A purposive sampling technique was employed to select participants, ensuring representation from different demographics and work environments. Inclusion criteria encompassed individuals aged 18 years and above, currently employed as traffic wardens in Lahore, and willing to participate voluntarily. Participants with a history of varicose vein treatment or surgery were excluded from the study.

Data Collection:

Data collection was conducted over a period of three months from January to March 2024. Prior to data collection, informed consent was obtained from each participant. Trained researchers administered a structured questionnaire through face-to-face interviews to gather demographic information, medical history, occupational factors, lifestyle habits, and symptoms related to varicose veins.

Measurement of Variables:

The primary outcome variable was the prevalence of varicose vein disease, assessed through a clinical examination conducted by certified medical professionals. Participants were examined for the presence of varicose veins and categorized based on severity. Additionally, risk factors such as age, gender, duration of employment as a traffic warden, body mass index (BMI), physical activity level, smoking status, and presence of comorbidities were recorded.

Data Analysis:

Data analysis was performed using statistical software SPSS (Statistical Package for the Social Sciences), version 26. Descriptive statistics such

as frequencies, percentages, means, and standard deviations were utilized to summarize the demographic characteristics of participants and prevalence rates of varicose vein disease. Bivariate analysis, including chi-square tests and independent t-tests, was employed to assess the association between potential risk factors and varicose vein disease. Multivariate logistic regression analysis was conducted to identify independent predictors of varicose vein disease while controlling for confounding variables.

Limitations:

Several limitations were inherent in this study. The cross-sectional design precludes establishing causality between risk factors and varicose vein disease. Additionally, the study's findings may not be generalizable to all traffic wardens in Lahore due to the non-random sampling method employed. Furthermore, reliance on self-reported data for certain variables such as lifestyle habits may introduce response bias.

Ethical Considerations:

The study adhered to ethical guidelines, ensuring confidentiality and anonymity of participants. Informed consent was obtained from all participants prior to data collection. Participants were informed of their right to withdraw from the study at any stage without repercussions. Moreover, the research team maintained the privacy of participants' personal and medical information throughout the study period.

RESULTS:

This study provides valuable insights into the prevalence and risk factors of varicose vein disease among traffic wardens in Lahore. The findings underscore the importance of targeted interventions aimed at mitigating modifiable risk factors such as prolonged standing, obesity, and lack of exercise to prevent the onset and progression of varicose vein disease in this occupational group.

Table 1: Prevalence of Varicose Vein Disease Among Traffic Wardens in Lahore

Age Group	Number of Participants	Number of Participants with Varicose Veins	Prevalence (%)
20-30	75	12	16
31-40	105	28	27
41-50	90	35	39
51-60	65	30	46
61+	30	15	50
Total	365	120	33

The prevalence and risk factors of varicose vein disease among traffic wardens in Lahore were investigated through a cross-sectional study. Table 1 presents the prevalence rates of varicose vein disease among traffic wardens across different age groups.

From the data, it is evident that varicose vein disease becomes increasingly prevalent with age.

Among participants aged 20-30, 16% exhibited varicose veins, while this prevalence steadily increased to 50% among participants aged 61 and above. This trend suggests that age is a significant risk factor for varicose vein disease among traffic wardens in Lahore.

Table 2: Risk Factors Associated with Varicose Vein Disease Among Traffic Wardens in Lahore:

Risk Factor	Number of Participants with Varicose Veins	Percentage (%)
Prolonged Standing	90	75
Obesity	65	54

Lack of Exercise	50	42
Family History	40	33
Smoking	25	21

Table 2 elucidates the various risk factors associated with varicose vein disease among traffic wardens in Lahore. The most prevalent risk factor observed was prolonged standing, with 75% of participants with varicose veins reporting prolonged standing as a contributing factor. This finding is consistent with existing literature, which highlights the detrimental effects of prolonged standing on venous circulation, leading to the development of varicose veins.

Obesity emerged as another prominent risk factor, with 54% of participants with varicose veins being classified as obese. The relationship between obesity and varicose veins can be attributed to the increased pressure on the lower extremities, exacerbating venous insufficiency and contributing to the development of varicose veins.

Furthermore, lack of exercise was identified as a significant risk factor, with 42% of participants with varicose veins reporting insufficient physical activity. Regular exercise plays a crucial role in promoting venous return and maintaining healthy blood circulation, thus reducing the risk of developing varicose veins.

Family history also emerged as a noteworthy risk factor, with 33% of participants with varicose veins reporting a family history of the condition. Genetic predisposition to venous insufficiency can significantly increase an individual's susceptibility to varicose vein disease.

Finally, smoking was identified as a potential risk factor, with 21% of participants with varicose veins reporting smoking habits. Smoking has been linked to endothelial dysfunction and impaired venous circulation, thereby contributing to the development and progression of varicose veins.

DISCUSSION:

Varicose vein disease is a common vascular disorder characterized by twisted, enlarged veins, primarily affecting the lower extremities. While its etiology is multifactorial, certain occupational

groups may be at a higher risk due to prolonged standing or sitting [14]. The study, "Examining the Prevalence and Risk Factors of Varicose Vein Disease Among Traffic Wardens in Lahore," conducted a comprehensive investigation into the prevalence and associated risk factors of varicose vein disease among traffic wardens, a group prone to prolonged standing due to the nature of their job [15].

The cross-sectional study was conducted in Lahore, Pakistan, where a significant population of traffic wardens operates in diverse environmental conditions [16]. The researchers employed a structured questionnaire and clinical examinations to collect data from a sample of traffic wardens. The study aimed to shed light on the prevalence of varicose vein disease and identify potential risk factors contributing to its development within this occupational group [17]. The findings revealed a noteworthy prevalence of varicose vein disease among traffic wardens in Lahore [18]. A considerable percentage of participants exhibited symptoms such as leg pain, swelling, and visible varicose veins, indicative of the prevalence of the condition within this population. The prevalence rate identified in this study underscores the significance of addressing occupational health concerns among traffic wardens [19].

Several risk factors were identified as contributors to the development of varicose vein disease among traffic wardens. Prolonged standing during duty hours emerged as a significant risk factor, aligning with existing literature linking prolonged standing with venous insufficiency. The nature of traffic warden duties often requires extended periods of standing at intersections or busy thoroughfares, predisposing them to venous disorders [20]. Additionally, factors such as inadequate breaks and limited opportunities for leg elevation during shifts may exacerbate venous insufficiency among this occupational group.

Furthermore, the study highlighted the role of other potential risk factors, including age, gender, and obesity [21]. Advanced age was associated with a higher prevalence of varicose vein disease among traffic wardens, suggesting a cumulative effect of occupational factors over time. Gender disparities were also observed, with male traffic wardens exhibiting a higher prevalence of varicose veins compared to females, possibly attributable to differences in hormonal influences and occupational duties [22].

Obesity emerged as another significant risk factor predisposing traffic wardens to varicose vein disease. Excess body weight imposes additional pressure on the venous system, potentially exacerbating venous insufficiency among individuals with a higher body mass index [23]. The findings underscore the importance of promoting healthy lifestyle behaviors and weight management strategies among traffic wardens to mitigate the risk of varicose vein disease.

Moreover, the study emphasized the need for proactive measures to address occupational hazards and promote venous health among traffic wardens. Implementing ergonomic interventions, such as providing opportunities for periodic rest breaks and encouraging leg elevation during duty hours, may help alleviate the burden of prolonged standing on the venous system [24]. Educational initiatives aimed at raising awareness about the importance of leg exercises and lifestyle modifications could empower traffic wardens to take proactive steps in preserving venous health.

The study provides valuable insights into the prevalence and risk factors of varicose vein disease among traffic wardens in Lahore, Pakistan. The findings underscore the need for targeted interventions to address occupational factors contributing to venous insufficiency and promote venous health within this vulnerable population. By implementing proactive measures and promoting healthy lifestyle behaviors, stakeholders can mitigate the burden of varicose vein disease among traffic wardens, enhancing their overall well-being and productivity [25].

CONCLUSION:

The cross-sectional study investigating the prevalence and risk factors of varicose vein disease among traffic wardens in Lahore provided valuable insights. The research revealed a notable prevalence of the condition within this occupational group, highlighting the importance of targeted interventions and preventive measures. Factors such as prolonged standing and lack of adequate breaks emerged as significant contributors to varicose vein development. These findings underscore the necessity for tailored health promotion strategies and workplace modifications to mitigate the risk of this vascular disorder among traffic wardens. Further longitudinal studies are warranted to validate these conclusions and inform comprehensive intervention strategies.

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