MEDICAL SCIENCE

Perception, awareness and attitude towards varicose veins among employees working in prolonged sitting and standing postures in Hail region, Saudi Arabia

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ABSTRACT

Background: One of the most common chronic conditions is varicose veins (VV), which contribute to a higher rate of morbidity as different symptoms can result from varicose veins ranging from itching to ulceration. Aim of this study is to assess the level of knowledge and attitude towards Varicose and treatment methods among the population of Hail in Saudi Arabia. *Methods:* A well-defined questionnaire was conceded among the general population over-18-year-old men and women are the study's subjects. To gauge public awareness and perceptions of sciatica symptoms, causes, risk factors, complications and therapy, data were gathered and questionnaires were used. After data collection over the six-month study period, the Statistical Package for Social Science software was used to evaluate the results (SPSS). *Results:* Among 217 people involved in the study, 60.21% aged between 18 and 30 years old the majority was Saudi (95.96%). Disease pathophysiology and risk factors are well known among 46% of study group and less known by 56.0% study population only. *Conclusion:* Varicose vein is less known among peoples of Hail region. Patient education is crucial regarding disease pathophysiology. It can have a variety of reasons. Most instances of varicose vein are treated most effectively with conservative measures like wearing

stockings and using NSAIDs, unless there is development of compression symptoms. In Hail City, 46% of adults had lower levels of community awareness than expected, and symptoms worsened (by 59%) in pregnant women.

Keywords: Knowledge, Awareness, Saudi Population, NSAIDs, Varicose Vein, Lower limb, Clinical Manifestations, Pigmentation

1. INTRODUCTION

Compression stockings are recommended during pregnancy as well as in patients with diseases such as chronic venous insufficiency, deep vein thrombosis and lymphedema, which are common worldwide (Mohammad and Reddy, 2019; Hassan et al., 2022; Parveen et al., 2019). An individual with varicose veins has dilated, tortuous, subcutaneous veins measuring about 3 mm in diameter when measured upright and they demonstrate reflux (Mc-Collum and Chetter, 2013; Aboelnaga et al., 2021). The condition is most commonly found in the lower extremities, saphenous veins or lower trunk, but can also occur elsewhere in the body, such as the esophagus (Pedrycz and Budzyńska, 2016; Zakout et al., 2019). Classification of the condition into three types: Primary, secondary and congenital based on clinical, etiological, anatomical and pathophysiological factors.

The majority of varicose veins are asymptomatic and patients have purely cosmetic complaints. Itching, heaviness, swelling, aching and cramps are common symptoms described by patients when they experience those (Wright and Fitridge, 2013). Varicose veins have an unknown etiology. The condition is incompletely understood despite the fact that it affects any age groups from teenagers to the elderly. There are several risk factors that increase a person's likelihood of acquiring varicose veins, which include: Hereditary, gender, increasing age, obesity, prolonged standing, pregnancy, history of leg injury or deep venous thrombosis (DVT) (Feliciano and Dalsing, 2011; Khatoon et al., 2022).

Review of Literature

Varicose Vein is diagnosed by an entire history and specific physical examination accompanied by accurate diagnostic investigations to determine the nature and extent of venous insufficiencies which includes duplex Doppler test, duplex ultrasound imaging, thermography, phlebodynamometry, angioscopy or capillaroscopy (Hinkle and Cheever, 2013; Shaikh et al., 2010). The currently available Management options for varicose veins consist of less invasive treatment like external laser therapy, injectable sclerotherapy and conservative management, endogenous interventions and invasive options like surgery. Although VV are more often than not benign, severe varicosities may result in hazardous complications such as edema; dermatitis and uncommon intense bleeding that are a debilitating condition.

Furthermore, pores and skin changes, including hyperpigmentation, eczema, lipodermatosclerosis and atrophied Blanche can also additionally be occurred (Scurr, 2004; Aboelnaga et al., 2020). The great course of action to take is prevention, as varicose veins can't be cured a few self-care measures that can assist within side the prevention are working out regularly, preserving a healthy body weight, keeping off constipation by consuming a high-fiber, low-salt diet, avoiding to wear tight clothing on the legs, changing the body position frequently and avoiding lengthy durations of standing or sitting. Also, transferring weight from one leg to the opposite every few minutes; while standing for long periods (Maffei et al., 1986; Aboelnaga and Khatoon, 2020; Khatoon, 2013).

Internationally, the research estimating the prevalence of VV is endless. The prevalence has been variously reported from as low as 2% to over 20% in populace studies. This significant variation outcomes from the different populations studied, unique definitions carried out and the different evaluation of examination strategies and Western studies have proven that 20% of the population suffers from varicose vein and 1% has skin changes proceeding to venous ulceration (Khatoon et al., 2021). The prevalence of small reticular varicosities became even higher at over 80% for both males and females. Although it was formerly believed that varicose veins are common more obviously in women, few different population researches affirm that varicose veins are at least as common in men (Beg et al., 2021; Kahtoon et al., 2020).

In a study completed in Brazil, 47.6% (50.9% non-pregnant women and 37.9% men) have been discovered to have VV (Maffei et al., 1986). One population-based study performed in Russia on the prevalence of chronic venous disease (CVD) stated that 29% of individuals (31.5% of men, 27.5% of women) have been determined to have primary VV (Zolotukhin et al., 2017). In addition, a study carried out in western Jerusalem expected the population prevalence of VV to be 29% amongst women and 10% amongst men. Prevalence elevated with age and gender to reach 54% amongst women between 65-74 years of age and 39% amongst adult males older than the age of 75 (Mohammad and Reddy, 2019). Also, there is another VV study concerning physicians in Taiwan

suggested that long-standing hours now no longer have an effect on the development of VV in physicians and non-physicians (Zolotukhin et al., 2017; Khatoon et al., 2018).

In Saudi Arabia, in Jeddah research was accomplished, Dammam, Makkah found out that the prevalence of VV amongst women from the overall population was 66% (Dalboh et al., 2020; Zahra et al., 2022). Furthermore, another study accomplished in Abha examined the predominance of VV among school teachers of each gender and stated a high dominance of 42%; maximum of them were female instructors (Aboelnaga et al., 2020). From this back ground, our objective of the present study is to evaluate the Prevalence of Varicose Veins among Representatives working in Prolonged Sitting and Standing Postures in Hail region.

2. METHODS

Study design

This was an analytical cross-sectional study to assess the awareness regarding etiologies and risk factor and diagnostic method of sciatica pain. Since point of the consider was to check the awareness and create more advance methods to educate the general population to cope up the difficult situation and take good care of their health's. Saudi population has participated in this research study. Data were collected from general population using questionnaire during the period from 22 August 2022 till 20th January 2023.

Sampling and sample

Participants were chosen via probability simple random sampling technique. Participants were selected from the general population. The expected number of sample size was 214 participants. However, the study included 298 participants.

Inclusion criteria

General population

Exclusion criteria

Age below 18 years and people living outside the kingdom

Data analysis

Data was analysed using SPSS version 25.0. The frequencies, percentage, mean and standard deviation were conducted to describe the distribution of the knowledge. The spearman correlation was used to test the relationship between the various variables. The Mann Whitney and Kruskal Wallis were used to assess the difference in mean rank score of knowledge and practice in term of socio-demographic factors. A p value than 0.05, 0.01 and 0.001 were considered statistically significant.

Ethical Consent

Administrative approval will be sought from the unit of biomedical ethics research committee Ethical approval was sought from the ethical committee of the faculty of medicine, (no H-2022-015) university of Hail. An informed consent was taken from the all participants

3. RESULTS

Varicose vein is multifactorial disorder there are many causes of; most common, Atherosclerosis, diabetes mellitus, Hypothyroidism, obesity and pregnancy and metabolic syndrome. However, varicose vein has a strong occupational relationship with jobs that involve hand movement. This is cross-sectional study include 470 participants. Demographic data is shown (Table 1).

As in Table 1 a total of 214 subjects are involved in the study, 60% aged between 18 and 30 years old. The majority were Saudi (75.8%) and got bachelor degree (25.2%). There were six occupations as follows: Working in university teacher (13.1%), student (22.9%), unemployed (22.91%), housewife (20.21%), nursing students (5.11%) and doctor (1.70%). 59.36% suffered from obesity, followed by Diabetes Mellitus (22.34%), then Hypothyroidism and other (31.28%) each and Hypertension (10.43%). 40.43% had heard about Varicose Vein

Table 1 Statistic Characteristics of the study participants

Characteristics	Frequency	Percentage
Total number of responses	214	100%
Gender		
Female	174	81.3
Male	40	18.7
Age Group in years		
10-20	30	14.0
21-30	49	22.9
31-40	61	28.5
41-50	63	29.4
51-60	10	4.7
61-70	1	.5
Education level		
Primary	14	20
Secondary	113	18.4
University	326	53.5
Postgraduate /Master	9	17
Employment		
Working at home	28	13.1
Student	48	22.4
Unemployed	49	22.9
Retiree	7	3.3
Nursing students	79	45.0
I have currently suspended my job	3	1.4
Nationality		
Saudi	160	75.8
Non-Saudi	54	25.2
Have you heard about Varicose Veins (VV)?	Yes	94 (43.9%)
	No	120 (56.6%)

As in Table 2 knowledge and Practice towards Varicose Vein (VV) were presented. The level of about knowledge and Practice was measured by 4 items each, which were answered by "Yes", "No" and the statements were dichotomized/classified into "Correct" and "Wrong", which is signed by © in the table, so the possible score ranged between zero (the less relevant to knowledge/practice) and 4 (the most relevant to knowledge/practice). In table the descriptive information of Knowledge and practice towards Varicose Vein (VV) is described.

The mean score and level of knowledge towards Varicose Vein (VV) was (3.63±0.66/High). In details; 100.0% agreed that Common symptoms of Varicose Vein (VV)are (Pain, tingling of index finger, middle finger and thumb numbness) and 91.05% reported that people with Varicose Vein (VV) feel uncomfortable at night and 74.74% agreed that Varicose Vein (VV) can affect both hands, 97.89% reported that pain get worse with daily activities like (using computer, tapping, cooking).

The mean score and level of practice towards Varicose Vein (VV) was (2.44±0.85/Moderate). In details; 88.42% had been diagnosed with Varicose Vein by a doctor before. 95.79% agreed that Varicose Vein (VV) can be cured by medications (analgesics), 50.53% agreed that local corticosteroid injections be used in the management of Varicose Vein and however, only 21.58% had learned the appropriate exercise to prevent Varicose Vein and only 38.95% believed that surgery is a definitive treatment for Varicose Vein. 58.42% were pregnant when were diagnosed with Varicose Vein (VV). 58.42% agreed that the symptoms worsen during pregnancy. 81.98% noticed the symptoms in the third trimester, followed by second trimester (18.02%), however, no second trimester was reported.

Table 2 The descriptive information of Knowledge and practice towards Varicose Vein (VV) (N=190)

Variable	Statement		N	%
Knowledge toward Varicose (VV)	Common symptoms of Varicose Vein (VV))?	Yes©	190	100.0
		No	0	0.00
	Do people with Varicose Vein (VV) feel uncomfortable during walking?	Yes©	173	91.05
		No	17	8.95
	Varicose Vein (VV) can affect both Legs?	Yes©	48	25.26
		No	142	74.74
	Does the pain get worse with daily activities like (using computer, tapping, cooking)?	Yes©	186	97.89
		No	4	2.11
	Mean±SD/Level (3.63±0.66/High)			
Practice towards Varicose Vein (VV)	Have you been diagnosed with Varicose Vein (VV) by a doctor before?	Yes	168	88.42
		No	22	11.58
	Do you think Varicose Vein can be cured by medications (analgesics)?	Yes©	182	95.79
		No	8	4.21
	Can local corticosteroid injections be used in the management of Varicose Vein (VV)?	Yes©	96	50.53
		No	94	49.47
	Have you learned the appropriate exercise to prevent Varicose Vein (VV)?	Yes©	41	21.58
		No	149	78.42
	Do you believe surgery is a definitive treatment for Varicose Vein (CTS)?	Yes©	74	38.95
		No	116	61.05
Practice towards Varicose Vein (VV) with pregnancy	Were you pregnant when you were diagnosed with Varicose Vein (VV)?	Yes	111	58.42
		No	79	41.58
	Do the symptoms worsen during pregnancy?	Yes©	111	58.42
		No	79	41.58
	In which trimester you have noticed the symptoms?	First trimester	0	0.00
		Second trimester	20	18.02
		Third trimester	91	81.98
	Mean±SD/Level (2.44±0.85/Moderate)			

© correct answer
Key: Low knowledge=0.00-1.33; Moderate knowledge=1.34-2.67; High knowledge=2.77-4.00
Key: Low practice=0.00-1.33; Moderate practice =1.34-2.67; High practice =2.77-4.00

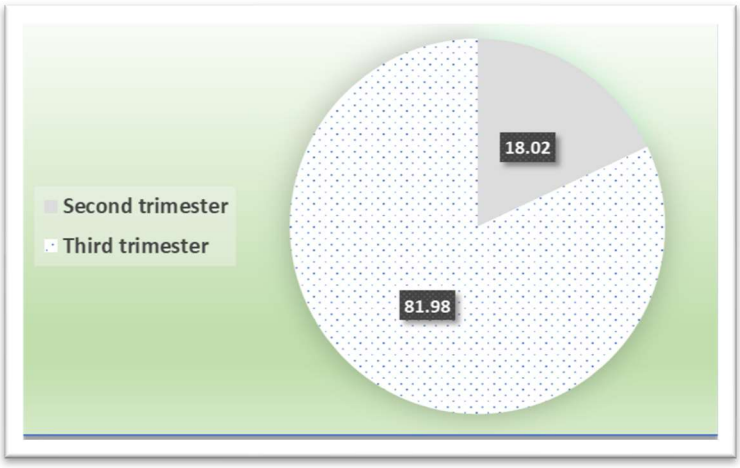

Figure 1 the distribution of symptoms over the trimesters

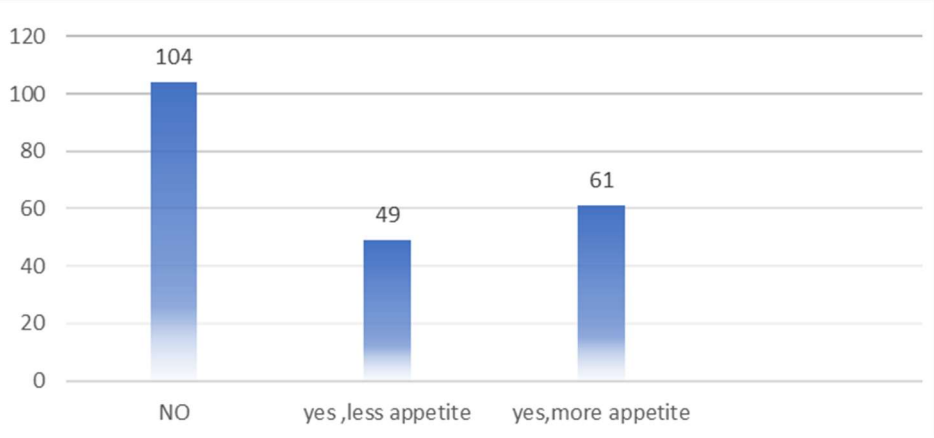

Figure 2 Change in appetite /Dietry habits

4. DISCUSSION

A study conducted in India at Princess Esra Hospital, Shahali Banda, Hyderabad and Owasi Hospital and Research Centre, Kanchan Bagh, Hyderabad from period June 2017 to June 2019 found that out of 80 patients, 70 of them were studied in their continuously and occupation involved in prolonged standing and working exhibited muscular manifestation. In this study majority of the patients were in age 20-50 years 91.25% age group male were more affected 91.25% than female. 61 cases of the left limb and 18 cases of the right limb was involved (Huang et al., 2017). The most common manifestation was pain with bulging veins which can be the only symptoms or combined with pigmentations, oedema, ulceration or eczema. This study shows that the disease is more common during the mature adult life between 3th and 4th decades; males were more affected than females. The employments needing violent muscular efforts and prolonged standing and is found as a factor for varicose veins pain and prominent swellings in the lower limb were the most common symptoms. There is a definite relationship exists between employment involving prolonged standing and primary varicose veins and obesity is another risk factor as shown (Abramson et al., 2018).

In Riyadh, there's a self-administered survey was utilized to degree the predominance of varicose veins among medical caretakers from various departments in their health care unit. In the survey, 366 of nurses participated in this study from four different departments: Emergency, general surgery, dermatology and intensive care unit. There were 40 cases of varicose veins 1 male and 39 females accounting for 11.0%. Variables showed that lifting heavy objects and social status (p=0.02), several childbirths (p=0.04) and an association of varicose veins (p-value=<0.001) have a statistically noteworthy relationship with family history. The variation of each department was insignificantly substantial with VV (p=0.35). Among nurses, the important risk factors for the progression of varicose veins were heavy object lifting, prolonged standing hours, marital status, positive family history and age. The conclusion of this study shows that the prevalence of varicose veins in the subdivisions was low (Abramson et al., 2018; Khatoon et al., 2022).

Another cross-sectional study at Dhulikhel hospital was carried out and 181 of female nurses participated from different clinical settings. These nurses underwent Doppler ultrasound to confirm that they have varicose veins. 83 (46%) had VV, the mean ambulatory time was 2.37 (0.8) hours/day, average stand-up time was 4.28 (0.8) hours/day, Mean sitting time was 1.28 (0.6) hours/day. In the conform model with every 60 minutes rise in standing time per day the odds of having VV was 27 times greater (adjusted OR: 27.44; 95% CI 4.09–180.77; p-value <0.00). At Dhulikhel Hospital among nurses VV was prevalent as significant factor for varicose veins was establish to be prolonged standing (Zolotukhin et al., 2017; Zahra et al., 2022).

A cross-sectional survey carried out, among both gender instructors working in Al-Ahsa's various schools settings. The individuals were interviewed and checked for illness symptoms of the disease during the examination 216 (54.1%) of the 399 participating teachers, who had an average age of 43.2 ± 12.9 years, were men, while the rest were women leg discomfort, which was the most prevalent complaint and was made worse by employment 43.1% of the time. The majority of participants (72.7%) have worked standing for fewer than six hours each day while they have been working for more than 1o decades (43.6%).140 instructors in total had positive history of varicose veins and 74 of them (18.5%) had already got a varicose veins diagnosis.

According to the study's findings, female teachers who have a history of VV in their family are more likely to suffer from the illness. This study in Al-Ahsa, Saudi Arabia, found that a large percentage of teachers have varicose veins. As a result of the way they operate, teachers have a higher-than-average likelihood of getting the illness. 391 school teachers in the Aseer region of Saudi Arabia participated in a cross-sectional study using questionnaires. Varicose veins were discovered in 42 percent of the educators,

the majority of whom were female. The average age of instructors with varicose veins was between 36 and 45 years old or about 62% of them. Regular exercisers were less likely to develop varicose veins in active lecturers than instructors who don't exercise (P 0.0001). Smoking and varicose veins were not associated (odds ratio 0.15, 95% confidence interval 0.05-0.44).

In Poland researchers assessed the prevalence and brutality of chronic venous disorders (CVD) in people who work for extended periods of time in a static standing or sitting position. There were 126 employees who worked in a sitting posture (96 individuals) or upright posture (30 individuals) that underwent a clinical examination using duplex Doppler Sonography. The prevalence of CVD was substantially greater among personnel working in a standing posture (p =.015) than it was in persons working in a sitting posture (59.4% vs. 83.4%). Bilateral alterations and ineffective vena saphena magna valves were the most common symptoms of CVD. The study found that standing and sitting for extended periods at work increased the chance of acquiring CVD. Additionally, those who work upright up are at a far higher risk of CVD than those who work for long periods sitting down. Therefore, they ought to be the focus of particular preventive treatments (Zolotukhin et al., 2017).

5. CONCLUSION

The purpose of the study was to create awareness of varicose Vein among study population in Hail city, Saudi Arabia. The results show that the awareness of community population was sufficient among population and show that the prevalence of varicose vein is 8 % it is nearly less the international Asian population prevalence. In addition, the study shows there is a resilient relationship between varicose vein and cellulitis. In addition, those populations think the disease itself affects the everyday life and daily work.

Ethical approval

The study was approved by the Medical Ethics Committee of University of Hail (Ethical approval code: H-2023-015).

Author contributions

FK, SMM, NAA, KSA, NSA and RD wrote first draft of the manuscript. TEH, TNA, FFA, ZFK and RA collected data and literature. ZB, MNA, AHE, HNA, FK and TG reviewed the manuscript. FK contributed in literature search and finalized the manuscript. All authors read and approved the final version of the manuscript.

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Informed consent

Written & Oral informed consent was obtained from the participant identified in this study.

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Conflict of interest

The authors declare that there is no conflict of interests.

Data and materials availability

All data sets collected during this study are available upon reasonable request from the corresponding author.

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