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A study on risk factors of varicose vein among schoolteachers

Savithri KB[1*], Raj Rani[2]
[1, 2] Research Scholar, Himalayan University, Itanagar, Arunachal Pradesh, India

Abstract
Background: Varicose veins are increasingly regular in certain occupations like teachers, workers, medical caretakers, sales persons and so on. Research on the assessment of risk factors among schoolteachers are very few
Objective: The risk factors of varicose vein among school teachers and association between risk factors and demographic variables were assessed in this study
Methods: Through convenient sampling technique, a descriptive cross–sectional study was executed among 80 schoolteachers at Thiruvallur Dist, Tamilnadu. A semi-structured questionnaire was administered. The data was tabulated and interpretation was done.
Results: Overall level of risk of the 80 participants, 22.50% of individuals had severe risk, 35% had moderate risk, 30% had mild risk and only 12.50% had no risk of varicose vein. The average mean value with standard deviation of the level of risk among the study participants was17.28±2.964. The association between risk factors and demographic variables such as gender, age, education and BMI was highly significant at $p<0.001$ level.
Conclusion: The results of the study suggest that overall risk of varicose vein is 22.50% had severe risk, In the study, the risk factors of varicose veins is statistically significantly associated with the family history, obesity, static position and pregnancy. Wellbeing advancement and health training with respect to varicose vein must be given and to prevent the disease.

Keywords: varicose vein, risk factors, schoolteachers

Introduction

Health is a key human right. The World Health Organization defines it as a "state of complete physical, psychological and social well - being and not merely the absence of disease or infirmity [1]. The strength of people, be that as it may, is likewise connected to the environment in which they live and particularly to their capacity to adjust and coordinate into their life setting.

A disease is a abnormal condition that negatively affects the structure or function of all or part of an organism, and that is not due to any immediate external injury. Infections are regularly known to be ailments that are related with explicit side effects and signs Immediate mindfulness is the most ideal approach to spare the life successfully [2].

The deep and superficial veins get damaged because of prolonged standing. Once the vein is harmed there is an inversion of blood stream from profound to shallow vein. A varicose vein is a substantial subcutaneous vein that is widened, convoluted, saccular, and by and large bigger than 3mm and predominantly found in lower legs. It is more typical in ladies than men. Varicose veins are known to be increasingly among police, educators, medical caretakers, businesspeople, and transport conductors, who represent long time during their duties [4].

Even however the specific reason for varicose vein is unknown there are some contributory variables liable for varicose vein. A portion of the significant hazard factors are age, sex, pregnancy, family ancestry, and long standing. Among these hazard factors, schoolteachers have the two significant dangers, female gender and prolonged standing during duty hours [5].

Background of the study

A cross sectional study was conducted among teachers in 12 schools in Ahmedabad which reveal that 77% of the 138 teachers experienced the pain from varicosity or enlargement of the veins of leg. Among 107 of the samples 84 individuals experienced spider webs, the main phase of varicose veins. While 23 had severely established varicose veins which implies, they experienced extreme pains, expanding and largeness in the legs. The study showed that varicose vein is a condition that makes walking and standing troublesome and painful and whenever treated right on time at the phase of spider veins they are preventable [6].

Varicose veins have been recognized as chronic disorder since ancient times. Hippocrates discussed them 2500 years ago. With increasing population, increased lifespan and changes in lifestyle and occupation it involves at least 1 out of 5 in the world [7]. In India people are quite ignorant of this disease. So, the severity and risk of disease gets a high prevalence which can lead to many complications. There is an urgent need to make the people aware about varicose vein in India [8].

Even though there is a high prevalence of varicose veins in India, very few studies have been conducted in India. Schoolteachers are under the risk of development of varicose veins since they are forced to stand while taking class. Lack of rest and exercise for calf muscles may lead to varicose veins [9].

From the above studies and statistics, varicose veins are increasing worldwide. Since the schoolteachers spend most of the time standing, they are prone to get lower limb symptoms like itchiness, cramps and burning sensation and

pain especially when standing. They result in superficial swollen veins, which later develop to varicose veins. So, there is a need to find the risk factors and educate them regarding this condition in order to prevent it.

Materials and Methods

Study participants

A descriptive cross–sectional study was conducted among schoolteachers in the month of October 2018. A total of 80 participants were engaged through the convenient sampling technique. Informed consent was obtained from the participants who full filled the eligibility criteria. The purpose of the study was elaborated, and the questionnaire was explained by the investigators prior to data collection and assured them that, the confidentiality of the data will be maintained.

Data collection tools

A structured self-administered questionnaire on risk factors was used to collect the data. The questionnaire was designed through a review of available literature, by experts in subject.

Methods of measurement

The questionnaire consisted of two sections

1. **Demographic data section**: It consists of details of the participants such as age, gender, education, height, body weight, smoking, drinking, exercise, past medical history, family history, and experience.
2. **Risk assessment scale**: This consisted of 22 questions with 2 options, with yes or no option. Varicose vein - related factors concerned pregnancy, delivery, history of trauma or injury to the lower limbs, and use of compression stockings. Items concerning occupational characteristics included the number of classes per day, positions used while taking classes standing, walking, and sitting position. Risk scores below, above, and equal to the mean score were assigned for mild, moderate and severe respectively

Data management and analysis

Data were entered into Epi-data 3.1 software and then exported to SPSS (Statistical Package for Social Sciences) version 20 for analysis. Descriptive statistics were calculated through cross-tabulation.

Result

Table 1: Frequency and percentage distribution of participants according to socio-demographic variables.

S. No.	Demographic variables	Frequency	Percentage
	Age in years		
1	<30	59	73.00
	>30	21	27.00
	Gender		
2	Male	27	33.75
	Female	53	66.25
	Education		
3	Graduate	60	75.00
	Post-graduate	20	25.00
	Years of Experience		
4	< 10yrs	18	22.50
	10- 20yrs	37	46.25
	>30yrs	25	31.25
	Diet		
5	Vegetarian	21	27.00
	Mixed	59	73.00
	BMI		
6	<25	63	78.00
	>25	17	22.00
	Smoking Habit		
7	Yes	73	91.25
	No	7	8.75
	Alcohol Habit		
8	Yes	71	88.75
	No	9	11.25

Table 1: Majority of respondents 59(73.00%) belonged to the age group of ≤30 years, gender most of participants 53 (66.25%) were female educational status of the respondents 60(75.00%) were undergraduate. Majority of the subject's years of experience was between 5-6years majority of the participants, BMI include 62(77.50%) were non obese. About 59 (73.00%) were mixed diet, 73 (91.25%) were not smoking and 71(88.75%) were not consuming alcohol.

Table 2: Levels of risk of varicose vein among schoolteachers (n=80)

Variables	Levels	Frequency	Percentage	Mean	SD
Level of risk	No risk	10	12.50 %	17.28	2.964
	Mild	24	30.00%		
	Moderate	28	35.00%		
	Severe	18	22.50%		

Table 2: Considering overall level of risk of the 80 participants, 22.50% of individuals had severe risk, 35% had moderate risk, 30% had mild risk and only 12.50% had no risk of varicose vein. The average mean value with standard

deviation of the risk factor among the study participants was17.28±2.964,

Table 3: Association of risk factors with demographic variable age

Variables	<30yrs	%	>30yrs	%	Total	%	Chisqare P value
Is varicose veins visible on the leg	23	32.86	47	67.14	70	87.5	0.20 P=0.655
Do you have any family history of varicose veins	3	27.27	8	72.73	11	13.75	0.239 P=0.655
Do you stand continuously 4-5 hours a day	25	32.05	53	67.95	78	97.5	4.027 P=0.045 (S)
Have you ever had leg trauma	14	28	36	72	50	62.5	1.972 P=0.160
Have you ever had a blood clot in the leg	1	33.33	2	66.67	3	3.75	0.234 P=0.988
Do you have any problem in walking	19	29.23	46	70.77	65	81.25	3.167 P=0.075 (S)
Does elevating your legs relieve the discomforts	24	31.58	52	68.42	76	95	3.204 P=0.073 (S)
Have you ever used hormonal replacement therapy	0	0	1	100	1	1.25	0.516 P=0.473
Do you often use contraceptive pills	0	0	3	100	3	3.75	6.118 P=0.013 (S)
Do you exercise daily	17	28.81	42	71.19	59	73.75	2.450 P=0.118 (S)
Do you consume enough amount of water	19	34.55	36	65.45	55	68.75	0.05 P=0.823
Do you wear compression stockings	16	27.59	42	72.41	58	72.5	3.584 P=0.058 (S)
Are you pregnant or recently had a baby	0	0	1	100	1	1.25	0.516 P=0.473
Do you sit at a place for longer period of time	26	35.62	47	64.38	73	91.25	1.30 P=0.254
Do your legs swell at the end of the day?	2	66.67	1	33.33	3	3.75	1.51 P=0.219
Have you ever gone through any surgery of your leg	0	0	5	100	5	6.25	2.717 P=0.099
Do you suffer from Hypertension	0	0	3	100	3	3.75	1.588 P=0.208
Do you consume more amount of starch foods.	16	32.65	33	67.35	49	61.25	0.068 P=0.794
Do you eat more salty foods	23	34.33	44	65.67	67	83.75	0.062 P=0.804
Do you eat more oily and junk foods	22	36.07	39	63.93	61	76.25	0.616 P=0.433
Do your leg(s) ever feel heavy, tired or achy at the end of the day?	18	32.14	38	67.86	56	70	0.216 P=0.642

Table no 3: showed that there is a significant association between the age with the risk factors continuous standing, not wearing compression stockings, using contraceptives, no exercise at p<0.001 level of significance

Table 4: Association of risk factors with demographic variable gender

Variables	Female	%	Male	%	Total	%	Chisqare P value
Is varicose veins visible on the leg	52	74.29	18	25.71	70	87.5	X=0.896 P=0.344
Do you have any family history of varicose veins	6	54.55	5	45.45	11	13.75	2.062 P=0.151 (S)
Do you stand continuously 4-5 hours a day	57	73.08	21	26.92	78	97.5	0.521 P=0.470
Have you ever had leg trauma	36	72	14	28	50	62.5	0.017 P=0.897
Have you ever had a blood clot in the leg	2	66.67	1	33.33	3	3.75	0.053 P=0.818
Do you have any problem in walking	49	75.38	16	24.62	65	81.25	1.447 P=0.229
Does elevating your legs relieve the discomforts	55	72.37	21	27.63	76	95	0.013 P=0.909
Have you ever used hormonal replacement therapy	1	100	0	0	1	1.25	0.353 P=0.118
Do you often use contraceptive pills	0	0	3	100	3	3.75	8.757 P=0.003 (S)
Do you exercise daily	44	74.58	15	25.42	59	73.75	0.486 P=0.486
Do you consume enough amount of water	41	74.55	14	25.45	55	68.75	0.369 P=0.543
Do you wear compression stockings	42	72.41	16	27.59	58	72.5	0.001 P=0.978
Are you pregnant or recently had a baby	3	100	0	0	3	3.75	1.588 P=0.208
Do you sit at a place for longer period of time	35	71.43	14	28.57	49	61.25	0.073 P=0.787
Do your legs swell at the end of the day?	2	100	0	0	2	2.5	0.778 P=0.378
Have you ever gone through any surgery of your leg	54	73.97	19	26.03	73	91.25	0.907 P=0.341
Do you suffer with Hypertension	52	70.27	22	29.73	74	92.5	2.460 P=0.117
Do you consume more amount of starch foods.	50	74.63	17	25.37	67	83.75	0.935 P=0.333
Do you eat more salty foods	43	70.49	18	29.51	61	76.25	0.520 P=0.471
Do you eat more oily and junk foods	39	69.64	17	30.36	56	70	0.764 P=0.382
Do your leg (s) ever feel heavy, tired or achy at the end of the day?	43	72.88	16	27.12	59	73.75	0.016 P=0.898

Table no 4: showed that there is a significant association between the gender (female) and family history and use of oral contraceptive of varicose vein at p<0.001 level of significance

Table 5: Association of risk factors with demographic variable BMI

Variables	Non obese	%	Obese	%	Total	%	Chisqare P value
Is varicose veins visible on the leg	15	21.43	55	78.57	70	87.5	3.810 P=0.051 (S)
Do you have any family history of varicose veins	2	18.18	9	81.82	11	13.7	0.316 P=0.574
Do you stand continuously 4-5 hours a day	19	24.36	59	75.64	78	97.5	0.684 P=0.408
Have you ever had leg trauma	13	26	37	74	50	62.5	0.071 P=0.79
Have you ever had a blood clot in the leg	1	33.33	2	66.67	3	3.75	0.115 P=0.734
Do you have any problem in walking	17	26.15	48	73.85	65	81.2	0.246 P=0.620
Does elevating your legs relieve the discomforts	19	25	57	75	76	95	8.604 P=0.003 (S)
Have you ever used hormonal replacement therapy	1	100	0	0	1	1.25	3.038 P=0.081 (S)

Do you often use contraceptive pills	0	0	3	100	3	3.75	1.039 P=0.308
Do you exercise daily	15	25.42	44	74.58	59	73.75	0.022 P=0.883
Do you consume enough amount of water	17	23.29	56	76.71	73	91.2	1.305 P=0.253
Do you wear compression stockings	10	18.18	45	81.82	55	68.75	4.364 P=0.037
Are you pregnant or recently had a baby	1	100	0	0	1	1.25	3.038 P=0.081 (S)
Do you sit at a place for longer period of time	16	27.59	42	72.41	58	72.5	0.752 P=0.386
Do your legs swell at the end of the day?	20	27.4	53	72.6	73	91.2	2.557 P=0.110
Have you ever gone through any surgery of your leg	0	0	2	100	2	2.5	0.684 P=0.408
Do you suffer with medical conditions like liver disease or heart disease	1	33.33	2	66.67	3	3.75	0.115 P=0.734
Do you consume more amount of starch foods.	16	23.88	51	76.12	67	83.7	0.276 P=0.60
Do you eat more salty foods	14	22.95	47	77.05	61	76.2	0.575 P=0.448
Do you eat more oily and junk foods	14	25	42	75	56	70	0.376 P=0.540
Do your leg(s) ever feel heavy, tired or achy at the end of the day?	13	22.03	46	77.97	59	73.75	1.055 P=0.304

Table no 5: showed that there was a significant association between BMI with the risk factors continuous standing, leg discomfort, hormonal replacement therapy, and pregnancy at p<0.001 level of significance

Discussion

Socio demographic data of the subjects: Majority of respondents, 73% belonged to the age group of less than or equal to 30years, 66.25% were female, 75% of were graduate. 46.25% were between 10-20years, 73% of the respondents were taking mixed diet and 63% were non obese, 91.25% were non-smokers and 88.75%) were not consuming alcohol. (Table 1) Considering overall level of risk of the 80 participants, 22.50% of individuals had severe risk, 35% had moderate risk, 30% had mild risk and only 12.50% had no risk of varicose vein. The average mean value with standard deviation of the risk factor among the study participants was17.28±2.964. This study is consistent with study by Shiksha Sharma *et al*. [10]

This study there was significant association between age and risk factors like continuously for longer duration of time was highly significant. The study was supported by a similar study conducted by F Tüchsen1, H Hannerz1, H Burr1, N Krause2 to assess the risk of hospitalization due to varicose veins in the lower extremities in workers standing or walking at least 75% of their time at work [11].

There is a significant association between the gender (female) and risk factor (family history of varicose vein) at p<0.001 level of significance the finding of the study was consistent with similar study conducted by Jacob DA. Shruthy M [12].

Age was found to be important risk factor in both sexes, There was a significant association between BMI and risk factors like continuous standing, leg discomfort, hormonal replacement therapy, lack of exercise and pregnancy, The finding of the study was consistent with study conducted by Vipul Agarwal *et al*. [13].

The current study concluded that there was no association between risk factors and socio demographic variables such as smoking habit and alcohol consumption, the study was supported by a similar study conducted by Nazmiye Selcuk Kapisiz [14].

Conclusion

The study showed that the risk factors like female gender, obesity, family history, mixed diet, obesity, lack of exercise, continuously standing, hormonal therapy and usage of contraceptives had association with the demographic variables. Modifiable risk factors like diet, sedentary lifestyle, static positions, consumption of alcohol and smoking can be detected, and prevention of disease can be done. Conservative measures for treatment like practice of changing the positions, regular exercise and diet \ can be promoted. Written information regarding disease signs & symptoms, complications, and preventive measures in the form of pamphlets was distributed to the teachers

Recommendation

The Present study was conduct on a more extensive study on large sample is recommended for wider generalization. A similar study can be conducted for other workers requires long standing.

Limitation

The following points were beyond the control of the investigator While collecting data some of them were on vacation.

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Conflict of interest

The authors had no relationship/condition/ circumstances that present a potential conflict of interest.

Ethical Standards

This study was conducted after getting approval from the Institutional Ethics Committee and after obtaining written consents from all subjects

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