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Prevelance and Clinical Presentation of Varicose Veins Among Nurses in al Jouf Region

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I. Introduction

Varicose veins (VV) of the lower limbs is considered as the most common vascular disorder in humans, creating serious signs and symptoms in patientsand lead to surgical treatments and widespread morbidity[1,2].. This is also one of the major causes of morbidity in the United States and Western countries. Such a disorder has suffered nearly a one quarter of the adult population in these countries and is the considerable reason for use of health-care resources and services [3,4]. Leg varicose has been reported differently in various populations, so the prevalence of the adults' VV is different, from 7% to 40% in men and 14% to 51% in women. Recently, a report has been published, in which the prevalence of VV has been announced to be different, between 2–56% in men and 1%–73% in women. In another study, the incidence of varicose has been reported 18.7% in Asian ethnic groups[5,6]. Varicose veins of the lower limbs are dilated, tortuous, and palpable veins that are typically larger than 3 mm.Varicosities are manifestations of chronic venous disease (CVD), which includes various other venous abnormalities, such as dilated intradermal veins, spider veins, reticular veins, and telangiectasia[7,8]. Although varicose veins have long been thought to be a simple cosmetic problem, they can actually be the source of more serious complications, including pain and discomfort that can lead to missed work days, a lower quality of life, and even the loss of a limb or life[9,10].According to the American Venous Forum, an estimated 23% of the US adult population suffers from varicose veins. About 5% of them also suffer from skin changes, venous edema, and venous ulcerations, and there are over 20,000 new diagnoses of venous ulcers in the United States annually[11, 12].Nursing profession is perceived as a high-risk occupation, in which positions such as long-time standing and sitting are inevitable during the work [13, 14]. In spite of varicose appearance, as the main patients' complaint, other symptoms such as dull pain, feeling heavy in legs, night cramps and sometimes varicose inflammation as thrombophlebitis are observed [15, 16].As nurses are the major constituents of health-care systems, such frustrating and overwhelming positions can lead to disruption in services from health therapeutic system, as well as additional dissipationof economic resources by the individual and society to treat the imposed damages[13, 14].The issue is highly important, for it can affect working output and old age,health, underlying thrombotic problems, and other serious complications. [17,18] In spite of all these facts, there are no data on varicose veins prevalence in the Kingdom of Saudi Arabia (KSA) as this has not been studied before. Therefore, this study was performed to assess the prevalence of leg varicose of the nurses working in Al Jouf Region hospitals and to determine the demographical and occupational hazards.

II. Materials &Methods

Research design:
A descriptive research design used for this study.
Setting :
This study conducted in Prince Mutaib Bin Abdul Aziz Hospital andmaternal and child hospitals in sakaka.
Sample:
A convenient sample of 161 nurses used for this study distributed as following:
maternal and child hospitalstotal (79 nurses)
Emergency unit(10), Prenatal ICU unit (8), obestatric ward (9) , high risk pregnancy (7), infection control (1) , medical records(5) , PCR(5) ,PUR(1) .OB- ER (5) , ICU(6), FEMALE WORED (1),OPD(5) MICO(4), NICO(4), OR(4) ,DR(4),
Mutaib Bin Abdul Aziz Hospital
Total (82 nurses)
Dialysis unit (4), Burn unit (2), X-ray (2) CCU unit (14), FICU unit(10) , FSW(19), FER(15) FMW(13) MICU (2) EMPLOYES CLINIC (1)
Tools of the study:
Questionnaire sheet was developed by the researcher after reviewing the literature about varicose veins of the legs among nurses.
The questionnaire sheet consists of 4Section:
Section 1: General Information :(Sex, nationality , Age , weight , BMI , What are the social condition, Pregnancy Parity, Education, Years of Experience, Area of work, nature and working hours often, Working Hours, What is the nature of your job, How do you evaluate your health condition , Overtime (Hours)).

Section2" History": Family History**,** Risk Factors
Section 3"Assessment": Exercise, Bowel Movement,and Sole, Walking, Sitting,And Standing.
Section 4 : Physical examination: Visible Venous , Telangiectatic Or Reticular Veins , Varicose Veins , Oedema , skin changes without ulceration , Skin Changes With Healed Ulceration , Skin Changes With Active Ulceration

Methods:

1. An official letter was sent to the dean of the Faculty of Applied Medical Science to get the agreement of the Manager of the hospital and Head of each department to conduct the study.
2. Inaddition to a verbal consent that was obtained from each nurse in the study
3. Data collected by interviewing each nurse individually. The interview took 15-20minutes each
4-Data of this study has been collected by a questionnaire, which was developed by the researcher.

Statistics

- Collected data set was checked manually for its completeness, then data was coded and exported to SPSS version 16.0 then analyzed.
- Descriptive statistical analysis was done for variables such as socio-demographic characteristics and clinical factors.
- For identification of independent variables which have association with the dependent variables, Chi square test and student t-test was used.
- All factors with $p<0.05$ in the univariate analysis were considered as candidates for the multivariate regression model. The 95% confidence interval was calculated whatever found appropriate. P-value less than 0.05 of the multivariate analysis were considered significant (influential) factors.

Methods and statistics required

This study used SPSS ver. 16 to analyze the quantitative data gathered fromthe participants. The data analysis summarized the results in statistical form, providing the means and the ranges of the data collected. The main purpose of the quantitative analysis was to identify the statistical significance of the numbers involved. For example, the data that are obtained from questionnaires can be analyzed statistically by providing the mean, standard deviation, range, and median (Eysenck, 2004). Additionally, the data analysis process involves describing knowledge from the topics that relate to certain phenomena. This process is conducted by answering the questions that are posed to investigate certain phenomena by using statistical programs or software such as SPSS. In reality, the process of data analysis is deeply reliant on that of data collection by the participants. Therefore, these collected data are analyzed by specific and specialized programs because they are designed to identify the variables which must exist in the columns of the analysis. This working with the variables and columns of the analysis depends on analyzing data that are collected through a quantitative approach because this approach requires statistical results which are provided in a numerical form (Woodley, 2004). There are many programs and software packages that can be used to perform statistical data analysis, including the Statistical Package for the Social Sciences (SPSS). SPSS is used to analyze the collected data quickly and accurately and provides huge benefits for both beginners and experienced users; for beginners, this program makes the process of statistical analysis more easily achievable. This package can also provide many functions such as the following:

- Frequency: the regularity of the occurrence of every variable. This feature can be used in a statistical summary that analyzes the addition of observations and the distinctive value.
- Percentage: to calculate the percentage of participants who give the same responses.
- Mean: to calculate the final statistics and the average of the responses on every case.
- Standard Deviation: to compute the diffusion of the participants' answers.
- Correlation: to find relationship between variables.
-

III. Results

1- Sociodemographic data

The table (1) shows the frequencies and percentages of individuals general information variables, figure (1)showsmost of them are Female with (97.5%) male with (2.5%) ,

General information	Groups	Frequency	Percentage (%)
Sex	Male	4	2.5
	Female	157	97.5
Nationality	Saudian	137	82.1
	other	24	14.9
Age	<30	120	74.5
	30-40	34	21.1
	>40	7	4.3
weight	<50	17	10.6
	50 to 100	126	78.3
	100to 150	3	1.9
High	50 to 100	5	3.1
	100 to 150	10	6.2
	150 and over	123	76.4
BMI	Normal	131	83.4
	Over weight	24	14.9
	Obese	6	3.7
What are the social condition	Married	93	57.8
	Single	66	41.0
	divorced	1	.6
	widow	1	.6
Pregnancy Parity	Zero	66	41.0
	One	29	18.0
	Two or more	53	32.9
Education	Bachelor And Higher	97	60.3
	Lower	64	39.8
Years of Experience	Less than a year	17	10.6
	1-3 years	59	36.6
	3-7 years	54	33.5
	more than 7 years	28	17.4

Figure (1): shows that Most of individuals their nationality is Saudian with (82.1%) other nationality with (14.9%):

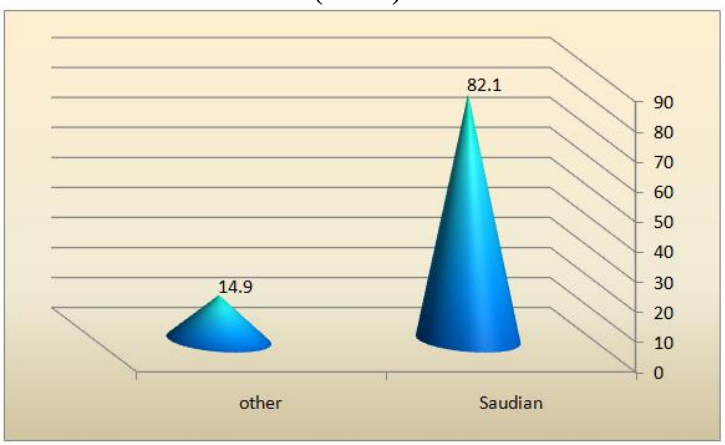


Figure (2): Most of nurses age is less than 30 with (74.5%),(30-40) with (21.1%) and greater than 40 with (4.3%).

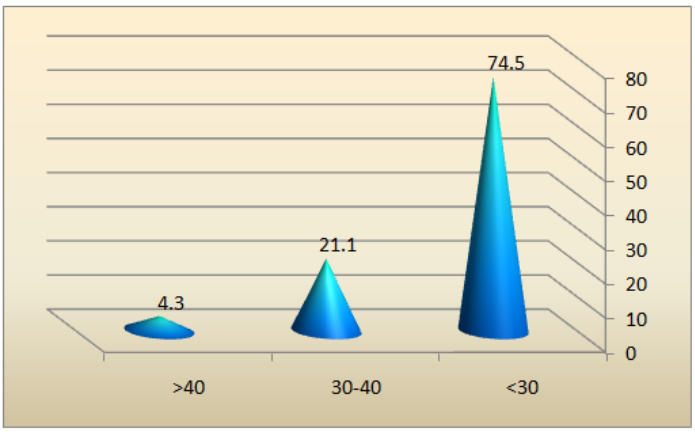


Figure (3): Weights of respondents mostly distributed between (50 to 100) with (78.3%) , over than 50 with (10.6%) , and (100to 150) with (1.9%) %) , the figure bellow shows this percentages:

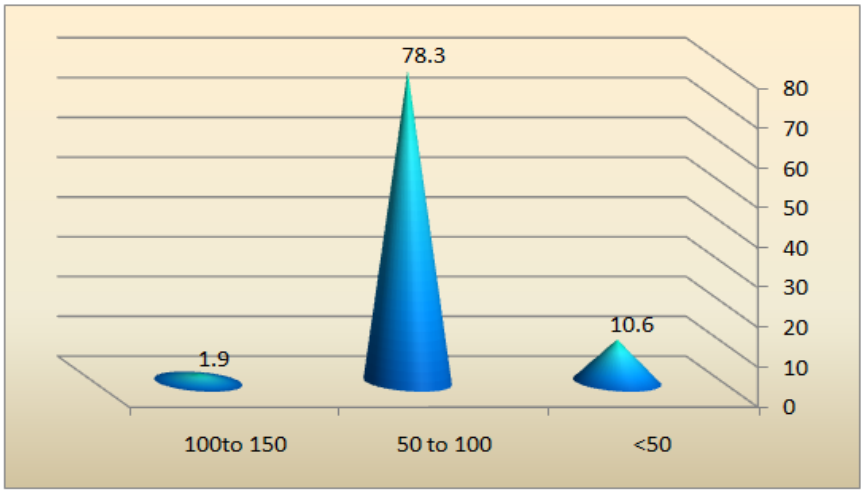
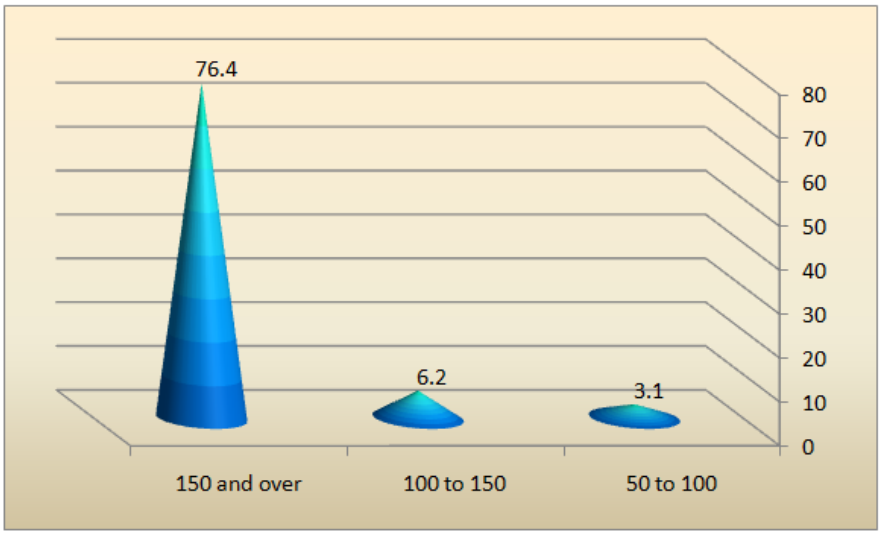
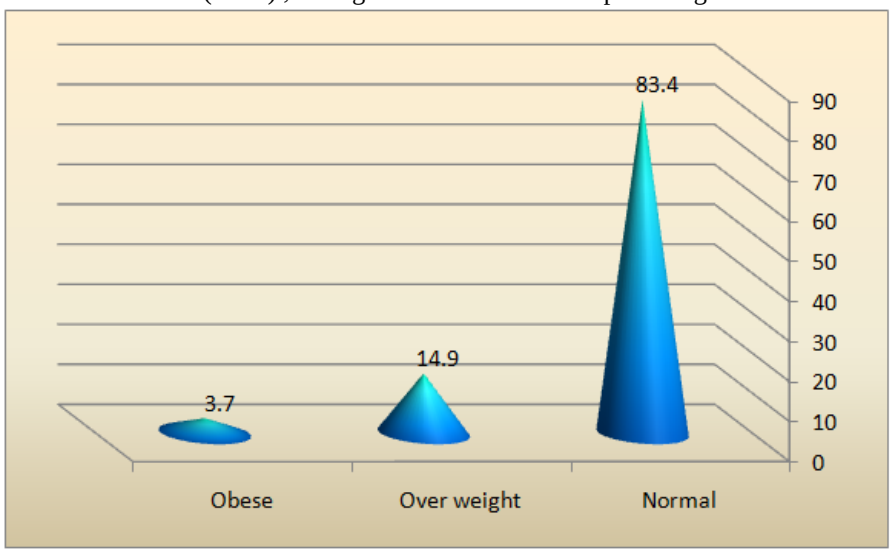


Figure (4): High of respondents mostly distributed are (150 and over) with (76.4%) (100to 150) with (6.2%) and (50 to 100) with (3.1%) , the figure bellow shows this percentages :



The figure (5): Most of responders their BMI is Normal with (83.4%) , over weight with (14.9%) , and obese with (3.7%) , the figure bellow shows this percentages :



The figure (6): Social condition of most of the respondents are married with (57.8%) ,single with(41%) , (divorced) and (widow) with (0.6%), the figure bellow shows this percentages :

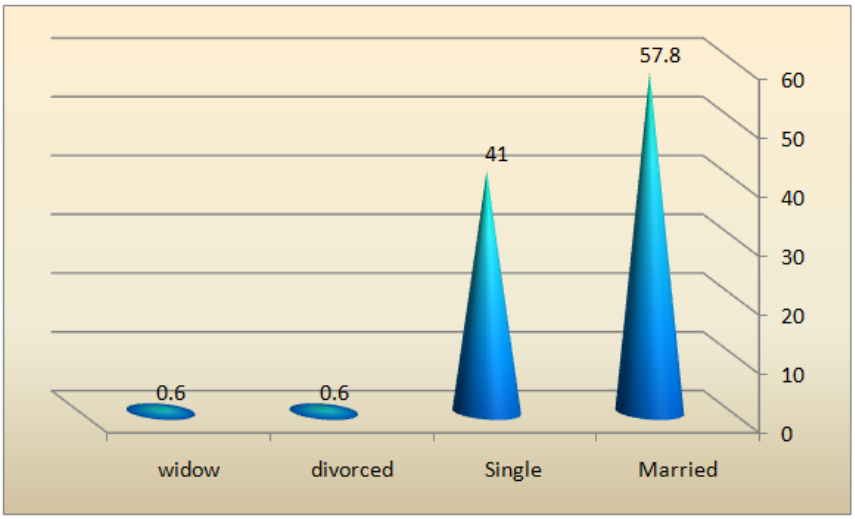


Figure (7) Most Pregnancy Parity of responders are (41%) , two or more with (32.9%) ,and One with (18%), the figure bellow shows this percentages :

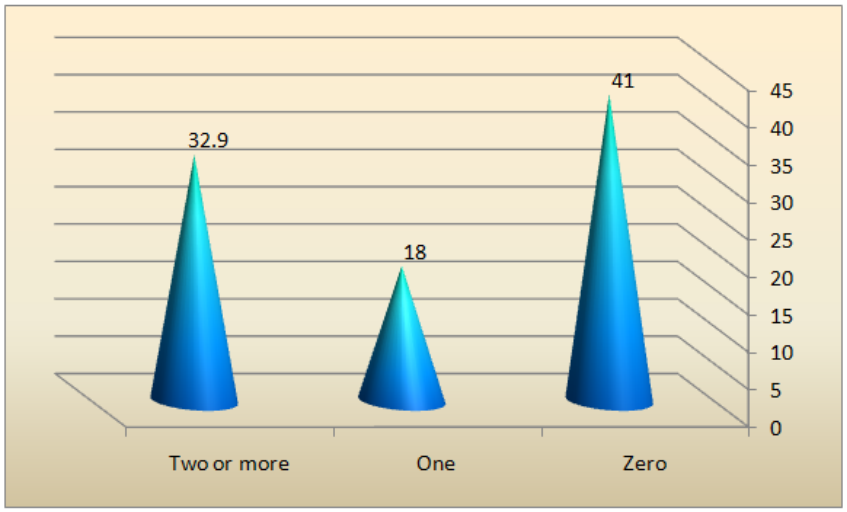


Figure (8): The majority of the sample is the level of education members is Bachelor And Higher with (60.3%) , and Lower with (39.8%) , the figure bellow shows this percentages :

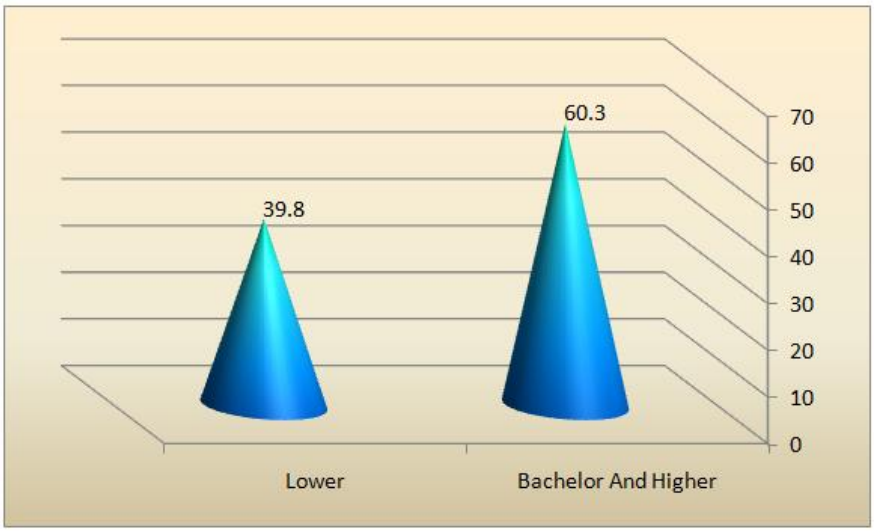


Figure (9): Most of the respondents their years of experience, ranging from (1-3) years with (36.6%) , (3-7)years with (33.5%) , more than 7 years with (17.4%) , and less than a year with (10.6%) , the figure bellow shows this percentages :

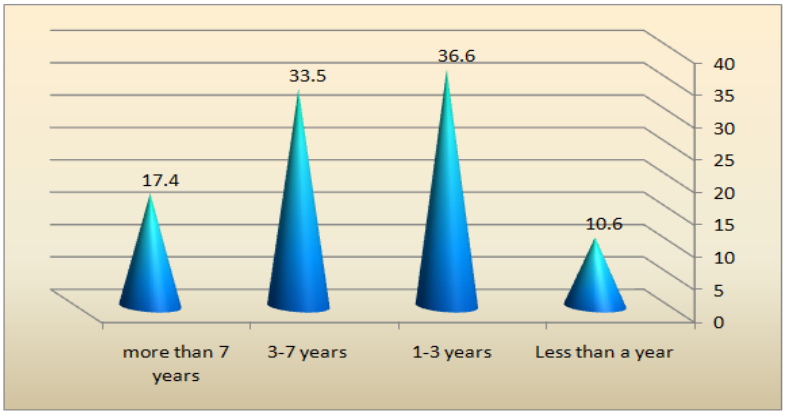
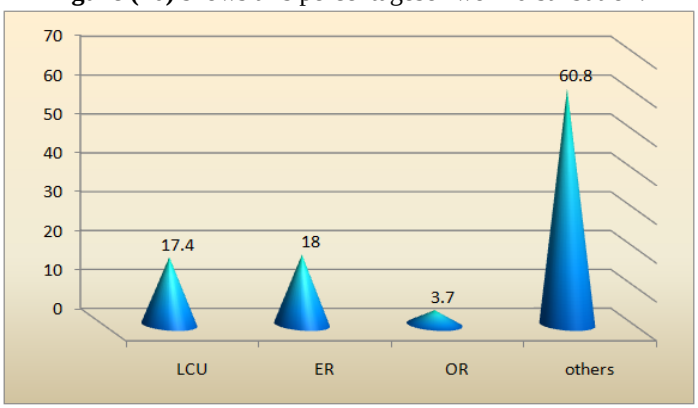


Table 2: socio demographic part 2

Work information	Groups	Frequency	Percentage (%)
Area of work	LCU	28	17.4
	ER	29	18.0
	OR	6	3.7
	Others	98	60.8
nature and working hours often	AM	57	35.4
	BM	7	4.3
	Night	8	5.0
	different rotations	89	55.2
Working Hours	8 hours	155	96.3
	12 hours	6	3.7
What is the nature of your job	Specialist Nursing	83	51.5
	Nursing Assistant	65	40.4
	Head of the Department	13	8.1
How do you evaluate your health condition	Excellent	38	23.6
	very good	45	28.0
	Good	72	44.7
	Weak	6	3.7
Overtime (Hours)	No hours	152	94.4
	1 hour	3	1.9
	2 hours	4	2.5
	3hours	1	.6
	10 hours	1	.6

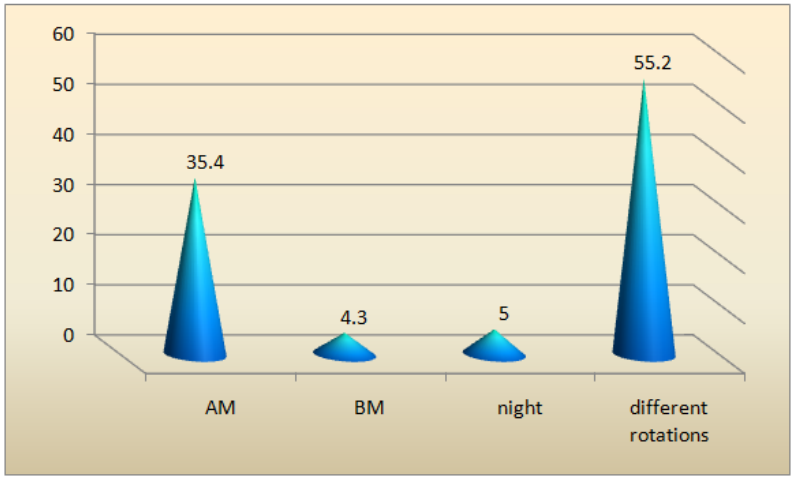
The table above shows Frequencies and percentages of responders Work information. Mosttheir Area of work is others with (60.8%) , ER with (18%) ,LCU with (17.4%) , and OR with (3.7%) ,

Figure (10) shows this percentagesof work distribution:



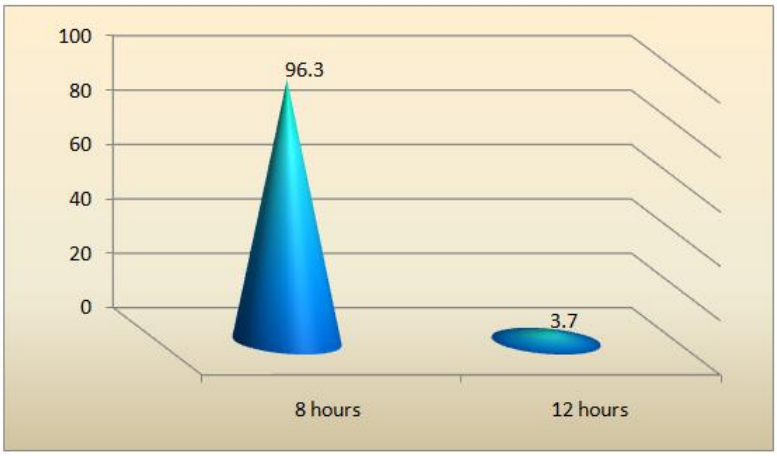
Also table shows frequencies and percentages of individuals nature working hours often , most of them are different rotations with (55.2%) ,AM with (35.4%) , night with (5%) , and with (4.3%) ,

Figure: (11) it shows the shift of the nurses:



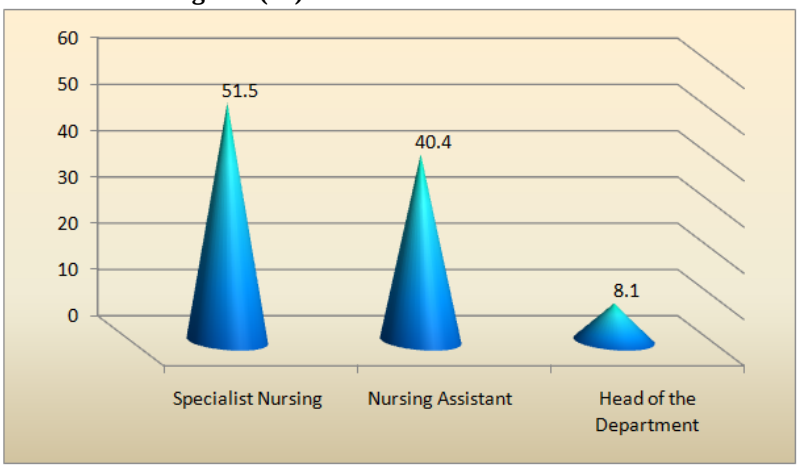
From table also we find working hours of nurse most of them are working (8 hours) with (96.3%) ,and (12 hours) with (3.7%),

Figure: (12) showsthe working hours:



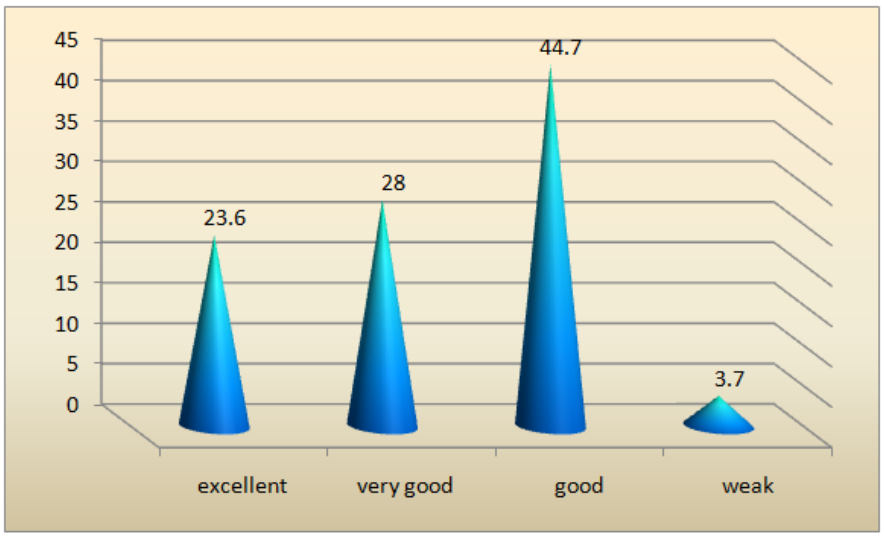
Most of the respondents their nature work is Specialist Nursing with (51.5%) , Nursing Assistant with (40.4%) , Head of the Department with (8.1%),

Figure: (13) shows the nature of the work:



Most of the respondents evaluate their health condition, generally good with (44.7%), very good (28%) , excellent (23.6%),

Figure: (14) shows the health condition:



Finally table shows overtime hours which responders are working , most of them haven't work hours with (94.4%) ,(2 hours) with (2.5%) , (1 hour) with (1.9%) , and (3 hours , 10 hours) with (0.6%) ,

Figure: (15) shows the overtime hour:

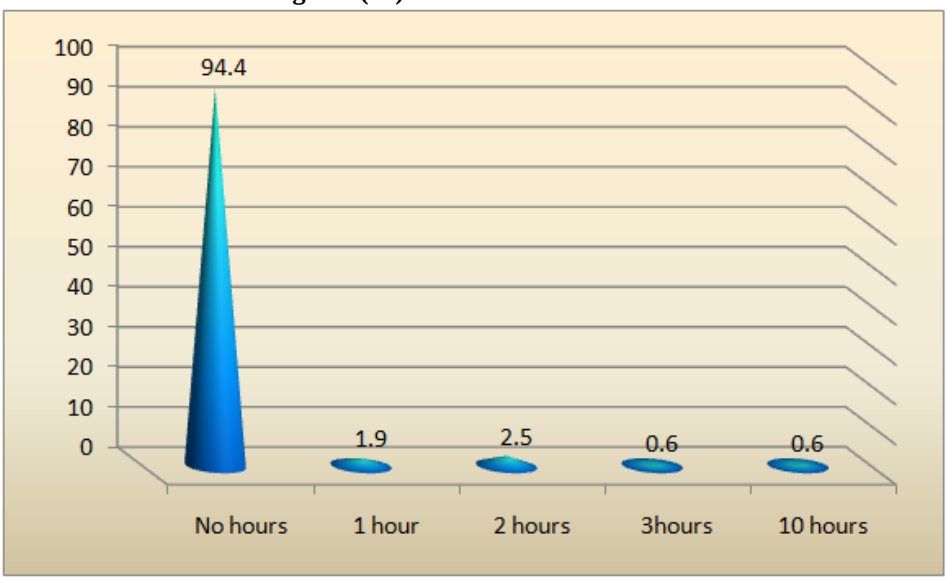
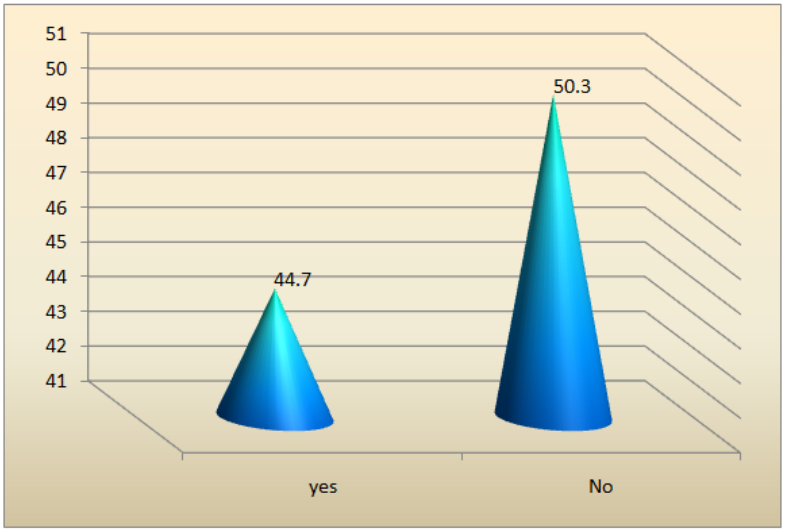


Table :3 History:

History information	Groups	Frequency	Percentage (%)
Family History	yes	72	44.7
	No	81	50.3
Risk Factors	Advanced age	20	12.4
	Pregnancy	9	5.6
	Prolonged periods of bed rest	1	.6
	inactivity	1	.6
	Diabetes	29	18.0
	Hypertension	14	8.7
	High cholesterol	4	2.5
	Missing	83	51.6

Table above shows the percentages and frequencies of history information, Family history most of them are no with (12.4%), and yes with (44.7%)

Figure: (16) shows the family history of varicose veins:



Also table shows frequencies and percentages of risk factors ,most of them are Diabetes with (18%) , Advanced age with (12.4%) , Hypertension with (8.7%), Pregnancy with (5.6%) , High cholesterol with (2.5%) ,and (Prolonged periods of bed rest , inactivity) with (0.6%) ,

Figure: (17) shows the percentage of risk factors:

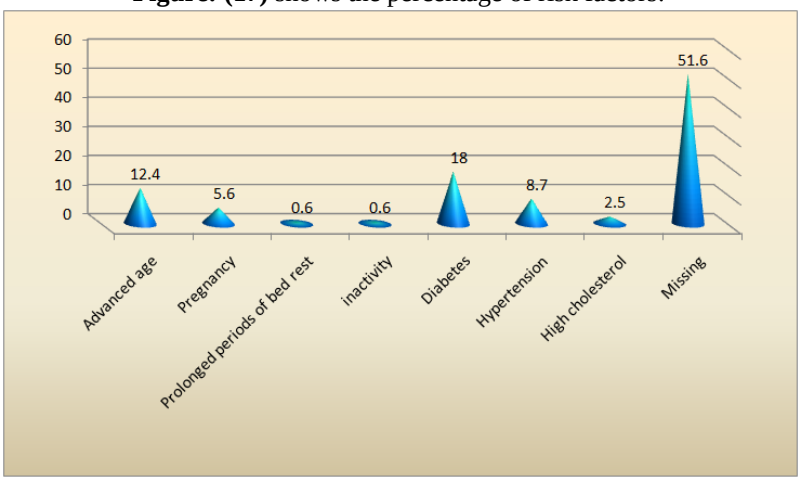
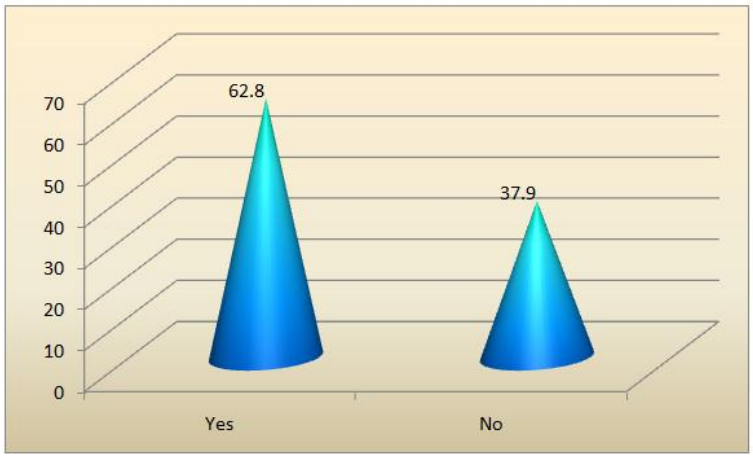


Table: 4 Assessment

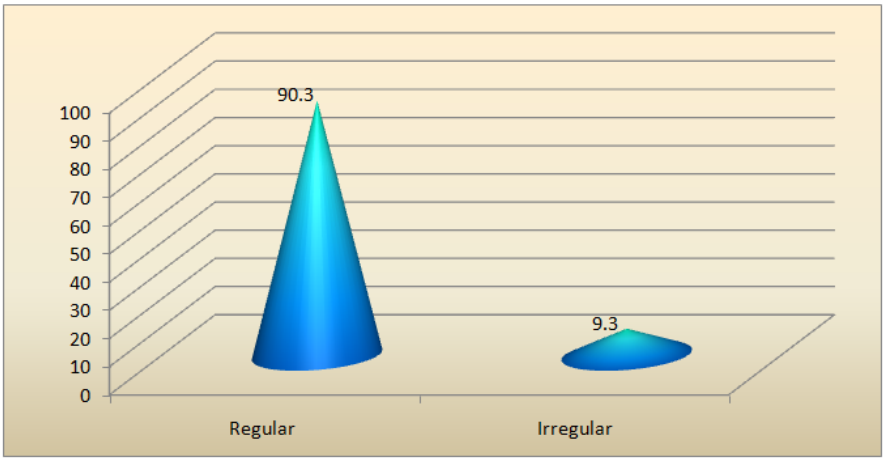
Assessment	Groups	Frequency	Percentage (%)
Exercise	Yes	100	62.8
	No	61	37.9
Bowel Movement	Regular	146	90.3
	Irregular	15	9.3
Sole	Flat	18	11.2
	Normal	143	88.8
Walking	Less Than 2 H	47	29.2
	Between 2–4 H	68	42.2
	More Than 4 H	46	28.6
Sitting	Less Than 2 H	68	42.2
	Between 2–4 H	64	39.8
	More Than 4 H	29	18.0
Standing	Less Than 2 H	41	25.5
	Between 2–4 H	62	38.5
	More Than 4 H	58	36.0

Table above shows frequencies and percentages of responders answers about assessment variables, most of them are exercise with (62.8%) and (37.9%) are not exercise,

Figure: (18) shows the percentage of the exercise:



Also table shows frequencies and percentages of Bowel Movement, most of them regular with (90.3%) , and (9.3%) are irregular , the figure (20)bellow shows this percentages:



Also table shows percentages and frequencies of Sole most of them by normal sole with (88.8%) , flat with (11.2%) , the figure(21) bellow shows this percentages :

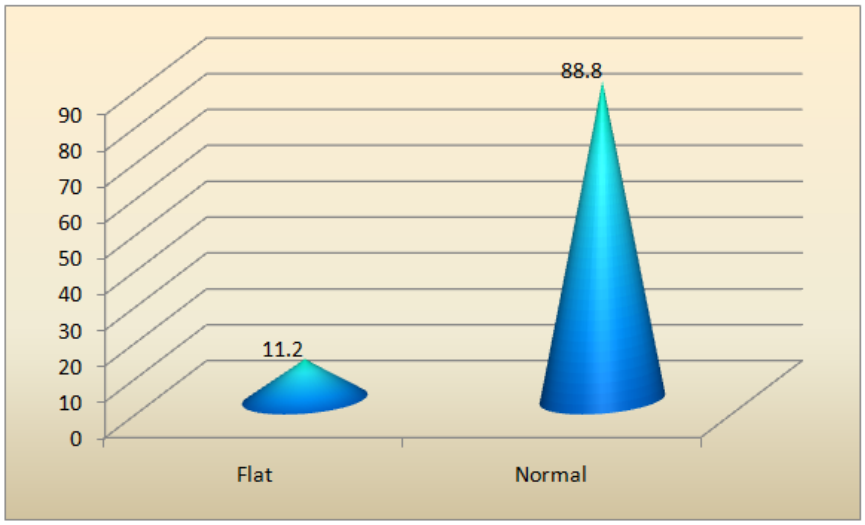
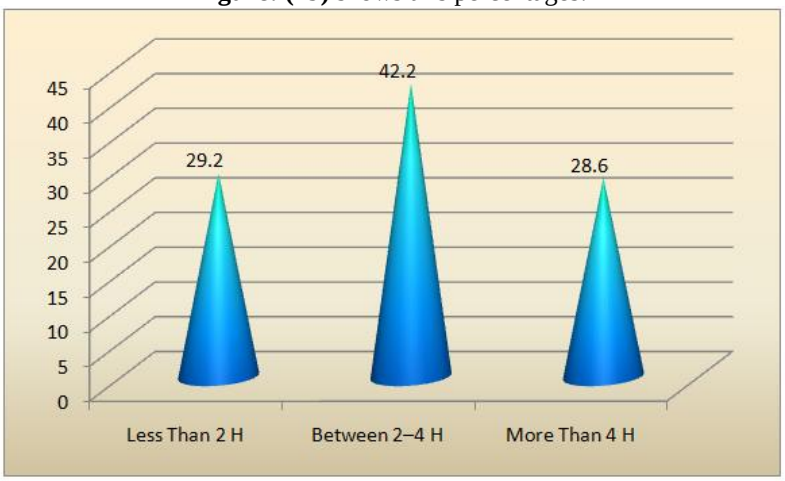


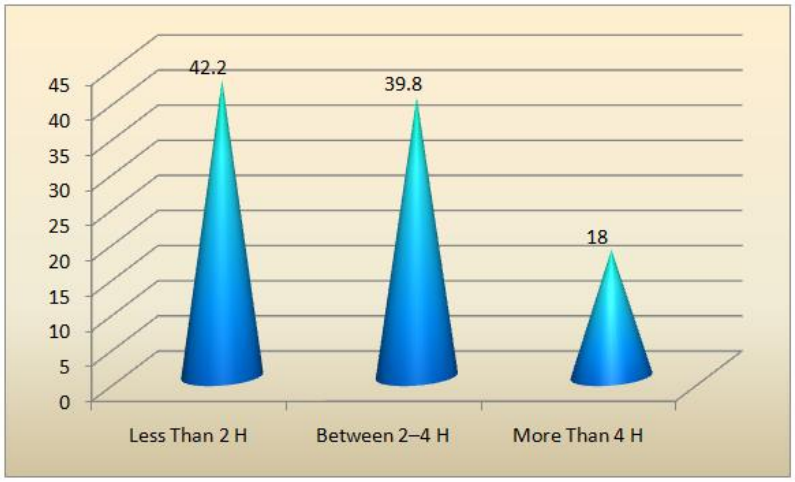
Table above shows frequencies and percentages of walking most of them are (Between 2–4 H) with (42.2%) , less than 2 H with (29.2%) , and more than 4 H with (28.6%) ,

Figure: (19) shows this percentages:



Also table above shows frequencies and percentages of sitting most of them are (less than 2 H) with (42.2%) , between 2-4H with (38.8%) , and more than 4 H with (18%) ,

Figure: (20) shows this percentages:



Finally table shows frequencies and percentages of responders standing , most of them are standing between 2-4 h with (38.5%) , more than 4 h with (36%) , and less than 2 h with (25.5%) ,

Figure: (21) shows this percentages:

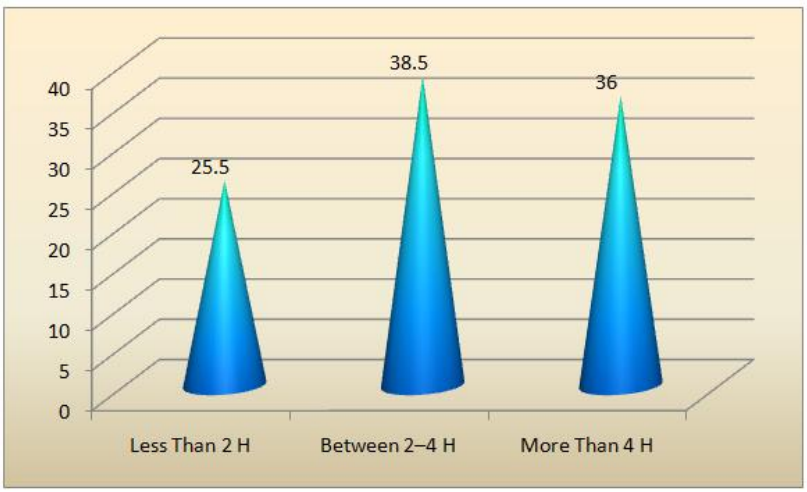


Table: (5) Physical examination

Physical examination information	result	Frequency	Percentage (%)
Do You Have Visible Venous ?	Yes	57	35.4
	No	104	64.6
Do You Have Telangiectatic Or Reticular Veins?	Yes	29	18.0
	No	132	81.9
Do You Have Varicose Veins?	Yes	25	15.5
	No	136	84.5
Do You Have Edema?	Yes	21	13.0
	No	140	87.0
Do You Have skin changes without ulceration?	Yes	20	12.4
	No	141	87.6
Do You Have Skin Changes With Healed Ulceration?	Yes	17	10.6
	No	144	89.4
Do You Have Skin Changes With Active Ulceration?	Yes	17	10.6
	No	144	89.4

Table above shows frequencies and percentages of Physical examination information, the

Figure: (22) most of them don't have Visible Venous with (64.6%)

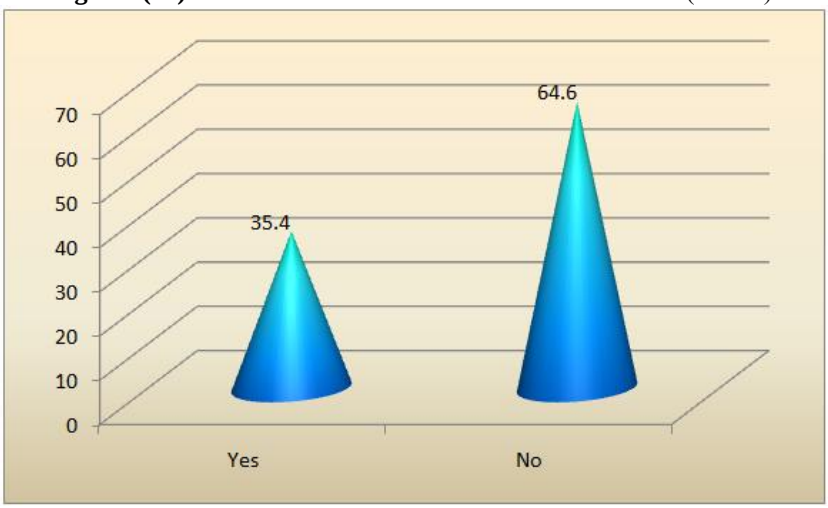


Table shows frequencies and percentages of respondersTelangiectatic Or Reticular Veins, most of them have not (81.9%) , and (18%) have Telangiectatic Or Reticular Veins,

Figure: (23) shows this percentages:

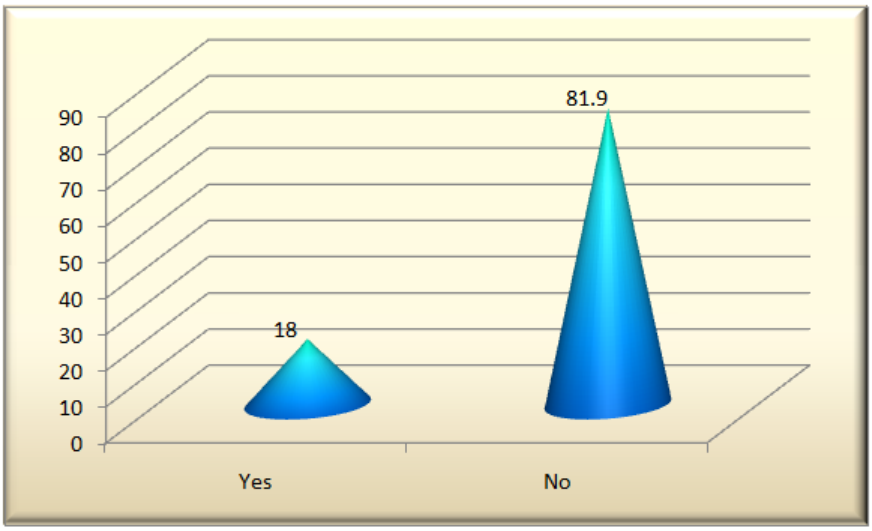


Table shows frequencies and percentages of responders varicose veins, most of them do not suffer varicose Veins (84.5%) , and (15.5%) have Varicose Veins, the

Figure: (24) shows this percentages:

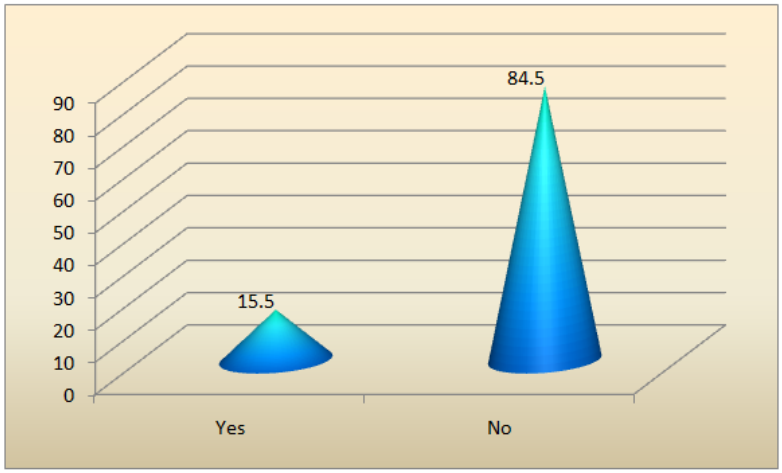


Table shows frequencies and percentages Oedema, most of them do not suffer from Oedema (87%) , and (13%) have Oedema,

Figure: (25) shows this percentages:

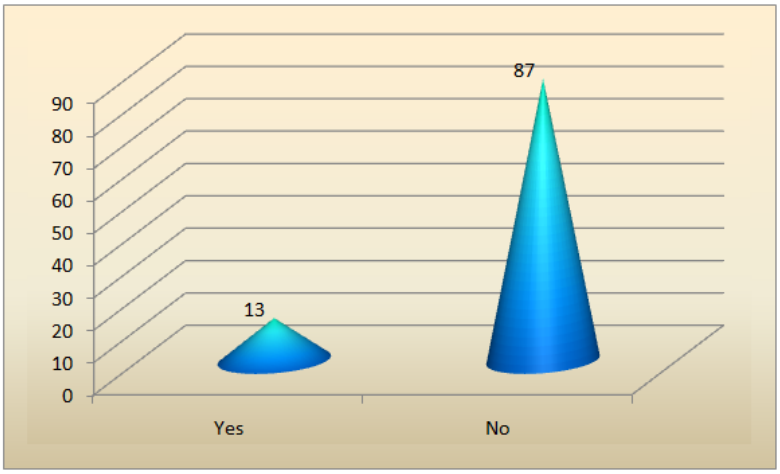


Table shows frequencies and percentages skin changes without ulceration , most of them do not suffer from skin changes without ulceration with (87.6%) , and (12.4%) have skin changes without ulceration,

Figure: (26) shows this percentages:

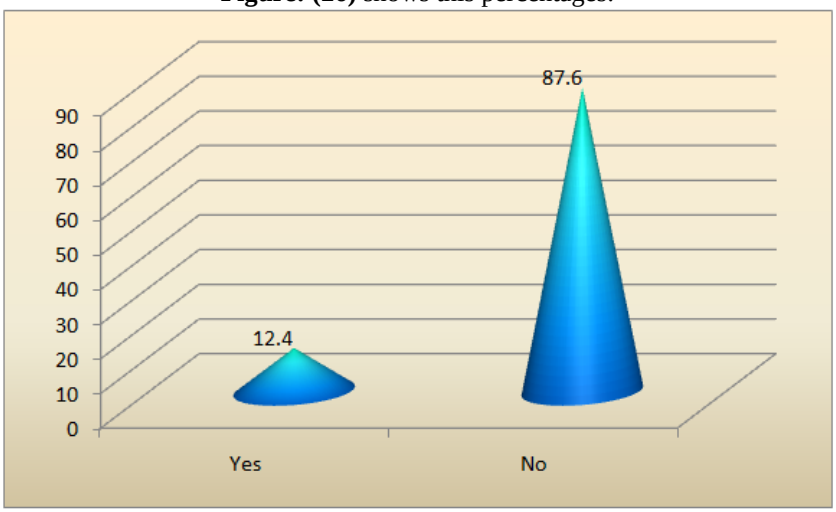


Table shows frequencies and percentages of Skin Changes With Healed Ulceration, most of them do not suffer from Skin Changes With Healed Ulceration with (89.4%) , and (10.6%) have Skin Changes With Healed Ulceration,

Figure: (27) shows this percentages:

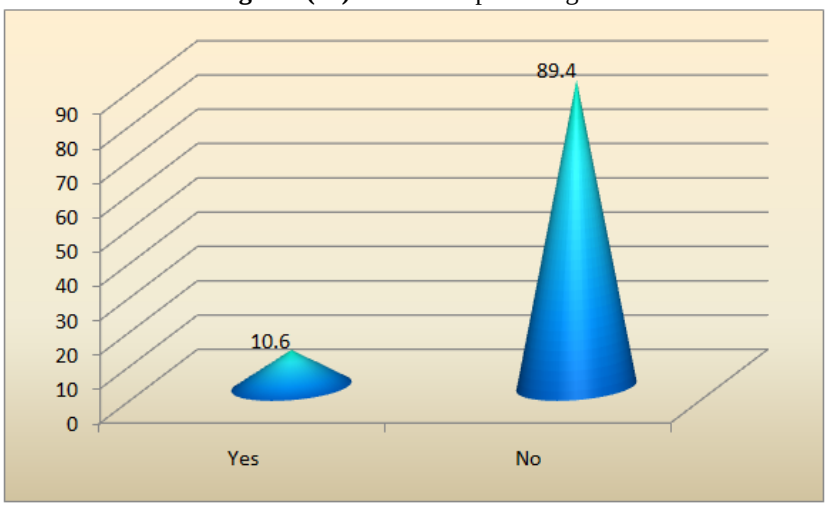
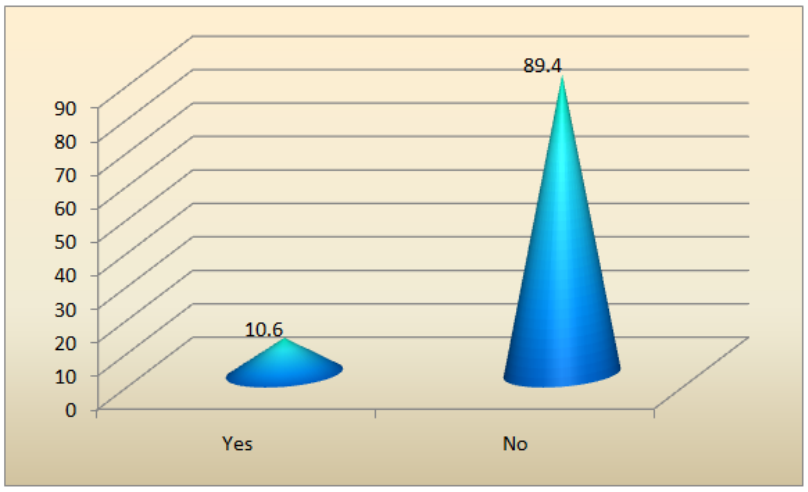


Table shows frequencies and percentages of Skin Changes With Healed Ulceration , most of them do not suffer from Skin Changes With Healed Ulceration with (89.4%) , and (10.6%) have Skin Changes With Healed Ulceration,

Figure (28) shows this percent ages :



Correlations:

1) Table (6) having Visible Venous

Independent	Do You Have Visible Venous ?	
	Correlation	P-value
What is the nature of your job	-.132-	.100
Overtime (Hours)	.021	.794
Age	.003	.971
BMI	-.168-*	.036
weight	.068	.416
Family History	.044	.593

The table above shows the relationships between the individuals who Have Visible Venous with each of the independent variables "factors" – in addition to the p-value of each relation.

There is a statistically significant negative correlation between Have Visible Venous and (BMI) (p-value<0.05).

2)(Table (7) HavingTelangiectatic Or Reticular Veins

Independent	Do You Have Telangiectatic Or Reticular Veins?	
	Correlation	P-value
What is the nature of your job	-.269**	.001
Overtime (Hours)	.026	.747
Age	-.066	.411
BMI	.005	.955
weight	.007	.933
Family History	.137	.093

The table above shows the relationships between the individuals who Have Telangiectatic Or Reticular Veins with each of the independent variables "factors" – in addition to the p-value of each relation.
There is a statistically significant negative correlation between Have Telangiectatic Or Reticular Veins and (What is the nature of your job) (p-value<0.01).

3)Table (8) Having Varicose Veins:

Independent	Do You Have Varicose Veins?	
	Correlation	P-value
What is the nature of your job	-.202-*	0.011
Overtime (Hours)	.054	0.500
Age	-.150	0.06
BMI	-.097	0.231
weight	-.026	0.757
Family History	-.011	0.897

The table above shows the relationships between the individuals who have Varicose Veins with each of the independent variables "factors" – in addition to the p-value of each relation.There is a statistically significant negative correlation between Have Varicose Veins and (What is the nature of your job) (p-value<0.05).There are negative correlation between Have Varicose Veins and each of (Age , BMI , Family History , weight) but they are not statistically significant (p-values>0.05), also there are positive correlation between Have Varicose Veins and (Overtime (Hours) but they are not statistically significant (p-values >0.05).

Table 9 HavingOedema

Independent	Do You Have Oedema?	
	Correlation	P-value
What is the nature of your job	-.220**	.006
Overtime (Hours)	.066	.406
Age	-.122	.128
BMI	-.053	.514
Weight	.040	.635
Family History	.023	.779

The table above shows the relationships between the individuals who Have Oedema with each of the independent variables "factors" – in addition to the p-value of each relations.There is a statistically significant negative correlation between Have Oedema and (What is the nature of your job) (p-value<0.01).There are negative correlations between Have Oedema and each of (Age , BMI) but they are not statistically significant (p-values >0.01), also there are positive correlations between Have Oedema and each of (Overtime (Hours) , Family History , weight) but they are not statistically significant (p-values >0.01).

Table 10 Having skin changes without ulceration:

Independent	Do You Have skin changes without ulceration?	
	Correlation	P-value
What is the nature of your job	-.220**	.006
Overtime (Hours)	.021	.788
Age	-.031	.702
BMI	-.015	.856
weight	-.007	.936
Family History	.042	.606

The table above shows the relationships between the individuals who have skin changes without ulceration with each of the independent variables "factors" – in addition to the p-value of each relation.There is a statistically significant negative correlation between skin changes without ulceration and (What is the nature of your job) (p-value<0.01). There are negative correlations between Skin Changes With Healed Ulceration and each of (Age , BMI , weight) but they are not statistically significant (p-values > 0.01). There are positive

correlations between skin changes without ulceration and each of (Overtime (Hours) , Family History) but they are not statistically significant (p-values > 0.01).

Table (11) Having Skin Changes with Healed Ulceration :

Independent	Do You Have Skin Changes With Healed Ulceration?	
	Correlation	P-value
What is the nature of your job	-.099	.218
Overtime (Hours)	-.033	.675
Age	-.105	.192
BMI	-.125	.119
weight	.001	.989
Family History	.106	.193

The table above shows the relationships between the individuals who have Skin Changes With Healed Ulceration with each of the independent variables "factors" – in addition to the p-value of each relation.There are negative correlations between Skin Changes With Healed Ulceration and each of (What is the nature of your job Overtime (Hours) , Age , BMI), also there are positive correlations between Skin Changes With Healed Ulceration and each of (weight , family history). All correlations are not statistically significant because all (p-values) are greater than (0.01 ,0.05).

Table (12) : Do You Have Skin Changes With Active Ulceration

Independent	Do You Have Skin Changes With Active Ulceration?	
	Correlation	P-value
What is the nature of your job	-.133	.099
Overtime (Hours)	-.033	.680
Age	-.146	.070
BMI	-.125	.122
Weight	.001	.989
Family History	.109	.183

The table above shows the relationships between the individuals who have Skin Changes With Active Ulceration with each of the independent variables "factors" – in addition to the p-value of each relation.There are negative correlations between Skin Changes With Active Ulceration and each of (What is the nature of your job Overtime (Hours) , Age , BMI), also there are positive correlations between Skin Changes With Active Ulceration and each of (weight , family history). All correlations are not statistically significant because all (p-values) are greater than (0.01 ,0.05).

	Bowel Movement		Sole		Walking		Sitting		Standing	
	Correlation	P-value	Correlation	P-value	Correlation	P-value	Correlation	P-value	Correlation	P-value
What is the nature of your job	.136	.094	-.274**	.001	.115	.156	.136	.092	.189*	.019
Overtime (Hours)	-.031	.695	.018	.827	.087	.278	-.120	.133	-.104	.191
Age	.132	.103	-.134	.099	.030	.713	.166*	.039	-.054	.500
BMI	.237**	.003	-.075	.361	-.017	.837	.176*	.028	-.032	.692
weight	.058	.485	-.062	.464	-.049	.556	.192*	.021	.004	.959
Family History	-.087	.288	.040	.626	-.051	.536	-.064	.430	.095	.246

The table above shows the relationships between each of (Bowel Movement , Sole , Walking , Sitting , Standing) and (What is the nature of your job , Overtime (Hours) , Age , BMI , weight , Family , History) – in addition to the p-value of each relation.

There is a statistically significant negative correlation between (Sole & What is the nature of your job) with sig < 0.01.

There is a statistically significant positive correlation between (Standing & What is the nature of your job) with sig < 0.05.

There is a statistically significant positive correlation between (Sitting & Age) with sig < 0.05.

There is a statistically significant positive correlation between (Bowel Movement & BMI) with sig < 0.01.

There is a statistically significant positive correlation between (Sitting & BMI) with sig < 0.05.

There is a statistically significant positive correlation between (Sitting & Weight) with sig < 0.05.

IV. Discussion

Despite variation in detection of risk factors, there is no study about varicose veins among nurses especially in Saudi Arabia. According to the findings, it was identified that 73.9% of participants developed leg VV with varying degrees.Nasiri*et al*. demonstrated a similar result, as they expressed that 62.5% of the working nurses suffer from different degrees of varicose.12 Whereas, Ziegler and colleagues reported 34% prevalence rate for lower limb chronic venous diseases in the hospital staff.18 Likewise, Tomei*et al*. showed that 39.28% of industrial workers developed leg varicose.19 Based on the results of the present study, the incidence of varicose is almost twice in nurses than other professional groups and the general population[(19)].In this study, the highest prevalence of varicose intensity was related to telangiectasia which is in consistent with the results of the Nasiri study. Carpentier mentioned that the most severely impaired varicose veins was associated to grade II (C2)6; whereas Nasiri introduced telangiectasia far more frequent than otherdegrees of varicose among nurses, and reported leg oedema (C3) as the most intensified degree.12 However, in this study, 3.31% of leg varicose cases developed lipodermosclerosis (C4).[(20)] The difference seems to be owing to nurses' more years of service and overtime hours in the present study compared with Nasiri's; increase in the overtime hours can be, on one hand, due to lack of workforces in our study. As mentioned before, there is a significant correlation between the female gender and varicose intensity, which is in accordance with Carpentier and Laurikka*et al*.[(21)] It appears that pregnancy parity is an important factor for increased incidence of VV in women, as multiparous women have the highest prevalence of VV compared with nulliparous ones,3 and varicose are more observed during pregnancy, especially during the first3 months due to progesterone overproduction.20 In addition, pregnancy is accompanied by several physiological changes such as increased blood volume and subsequent(22) venous dilation, and along with fetal growth, uterine pressure on pelvic vessels, increased weight and abdominal pressure which lead to failure in venous valves and

Provide the groundwork for varicose veins.[(23)]On the other hand, relax in hormone secretion during pregnancy, which is secreted as a vasodilator to relax the pelvic ligaments and prepare cervix for discharge, contributes toexacerbating pressure on venous valves of lower limbs. In the present study, significant correlation was found between the varicose intensity and increasing age or longyears of service, which was similar to the investigations, and is probably because of enhanced pressure of surface veins resulting from leg muscle weakness and vascularwall damages following ageing.3 Among other factors shown to have positive relation with varicose intensity in previous studies, increase in BMI can be noted,5,6 to whichour study findings are similar. Considering that most of our participants were women, it has been indicated in a research that varicose intensity has meaningful relationshipwith elevated women's BMI, whereas the relationship has not been significant among men, and this could be owed to gender differences.[(24)] In this study, a trend was detected between regular exercises and varicose intensity, and therefore, protective effect of regular exercise might reduce the varicose intensity.In a study by Klonizakis*et al*. on patients with postoperative varicose veins, moderate to high walking was perceived as a strengthening factor for small-vessel innerwall function, and it was also indicated that there is no convincing evidence about increased risk of varicose incidence by long-term exercise.23 Statistical associationbetween family history and varicose veins and intensified symptoms in the present study are consistent with other investigations[(25)]

According to test results, no significant correlation was observed between bowelsmovements and varicose intensity. Although one-variable model results showed that regular bowel movements might decrease the varicose risk, which is in accordance with results of the Lee *et al*. study.15 Like other researches, mean weight augmentation exhibited a noticeable relation with varicose intensity in our study,12,15 but no correlation was shown between the average height and varicose intensity, similar to other reports.[(26)] However, Laurikka*et al*. introduced height increase as a risk factor in varicose creation1; the reason behind this difference might plausibly be our subjects' higher average height.Another part of the study showed that increased average years of services and overtime hours enhance varicose intensity; in other words, those with more years of serviceare at higher risk of varicose incidence and intensity. Like many other studies, significant relationship was detected between varicose intensity and the hours of standing and sitting in the present research, and contrasts with others.[(27)] Normally, blood hydrostatic pressure along with muscle contraction provides a field for venous blood flow towards the heart, while in standing position; this pressure does not help blood discharge from the veins. Therefore, occupations with long-standing hours can be part of the disorder-intensifying factors.3 The loss of the valvularmechanism in the deep venous system forces the blood to follow abnormal pathways, particularly during standing.[(28)] In the standing posture or during walking, the muscle pump pushes blood proximally, distally and out through the perforating veins into the superficial system. Byincreasing venous and capillary pressures, this sequence of events, over a period of many years, leads to chronic oedema, repeated inflammation and, finally, to the postphlebiticsyndrome including stasis ulcers that are difficult to manage and often disabling.[(29)]

Fowkes*et al*. found that sitting was associated with lower rates of venous insufficiency for women but not for men. They also found that walking was a risk factor for women with venous insufficiency when age adjusted, but less so when multiply adjusted, and that walking was related to lessened risk of venous insufficiency in men.[30] The biological basis for the standing hypothesis is the impeded blood flow and consecutive stasis in veins of the lower extremities because of increased intravascular hydrostatic pressure in an upright work position. Stasis in the venous system is a key mechanism in venous vascular disease. Stasis increases the risk for coagulation and thrombus formation. The same mechanisms operate during walking, but probably to a lesser degree becausethe activation of the leg muscle pump during walking might reduce the venous stasis associated with an upright position as long as the venous valves are intact. Once thevenous valves are incompetent, walking could actually increase venous pressure in the lower extremities because of a reversal in blood flow.[31]Hard and unsuitable situation among nurses causes ergonomics complications, for instance, VV. On the other hand, as nurses are responsible for main parts of the health system services, and women are the major constituents, while considering the problems of these specific class and regarding that increase in varicose intensity can affect work output and threat to physical and mental health, especially in older ages, as well as imposing a lot of costs to individuals and health-care systems, standard increase in nursing personnel for patient care, reducing working hours and diminishing the pension age seem to be necessaryfor preventing the prevalence and intensity of such disorder.[32]

V. Discussion

5.1 Conclusion

Necessary training IS needed to reduce disability and treatment expenses to adjust risk factors and prevention of inducing varicose is essential according to the high number of the nurses who have lower varicose veins with different intensities and the effect of lots of demographic and occupational factors.

Recommendations

the need for future researches in this field regarding occupational hazards of varicose veins among nurses

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