

# A Study on Effect of Self-Instructional Module on Knowledge Regarding the Prevention and Management of Varicose Veins among Traffic Police Employed in Selected District of West Bengal

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## ABSTRACT

The people who are involved with prolonged sitting or standing during their daily activities are prone to develop the varicose veins. The purpose of the study is to improve the knowledge regarding prevention and management of varicose veins among traffic polices. A pre-experimental study was conducted to find out the effect of Self-Instructional Module (SIM) on knowledge regarding the prevention and management of varicose veins among Govt. employed traffic polices. One group pre-test post-test design was adopted for the study. Purposive sampling technique was used to select 60 traffic police employed in selected district of W.B. A structured questionnaire was developed to collect socio-demographic data and structure knowledge questionnaire was developed to assess knowledge before and after introduction of the SIM. The SIM was developed and validated by nine experts. Validity and reliability of the knowledge questionnaire was established before data collection. The findings revealed that, the mean post-test knowledge score (13.51) was higher than the mean pre-test knowledge score (6.83) with significant difference between pre-test and post-test knowledge score ' $t=15.51$ ,  $p<0.05$ '. Significant association ( $p < 0.05$ ) between pre-test score of knowledge on prevention and management of varicose veins with history of hypertension. There was no association between the pre-test knowledge score and selected socio demographic variables (age, weight, height, gender, education, total service experience, duty hours per day, position adapting during duty

hours, history of varicose vein, family history of varicose veins, exercise, alcohol intake and smoking habit). Therefore the study concluded that SIM was highly effective in improving the knowledge of the traffic police employee regarding prevention and management of varicose veins.

**Key words:** Varicose veins, Self-instructional Module, Traffic police employee, Prevention and management

## INTRODUCTION

Health is the level of functional or metabolic efficiency of leaving being. Health is deeply related to lifestyle. Today increasing emphasis is placed on health, health promotion, wellness and self-care. Millions of workers spend majority of the working hours on their feet and in static positions. Standing consumes 20% more energy than sitting and because human bodies are not designed to stand continuously at work. Prolonged standing can develop to tiredness, loss of concentration, varicose vein and increased health risks. [1]

Varicose veins are abnormally dilated, elongated and tortuous veins, often dark blue in colour, affecting near or above the superficial surface of the skin, mainly seen in the lower limbs. Professions which involved in standing or sitting for prolonged periods of time, have an increased risk of developing varicose veins i.e. store clerks,

waitresses, hairdressers, traffic polices, flight attendants, teachers, nurses, bus or tram conductors. [2]

Canadian Centre for Occupational Health and Safety published a report on health effect related to working with standing position. The report shows that traffic police are doing their duty most of the time in the standing position. This prolonged period of standing effectively reduces the blood supply to the loaded muscles. Insufficient blood flow accelerates the onset of fatigue and causes pain in the muscles of the legs, back and neck. When standing position continuously maintained for a prolonged periods, it can result in inflammation of the veins. [3] The deep and superficial veins get damaged because of prolonged standing. Once the vein is damaged there is a reversal of blood flow from deep to superficial vein. It is generally believed that occupations involving prolonged standing and walking rise venous pressure in the legs for a long period of time and aggravates any inherent tendency to varicose. An analysis of occupation in varicose veins patients has shown that the incidence was greater (67%) in people whose occupations involved prolonged standing and walking. [4]

As per the census of WHO (2007), 2% of the western population have varicose vein, women have 3-4 times more than men. Varicose veins are least found in Eastern population. Statistics as per the country for prevalence of varicose veins is 45 per 1000. It was showed approximately one in 22 for U S A. In India the varicose vein show an effect on one out of 2 people aged 50 years. [5]

The people who are involved with prolonged sitting or standing in their regular activities, tends to get varicose veins. So prevalence of varicose veins are high in working personal like nurse, flight attendants, bank staff, teacher, security guard, traffic polices etc. Successfully prevention and management of varicose vein depend on knowledge that makes the life style modification. The reason is the

same for the traffic police who professionally need to stand for a prolonged period on the road side, placing them at highly risk to develop varicose veins and they required a teaching aid on prevention and management of varicose veins.

The prevalence of varicose veins is showing an upward trend in most of the countries and every one person out of five in this world suffers from varicose veins. The prevalence increases with age, peaking 50s and 60s and decreasing dramatically after 70s. It is highly prevalent in people with prolonged standing and obesity. [6]

An epidemiological study by Malhotra SL [7] showed that the overall prevalence of varicose vein was significantly higher among South Indian sweepers (25.08%) than North Indian sweepers (6.8%). This study also concluded that, in the prevalence of varicose veins, patterns of diet and occupation may play an important part. Therefore, it was concluded that varicose veins may be preventable. People with prolonged standing are at high risk of developing varicose veins and to get its complications. Since the traffic police employees spend most of the time in standing position and they are prone to get lower limb symptoms like itchiness, heaviness, and cramps, burning sensation, swelling and pain. Later may cause the superficial swollen veins, which lead to varicose veins. More over varicose veins can be prevented, so there is a need to educate the traffic police personnel regarding this condition in order to prevent it.

Health education is an independent function of nursing practice and a primary responsibility of nursing profession. The nurses are supposed to not only give health education to her patient but also to the family and the community. There is a need of the health care professionals to recognize the need to educate the public regarding various emerging diseases. Hence the investigator felt to improve the knowledge of traffic police regarding prevention and management of varicose veins through

administration of self-instructional module. With this view the researcher has taken up the research study and planned to increase the knowledge regarding prevention and management of varicose veins.

## METHODOLOGY

An evaluative approach was used in the study. A pre-experimental design with one group pre-test-posttest design was used and based on the study criteria, government employed traffic police were recruited from a selected district of West Bengal through purposive sampling. Data were collected from 60 traffic police personnel during December 2018 to Jan 2019 through self-administered knowledge questionnaire before and after giving SIM. SIM on prevention & management of varicose vein related knowledge questionnaire were validated by the 9 experts and reliability was established by using Test-retest technique. The reliability co-efficient was computed by Pearson's product moment and it was found  $r = 0.83$  thus the tool is considered to be reliable. Prevention & management of varicose vein related knowledge questionnaire has 20 questions. SIM is organized in 5 units which include meaning, structure of venous system of lower limb, incidence of varicose veins causes and risk factors sign and symptoms, prevention, management of varicose veins and complication of varicose veins. Tool was translated to Bengali & retranslated back to English by the language experts. Socioeconomic data & pre-test knowledge questionnaire was administered in day one and then SIM was administered. Post knowledge test was conducted on day eight. Pilot study was conducted before conducting final study and it was found to be feasible. Ethical permission was taken from clinical research ethics committee. Permission was taken from the Superintendent of Police from selected police station. Informed consent was taken before data collection. Anonymity & confidentiality was maintained. Descriptive statistics were used to describe the sample

characteristics. The 't' value was computed to find out the effectiveness of the self-instructional module from the difference of mean knowledge score. The Chi square values were computed to find out the association between the knowledge level and demographic characteristics.

## RESULTS

Table No- 1: Frequency and percentage distribution of Traffic police personnel related to Socio- demographic Characteristics. N= 60

Sample Characteristics	Frequency	Percentage
<b>Age(Year)</b>		
25- 34	35	58.3
35- 44	14	23.3
45& above	11	18.3
<b>Gender</b>		
Male	58	96.6
Female	02	3.3
<b>Educational Qualification</b>		
Madhyamik	26	43.3
Higher secondary	18	30
Graduation & above	16	26.6
<b>Duty Hours(Per Day)</b>		
8	55	91.6
>8	05	8.3
<b>Position adapted while on duty</b>		
Standing	46	76.6
Sitting	05	8.3
Both Sitting & standing	09	15
<b>History of varicose vein</b>		
No	60	100
Yes	0	0
<b>Family History of Varicose vein</b>		
No	57	95
Yes	03	5
<b>History of chronic diseases</b>		
No	57	95
Yes	03	5
<b>Alcohol intake</b>		
No	42	70
Occasionally	16	26.6%
Regular	2	3.3%

Table-1 depicts that 58.3 % traffic polices who have participated in the study are in the age group between (25-34 years). Most of 58 (96.6%) traffic police who have participated in the study are male. 43.3% of the participants are educated up to Madhyamik. Majority (70%) of their service experiences are 10 years, most of their (91.6%) duty hours per day are 8 hrs. Majority (76.6%) of them adapted standing position during duty hours. Only 5% of them having family history of varicose veins and 26.6% of them have history of occasionally alcohol intake.

N=60

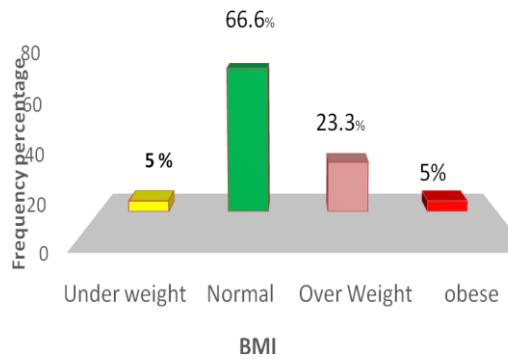


Figure-1: Bar diagram showing percentage distribution of traffic police according to BMI.

In figure-1, bar diagram shows that 66.6% of traffic police have normal BMI and 5% of them are obese.

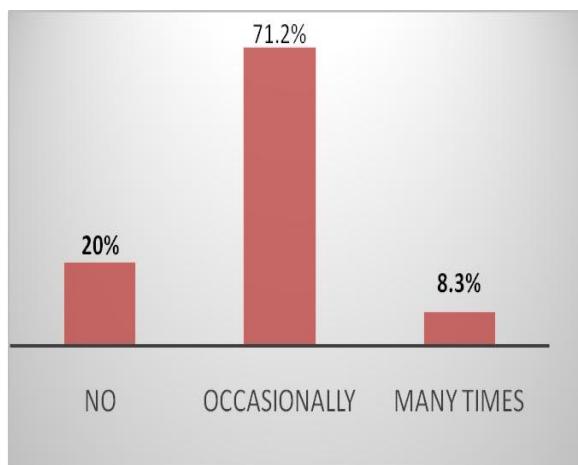


Fig 2: Bar diagram showing percentage distribution of traffic police according to exercise habit.

In figure-2 bar diagram shows that 71% traffic polices have exercise habit occasionally and only 8.35% have regular exercise habit.

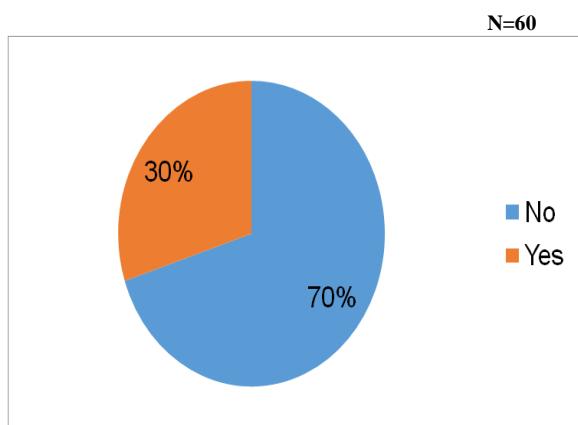


Figure -3: The percentage Distribution of study subjects according to smoking habits.

In figure-3, pie diagram shows 30% traffic police personnel have smoking habit.

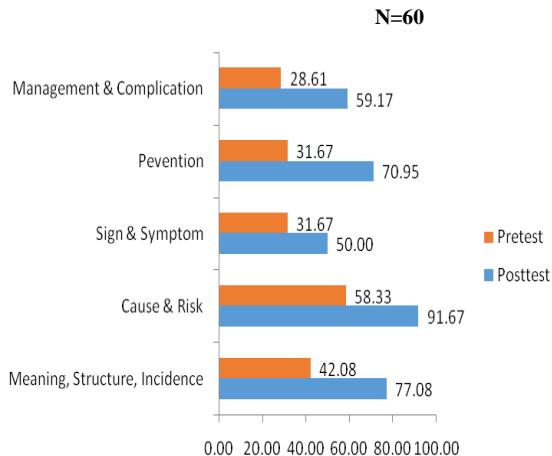


Figure- 4: Area wise comparison of pre-test and post-test (mean %) knowledge score of traffic police on prevention and management of varicose veins.

The figure-4 depicted that, in pre-test highest score (58.3%) noticed in the aspect of causes and risk factors of varicose veins and lowest score (28.6%) noticed in the area of management and complication of varicose veins. In post-test the highest score (91.6 %) noticed in the area of causes and risk factors of varicose veins and lowest score (50%) observed in the area of signs and symptoms of varicose veins.

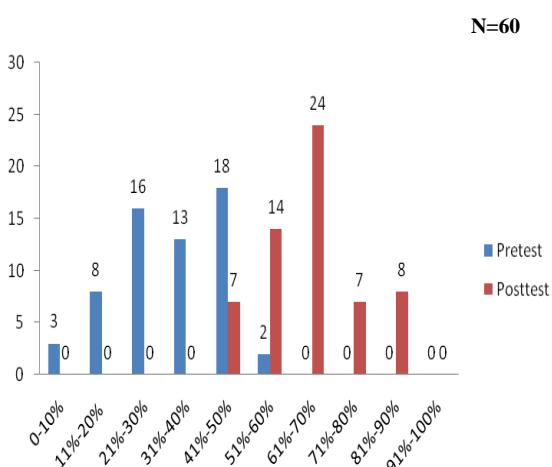


Figure -5: Percentage of pretest and post-test knowledge score of traffic police -regarding prevention and management of varicose veins.

In figure-5, the pre-test score showed that the most (78%) of traffic polices have scored between 21 to 50% and

in post-test majority (64%) of them have knowledge score between 51 to 70% regarding prevention and management of

varicose veins. It infers that after administration of SIM their knowledge scores increased.

**Table -2: Mean, Median, Standard deviation and 't' value of pre-test, post-test knowledge score of traffic police. N= 60**

	Mean	Median	Standard Deviation	't' value	P-value
Pre-test	6.83	7	2.63		
Post-test	13.51	14	2.18	15.51*	0.0001
<b>p&lt;0.05* highly significant</b>					

This data presented in the table-2 shows that the post-test mean knowledge (13.51) of traffic police regarding prevention and management of varicose veins was apparently higher than the pre-test mean knowledge score (6.83). The median of post-test knowledge score (14) found to be higher than the median of pre-test knowledge score (7), thus it can be inferred that the post-test knowledge score was higher than pre-test knowledge score. Hence, the null hypothesis is rejected and research hypothesis is accepted. The difference obtained is true mean and not by chance. Therefore the self-instructional module regarding prevention and management of varicose veins was effective in increasing knowledge of traffic polices.

**Table-3: Association between pre-test knowledge score and selected demographic characteristics. N=60**

Sample Characteristics	Below Median	At & Above Median	Chi Square	P-value	Inference
<b>Age (Years)</b>					
<35	17	20	0.035	0.852	Not significant
>35	10	13			
<b>BMI</b>					
Normal	20	20	0.29	0.859	Not significant
Over Weight	9	11			
<b>Education</b>					
Madhyamik	14	12	1.457	0.483	Not significant
Higher Secondary	7	11			
Graduation & Above	6	10			
<b>Service Experience(year)</b>					
<5	5	4			
5 – 10	17	22	0.490	0.783	Not significant
>10	5	7			
<b>History of chronic diseases</b>					
No	3	0	3.860	0.049	<b>Significant</b>
Yes	24	33			
<b>Exercise Habit (Per Week)</b>					
No	5	8			
Occasionally	20	23	0.305	0.859	Not significant
Many times	2	2			

Data presented in table-3, depicted that the chi square ( $\chi^2$ ) value computed between pre-test knowledge score and demographical characteristics i.e educational qualification, service experience, age, BMI & exercise habits are not significant at 0.05 levels. Pre –test knowledge score is only significantly associated with history of chronic diseases at 0.0001 levels. Since the values of this table contain '0' and '3' (that is <5),  $\chi^2$  test is applied. However, for learning purpose, by applying of 'Yate's correction, the result is found significant which suggest that probably by gathering more number of

study subjects the result would have been considered significant.

## DISCUSSION IN RELATION TO OTHER STUDIES

It is observed from the findings of the present study that maximum (66.6%) participants have relatively low levels (score<40%) of baseline knowledge on prevention and management of varicose veins compared to what is expected. This is supported by the study conducted by Jaya Priya.G [8] which showed in his study that majority (60%) of Leather Industrial

workers had inadequate knowledge regarding prevention of varicose veins. Whereas Abrahamson JH & Hopp C [9] study revealed that majority (62.5%) of staff nurses were aware regarding the causes, prevention and management of varicose veins while remaining (37.5%) had poor knowledge regarding causes, prevention and management of varicose veins.

The present research study findings revealed that there is a high significant ( $t^{59}=15.54$ ,  $p<0.05$ ) difference between the mean pre-test ( $x^1=6.83$ ) and post-test ( $x^2=13.51$ ) knowledge scores. There was also significant difference between the mean knowledge score of pre and post-test in all the areas. It was evident from the above findings that the administration of the self-instructional module improved knowledge of traffic polices in all the areas of varicose veins. The findings of the study is consistent with a study conducted by Annigeri SS [10] to assess the knowledge of traffic police regarding prevention and control of varicose veins. The study result revealed that the mean post- test knowledge score (30.1) was higher than the mean pre- test knowledge score (17.1). The calculated 't' value ( $t_{39}=29.99$ ) was higher than the table value ( $t_{39}=1.66$ ,  $p<0.05$ ), which showed significant difference between pre- test and post -test knowledge score. The result proved that the SIM was effective and improved the knowledge level of traffic police on prevention of varicose veins. This study also supported by Kapil Sharma [11] to evaluate the effectiveness of self-instructional module on prevention of varicose veins among traffic police personnel in a selected police station at Mangalore. Further effectiveness of self-instructional module was tested by inferential statistics using paired 't' test ('t'=24.93 P<0.0001). As a whole, the study showed that the self- instructional module was very effective in increasing the knowledge of traffic police personnel on prevention of varicose veins. This indicated that the administration of SIM is effective in

increasing the knowledge of the traffic police.

The present study also showed that, there is no significant association between pre-test knowledge of traffic polices and their selected demographic like, age, weight, height, qualification, year of working experience & habit of doing exercise. These finding supported by the study is conducted by Ann Barnes el at [12] which showed that there is no significant association between knowledge of teacher and selected demographic variables.

There was an association between pre-test knowledge of traffic polices and their history of chronic diseases and it may be explained that their chronic disease condition motivated them for information seeking.

The findings of the present study have implications in the field of nursing education, nursing practice, nursing administration and nursing research. The curriculum should give importance on health education and should emphasize more on public to impart health information regarding prevention and management of varicose veins and other venous diseases. Nurses can organize in-service education, training programme and continue education to rises the knowledge of health professionals, Traffic police, security guard, hair dresser and teachers in order to improve knowledge on prevention and management of varicose veins and other venous diseases. Nursing administrator should plan and implement outreach programmes to make the public awareness about influence of mass media on prevention and management of varicose veins and can assign nurses to conduct health education programmes in traffic booth. The staff should be motivated to prepare teaching materials and audiovisual aids regarding various health related topics such as deep vein thrombosis, risk factors of heart disease and display them in the wards, OPD's and in the community settings, road sites etc. More research can be done exploring the area of knowledge and practice related to

prevention and management of varicose veins. The findings of the study can be utilized for conducting research using large sample.

This study included risk personnel, so chances of implication of knowledge are much more. It has limitation too. Those are age, weight, height, sex, duty hours, family history of Varicose vein, habit of doing exercise were not under the control of the researcher secondly this study did not give any idea about the implication of knowledge in the practical life. Thirdly, sample size of this study was small hence generalizations of the findings were limited.

On the basis of the findings the following recommendations are established for future study.

A comparative study can be undertaken with the control group and the experimental group.

An observational study can be done on practice of traffic police regarding the prevention and management of varicose veins

## CONCLUSION

The study concluded that the traffic police need to give awareness regarding varicose vein and its complication due to long standing works. SIM is very useful to educate general people regarding different healthy practices & prevention of diseases.

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**Conflict of interest:** None

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