

Health status of traffic police personnel in Chennai city

Sridher S.¹, Thulasiram S.², Rishwanth R.³, Sakthivel G.⁴, Rahul V..⁵, Maheswari R. U.^{6*}

DOI: <https://doi.org/10.17511/ijphr.2017.i4.05>

¹ Sridher S., Government Medical College, Chennai, Tamil Nadu, India.

² Thulasiram S., Government Medical College, Chennai, Tamil Nadu, India.

³ Rishwanth R., Government Medical College, Chennai, Tamil Nadu, India.


⁴ Sakthivel G., Government Medical College, Chennai, Tamil Nadu, India.

⁵ Rahul V., Final year students, Government Stanley Medical College, Chennai, Tamil Nadu, India.

^{6*} Uma Maheswari R., Associate Professor, Government Medical College, Chennai, Tamil Nadu, India.

Background: The work environment constitutes an important part of man's total environment, so health to a large extent is affected by work conditions. These personnel have to undergo physical strain in an environment polluted by fumes, exhaust of vehicles, use of blowing horns, blow of dust in the air by the speeding vehicle, under hot sun, etc. **Objective:** To assess the health status of the traffic police personnel in Chennai city. **Methodology:** Cross sectional study was conducted among 139 traffic police personnel in Chennai city. After obtaining informed consent, information regarding socio-demographic profile, job experience and physical health profile was collected using a pre-structured proforma. **Results:** Among the study population, 134 (96.4%) were males and 5 (3.6%) were females. Thirty two (23%) were diabetic, 32 (23%) were hypertensive, 17 (12.2%) had respiratory problems, 26 (18.7%) had skin problems, 70(50.4%) complained of low back pain, 34 (24.5%) reported eye problems, 20 (14.4%) had low PEFr, and 18 (12.9%) were found to have varicose veins by Trendelenberg's test. Significant association ($p < 0.05$) was found between years of service with diabetes, hypertension, abnormal waist circumference and usage of personal protective equipment (mask and sun glasses). **Conclusion:** Regular screening and health education programs need to be implemented. Lifestyle modification, smoking and alcohol control and stress alleviation should be an integral component of these health-related activities.

Keywords: Health status, Occupational hazard, Traffic police personnel

Corresponding Author	How to Cite this Article	To Browse
Uma Maheswari R., Associate Professor, Government Medical College, Chennai, Tamil Nadu, India. Email: raprum5@gmail.com	Sridher S, Thulasiram S, Rishwanth R, Sakthivel G, Rahul V, Maheswari RU. Health status of traffic police personnel in Chennai city. Public Health Rev Int J Public Health Res. 2017;4(4):98-103. Available From https://publichealth.medresearch.in/index.php/ijphr/article/view/67	

Manuscript Received
2017-08-16

Review Round 1
2017-08-26

Review Round 2
2017-09-04

Review Round 3

Accepted
2017-09-09

Conflict of Interest
No

Funding
Nil

Ethical Approval
Yes

Plagiarism X-checker
8%

Note



© 2017 by Sridher S., Thulasiram S., Rishwanth R, Sakthivel G., Rahul V., Uma Maheswari R. and Published by Siddharth Health Research and Social Welfare Society. This is an Open Access article licensed under a Creative Commons Attribution 4.0 International License <https://creativecommons.org/licenses/by/4.0/> unported [CC BY 4.0].



Introduction

With the increase in urbanization, many cities around the world are experiencing a very rapid growth in the number of vehicles which lead to serious traffic congestion problems. To ensure a steady move on the traffic congestion, the traffic police have to work in midst of hundreds of noisy and polluting vehicles throughout their working hours [1].

This is the reason to accept that occupational environment also plays a major role on the health of the exposed. The health hazards get more severe when the duration of exposure increases. This fact is more important in situations as the personnel engaged in traffic duty [2].

They deal on a regular basis with an assortment of unique situations and stressors. Working throughout the day in such an atmosphere produces adverse physical and psychological effects. Various factors keep policemen under constant workload, which make it common for them to neglect their general health, and at times engage in deleterious habits which affect their health.

Long, unpredictable working hours, shift duty, sudden encounter to events demanding high physical and psychological ability is the life of Traffic Police Personnel. A study was thereby conducted to assess the health status of the traffic police personnel in Chennai city and to find out the related risk factors so that appropriate preventive measures can be recommended for safe guarding their health.

Materials and Method

Design of study: Cross sectional study.

Study period: July and August 2016.

Study population: Traffic police personnel working in Greater Chennai city.

Sample size: 139 was calculated using this formula where Z was 1.96, prevalence (p) was 38% and an absolute precision was 6%. 4504 traffic police personnel were working in Chennai city and 139 study participants were selected using systematic random sampling.

Data collection: Before conducting the study, a prior permission was obtained from the Additional Commissioner of Police, Traffic, Greater Chennai and Institutional ethical committee, Stanley Medical college.

All study participants were informed well in advance about the day and date on which the study was to done and they were asked to come to H-8 Police station, Thiruvottiyur according to their scheduled date.

After obtaining informed consent from the participants, a pre-structured and pre-tested questionnaire was used for obtaining information regarding demographic characteristics, usage of personal protective equipment (PPE), family history (diabetes, hypertension), past medical history, dietary profile, smoking and alcohol status of the police personnel and health status was assessed by conducting appropriate anthropometrical and clinical examinations.

Anthropometric measurements like height, weight, BMI and waist circumference were measured. Visual acuity was tested using Snellen's chart. Varicose veins of legs were detected by Trendelenberg's test. Peak Expiratory Flow Rate (PEFR) was measured using a portable peak flow meter and three readings were measured. The highest value from three measurements was taken. Blood was collected from 133 participants and analysed for cholesterol. Six participants refused for blood examination.

Statistical analysis: Data was analysed using SPSS 21 version by proportions and chi-square was used to test the significance.

Ethical aspects: The study protocol was submitted to the Institutional Ethics Committee of Govt Stanley Medical College, Chennai and clearance was obtained for conducting the study. Informed consent was obtained from all the study participants. All the information that is collected was kept confidential. Specific disease identified during the study was conveyed to the participants and necessary medical advice given.

Results

Out of total 139 traffic police personnel, 134 (96.4%) were males and 5 (3.6%) were females. Among them 34 (24.5%) were below 40 years of age, 63 (45.3%) were between 40 and 50 years, and 42 (30.2%) were above 50 years of age. Considering the years of service 11 (7.9%) had service less than 10 years, 61 (43.9%) between 10 and 20 years, and 67 (48.2) had service above 20 years. Among 139 participants 54 (38.8%) were alcoholic, and 27 (19.4%) were consuming tobacco either in smoke form or smoke-less form (Table 1).

Table-1: Socio-demographic profile of study participants

Variables	Frequency	Percent
Age in years		
<40	34	24.5%
40 - 50	63	45.3%
>50	42	30.2%
Gender		
Male	134	96.4%
Female	5	3.6%
Years of service		
<10	11	7.9%
10 - 20	61	43.9%
>20	67	48.2%
Alcohol consumption		
Yes	54	38.8%
No	85	61.2%
Tobacco use		
Smoke form	17	12.2%
Smokeless form	10	7.2%

Seventy five (54%) subjects were using personal protective equipment (both mask and sunglass) whereas 64 (46%) subjects were non-users. Among 64 non-users, 58 claimed that they were provided with PPE but not using on their own. In our study population only 34 (25.9%) subjects were using sun glasses. Sixty nine (49.6%) subjects had family history of either diabetes or hypertension. Mostly all the subjects were under periodical health examinations either half-yearly or annually.

Among 139 participants, 32 (23%) were diabetic, 32 (23%) were hypertensive, 17 (12.2%) had respiratory problems like allergic rhinitis and pharyngitis, 26 (18.7%) had skin problems, 70 (50.4%) complained of low back pain, 34 (24.5%) reported eye problems like burning sensation, redness, watering and itching, 18 (12.9%) were found to have varicose veins by Trendelenberg's test, and 20 (14.4%) had low PEFR (Peak Expiratory Flow Rate) i.e., less than 400 lit/min (Table 2).

Table-2: Different morbidities detected

Different morbidity	Number	Percent
Diabetes mellitus	32	23%
Hypertension	32	23%
Respiratory problems	17	12.2%
Skin disorders	26	18.7%
Low back pain	70	50.4%
Eye problems / visual difficulties	34	24.5%
Varicose veins	18	12.9%

According to WHO's BMI classification for South Asian Indian population, one (0.7%) was underweight (<18), 15 (10.8%) were normal weight (18-22.9), 23 (16.5%) were overweight (23-24.9) and 100 (71.9%) were obese (≥ 25). Among 139, 107 (77.7%) had abnormal waist circumference of ≥ 90 cm in male and ≥ 80 cm in female and were obese. Among overweight (BMI 23-24.9) and obese (BMI ≥ 25), 10 and 27 of them had abnormal cholesterol value respectively and association between BMI and cholesterol values were not statistically significant. (Table 3)

Table-3: Distribution of study participants according to their BMI and Waist circumference

	Frequency	Percent
BMI		
<18	1	0.7%
18-22.9	15	10.8%
23-24.9	23	16.5%
>25	100	71.9%
Waist circumference		
Normal	31	22.3%
Abnormal	108	77.7%
Serum cholesterol (n=133)		
< 200mg	94	70.7%
>200mg	39	29.3%

The association between years of job experience and usage of personal protective equipment, Diabetes, Hypertension and obesity were found to be statistically significant but association between job experience and varicose veins was not significant (Table 4)

Table-4: Distribution of study participants according to years of experience and health conditions

	Years of job experience			X ² (p value)
	<10	10-20	>20	
PPE				
USER	1	37	37	10.05 (0.0065)
NON-USER	10	24	30	
Diabetes				
YES	0	6	26	18.69 (0.0001)
NO	11	55	41	
Hypertension				
YES	1	8	23	9.41 (0.009)
NO	8	53	44	
Waist circumference				
Normal	5	17	9	7.5 (0.02)
Abnormal	6	44	58	

Varicose veins				
YES	3	8	7	2.37 (0.3)
NO	8	53	60	

Discussion

The current study was done using a pre-structured questionnaire and also by performing certain examinations. So it is largely dependent upon information given by the participants. Although traffic police personnel were informed to provide the information independently and honestly, mutual influence between traffic police personnel could not be entirely ruled out.

In the present study 134 (96.4%) were males and 5 (3.6%) were females, 34 (24.5%) were below 40 years of age, 63 (45.3%) were between 40 and 50 years and 42 (30.2%) were above 50 years of age. This is almost similar to the study done by Paresprajapati et al, where 68.87 % traffic police personnel were in age group of 35 years to 55 years and 98.54% were males [3].

The reason for women not preferring this job can be attributed to the nature of the job like long standing working hours, polluted, hot and noisy working environment, special duties which extends duty hours and lack of time to fulfill their roles as home makers and mothers.

The prevalence of Diabetes and Hypertension in the present study was 23% each and there was a statistically significant association between years of service with prevalence of diabetes and hypertension. Similarly, a study done among the police personnel in Akola city, Maharashtra by Aggarwal sumit et al, found 11.98% were diabetic and 15.82% were hypertensive [4].

This could be related to work related stress (accidents, traffic rules violation, public procession, traffic jams) which results in sleep disturbance, depression, fatigue, dissatisfaction, alcohol consumption and smoking in traffic police persons and these factors also underlying risk factor for Diabetes and Hypertension.

Since there is direct relationship between cardiovascular risk and blood pressure and diabetes, its right time for government to take measures to reduce stress like increase traffic police personnel according to population and increasing vehicle numbers, strict rules for vehicles speed limit, and separate track or lane for two wheelers and four wheelers etc.

Low back pain is a common health problem for traffic police personnel. The current study reports that 50.4% had low back pain. Study by Anderson et al showed that participants age ranged from 31-50 years had a incidence rate of 71% [5]. Studies routinely report 60-85% of the general adult population, have a lifetime prevalence of LBP [6,7].

In the current study 19.4% reported smoking, 12.2% had respiratory problems like allergic rhinitis and pharyngitis and 14.4% had low PEFR (Peak Expiratory Flow Rate. In a study done in Bengaluru found 58.3% of traffic police personnel had low PEFR(<500L/min) [8]. Similarly, study done on Jalgaon city's traffic policemen found a significant decrease in PEFR [9].

This may be due to exposure to vehicular pollution for several hours in a day for many years causing decreased functional capacity of the lungs and chronic smoking worsens the condition. There is no significant association between smoking and low PEFR values. But in the study done by Valic et al, in the smoker group, there was decrease in all the values in the traffic police personnel compared to the general police personnel, except the tidal volume [10].

18.7% reported skin problems are mainly photosensitivity dermatitis and contact eczema whereas in the study done by Paresprajapati et al ,11.62% had skin problems [3]. There is no significant association between the years of service and incidence of skin problems ($p>0.05$). Even traffic booths are available at each signal, they are made to stand in the road to regulate traffic which expose them to sun more. Skin problems are preventable when sun protection measures like using sun screen lotion and wearing full sleeved shirts when they outdoors are implemented.

In the present study 24.5% reported eye problems like burning sensation, redness, watering and itching. In the study of Paresprajapati et al, the prevalence of eye problems was 44.81%, in which most common problem was burning sensation [3]. This could be attributed to job nature of exposing to dusty polluted environment glare of powerful lights during night and not wearing sun glasses consistently.

In the current study 12.9% traffic police personnel had varicose veins, while the studies conducted by Satapathy et al and Paresprajapati et al reported only 4.17% and 2.91% persons had varicose veins of legs respectively [2,3].

This may be due to prolonged standing working hours or may be due to obesity [11]. According to WHO's BMI classification for south Asian Indian population, 16.5% were overweight and 71.9% were obese and 77.7% were diagnosed to have abdominal obesity. Similarly, in the study by Satapathy et al, 25.7% were overweight, 57.6% were obese and 62.1% had abdominal obesity [2].

This can be attributed to skipping food and eating fast food while on duty, sedentary working nature and alcohol consumption. Since obesity is closely associated with the development of life-style diseases, they should be educated about importance of physical activity and regular diet intake.

In the current study there is no association between BMI and varicosity prevalence ($\chi^2 = 4.4040$ $p=0.2210$) but 88.9% subjects who had varicose veins have BMI above 25.

Prolonged standing, age, weight lifting, genetic weaknesses in the vessel walls, low fibre diet, increased straining during bowel movements are the risk factors for developing varicose veins [12]. Numerous other studies have similarly found that standing for long time is a risk factor for varicose veins [13,14].

The limitation of study was its low sample size and hearing impairment was not done due to lack of infrastructure (sound proof room) which will be considered in the future study.

Conclusion

The present study suggests that traffic police personnel do not have adequate knowledge on occupational hazards and are at a high risk of developing non-communicable diseases. The possible reasons are poor physical activity, not using safety measures, distorted sleep cycle, faulty food habits and undue work pressure.

At the same time, Work site programs to enhance the health and fitness of police officers are generally lacking, but it can be an effective means for reducing their health problems. Regular screening and health education programs need to be implemented. Lifestyle modification, smoking and alcohol control and stress alleviation should be an integral component of these health-related activities.

They look after the well-being of the public, so their well-being also should be taken care.

Reference

01. Al-Alawi R. Member IAENG- Web-based intelligent traffic management system. Proceedings of the World Congress on Engineering and Computer Science, San Francisco, USA. 2009;1;20-22. [Crossref]
02. Satapathy D, Behera T, Tripathy R. Health status of traffic police personnel in brahmapur city. Indian J Community Med. 2009;34(1)71-2. doi: 10.4103/0970-0218.45380 [Crossref]
03. Prajapati P, Modi K, Rahul K, Shah A. A study related to effects of Job Experience on Health of Traffic Police Personnel of Ahmedabad city. International Journal of Interdisciplinary Studies. 2015;2(6)127-133. [Crossref]
04. Sumit S A, Deepti DA, Kalpana M K, Nandkeshav R A, Prakash R B. Cross Sectional Study of Obesity in Police personnel in Akola city, Maharashtra, India. Int J Health Sci Res. 2015;5(3)6-11. [Crossref]
05. Anderson GS, Zutz A, Plecas DB. Police officer back health. The Journal of Criminal Justice Research. 2011;2(1)1-17. [Crossref]
06. Makwana AH, Solanki JD, Gokhale PA, Mehta HB, Shah CJ, Gadhavi BP. Study of computerized spirometric parameters of traffic police personnel of Saurashtra region, Gujarat, India. Lung India- official organ of Indian Chest Society. 2015;32(5)457-61. [Crossref]
07. Anderson GS, Plecas DB, Segger T. Police officer physical abilities testing- Re-validating a selection criteria. Policing- An International Journal of Police Strategies and Management. 2001;24(1)8-31. [Crossref]
08. Radhakrishna V, Rajagopal Y, et al. Health Status of Traffic Police Personnel- A Cross-Sectional Study. Journal of medical science and clinical research. 2016;4(12)15075- 15079. DOI: [Article] [Crossref]

09. Ingle ST, Pachpande BG, Wagh ND, Patel VS, Attarde SB. Exposure to vehicular pollution and respiratory impairment of traffic policemen in Jalgaon City, India. *Ind Health*. 2005;43(4)656-662.
[Crossref]
10. Valić F, Beritić-Stahujak D, Yousefy I, Butković D, Gregorić J. Influence of traffic air pollution on the carboxyhemoglobin level and ventilatory function of the lung. *Acta Med Iugosl*. 1973;27(5)465-78.
[Crossref]
11. Peter W. Bailey and Love's short practice of Surgery. 24th ed, London- Hodden Head Line Group. 2004.
[Crossref]
12. Sisto T, Reunanen A, Laurikka J, Impivaara O, Heliövaara M, Knekt P, Aromaa A. Prevalence and risk factors of varicose veins in lower extremities- mini-Finland health survey. *Eur J Surg*. 1995;161(6)405-14.
[Crossref]
13. Komsuoğlu B, Gödeli O, Kulan K, Cetinarslan B, Komsuoğlu SS. Prevalence and risk factors of varicose veins in an elderly population. *Gerontology*. 1994;40(1)25-31.
[Crossref]
14. Krijnen RM, de Boer EM, Adèr HJ, Bruynzeel DP. Venous insufficiency in male workers with a standing profession. Part 1- epidemiology, *Dermatology*. 1997;194(2)111-20.
[Crossref]