

Health Status of Traffic Police Personnel of Nagpur City in Maharashtra

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ABSTRACT: Traffic police personnel men are people with outdoor occupations in urban areas. Unfortunately, traffic police personnel have a risk of certain diseases related to their occupation and lifestyle. The place of work is a significant part of a man's working environment as he spends at least 8 hours a day at work. That's why health is affected by the working environment to a large extent. The working environment constitutes an essential part of man's bio-social environment. So, health to a large extent, is affected by working conditions. The research paper aims to assess the health status of the traffic police personnel of Nagpur city in Maharashtra. The study was conducted among the Traffic police personnel of the Nagpur city of Vidarbha region in Maharashtra. A non-random sampling technique was used to select 252 police personnel out of 644 traffic police personnel of Nagpur city. The health status of traffic police personnel was assessed by using a structured interview schedule and by conducting anthropometric measurements and clinical examination of the subject. The present study revealed a significant difference in age and sex-wise distribution of body mass index (BMI) among males and females ($p < 0.001$). Out of the total sample (252) selected for the study, 59.5% of police personnel suffered from muscular skeleton disorder, and 17.4 % had lung function problems. 5.5 % of police personnel suffered from heart-related problems, hypertension was observed 2.7 %, and diabetes in 7.5 % of police personnel. 18.1 % of personnel were obese, and overweight in about 52.3 % of traffic police personnel.

INTRODUCTION

Health is a state of complete physical, mental and social well-being, and not merely the absence of disease or infirmity. It is a fundamental right of every human without distinction (WHO, 1948). Traffic police personnel are people with outdoor occupations, mainly in urban areas. They play an essential role in maintaining traffic in cities. They are responsible for maintaining and controlling the free flow of traffic at various squares and roads of the city. They always face threats to their health due to exposure during

their duty hours. Traffic police spend at least eight hours a day at work. So health is affected by the working environment. They are continuously exposed to dust, exhausted vehicular gases, fume, noise, radiation, etc., during their working hour, making them vulnerable to physical illness. Police personnel is prone to specific morbidities like respiratory problems, musculoskeletal disorders, eye problems, hypertension, diabetes, obesity and low back pain. It is due to insufficient sleep, shifting work, workload, emergency duty and duration of working hours that affect the health and performance of police personnel. Almale *et al.* (2015) observed that 62.7 % of Mumbai police personnel had musculoskeletal problems, and

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hypertension was observed in 42.4 %.

The working environment plays a crucial role in determining the health status of traffic police personnel. Traffic police personnel are exposed to higher health risks because of working in a noisy and polluted environment. Vehicular exhaust fumes cause air pollution in the city. It contains pollutants like nitrogen dioxide, carbon monoxide, sulphur dioxide and dangerous hydrocarbons such as benzene, toluene and xylene. It causes significant lung function problems and diseases like skin problems, irritation to the eyes and nose, high blood pressure, cardiovascular disease, cancer in the lung, etc. Due to nature of working situation traffic police personnel are suffering from many health hazard like skin irritation, varicose veins, arthropathy, photosensitivity and lung disease (Rawat, 2019). Traffic police personnel are posted in different squares and roads where pollutants are exposed for a long time every day. That's why the occupational working environment affects the health of traffic police personnel (Mishra and Purushothama, 2019; Sridher *et al.*, 2017). Prolonged exposure to vehicular pollution causes severe musculoskeletal disorders and respiratory and heart problems and faces multiple occupational hazards. Several studies had indicated that health hazards get more severe when the duration of exposure increased (Singh, 2019; Patel *et al.*, 2014). Satapathy *et al.* (2009) pointed out that 43.75 % of traffic police personnel in Brahampur city were anaemic, musculoskeletal disorders in 27.08 %, hypertension in 25 % and eosinophilia in 18.75 % of traffic police personnel. The objective of the study is to determine the health status of traffic police personnel of Nagpur city by considering the morbidity pattern and Body Mass Index.

Conceptual Framework

Here, the health status of traffic police personnel refers to the level of health of traffic police personnel by taking into account the morbidity pattern and health risk factors. The quantitative data as objective measures have been used in evaluating the level of health of traffic police personnel. Morbidity pattern is one of the measures for assessing the health status of the selected population. It refers to the ill health in a population. Another health indicator used in the

study is body mass index (BMI). It is calculated as weight divided by height. It is a method for classifying body weight according to health risks. Health risks are associated with the following categories; Underweight and overweight increase the health risks, and the obese in high health risks. Morbidity patterns and body mass index (BMI) have, therefore, been used to assess the health status of traffic police personnel in Nagpur city.

MATERIALS & METHOD

The present investigation was conducted to assess the health status of traffic police personnel in the Nagpur city of Vidarbha region in Maharashtra. Traffic police personnel who are on non-traffic duty were not included in this study. Prior permission was taken from the higher authority of the police department. The traffic police personnel were told about the study's objective. The personnel willing to participate in the study had their written consent taken. 252 traffic police personnel were selected as a sample of the study population. Out of 644 traffic police personnel of Nagpur city, 252 subjects were chosen by non-probability sampling method. The quasi-participant observation was made to understand the life of traffic police at their working place. A self-administered schedule was prepared after the literature survey. A pilot survey was undertaken in consultation with the police department to know about traffic police personnel posted in traffic police booths of Nagpur city. Information regarding socio-demographics, personnel habits and morbidity patterns was collected by structured schedule. Selected subjects were clinically examined. Anthropometric measurements like the weight and height of 243 traffic police personnel for body mass index were recorded. The random blood sugar of 249 traffic police personnel was measured by a Standard glucometer (Accu chek Auto). The health status of traffic police personnel has been measured with the help of data collected during fieldwork using a structured interview schedule and conducting anthropometric measurements and clinical examinations of the subject. After collecting the data, Microsoft-excel and SPSS v.23 (Statistical Package for Social Sciences) software were used for analysing the data.

RESULT

The present investigation was carried out on 252 traffic police personnel, of which 84.1% are male, and 15.9% are female. 61.9% of traffic police were from nuclear families, and 38.1% lived in a joint family. A good number of traffic police personnel (41.3%) were aged 31-40 years, followed by the age above 50 (27.8%) and the age group 41-50 (25.8%). A negligible percentage of traffic police personnel (5.2%) were in the age below 30 years. It was also observed that a good portion of traffic police personnel (46.4%) were graduates. About one-third (31.3%) of traffic police personnel have completed a higher secondary level of education, and 17.1% of traffic police personnel have a secondary level of education. A negligible percentage of traffic police personnel (5.2%) were post-graduates (Table-1).

TABLE 1

<i>Socio-demographic profile of the traffic police personnel</i>		
Socio-demographic characteristics	Category	Frequency N=252(100%)
Age	≤30	13(5.2%)
	31-40	104(41.3%)
	41-50	65(25.8%)
	≥50	70(27.8%)
Gender	Male	212 (84.1%)
	Female	40(15.9%)
Educational status	Secondary	43 (17.1%)
	Higher Secondary	79(31.3%)
	Graduation	117(46.4%)
	Post-graduation	13(5.2%)
Marital status	Unmarried	11(4.4%)
	Married	238(94.4%)
	Widow / widower	2(0.8%)
	Divorced	1(0.4%)
Type of family	Nuclear	156(61.9%)
	Joint	109(38.1%)

Source: Based on primary data.

Most of the traffic police (79.8%) were constables. It was followed by sub-inspectors (16.6%), and 3.6% were police inspectors. 80% of police personnel completed more than ten years of service in a police department, whereas 42.9% of police personnel had more than 20 years. 96% of traffic police personnel work more than eight hours daily, indicating an overworked and understaffed traffic police force. Emergency duty is also one of the reasons for working more than eight hours a day. 43.7% of traffic police

personnel consume tobacco, and 37.5% of traffic police personnel drink alcohol. 9.3% of traffic police personnel were smokers (see Table 2).

TABLE 2

Occupational profile of traffic police personnel and addiction of intoxication

Occupational Profile	Characteristics	Frequency N=252(100%)
Designation	Constable	201(79.8%)
	Sub-Inspector	42(16.6%)
	Police Inspector	9(3.6%)
Addiction	Tobacco	110(43.7%)
	Smoking	24(9.3%)
	Drinking	94(37.5%)
	No addiction	24 (9.5%)
Duty hours	8 hours	10(4%)
	More than 8 hours	242(96%)
Duration of service in the police department	1-10 years	52(20.6%)
	11 – 20 years	92(36.5%)
	21- 30 years	71(28.2%)
	31 – 40 years	36(14.3%)
	41+ years	1(0.4%)

Source: Based on primary data

A total of 252 traffic police personnel were asked about the various symptoms of the disease to assess their health problem. The study has indicated that 59.5% of traffic police personnel had the symptoms of musculoskeletal problems. It is due to long hours of standing in static situations and adverse situations of the working environment. 17.4 percent of traffic police personnel had problems with lung function as exposed to vehicular pollutants. It was also observed that 14.6 percent of personnel experienced eye-related difficulties, and 7.9 percent of the respondents suffered from skin disease. The study has also revealed that diabetes was observed in 7.5% of traffic police personnel, heart problems in 5.5%, and hypertension in 2.7% of police personnel (Table 3).

TABLE 3

Health problems among traffic police personnel

Disease /Morbidity	Frequency	Abs.	%
Respiratory problem	44		17.4
Heart disease	14		5.5
Hypertension	7		2.7
Diabetes	19		7.5
Musculoskeletal problem	150		59.5
Eye problem	37		14.6
Skin problem	20		7.9

Source: Based on primary data

The selected subject, with their consent, was clinically examined in the selected police station. Anthropometric measurements of 243 traffic police personnel were recorded, and random blood sugar was taken from 249 subjects. The result of anthropometric measurement has revealed that overweight was observed in 52.3 % and obese in 18.1 % of traffic police personnel. 0.8% of personnel was underweight. A random blood sugar survey has indicated that 6% of traffic police personnel were diabetic, and 21.3% were in the prediabetic stage (see Table 4).

TABLE 4
Health status of traffic police personnel
according to BMI and random blood sugar

	Frequency Abs.	%
BMI		
Underweight (<18.4)	2	0.8
Normal (18.5- 24.9)	70	28.8
Overweight (25.0-29.9)	127	52.3
Obese (30.0 – 34.9)	44	18.1
Total	243	100
Random blood sugar		
Normal	181	72.7
Prediabetic	53	21.3
Diabetic	15	6
	249	100

Source: Based on primary data

Table 5 shows that the mean BMI of traffic police personnel increased with the age group. The mean body mass index (BMI) of traffic police personnel aged above 50 was 27.85 and 27.40 in the age group of 41-50. Traffic Police Personnel aged up to 30 had a mean BMI of 23.99 and 26.46 for ages 31-40. The overall mean BMI of the traffic police personnel was 26.96. There was a statistically significant difference between male and female BMI ($t=3.047$, $P<0.005$).

TABLE 5
Distribution of traffic police personnel according to BMI

Age group (in years)	Male		Female		Total	
	Mean	SD	Mean	SD	Mean	SD
Up to 30	24.38	2.35	23.38	2.42	23.99	2.33
31-40	27.01	3.30	24.98	4.20	26.46	3.66
41-50	27.34	3.34	28.06	4.75	27.40	3.43
>50	27.81	3.71	31.00		27.85	3.70
Total	27.27	3.47	25.33	4.24	26.96	3.66
T-test	t = 3.047, p<0.005					

Source: Based on primary data

DISCUSSION & CONCLUSION

The present investigation was conducted to

assess the health status of traffic police personnel by taking into consideration specific health indicators like Body Mass Index and morbidity pattern. Two hundred fifty-two traffic Police Personnel of Nagpur city in the Vidarbha region of Maharashtra were selected for the study, out of which 79.8% of respondents were constables and 20.2% of officers. The educational status of traffic police personnel indicates that most of them are graduates (46.4 percent), and 31.3 percent of personnel have completed twelve years of education. The habit of chewing tobacco and drinking alcohol was observed in 43.7% and 37.5% of police personnel, respectively. Sunil and Prasanna Kamat (2018) found that 23.5% were tobacco users and 28% were consuming alcohol in Kolar police personnel.

The present study has revealed that 96 % of respondents have reported working more than eight hours daily. The long working hours within polluted environments have multiple negative impacts on their health, leading to different health problems. The study has shown that respiratory problem was observed in 17.4 % of traffic police personnel. Exposure to vehicular pollution increases respiratory problem and reduce lung function. 59.5 % of Nagpur traffic police personnel were reporting musculoskeletal issues. Standing in a static situation for a long time is the reason for musculoskeletal disorders. Almale *et al.* (2015) found that 15.2 % of police personnel in Mumbai had a respiratory problem, and 62.7 % were suffering from a musculoskeletal disorder.

The present study has indicated that the prevalence of heart disease and hypertension was 5.5 % and 2.7 %, respectively. 7.5 % of police personnel were diabetic. Similar study was conducted conducted by Haralkar and Gite (2018) were 8.8% police personnel were diabetic in Solapur city of Western Maharashtra. The prevalence of heart problems, high blood pressure and diabetes are due to working in adverse situations like managing the high volumes of traffic density, long working hours, sleeplessness, stress and improper lifestyle. The study has also revealed that eye problem was observed in 14.6 % and skin problem in 7.9 % of traffic police personnel of Nagpur city. Exposure to vehicular pollution increases the risk of eye and skin-related problems. Butt *et al.* (2020) found that 13.2% police constable in different city of Pakistan had a

eye inflammation and 5.5% were skin problem.

The anthropometric measurement of 243 traffic police personnel has shown that 18.1% of traffic police personnel in Nagpur city were obese, overweight in 52.3% and underweight in 0.8% of the sample. According to the World Health Organization, the health risk level is associated with the underweight, overweight and obese. The clinical examination of the police personnel measured the blood sugar of traffic police personnel. The random blood sugar survey of 249 police personnel of Nagpur city has indicated that 6% of respondents were diabetic and 21.3% were in the stage of prediabetic. Long working hours, sleeplessness, stress and imbalanced lifestyles make them vulnerable to most non-communicable diseases.

Their health problem such as respiratory problem, eye and skin-related problems, musculoskeletal disorder and hypertension results from a polluted working environment, sleeplessness, improper dietary habits, long working hours and working in prolonged standing and stressful environment. Given their health problem, health camps and counselling programs regarding how to live a healthy life in a challenging working situation need to be organized by a team consisting of a counsellor, health worker and environmentalist.

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