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A Study Related to Effects of Job Experience on Health of Traffic Police Personnel of Ahmedabad City, Gujarat, India

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Abstract

The work environment constitutes an important part of man's total environment, so health to a large extent is affected by work conditions. Traffic policemen are key persons in maintaining day to day traffic but their health and safety are rarely taken care of and it is the matter of concern. The objectives of the study was the following: 1.To study the Socio-demographic profile of the traffic policemen. 2. To find out the co relations between job experience and its effects on them. In this cross-sectional study in Ahmedabad city, Gujarat ,a structured, predesigned and pretested proforma was used to interview traffic policemen in Ahmedabad city with prior permission. After pilot study, 482 traffic police personnel distributed in 33 traffic booths were studied. Prior verbal and written consent was taken during study. Information was collected regarding their socio-demographic profile, job-profile, physical health profile, job experience, what kind of problems faced by them, etc. The study included 482 individuals including men were 98.5% and women were 1.5%. All were literate with 95% were Hindu. Association between job experience and eye problems was statistically significant. Association between job experience and skin problems, ear problems, respiratory problems, GIT problems and varicose vein was statistically not significant.The study has thrown light on health status of traffic police personnel who are suffering from many health problems which can be easily handled by simple interventions like periodic health checkups and personal care.

Key words: Socio-demographic profile, Traffic policemen, Cross-sectional study

Introduction

Occupational environment plays a major role on the health of the exposed. The health hazards get more severe when the duration of the exposure increases. This fact is more important in situation where the personnel are engaged in traffic duty. [1]

In urban areas mobile or vehicular pollution is predominant and significantly contributes to air quality problems. Air pollution from automobile exhaust and vehicular traffic density has become a serious problem particularly in metropolitan cities in India. Road traffic produces VOC (Volatile Organic Compounds), SPM (Suspended Particulate Matter), SO_2 (Sulphur Oxides), NO_2 (Nitrogen Oxides), & CO (Carbon Monoxide) which makes adverse health effects on the exposed population. The contribution of air pollution in urban areas can be calculated based upon the dispersion and distribution of traffic and population.[2, 3]

Noise pollution in mega cities is considered to be one of the most important and pressing problems. Increasing urbanization has lead to mounting volumes of noise. Noise pollution is extra, annoying, disturbing and physically harmful noise in the environment. [4]

In any metropolitan city a common man's life moves along with its traffic. For them life becomes smooth and less stressful, if the traffic is smooth.[2] The traffic population has grown enormously in last two decades. As a result there is an enormous increase in vehicular traffic emitting exhaust and polluting the atmosphere.

That is why, the city of Ahmedabad is particularly challenging for those attempting to regulate the traffic. The traffic police, especially the constables play a significant role to keep the traffic moving where the population density is very high.[5] These personnel have to undergo physical strain in environment polluted by fumes, exhaust of vehicles, use of blowing horns, blow of dust in the air by a speeding vehicle, etc. All these factors pose as a health hazard. [1]

With the above background, the present study was carried out to assess the health status of traffic police personnel of Ahmedabad city and to find out related risk factors, so that appropriate preventive measures can be recommended for safeguarding their health.

Material and Methods

Ahmedabad is rapidly growing city of India with 6.24 million population and population density of 890/sq.km. Total number of vehicle in the district was 27 lakh, out of which 22 lakh vehicles are two wheelers and 4.77 lakh are four wheelers in year 2011. Out of them 80% were in the city.[6] The present study

was conducted at traffic booths of Ahmedabad city. A list of traffic booths of Ahmedabad city was obtained and all traffic booths of Ahmedabad city as per the list were included in the study.

Inclusion and exclusion Criteria:

All traffic police personnel of Ahmedabad City were to be interviewed and examined. Only those who were posted in task force and interceptor were excluded because they were not posted at fixed place. Traffic police personnel, available at booth when the study was being carried out, were interviewed and examined at the same traffic booth.

Study Design:

Cross sectional.

Study Instrument:

Predesigned and pretested questionnaire was used for the study.

Data Collection:

Before conducting the study, prior permission of the DCP of Traffic Police was taken. A pilot study was done before in which 50 traffic police personnel were interviewed and examined. After that, necessary modifications were made in questionnaire.

There were 33 traffic booths in Ahmedabad city. Each of them was having Police Sub Inspector or Assistant Sub Inspector as the In Charge officer of the booth. Total of 482 traffic police personnel distributed in 33 traffic booths were studied. Numbers of traffic police personnel were different in all traffic booths, because they had been posted according to density of traffic of the particular area covered under the booth. All the traffic police personnel were informed in advance about the day and date on which the study was to be done.

All the booths were visited twice a day; during morning shift and evening shift. Traffic police personnel present at booth were interviewed and examined. Information was collected regarding their socio-demographic profile, job-profile, physical health profile, job related stress, what kind of problems faced by them, etc.

All of them were clinically examined at the booth. In the clinical examination, weight, height, Blood Pressure, pulse, waist circumference, and hip circumference, presence of visible varicose veins, tongue, conjunctiva, nail, sclera and teeth were examined. Blood Pressure of each traffic police personnel was measured by digital sphygmomanometer in sitting position. Color blindness was checked with the help of *Ichihara* chart.

Analysis and triangulation:

Data entry and data analysis was done in Epi-Info software version 7.0. Percentage (Frequency) and Chi-Square test was used to test the significance.

Results

Table 1 depicts that 68.87% of respondents were in the age group of 35 to 55 years. Mean age of respondents was 43.62±9.85 years. Only 1.46 % of the respondents were females. Very few (2.29%) were educated up to post graduate level. Rests of the respondents were educated up to secondary level (35.68%), higher secondary (39.62%) and graduate (22.20%). Majorities (94.61%) of respondents were Hindu and 41.28% respondents were in open category.

Table 1: Socio-demographic profile of study population (n=482)

No.	Demographic profile	Frequency	Percent
1	**Age in years**		
	>18 - 25	36	7.46%
	>25 - 35	67	13.90%
	>35 - 45	147	30.49%
	>45 - 55	185	38.38%
	>55 - 65	47	9.77%
2	**Gender**		
	Female	7	1.46%
	Male	475	98.54%
3	**Literacy Status**		
	Primary	1	0.21%
	Secondary	172	35.68%
	Higher secondary	191	39.62%
	Graduate	107	22.20%

	Post Graduate	11	2.29%
4	**Religion**		
	Hindu	456	94.61%
	Muslim	24	4.97%
	Christian	2	0.42%
5	**Cast**		
	SC	78	16.18%
	ST	88	18.27%
	SEBC	117	24.27%
	Open	199	41.28%

According to modified Prasad's classification, 43.77% belonged to socio-economic class-II and 35.48% belonged to socio-economic class-III. (**Table 2**)

Table 2: Socio-economic status of study population (n=482)

Socio-economic class	Frequency	Percent
Class I	45	9.33%
Class II	211	43.77%
Class III	171	35.48%
Class IV	52	10.79%
Class V	3	0.63%

Table 3 shows that 57.88% traffic police personnel were having job experience of 3 to 6 years and 69.29% of respondents were exposed to heavy vehicular traffic at job place.

Table 3: Distribution of study population according to their job-experience and traffic (n=482)

No.	Job-experience and traffic	Frequency	Percent
1	**Experience in years**		
	0-3 yrs	187	38.79%
	3-6 yrs	279	57.88%
	>6 yrs	16	3.33%
2	**Traffic at the job place**		
	Low	8	1.67%
	Medium	140	29.04%
	Heavy	334	69.29%

Table 4 shows that 11.62% were having skin problems and skin problems were more among those who had job experience of more than 6 years (25.00%). The association between the duration of job and skin problem was **not** found to be statistically **significant**.

Table 4: Distribution of study population according to job experience and skin *problems*

Experience in Years	Skin Problems		Total
	Yes	No	
0-3 yrs	19 (10.16%)	168 (89.84%)	**187 (38.79%)**
3-6 yrs	33 (11.83%)	246 (88.17%)	**279 (57.88%)**
>6 yrs	4 (25.00%)	12 (75.00%)	**16 (3.33%)**
Total	**56 (11.62%)**	**426 (88.38%)**	**482**

(χ^2=3.19; df =2; p=0.202)

44.81% of the respondents were having eye problems. Among those who had been working for more than 6 years, 68.75% traffic police personnel were having eye problems. **Significant** association was found between the duration of job and presence of eye problems. (**Table 5**)

Table 5: Distribution of study population according to job experience and eye problems

Experience in Years	Eye Problems		Total
	Yes	No	
0-3 yrs	72 (38.50%)	115 (61.20%)	**187 (38.79%)**
3-6 yrs	133 (47.67%)	146 (52.33%)	**279 (57.88%)**
>6 yrs	11 (68.75%)	5 (31.25%)	**16 (3.33%)**
Total	**216 (44.81%)**	**266 (55.19%)**	**482**

(χ^2 =7.64; df=2; p=0.021)

Table 6 depicts that Impaired hearing was comparatively more (12.50%) among those who had work experience of more than 6 years. Other problems such as tinnitus, pain and discharge from ear were more (6.25%) among those who had work experience of more than 6 years. The association between the duration of job and hearing problems was **not significant**.

Table 6: Distribution of study population according to job experience and ear problems

Experience in years	Reduced hearing	Others	None	Total
0-3 yrs	11 (5.88%)	6 (3.21%)	170 (90.91%)	**187 (38.79%)**
3-6 yrs	30 (10.75%)	8 (2.88%)	241 (86.37%)	**279 (57.88%)**
>6 yrs	2 (12.50%)	1 (6.25%)	13 (81.25%)	**16 (3.33%)**
Total	**43 (8.92%)**	**15 (3.12%)**	**424 (87.96%)**	**482**

(χ^2=4.126; df=4; p=0.389)

Table 7 shows that 119 (24.68%) traffic police personnel were having allergic or seasonal rhinitis, in which 70 (58.82%) respondents were having job experience of 3 to 6 years. Other problems including chronic dry cough, chronic cough with sputum expectoration and recurrent upper RTI were also more common among the traffic police personnel having job experience of 3 to 6 years. The association between the duration of job and respiratory problems was **not significant**.

Table 7: Distribution of study population according to job experience and respiratory problems

Experience in years	Rhinitis	Others	None	Total
0-3 yrs	47 (39.49%)	9 (26.47%)	131 (39.82%)	**187 (38.79%)**
3-6 yrs	70 (58.82%)	22 (64.70%)	187 (56.84%)	**279 (57.88%)**
>6 yrs	2 (1.69%)	3 (8.83%)	11 (3.34%)	**16 (3.33%)**
Total	**119 (24.68%)**	**34 (7.04%)**	**329 (68.28%)**	**482**

(χ^2=5.055; df=4; p=0.21)

Constipation was found to be more in those who had working experience of more than 6 years (31.25%). Other problems such as hyper-acidity, gas trouble, piles, fissure and recurrent diarrhea were more among those who had work experience of more than 6 years (37.50%). The association between the duration of job and GIT problems was **not significant**. (**Table 8**)

Table 8: Distribution of study population according to job experience and GIT problems

Experience in years	Constipation	Others	None
0-3 yrs (N=187)	50 (26.74%)	59 (31.55%)	117 (62.57%)
3-6 yrs (N=279)	68 (24.37%)	102 (36.56%)	159 (56.99%)
>6 yrs (N=16)	5 (31.25%)	6 (37.50%)	9 (56.25%)
Total (N=482)	**123 (25.52%)**	**167 (15.35%)**	**285 (59.13%)**

(χ^2=1.77; df =4; p=0.77) (Multiple responses expected)

Table 9 shows that 2.91% traffic police personnel were having varicose veins. Proportion of study population having varicose veins was more (85.72%) among those who had working experience between 3 to 6 years. The association between the duration job and presence of varicose veins was **not significant in current study.**

Table 9: Distribution of study population according to job experience and varicose veins according

Experience in years	Varicose Veins		Total
	Yes	No	
0-3 yrs	2 (14.28%)	185 (39.53%)	**187 (38.79%)**
3-6 yrs	12 (85.72%)	267 (57.05%)	**279 (57.88%)**
>6 yrs	0 (0.0%)	16 (3.42%)	**16 (3.33%)**
Total	**14(2.91%)**	**468 (97.09%)**	**482**

(χ^2=3.098; df =2; p=0.212)

Table 10 depicts that 97.09% traffic police personnel were provided protective devices like helmet and reflector. None of the respondents were provided health insurance. Basic amenities like drinking water and toilet facilities were also not provided to them at the traffic booth.

Table 10: Distribution of study population according to facilities provided to traffic police personnel (n=482)

No.	Facilities provided	Frequency	Percent
1	**Protective devices (helmet and reflector)**		
	Yes	468	97.09%
	No	14	2.91%
2	**Drinking water and toilet facility**		
	Yes	00	0.00%
	No	482	100.00%
3	**Health insurance**		
	Yes	00	0.00%
	No	482	100.00%

Discussion

Present study was done using a pre-tested questionnaire, is largely dependent upon information given by the respondents. 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. Due to large sample size, the results should closely resemble and reflect the health profile of the traffic police personnel of Ahmedabad city.

In the present study 68.87% traffic police personnel were in age group of 35 years to 55 years and 98.54% numbers of traffic police personnel were males. Findings of this study are similar to that of the study of Satpathy *et al*, in which majority (89.60%) of them were between 30-50 years of age and 89.60% traffic police personnel were males.[1] The average age of traffic police personnel in the present study was 43.52±9.85 years. A study conducted by Kavana *et al*, showed that average age of traffic police personnel was 46±6.78 years.[7] 39.62% of traffic police personnel were educated up to higher secondary level and 22.20% of them were graduate. 94.61% traffic police personnel belonged to Hindu religion. 41.28% traffic police personnel were in open category and 24.27% belonged to SEBC category. 43.77% traffic police personnel belonged to socio economic class II and 35.48% were in socio economic class III.

In the present study 57.88% respondents were having job experience of 3 to 6 years. 69.29% traffic police personnel were exposed to heavy vehicular traffic whereas only 1.67% was exposed to low traffic at job place. In the present study 2.91% respondents had varicose veins, while in the study conducted by Satpathy *et al*, only 4.17% persons had varicose veins of legs. This may be due to prolonged standing hours or may be due to obesity. [1]

Prevalence of eye problems was 44.81%, in which most common problem was burning sensation with prevalence of 21.99% followed by redness, watering and itching. Satpathy *et al*, in his study found that prevalence of visual difficulties was 6.25%.[1] As published in Khaleej Times of Hyderabad, about 7% of traffic cops had complained about eye-related problems.[8] Eye problems were more common among those traffic police personnel who had been working for more than six years. Significant association was found between the duration job and eye problems. The eye problems can be attributed to the exhaust emitted by the automobiles as this is one of the occupational hazard faced by the traffic police personnel. Prevalence of color blindness was 5.19%.

In the present study prevalence of ear problems was 12.04%, among which most common was reduced hearing (8.71%) followed by ear ache (1.24%), discharge from ear (1.24%) and tinnitus (0.62%). Ear problems were more common in those who had job experience of more than 6 years. Shrestha *et al*, in their study found that out of all participants; 23.60% had tinnitus and 35.50% were having some blocked sensation in ear and had difficulty hearing in noisy environment. Most of them had mild hearing loss 51.80%, 13.60% had moderate whereas only 0.90% had severe hearing loss.[38] As published in Khaleej Times of Hyderabad, about 25.00% of the traffic cops were facing hearing impairment due to high levels of noise pollution.[8]

The continuous vehicular exhaust inhalation can lead to development of the symptoms of lower respiratory tract such as cough, shortness of breath and pain with inspiration. Prevalence of respiratory problem in the present study was 31.53%, with maximum prevalence of 24.68% for rhinitis. It was followed by chronic dry cough (2.90%), chronic sputum (2.90%) and recurrent RTI (1.03%). Respiratory problems were more common in those who had job experience of more than 6 years. Similar results were observed in study of G.Thappanna *et al*, describing that 54.40% traffic constables had one or other health problem among which respiratory problems were more common. Mainly they had complaints of irritating cough and tightness of chest.[9] Satpathy *et al*, reported that only 16% of subjects were having respiratory disorders like rhinorrhoea, chronic bronchitis, pharyngitits, etc.[1] Sopan *et al*, found that 40% of the traffic policemen were suffering from frequent coughing, 10% from shortness of breath and 29% from irritation in respiratory tract. The long term exposure to pollution may be the reason for respiratory symptoms among the traffic policemen.[10]

In the present study 62.65% traffic police personnel were having joint problems, in which most common was burning sole (42.32%). It was followed by pain in knee joint (32.36%), back pain (20.33%) and others (17.84%). Satpathy *et al*, reported the different morbidity patterns in the traffic police personnel, in which 27.08% of them were having musculoskeletal disorders.[1] Prevalence of GIT problems in the present study was 40.87% with maximum prevalence of 25.52% for constipation. It was followed by acidity (15.56%), gas trouble (12.24%), piles (4.56%), fissure (1.24%) and recurrent diarrhea (1.03%). GIT problems were more common in those who had job experience of more than 6 years. In the present study 16.39% of traffic police personnel were having inadequate or broken sleep, whereas 83.61% were having adequate sleep. 13.48% of traffic police personnel had ever experienced vertigo during job hours, followed by excessive perspiration (2.69%), severe discomfort (2.69%) and loss of consciousness (0.62%).

Conclusion

The job of traffic police personnel is a tough job, which has a direct influence on their life as it is found that many traffic police personnel suffer from critical respiratory problems, partial deafness, high blood pressure and gastric problems due to irregular food habits are also frequently reported. Findings of the present study also show that many of them were suffering from joint problems, GIT problems, eye problems and respiratory problems that had job experience more than 3-6 years. Physical health problems can become the barriers for discharging their duties efficiently. Nearly half of them were experiencing job stress, which was disturbing their sleep pattern, appetite and family life. Prevalence of hypertension and obesity was also high. Stress has a negative effect on the health of the traffic police personnel and makes them more susceptible to heart attacks and strokes. Many of traffic police

personnel were having habit of tobacco consumption, which made their health situation worse. Moreover, they were not provided any insurance and basic facilities like drinking water and toilet facilities.

Recommendations

The traffic police personnel play significant role to keep the traffic moving where the population density is very high. Their job is physically demanding as well as mentally challenging. Their physical and psychological well being is a crucial factor for enhancing their work efficiency. On the basis of the findings of the present study following suggestions are recommended.

1. Awareness campaign for traffic police personnel should be arranged at regular interval to adopt healthy life style with the emphasis on regular exercise, as this will not only improve their physical health but also be helpful in relieving their stress.
2. Specific protective devices such as ear plugs/muffs, goggles, masks, good quality shoes should be provided as well as the use of the protective devices should be emphasized.
3. Regular health check up (audiometric testing, eye testing, pulmonary function test, monitoring of BMI, BP, blood sugar, lipid profile, etc.) of traffic police personnel should be carried out and they should be informed about their health problems; for which they should be properly treated.
4. Seminars for stress reduction and counseling should be held at regular intervals. Recreational activities to relieve the job stress should be carried out at regular interval.
5. More number of traffic police personnel should be recruited to reduce work load.
6. Basic amenities like drinking water, toilet, cabin at each cross road, etc. should be provided.
7. Every traffic police personnel should be provided health insurance as their job is physically demanding and mentally challenging.

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