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The impact of pollution on the health of traffic policemen

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Abstract

Pollution is a big problem in urban society. Most of the traffic policemen are affected by pollution in urban society. Pollution is involved to develop various health problems. The aim of the present study was to assess the impact of pollution on the health of traffic policemen. In this study, 150 respondents were selected randomly in different areas of Kanpur city. The information was obtained from the respondents by interview scheduled. The results reveal that 72.2 per cent traffic policemen were having lungs problem, 58.8 per cent traffic policemen were having skin problem and 65.6 per cent were having joint pain especially knees because they spend maximum time in standing position. The health status of traffic policemen was not good due to unhealthy food habit and lifestyle.

Keywords: pollution, traffic policemen, health, lifestyle

Introduction

Pollution is the introduction of contaminants into a natural environment that cause instability, disorder, harm or discomfort to the ecosystem i.e. physical system or living organisms. Pollution can take the form of chemical substances or energy, such as noise, heat, or light. Pollutants, the elements of pollution, can be foreign substances or energies, or naturally occurring; when natural, they are considered contaminants when they exceed natural levels. Pollution is often classed as point source or non-point source pollution. There are various types of pollution viz. air, noise, water pollution, soil contamination and radioactive contamination. The World Health Organization estimates that 9 of every 10 people worldwide breathe air containing higher level of pollutants, and exposure to polluted air is accountable for 7 million deaths annually.

Health is the level of functional and metabolic efficiency of a living being. In humans, it is the general condition of person in mind, body and spirit, usually meaning to be free from illness, injury or pain. The world health organization defined health in its broader sense in 1946 as “a state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity.” The world health organization 1986 Ottawa Charter for Health Promotion further that health is not just a state, but also “a resources for everyday life, not the objective of living. The term “healthy” is also widely used in the context of many types of nonliving organization and their impacts for the benefit of humans, such as in the sense of healthy communities, healthy cities or healthy environments. In addition to health care interventions and a person’s surroundings, a number of other factors are known to influence the health status of individuals, including their background, lifestyle and economic and social conditions; these are referred to as “determinants of health”. There is sufficient probability that environmental pollutants such as air pollutants, chemical substances, nano-particles, Asian sand dust particles, etc are worldwide. They are able to cause a rise in and exacerbate the common living environment-based diseases like allergies and other lifestyle-based diseases (Takano and Inoue. 2017) [10]. Studies have shown the adverse effects of air pollution with respiratory, cardiovascular, and neurovascular diseases (Mohan kumar *et al.*, 2008) [7]. According to WHO Mental disorders such as depression affect more than 300 million people worldwide; a rise of >18% was reported between 2005 and 2015.

The traffic police are exposed to vehicular pollution in varied degrees. Among all of them traffic police are unduly and chronically expose to vehicular exhaust pollutants as they remain on duties for longer periods.

Now days, noise pollution is considered as one of the main problems of urban communities which has many hazardous effects on the urban environment and may result in a great deal of

costs on the society (Martin *et al.* 2006) [5] traffic can be considered as the main source of noise pollution in large cities (Jamarah *et al.*, 2006) [4]. The traffic policemen in metropolises are the most affected groups exposed to this dangerous factor during their working hours and in their leisure time. Statistics results published by organization for economic cooperation and development (OECD) in 1994 specified that more than 17 million people in France are exposed to sounds louder than 55 dB during 8-20 hours of their lives whereas the minimum standard noise for noise for the problems of noise pollution in the environment is 55dB (Banerjee *et al.*, 2009) [2]

The traffic noise was measured as 89 dB, the car horns as 97dB and the shopping centers as 81dB. Regarding to the sound standard (less than 55dB) determined by the WHO studying of the urban environmental noise become significant (Banerjee *et al.*, 2009) [2].

The traffic police man thought of noise pollution as the main environmental problem of their job and moreover, many of the residents of the mentioned area have considered the noise problem as the most important one of their district. The results achieved in the present research show that environmental noise can cause insomnia and this is more vivid in the less experienced duty police man. Pollution is a big problem in urban society. Maximum traffic police man where affected by pollution. Pollution develops various health problems such as asthma, bronchitis, tuberculosis, skin allergy, cardiovascular problem and loss of hearing problem etc. So the aim of this study is to assess health problem of traffic police man and to give suggestion and improve health status.

Methods and Materials

Study area: In order to determine the prevalence if Traffic Policemen and office worker in Kanpur city.

Sample selection: Sample was selected by purposive random sample technique total 150 the present study, respondent are decrease here as: respondents were randomly selected from different I. lands of city out of 150 samples. 90 traffic policemen from I. land and 60 traffic policemen from office, respectively.

Collection of data: The information was obtained from the respondent by interview scheduled method. Each subject was contacted individually was persuaded to answer all questions in the questionnaire and their response was recorded. The questionnaire was divided under following sections:

- **General information:** information regarding general profile of respondent was collected by interviewing using standard questionnaire of information, age, sex, occupation, type of work, hours of work per day, place and shift etc.
- **Anthropometric measurement:** Measurement of body weight, height and body mass index (BMI). In the present study following anthropometric measurement were used:

1. **Techniques for measuring body weight:** The height of respondent was recorded with the help of measuring rod. The anthropometric rod in centimeter scale having least of 0.1 centimeter was used for measuring height.
2. **Techniques for measurement the body mass index:** Weight is usually regarded as the most meaningful method because weight deficit is directly related to nutritional deficiency. A portable weighing machine with the maximum capacity of 120kg and minimum division of 0.5 kg used to weight.

3. **Technique for measurement the body mass index:** The ratio of weight (in kg.)/ height² (m) is referred to as BMI. It provides a reasonable indication of the nutritional status of people.
 - **Statistical analysis:** In this study, %, chi square, correlation coefficient, deficient percent were used.

Results and Discussion

The present study was undertaken to assess the impact of pollution on the health of traffic policemen. The respondents were distributed on the basis of various heads *viz.* age group, nature of job, addiction habit.

Table 1: shows the distribution of the respondents on the basis of age group.

Age group (in years)	Frequency	%	Office worker	%
25-35	25	27.5	10	16.6
35-45	29	32.2	10	16.6
45-55	20	22.4	17	28.5
55- above	16	17.7	28	38.3
Total	90	100	60	100

Table No. 1: Shows that the respondents on the basis of age maximum 38.3% respondents were office worker with the age group of 55-above and 32.2% respondents were found 35-45 years age group.

Table 2: Distribution of respondents on the basis of on the basis of nature of job

Nature of work	Respondents	%
Standing	90	60
Sitting	60	40
Total	150	100

Table No. 2: Shows that the respondents on the basis of nature of work 60% respondents were standing position duty on duty time.

Table 3: Anthropometric measurements of respondents.

Age group	Anthropometric Measurement			
	Traffic policemen		Office worker	
	Frequency	Average Height	Frequency	Average Height
20-30	29	170.1	18	170.02
30-40	37	172.2	15	168.2
40-50	14	167.2	11	159.2
50-60	10	159.53	16	155.6
Total	90	167.53	60	166.2

Table No. 3: Reveals that the traffic policemen had mean of height 167.3 and office worker had mean height 166.2. The correlation coefficient between age group and height was calculated which was 1.000 for traffic policemen. Whereas office worker correlation coefficient 1.000. The result shows that the height was not increase according to age. There is no correlation between height and age.

Table 4: Distribution of respondents on the basis of weight.

Age group	Traffic policemen		Office worker	
	Frequency	Average weight	Frequency	Average weight
20-30	30	70.4	10	69.4
30-40	26	75.4	20	72.4
40-50	20	63.5	11	62.1
50-60	14	56.5	19	54.1
Total	90	70.01	60	68.3
	r =0.3975*		r =0.6094**	

Table No. 4: It can be observed that the traffic policemen had mean of weight 70.01 and office worker had mean height 68.3. The correlation coefficient between age group and weight was calculated which was 0.3975 for traffic policemen. Whereas office worker correlation coefficient 0.6094. The result shows that the weight was not increase according to age. There is correlation between weight and age.

Table 5: Distribution of respondents on the basis of BMI.

BMI (kg/m ²)	Traffic policemen		Office worker	
	Frequency	%	Frequency	%
24.9	33	43	10	30
26.9	37	37	23	46
28.6	20	20	17	24
Total	90	100	60	100
	r =0.3975*		r =0.6094**	

Table No. 5: Indicates that traffic policemen 43 per cent respondents were having 24.9 kg/m² BMI, 37 per cent were having 26.9 kg/ m² BMI and 20 per cent respondents were having 28.9 to 26.9 kg/ m² BMI.

Office work group 30 per cent respondents were having 24.9 kg/m² BMI, 46 per cent respondents were having 26.9 kg/m² BMI and 24 per cent respondents were having 28.9 kg/m² BMI.

According to standard BMI maximum traffic policemen were having normal BMI and office worker maximum of respondents were having over weight BMI.

Table 6: Life style of respondents

Additionally activity	Life style			
	Traffic policemen		Office worker	
	Frequency	%	Frequency	%
Yes	35	38.8	35.5	58.3
No	55	61.2	25.5	27.7
Total	90	100	60	100

Table No. 6: Depicts the lifestyle of respondents. shows that distribution of respondents on the additional activity of the morning viz. yoga and exercise 61.2 per cent traffic policemen were not doing in additional activity because they were not doing in additional activity because they were not interesting in additional activity don't have proper time for additional activity, 38.8 per cent respondents were importance of additional activity because they were aware importance of exercise and 22.7 per cent office worker were not doing additional activity they were not interesting in additional activity.

Table 7: Distribution of respondents on the basis of stress affected the life style respondents.

Types of stress	Stress affected the life style of respondents			
	Traffic policemen		Office worker	
	Frequency	%	Frequency	%
Mental stress	40	44.6	40	66.7
Physical stress	50	56.4	20	33.3
Total	90	100	60	100

Table No. 7: It can be observe that 44.6 per cent traffic policemen were mental stress and 56.4 per cent traffic policemen were physical stress 66.7 per cent office worker mental stress and 33.3 per cent office worker physical stress.

Table 8: Distribution of respondents on the basis of Lunch box practices by respondents.

Lunch box practices	Lunch box practices by respondents			
	Traffic policemen		Office worker	
	Frequency	%	Frequency	%
Yes	22	24.4	48	80
No	68	75.6	12	20
Total	90	100	60	100

Table No. 8: It can be observe that 24.4 percent traffic policemen were taking lunch box in duty time traffic policemen were taking some time for lunch box in busy duty schedule 75.6 per cent traffic policemen were not taking lunch box in duty because they have no proper time for lunch duty time. 80 per cent office worker were taking lunch box in duty time because they have proper time in lunch in duty schedule, 20 per cent office worker were not taking lunch because they were not taking lunch box in office time.

Table 9: Distribution of respondents on the basis of Lunch box practices by respondents.

Addiction habit	Addiction habit of respondents			
	Traffic policemen		Office worker	
	Frequency	%	Frequency	%
Paan-masala	35	38.9	25	41.7
Alcohol	20	22.2	17	28.3
Chewing tobacco	25	27.8	10	16.7
Smoking	10	11.1	8	13.3
Total	90	100	60	100

Table No. 9: Shows that 38.9 per cent traffic policemen were chewing paan-massala, 22.2, 27.8 and 11.1 per cent traffic policemen were drinking alcohol, chewing tobacco and smoking respectively. 41.7, 28.3, 16.7 and 13.3 per cent office worker were chewing paan-masala, drinking alcohol, chewing tobacco and smoking respectively

Table 10: Health issues due to pollution

Lungs problem through pollution	Lung problem due to pollution			
	Traffic policemen		Office worker	
	Frequency	%	Frequency	%
Yes	65	72.2	32	46.7
No	25	27.8	28	5.7
Total	90	100	60	100

Table No. 10: Shows that 72.2 per cent traffic were having lungs problem through pollution because they spend maximum time in polluted environment approx 8-10 hours per day. Whereas, 46.7 per cent office workers were having lung problem. A recent 2015 meta-analysis shows that ambient exposure to nitrogen oxides, SO₂, and PM 2.5 from vehicle emissions significantly increases the risk of lung cancer (Chen *et al.*, 2015) [3].

Table 11: Health issues due to Skin disease.

Skin disease through pollution	Skin disease			
	Traffic policemen		Office worker	
	Frequency	%	Frequency	%
Yes	53	58.8	20	33.3
No	37	41.2	40	66.7
Total	90	100	60	100

Table No. 11: It can be observed that 58.8 per cent traffic policemen and 33.3 per cent office workers were having skin

disease through pollution, respectively. There is no association between two attributes.

Table 12: Health issues due to joint problems.

Joint problem				
Joint problem due to nature of job	Traffic policemen		Office worker	
	Frequency	%	Frequency	%
Yes	59	65.6	26	43.3
No	31	34.4	34	56.7
Total	90	100	60	100

Table No. 12: That 65.6 per cent traffic policemen and 43.3 per cent office workers were having joint pain.

Table 13: Health issues due to Hearing problems.

Hearing problem				
Hearing problem due to pollution	Traffic policemen		Office worker	
	Frequency	%	Frequency	%
Yes	50	55.6	22	36.7
No	40	49.4	38	63.3
Total	90	100	60	100

Table No. 13: Depicts that 55.6 per cent traffic policemen were having low hearing power due to noise pollution because they spend their maximum time in highly noise polluted area. They were not taking pre causation for the health and not using ear pad. Noise can produce many non-auditory effects viz. interfere verbal communication, cause fatigue, cause distraction, reduce working efficiency (Olayinka, 2012) [8]. Whereas 36.7 per cent office workers were having hearing problem due to noise pollution.

Table 14: Health issues due to Heart diseases.

Heart diseases				
Heart disease due to stress	Traffic policemen		Office worker	
	Frequency	%	Frequency	%
Yes	65	72	32	53
No	25	28	28	47
Total	90	100	60	100

Table No. 14: That 72 per cent traffic policemen having heart disease due to physical stress because they maximum time in polluted environment and mental stress various problem related to job and function. 53 per cent office workers were having heart disease because they were having work stress, unhealthy food habits and some other health related diseases. 47 per cent officer workers were not having heart diseases because they were taking balanced diet and follow a healthy life style. Some studies reveal that long-term exposure to traffic noise may account for approximately 3% of CHD deaths (or about 210,000 deaths) in Europe each year (Mead N.M., 2007) [6].

Table 15: Health issues due to Heart diseases.

Allergy due to petrochemicals and smoke				
Allergy	Traffic policemen		Office worker	
	Frequency	%	Frequency	%
Yes	59	65.6	20	33.3
No	31	34.4	40	66.7
Total	90	100	60	100

Table No. 15: Shows that, due to pollution, 65.6 per cent and 33.3 per cent office workers were having allergy, respectively. Traffic policemen were having allergy due to

petrochemical and smoke because they spend maximum time approx 8-10 hours in polluted environment.

Table 16: Awareness of pollution among the respondents

Awareness of pollution				
Awareness of pollution	Traffic policemen		Office worker	
	Frequency	%	Frequency	%
Yes	55	61	28	65
No	35	39	21	35
Total	90	100	60	100

Table No. 16: Depicts the awareness about pollution in the respondents. It can be observed that 61 per cent traffic policemen and 65 per cent of office worker were having knowledge of pollution. While 39 per cent traffic policemen and 35 per cent of office worker were not aware of pollution.

Conclusion

Traffic policemen had to undergo physical strain in on environment. This fact is more important in situation as the personal engaged in traffic duty. Traffic policemen had to undergo physical strain in on environment polluted by fumes, exhausted of vehicles, use of blowing horns, and blow of dust in the air by a speeding vehicles etc. Results reveals that traffic policemen 43 per cent respondents were having 24.9 kg/m² BMI, 37 per cent were having 26.9 kg/ m² BMI and 20 per cent respondents were having 28.926.9 kg/ m² BMI. While 30 per cent respondents belong to office workers category were having 24.9 kg/m² BMI, 46 per cent respondents were having 26.9 kg/m² BMI and 24 per cent respondents were having 28.9 kg/m² BMI. In this study, it is clearly shown that pollution affects the health of the respondents in the terms of lung problem, heart problem, hearing problem, skin related problem. Through this study it can be observed that there is lack of awareness about the pollution among the respondents. The present study depicts that most of the respondents were not follow a healthy lifestyle and they didn't have a healthy and balanced diet due to their nature of the job. Most of the respondents were have some unhealthy addiction viz. chewing of tobacco, consumption of alcohol, taking paan-masala. Studies show that these addictions are bad for health. They cause various diseases.

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