

An Exploratory Study To Assess The Effect Of Air Pollution On Respiratory Status Among Traffic Police Personnel In Selected Areas Of Pune City

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INTRODUCTION

Air pollution can damage health in a number of ways. Traffic police personnel working in the busy traffic signal areas get exposed to the vehicular emission for years together. Traffic police personal exposure to hazardous substance is expected to be relevant.

Today these are a growing numbers of problem with the respiratory system due to wide variety of modern form of air pollution. some of these toxic forms of air pollution enter blood stream through the lungs and harm cells with the body and some form of air pollution damage the cell of that form the lining of respiratory system, when we look more closely at the amazing natural design of the respiratory system it is easy to see why air pollution can be so harmful to health and well nest. also traffic police personal who work in the busy traffic signal areas for years together are exposed to the risk of air traffic pollution so investigator has chosen the study on topic.

OBJECTIVES OF THE STUDY

1. To assess the respiratory status of traffic police personnel.
2. To associate the finding with selected demographic variables.

RESEARCH METHODOLOGY:

Exploratory research design.

SAMPLING

A non-probability convenient sampling method was used for the selection of the representative sample for the study. Data was collected from 100 traffic police

personnel's who were working at traffic signals.

MAJOR FINDINGS OF STUDY

Demographic profile of samples shows that 54% were below 30years,22% were in between 30-45years of age and 24% are 45-60years of age, 90% were male as compared to 10% females,45% had less than 12month of exposure at traffic signal, 45% had 12-60months of exposure and 1% had more than 60months of exposure at traffic signal,69% had 12hours of exposures at traffic signal per day, 95% were nonsmokers, 95% were not using mask during duty hours and majority 88% had no history of medical illness.

RESPIRATORY ASSESSMENT TOOL for samples shows that 96 of the total 100traffic police personnel had normal respiratory breath /minute, 100% had normal respiratory rhythm,82% had normal breath normal sound and 18% had wheeze breath sound,80% had no cough, 100% had normal spo2 level and 66% had abnormal peak expiratory flow rate.

ASSOCIATION OF EXPIRATORY FLOW RATE WITH DEMOGRAPHIC DATA (p value greater than0.05)

Finding shows there was no association in age, sex, medical history of respiratory problem and peak expiratory flow rate.

Statistically findings show that there is significant association in peak expiratory flow rate and months of exposure at traffic police personnel.

ASSOCIATION OF EXPIRATORY FLOW RATE WITH RESPIRATORY ASSESSMENT VARIABLES

Finding shows there was no association in breath sound and cough and peak expiratory flow rate.

CONCLUSION

Statistically findings show that there is significant association in peak expiratory flow rate and months of exposure at traffic police personnel.

Low peak expiratory flow rate indicate obstruction in the airway and continues duty at traffic signal can cause disease like COPD and asthma.

To change health belief of traffic police personnel certain steps should be taken by nursing professionals. It will motivate traffic police personnel for the use of mask and encourage theme selves to undergo respiratory assessment at regular intervals.

KEYWORDS-Air pollution, respiratory status, traffic police personnel and respiratory parameters.

INTRODUCTION

The phenomenon called 'pollution' is an inescapable consequence of man and his activity. Today, air pollution has become more subtle and recognizes no geographical and political boundaries. Air pollution is one of the present day health problems throughout the world.

Air pollution can damage health in a number of ways. Even where little scientific proof links the pollution to specific maladies, much statistical or circumstantial evidence suggests that air pollution can lead to various forms of respiratory disease.

NEED OF THE STUDY

Traffic police personnel working in the busy traffic signal areas get exposed to the vehicular emission for years together. The fuels, chemicals and particles present in the emission are reported to be damaging to the lung function of these individuals. In urban environment mainly in areas where traffic density is relatively high Traffic police personal exposure to hazardous substance is expected to be relevant.

Today these are a growing number of problems with the respiratory system due to a wide variety of modern forms of air pollution. Some of these toxic forms of air pollution enter the blood stream through the lungs and harm cells of the body and some forms of air pollution damage the cells that form the lining of the respiratory system. When we look more closely at the amazing natural design of the respiratory system it is easy to see why air pollution can be so harmful to health and well-being. Also traffic police personnel who work in the busy traffic signal areas for years together are exposed to the risk of air traffic pollution so the investigator has chosen the study on this topic.

OBJECTIVES OF THE STUDY

1. To assess the respiratory status of traffic police personnel.
2. To associate the findings with selected demographic variables

RESEARCH METHODOLOGY:

- Non-experimental research approach was used
- Exploratory research design.
- A non-probability convenient sampling method was used for the selection of the representative sample for the study.
- Data was collected from 100 traffic police personnel who were working at traffic signals and fulfilling the inclusion criteria using respiratory assessment tool.

ANALYSIS**Table 1:** frequency and percentage distribution of traffic police personnel according to demographic data n-100

SR.NO	SAMPLECHARACTERISTIC	FREQUENCY	PERCENTAGE
1.1	Age of traffic police personnel (year)		
	Less than 30	54	54
	30-45	22	22
	45-60	24	24
1.2	Sex		
	Male	90	90
	Female	10	10
1.3	Month of exposure at traffic signal		
	Less than 12 month	45	45
	12-60month	54	54
	More than 60month	1	1
1.4	Duty hours of exposure at traffic signal per day		
	8	28	28
	10	3	3
	12	69	69
1.5	Smoking habit		
	Yes	5	5
	No	95	95
1.6	Use smoke during duty hours		
	Yes	5	5
	No	95	95
1.7	Medical history of respiratory problem		
	Yes	12	12
	No	88	88

Table no. 1 shows that 54 of the total 100 traffic police personnel i.e. 54% were below 30 years, 22% were in between 30-45 years old and 24% are 45-60 years old, among the total samples 90% were male and 10% females, among the total sample 45% had less than 12 months of exposure at traffic signal, 54% had 12-60 months of exposure and 1% had more than 60 months of exposure at traffic signal, majority i.e. 69% had 12 hours of exposure at traffic signal per day, majority i.e. 95% were non smokers, majority i.e. 95% were not using mask during duty hours and majority i.e., 88% had no any history of medical illness.

Table 2: frequency and percentage distribution of traffic police personnel according to respiratory assessment. n-100

SR.NO.	SAMPLE CHARACTERISTICS	FREQUENCY	PERCENTAGE
2.1	Respiratory rate breath/minute		
	Bradypnoea	0	0
	Normal	96	96
	Tachypnoea	4	4
2.2	Respiratory rhythm		
	Regular	100	100
	Irregular	0	0
2.3	Respiratory breath sound		
	Normal	82	82
	Wheeze	18	18
	Crepitation	0	0
2.4	Cough		
	No cough	80	80
	Non productive cough	17	17
	Productive cough	3	3
	Hemoptysis	0	0
2.5	Spo2 level		
	Normal	100	100
	Abnormal	0	0
2.6	Peak expiratory flow rate		
	Normal	34	34
	Abnormal	66	66

Table No 2 shows that 96 of the total 100 traffic police personnel have normal respiratory rate breath/minute, among the total sample 82% had normal breath sound and 18% had wheeze breath sound, among the total sample 100% had normal respiratory rhythm, majority i.e. 80% had no cough, shows that total sample 100% had normal spo2 level and majority i.e., 66% had abnormal peak expiratory flow rate.

Table 3: associated of peak expiratory & month of exposure at traffic signals n-100

CHARACTERISTIC	Months of exposure at traffic signal			D.F	X ² CAL	X ² TABLE	P VALUE
	LESS THAN 12	12-48	Above 60				
PEAK EXPIRATORY FLOW RATE NORMAL	29	5	0	1	30.75	3.841459	0
PEAK EXPIRATORY FLOW RATE ABNORMAL	16	49	1				

Table 3 shows that in the variable of month of exposure in traffic signal per day since χ^2 calculation value is greater than χ^2 table value and P value is less than 0.05 it shows that there was significant association between month of exposure at traffic signal and peak expiratory flow rate

Finding Co-relation of peak expiratory flow rate of samples with selected demographic variables such as age, sex, duty hours of exposure at traffic signals and any medical history of respiratory problem. shows that since χ^2 calculated value is smaller than χ^2 table value and p value is greater than 0.05, so there was no association between age, sex, duty hours of exposure at traffic signals and any medical history of respiratory problem with peak expiratory flow rate of samples

ASSOCIATION OF EXPIRATORY FLOW RATE WITH RESPIRATORY ASSESSMENT VARIABLES

Finding shows there was no association in breath sound and cough and peak expiratory flow rate.

DISCUSSION

A finding of the study shows that of exposure increase at traffic signal reduce peak expiratory flow rate of the traffic police personnel and no any other significant association between peak expiratory flow rate and other demographic variables..

In present study PEER was reduced while spo2 was normal so it partially support the findings of above mentioned study.

Ingle et al studied the effects of exposure to vehicular pollution and respiratory impairment of traffic policemen in Jalgaon city, India. The PEER, FEVI and FVC were significantly affected in traffic policemen as against the control group of pollution.

In the present study also the PEER reduced significantly hence the finding of the above mentioned it also support the study.

Perception is not in the right direction and it is leading negative health belief because finding indicate that 95% traffic police personnel were not using mask during duty hours.

To change health belief of traffic police personnel certain steps should be taken by nursing professionals. It will motivate traffic police personnel for the use of mask and encourage theme selves to under go respiratory assessment at regular intervals.

CONCLUSION

The conclusion drawn from the findings of the study are as follows;95.% traffic police personnel are not using mask,54% had 12-60months of exposure at traffic signal,69% had 12 hours of duty at traffic signals,18% had wheeze breath sound,17 % had no productive cough and 66% had abnormal peak expiratory flow rate.

Statistically findings show that there is significant association in peak expiratory flow rate and months of exposure at traffic police personnel.

Low peak expiratory flow rate indicate obstruction in the airway and continuous duty at traffic signal can cause disease like COPD and asthma.

RECOMMENDATIONS

- A similar study can be replicated in different setting to strengthen the findings.
- A comparative study to assess effect of air pollution on traffic police personnel and police personnel
- A study to assess the effectiveness of the utilization of mask on respiratory status among traffic police personnel.

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