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Prevention of respiratory problems among traffic police: A cross sectional study in Kathmandu valley exploring knowledge and practice

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Abstract: *Background:* Air pollution is high in Kathmandu valley due to heavy traffic and ongoing road constructions. The objective of the study was to identify the knowledge and practice regarding prevention of respiratory problems among traffic police. *Methods:* A descriptive cross sectional study was conducted in Kathmandu valley. The areas have been selected on the basis of traffic pollution and participants were selected by random sampling technique. The sample size of study was 166. Data was collected by using self administered questionnaire and analyzed using SPSS. *Results:* Among the participants, more than half (53%) were from age group of 20-29 years and 40.4% were from age group of 30-39 years. Regarding the respiratory problems, more than four fifth (85.5%) responded difficulty in breathing as a type of respiratory problem. Similarly, 89.2% participant had not offered any protective device by the government and 71.5% had used protective devices during their duty hour. Majority (72.2%) of participants were only using mask as a protective device. Nearly one fourth (19.3%) had adequate knowledge and very few (4.8%) had adequate level of practice on preventing respiratory problems. *Conclusion:* It can be concluded that one fourth participant traffic polices had knowledge but very few were practicing the preventive measures for respiratory problems. It is recommended to conduct awareness campaign to the traffic police and advocate the government to provide the protective measures.

Keywords: Knowledge, practice, prevention, respiratory problems, traffic police.

Introduction

Vehicles, household combustion devices, industries and fires are major sources of air pollution. Common pollutants from transportation sector that causes public health problems include particulate matter (PM), ozone, carbon monoxide, sulfur dioxide and nitrogen dioxide. Indoor and outdoor pollution causes respiratory and other fatal diseases [1-2]. Scientific evidence also associates PM to harmful respiratory effects, including asthma [3].

In the U.S., air pollution causes deaths of 50,000 people per year and costs about $40 billion per year in health care and lost productivity [4]. About 30% of particulate emissions (PM) in European cities were due to road transports and up to 50% of particulate matters emissions in OECD countries were due to diesel traffic. Under developed and developing countries particularly in Asia, Africa and the Middle East suffer disproportionately from transport-generated pollution [5-6]. In developing countries, polluted air is a major health hazard. Current pollution monitoring methods can detect significant increases in the incidence of respiratory diseases and cardiopulmonary, bronchitis, coughing, and lung cancer. Premature deaths had occurred from these diseases resulting from high concentrations of particulate matters [5, 7].

Since traffic polices are continuously exposed to heavy noise, vehicular emissions and polluted environment, they face multiple occupational hazards. Multiple studies have concluded that traffic police are highly stressed. Occupational health studies help us to provide opportunity for defined exposures measurements and precise risk assessment [8]. A study among 235 traffic police in India showed that 31% had reduced lung function and 20% had some form of respiratory system

problems [9-10]. According to the Metropolitan Traffic Police office in Kathmandu, as many as 50 traffic police personnel fall ill daily due to hazardous dust [11]. Thus, traffic police are highly exposed to air pollution during their working period and prone to respiratory illness. The study was purposed to identify the knowledge and practice regarding prevention of respiratory problem among traffic police. So, this research is being helpful to plan the awareness campaign and provision of personal protective measures.

Material and Methods

The cross sectional descriptive study design was applied to conduct the research in Kathmandu valley. Study population was traffic police working in different metropolitan traffic police division of Kathmandu valley. The sample size for the study was 166 considering the total 1349 traffic police in Kathmandu valley, calculated with seven percent error. The sample was selected randomly from two highly polluted areas of Kathmandu valley. Data was collected using pretested self-administered questionnaire translated in local language. Traffic police who was present in the time of data collection and willing to participate were included.

Ethical approval was taken from research committee of Asian College for Advance Studies. Written permission was taken from metropolitan traffic police division and verbal consent was taken from each participant before data collection. Data analysis was done through the SPSS Software (20 version). The data was interpreted by using frequency, percentage and measuring level of knowledge and practice. Knowledge and practice level were categorised into three level such as below average (<50%), average (50-69%) and above average (70% and above)by adding all the respective questionnaires.

Results

Among the total 166 participants, more than half (53%) were of age group 20-29 years, followed by 30-39 years (40.4%) and remaining were above 40 years (Table 1). Out of total participant, majority (76.5%) were male and married (72.9%), and only 14 percent had education level of above bachelor degree. Likewise, one fourth (25.3%) had worked less than five years and very few had worked for above 10 years during the study period. About a half participants (49.4%) had a duty hour of 14 hours followed by 16.9% had 18 hours, 15.1% had of 16 hours, 13.9% had of 12 hours, 3.6% had of 15 hours, 0.6% had of 10 hours and 0.65 had of 8 hours.

Table-1: Distribution of participants by age group

Age group	Frequency	Percentage
<19	3	1.8
20-29	88	53.0
30-39	67	40.4
40-49	8	4.8
Total	**166**	**100**

Almost all (97.6%) had not attended the conference or training related to the prevention of air pollution and diseases.

Table-2: Knowledge on source of air pollution

Sources	Frequency	Percentage
Motor vehicles	122	73.5
Industrial smoke	114	68.7
Road construction	96	57.8
Toxic gases	82	49.4
*Multiple responses		

Among 166 traffic polices, three quarters of participants (73.5%) said that motor vehicles are the source of air pollution followed by industrial smoke (68.7%), road construction (57.8%) and toxic gases (49.4%) (Table-2).

Majority of traffic police responded that peak time for air pollution is office time (9 to 11 am) and very less (5.4%) told evening (6 to 10 pm).

Table-3: Knowledge on the type of respiratory problem caused by air pollution

Respiratory problem*	Frequency	Percentage
Pneumonia	150	90.4
Bronchial asthma	127	76.5
Lung cancer	101	60.8
Don't know	10	6.0
*Multiple responses		

Majority of the participants (90.4%) responded that air pollution causes pneumonia followed by bronchial asthma (76.5%) and lung cancer (60.8%) while about six percent did not know about respiratory problems (Table 3).

Over a half of participants (57.8%) knew the preventive measures for respiratory problem whereas 42.2 percent didn't know. All traffic police participants did not know about N95 mask. About one fifth (18.7%) participants were suffering from any of the respiratory problems.

Table-4: Respiratory diseases among participants

Respiratory diseases	Frequency	Percentage
Common cold	14	45.2
Throat allergy	11	35.5
Cough and chest pain	4	12.8
Tonsillitis	2	6.5
Total	**31**	**100**

Almost half (45.2%) were suffered from common cold followed by throat allergy (35.5%), cough and chest pain (12.9%) and tonsillitis (6.5%) (Table 4). More than two third of the participants (74.2%) had treated at home during illness and very few went to hospital.

Nearly half of the participants (48.1%) were using mask, gloves, boot, jacket and goggles in duty. Likewise, one third of the participants (33.5%) had used mask and 15.2 percent had used mask and gloves and rest of the participants used mask, gloves, jacket and boot (Table 5). Majority of participants (89.2%) had not received any protective device while 10.8 percent were offered from the government. Similarly, three quarters of participants (71.5%) wore protective device everyday in duty, and others in heavy pollution and if desire.

Table-5: Protective device used by participants

Type of protective device	Frequency	%
Mask, gloves, boot, jacket, goggles	76	48.1
Mask	53	33.5
Mask, gloves	24	15.2
Mask, gloves, jacket	3	1.9
Mask, boot	2	1.3
Total	**158**	**100**

Table-6: Preventive measures followed by participants

Preventive measures*	Frequency	%
Wearing mask during work	143	86.1
Avoid smoking	80	48.2
Regular health check up	59	35.5
*Multiple responses		

More than half of the participants (86.1%) had used mask while working in polluted area, 48.2 percent avoided smoking and 35.5 percent performed regular health check up (Table 6).

Table-7: Level of knowledge and practice of participant

Levels	Knowledge		Practice	
	Frequency	Percentage	Frequency	Percentage
Below average (<50%)	44	26.5	128	77.1
Average (50%-69%)	90	54.2	30	18.1
Above average (70% and more)	32	19.3	8	4.8
Total	**166**	**100**	166	100

Out of total participants, majority (54.2%) had average level of knowledge on respiratory problem, 26.5 percent had below average level of knowledge and 19.3 percent expressed above average level of knowledge. Likewise, more than two third (77.1%) had below average practice level in prevention of respiratory problems, 18.1 percent had average level of practice and 4.8 percent had above average level of practice (Table 7).

Discussion

This research showed that participants were suffering from various respiratory problems. 45.2 percent participants were suffered from common cold followed by 35.5 percent had throat allergy, 12.9 percent had cough and 6.5 percent had tonsillitis. Similar study conducted in Patiala, India showed 68 percent had frequent cough, 22 percent had shortness of breath and 36 percent had irritation in respiratory tract [12]. The present study showed that the traffic police had knowledge regarding the negative effects of air pollution on their health. They had knowledge that air pollution can cause difficulty in breathing, lung cancer, common cold, pneumonia. Studies conducted in India have also found that there is increased risk of getting different respiratory problems when traffic police are exposed to polluted air for a longer time [13]. A study in Thailand showed that 74.4 percent traffic police had not been trained which is similar to this research [14].

Level of knowledge regarding the prevention of respiratory problems among the traffic police was comparatively higher than the level of practice. Similar results were obtained in a study done in Kathmandu, level of knowledge was found to be average 41 percent, while the level of practice was below average 88 percent [15]. Research finding reveals that 19.3 percent explicated above average knowledge on respiratory problem but in practice, finding reveals that only 4.8 percent of participant had above average practice on prevention of respiratory diseases caused by air pollution.

Conclusion

Traffic Police are prone to health problems due to their working nature including various other factors. They stayed at the polluted streets bravely, standing for hours on end and ignorant of health hazards. From the findings, we could conclude that the level of practice on preventive measures for respiratory problems were very less than the level of knowledge. It is recommended to conduct training and regular awareness program for traffic polices regarding prevention of respiratory problem related to air pollution. Similarly, provision of protective measures for traffic polices should be made.

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