

PREVALENCE OF RESPIRATORY MORBIDITY AMONG TRAFFIC POLICE IN PESHAWAR KHYBER PAKHTUNKHWA

Shah Zareen Khan¹, Ahsan Ullah², Muhammad Sabir³, Abdul Rahim Khan⁴, Abdur Rahim⁵, Iftikhar Ali Khan⁶, Alhajuddin⁷

ABSTRACT

OBJECTIVES

The purpose of the study was to assess respiratory morbidity among traffic police in Peshawar, Khyber Pakhtunkhwa-Pakistan.

METHODOLOGY

A descriptive cross-sectional study was conducted in the Peshawar among traffic police from all their traffic stations. A sample of 302 participants was taken conveniently from the stations as a cluster sample for the purpose. Data was collected through a structured questionnaire and was analyzed through SPSS Version-17 for its presentation.

RESULTS

A total of 302 participants participated in the study. The mean age of the study population was 40.45 ± 6.30 years. Almost half (49%) of the study participants belonged to the age group 35-44 years. Results further reflected that majority of the respondents (90%) were head constables and 10% (31) of them were from the grade of Assistant, Sub Inspectors, (SI) and Sub Inspectors (SI). Around 49.7% of the study participants had graduation and above and the remaining 50.3% (152) had a higher secondary qualification. Furthermore; 87 % of the participants reported that they had never used a face mask and 13 % of them had used a face mask. Respiratory morbidity reflected that the 7% of participants had a frequent cough, chronic cough (6%), phlegm (15%), chronic phlegm (12%), wheeze (4%), chronic wheeze (18%), dyspnea I (9%), while 25% of them had dyspnea II and peak flow restriction with.

CONCLUSION

Findings of the study concluded that the Police working in traffic are very prone to get respiratory illnesses and they have a significantly higher prevalence of respiratory morbidity. Therefore periodic monitoring is encouraged to detect the problems at early stages for their treatment and better prognosis. Further Personal protective equipment needs to be used for the better prevention of the spread of respiratory disease

KEYWORDS: *Respiratory Diseases, Morbidity, Traffic Police, Personal Protective Equipments*

How to cite this article:

Khan SZ, Ullah A, Sabir M, Khan AR, Rahim A, Khan IA, Alhajuddin. Prevalence of Respiratory Morbidity among Traffic Police in Peshawar Khyber Pakhtunkhwa. J Farkhanda Inst Nurs Pub Health. 2022;2(1): 15-20

Correspondence

²Ahsan Ullah, Charge Nurse, Saidu Group of Teaching Hospital, Mingora Swat

✉: ahsanfcs@gmail.com

☎: +92-344-2754675

¹Principal, Quaid-e-Azam College of Nursing, Swabi

³Managing Director, Quaid-e-Azam College of Nursing, Swabi

⁴Academic Director, Quaid-e-Azam College of Nursing, Swabi

⁵Cardiologist, CPSP Pakistan

⁶Technologist, Khyber Medical University

⁷Visiting Lecturer, Ismail Nursing College, Swat

INTRODUCTION

Health is mainly affected by environmental and occupational hazards and results in different miserable problems. Exposure to occupational hazards is very common in the fast-growing world and workers and managers collaborate with each other to use a continual improvement process to protect and promote the health, safety and well-being of all workers and the sustainability of the workplace and significant improvement of occupational risk for mortality and morbidity.¹ However the burden of occupational-related hazards is still a threat to cause certain diseases. More than 80% of the global burden of occupational disease is attributed to environmental and occupational health hazards.² Occupational risk factors attribute to an enormous burden of mortality and morbidity among people around the globe. These risk factors put the workers more prone to health consequences in developing countries as compared to the developed nations of the world.³ Occupational lung diseases rank as one the most common work-related illnesses. Respiratory disorders are aggressively spread around the pollution and affect millions of individuals in terms of morbidity and mortality. The pattern and trend of respiratory ailments are increasing day by day among people working in various occupations and professions that put them under physical, psychological as well as financial and misery.⁴ The global occupational disease burden is the main focus of occupational health programs worldwide. Nearly 8.1 million people die from occupational hazards around the world and the majority attributes to respiratory disorders.⁵ Some jobs are related to hazardous exposure that causes lung disease like textile, asbestos, steel, coal mining industries, construction workers, farmers' firefighters, spray painters and mill workers who are exposed to a range of dust, mineral particles and noxious chemicals are the some of the most affected groups.^{6,7} Common occupational lung diseases that affect the workers are bronchial asthma, byssinosis, silicosis, pneumoconiosis, mesothelioma chronic bronchitis

etc. Various studies have shown the prevalence of byssinosis among textile workers ranges from 10.5% to 43.2%,^{8,9} chronic respiratory morbidities among mill workers range from 7.5% to 42.66%,^{10,11} Around 11 million cases are reported with occupational diseases globally and 1.9 (17%) million occur in Pakistan that contributes also to about 17% (0.12 million) of the mortality rate. Studies carried out in Pakistan regarding occupational lung diseases among workers have been mostly conducted among industries workers with high exposures to coal, steel and textile workers.¹² Pollutants from automobiles and industries are a major risk for outdoor pollution. A study conducted on street sweepers in Hyderabad found that about 8% of the workers suffered from chronic respiratory morbidities however there is not sufficient literature available regarding the same problems of respiratory concerns among the traffic police. Increasing traffic pollution in Pakistan is a major hazard for respiratory diseases and the traffic police working and performing their duties at the roadside are at higher risk for these diseases. According to the statistics 2018; Pakistan is the 35th largest vehicle user in 2018 which increases the risk for such diseases.¹³ Rapid industrialization and urbanization have a major causes in developing countries of air pollution and airborne diseases. All these major generated pollutants are responsible for causing these acute and chronic respiratory morbidities. Exposure to air pollutants causes injury to the airway including the terminal bronchioles and causes to decrease in lung function leading to acute and chronic respiratory diseases. Air and smoke pollution are also linked to causing some adverse effects such as ischemic heart disease and cerebrovascular diseases.¹⁴ The commonly respiratory symptoms associated with the traffic exposed group are bronchitis, asthma, wheezing, breathlessness and phlegm.¹⁵ The traffic fumes emitted from the vehicles also cause reduced lung function among the susceptible subjects. The other factors that may contribute to and influence are meteorological conditions, vehicle volume & vehicle type. Climate change is being counted as a global environmental threat caused by people and human interventions. It is seen as the second most serious issue that the world faces and has brought about results that affect the individual adversely in all spheres of life. Therefore proper measures are needed to be taken to protect the traffic police from the respiratory ailments and their consequences.¹⁶ There is a dearth of studies on the chosen topic from the Pakistani context, therefore the current study was designed to determine the prevalence of respiratory

morbidity among traffic police in Peshawar, Pakistan.

METHODOLOGY

A cross-sectional study was conducted from July 2019 to February 2020 in several of the stations to assess respiratory morbidity among traffic police in Peshawar. A total of 302 participants participated in the study. The cluster sampling method was followed, and the participants were conveniently recruited for the study. The data was collected through a structured questionnaire and each police station was formed as a cluster. Police within the age group of 25- 54 years with one year of service in the city were included in the study (Table 1.1). Participants with a previous history of respiratory illnesses (asthma, TB, COPD) and chest injuries, surgeries, and cardiac failure before joining the job were excluded from the study. There were a total of 4 traffic police stations and 11 law and order police stations in Peshawar city. A total of four of the traffic police stations in the city were randomly included in the study. The police fulfilling the designed criteria from each station were included in the study. Data was collected from the available personnel (fulfilling inclusion criteria) as per the convenience of the participants. Each station was visited at least 4-6 times to cover all personnel from that particular station. Before the data collection, proper approval was taken and all the ethical considerations were taken care. Voluntary participation was encouraged. After data collection, the data were analyzed through SPSS Version-17 for their mean values, frequency and percentages. The analyzed data were plotted in tables for its presentation.

RESULTS

The findings of the study showed that the mean age of the study population was 40.45 ± 6.30 years (range: 25- 54 years). Almost half (49%) of the study population was having the group from 35 to 44 years of age. The mean number of years of service in the city among the study population was 8.09 ± 6.25 years (Range: 1-30 years of work). Most of the respondents (90%; 271) were head constables and (10%; 31) of them were from the grade of Assistant Sub Inspectors (SI) and Sub Inspectors (SI). Among the study subjects (49.7%; (150) had educational qualifications till graduation and above while the remaining 50.3% (152) had their education till secondary level. Further analysis of the data revealed that 14% (43) of the respondents were active smokers while 50% (138)

of them were found to be passive smokers. The presence of a familial history of chronic respiratory disease was found among 23% (69) of the participants. More than half of the respondents (58%; 174) were from the traffic department whereas 42 % (128) of them were from the law and order department. Most of the respondents (90%; 271) of them were working in the post of Police Officers (CPOs) and the rest (10%; 31) were Sub

Inspectors (SI) and Assistant Sub Inspectors (SI). A major proportion of the respondents (87%) reported that they never use a face mask while performing their duties either at the roadside or doing with the patrolling duty (Table-1). Further analysis reflected that only 1 of the study participants reported the use of a respirator as a face mask during his duty. 38% of the respondents reported that it was uncomfortable for them to use the face mask. From the study findings, it was found that 21% of the participants reported having hypertension, 14 % reported having diabetes and nearly 20% had the problem of varicose veins. The most prevalent musculoskeletal problem reported among study participants was low back pain which was about computed as 50%. Assessment of the respiratory morbidities was the main objective of the study and analysis reflected that 7% (20) of the respondents reported having frequent coughs and 6% (19) reported having chronic coughs. Nearly 15% (45) of them reported frequent phlegm and 13% (38) of them were having chronic phlegm. 10% (30) of the traffic police reported the problem of frequent wheezing and 4% (12) had chronic wheezing. The analysis further depicted that 18% (55) of the participants had Grade I dyspnea while 9% (27) of them had Grade 2 dyspnea. Similarly, 25% (76) of the respondents presented with peak flow restriction (Table 2) which meant that their peak flow readings were less than normal.

Table 1: Characteristics of the Study Sample Based on Work-Related Factors

Frequent Respiratory Morbidities	Frequency (%)
Frequent Cough	20 (07)
Frequent Phlegm	45 (15)
Frequent Wheeze	18 (6)
Any one of the Frequent Respiratory Morbidities	71 (24)
Dyspnea	
Grade 1 Dyspnea	55 (18)
Grade 2 Dyspnea	27 (09)
Chronic Respiratory Diseases	
Chronic Cough	19 (06)
Chronic Phlegm	37 (12)
Chronic Wheeze	12 (04)
Peak Flow Restriction	76 (25)
Any of the Chronic Respiratory Morbidity	55 (18)

Table 2: Prevalence of Respiratory Morbidities

Current Work Department	Frequency (%)
Law and Order	128 (42)
Traffic	174 (58)
Nature of Shift	
Day Shift	166(55)
24 Hours Duty	136 (45)
Posting Location	
Crowded Junctions	223 (74)
Highways and Crowded Junctions	56 (19)
Highways	23 (07)
Type of Duty	
Traffic Duty	147 (49)
Patrolling Duty	128 (42)
Other:(Combined Duties*)	27 (09)

DISCUSSION

Occupational morbidity in relation to the respiratory disorders studies in Pakistan has mostly been conducted among industrial workers exposed to occupational hazards. Workers who are continuously exposed to high levels of ambient air pollution due to the nature of their job have attracted less attention to be explored in terms of looking into its magnitude. This study was carried out to study a specific population who is very evidently and constantly exposed to the respiratory problems that arise due to smoke and air pollution emitted from the vehicles. For this reason, around 302 traffic police working in Peshawar city were studied to assess the prevalence of respiratory morbidities and the factors associated with it them. The overall prevalence of chronic respiratory morbidity was found around 21% among the studied population. This overall prevalence of chronic respiratory morbidity among the study population was higher compared to prevalence figures reported by community-based studies in Pakistan, which range from 2% to 8.5%.^{17,18} Data regarding chronic respiratory morbidity available from population-based studies from other developing countries include those from a study conducted in Bangkok with a prevalence of 7.1 per cent. Another study conducted in Iran has shown 4.65 per cent results for respiratory morbidity in adults.¹⁹ A high prevalence of chronic respiratory morbidity exposure of about 17 per cent was reported in a study conducted among adults in Ghana.²⁰ The prevalence of chronic cough, chronic phlegm and chronic wheeze were separately analyzed in the present study and was found to be 6.3%, 12.3% and 4 % respectively. Prevalence figures of chronic cough have been reported from community-based studies from various parts of India. It ranges from 2.2 to 2.5% per cent in rural areas and 1.7% in urban areas across different study sites in India.^{21,24} Operational definitions for

chronic cough and phlegm used by the different studies vary from “cough at night”, “cough in the morning” and “phlegm in the morning”, cough and phlegm “without a cold”, “on most days” and “for at least 3 months” from the current study that used the definition as cough/ phlegm for three or more consecutive months. The prevalence of chronic phlegm in the present study was 12.3%. In comparison, the figures from other studies in India have reported a chronic phlegm prevalence of 1.9% to 4.4%.^{23,25}

LIMITATIONS

This study was limited to only one city of Khyber Pakhtunkhwa therefore findings of this study maybe generalized with caution.

CONCLUSION

Respiratory diseases are the fast growing and prevailing concerns around the world among the workers who are exposed to the occupational hazards in their environment. Traffic police is one such category of the population who has continuous exposure to the environmental and vehicle pollution. Findings of the study concluded that Police personnel working in traffic department have significantly higher prevalence of respiratory morbidity. Therefore; appropriate use of face mask and other personal protective equipments need to be used by the traffic police to overcome and reduce the prevalence of respiratory problems among them. Duty should be rotated to get less exposure to the pollutants. Further periodic monitoring of the health of the traffic police may help to detect them for their problems at early stages that in response may help to overcome their respiratory ailments timely and productively.

CONFLICT OF INTEREST: None

FUNDING SOURCES: None

REFERENCES

1. Morgan RL, Thayer KA, Bero L, Bruce N, Falck-Ytter Y, Ghersi D, Guyatt G, Hooijmans C, Langendam M, Mandrioli D, Mustafa RA. GRADE: Assessing the quality of evidence in environmental and occupational health. *Environment international*. 2016;1; 92:611-6.
2. Thakur P, Ganguly R, Dhulia A. Occupational health hazard exposure

- among municipal solid waste workers in Himachal Pradesh, India. *Waste Management*. 2018;1; 78:483-9.
3. Prüss-Ustün A, Wolf J, Corvalán C, Neville T, Bos R, Neira M. Diseases due to unhealthy environments: an updated estimate of the global burden of disease attributable to environmental determinants of health. *Journal of public health*. 2017;1; 39(3):464-75.
 4. Rushton L. The global burden of occupational disease. *Current environmental health reports*. 2017; 4(3):340-8.
 5. Soriano JB, Kendrick PJ, Paulson KR, Gupta V, Abrams EM, Adedoyin RA, Adhikari TB, Advani SM, Agrawal A, Ahmadian E, Alahdab F. Prevalence and attributable health burden of chronic respiratory diseases, 1990–2017: a systematic analysis for the Global Burden of Disease Study 2017. *The Lancet Respiratory Medicine*. 2020;1; 8 (6):585-96.
 6. Prüss-Üstün A, Wolf J, Corvalán C, Bos R, Neira M. Preventing disease through healthy environments: a global assessment of the burden of disease from environmental risks. *World Health Organization*; 2016.
 7. Cullinan P, Muñoz X, Suojalehto H, Agius R, Jindal S, Sigsgaard T, Blomberg A, Charpin D, Annesi-Maesano I, Gulati M, Kim Y. Occupational lung diseases: from old and novel exposures to effective preventive strategies. *The Lancet Respiratory Medicine*. 2017;1;5 (5):445-55.
 8. Nafees AA, Fatmi Z. Available interventions for prevention of cotton dust-associated lung diseases among Textile workers. *Journal of the College of Physicians and Surgeons Pakistan*. 2016; 26 (8):685.
 9. Fishwick D. 30 Cotton Dust. *Parkes' Occupational Lung Disorders*. 2016 Nov 25:393.
 10. Mekasha M, Haddis A, Shaweno T, Mereta ST. Emission Level of PM2. 5 and its association with chronic respiratory symptoms among workers in cement industry: a case of Mughher Cement Industry, Central Ethiopia. *Avicenna Journal of Environmental Health Engineering*. 2018 Oct 13; 5 (1):1-7.
 12. Ahmad I, Sattar A, Nawaz A. Occupational health and safety in industries in developing world. *Gomal Journal of Medical Sciences*. 2016; 14(4).
 13. Baloch MA. Dynamic linkages between road transport energy consumption, economic growth, and environmental quality: evidence from Pakistan. *Environmental Science and Pollution Research*. 2018; 25(8):7541-52.
 14. Han C, Lu Y, Cheng H, Wang C, Chan P. The impact of long-term exposure to ambient air pollution and second-hand smoke on the onset of Parkinson disease: a review and meta-analysis. *Public Health*. 2020;1; 179:100-10.
 15. Stephen P, Mahalakshmy T, Manju R, Laksham KB, Subramani S, Panda K, Sarkar S. High prevalence of chronic respiratory symptoms among auto rickshaw drivers of urban Puducherry, South India. *Indian journal of occupational and environmental medicine*. 2018; 22(1):40.
 16. Fika EC, Suwondo A. Exposure of Dust Inhaled with Lung Vital Capacity in Traffic Police Polres Ambon Moluccas. *InIOP Conference Series: Earth and Environmental Science* 2020;1: 448 (1), 20-28).
 17. Ullah W, Ikram S, Shahana N. Association Between Pollution Caused by Vehicular Emission And Development of Respiratory Diseases Among Traffic Police Personnel of Peshawar City. *Journal of Gandhara Medical and Dental Science*. 2018 Sep 1;5(1):9-13.
 18. Bishwajit G, Tang S, Yaya S, Feng Z. Burden of asthma, dyspnea, and chronic cough in South Asia. *International journal of chronic obstructive pulmonary disease*. 2017; 12: 1093.
 19. Nawamawat J, Prasittichok W, Prompradit T, Chatchawanteerapong S, Sittisart V. Prevalence and characteristics of risk factors for non-communicable diseases in semi-urban communities: Nakhonsawan, Thailand. *Journal of Health Research*. 2020 Mar 10.
 20. Dushie D, Fenny AP, Crentsil AO. Vehicular Emissions and Its Implications on the Health of Traders: A Case Study of Traders in La Nkwantanang Municipality in Ghana. *Journal of Sustainable Development*. 2017;10 (6).

11. Mahmood A, Ilyas H, Chaudhry MN, Ali A. Respiratory Health Effects of Cotton Inhalable Dust on Workers in the Garment Processing Unit. Pakistan Journal of Science. 2017;1; 69 (3):260-7.
21. Pal P, John RA, Dutta TK, Pal GK. Pulmonary function test in traffic police personnel in Pondicherry. Indian J Physiol Pharmacol. 2010; 54 (4):329-36.
22. Wongsurakiat P, Maranetra KN, Nana A, Naruman C, Aksornint M, Chalermpanyakorn T. Respiratory symptoms and pulmonary function of traffic policemen in Thonburi. J Med Assoc Thai. 2013; 82(5):435-43.
23. Singh MB, Fotedar R, Lakshminarayana J. Occupational morbidities and their association with nutrition and environmental factors among textile workers of desert areas of Rajasthan, India. J Occup Health. 2005;47(5):371-7
24. Jaiswal A. An Occupational Hazard and Public Health Investigation among the Fabric Workers of India. Asian Man (The)-An International Journal. 2016; 10 (2):241-6.
25. Sharma HK, Dandotiya B, Jadon N. Exposure of Air pollution and its health effects in traffic police persons of Gwalior City, India. Environmental Claims Journal. 2017; 2; 29 (4):305-15.

CONTRIBUTORS

1. **Shah Zareen Khan** - Concept Design; Data Acquisition; Data Analysis/Interpretation
2. **Ahsan Ullah** - Concept Design; Data Acquisition; Data Analysis/Interpretation
3. **Muhammad Sabir** - Data Acquisition; Critical Revision
4. **Abdur Rahim Khan** - Data Analysis / Interpretation; Supervision; Final Approval
5. **Abdur Rahim** - Critical Revision; Supervision; Final Approval
6. **Iftikhar Ali Khan** - Data Acquisition; Data Analysis/Interpretation
7. **Alhajuddin** - Data Acquisition; Data Analysis/Interpretation