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Occupational Health and Safety Dangers and Health Complications among Rajasthan's Traffic Police

[1]Mr.Harsh Awasthi, [2]Ms.Priyanka Malhotra, [3]Dr.Anjali Saluja, [4]Mr.Amit Yadav, [5]Mr.Manoj Kumar, [6]Mr. Sanjay Yadav

[1]Assistant Professor, Department of Master in Business Administration, Noida Institute of Engineering & Technology, Greater Noida Uttar Pradesh, India

[2]Assistant Professor, Department of Master in Business Administration, Noida Institute of Engineering & Technology, Greater Noida Uttar Pradesh, India

[3]Assistant Professor, Department of Master in Business Administration, Noida Institute of Engineering & Technology, Greater Noida Uttar Pradesh, India

[4]Assistant Professor, Department of PGDM, Noida Institute of Engineering & Technology (MCA Institute), Greater Noida Uttar Pradesh, India

[5]Assistant Professor, Department of PGDM, Noida Institute of Engineering & Technology (MCA Institute), Greater Noida Uttar Pradesh, India

[6]Assistant Professor, Department of Pharmacy, Noida Institute of Engineering & Technology, (Pharmacy Institute), Greater Noida Uttar Pradesh, India

Email Id- [1]Harsh.awasthi@niet.co.in, [2]priyanka.malhotra@niet.co.in, [3]anjali.saluja@niet.co.in, [4]amit.yadav@niet.co.in, [5]Manojkumar@niet.co.in, [6]sanjaykyadav.pharmacy@niet.co.in

ABSTRACT: Occupational health risks and dangers as a result of pollution have become a major public health issue. As a result, duty-bound employees, such as traffic cops, who are constantly subjected, are at high risk and suffer from serious health issues as a result. The goal of this research was to find out how common occupational risks and associated health issues are among Rajasthan's traffic workers. It also sought to establish a link between workplace dangers and health issues. This cross-sectional research was completed among Rajasthan city traffic officials. Occupational risks, protective measures, and health issues were measured using a moderate questionnaire with recognized reliability and validity. The length of using sensible precautions against air pollution and respiratory morbidity was shown to be strongly related. The length of noise pollution exposure was also shown to be linked to auditory complaints. Due to dangers such as air pollution and noise, police officers face serious occupational health issues. To guarantee the safety of traffic employees, certain precautions should be implemented. This research discovered a link between workplace dangers and linked health issues.

Keywords: Environmental, Health, Pollution, Traffic, Occupational.

1. INTRODUCTION

Environmental air pollution is a worldwide issue that affects both developing and developed nations, attracting the attention of the international community. Human people because of the devastating long-term consequences. The working atmosphere is quite crucial. A component of man's overall environment as a result, to a significant degree, Workplace environments have a significant impact on one's health. Though there are many different sorts of environments; the physical world is one of them. The environment has a significant impact on health. The major cause of India's air quality issue is automobile emissions and increased usage of motor vehicles cars, increasing air pollution levels pollution. This has had a significant impact on traffic. Workers who are required to work long shifts in high-traffic areas traffic signs Personnel must go through a physical examination. Suffocation in a contaminated environment, the exhaust vehicles, usage of horns, blowing dust out of the air by fast automobiles, and so forth people who work in traffic to guarantee regular traffic, workers are exposed to increased health risks amid hundreds of obnoxious and polluting automobiles throughout their service. The length of the exposure the likelihood of a health threat grows, and the severity increases. Occupational contamination is on the rise due to environmental pollution. There are dangers in this category. In metropolitan locations, industrial or commercial activities are common. Pollution from automobiles is prevalent and seriously leads to poor air quality [1]–[3].

Air pollution has been a major public health concern in India in recent decades. In most urban areas, such as Rajasthan, Delhi, Mumbai, Chennai, Bengaluru, and others, air pollution has the greatest impact on the human body. Air pollution seems to cause breathing problems, cardiovascular illness (which increases the risk of cancer), and early death. Eye and brow irritation, cough, headache, and exhaustion are just a few of the severe side effects. Asthma and obstructive pulmonary disease are caused by prolonged exposure. Automobile exhaust-related contaminated air has grown considerably as a result of the growing volume of vehicles and urban migration. Multiple airborne pollutants emitted by automobiles, such as carbonic acid, aerosols, chlorine, methane, lead, nitrogen oxides, and nitric oxide, have a major role in the pathogenesis of respiratory disorders [4]–[7].

In 2018, the World Health Organization (WHO) estimated that 91 percent of the global population was exposed to outdoor air pollution, which was at least 2.5 times greater than the safety level. Four 700,000 people will have perished as a consequence of external and internal air pollution by the year 2020. Rajasthan is a burgeoning metropolis with a population surge from other parts of the nation and unregulated urbanization; increased vehicle numbers and longer traffic congestion lead to higher pollution concentration. According to statistics from Rajasthan's Transport Department, there are over 75 lahks registered automobiles on the road, which have an impact on air quality. Rajasthan's pollution levels are moderate to excellent, according to statistics from the State Pollution Board on ambient air quality. On the other hand, Pm2.5 and Pm10 levels are at their highest [8]–[10].

Depending on the type of their employment and the organization, traffic officers are continuously exposed to automotive exhaust fumes and their potentially dangerous consequences. A pulmonary function test (PFT) was performed using computerized following equipment, which accurately measures respiratory function while flowing and so aids in the early detection of breathing difficulties. The bronchial morbidity suffered by traffic cops is little documented. As a consequence, the study's objectives were to determine the severity and kinds of respiratory problems ailments, as well as to assess respiration effort using a computerized sphygmomanometer [4]–[7]. Traffic police, who are responsible for ensuring that transportation regulations are respected on roads, run the risk of causing musculoskeletal injuries and no communicable illnesses. According to some research, job stress, work disputes, climate, health concerns, and susceptibility to violent threats have all been connected to mental health disorders, including general anxiety [4]–[7]. A significant proportion of this research has been carried out in advanced nations; however, studies on employment chronic illnesses of traffic police working in severely polluted areas and communities are also required to raise awareness of this important topic among municipal councils and the wider public. This is a demanding job; working hours range from eight hours, and shifts are irregular, meaning that there is a great deal of burden in this job, affecting the physical and emotional health of individuals who want to work for both the traffic police. It is important to be brave. Figure 1 & Table 1 Illustrates The Different Type Of Disease And Its Effectiveness On Traffic Police [11], [12].

Table 1: Embellishes The Different Kind Of Disease And Their Effectiveness In The System [13], [14]**.**

Diseases	Percentage Of Effectiveness (%)
Hypertension	30
High Cholesterol	40
Eye Problem	60
Skin Disorders	20
High Sugar	80
Tinnitus	20
Insomnia	50
Heart Problem	40

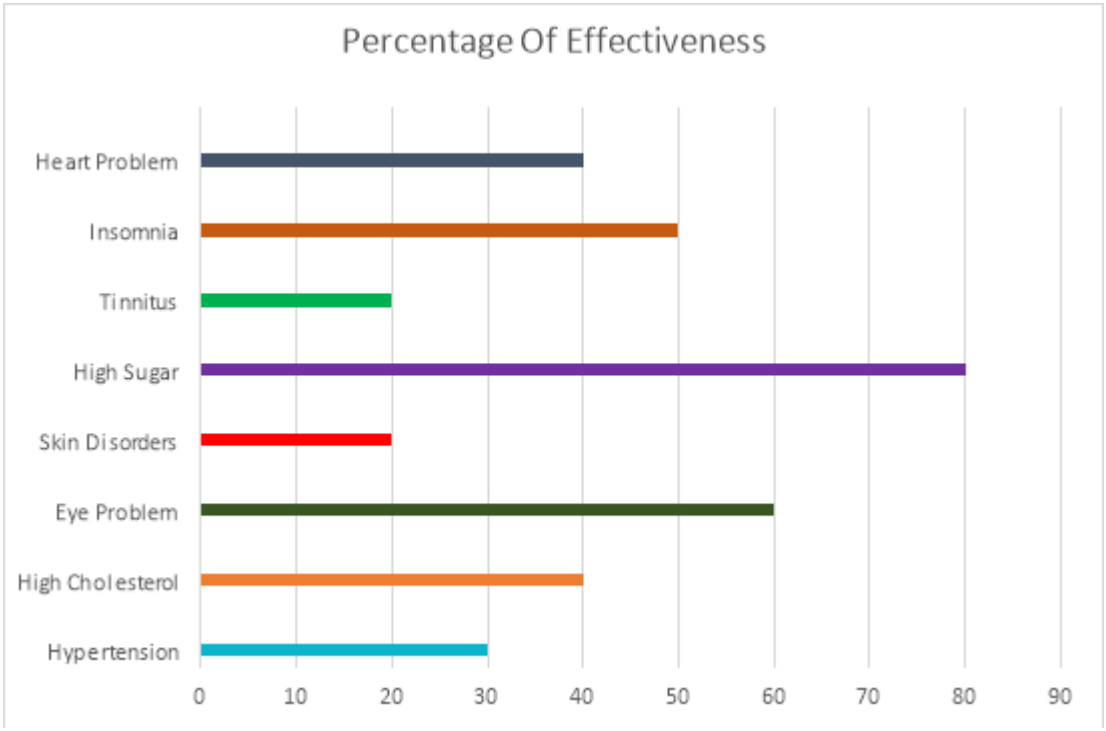

Figure 1: Illustrates The Different Type Of Disease And Its Effectiveness On Traffic Police [15]–[17]**.**

2. LITERATURE REVIEW

Patil et al. in their study embellished that traffic cops encounter a variety of occupational dangers since the profession is a key driver of health. They operate in a loud and dirty atmosphere and are constantly subjected to traffic fumes. The author purposed a methodology to look at the influence of occupational health risks on the well-being of traffic cops. The author obtained and examined published research publications on traffic cops reporting professional health concerns. As a result of a fair evaluation, efforts have been made to obtain studies that indicated unfavorable connections. In conclusion, the majority of research has shown that lung function has decreased and asthmatic comorbidity has risen. The research on the point mutations or nontoxic impact of vehicular emission caused by long-term exposure to chemicals and other polycyclic aromatic hydrocarbons has shown mixed findings, with almost equal available studies supporting and refuting the causal link [18].

Dey et al. in their study illustrate that COVID-19 is a highly infectious illness caused by the coronavirus-2 of the severe acute respiratory syndrome, which has a high human transmission rate. The methodology that Dey et al. applied in this research was limitations, isolation, limits on domestic and international travel or transportation, and the complete or partial shutdown of organizations. Police officers have a critical role in preventing the spread of COVID-19, which might put them under a lot of stress owing to heightened vulnerability and direct infectious transmission while on duty. The result of the research was to see how the increased stress of something like the COVID-19 outbreak and populace confinement affected traffic cops' sleep/wake 24-hour pattern. A simple animated questionnaire survey was done among India's traffic police officers. In conclusion, the Confusion about working arrangements, fear of sickness, and responsibility to uphold the rule of law during the lockdown all contributed to a rise in stress levels. The poll discovered sleep disruption, a change in mid-sleep time, an increase in sadness, as well as fear and depression among traffic cops, all of which had an impact on their Chromo biological environment [19].

Dhakal et al. in their study embellished that the goal of this research was to learn about the health of traffic cops and the prevalent health issues they face as a result of their job. The author applied a methodology in which cross-sectional research was done among Kathmandu Valley Traffic Police. A practical sampling method was utilized. The prevalence of musculoskeletal illnesses, acute sinus infections, skin allergies, eye difficulties, ear disorders, usage of safety measures, and health-seeking practice were all assessed using a standardized questionnaire. In conclusion, medical professionals performed a clinical examination to discover the most frequent physical health issues. A statistical

Package for Social Science was used to input and analyze data. The research included a record of 296 traffic cops, with an average age of categorical imperative years. 72.3 percent of the respondents said they had burning or teary eyes, and almost two-fifths said they had visual problems. According to the results of the PHQ-9 Questionnaire, 58.8% of the answers were depressed in some way. Because of their job, traffic cops are frequently exposed to health risks. Musculoskeletal, visual, and hearing disorders were more common among them. Prevention campaigns, the use of safety equipment, and routine check should all be conducted with them in mind [20].

3. METHODOLOGY

A cross-sectional study of Rajasthan traffic wardens was conducted. The use of semi-structured questionnaires with established internal consistency was used to assess workplace dangers, protective equipment, and health issues.

3.1. Design:

A descriptive explanatory check was undertaken among traffic police personnel operating at six places in Rajasthan city. Jaipur, Neemrana, Shaper, Paota, Rewari, and Sikar were chosen. These locations were picked at random with the assistance of the Metropolitan Traffic Police Division.

3.2. Sample And Instruments:

In this research, data were collected via self-administered (semi-structured) questionnaires. The questionnaire includes socio-demographic information, a respiratory illness assessment by the American-Thoracic-Society-Division of Lung (ATSDLD), eye disorders and safety measures, noise and vibration and associated health complications and prevention methods, and vibrations and accompanying serious health issues and preventative. The mean analysis was evaluated using distribution, percentages, maximum, highest, and standardized error. To examine the link between the variables, an acceptable cross-test was used. A basic random sample strategy was used in the study. Each zone was assigned several traffic cops by the Metropolitan Traffic Enforcement Division in Rajasthan, Rajasthan. The population was picked from among those who lived in the designated region and satisfied the requirements. Traffic officers who were engaged in administrative activities and had less than 6 months of experience were also excluded from the research.

3.3. Data Collection:

The data is collected from the different traffic police persons of different localities and a proper elaboration is formed from that data that is shown below.

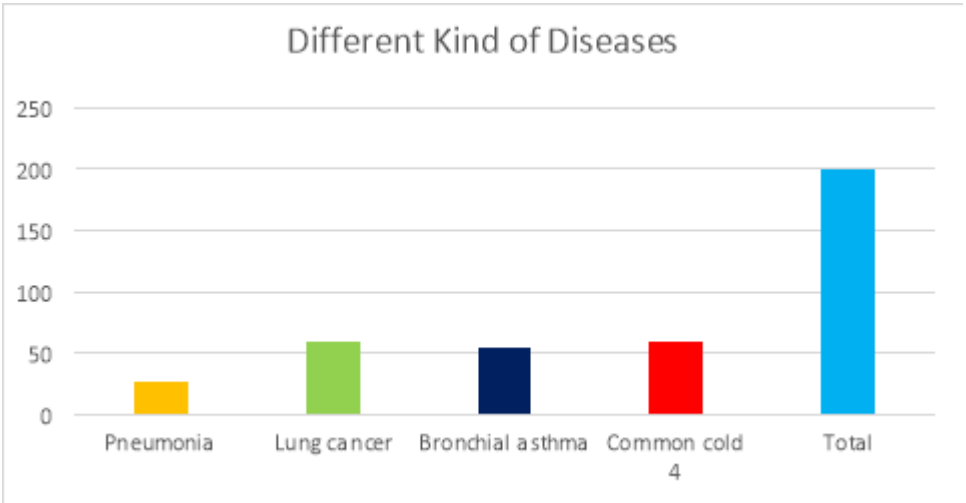

Figure 2: Illustrates the Different Kind Of Diseases A Traffic Police Man Is Facing In The Area.

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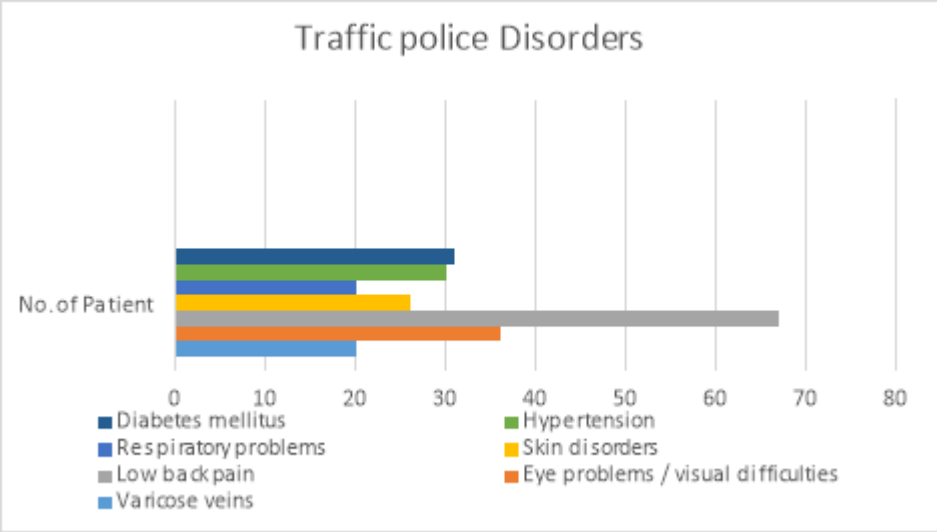

Figure 3: Embellishes The Disorders That Is Facing By A Traffic Man On A Particular Location.

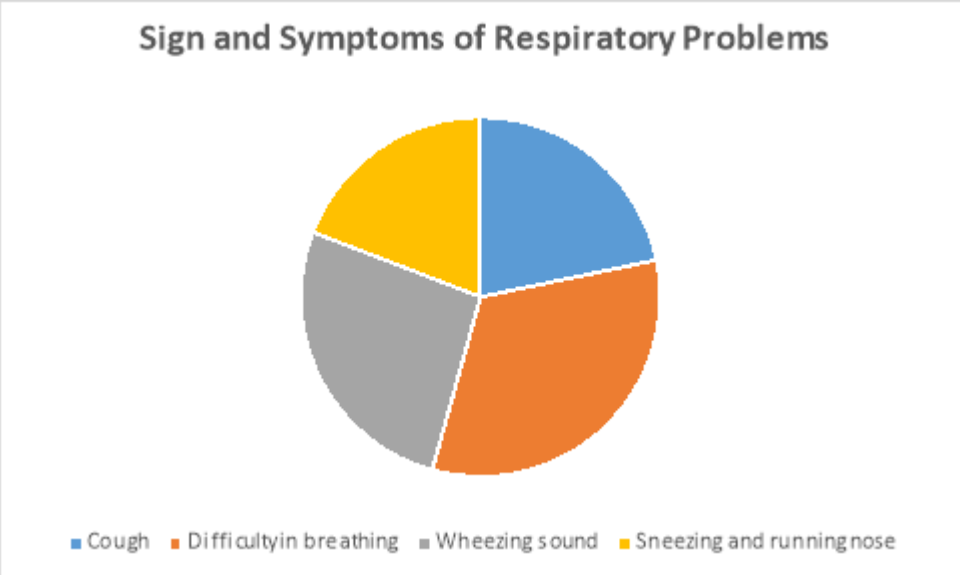

Figure 4: Elaborates The Different Signs And Symptoms Of Respiratory Problems Facing By A Traffic Man In The Particular Location.

3.4. Data Analysis

All the data from the location is collected and well-crafted in the figures above, after the fieldwork was completed, the sampling procedures were codified, repeated, and tables were prepared. Despite these constraints, appropriate preliminary analytical tools for data interpretation were used, including percentages and infographics. It's only that responders would be unable to express their genuine sentiments, and another factor is that Rajasthan has several traffic zones, making data gathering from interviewers throughout the state very difficult.

Table 2: Illustrates The Divided Into Groups Based On Their Noise Exposure And Health Problems Analysis.

Sources Of Noise	Frequency	Percentage
Heavy Motor Vehicle	178	78
Light Motor Vehicle	204	45
Two-Wheeler	109	70
Three-Wheeler	90	10

Type Of Noise		
Blowing Horn	113	50
Engine Sound	170	63
Public Noise	120	32
Duration Of Exposure to Noise		
Less Than 2 Hours		
2-4 Hours	40	40
Over 4 Hours	60	30
	104	43
Difficulty In Hearing	90	54
Sleep Disturbance	160	34
Types Of Protective Devices Used		
Earplugs	90	67
Earmuffs	40	22
Reason For Non-Use Of Protective Device		
Uncomfortable	109	54
Unnecessary	50	67
Others	120	77

4. RESULTS AND DISCUSSION

Figure 2 shows the different kinds of diseases a traffic policeman is facing in the area like lung cancer problem common cold etc. Figure 3 discloses the disorders that are faced by a traffic man in a particular location like skin disorders stress and low functionality of the immune system. Figure 4 elaborates on the different signs and symptoms of respiratory problems faced by a traffic man in a particular location. Table 2 illustrates the divided into groups based on their noise exposure and health problems analysis. According to the findings of this research, traffic cops were aware of the negative impacts of pollution on their health. Pollution might cause respiratory issues, congestion, emphysema, inflammations, and pneumonia, they knew. As shown in Figure 2, anytime traffic cops are exposed to dirty air for an extended period, they seem to be more prone to acquire various lung diseases, according to research done in India. It is critical for traffic cops of being aware of problems in the city, particularly ones involving dyspnoea. Despite the reality that many traffic officers are aware of the need for having pro-government helmets, others felt a need for frequent medical examinations. Even when there's no sickness, regular check-ups save lives since excellent health does not imply the absence of negative side effects. As shown in Figure 3, those who receive regular medical check-ups have a decreased risk of having invasive illnesses and a better chance of surviving. As a result, effective certification activities and regulations requiring frequent health exams and pollution reduction should be implemented.

In this research, several information treatments for preventing respiratory disorders among traffic cops were shown to outperform performance levels. A poll revealed similar results: traffic cops had a higher level of awareness than the general public, despite their little training. This might be linked to traffic cops' financial difficulties since research has shown that financial variables impact health-seeking behavior. Furthermore, poor schedule management between duty hours might make it difficult to have regular health checks. Nonetheless, children should be compelled to engage in pollution-prevention activities that are both clean and pleasant. In addition, the government must come up with long-term solutions to these issues.

To prevent respiratory infections, the majority of the traffic cops in this study used masks. Wearing a face mask may help lessen the negative impacts of air pollution, according to research. A modest fraction of traffic cops enforced rules in cars to limit gas emissions in this poll. This might be due to ineffective steps to reduce exhaust emissions. In Rajasthan, as seen in Figure 4, automobile emissions are the predominant source of pollution. According to a study done in Rajasthan, total annual emissions (CO, CO_2, HC, NOX, SO_2) are now 7,231,053.12 tonnes, with CO_2 accounting for 91.0 percent of total emissions. Furthermore, at the time of this investigation, home evacuations and expressways were in progress. This could have worsened the air quality, causing the health of the traffic cops to

deteriorate. The safety of patrol officers and city dwellers will be protected only if the regime effectively enforces license plates but instead the classification of EEG signals, and often a ban on environmentally harmful motorcars. Figure 5 discloses different kinds of sources of noise and disorders with protective device analysis.

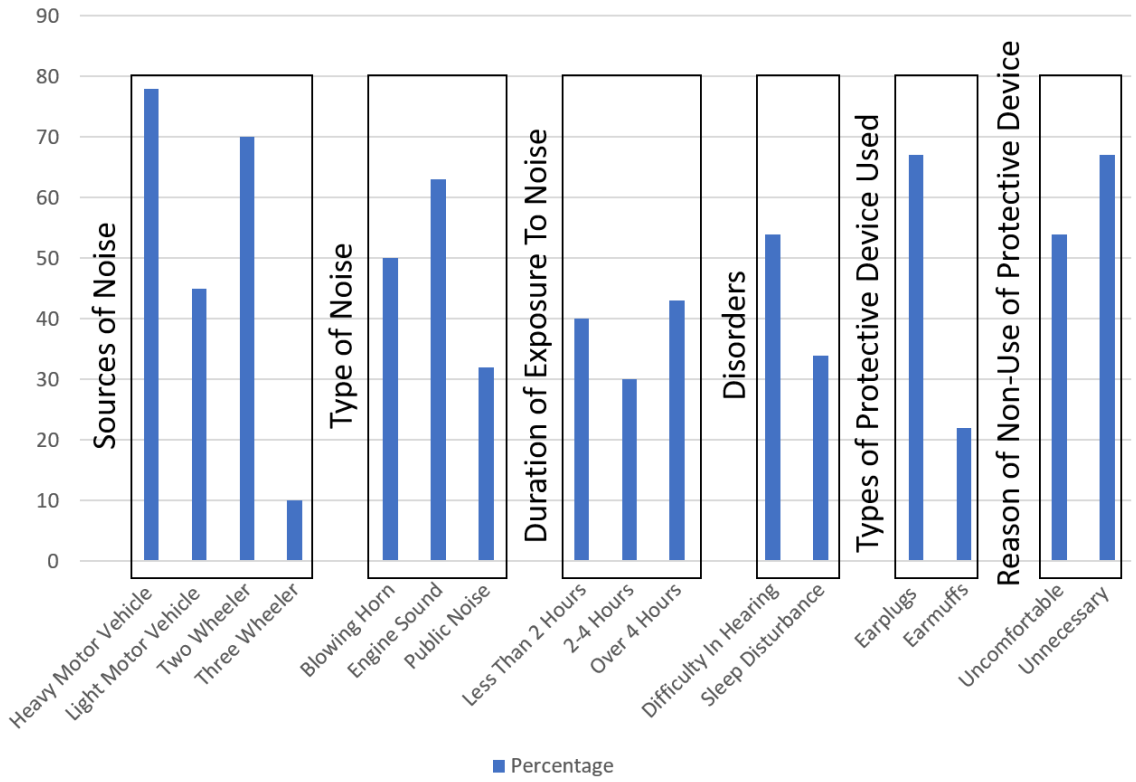

Figure 5: Illustrates A Different Kind Of Sources Of Noise And Disorders With Protective Device Analysis.

5. CONCLUSION

The traffic police in Rajasthan had a much greater incidence of bronchial illness and poorer lung capacity than the expected returns. Regular medical monitoring with a spectrometer is recommended to measure respiratory function and help in early diagnosis and treatment. It is critical to provide standard health education on the usage of surgical masks as well as health screening. The administration's encouragement of hybrid and electric automobiles, as well as frequent exhaust emissions testing and carpooling practices, are all examples of measures to minimize vehicular emissions. The usage of harsh horns and unintentional honking behavior among Rajasthan commuters might be the cause. The occurrence of sensory security precautions within traffic employees may be due to a lack of knowledge about noise pollution caused on health, as well as insufficient knowledge regarding security precautions. The reasons for not using preventative measures, although, remained found to be identical in both investigations. The majority of these explanations are based on attitudes so instead of information.

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