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An Evaluation of Traffic Police Officers' Knowledge, Attitude, and Practice of Safety Measures to Guard Against Health Risks Caused by Traffic Air Pollution in Bangalore City using Descriptive Research

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Abstract:- This descriptive study aims to evaluate traffic police officers' knowledge, attitudes, and practices on safety precautions to guard against health risks caused by traffic air pollution in Bangalore City. In traffic zones including Bangalore's K.R. Market, Rajajinagar, Vijay Nagar, Majestic Bus station, Indian Express, and Yeshawanthpur, the investigator employed a descriptive design and a simple sampling approach to choose 60 samples based on sample selection criteria. Sample data were gathered using a structured interview schedule, which included asking questions to gauge participants' knowledge, attitudes (a 5-point Likert scale was employed), and practices. Utilizing both inferential and descriptive statistics, data was examined. It can be shown from the study that, of the 54 participants, 90% had average knowledge, 35 had a decent attitude towards safety precautions (58.3%), and 34 had fair practices (56.6%). As to the study's conclusion, traffic pollution is becoming a major issue in megacities around the globe, posing the biggest threats to environmental health and taking millions of lives annually. Particularly the traffic cops, who most certainly have respiratory and other illnesses from working at heavily, polluted intersections. To protect against hazards, it is therefore crucial to understand traffic policeman safety procedures, attitudes, and behaviours and enhance them.

Keywords:- *Traffic Air Pollution; Mask; Goggle; Health Hazard; Traffic Policemen.*

I. INTRODUCTION

Global climatic change, the state of the biosphere, and human health are all strongly impacted by the environment. The environment also has a vital role in population health. There are significant risks to the environment from ecotoxicity and the depletion of natural resources. Poor environmental quality globally is thought to be the cause of 25% of preventable diseases this century. Air pollution alone is responsible for billions of dollars worth of yearly health-related expenses as well as premature deaths. Examples of air pollutants include ozone, sulphur dioxide, oxides of nitrogen, and others.[1] In modern megacities such as Delhi, Mumbai, Calcutta, Chennai, and Bangalore—one of the fastest expanding cities in Asia—traffic pollution is a major issue. Due to the large influx of immigrants—roughly five lakh people visit Bangalore daily—and the daily increase in the number of cars, which causes significant traffic congestion, Bangalore has become a hub for information technology and global corporations investing in a variety of industries. Asthma, cough, breathlessness, rhinitis, urticaria, feverishness, and conjunctivitis affect 60% of traffic cops, according to the State of Environment Report of 2003. Despite this, they work at busy intersections and don't pay as much attention to implementing safety precautions like antipollution masks and goggles which are highly necessary to protect them against, health hazards caused by traffic air pollution.[2] Because of the intense traffic pollution caused by the growing number of cars on the road, most traffic police officers are experiencing health problems as a result of breathing the toxins. As a result, a person's knowledge, attitude, and practice of implementing safety precautions all contribute significantly to their likelihood of developing respiratory issues. A key component of reducing respiratory illnesses is providing traffic police officers with training on health hazards and safety precaution.

II. LITERATURE REVIEW

Iavicoli I. 2004 carried out research in Rome, Italy, on the bio-monitoring of traffic police personnel exposed to airborne platinum. Background: Due to the extensive use of catalytic converters for automobile propulsion, there has been a significant increase in ambient levels of the platinum group elements (PGEs) palladium, platinum, and rhodium during the past 20 years. Goal: Assessing urine platinum levels in individuals with occupational exposure. Methods: A total of 161 Rome municipal police officers were examined, plus 103 traffic cops who were in charge of policing roadways with a typical volume of traffic. The control group, consisting of 58 individuals, solely performed office tasks. These participants' urine samples were subjected to sector field inductively coupled plasma mass spectrometry for quantifying platinum. Results: The platinum levels of the participants involved in traffic control and the control group (4.45 (2.45) ng/1 vs. 4.56 (2.84) ng/1, respectively) did not differ statistically significantly.

Conclusions: It was discovered that the amounts of platinum in the urine were greater than those recorded for other metropolitan populations, indicating a steadily rising human exposure to the metal.[3]

Karita K. 2004 performed research in Bangkok, Thailand, investigating the effects of home and working locations on respiratory complaints due to air pollution in police officers and their spouses. In Bangkok, a cross-sectional research including 530 couples—policemen and their wives—investigated the factors, including air pollution, that affect the occurrence of respiratory complaints. A questionnaire from the American Thoracic Society Division of Lung Diseases (ATS-DLD) was used to collect data on respiratory symptoms. A multivariate logistic model that was adjusted for several possible confounding factors was used to assess the effects of living and working locations. While working in high-traffic areas (OR+ADD-1.27, CI: 1.01-1.61) and smoking (OR+ADD-2.19, 95+ACU-CI: 1.47-3.26) were associated with an elevated risk of frequent cough or phlegm among police officers, these factors were not associated with their spouses (OR+ADD-1.53, CI: 1.10-2.13).[4]

Sandya Iyer, 2004 articles on Pune's "road to illness," Overhanging the city like a black shadow is pollution. Furthermore, it is just becoming worse with time. The consequences of pollution have long been a cause for concern for ENT experts around the city. It's just going to get worse, though. Similar to how people currently live with pollution, traffic police officers, in particular, suffer from chronic coughs, plugged ears, itching, wet eyes, throat infections, and headaches. At traffic lights, people are most exposed to hazardous vapors, and the number of children afflicted is rising. The Association of ENT Surgeons' president, Dr Avinash Deshmukh, states that breathing in these emissions can lead to several issues, including sinus, lung, and even premature hearing loss. Pollution is mainly responsible for two types of allergies. Recurrent rhinitis, which causes inflammation and blockage of the nose, is the second condition and is primarily associated with respiratory issues.[5]

Maya Sharma 2003 Stress-related report on Bangalore traffic cops For those trying to control traffic, Bangalore presents unique difficulties. Over the past 20 years, the number of traffic cops has stayed almost constant, despite a ten-fold increase in the traffic population. For most of us, the traffic is almost unbearable on the journey to work. Imagine, however, if your job requires you to spend the whole workday standing amid hundreds of loud, dirty cars. According to research, 25% of traffic constables have serious respiratory issues, so it's not an easy existence. Other common reports include partial deafness, hypertension, and stomach issues brought on by erratic eating patterns."We have to keep taking off the mask to whistle, even though there is a lot of smoke." We must yell at them to halt them when they break the law and jump signals. Police officer Rajendra Prasad said, "This makes my blood pressure go up."Although bulky, the mask has practical uses. Another traffic policeman named Ravi says, "It is hard to breathe through it."[6]

III. RESEARCH METHODOLOGY

The study used a descriptive research design and a descriptive research technique. The study included traffic cops who worked in Bangalore's traffic zones and were subjected to air pollution from vehicles. For the study's reference inclusion and exclusion criteria, 60 samples were chosen using the convenient sampling approach in Bangalore's traffic areas. Male traffic police officers operating at traffic junctions and traffic police officers of any age working in traffic zones received the inclusion requirements. Four pieces of a specially created gadget were used to assist in collecting data. Section 1 was about background factors. In terms of age, religion, location of residence, marital status, prior experience, level of education, and so forth. Section 2 contained data on the knowledge Questionnaire to measure the knowledge on traffic air pollution and. including 12 items with a total score of 12, and a questionnaire measuring awareness of safety precautions against health risks caused by transportation air pollution with 14 items and a total score of 14. The data in Section 2 were a Five-point Likert scale used to assess the attitude on safety measures consisting of 15 items, and the Maximum score is 75 and the Minimum score is 15 each item would be rated on observing the traffic policemen practice by using 5 parameters namely, strongly agree (5), agree (4), undecided (3), disagree (2), strongly disagree (1). Section 4 data on the Practice Questionnaire, which consists of ten items, is used to evaluate the practice of safety measures. Score total: 10.

IV. RESULTS AND DISCUSSION

The objectives guided the analysis of the data. Following the collection and tabulation of the data, inferential statistics (Karl Pearson's correlation) and descriptive statistics (frequency and percentage, mean and standard deviation) were used to analyze and interpret the data. According to the study, the majority of participants were in the age group of 35.7%, who were between the ages of 41 and 51; 90% were married; 36.7% had completed their education; 56.7% belonged to the income group, which is defined as those whose income is above Rs 8,000; 43.3% of the subjects were in the nuclear family type; 53% of the subjects attended conferences; and 31.7% of the subjects obtained their information from newspapers and television. 90% of individuals had a mediocre understanding out of 54 total. Regarding attitudes towards safety precautions, out of 35 participants, 58.3% had a reasonable attitude. 34 participants—56.6%—had fair practice during the exercise period. The average knowledge score was 4.43 and 8.23, respectively. Considering air pollution, masks, and goggles, the median values are 8, 4, and 5. 1.49 for air pollution, 1.1 for masks, and 0.95 for goggles are the standard deviations. Traffic police officers' attitudes towards masks and goggles were examined; the mean scores for masks and goggles were 35.5 and 30.73, respectively, while the median scores for masks and goggles were 30.50, with standard deviations of 1.82 and 1.91. As for the masks, the standard deviation is

0.9, the mean practice score is the median of 3, and the mean percentage is 44.77. Overall, the goggles have a mean practice score of 6.67, a total S.D. of 1.28, a median of 4, a mean percentage of 54.77%, and a standard deviation of 0.75. The relationship between traffic police officers' knowledge and practice about masks is positively correlated, as indicated by the connection of knowledge, attitude, and practice regarding safety measures (r=0.53). Therefore, statistical significance was observed. Knowledge and attitudes of traffic enforcement officers on masks and goggles are correlated. The knowledge and attitude of traffic police officers towards masks are negatively correlated, with a correlation coefficient of r = -0.10. As a result, statistical significance was not discovered. The association between traffic policemen practice and attitude relative to mask and goggles. There is a negative association between traffic policeman practice and attitude about masks, as indicated by the correlation coefficient of -0.16. There was no statistically significant finding. Thus, the results showed a positive correlation between the knowledge and practice scores. Therefore, it would be crucial to increase traffic police officers' understanding of the need to safeguard their health from the harmful effects of air pollution.

- *Section-1 Description of Socio-Demographic Data*

Table 1 Distribution of Subject by Age Group

Sl no	Age	Number	Percentage
1	30or less	13	21.7
2	31-41	19	31.7
3	41-51	21	35.7
4	>50	7	11.7
TOTAL		60	100%

Table 2 Distribution of Subject by Religion Group

Sl no	Religion	Number	Percentage
1	Hindu	47	78.3
2	Christian	9	5.0
3	Muslim	4	6.7
TOTAL		60	100%

Table 3 Distribution of Subject by Marital Status

Sl no	Marital status	Number	Percentage
1	Married	54	90
2	Unmarried	06	10
TOTAL		60	100%

Table 4 Distribution of Subject by Educational Status

Sl no	Educationalstatus	Number	Percentage
1	SSLC	16	26.6
2	P.U.C	22	36.7
3	Graduate	22	36.7
4	Post Graduate	-	
TOTAL		60	100%

Table 5 Distribution of Subject by Income

Sl no	Income	Number	Percentage
1	8000 or less	26	43.3
2	>8000	34	57.3
TOTAL		60	100%

Table 6 Distribution of Subject by Type of Family

Sl no	Type of family	Number	Percentage
1	Nuclear	42	70
2	Joint	30	30
TOTAL		60	100%

Table 7 Distribution of Subject by Number of Children

Sl no	Number of Children	Number	Percentage
1	No children	8	13.4
2	One	13	21.7
3	Two	26	43.3

4	Three	11	18.3
5	Four	2	3.3
TOTAL		60	100%

Table 8 Distribution of Subject by Participated in Conference

Sl no	Participated in Conference	Number	Percentage
1	YES	32	53.3
2	NO	28	46.7
TOTAL		60	100%

Table 9 Distribution of Subject by Source of Information

Sl no	Source of Information	Number	Percentage
1	Friends	1	1.6
2	Health Worker	3	5.0
3	News Paper	18	30.0
4	Radio	19	31.7
5	T.V	19	31.7
TOTAL		60	100%

Table 10 Distribution of Subject by Source of Information

Sl no	Source of Information	Number	Percentage
1	Friends	1	1.6
2	Health Worker	3	5.0
3	News Paper	18	30.0
4	Radio	19	31.7
5	T.V	19	31.7
TOTAL		60	100%

- *Section-2 Description of Knowledge of Traffic Policemen Related to Traffic Policemen Related to Traffic Air Pollution and Safety Measures.*

Table 11 Distribution of Area Wise Knowledge on Traffic AirPollution, Safety measures, Mask and Goggles. N=60

Area	Mean	Median	Standarddeviation
Air pollution	8.23	8	1.49
Mask	4.02	4	1.1
Goggles	4.43	5	0.95
Total	16.7	16	3.54

Table 12 Level of Knowledge Regading Safety Measures N=60

Sl no	Score Level	No of Participants	Categories	Percentage
1	0-4	-	Poor	0
2	5-9	54	Average	90%
3	10-12	06	Good	10%
Total		60		100%

- *Section-3 Description of Attitude of TrafficPolicemen Related to Safety Measures.*

Table 13 Distribution of Attitude of Traffic Policemen Regarding to Safety Measures

AREA	MEAN	MEDIAN	STANDARDDEVIATION
Mask	35.5	36	1.82
Goggle	30.73	30.5	1.91

Table 14 Level of Attitude is Categories into Very Poor, Poor, Fair and Good

Sl no	Score Level	No of Participants	Categories	Percentage
1	15-35	-	Very Poor	-
2	36-55	-	Poor	-
3	56-65	35	Fair	58.3%
4	66-75	25	Good	41.6%
Total		60		100%

➢ *Section-4 Description of Practice of Safety Measures Among Traffic Policemen Toprotect from Traffic AirPollution.*

Table 15 Description of Practice of Traffic Policemen RegardingareaWise Safety Measures

Area	Mean	Median	Mean %	Standard Deviation
Mask	3.00	3	44.77	0.9
Goggles	3.67	4	54.77	0.75
Total	6.67	7	100	1.28

Table 16 Levels of Practice of Traffic Policemen Regarding Area Wise Safety Measures N=60

Sl no	Score Level	No of Participants	Categories	Percentage
1	0-3	-	Poor	0
2	4-6	34	Fair	56.66%
3	7-10	26	Good	43.33%
Total		60		100%

➢ *Section-5 Description of Relationship with Knowledge, Attitude & Practice Regarding Safety Measures:*

The analysis and interpretation of data about the relationship between knowledge, attitude, and practice regarding safety precautions—such as masks and goggles—are covered in this section.

- The knowledge and practice connection reveals a positive association between the two. For example, goggle at r=0.30 and mask at r=0.53.
- The knowledge and attitude connection reveals a negative association between the two variables for the mask (r = -0.10) and goggles (r = -0.09).
- The attitude and practice towards safety measures are correlated negatively, with the mask showing a negative connection at r= -0.16 and the goggle practice and attitude showing a negative correlation at r= -0.15.

V. CONCLUSION

The main objectives of the research were to evaluate traffic police officers' knowledge, attitudes, and practices regarding safety precautions against health risks and to increase their awareness of the need to protect themselves from the harmful effects of traffic air pollution. The results of the study show a favourable association between traffic police officers' knowledge and the use of masks and goggles to reduce health dangers.

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