Assess knowledge gap on morbidities, its preventive, control measures and existing morbidities related to air pollution among Traffic police in W.B (Kolkata).

Section A -Research paper

Assess knowledge gap on morbidities, its preventive, control measures and existing morbidities related to air pollution among Traffic police in W.B (Kolkata).

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Abstract

Back ground: Air pollution is a great problem of present scenario, which has serious harmful impact on human health & environment. Air pollution is considered as the major environmental risk factor in the incidence and progression of different morbidities such as asthma, COPD, lung cancer. Traffic police by their profession doing well for our society. They are vulnerable people to developed morbidities related air pollution. **Aims and objectives**: To assess Knowledge gap regarding morbidities, its preventive, control measures and existing morbidities related to air pollution among Traffic police in W.B (Kolkata) and to examine the association of knowledge gap with morbidities and other selected variables. **Materials & Methods**: A descriptive study was conducted **"**Assess knowledge gap on morbidities, its preventive, control measures and existing morbidities related to air pollution among Traffic police in W.B (Kolkata). Conceptual frame work of the study was based on Pender's health promotional model. Study was done with 200 Traffic Police under different Kolkata traffic guard, W.B. sample selection was done by probability sampling technique through lottery method. Data regarding knowledge were collected through structured questionnaire. **Results:** Descriptive and inferential statistics were used for data analysis. Study findings revealed that 62%(124/200) traffic police obtained average knowledge score, only 3%(6/200) traffic police obtained High knowledge score. There is significant association between knowledge score in relation with year of service as obtained value 2.98 is greater than the tabular value at 0.05 levels 1.98. Among 200 traffic Police , 33%(66/200) Traffic Police developed respiratory morbidity,27%(54/200) developed Eye morbidities,20.5%(41/200) developed Skin morbidities. There is significant association between the Respiratory

2025

Eur. Chem. Bull. 2023, 12(Special Issue 2), 2025-2038

Assess knowledge gap on morbidities, its preventive, control measures and existing morbidities related to air pollution among Traffic police in W.B (Kolkata).

Section A -Research paper

morbidity (yes) / (no) with the more than 5 years /less than 5 years of service done in exposure of air pollution .The value of χ^2 obtained in this case was 18.897 which was greater than the values required for χ^2 to be significant at 0.05 and 0.01 levels of significance i.e. 12.592 and 16.812 respectively at df 6. **Conclusion:** It has implication on control and prevention of occupational health hazards. Based on the study findings information booklet to be developed for their knowledge and practice of preventive measures during their working period so that they can prevent their morbidities.

Key words- Traffic Police, Knowledge, Morbidities, Prevent, Control, Air pollution.

INTRODUCTION:

Air pollution is a major problem of present scenario, which has serious toxicological impact on human health and environment. Large volumes of emission from motor engines of automobiles and industrial activities causes air pollution. Air pollution is considered as the major environmental risk factor in the incidence and progression of some diseases such as asthma, lung cancer, ventricular hypertrophy, Alzheimer's and Parkinson's diseases, psychological complication, autism, retinopathy, Foetal growth and low birth weight. Traffic control systems are the very much important to control the road vehicular mobility. Traffic police by their profession doing well for our society. They are vulnerable people to developed morbidities related air pollution. So it is very much necessary for traffic police to look after their health and maintain safety and preventive and control measures so that they can safe their health and gives us productive services through their service period. **An emission inventory of Kolkata control board** [2]] checked Air quality in Kolkata through Air quality Index, 2019 . Kolkata was shown to have a PM 2.5 reading of 59.8 as recorded in2019, as a yearly average. This is shown directly in to unhealthy bracket rating, which requires a PM 2.5 reading of anywhere between 55.5 to 150.4 µg/m^3 to be classified. This reading got position of 61 [st] most polluted city worldwide in 2019 and coming in at 28th place out of all cities ranked in India. This shows that Kolkata is very polluted and for certain months it was seen that was hazardous levels of pollution. In January,176.1µg/m3rating seen which may have a very large risk of adverse health effects, and few months are recorded in Kolkata was 19.7µg/m3,it is nearly 9 times lower than the highest months reading.

Dey A, Mishra T, sahu s. saha A(2021) [3] studied on Evaluation of impact of ambient air pollution on respiratory health of traffic police in Kolkata, Air pollution is associated with a broad spectrum of an environmental health problem, caused by increased urbanization and population, globally. Emission of pollutants was strongly implicated in acute morbidity and

2026

Eur. Chem. Bull. 2023, 12(Special Issue 2), 2025-2038

Assess knowledge gap on morbidities, its preventive, control measures and existing morbidities related to air pollution among Traffic police in W.B (Kolkata).

Section A -Research paper

mortality associated with severe pollution. Traffic cops are most vulnerable due to the nature of their job, continuously exposed to toxic pollutants. The study aimed to assess the physical and respiratory morbidities of traffic cops due to the effect of environmental pollutants. The result of this study shows that outdoor environmental exposure creates harmful effects on lung function parameters of traffic police among the three zones of Kolkata.

Giriyanna Gowda, R thenambigal (14thJan 2020) [4] studied on A study on respiratory morbidities and pulmonary functions among traffic policemen in Bengaluru city. Air pollution is a major public health problem in the present Indian cities. It more prone to develop respiratory problems such as asthma, chronic obstructive pulmonary disease, rhinitis, recurrent respiratory tract infections, and others. A total of 217 traffic policemen were included in the study. , among them 17.5% individuals are reported allergic rhinitis, 12.9% individuals had chest symptoms(cough and breathing difficulty). Those who having chest symptoms among them 20.3% experienced exacerbation of these symptoms at the workplace.

STATEMENT OF STUDY-

Assess knowledge gap on morbidities, its preventive, control measures and existing morbidities related to air pollution among Traffic police in W.B (Kolkata).

OBJECTIVES

Objectives of the study

1. To assess knowledge gap regarding morbidities, its preventive and control measures among Traffic Police in West Bengal in relation to demographic variables i.e. Family Income, years of Service and Age variations.

2. To assess knowledge gap regarding morbidities, its preventive and control measures among Traffic Police in West Bengal in relation to demographic variables i.e. Awareness Programme, Regular Exercise, Frequency of Health Check up, BMI, Use of Preventive measures, Smoking and taking Alcohol variations.

3. To categorize the total sample on knowledge gap regarding morbidities, its preventive and control measures.

4. To examine the association between existing morbidities and demographic variable i.e. year of service.

5. To assess the association between Knowledge and morbidities.

Hypotheses of the study

Ho1. There does not exist any significant differences of knowledge gap regarding morbidities, its preventive and control measures among Traffic Police in West Bengal in

2027

Eur. Chem. Bull. 2023, 12(Special Issue 2), 2025-2038

Assess knowledge gap on morbidities, its preventive, control measures and existing morbidities related to air pollution among Traffic police in W.B (Kolkata).

Section A -Research paper

relation to type of family income variation.

Ho2. There does not exist any significant differences of knowledge gap regarding morbidities, its preventive and control measures among Traffic Police in West Bengal in relation to years of service variation.

Ho3. there does not exist any significant relationship of knowledge gap regarding morbidities, its preventive and control measures among Traffic Police in West Bengal in relation to age variation.

Ho4. There does not exist any knowledge gap regarding morbidities, its preventive and control measures among Traffic Police in West Bengal in relation to demographic variables i.e. Awareness Programme, Regular Exercise, Frequency of Health Check up, BMI, Use of Preventive measures, Smoking and taking Alcohol variations.

Ho5. There does not exist any association between existing morbidities and the years of service.

Ho6. There does not exist any association between knowledge and morbidities.

RESEARCH METHODOLOGY

Study type – Descriptive study

Study design- Descriptive study design

Study area- selected Traffic guard for study

Study population- Traffic police those who are having occupational exposure of 2 years or more and they are working under road traffic control department of Govt. of west Bengal.

Target Population- Traffic police of west Bengal, Kolkata.

Accessible Population – Traffic Police of selected traffic Guard of West Bengal (Kolkata)

Sample /Sample size-   200 samples from traffic police of West Bengal Govt. Traffic control Department Sampling technique – Cluster sampling technique.

Operational Definition-

Traffic police-

In this study word means an official people working in road traffic control department of Govt. of west Bengal and having exposure in vehicular emission.

Knowledge-

In this study it means gained information on morbidities and its prevention related to air pollution are measure in terms of response given to the Knowledge questionnaire.

Morbidities – Disease arises in the body due to exposure in air pollution.

Prevent - stop the occurrence of morbidities related air pollution.

2028

Eur. Chem. Bull. 2023, 12(Special Issue 2), 2025-2038

Assess knowledge gap on morbidities, its preventive, control measures and existing morbidities related to air pollution among Traffic police in W.B (Kolkata).

Section A -Research paper

Control- Restriction of occurrence or limit the disease progression.

Air pollution- Pollutant present in the air which causes morbidities related air pollution among the traffic police.

Information booklet – Materiel prepared by the researcher to provide information regarding morbidities related air pollution and its preventive and control measures.

 Tool for data collection-

 Tool 1 – Structure questionnaire to assess demographic data

 Tool II – Structured questionnaire to assess knowledge on morbidities and its preventive measures related to air pollution.

  Tool III- Checklist to assess practice of using preventive measures related to air pollution.

Study tools

Questionnaire development: questionnaire develops as a booklet in Bengali and English language with instructions was prepared based on WHO guidelines and research study result.

Validity- After initial preparation the questionnaire to be judged by a group of experts in the Department of Community Medicine of different Govt Medical college, Kolkata who will make necessary correction. This final corrected version was used for pre testing.

Reliability of the tool – Appropriate statistical methods used to check the reliability of the tools. Tool II Knowledge questionnaire the reliability was computed using Kuder Richardson formula. The reliability of the Knowledge questionnaire was r = .83, hence the questionnaire found to be reliable.

Plan for data collection procedure-

- Ethical permission has been taken from Institutional Ethical committee.
- Formal administration permission obtained from the concerned authority.
- Sample had been selected as cluster sampling technique.
- Talked to each traffic guard Officer in-charge those who are selected for study.
- Self introduction had been given to the participants and rapport had been established.
- Purpose of the study had been explained to each participant. And they have right to decide to be a participant in the study.
- Informed consent had been taken from each participant and they had given assurance of their confidentiality of their responses

    Data had been collected with structured questionnaire on demographic variables

2029

Eur. Chem. Bull. 2023, 12(Special Issue 2), 2025-2038

Assess knowledge gap on morbidities, its preventive, control measures and existing morbidities related to air pollution among Traffic police in W.B (Kolkata).

Section A -Research paper

Knowledge questionnaire regarding morbidities and its prevention related air pollution and Structured checklist for assessing existing morbidities.

Results and Discussion

1. Differential Analysis on knowledge gap regarding morbidities, its preventive and control measures among Traffic Police in West Bengal

One of the objectives of the study was to assess knowledge gap regarding morbidities, its preventive and control measures among Traffic Police in West Bengal in relation to demographic variables i.e. Family Income, years of Service and Age variations.

1.1. **Family Income variation wise differences of knowledge gap regarding morbidities, its preventive and control measures among Traffic Police in West Bengal**

To find out if there exist any type of family income variation wise differences of knowledge gap regarding morbidities, its preventive and control measures among Traffic Police in West Bengal, therefore the null hypothesis was stated as "there does not exist any significant differences of knowledge gap regarding morbidities, its preventive and control measures among Traffic Police in West Bengal in relation to type of family income variation".

In order to find out differences if any of the scores on knowledge gap regarding morbidities, its preventive and control measures among Traffic Police in West Bengal of family income less than 20 thousands and more than 20 thousands, the test of significance of difference between the means of two sub samples was calculated and tested for significance. The result has been presented in the following table:

Table 1: Summary of test of significance of difference on the knowledge gap regarding morbidities, its preventive and control measures among Traffic Police in West Bengal in relation to Family income variation

Family income variation	N	Mean	S.D	SE_D	't'	Remarks
>20 thousands	98	6.2	3.1			
<20 thousands	102	6.5	3.7	2.12	3.15	Significant

Critical value of 't' with df (98) at 0.01=2.63 and 0.05=1.98

The obtained value 3.15 is greater than the tabular value at 0.05 levels 1.98 and at 0.01

2030

Eur. Chem. Bull. 2023, 12(Special Issue 2), 2025-2038

Assess knowledge gap on morbidities, its preventive, control measures and existing morbidities related to air pollution among Traffic police in W.B (Kolkata).

Section A -Research paper

level 2.63 so it is significant and the null hypothesis that states there does not exist any significant relationship of knowledge gap regarding morbidities, its preventive and control measures among Traffic Police in West Bengal in relation to family income variation will be rejected.

1.2. Years of Service variation wise differences of knowledge gap regarding morbidities, its preventive and control measures among Traffic Police in West Bengal

To find out if there exist any years of service variation wise differences of knowledge gap regarding morbidities, its preventive and control measures among Traffic Police in West Bengal, therefore the null hypothesis was stated as "there does not exist any significant differences of knowledge gap regarding morbidities, its preventive and control measures among Traffic Police in West Bengal in relation to years of service variation".

In order to find out differences if any of the scores on knowledge gap regarding morbidities, its preventive and control measures among Traffic Police in West Bengal of more than 5 years and less than 5 years of service, the test of significance of difference between the means of two sub samples was calculated and tested for significance. The result has been presented in the following table:

Table 2: Summary of test of significance of difference on the knowledge gap regarding morbidities, its preventive and control measures among Traffic Police in West Bengal in relation to Years of Service variation

Year of Service variation	N	Mean	S. D	SE_D	't'	Remarks
More than 5 years	105	6.78	3.3	2.8	2.98	Significant
Less than 5 years	95	5.96	3.7			

Critical value of 't' with df (98) at 0.01=2.63 and 0.05=1.98

The obtained value 2.98 is greater than the tabular value at 0.05 levels 1.98 and at 0.01 level 2.63 so it is significant and the null hypothesis that states 'there does not exist any significant relationship of knowledge gap regarding morbidities, its preventive and control measures among Traffic Police in West Bengal in relation to years of service variation'

2031

Eur. Chem. Bull. 2023, 12(Special Issue 2), 2025-2038

Assess knowledge gap on morbidities, its preventive, control measures and existing morbidities related to air pollution among Traffic police in W.B (Kolkata).

Section A -Research paper

will be rejected.

1.3. Age variation wise differences of knowledge gap regarding morbidities, its preventive and control measures among Traffic Police in West Bengal

To find out if there exist any age variation wise differences of knowledge gap regarding morbidities, its preventive and control measures among Traffic Police in West Bengal, therefore the null hypothesis was stated as "there does not exist any significant differences of knowledge gap regarding morbidities, its preventive and control measures among Traffic Police in West Bengal in relation to age variation". In order to find out differences if any of the scores on knowledge gap regarding morbidities, its preventive and control measures among Traffic Police in West Bengal of more than 30 years and less than 30 years age, the test of significance of difference between the means of two sub samples was calculated and tested for significance. The result has been presented in the following table:

Table 3: Summary of test of significance of difference on the knowledge gap regarding morbidities, its preventive and control measures among Traffic Police in West Bengal in relation to Age variation

Age variation	N	Mean	S. D	SE_D	't'	Remarks
More than 30 years	103	6.12	4.13	2.84	2.96	Significant
Less than 30 years	97	6.01	3.04			

Critical value of 't' with df (98) at 0.01=2.63 and 0.05=1.98

The obtained value 2.96 is greater than the tabular value at 0.05 levels 1.98 and at 0.01 level 2.63 so it is significant and the null hypothesis that states there does not exist any significant relationship of knowledge gap regarding morbidities, its preventive and control measures among Traffic Police in West Bengal in relation to age variation will be rejected.

2.0. Percentage Analysis of responses on knowledge gap regarding morbidities, its preventive and control measures among Traffic Police in West Bengal in relation to demographic variables (Awareness Programme, Regular Exercise, Frequency of Health Check up, BMI, Use of Preventive measures, Smoking and taking Alcohol variations)

2032

Eur. Chem. Bull. 2023, 12(Special Issue 2), 2025-2038

Assess knowledge gap on morbidities, its preventive, control measures and existing morbidities related to air pollution among Traffic police in W.B (Kolkata).

Section A -Research paper

One of the objectives of the study was to assess knowledge gap regarding morbidities, its preventive and control measures among Traffic Police in West Bengal in relation to demographic variables i.e Awareness Programme, Regular Exercise, Frequency of Health Check up, BMI, Use of Preventive measures, Smoking and taking Alcohol variations. To find out the percentage, the percentage analysis of responses of total sample were calculated and presented in table below:

Table 4: Percentage Analysis of the sample on knowledge gap regarding morbidities, its preventive and control measures among Traffic Police in West Bengal in relation to demographic variables (Awareness Programme, Regular Exercise, Frequency of Health Check up, BMI, Use of Preventive measures, Smoking and taking Alcohol variations)

Variations	Response	No. of sample	% of sample
Awareness Programme	YES	65	32.5%
	NO	135	67.5%
Regular Exercise	YES	74	37%
	NO	126	63%
Frequency of Health Check up	YES	76	38%
	NO	124	62%
BMI	NORMAL	98	49%
	OVERWEIGHT	102	51%
Use of Preventive measures	YES	106	53%
	NO	94	47%
Smoking	YES	79	39.5%
	NO	121	60.5%

2033

Eur. Chem. Bull. 2023, 12(Special Issue 2), 2025-2038

Assess knowledge gap on morbidities, its preventive, control measures and existing morbidities related to air pollution among Traffic police in W.B (Kolkata).

Section A -Research paper

Taking Alcohol	YES	93	46.5%
	NO	107	53.5%
TOTAL		200	100%

It was observed from the above table that 32.5 % of Traffic police have attended awareness programme while 67.5 % have never attended; 37 % of Traffic police are doing regular exercise while 63 % are not doing; 38 % of Traffic police are doing their health check up frequently while 62 % are not serious about it; 49 % of Traffic police have normal BMI while 51 % are overweight; 53 % of Traffic police use preventive measures while 47 % are not using; 39.5 % of Traffic police are smoking while 60.5 % are not smoking and 46.5 % of Traffic police are taking alcohol while 53.5 % have never took alcohol. Therefore it can be concluded that most of the traffic police in West Bengal have less knowledge gap regarding morbidities, its preventive and control measures.

3.1 Categorisation of the sample on knowledge gap regarding morbidities, its preventive and control measures among Traffic Police in West Bengal

After presenting the measures of central tendency and variation it was thought obligatory to categories the sample according to differential degree of knowledge gap regarding morbidities, its preventive and control measures among Traffic Police. For this the cut off marks for high, above average, average, below average and low was decided. The sample was presented in the table below.

Table 5: Percentage of sample on knowledge gap regarding morbidities, its preventive and control measures among Traffic Police

Category	Sample	Percentage
High	6	3
Above average	30	15
Average	124	62
Below average	34	17
Low	6	3
Total	200	100

2034

Eur. Chem. Bull. 2023, 12(Special Issue 2), 2025-2038

Assess knowledge gap on morbidities, its preventive, control measures and existing morbidities related to air pollution among Traffic police in W.B (Kolkata).

Section A -Research paper

On perusal of the above table, it was evident that out of the entire sample of 200 traffic police, 124 had average knowledge gap, 6 traffic police possessed high knowledge gap, 30 had above average, 34 had below average and only 6 traffic police had low

knowledge gap regarding morbidities, its preventive and control measures. The percentage of the sample in different categories had been presented graphically in terms of a histogram in Figure below.
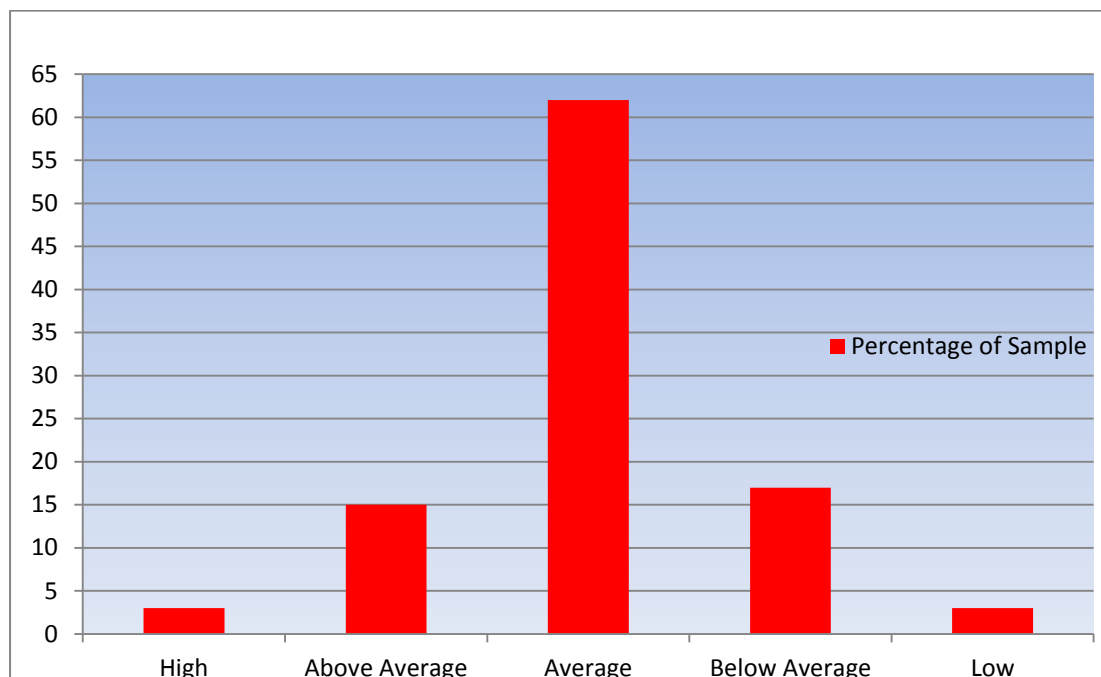

Figure : Categorization of the samples on knowledge gap regarding morbidities, its preventive and control measures

4.0. Chi- Square Test of Association between the Existing Morbidities and the Demographic variable:

One of the objectives of the study was to examine the association between existing morbidities and demographic variable i.e. year of service. So, one of the null hypotheses stated was that "there does not exist any association between existing morbidities and the years of service". For testing this hypothesis, 3 sets of χ^2 tests were conducted. First one for finding out the association between the respiratory morbidity and years of service, the second to find the association between the eye morbidity and year of service, and third to find the association between the skin morbidity and years of service.

2035

Eur. Chem. Bull. 2023, 12(Special Issue 2), 2025-2038

Assess knowledge gap on morbidities, its preventive, control measures and existing morbidities related to air pollution among Traffic police in W.B (Kolkata).

Section A -Research paper

4.1 Respiratory Morbidity and Years of Service

The value of χ^2 obtained in this case was 18.897 which was greater than the values required for χ^2 to be significant at 0.05 and 0.01 levels of significance i.e. 12.592 and 16.812 respectively at df 6. Therefore, the association between the Respiratory morbidity (yes) / (no) with the more than 5 years /less than 5 years of service is significant, The investigator thus, desired to conclude that there was significant association between Respiratory morbidity and year of service. Therefore, the null hypothesis was rejected in case of respiratory morbidity and years of service.

4.2 Eye Morbidity and Years of Service

The value of χ^2 obtained in this case was 17.06 which was greater than the values required for χ^2 to be significant at 0.05 and 0.01 levels of significance i.e. 12.592 and 16.812 respectively at df 6. Therefore, the association between the Eye morbidity (yes) / (no) with the more than 5 years /less than 5 years of service is significant, The investigator thus, desired to conclude that there was significant association between Eye morbidity and year of service.Therefore, the null hypothesis was rejected in case of eye morbidity and years of service.

4.1 Skin Morbidity and Years of Service

The value of χ^2 obtained in this case was 13.675 which was greater than the values required for χ^2 to be significant at 0.05 levels of significance i.e. 12.592 df 6. Therefore, the association between the Skin morbidity (yes) / (no) with the more than 5 years /less than 5 years of service is significant, The investigator thus, desired to conclude that there was significant association between Skin morbidity and year of service. Therefore, the null hypothesis was rejected in case of skin morbidity and years of service.

5.0. Chi- Square Test of Association between the Knowledge and Morbidities:

One of the objectives of the study was to examine the association between the Knowledge and morbidities. So, one of the null hypotheses stated was that "there does not exist any association between knowledge and morbidities". For testing this hypothesis, χ^2 test was conducted. The value of χ^2 obtained in this case was 19.121 which was greater than the values required for χ^2 to be significant at 0.05 and 0.01 levels of significance i.e. 12.592 and 16.812 respectively at df 6. Therefore, the association between the knowledge and morbidities is significant, The investigator thus, desired to conclude that there was significant association between knowledge and morbidities.Therefore, the null hypothesis was rejected in case of knowledge and morbidities.

2036

Eur. Chem. Bull. 2023, 12(Special Issue 2), 2025-2038

Assess knowledge gap on morbidities, its preventive, control measures and existing morbidities related to air pollution among Traffic police in W.B (Kolkata).

Section A -Research paper

GiriyannaGowda, R thenambigal (14thJan 2020) [13] studied on A study on respiratory morbidities and pulmonary functions among traffic policemen in Bengaluru city. They took 217 traffic polices for their study, among them 17.5% individuals are reported allergic rhinitis, 12.9% individuals had chest symptoms(cough and breathing difficulty). Those who having chest symptoms among them 20.3% experienced exacerbation of these symptoms at the workplace.

This study also shows that Traffic policemen are suffering chest symptoms among them 20.3% experienced exacerbation of these symptoms at the work place.

Conclusion: Study findings revealed that 62%(124/200) traffic police obtained average knowledge score, only 3%(6/200) traffic police obtained High knowledge score. There is significant association between knowledge score in relation with year of service , obtained value 2.98 is greater than the tabular value at 0.05 levels . Among 200 traffic Police , 33%(66/200) Traffic Police developed respiratory morbidity,27%(54/200) developed Eye morbidities,20.5%(41/200) developed Skin morbidities. There is significant association between the Respiratory morbidity (yes) / (no) with the more than 5 years /less than 5 years of service done in exposure of air pollution .The value of χ^2 obtained in this case was 18.897 which was greater than the values required for χ^2 to be significant at 0.05 and 0.01 levels of significance i.e. 12.592 and 16.812 respectively at df 6. It has implication on control and prevention of occupational health hazards. , the association between the knowledge and morbidities is significant because The value of χ^2 obtained in this case was 19.121 which was greater than the values required for χ^2 to be significant at 0.05 and 0.01 levels of significance i.e. 12.592 and 16.812 respectively at df 6. Based on the study findings information booklet to be developed, regular awareness programme to be organized for their knowledge and practice of preventive measures during their working period so that they can prevent their morbidities.

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2037

Eur. Chem. Bull. 2023, 12(Special Issue 2), 2025-2038

Assess knowledge gap on morbidities, its preventive, control measures and existing morbidities related to air pollution among Traffic police in W.B (Kolkata).

Section A -Research paper

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2038

Eur. Chem. Bull. 2023, 12(Special Issue 2), 2025-2038