Respiratory problems and related factors among the Traffic Police in Dhaka City

Faculty of Medicine

University of Dhaka

By

Afzal Hossain Fahim

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Final year exam roll: 1267

Reg. No: 10231

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Student of Bachelor of Science in Physiotherapy

Saic College of Medical Science and Technology

Department of Physiotherapy

Saic Tower, M-1/6, Mirpur -14, Dhaka, Bangladesh

We the undersigned certify that we have carefully read and recommended to the school of science and technology, Saic college of medical science and technology, for acceptance of thesis entitled.

RESPIRATORY PROBLEMS AND RELATED FACTOES AMONG THE TRAFFIC POLICE IN DHAKA CITY

Submitted by **Afzal Hossain Fahim** for the partial fulfilment of the requirements for the degree of Bachelor of Science in Physiotherapy.

Md. Shahidul Islam
Assistant Professor & Research supervisor
Department of Physiotherapy
SCMST, Mirpur-14, Dhaka.

Zahid Bin Sultan
Assistant Professor & Course coordinator.
Department of Physiotherapy
SCMST, Mirpur-14, Dhaka.

Abid Hasan Khan
Lecturer
Department of Physiotherapy
SCMST, Mirpur-14, Dhaka.

Md. Furatul Haque   **Dr. Abul Kasem Mohammad Enamul Haque**
Lecturer   Principal
Department of Physiotherapy   Saic College of Medical Science and Technology
SCMST, Mirpur-14, Dhaka   SCMST, Mirpur-14, Dhaka

Zakia Rahman
Lecturer
Department of Physiotherapy
SCMST, Mirpur-14, Dhaka.

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DECLARATION

I am **Afzal Hossain Fahim**, I declare that the work presented here is my own. All sources used have been cited appropriately. Any mistake or inaccuracies are my own. I also declare that for any publication, presentation, or dissemination of the study. I would be bound to take written consent from my supervisor.

Signature: Afzal Hossain Fahim   Date:

Afzal Hossain Fahim

Registration No: 10231

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DU 4^{Th} year exam roll: 1267

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4th professional B. Sc in physiotherapy

Saic College of Medical Science and Technology

Saic Tower, M-1/6, Mirpur -14, Dhaka, Bangladesh

DEDICATION

Dedicated to……………………………………….

…………...My Beloved Parents, Siblings and my teachers

ACKNOWLEGMENT

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Author said that, there is mounting evidence that roadside pollution is harmful to one's health. The purpose of this study is to assess and compare the risk of adverse respiratory effects. Symptoms have been observed in several kinds of traffic officers, including constables, sergeants, and inspectors who work in polluted environments. (Parvez and Mahim.,2022)

Researcher said that, Environmental exposures might occur during occupational activities. Influence health Traffic cops put in a lot of time. time spent by the roadside due to the nature of their work and are subjected to roadside vehicular emissions that can have long-term and short-term health consequences problems. Previous epidemiology studies Several studies have found a link between occupational health and environmental hazards such as pollution caused by Vehicle emissions and poor respiratory health results in traffic police officers (Han and Nacher.,2006)

Researcher have issued that, Road traffic produces volatile organic compounds, suspended particulate matter, nitrogen oxides, sulfur oxides, and carbon monoxide, all of which have a wide variety of negative health consequences on the exposed population (Sasikumar and Maheshkumar.,2020)

According to the authors, Air quality degradation caused by vehicular emissions has been demonstrated to cause significant illness and mortality by affecting many organs and systems [4]. These pollutants cause respiratory morbidities and impaired lung function, and long-term exposure may lead to lung cancer and COPD (Katsouyanni et al.,2000)

The primary means that young children are exposed to cadmium (Cd) are through the inhalation of smoke, polluted groundwater, and dust from industrial emissions, sewage sludge, and other sources. High levels of lead (Pb)

in the environment from things like batteries, paint, ceramics, and gasoline are also related to an increase in the risk of air pollution. (Wahed et al., 1999).

According to the researchers, Bangladesh, one of the most densely populated nations in the world, has experienced significant urbanization and economic change in recent years. Bangladesh's major cities, particularly Chittagong and Dhaka, are clogged with a large number of motor vehicles, including local transport buses, long route buses, diesel-powered local passenger vans, passenger cars, commercial vans, private cars, compressed natural gas (CNG)-powered auto-rickshaws, and heavy-duty diesel-powered lorry trucks for the shipment of garment products to the Chittagong port. The majority of these cars are powered by high-sulfur diesel. (Rahman et al.,2019).

In Dhaka City, there are a lot of kids, street kids, locals who wander the streets, and people who drive rickshaws, all of whom constitute a threat to the air pollution. (Wahed et al., 1999).

The author noticed that, Dhaka's air quality is considered one of the worst in the world, with an annual average PM2.5 concentration of 82 g/m3 from a variety of pollution sources, and it is ranked third among megacities with at least 14 million people. (Lodovici & Bigagli.,2022)

According to the Bangladesh Road and Transport Authority (BRTA), there were 504,130.000 registered motor cars in Bangladesh in 2019, the most of which were decades old and inappropriate for the road, badly contaminating the environment. (Ahmed & Mahmood.,2011)

According to the researchers, these cars' exhaust and fumes are a major source of NO2 emissions and CO emissions in Chittagong and Dhaka, accounting for almost 58.6% of net annual NO2 emissions and 40.5% of total CO emissions. (Randall & Sivertsen., 2015)

The quantities of PM particles, SO2, Ozone, and Carbon Monoxide in various Bangladeshi cities, were found to be significantly over the World Health Organization's recommended levels (WHO). (Randall & Sivertsen., 2015)

Despite the significant pollution and vulnerability of Bangladesh's traffic police, little research has been conducted on them. As a result, the purpose of this study is to analyze the risk of negative respiratory health outcomes in several types of traffic police in Bangladesh, including constables, sergeants, and inspectors. (Hasan., 2016).

According to a study, children who presented with behavioral issues and psychomotor delay also had blood lead levels that were extremely high and hazardous, indicating lead poisoning (Khan et al., 1999).

Based to a survey, 6.5 million people in those cities have at least 8.5 million cases of mild ailments that don't require medical attention annually. and the core illness. Despite the widespread condition of diarrhea in Bangladesh perception, but what causes the severe respiratory infections. primarily owing to contaminants in the air (South Asia., 2001).

According to the Department of Environment (DOE), the city encounters the greatest concentration of airborne particulate matter (PM) density in the world from December to March, averaging 463 micrograms per cubic meter (mcm). Dhaka is preceded by Mexico City and Mumbai, each with 383 and 360 million cubic meters (Daily Star., 2009).

Some of the root causes of Bangladesh's polluted air consist of automobiles (which includes auto rickshaws, trucks, and buses, of which 35% is related to fine particulate matter and 48% to hydrocarbon mainly produced

by vehicles with two stroke engines (using a direct mixture of Mobil and petrol), particularly by baby taxis, tempos, and motor cycles), industrial emissions, poor citizenry, and unworthy government services. (Ahmed et al., 2002).

The 20- to 25-year-old motor vehicles which spew substances are once more on the major roadways. Although many owners have colored and modified the bodywork of their ancient buses, the engines remained the same. These outdated buses are endangering the health of commuters by producing major congestion in the roadways and pollution in the air (New Nation, 2010).

The issue is more complicated than simply decreasing Polly bags, though (Independent., 2002).

As one of the approaches to alleviate the irksome traffic congestion, the government has decided to initiate a campaign in Dhaka city commencing on July 15, 2010 to remove 25-year-old buses, minibuses, and trucks from the street (Daily Star., 2010).

This initiative was primarily designed to alleviate traffic congestion and control environmental pollution and it will undoubtedly contribute to a reduction in air pollution in the city as well. (The New Age., 2010).

Volatile organic compounds, suspended particulate matter, nitrogen oxides, sulfur oxides, and carbon monoxide are produced by road traffic and have a variety of detrimental health impacts on the exposed population. (Sasikumar., 2020).

There aren't plenty of studies on Bangladesh's traffic police, despite the country's high levels of pollution and vulnerability. Therefore, the purpose of this study is to evaluate the likelihood that Bangladeshi traffic police officers

who fall into the categories of constables, sergeants, and inspectors may have detrimental respiratory health consequences.

1.2 Justification of the study:

A traffic police officer is a member of the Bangladesh Police's traffic control section. We are pretty familiar with them. They play a crucial part in our everyday lives. They have a good educational qualification with a very important role in our daily life. They are courageous individuals. They are really conscientious about their work. The job of a traffic cop is quite risky. The main duty of a traffic cop is to manage traffic on our roadways. A traffic cop's job is extremely vital. They save time and the daily hazards brought about by traffic. Sometimes a traffic officer loses his life to save others from traffic. The task of a traffic officer is admirable. They are our friend in daily life. We should show respect to them and his profession.

The traffic police spend all day long in the exposure environment. They are in the high risk of many diseases, such as respiratory disease. The majority of the traffic police did not use masks during duty hours and had rotation in duty areas. The level of knowledge about the health complications among the traffic police is adequate, but the level of practice on prevention of respiratory health problems is not satisfactory. There are a very few researches in our country about this topic & for this reason, I would like to focus in this topic. By this process, this population can know about our physiotherapy profession and they can get some knowledge about their complications.

In future, if someone want to doing any research in this topic, this research will help for better information.

1.3 Research question:

What are the respiratory problems and related factors among the Traffic Police in Dhaka City?

1.4 Objective of the study:

1. General objective:

● To determine the respiratory problems and their related factors among the traffic police in Dhaka city.

2. Specific objectives:

● To calculate the proportion of different kind of respiratory problems among the traffic police in Dhaka city.

●To identify the factors related to problems among the traffic police.

●To know about their psychological status.

● To find out the association between traffic police who use mask &

And percentage the participants who was suffering on respiratory problems.

1.5 Conceptual frame work:

| Independent variable | Dependent variable |

Sociodemographic factor:

Age, Gender, Education level, monthly income, Marital status, Religion, work

Factor and respiratory complications among the traffic police in Dhaka city

Respiratory health related complications

Psychological factor.
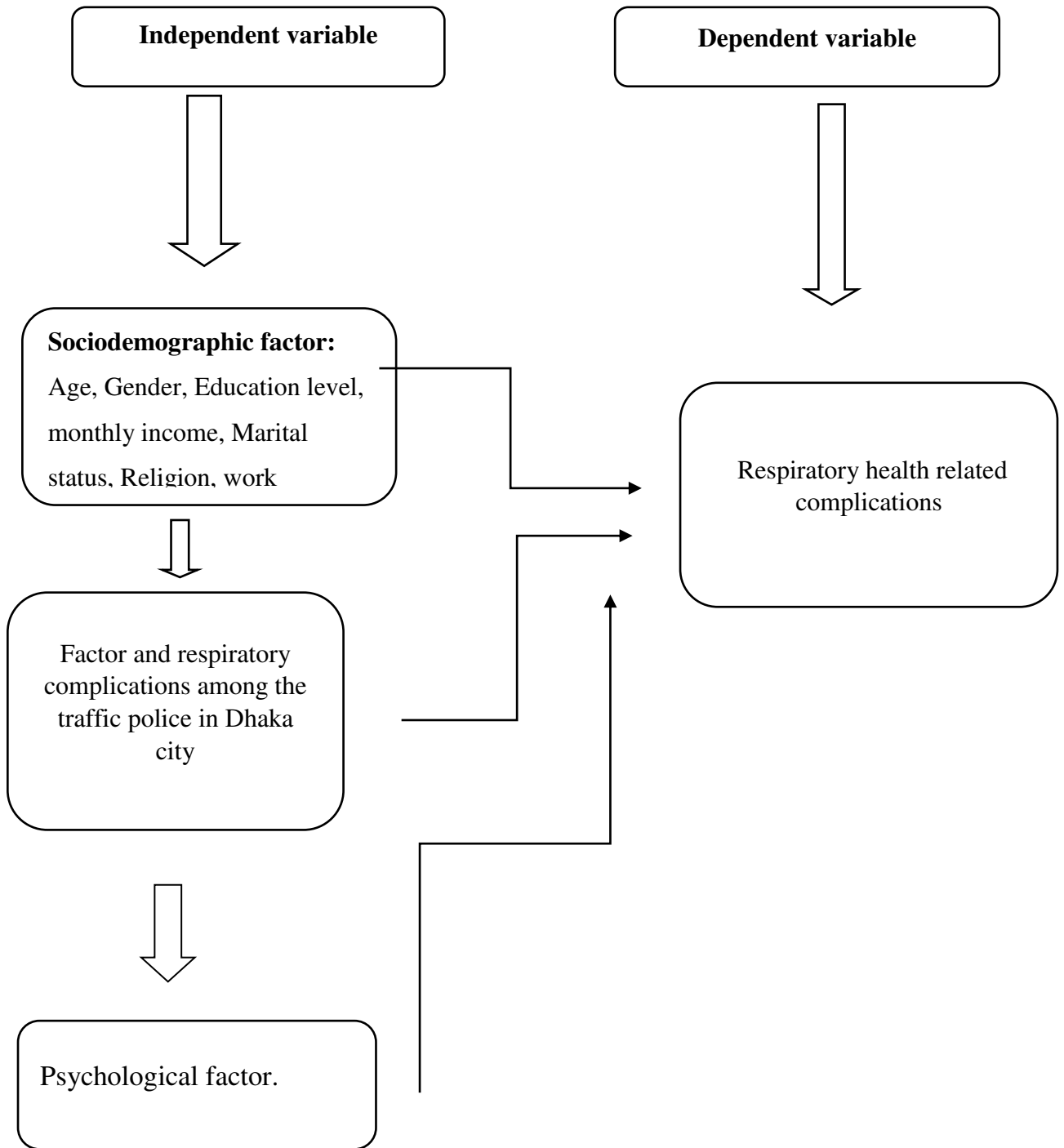
Air pollution:

Air pollution is contamination of the indoor or outdoor environment by any chemical, physical or biological agent that modifies the natural characteristics of the atmosphere. Household combustion devices, motor vehicles, industrial facilities and forest fires are common sources of air pollution.

Respiratory complication:

Any of the diseases and disorders of the airways and the lungs that affect human respiration.

Diseases of the respiratory system may affect any of the structures and organs that have to do with breathing, including the nasal cavities, the pharynx (or throat), the larynx, the trachea (or windpipe), the bronchi and bronchioles, the tissues of the lungs, and the respiratory muscles of the chest cage. The most important PRCs are reintubation, acute respiratory failure, pulmonary edema, pneumonia, and atelectasis.

Traffic police:

Police officers whose job is to direct the movement of vehicles on a road or to stop drivers who are breaking the law and give them an official notice of their offence

Hypertension:

High blood pressure, also called hypertension, is blood pressure that is higher than normal. Your blood pressure changes throughout the day based on your activities. Having blood pressure measures consistently above normal may result in a diagnosis of high blood pressure (or hypertension).

Asthma:

Asthma is a chronic (long-term) condition that affects the airways in the lungs. The airways are tubes that carry air in and out of your lungs. If you have

asthma, the airways can become inflamed and narrowed at times. This makes it harder for air to flow out of your airways when you breathe out.

Lung cancer:

When cancer starts in the lungs, it is called lung cancer. Lung cancer begins in the lungs and may spread to lymph nodes or other organs in the body, such as the brain. Cancer from other organs also may spread to the lungs. When cancer cells spread from one organ to another, they are called metastases.

Neurological disease:

Neurological disorders are medically defined as disorders that affect the brain as well as the nerves found throughout the human body and the spinal cord. Structural, biochemical or electrical abnormalities in the brain, spinal cord or other nerves can result in a range of symptoms.

Dhaka city:

Dhaka formerly known as Dacca, is the capital and largest city of Bangladesh. It is the ninth-largest and seventh-most densely populated city in the world

Keyword:

Air pollution. Respiratory complications. Traffic police. Hypertension, Asthma, Lung cancer, Neurological disease, Dhaka city.

Air pollution is one of the most difficult challenges confronting the world community; it is pervasive and rising in importance, and it has significant and well-documented effects on health and the environment. The human desire for transportation, manufactured commodities, and services has an influence on the atmosphere at all sizes, from local to global. The rate of expansion of the global economy creates new demands, and governments' desire to control air pollution is frequently balanced by worries about the economic consequences of such legislation (Blebbier and Longhurst., 2010). The vast number of youngsters, street children, local streetwalkers, and rickshaw pullers in Dhaka City represent a serious danger to the city's air quality. Young toddlers are usually exposed to cadmium (Cd) by inhalation of smokes and polluted soils and dust from industrial\submissions and sewage sludge. The presence of high levels of lead (Pb) in the environment from gasoline, paints, ceramics, batteries, and other sources has also been linked to an increase in the risk of contaminated air (Gowda et al., 2010). Automobiles (auto rickshaws, trucks, and buses, 35% is related to fine particulate matter and 48% is related to hydrocarbon mainly generated by vehicles with two stroke engines (using a direct mix of Mobil and petrol), particularly by baby taxis, tempos, and motor cycles), industrial emissions, bad civic practices, and poor government services are some of the factors contributing to Bangladesh's polluted air (Ahmed et al., 2002).

Environmental exposures during occupational activities might harm health. Due to the nature of their employment, traffic officers spend a significant amount of time at the roadside and are exposed to roadside vehicular pollutants, which can cause both long-term and short-term health problems. Previously

performed epidemiological studies indicated the relationship of occupational health risks such as environmental pollution owing to vehicular emissions and unfavorable respiratory health outcomes in traffic police employees in previously conducted epidemiological research (Han and Naeher., 2006).

The deterioration of air quality caused by vehicular emissions has been found to cause considerable illness and mortality by impacting many organs and systems (Lodovica and Bigagli., 2011).

Bangladesh, one of the most densely populated countries in the world, is going through economic transition and rapid urbanization in recent years. Major cities of Bangladesh, particularly Chittagong and capital city Dhaka is congested with a large number of motor vehicles, including local transport buses, long route buses, diesel-run local passenger vans, passenger cars, commercial vans, private cars, compressed natural gas (CNG)-run auto-rickshaws, and heavy-duty diesel-powered lorry trucks for the shipment of garment products to the Chittagong port. Most of these vehicles are run by high-sulfur diesel (Rahman et al., 2019).

Owing to the expanding economic base, Indian cities are growing rapidly. This has led to an increase in the ownership and use of motor vehicles with a subsequent rise in the levels of air pollution. Exposure to air pollutants is known to be harmful to health, in general, and to the lungs, in particular. In this respect, traffic policemen are at a risk, since they are continuously exposed to emissions from vehicles, due to the nature of their job (Suresh et al., 2000).

Among the motor vehicle-generated air pollutants, diesel exhaust particles account for a highly significant percentage of the particles emitted in many towns and cities. Acute effects of diesel exhaust exposure include irritation of eyes and nose, lung function changes, headache, fatigue, and nausea. Chronic exposure is associated with cough, sputum production, and lung function decrements. The

purpose of this study was to assess the pulmonary function status of traffic cops stationed at various traffic junctions in and around Patiala city, in order to determine whether prolonged exposure to vehicular exhausts had any negative effect on their lung functions. We also attempted to establish a link between the duration of exposure to vehicular exhausts and decrements in various lung parameters of traffic cops (Gupta et al., 2011).

Significant inflammatory reactions occur in the lung of traffic policemen as they are exposed to excessive amounts of vehicular pollutants for prolong period. These reactions can lead to asthma, chronic bronchitis, emphysema, chest infections, pneumonia and lung scarring or fibrosis (Streeton and Adelaide., 2000).

Exposure to toxic substances such as vehicular gases, smoke and inhaled pollutants (lead, cadmium, manganese) induce inflammation in the lung. This causes epithelial injury and proteolysis of the extracellular matrix and thereby COPD. (Walker.,2014). Vehicle exhaust particulate matter can easily enter and accumulate in the trachea and bronchi. Small particles of less than 2.5 microns (PM2.5) can enter the small airways and alveoli, causing respiratory diseases such as asthma, bronchitis, COPD, and interstitial lung disease (Rickwood & Knight.,2010).

Different researchers discovered a considerable decrease in lung function indices (FVC, FEV1, FEV1 /FVC%) among traffic cops. (Mittal et al., 2011). Upper back pain (56.1%) and low back pain (54.4%) had the highest prevalence of musculoskeletal pain in the current research. Another research revealed a similar outcome (Claire., 2001).

The primary source of ambient air pollution is fuel combustion. Primary pollutants (sulfur dioxide, nitrogen oxides, and particles), secondary acidic aerosols and other particles, and oxidant pollutants (mainly ozone) created by

photochemical processes involving hydrocarbons and nitrogen oxides are among them (Azam et al., 2016).

There are three primary causes of air pollution in Malaysia, namely mobile sources, stationary sources, and mobile sources. Emissions from mobile sources have been the primary cause of air pollution in recent years, accounting for at least 65-75% of overall air pollution. According to a Department of State annual report (Department of Statistics, Malaysia., 2015).

Under the Police Act, 1967 Section 21 task of regulating, controlling and maintaining the flow of traffic on public roads falls to the responsibilities of a traffic policeman (Police Parliament,1998). With such duties, individuals have no option but to do the assigned work. Their job is considered tough duty since they have to cope with crowded traffic and selfish drivers. As a result of work variables, their health will deteriorate if they are exposed to contaminated air. According to Jafary et al., traffic-related air pollution is an occupational health threat for persons who conduct manual labor near traffic (Jafary et al., 2007).

When traffic officers are on duty in different traffic zones around Dhaka, they are exposed to huge amounts of ambient air pollution. Unlike in wealthy nations, little study has been conducted in Africa on the respiratory health of employees who are heavily exposed to air pollution from automobiles. These studies were mostly conducted with traffic officers (Estévez et al.,2013).

Pulmonary function tests using a computerized spirometer assess respiratory functions and give a fair idea about the respiratory health status of an individual. These changes can be observed even before the disease becomes symptomatic. Hence, this study aimed at evaluating the respiratory health status of traffic policemen using spirometry and also to document the prevalence of respiratory symptoms among traffic policemen (Pajanivel et al., 2013).

Pulmonary function testing revealed that traffic officers' respiratory function was impaired. In traffic cops, all four metrics (FVC, FEV1, PEFR, and MMEF) were lowered. The considerable disparity between actual and predicted PFT values indicates that lung function has decreased in this occupational group. This is supported by the high prevalence of obstructive Act 1967, Malaysia: disease (28%) in this group. Similar findings have been made in research conducted in India and other nations (Pal et al., 2010).

An Air Quality Index (AQI) of 301 to 400 is deemed detrimental to inhabitants' health. In January 2022, Dhaka's AQI was reported at 288. The AQI is calculated using the concentrations of five major pollutants: Particulate Matter (PM10 and PM2.5), SO2, NO2, CO, and Ozone. Heatwaves (high temperatures for three days in a row) have been common in Dhaka. A light heatwave is defined as 36-38 degrees Celsius, a moderate heatwave as 38-40 degrees, and an intense heatwave as temperatures exceeding 40 degrees. Gulshan, Mirpur, Gabtoli, Goran, Basabo, Tongi, Postogola, Jurain, Hazaribagh, Jatrabari, Sayedabad, Uttara, Farmgate, and Mohakhali, among many more places, with temperatures ranging from 29 to 34.5 degrees Celsius (The financial Express., 2022).

As per record, three traffic officers died last year as a result of pollution-related issues. Two of the constables died of cardiac arrest, one on the job, and another from complications. Another traffic department official stated that they are clamping down on defective automobiles on the roads. At least 1,500 two-stroke automobiles have been scheduled in the previous ten days (The daily star., 2022).

According to SK Goyal of the National Environmental Engineering and Research Institute's environmental impact and risk assessment division (Neeri), Vehicle fumes contain key pollutants such as nitrogen dioxide, fine particulate

matter, carbon monoxide, sulfur dioxide, and hydrocarbons, which combine to form a hazardous cocktail (The Times of India,2015).

The percentage of respondents with respiratory health issues was 79.6% among those who had worked in Dhaka city for less than 10 years, and 87% among those who had worked in Dhaka city for more than 10 years. This suggests that those who had been exposed to air pollution for more than ten years had significant respiratory difficulties. The same sort of findings were discovered in other studies (Künzli., et al.,2000).

Several studies have indicated that where the level of PM10 was elevated, there was an increase in the occurrence of various respiratory health issues, as well as a substantial correlation between them. Furthermore, it was projected in the current study that when PM2.5 and PM10 levels increased, there was a presence of various respiratory health issues, and that where PM2.5 and PM10 levels were low, there was a high prevalence of respiratory disorders. There was also a strong correlation (Krzyzanowski & Cohen., 2008).

In the current study, 17.5% of participants experienced rhinitis, and 12.9% reported chest symptoms such as cough, wheeze, and trouble breathing/chest tightness. A cross-sectional research done in Puducherry to investigate the respiratory health condition of traffic cops found that 52.1% reported cough and 40% reported rhinitis; and another comparable study in Patiala found that 68% reported regular cough and 22% reported shortness of breath in traffic cops (Ranganadin,. 2013).

Only 6.9% of 217 traffic cops in the current research reported using a breathing mask. According to research on knowledge and practice for the

prevention of respiratory ailments among traffic cops in Kathmandu valley, 71.5% employed protective gear while on duty (Shrestha et al., 2015).

Due to the nature of their profession and the environment in which they operate, traffic police officers are constantly exposed to harmful car exhaust fumes. An accurate assessment of the lung volumes and flow is made during a pulmonary function test (PFT) utilizing a computerized spirometer, which helps in the early detection of lung function impairment. Studies on the respiratory morbidities of traffic police officers are few. In order to determine the scope and kinds of respiratory morbidities and evaluate pulmonary function using computerized spirometry, the following investigation was carried out (Gowda et al.,2020).

Chronic cough, asthma, nasal obstruction, respiratory infections, hypertension, eye irritation, sleepiness, headaches, and kidney impairment are all effects of air pollution on the respiratory, cardiovascular, neurological, and renal systems (Tanvir & Begum., 2010).

Inflammation of the lungs is brought on by exposure to hazardous chemicals such car exhaust, cigarette smoke, and inhaled toxins (lead, cadmium, and manganese). This results in COPD due to epithelium damage and extracellular matrix proteolysis (Walker et al., 2014). We did not redo the exposure evaluation in this work since we had already evaluated the ambient and biological levels of the major pollutants in our working population and the dose in traffic police is known to be much greater than controls (Volpino et al., 2004

Chapter III	**Methodology**

Study design:

It was a cross sectional type of descriptive study design.

Study area:

Research data was collected from the Mirpur 13 police barrack with the permission of hostel supervisor by showing the written permission of Police Commissioner (Department of traffic, Dhaka metropolitan police).

Study population:

The study population was traffic police who working in Dhaka city.

Sampling technique:

Convenience sampling technique was applied for this study.

Sample size:

We know that;

$$n = \frac{z^2 p(1-p)}{d^2}$$

Here,

n= Required sample size.

z =confidence level at 95% (Standard value of 1.96).

P = P is the prevalence taken as 84.4% (Shakila et al., 2021).

d = margin of error at 5% (Standard value of 0.05).

$$n = \frac{z^2 p(1-p)}{d^2}$$

$$n = \frac{(1.96)^2 \times 0.844(1-0.68)}{(0.05)^2}$$

$$= \frac{0.844(1-0.844)(1.96)2}{0,0025}$$

$$= \frac{0.5057}{0.0025}$$

$$= 202.28$$

$$=203$$

So, the sample size was 203

Data collection procedure:

- **Tools:** consent paper, Questionnaire,

The Questionnaire was made out with the combination of two stablished Questionnaire, ST. GORGE RESPIRATORY Questionnaire & ANNEX respiratory questionnaire.

- **Procedure of data collection:**

- The researcher himself went to the Dhaka Metropolitan Police Headquarter to collect the written permission later. The aim & the objectives of the study were explained in detail to the authority.

- The researcher himself went to the Dhaka Metropolitan Police hostel which was situated in MIRPUR -14 to collect data with the help and monitoring of hostel super.

- Obtaining the written informed consent form, the researcher started interview. A stablished questionnaire was used as an instrument of the data collection during interview.

- Data was collected by maintaining the rules which was mentioned to the researcher from the police head quarter. End of each day, the questionnaire was checked for any error or inconsistency. The needed correction was done accordingly. Responses was coded & entered into the computer

- **Method of data collection:**

Data was collected from the participants by the face to face formal interview. After finishing the interview, the respondents were given thanks.

- **Data analysis:**

Data was analyzed by using SPSS (Statistical package for social science) (25version).

- **Result:**

The findings of the present study have been presented by frequency, tables, pie charts, graphs.

- **Inclusion criteria:**

I. Only the traffic police in Dhaka city were included in this study.

II. All ages of traffic police were included in this study.

III. Subject who was willed to participate.

- **Exclusion criteria:**

I. Without traffic police, no other unit will count as a study subject/ Participant.

- **Ethical consideration:**

The investigator, I was obtained written permission from ethical review board (SCMST) & The Dhaka metropolitan police headquarter. The ethical review board & the police headquarter was informed by written document about aims and objectives of the study and that the participants of the study

were not harmed or the clients name, address and personal information was kept confidential by the investigator. And the other data was kept secret from others.

- **Rigor:**

Researcher or I always tried not to influence the process by my own value and biases. No leading question were asked or no important question is avoided. The participant's information was coded accurately and checked by the research supervisor to eliminate any possible errors. The entire information was handled with confidentiality. In the result section researcher was not find influenced about outcome by showing any personal interpretation during conduct the study every section of the study is checked by the research supervisor.

Chapter IV   **Result**

Part one

Table 4.1.1: Frequency distribution of the participants level of Age.

Regarding age of the participants, it was found that 38 participants (27.1%) belong to the (25 - 35) age group, 59 participants (42.1%) were belong to (36 - 45) age group, & 43 participants (30.7 %) was belong to the (46 – 55) age group. There mean was 40.53 and standard deviation was 7.644.

Age group	Frequency	Percentage	Mean	Standard deviation
25 - 35	38	27.1	40.53	7.644
36 – 45	59	42.1		
46 - 55	43	30.7		
Total	140	100.0		

Table 4.1.2: Gender of the participants

According to the given answer of the participants, it was found that102 (72.9%) participants were male. & 38 (27.1%) participants were female.

Till now, Bangladesh Police had not allowed to join the third gender except women and men. For that reason, there was no option without the two genders.

Gender	Frequency	
	N	%
Male	102	72.9
Female	38	27.1
Total	140	100.0

Table 4.1.3: Living area of the participants-

This section of the research was added to found the living area of the participants. From the responses of the participants, the researcher found that, 138 participants (98.6%) lived in City area & only 2 participants (1.4%) lived in urban area and come to their duty place.

Living area		
	N	%
City	138	98.6
Urban	2	1.4
Total	132	100

Figure 4.1.4: Educational qualifications of the participants.

Regarding the educational qualification of the participants, it was found that, 44 participants were HSC passed, its percentage was (31.4%). 8 participants were graduated, its percentage was (5.7%). 88 participants were SSC passed and its percentage was (62.9%).

Till now the minimum educational qualification is SSC (Secondary School certificate) to apply as a constable in Bangladesh police.
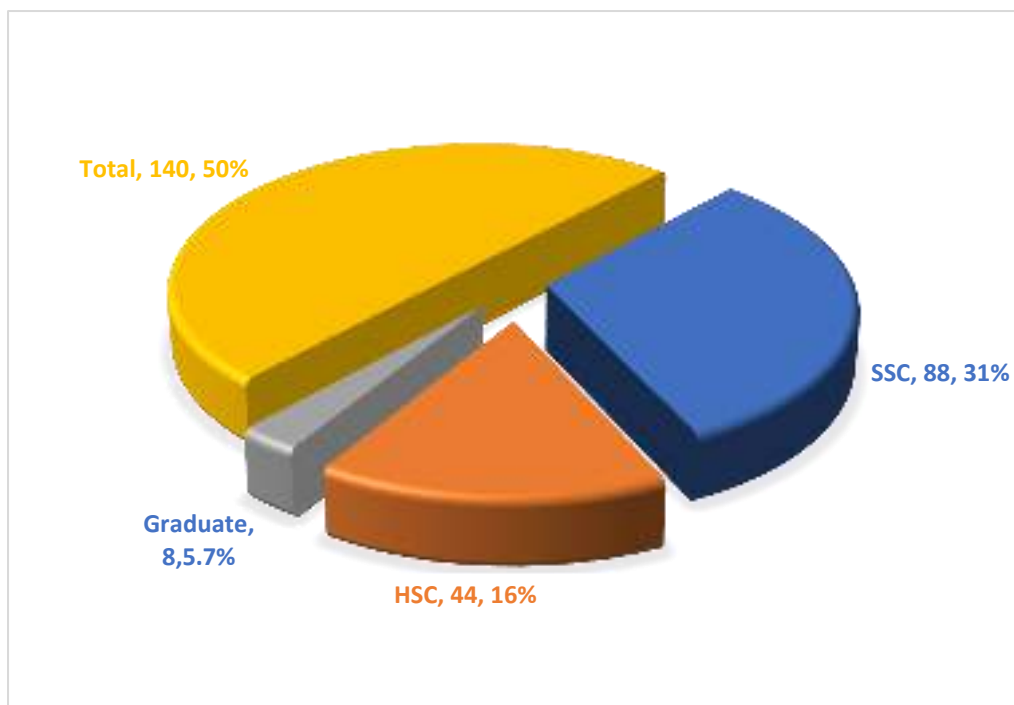
Figure 4.1.5: Family types of the participants

About family types of the traffic police, it was found that. 109 (77.9%) participants belong from nuclear family, and 31 (22.1%) participants belong from joint family
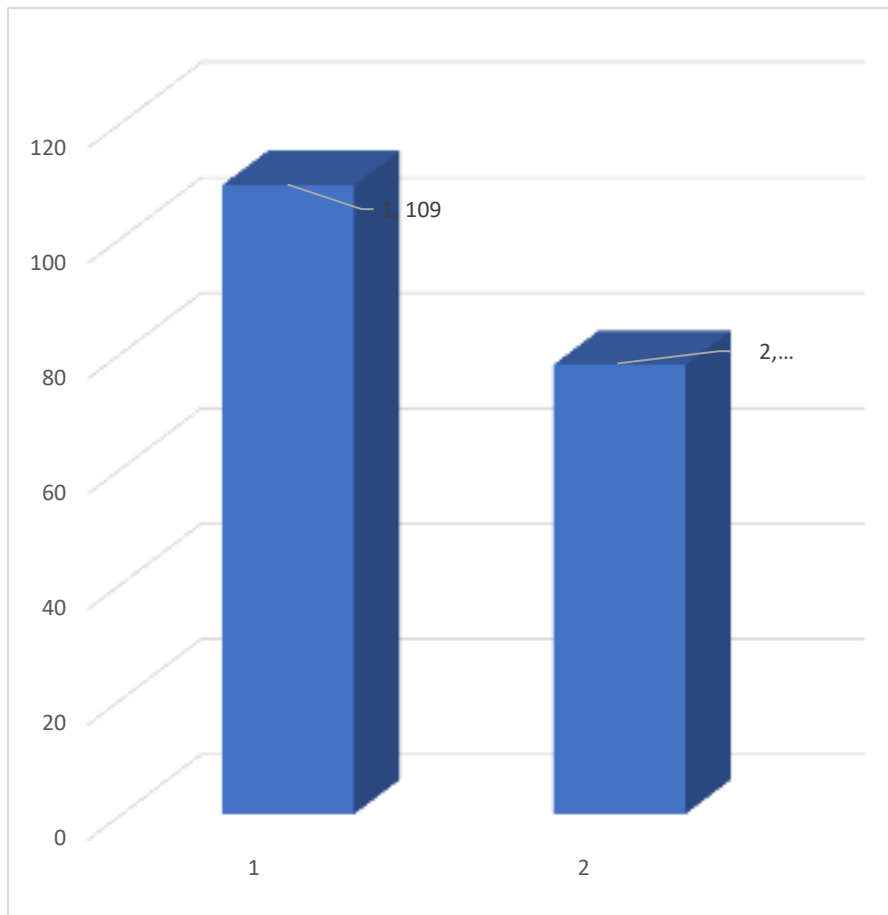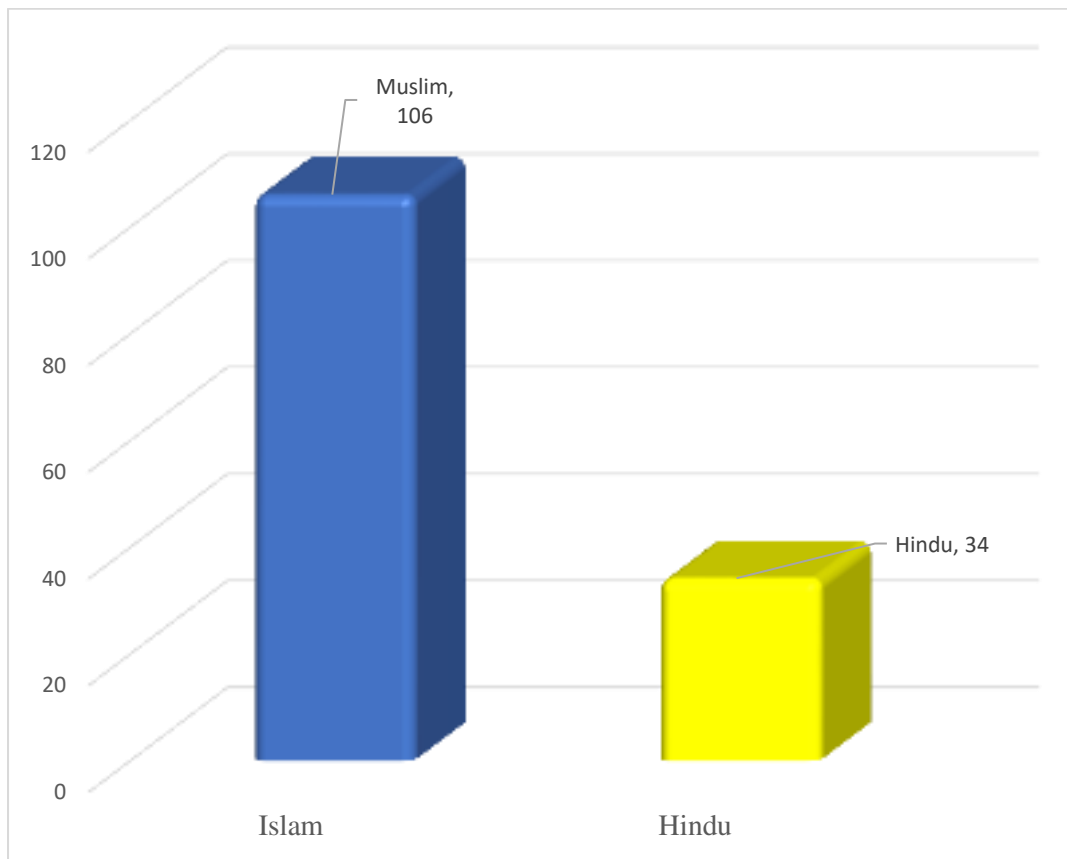
Figure 4.1.6: Religion of the participants

Regarding from the responses of the participants, it was found that, 106 (75.7%). participants were Muslim, and its percentage was and 34 participants were Hindu and its percentage was (24.3%).

Unfortunately, the researcher could not find any other religion-based participants.

Table 4.2.1: BMI of the participants

This study shows that, 29 (20.7%) participants belong from the BMI group 1, which range was (17.3 – 22). 70 (50.0%) participants belong from the BMI group 2, which range was (22.1 – 28). 41 (29.3%) participants belong from the BMI group 3, which range was (28.1 – 34).

The mean of the study was 25.435 & Standard deviation was 25.550

BMI	frequency		Mean	Median
	N	**%**		
17.3 – 22	29	20.7	25.435	25.550
22.1 – 28	70	50.0		
28.1 - 34	41	29.3		
Total	140	100		

Figure 4.2.2: Smoking habit of the participants

Regarding from the responses of the participants, the study shows that, Among the total 140 participants, 68 (48.6%) participants had smoking habit, and 72 (57.4 %) participants had no smoking habit.
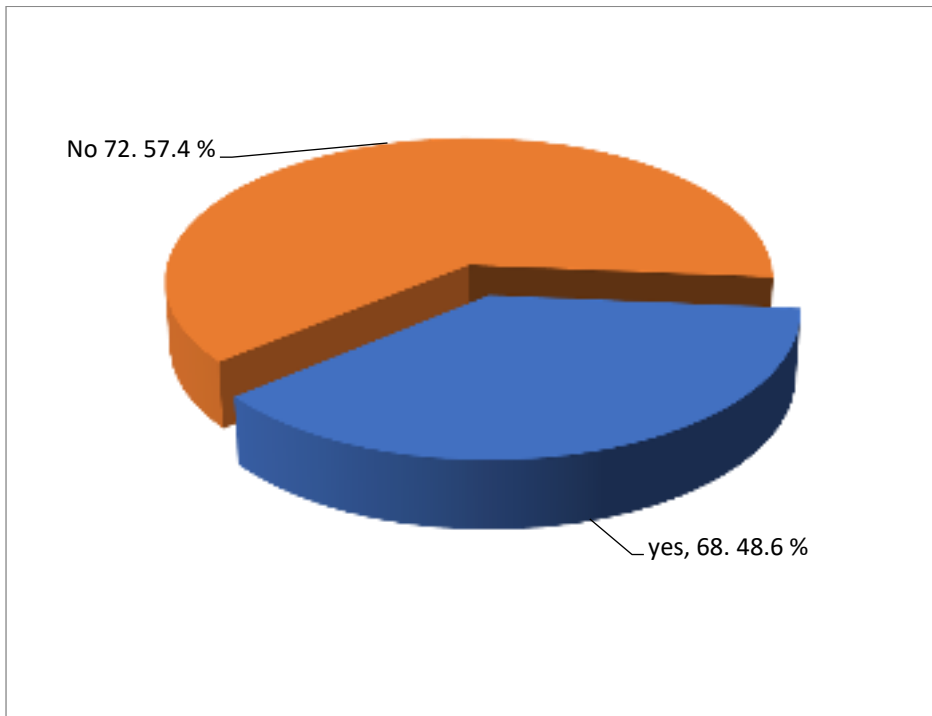
Figure 4.2.3: Health related questions for the participants

The health-related question was added to find out the general health related problems of the research sample. In the study, there was 140 participants was selected. In There, 43 (31%). participants had the hypertension or high blood pressures problem, On the other hand, 8 (6%) participants had the problem of asthma, 5 (3%) of the participants had cardiovascular disease and, 18 (13%) of my research participants do not know about their disease, and in last, 6 participants of my study had some sort of other disease which was not included in my research question, and its percentage was (4%).
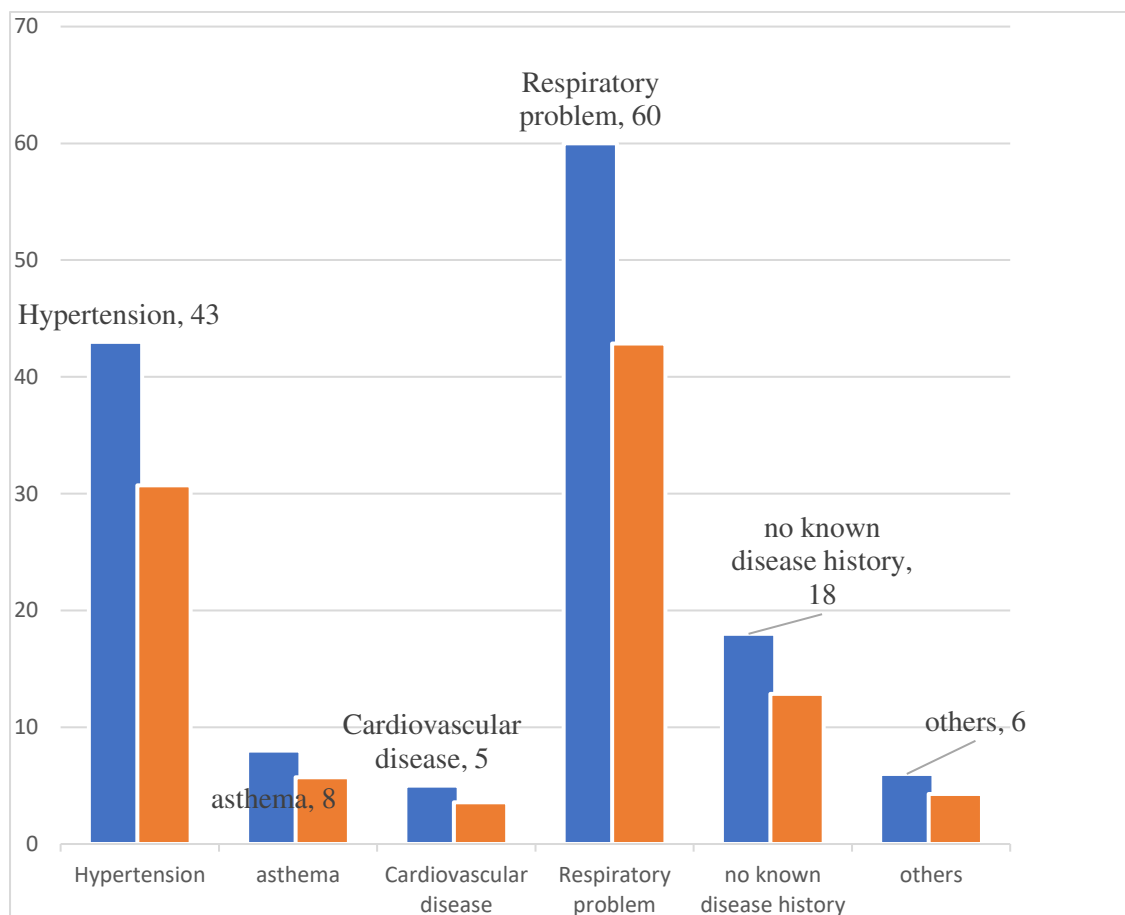
Figure 4.3.1: find out the coughing attack during the day.

Regarding from the responses of the participants, this segment of study was added to find out the number of participants and their percentage suffering from coughing attack during the day or in their work time, in that, 97 participants was marked as "yes" and its percentage was (69.3%) and 43 participants was marked as "No" in the answer part and its percentage was (30.7%). From this part, the questionnaire was made to find out the respiratory complications.
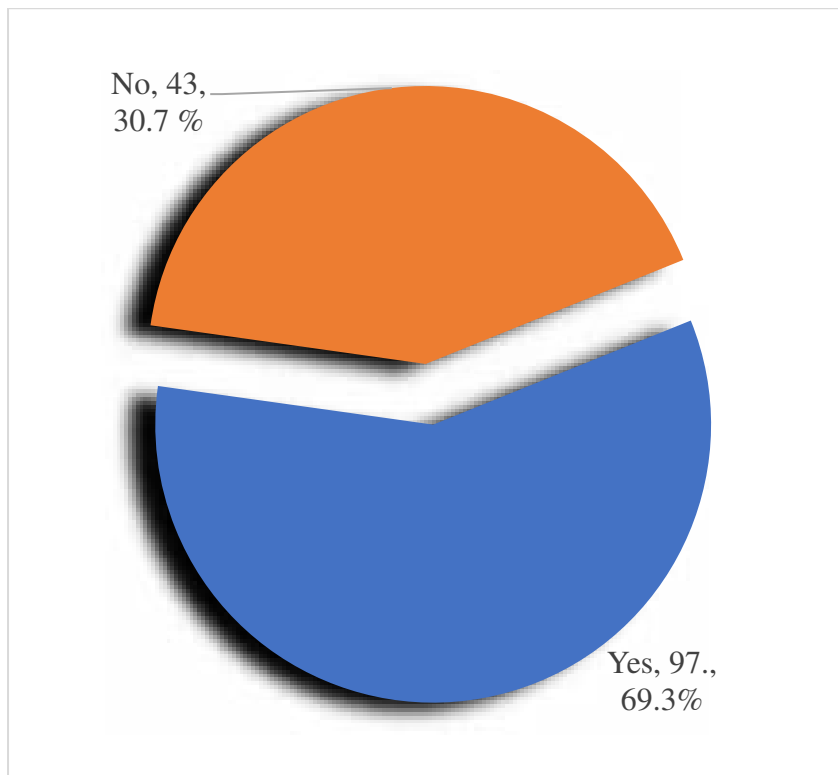
Figure 4.3.2: percentage of feeling restless because of chest trouble;

The segment of study was added to find responses of the participants about their opinion if the participants feel restless because of their chest trouble, in that portion, 66 participants marked "yes" part of their questionnaire and the percentage was (74.1%). And in the other hand, 74 participants marked "No" in their questionnaire and the percentage was (52.9%).
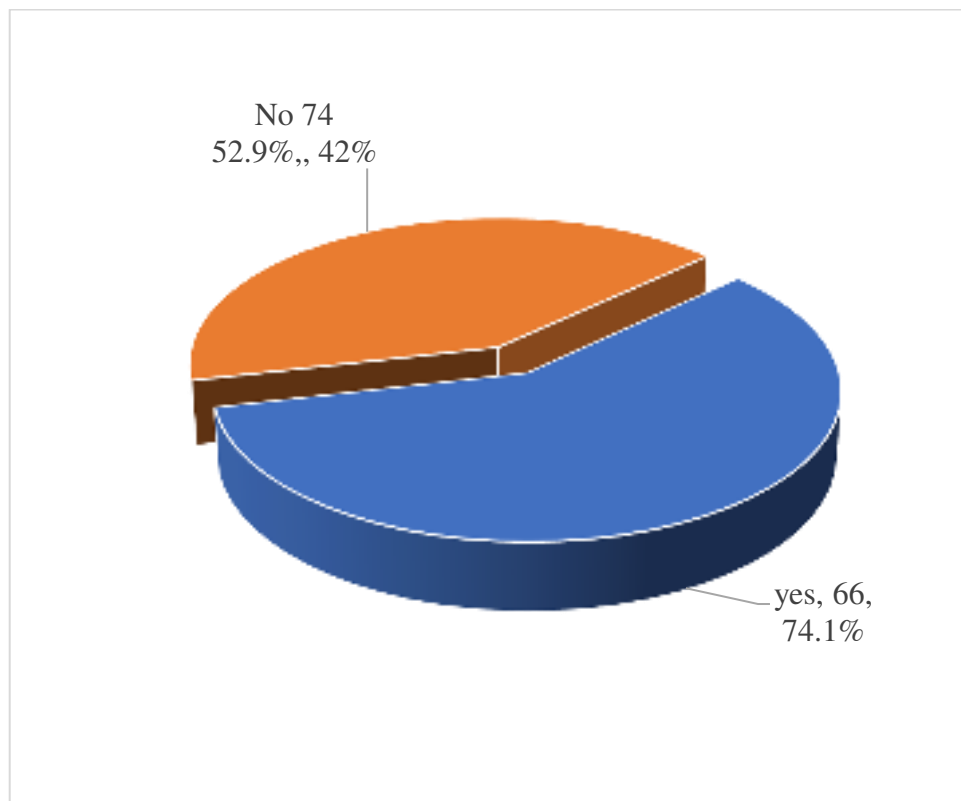
Figure 4.3.3: Feeling uncomfortable because of perfume,

Regarding the segment of study was added to find that if the participants feel uncomfortable or feel any type of trouble for the smell of perfume. In that only 21 participants responded as "Yes" and its percentage was (15.0%), and 119 participants responded as "No" in their answers and its percentage was (85.0%). That means 21 participants feel uncomfortable for the smell of perfume & 119 participants did not feel any complications for the smell of perfume.
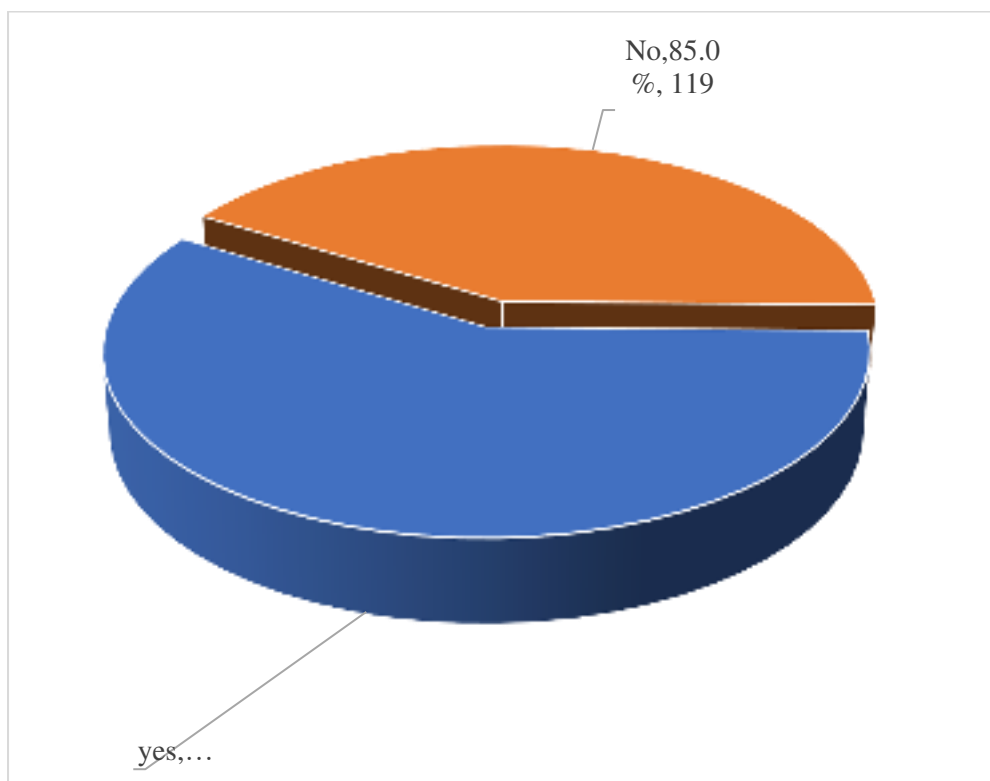
Figure 4.3.4: Breathlessness during sleep.

The part of study was added to find that if the participants have felt breathlessness during sleep. With the questionnaire, the 55 (39.3%) out of 140 (100.0%) participants answer that they feel breathlessness during sleep because of their respiratory problem. On the other hand, 85 (60.7%) participants answered as "No" in that part,
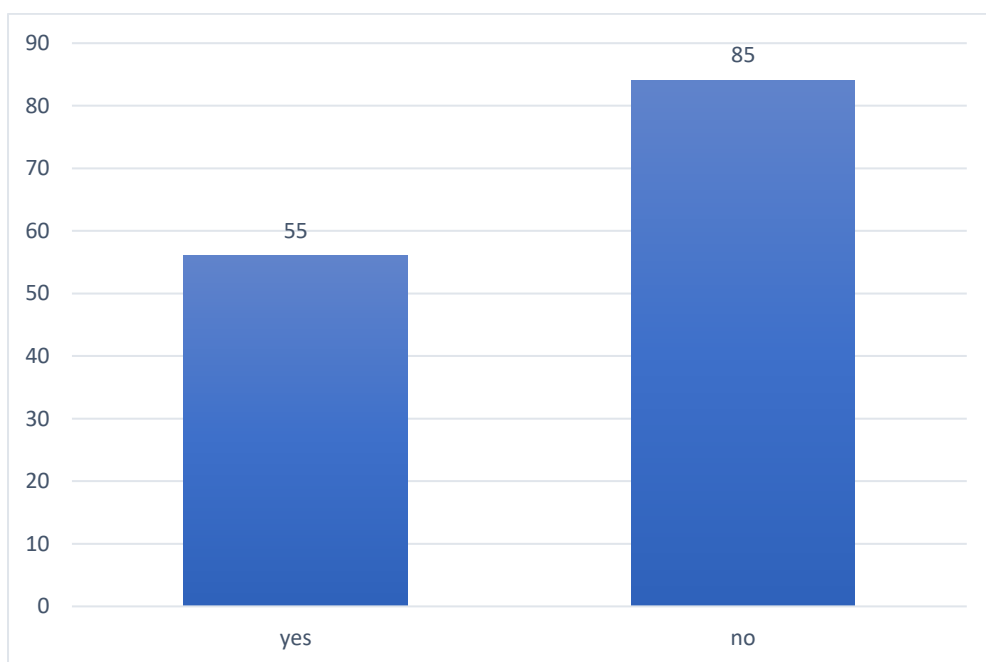
Figure 4.3.5: If the participants suffer from weakness during the work.

The part of study was added to find that if the participants suffer from weakness during the work. In that part, 55 parsons respond as "Yes" and its percentage was (39.3 %), And in the other hand, 85 persons marked "No" part of the answer portion, and its percentage was (60.7%).
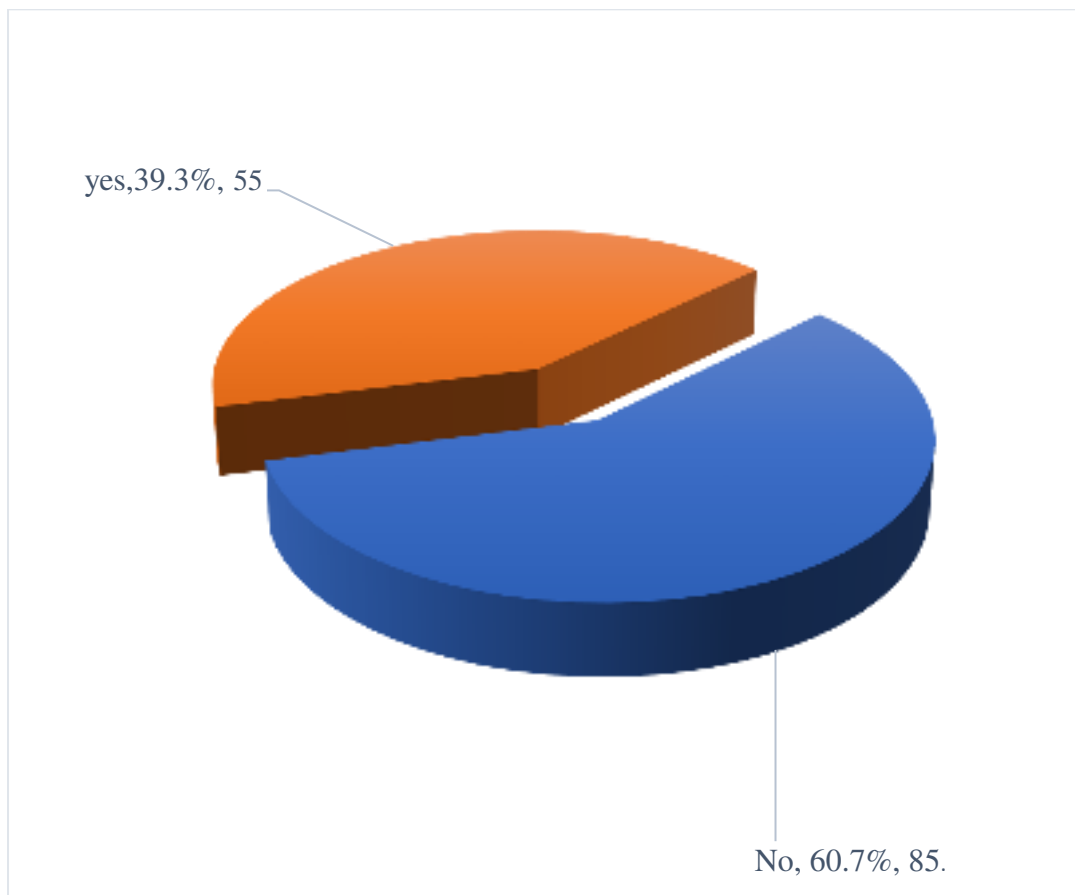

yes,39.3%, 55

No, 60.7%, 85.

Figure 4.3.6: Find out the percentage of breathlessness during laughing

The part of the research study was used to find that if the participants suffer from breathlessness during laughing, out of 140 sample size, 79 participants responded "Yes" and its percentage was (56.4%), and 61 marked as "No" and its percentage was (43.6%).
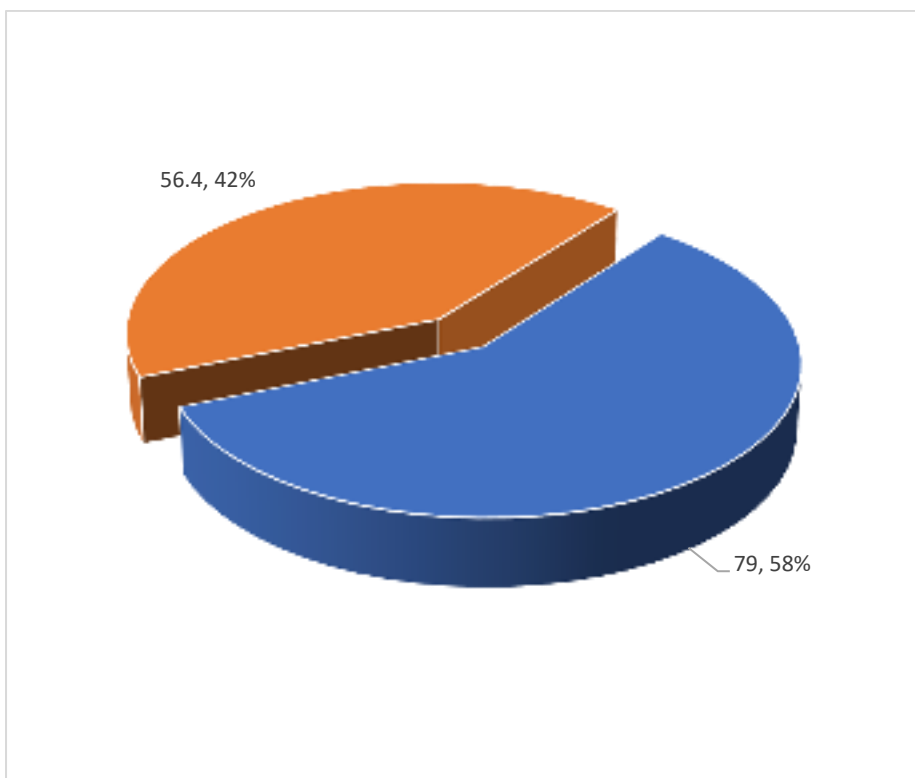
Figure 4.3.7: percentage of chest heaviness

By collecting the responses from the participants, this study shows the result of the participants if they suffer from chest heaviness, and among 140 percipient's 83 (59.3%) marked as yes and 57 (40.7%) marked as No in their opinion.
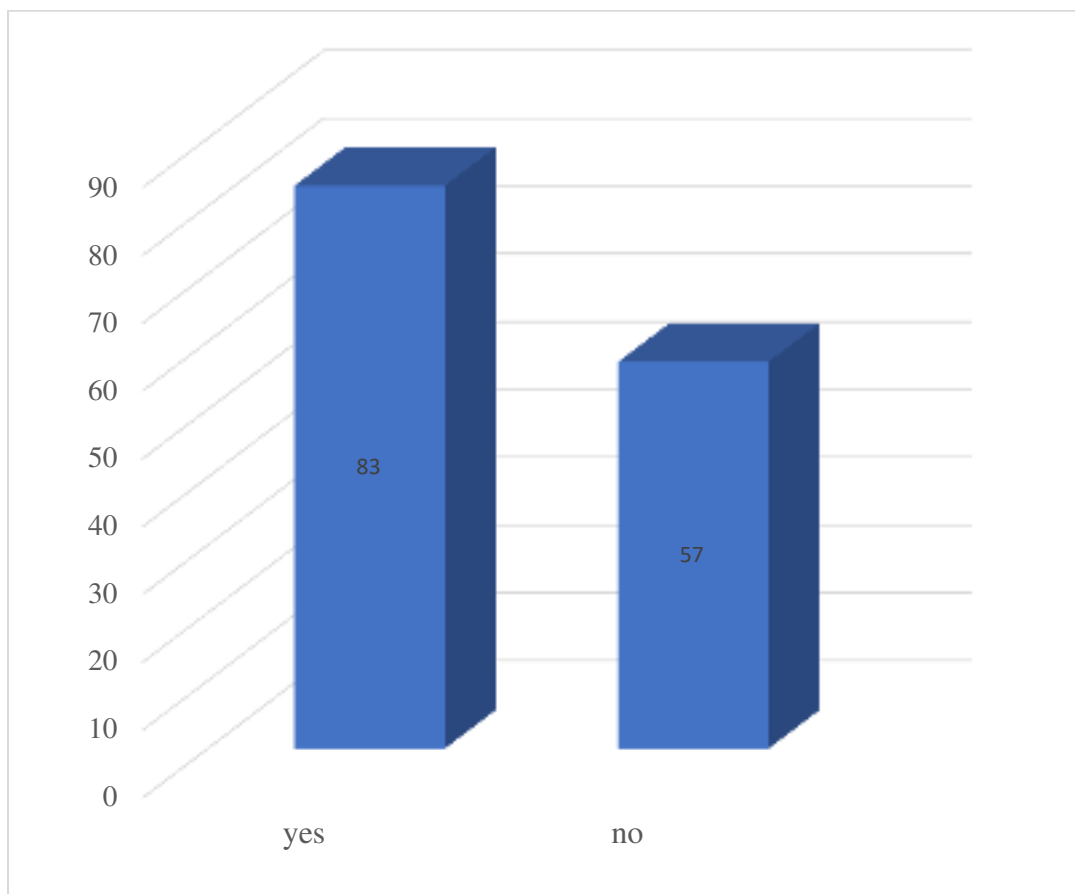
Figure 4.3.8: Ratio of coughed in last 4 weeks

This part of the question was added to find out the day of coughing that the participants faced in over past 4 weeks (1 month). (7.1%) or 10 participants faced no type of coughing, (27.0%) or 38 participants responded as they faced a few days of coughing. Only 1 person or (0.7%) participants faced a week of coughing. 49 person or (35.0%) faced several days coughing. And only 42-persons (30.0%) participants faced the problem of coughing almost every day.
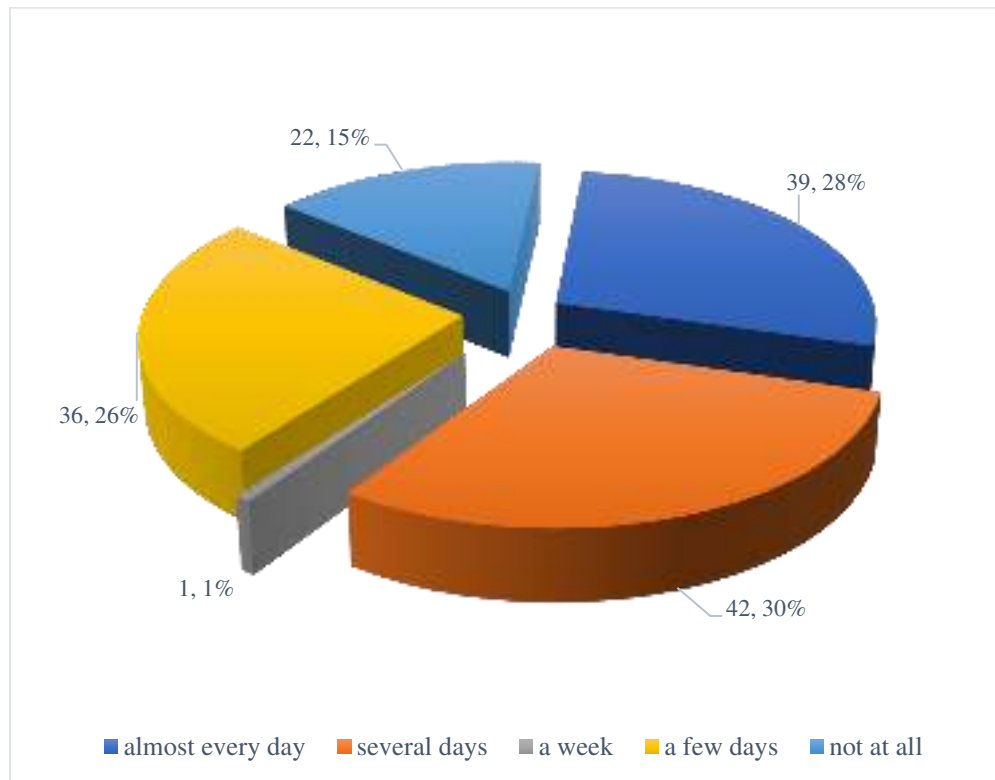
Figure 4.3.9: Ratio of bought phlegm

In this part, 39 (27.9%) persons marked as they faced phlegm problem almost every day. 42 (30.0%) participants marked as they faced the problem several days. On the other hand, 1 (0.7%) person faced the problem a week. 36 (25.7%) participants faced the problem for a few days and the percentage was. 22 (15.7%) participants did not face the problem.
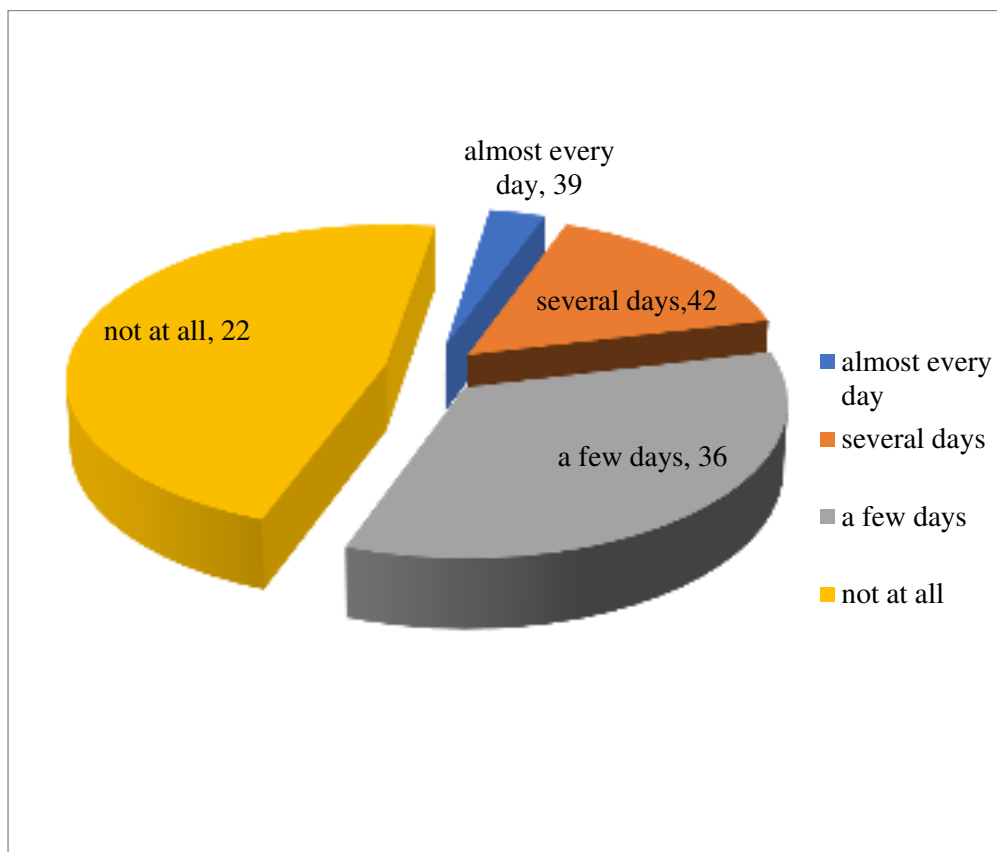
Figure 4.3.10: Ratio of shortness of breath

This part of the question was added to find out the percentage of the participants faced shortness of breath in over past 4 weeks or (1 month). In here, 10 participants marked that, they had the problem almost every day & its percentage was (7.1%). 40 participants marked that; they had the problem several days & its percentages were 28.6%. 26 participants marked that; they had the problem a few days & the percentages were 18.6%. On the other hand, 61 persons marked that they do not had the problem at all & the percentage was 43.6%.
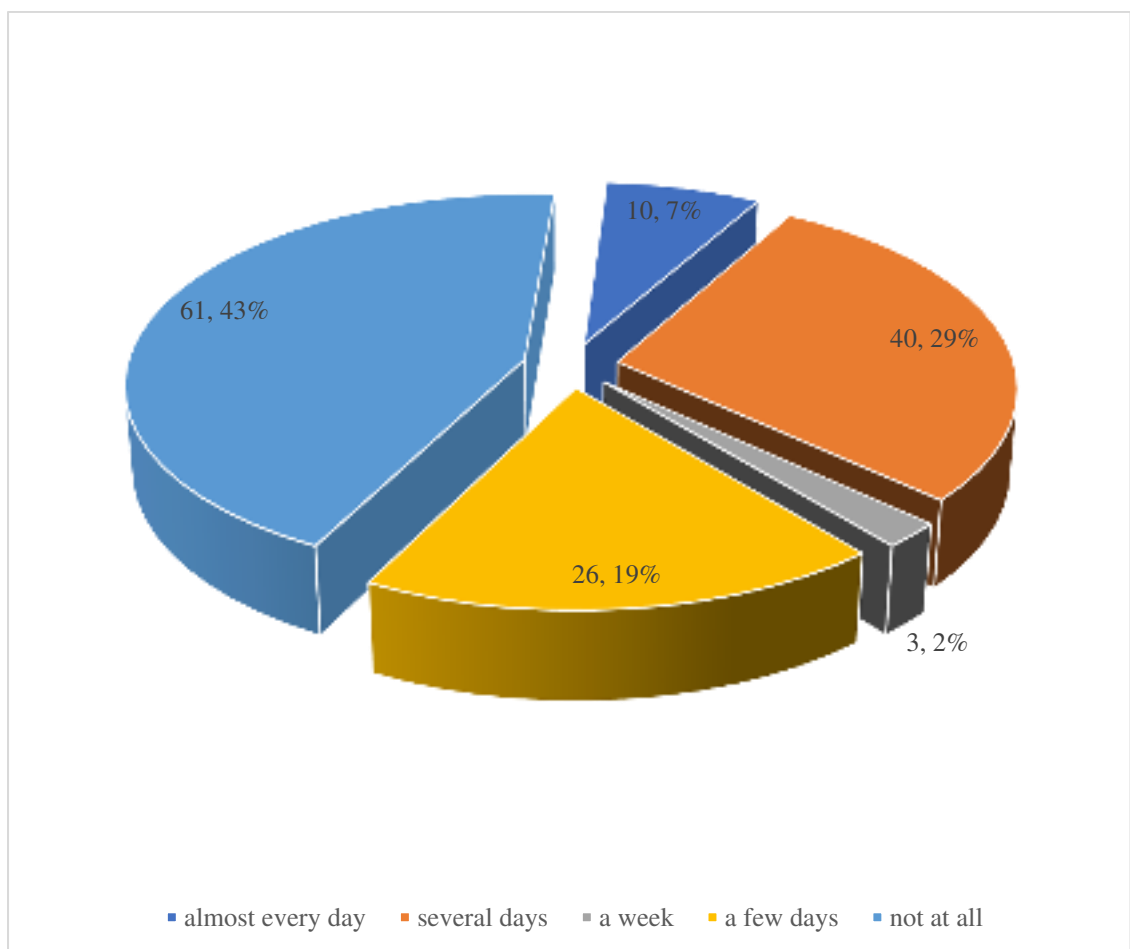
Figure 4.3.11: ratio of good day

This portion was added to find out the percentage of the participants had how many good days in last 4 weeks. This figure represents the graph of the answer given by the participants. In the picture, it showed that, 47 participants had no good days and its percentage was (33.6%). In the other hand, 29 participants or (20.7%) participate responded as they had 1 or 2 good days, 61 participants or (43.6%) people responded as nearly every day is good, and only 3 participants (2.1%) responded as everyday was good for them out of 140 participants.
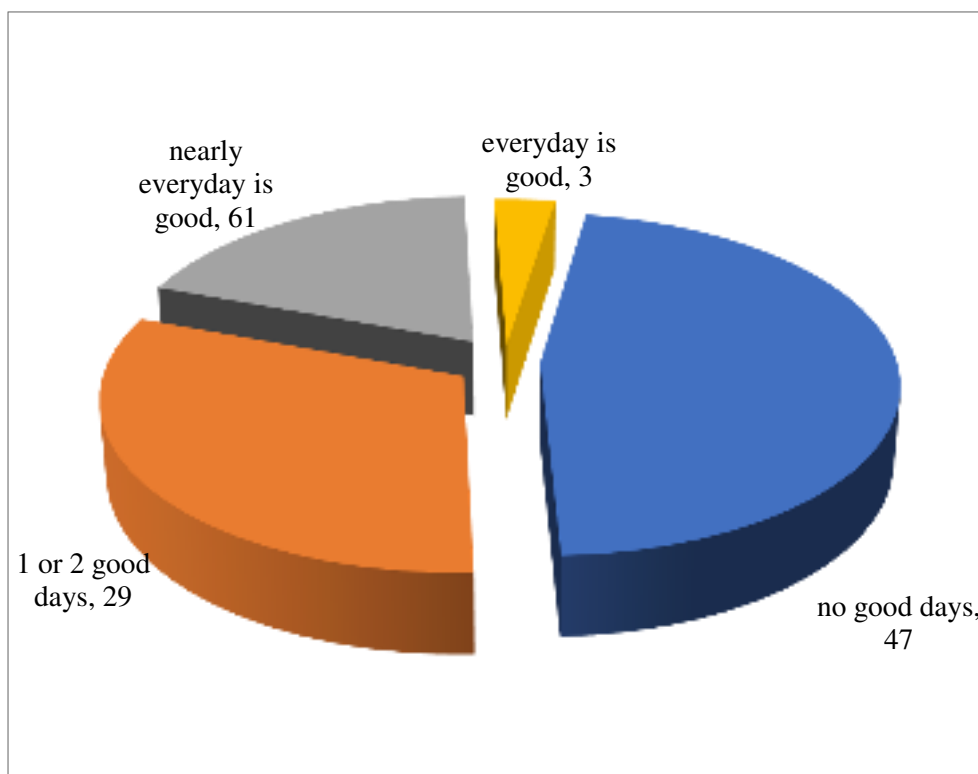
Figure 4.3.12: Finding the percentage of worsening of wheezing complication

In this part, 26 or 18.6% participants responded as they faced the complication of worsening of wheezing complication in morning. On the other hand, 112 participants responded as they did not had the complication of worsening of wheezing complication in morning & its percentage was 80.0%.
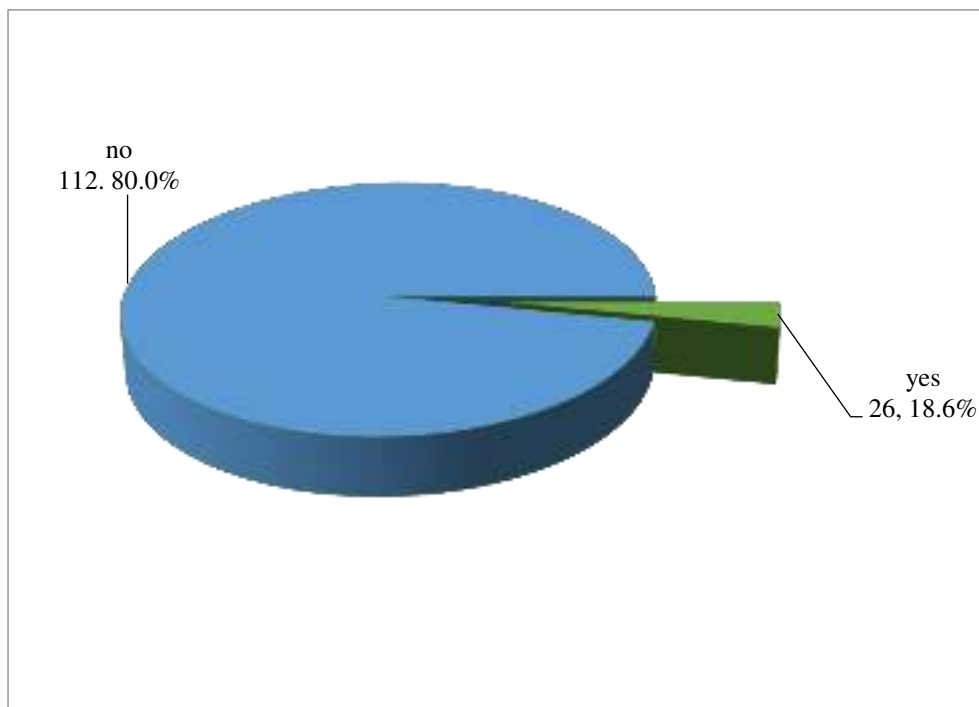
Figure 4.3.13: finding the answer that how would they describe their respiratory condition

This part of question was added to find out answer that how would they describe their respiratory condition, in their 23 participants marked that it was the most important they had & its percentage was 16.4%. 16 people or 11.4 % marked that it caused them a few problems. 10 participants or 7.1% marked that it caused them no problem. On the other hand, 56 participants or 40.0 % participants marked that it caused them a lot of problem.
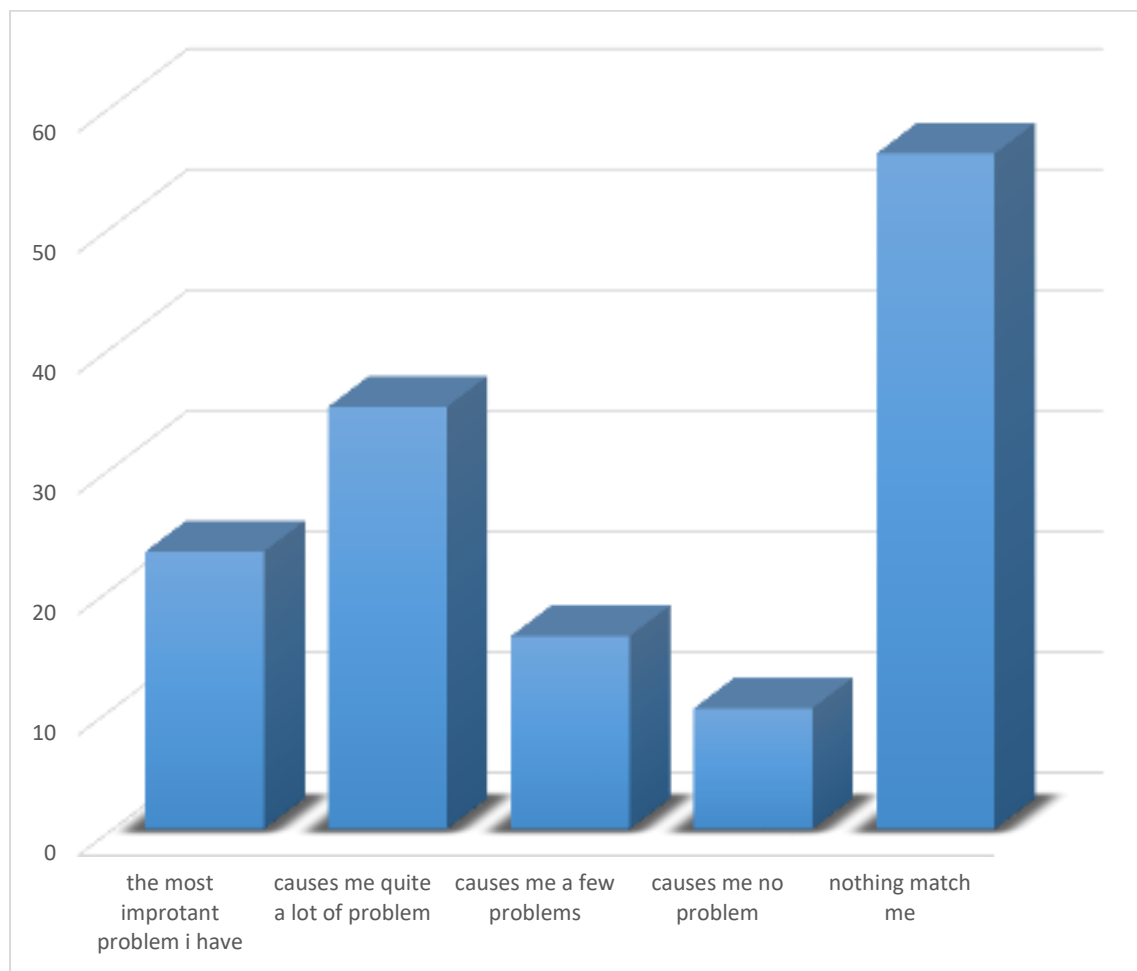
Figure 4.3.14: Percentage of participants taking treatment

This segment of the questionnaire was added to find out the percentage of participants who take any kind of treatments.

In this part, it showed that 122 participants (87.1%) take treatment and 18 participants (12.9%) take no treatment.
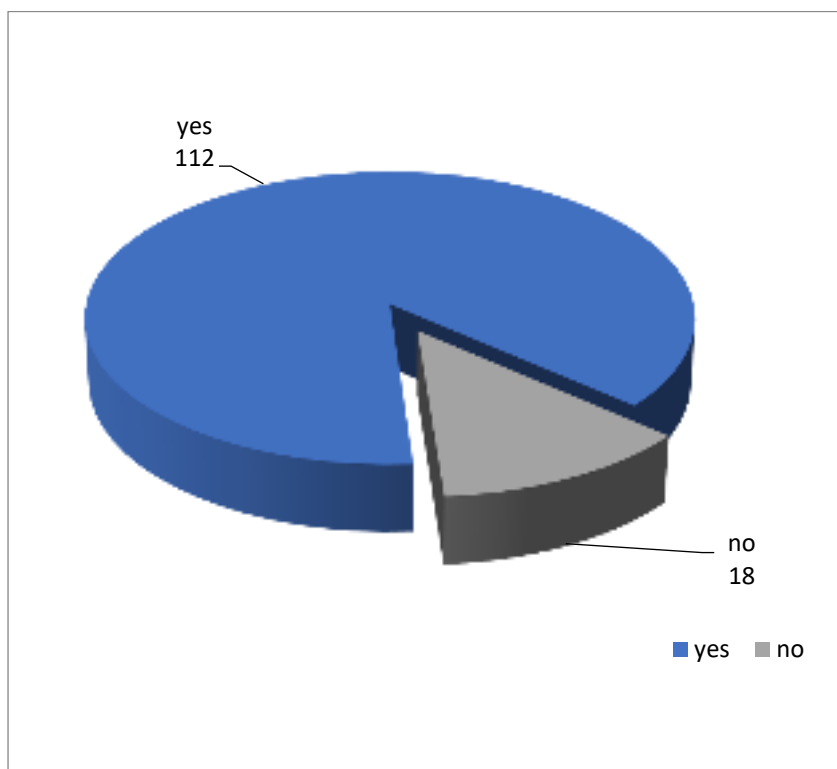
Figure 4.3.15: Type of treatment

This part was added to find out the type of treatment was taken by the participants of the study.

With the selected question, it showed that,106 participants, (75.7%) take medicine and rest of 34 participants take other type of treatment which was (34%) of my sample.
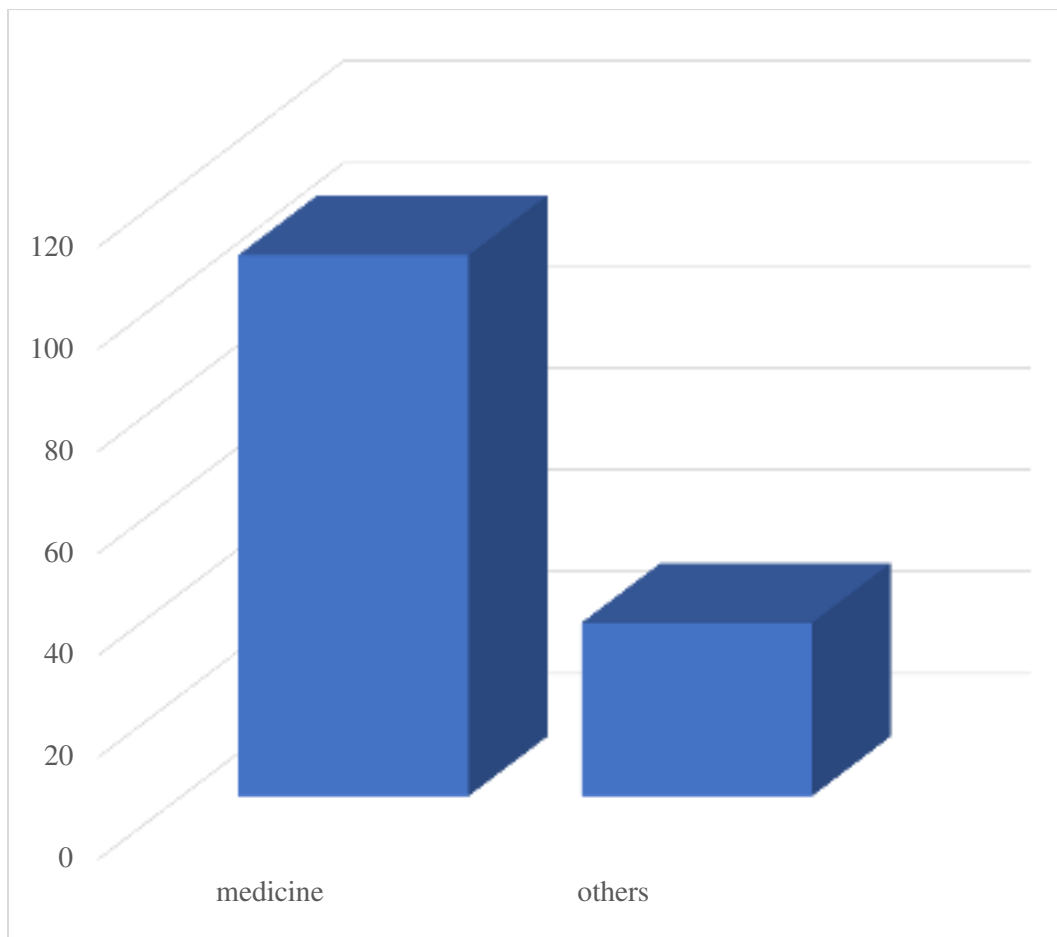
Figure 4.3.16: Know about the effectiveness of the medicine

This specific question was added in my questionnaire to bring out the opinions of my participants about their effectiveness of the medicines what was they consuming.

In this segment of question, 117 participants responded as the medicine, which they are taken was effective for them which was (83.6%) from my sample size and

Only 23 participants said that the medicine was not working for their disease condition which was (16.4%) of my population among 140 participants.
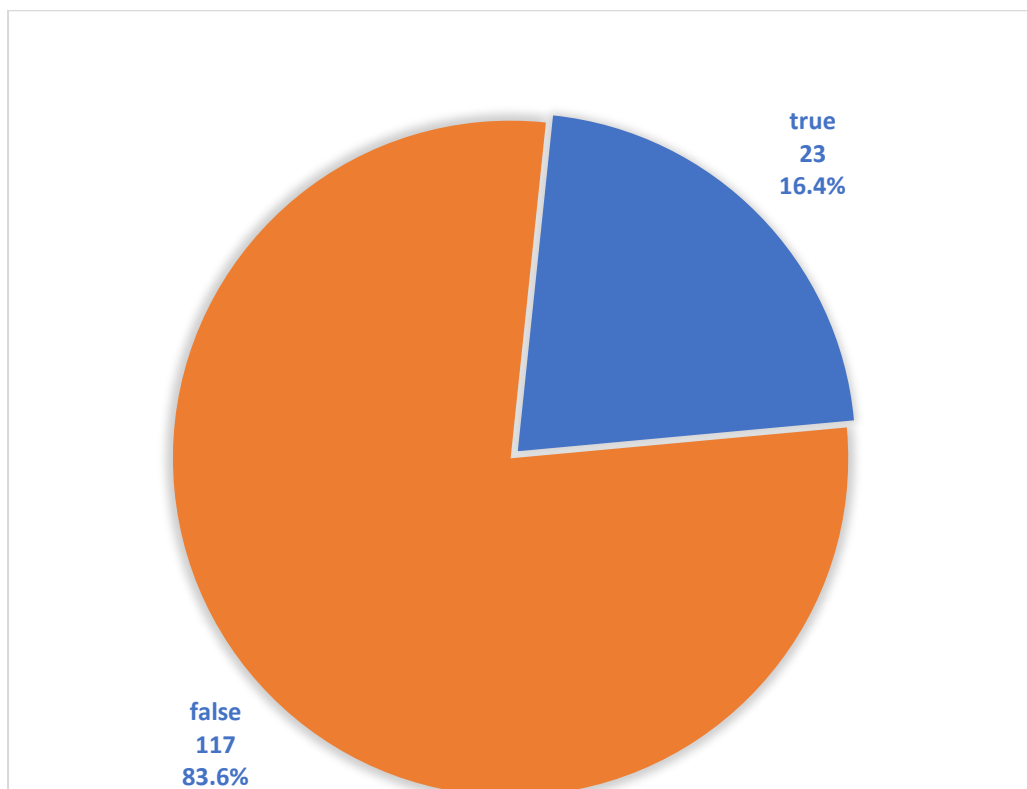
Figure 4.3.17: Know about the side effect of the medicine.

In this part of the questions, 71 participants (50.7%) responded as they don't face any kind of side effect from there medicine, and on the other hand 69 participants (49.3%) responded as they face some side effect from there medicine, which was a lot among the 140 sample.
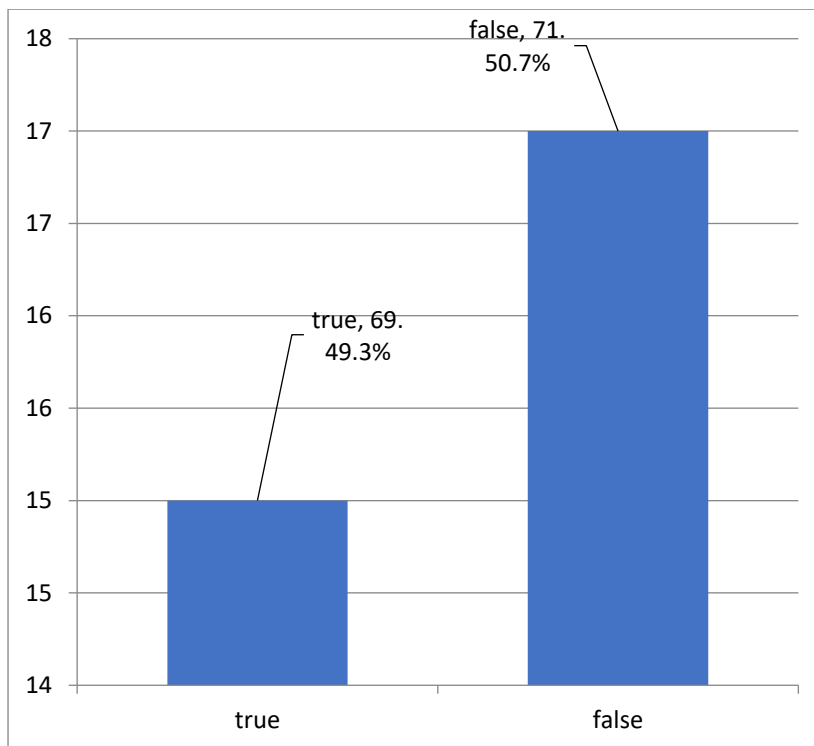
Figure 4.3.18: medicine interferes in the life.

110 participants marked that the treatment doesn't interfere with their life which is (78.6%). And 30 participants responded as the treatment interfere with their life which was (21.4%) among the 140-sample size.
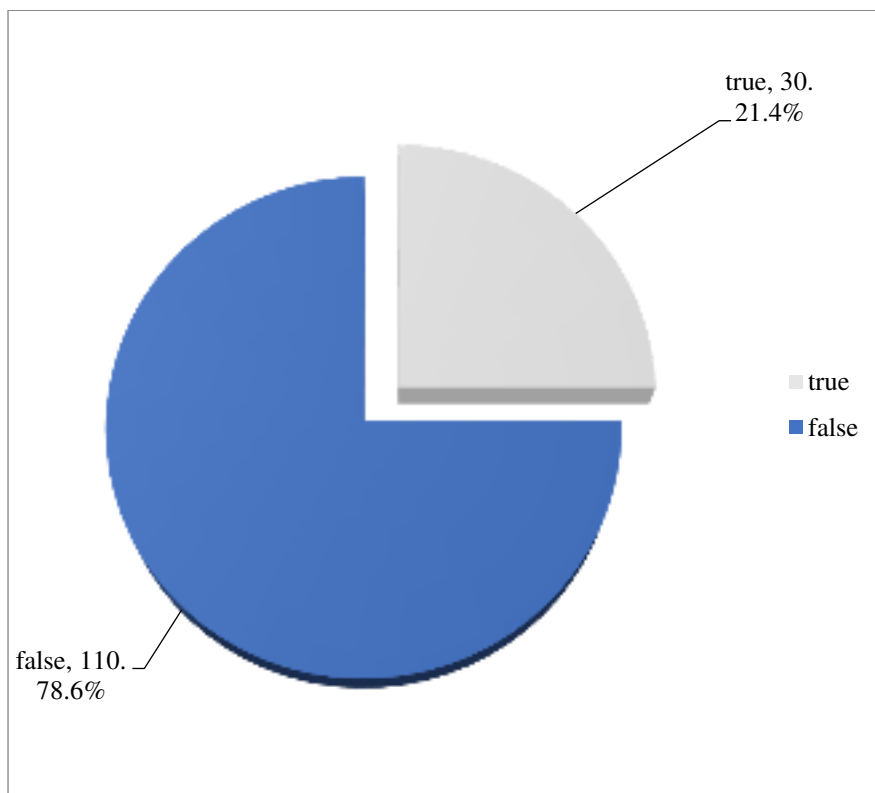
Figure 4.3.19.: Know about the mental stress

The part of question was added to know about if the participant was in any kind of mental stress.

Among them, 123 participants responded as "Yes" which was (87.9%) and only 17 participants (12.1%) responded as they don't have any mental stress.
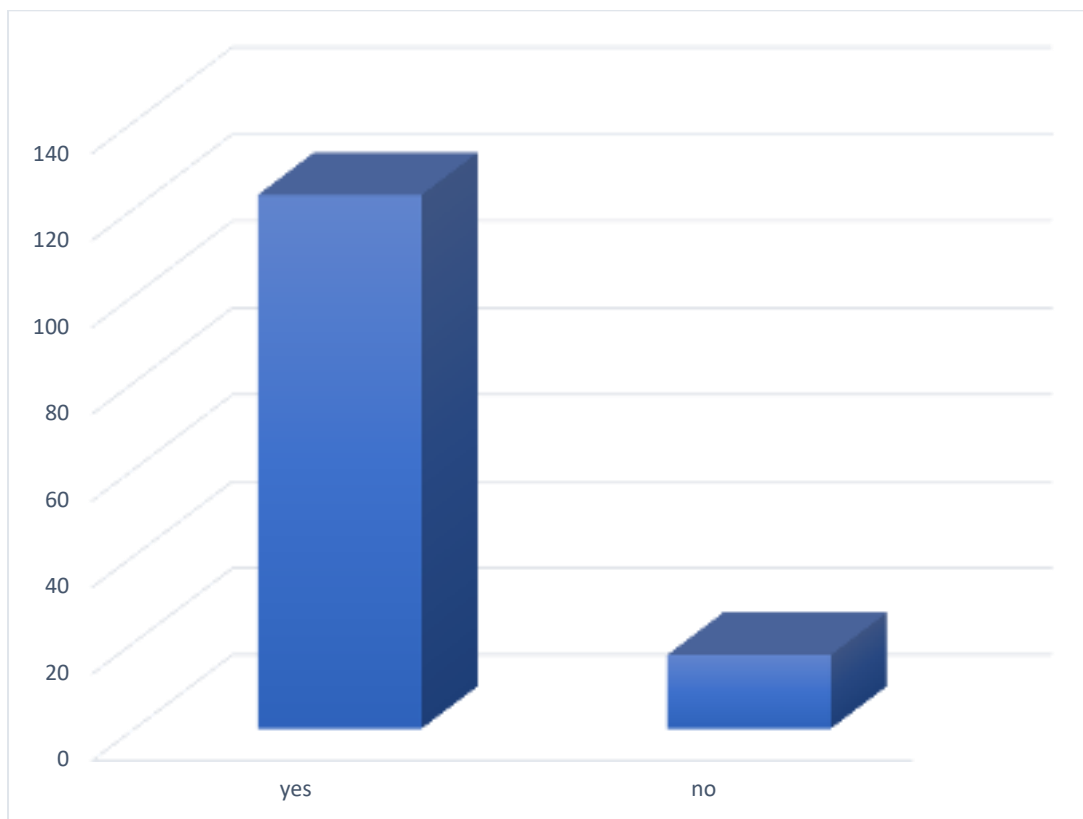
Figure 4.3.20: Know about if the participant was in tensed about anything.

This part of question was added in the question part to find out that if the participants was in tensed about anything. 121 participants (86.4%) responded as they were in tensed and 19 participants responded as they were not having any kind of tension which was (13.6%) out of the 140-sample size.
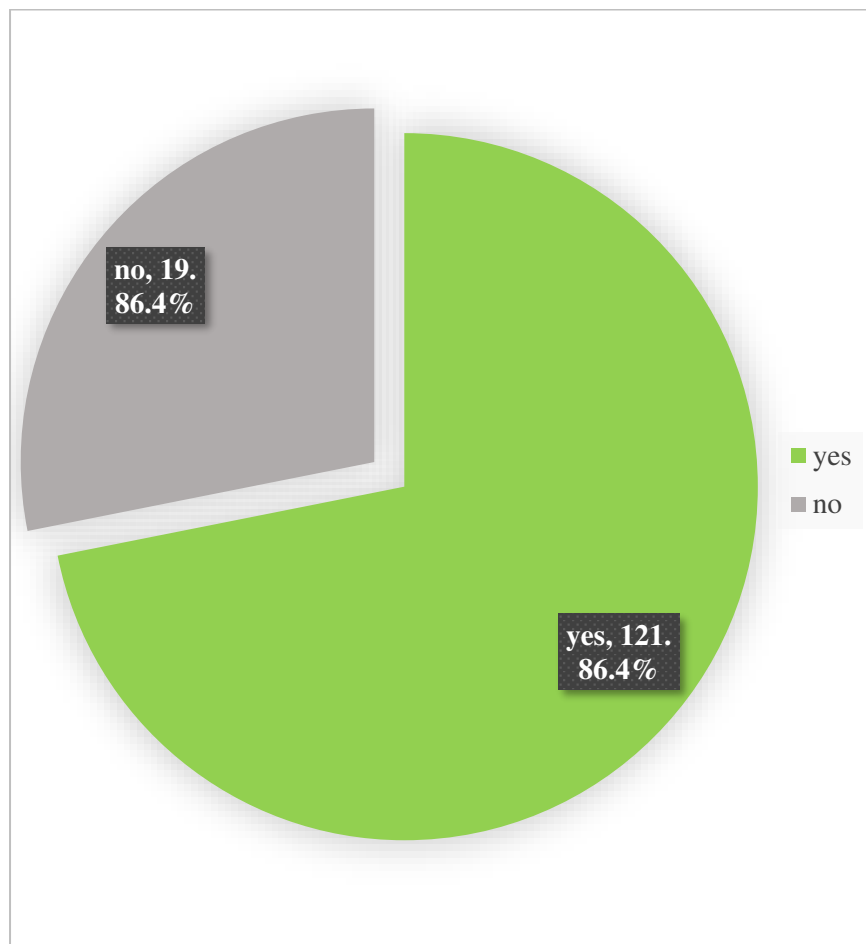
Figure 4.3.21: Opinion about surrounding environment is the reason of the respiratory complication.

This portion of question was added to know about their opinion about the surrounding environment and what they think about the reason of their complication. 133 participants (95.0%) responded agree to the research factor and only 7 participants (5.0%) respond not agree to the option of research question.
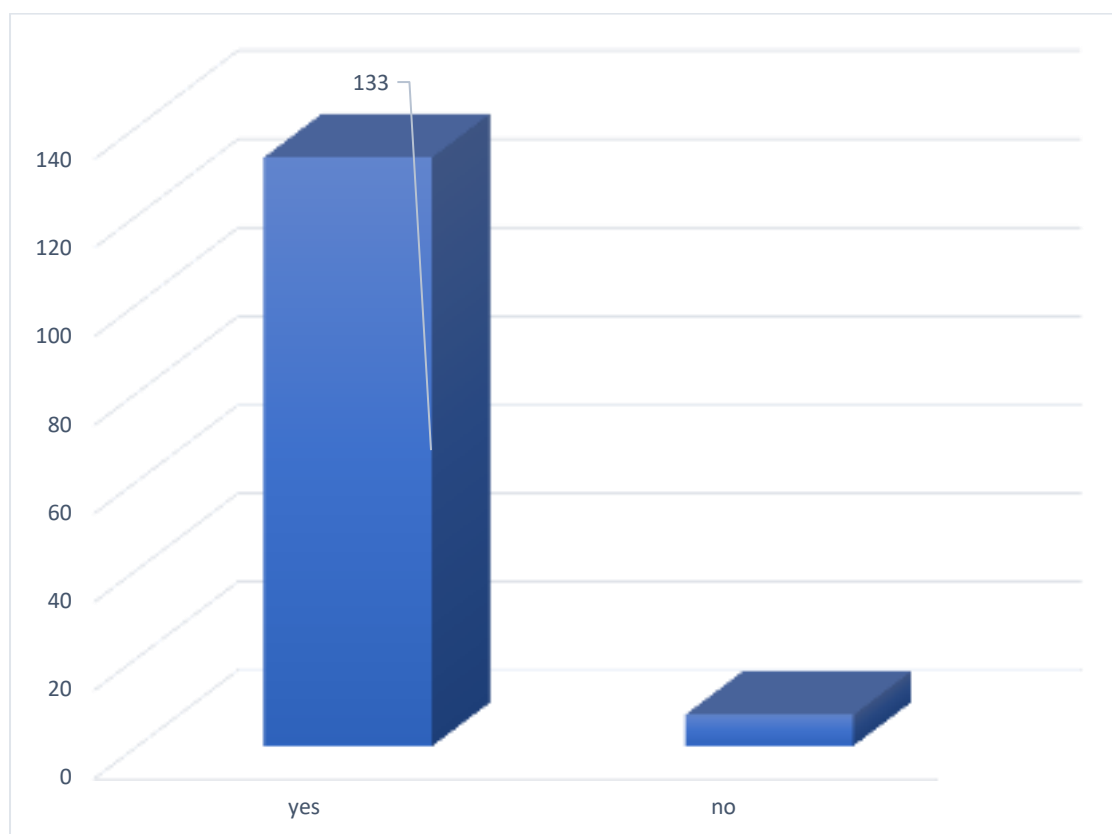
Figure 4.3.22: Use any protection during duty time

This part of question was added to know about the percentage of participants who ware mask in their duty time.

From this part, it shown that, 81 participants or (57.9%) use protection during their duty time and 59 participants (42.1%) don't use any protection during their duty time.
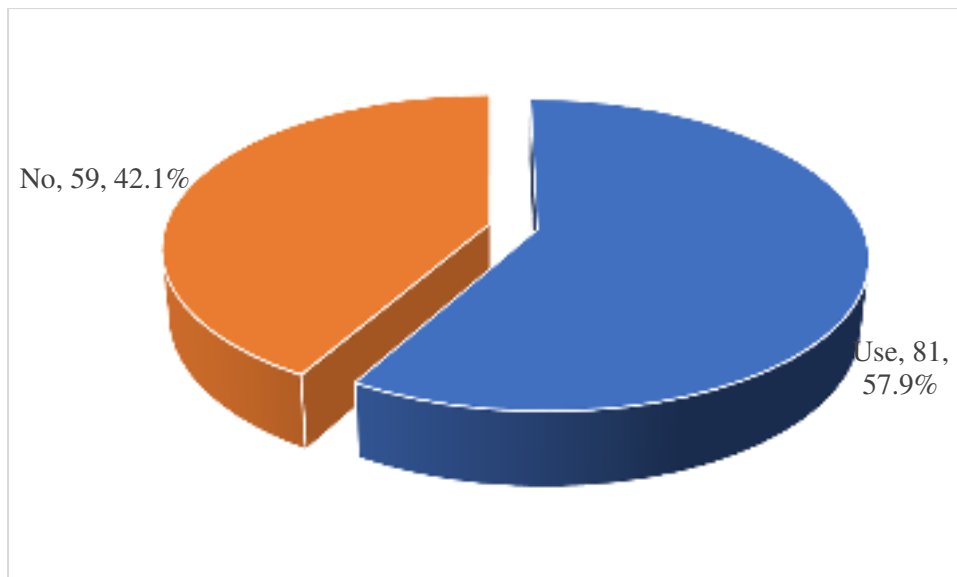
Figure 4.3.23: There opinion about (lung cancer) the pollute environment

This specific part of question was added in my questionnaire to bring out the opinion from the selected socio demographic variable about the upcoming complication about the air pollution.

133 participants (95.0%) thought that the polluted environment leads them to the lung cancer and rest 7 participants (5.0%) thought that it didn't.

Association between the variables
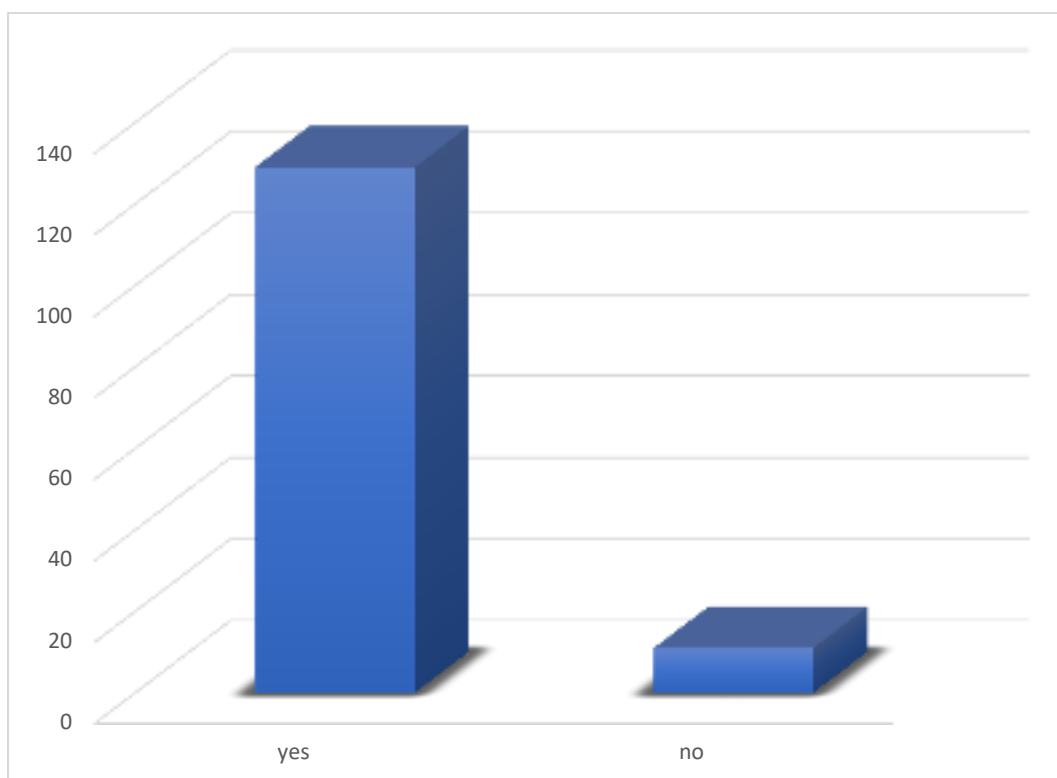
Table 4.4.1: Frequency distribution of the participants by the Age and Mental stress

Age group	yes	no	total	Pearson chi square	P value
25 - 35	34	4	38	2.520	0.284
36 - 45	54	5	59		
46 - 55	35	8	43		
total	123	17	140		

Regarding the frequency distribution of the participants by age, it was found that in 25 – 35 age group had the mental stress & 4 had no mental stress. 36 – 45 age group, 54 had mental stress & 5 did not had. In 46 – 55 age group, 35 had mental stress & 8 did not had any mental stress. The Pearson chi square value was 2.520 & P value was 0.284.

Table 4.4.2: Frequency distribution of the Participants who ware mask & ratio of respiratory problems

		Do you use any protection for stay safe from pollution?		Total	Pearson chi value	P Value
		yes	no			
Do you suffer from coughing attack during the day	yes	56	41	97	0.002	0.964
	No	25	18	43		
Total		81	59	140		

The frequency distribution table contain the answer about the opinion of the research variables about the participants health condition and participants who ware mask during their duty time.

From the study table, we can saw that, 56 participants who suffer from coughing attack during the day & from there, 41 participants ware mask. From the rest participants members, 25 police man, 18 parsons ware mask regularly, which is not suitable for them.

The Pearson chi value was 0.002

The P value of the association was 0.094.

Table: 4.4.3: Frequency and percentage about the disease related variables about the participant.

Variable name	Responses	Frequency	Percentage
Feeling uncomfortable because of perfume	Yes No	21 119	15.0% 85.0%
Breathlessness during sleep	Yes No	55 85	39.3% 60.7%
Feeling weakness during laughing	Yes No	55 85	56.4% 43.6%
Feeling chest heaviness	Yes No	83 57	58.3% 40.7%
Ratio of cough in last 4 weeks	Almost everyday Several days A week A few days Not at all	42 49 1 38 10	30.0% 35.0% 0.7% 27.0% 7.1%
Ratio of bought phlegm	Almost everyday Several days A week A few days Not at all	39 42 1 36 22	27.9% 30.0% 0.7% 25.7% 15.7%
Ratio pf shortness of breath	Almost everyday Several days A few days Not at all	10 40 26 61	7.1% 28.6% 18.6% 43.6%

Discussion:

In this study,140 participants of traffic police were selected. Among them (38%) participants were (25 - 35) age group, (59%) participants were (36 - 45) age group, & (43 %) was (46 – 55) age group. There mean was 40.53 and standard deviation was 7.644.

On the other hand, from another research, the researcher found that, there was 25 participants who was below 30 years, 145 participants were in the age group of 30 to 40 years, & 199 was above 40 years. (Ahmed ., 2022).

From this study. The researcher found that, In the section of 140 participants of traffic police (72.9%) participants were male. Its frequency was 102. 0. And 27.1% participants were female & their frequency was 38. Till now, Bangladesh Police had not allowed to join the third gender except women and men. For that reason, there was no option without the two genders.

Researcher study area was In Dhaka city, Bangladesh. So, for that reason, in this part of the socio demographic question, I only kept two option such "City & urban.

140 participants of traffic police were selected. Among them (98.6%) participants were lived in city. Its frequency or participants number was 138. & on the other hand, 1.4% participant was come from urban area to their work place and their frequency or number of participants was 2.

Form the selected 140 participants of traffic police, 44 participants were HSC passed, its percentage was (31.4%). 8 participants were graduated, its percentage was (5.7%). 88 participants were SSC passed and its percentage was (62.9%).

Till now the minimum educational qualification is SSC (Secondary School certificate) to apply as a constable in Bangladesh police.

From another research, I found that, there was 34 policeman who was passed from school, 150 traffic policeman who passed high school, & 185 participants was graduate & with higher qualification. (Ahmed ., 2022).

From this study 140 participants of traffic police, there was 109 participants who had nuclear family, and its percentage was (77.9%). And 31 participants had joint family and its percentage was (22.1%).

From my 140 participants of traffic police, (20.7%) participants were (17.3 - 22) BMI group, (50.0%) participants were (22.1 - 28) BMI group, (29%) participants are (28.1 – 34) BMI group.

There mean was 25.435. & Standard deviation was 25.550.

From another research, the researcher found that, there was 5 participants who was underweight, 198 participants were normal,157 was overweight, & 9 participants was obese. (Ahmed ., 2022).

In this study, Among the 140 traffic police, 68 participants had smoking habit, and its percentage was 48.6%. And 72 participants had no smoking habit and its percentage was (57.4 %).

In another research, researcher discovered that, the researcher found that, in their sample size,339 participants do not addict to smoking habit & 30 participants was addicted to the smoking habit.

In this study, there was 43 participants had the hypertension or high blood pressures problem, and it was (31%). On the other hand, 8 participants had the problem of asthma, and its percentage was (6%). 5 of the participants had cardiovascular disease and it was (3%) of the sample size. 18 of my research participants do not know about their disease, and it`s percentage was (13%). And in last, 6 participants of my study had some sort of other disease which was not included in my research question, and its percentage was (4%).

In another research, researcher saw that the researcher found those past medical history among the participants. The result is, History of pneumonia 1. History of tuberculosis 0. History of chronic bronchitis 1. History of asthma 0. History of pneumothorax 0.

History of lung cancer 0. History of chest injury or surgery 0. History of broken ribs 0. Allergic reaction interfering with breathing 2 participants. (Ahmed., 2022).

From this research, researcher found that, 97 participants were responded as "yes" they got coughing attack during day and its percentage was (69.3%) and 43 participants was responded as "No" they do not get any coughing attack during day. in the answer part and its percentage was (30.7%). From this part, the questionnaire was made to find out the respiratory complications.

From another research, researcher discovered that, among that research participants, 25 participants get coughing attack & 45 participants don't get any coughing attack during their duty time. (Jamil., 2018)

The segment of question was added to find that if the participants feel restless because of their chest trouble, in that portion, 66 participants marked "yes" part of their questionnaire and the percentage was (74.1%). And in the other hand, 74 participants marked "No" in their questionnaire and the percentage was (52.9%).

In another research, researcher found that, there was 369 participants & among them 65 participants responded as they feel chest trouble. (Ahmed P., 2022).

With the help of a question, researcher was tried to find out if my participants feel any trouble because of the smell of perfume. In that part, only 21 participants responded as "Yes" and its percentage was (15.0%), and 119 participants responded as "No" in their answers and its percentage was (85.0%). That means 21 participants feel uncomfortable for the smell of perfume & 119 participants did not feel any complications for the smell of perfume.

A question was added to find that if the participants have felt breathlessness during sleep in my research questionnaire. With the questionnaire, the 55 out of 140 participants answer that they feel breathlessness during sleep because of their respiratory problem and the percentage was (39.3%%). On the other hand, 85 participants answered as "No" in that part, and the percentage was (60.7%).

The part of question was collected from a stablished research & added to my questionnaire to find that if my participants suffer from weakness during the work. In that part, 55 parsons respond as "Yes" and its percentage was

(39.3%), And in the other hand, 85 persons marked "No" part of the answer portion, and its percentage was (60.7%).

The part of question was added to find that if the participants suffer from breathlessness during laughing, it was added to measure the lung function test without any modalities. out of 140 sample size, 79 participants responded "Yes" and its percentage was (56.4%), and 61 marked as "No" and its percentage was (43.6%).

In the main research, from where the question was taken, in that, the researcher found that, 20 participants suffer from the problem & 114 participants was not. (Jamil., 2018).

The part of question was added to the questionnaire find that if the participants suffer from chest heaviness, and among 140 percipient's 83 marked as yes and 57 marked as No, and their percentage was (59.3%) and (40.7%).

This part of the question was added to find out the day of coughing that the participants faced in over past 4 weeks (1 month). (7.1%) or 10 participants faced no type of coughing, (27.0%) or 38 participants responded as they faced a few days of coughing. Only 1 person or (0.7%) participants faced a week of coughing. 49 person or (35.0%) faced several days coughing. And only 42-persons (30.0%) participants faced the problem of coughing almost every day.

In Another research, I saw that, the researcher found 68 participants got the problem of frequent coughing, & 32 participants did not face the problem at all. (Gupta., 2011).

In the replay of this question, 39 persons marked as they faced phlegm problem almost every day & its percentage was (27.9%). 42 participants marked as they faced the problem several days & the percentages were (30.0%). On the other hand, 1 person faced the problem a week & its percentage was (0.7%). 36 participants faced the problem for a few days and the percentage was (25.7%). 22 participants did not face the problem & its percentage was 15.7%.

In another research, I found that, there was 20 participants who bought phlegm, it was 14.9% & 114 participants responded as they do not face any problem of

phlegm secretion & its percentage was 84.1% of the research population. (Mal J Med Health Sci., Nov 2018)

In the used questionnaire, the question was added to find out the percentage of the participants faced shortness of breath in over past 4 weeks or (1 month). In here, 10 participants marked that, they had the problem almost every day & its percentage was (7.1%). 40 participants marked that; they had the problem several days & its percentages were 28.6%. 26 participants marked that; they had the problem a few days & the percentages were 18.6%. On the other hand, 61 persons marked that they do not had the problem at all & the percentage was 43.6%.

From another study, researcher saw that, among the 134-sample size, 43 participants got the same complication of shortness of breath like my research sample & its percentage was 32.1%. & 91 participants did nor face the complication of shortness of breath. & its percentage was 67.9%.

This portion was added to find out the percentage of the participants had how many good days in last 4 weeks. This figure represents the graph of the answer given by the participants. In the picture, it showed that, 47 participants had no good days and its percentage was (33.6%). In the other hand, 29 participants or (20.7%) participate responded as they had 1 or 2 good days, 61 participants or (43.6%) people responded as nearly every day is good, and only 3 participants (2.1%) responded as everyday was good for them out of 140 participants.

I found that, from my 140-sample size, 26 or 18.6% participants responded as they faced the complication of worsening of wheezing complication in morning. On the other hand, 112 participants responded as they did not had the complication of worsening of wheezing complication in morning & its percentage was 80.0%.

In another research, the researcher found that, some of the participants face the complication of chest pain with deep breathing, & its total number was 65 persons & it was (17.6%) of its total population.

In used research questionnaire, this specific question was added to find out answer that how would they describe their respiratory condition, in their 23

participants marked that it was the most important they had & its percentage was 16.4%. 16 people or 11.4% marked that it caused them a few problems. 10 participants or 7.1% marked that it caused them no problem. On the other hand, 56 participants or 40.0 % participants marked that it caused them a lot of problem.

This segment of the questionnaire was added to find out the percentage of participants who take any kind of treatments. In this part, it showed that 122 participants (87.1%) take treatment and 18 participants (12.9%) take no treatment.

No other research ever used this type of question to find the past medication history from the participants.

From my 140-research participants or samples, 110 participants marked that the treatment don't interfere with their life which is (78.6%). And 30 participants responded as the treatment interfere with their life which was (21.4%) among the 140-sample size.

This part of question was added to know about if the participant was in any kind of mental stress. Among them, 123 participants responded as "Yes" which was (87.9%) and only 17 participants (12.1%) responded as they don't have any mental stress.

This part of question was added in the question part to find out that if the participants was in tensed about anything. 121 participants (86.4%) responded as they were in tensed and 19 participants responded as they were not having any kind of tension which was (13.6%) out of the 140-sample size.

Those two questions were added in my questionnaire to find out the response of my participants about their opinion on their mental status. No research contains such those type of questions in our country.

This portion of question was added to know about their opinion from the traffic police about the surrounding environment and what they think about the reason of their complication. 133 participants (95.0%) responded agree to the research factor and only 7 participants (5.0%) respond not agree to the option of research question.

This specific part of question was added in my questionnaire to bring out the opinion from the selected socio demographic variable about the upcoming complication about the air pollution in their health.

133 participants (95.0%) thought that the polluted environment leads them to the lung cancer and rest 7 participants (5.0%) thought that it didn't think the polluted air can lead them to the way of air pollution.

This question contains the percentage of participants who ware mask in their duty time. From this part, it shown that, 81 participants or (57.9%) use protection during their duty time and 59 participants (42.1%) don't use any protection during their duty time.

In another research, the researcher found that, 144 participants used mask during their duty time & 64 participants responded as they did not use any type of protection during their duty time. (Gupta., 2011).

Conclusion:

People have been screaming for a solution for decades, but nothing has been done. Greenhouse gases are putting increasing pressure on the atmosphere. substances that are threatening to damage the climate Reduce the ozone layer's thickness. Sulfur dioxide, photochemical oxidant, ozone, and NO2 are the principal air pollutants affecting the respiratory system (Ahmed et al., 2002).

The government of Bangladesh can take the following severe measures to save a large amount of money by making the environment more environmentally friendly:

1. Take an active role to contend with this horrible case.

2. Promote national energy efficiency and emission standards, as well as the construction of efficient, cost-effective, and less polluting mass transportation systems.

3. Completely prohibit the importation and use of leaded gasoline.

4. Completely eliminate two-stroke engine automobiles.

5. Completely phase out old (more than 20-year-old) automobiles.

6. Proper lubricant usage can help to minimize emissions.

7. Promote the use of cars powered by rechargeable batteries, compressed natural gas (CNG), liquid petroleum gas (LPG), or electric power (just adopted in the US).

8. Scratching out all inappropriate automobiles as soon as possible; they would face punishment if they drove all those kinds of vehicles on the streets.

9. Every vehicle, whether public and private, shall undergo an annual inspection and emission test.

10. Immediately transfer or shift the industries (such as the battery, pharmaceutical, and tobacco industries) out of the city of Dhaka.

11. It is necessary to provide medical facilities for patients and training for doctors.

12. To teach drivers how to lower emissions, general training sessions should be given every three months.

13. Annual seminars and international and national conferences ought to be arranged.

14. Waste from industry should be appropriately disposed of.

15. Raise awareness of air pollution in the general public through media (such as movies, brochures, booklets, radio, television, print, and electronic media, as well as the arts and new media technologies).

16. Update current electricity infrastructure.

17. By decreasing the burning of fossil fuels.

18. Our nation has to put the United Nations Framework Convention on Air Pollution into practice. A national commission should be established under this framework, along with NGOs, to address this issue.

19. UN Environment Program, UNEP should establish a technical office in Dhaka with a focus on air pollution, similar to how they did in Kathmandu, Nepal.

20. In order to preserve or restore the ecological balance, we must develop plantations inside of towns and safeguard the forest.

21. We may launch specific measures to phase out outdated, low-capacity vehicles and replace them with new, larger ones in collaboration with the private sector. It's important to keep in mind that fewer automobiles equal less pollution.

The transportation situation in Dhaka is always in turmoil. The main issue is management (Public Administration), which is a widespread issue of systemic failure. Government should aid in the rehabilitation of those impacted while adhering to the phase-out program (Azra, 2002).

The two-stroke engines being fixed to CNG is a topic of discussion. The government could issue an order mandating the conversion to CNG of all vehicles within a certain time limit, starting with its own fleet, Ministers' fleets, and MPs' fleets that import tax-free automobiles. As acknowledged, the government has a plan to increase the usage of CNG (Azra, 2002).

According to the city corporation rules, garbage collection and its disposal should be done before 8:00 am but the rule is not duly followed (New Nation., 2010. Online addition).

In Dhaka City, severe air pollution is endangering human health. People are developing severe ailments including TB, asthma, respiratory issues, bronchitis, and other skin conditions as a result of the abundant dust in Dhaka's air. Another explanation for the increase in dust is the midday sweeping of public streets. The only option to improve public administration's accountability is for the government of Bangladesh to promptly put its national environmental policy and transportation strategy into practice for the good of the citizens of this nation. This nation will be in doubt if not.

This study, contain the best knowledge from different researcher from our country, sub continental and continental. However, there are many limitations in the present study. Given the cross-sectional design of the study, it has limited capability to infer causality, and the relatively small number in the reference group can affect the validity of the outcome. Further epidemiological studies, on larger samples and environmental air quality data provided, are required to better understand and define the pollution-related respiratory outcomes in traffic police personnel. The finding of this study suggests a valuable need for targeted occupational health interventions such as the use of protective masks at the workplace and periodic medical surveillance.

Recommendation:

The aim of the study was to determine the types of respiratory complications among the Traffic Police in Dhaka City.

The following recommendations are made on the basis of the findings of the present study:

1. Respiratory complications is now very common problem in our country. The traffic polices are in the higher risk of those type of complication. It will help the officers to maintain a good respiratory health.

2. Traffic polices should be motivated to go health center for regular health checkup.

3. Awareness programs related to respiratory complication should be organized for all Policemen on regular basis by the concerned authority.

4. The random sampling technique rather than the convenient should be chosen in future in order to enabling the power of generalization of the result.

5. The duration of the study was short, so in future ample time should be given for conducting the study.

7. To measure the complications & get proper knowledge in this sector, different measurement tools might be used for accuracy.

8. In Bangladesh there is little research had been conducted on respiratory problems. So, it is needed to conduct more studies in this field.

9. The findings of the present study would be helpful for the future researcher

Limitation:

 One of the major hurdles I faced in this research was obtaining permission for data collection from the police head office. Also, adequate time, budget shortage, taking data by convening the traffic police was also important term to get less data from my sample size. Many times, many traffic police did not want to give their data, many felt reluctant to disclose information about their disease.

Especially when I was trying to get data from female traffic police, I faced a lot of complications, because the number of female traffic police in Dhaka City Corporation is very less, and they also feel bored to give information due to lack of time.

The traffic police remain busy all day in the roads. Many traffic police were naturally annoyed because of going to collect data in their duty time.

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APPENDIX A

Permission for Data Collection

SAIC COLLEGE OF MEDICAL SCIENCE AND TECHNOLOGY

Approved by Ministry of Health and Family Welfare
Affiliated with Dhaka University

Ref :   Date : ....

Ref.No: *SCMST/PT/ERB-2017-18/1-2023/40 (a)*

6ᵗʰ March'2023

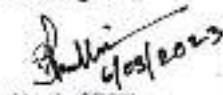To

Commissioner of Police

Dhaka-Metropolitan Police

Sub: Permission to collect data.

Dear Mam/Sir,

Ethical review board (ERB) of SCMST pleased to inform you that Afzal Hossain Fahim of first year B.Sc. in Physiotherapy student from Saic College of Medical Science and Technology doing a thesis entitle of "Factors and respiratory complication among traffic police in Dhaka city" which has been reviewed by ERB of SCMST and we are giving permission to his to conduct this study. His data collection area is traffic police in Dhaka city, so he wants to take data from your department.

I hope you will give kind permission to him to collect data to complete his study successfully and oblige thereby.

Thanking You,

Head of ERB

Ethical Review Board

Saic College of Medical Science and Technology

Principal

Saic College of Medical Science and Technology

Mirpur-14, Dhaka-1216

Address: Saic Tower, M-1/6, Mirpur-14, Dhaka-1206. Mobile: 01936005804

APPENDIX B

Permission for Data Collection

SAIC COLLEGE OF MEDICAL SCIENCE AND TECHNOLOGY
Approved by Ministry of Health and Family Welfare
Affiliated with Dhaka University

Ref :   Date : ....

Ref No: SCMST/PTHERB-2017-18/1-2023/40 (a)

6th March'2023

To

Commissioner of Police

Dhaka-Metropolitan Police

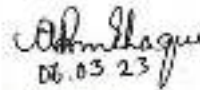Sub: Permission to collect data.

Dear Mam/Sir,

Ethical review board (ERB) of SCMST pleased to inform you that Afzal Hossain Fahim of final year B.Sc. in Physiotherapy student from Saic College of Medical Science and Technology doing a thesis entitle of "Factors and respiratory complication among traffic police in Dhaka city" which has been reviewed by ERB of SCMST and we are giving permission to his to conduct this study. His data collection area is traffic police in Dhaka city, so he wants to take data from your department.

I hope you will give kind permission to him to collect data to complete his study successfully and oblige thereby.

Thanking You,

Head of ERB
Ethical Review Board
Saic College of Medical Science and Technology

Principal
Saic College of Medical Science and Technology
Mirpur-14, Dhaka-1216

Address: Saic Tower, M-1/6, Mirpur-14, Dhaka-1206. Mobile: 01936005804

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APPENDIX C

CONSENT FORM

Assalamualaikum. My name is Afzal Hossain Fahim. I am a student of Saic College of Medical Science and Technology, final year Bachelor of science in Physiotherapy Department. My Titled is, **"RESPIRATORY PROBLEMS AND RELATED FACTOES AMONG THE TRAFFIC POLICE IN DHAKA CITY"**

From **Saic College of Medical Science and Technology (SCMST)** under medicine faculty of university of Dhaka. I would like to know some information related to my study. This will take approximately 5-7 minutes. I need to meet you just once to collect entire information.

I would like to inform you that this is a purely academic study and obtain information will not be used for any other purpose. All information provided by you will be kept confidential and also source of information will remain anonymous, your participation in this study voluntarily and also the right not to answer a particular question that you don't like or do not want to answer during interview.

Do you have any question before I start?

So, may I have your consent to proceed with the interview?

Yes   □   No □

Signature of the Participant…………………………. Date…………………………

Signature of the Researcher…………………………. Date…………………………

Mobile Number……………………………………... ID No……………………….

Address……………………………………………………………………………….

Questionnaire (English)

Factors and Respiratory complications among the Traffic police in Dhaka city.

Code no:

Participant

Name:………………………………………………………………….

Address:

……………………………………………………………………………

……………………………………………………………………..……

……………………………………………..

Date: …………………………………………………………………………...

Mobile No: ………………………………………………………………………..

Section1:

Sociodemographic information (kindly enter the number in the blank space**).**

Q. N	Question	Answer
1	What is your age? (Years).	
2	What is your gender? Male Female	
3	Where do you live? Urban Semi urban	
4	What is your educational qualification? SSC HSC Undergraduate Graduate Post graduate	

5	Types your family? Nuclear Extended	
6	What is your religion? Muslim Hindu Buddhist Christian Others	

Section 2:

General health related information

Q.N	Question	Answer
1	Height of the participant. (feet)	
2	Weight of the participant. (kg)	
3	Do you have smoking habit? Yes No	
4	Are you suffering from any health problems? (kindly enter the number in the blank space). Diabetes mellitus Hypertension Asthma Cardiovascular disease Respiratory problem Lung cancer Neurological disease No known disease history	

question	Yes	No	N/A
Others			

Section 3:

Part:1 Respiratory complication related question

question	Yes	No	N/A
1.Do you suffer from coughing attack during the day?			
2.Because of your chest trouble do you often feel restless?			
3.Do you suffer from chest symptoms as a result of exposure or perfume?			
4.Do you feel breathlessness while trying to sleep?			
6.Because of your chest trouble do you suffer from breathlessness carrying out your activities of work?			
8.Because of your chest trouble do you feel breathlessness when you laugh?			
9.Do you have a feeling of chest havinesss?			

Part 2.

Please describe how often your respiratory problems have affected you over the past 4 weeks.

A. Over the past 4 weeks, I have coughed	
1.Almost every day 2.Several days 3.A week 4.A few days 5.Not at all	

B. Over the past 4 weeks, I have brought up phlegm (sputum)	

1. Almost every day 2.Several days 3. A week 4.A few days 5.Not at all	

C. Over the past 4 weeks, I have had shortness of breath
    1.Almost every day
    2.Several days
    3.a week
    4.A few days
  5. Not at all	

D. Over the past 4 weeks, in a typical week, how many good days (with few respiratory problems) have you had?
    1.. No good days
    2.1 or 2 good days
    3.3 or 4 good days
    4.Nearly every day is good
    5.Every day is good	

E. If you wheeze, is it worse when you get up in the morning?
    1. No
    2.Yes	

F. How would you describe your respiratory condition?	

1. The most important problem I have	
2. Causes me quite a lot of problems	
3. Causes me a few problems	
4. Causes me no problem	
5.Nothing matches me	

Part 3; Treatment related questions.

These are questions about your treatment and medication

No	QUESTION	RESPONSE
1	Do you take any treatment?	1= yes 2=No
2	Which type of treatment?	1=Medicine 2=Physiotherapy 3=Both medicine and physiotherapy 4=Surgery 5=Other

Those questions are about the benefit of your medicine. Please tick the answer that applies to you.

Questions	1.true	2.false
My treatment does not help me very much		
I have unpleasant side effects from my medication		
My treatment interferes with my life a lot		

Part 4. Psychological objectives

4.1. Psychological related Information.

	QUESTION	RESPONSE
1	Do you have any mental stress?	1=Yes 2=No
2	Are you tensed about anything?	1=Yes 2=No

Part 5. Environmental objectives.

5.1. Environment related question;

Question	1.yes	2.no
1.Do you think this environment is the cause of this respiratory complication.?		
2.Do you use any protection against the pollution during work.? (Like mask)		
3.Do you think this pollution leads you to lung cancer.?		
4.Do you think this pollution leads you to cardiovascular disease.?		

Appendix: IV   **Gantt Chart**

Activities/ Month	July 22	Aug 22	Sep 22	Oct 22	Nov 22	Dec 22	Jan 23	Feb 23	Mar 23	App 23	May 23	Jun 23
Proposal Presentation	██											
Introduction	██	██										
Literature Review	██	██	██	██	██	██	██	██	██	██	██	██
Methodology			██	██								
Data collection							██	██	██			
Data Analysis										██		
Result										██		
1st progress presentation										██		
Discussion											██	
Conclusion and Recommendation											██	
2nd progress presentation										██		
Communication with supervision	██	██	██	██	██	██	██	██	██	██	██	██
Final Submission												██