Effect of Air Pollution on Human Health Caused by Factories and Furnaces in Gujranwala City

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ABSTRACT

The main objectives of this study were to know the extent of knowledge of respondents about causes of air pollution, to assess the effects of air pollution on human health and to suggest measures to control the ill effects of air pollution. The study was under taken in three localities of Gujranwala city. One hundred respondents were selected through simple random sampling. An equal number of male and female respondents were included in the sample. Majority of the respondents said that factories and furnaces are discharging acidic gasses and black smoke with bad smell; the material is very harmful to human health, and they were suffering from throat disease, which caused fever especially in children. It was suggested that government should take necessary steps to control such causes leading to air pollution.

Key Word: Air pollution; Human health; Gujranawala

INTRODUCTION

Urban air pollutants have a wide range of effects, with health problems being the most enduring concern. In the classical polluted atmospheres filled with smoke and sulfur dioxide, a range of bronchial diseases averaged emerged. While respiratory diseases are still the principal problem, the issues are somewhat subtler in atmospheres where the air pollutants are not so obvious. High concentrations of carbon monoxide in cities where automobiles operate at high-density means that the human heart has to work harder to make up for the oxygen displaced from the blood and hemoglobin by carbon monoxide. This extra stress appears to reveal itself by increased incidence of complaints among people about heart problem. There is widespread belief that contemporary air pollutants are involved in increasing asthma and lead from automotive exhausts, is thought by many to be a factor in lowering the IQs of urban children

Environmental pollution in the major cities of Pakistan has reached alarming levels. Air pollution level in various cities of the country has either crossed safe limits or reached the threshold due to the presence of excessive suspended particulate matters (SPM) in the ambient air. According to an official Report of the Ministry of Environment, Local Government Agencies, major urban air pollutants include SPM, sulphur dioxide, carbonmonoxide, nitrogen dioxide, hydrocarbons and heavy metals (Anonymous, 2001).

Govt. of Pakistan (1983) pointed out the rapid industrialization, urbanization and mechanize transport that are undertaking new disturbing elements into environment. Khan (1997) reported that air pollution has effects on human health in many was short time pollution episode have numerous acute effects including and discomfort, burning eyes and throat, coughs, heart attacks and death in extreme cases-children and patients with heart and lungs disease particularly susceptible chronic effects are also possible. Bronchitis, persistent inflammation of the bronchi is characterized by a persistent cough, mucus build up and difficulty in breathing. He further concluded that domestic animals are affected by many air pollutants but the most noticeable impact of air pollution are on material such as rubbers, stone and paint, ozone, sulphur dioxide and sulfuric acid are the most damaging.

Gujranwala is located on the Grand Trunk Road, which is directly connected with major cities of Pakistan. It is an industrial and thickly populated city. Therefore, intensive investigation on air pollution is needed.

METHODOLOGY

The Universe and Sample. This study was conducted in Gujranwala city. Three areas were selected by purposive sampling techniuqe to constitute the universe for these investigations.
1.   Bahari Colony Sheikhupura Road,
2.   Shaheen Abad, and
3.   Changar Abadi Kotli Rustam Hafiz-a-Abad Road.

A sample of 100 male and female respondent was selected using the simple random sampling techniques. Statistical techniques were used according to data for interpretation.

RESULTS AND DISCUSSION

It is imperative to carry out detailed survey for findings facts and figures related to any social problem. Analysis of data leads to inferences without which no study is useful Generalization and conclusion are drawn on the basis of characteristics and attitude of respondents.

Socio-economic characteristics. Data presented in Table I reflect the age of the respondents. As seen in the table, that 47% of the respondents were of young age group i.e. (16-35) years, while 43% of the respondents were in middle age group i.e. 36-55 years. The remaining 10% were in old ago group i.e. 56 and above years. Data given in Table II show that less than one third i.e. 30% of respondents were illiterate. As regard to the level of Educational attainment 14% respondents were having informal education. Another 17% and 20% of respondent were up to primary and middle level, respectively. However, 9% of respondents were matric, while remaining 10% of respondents had education beyond level i.e. F.A. and above. Table III indicates that more than half i.e. 57% of respondents were in labour category, 20% of respondents were businesspersons, while 13% were Govt. employees. The table shows that majority of respondents belonged to poor class i.e. labours and factory workers and remaining other belonged to middle class.

Table IV depicts that less than one fourth i.e. 19% of respondents families had their monthly income from Rs. 3001 to 4000 and 9% of the respondents families had income from Rs. 4001 to 5000. More than half i.e. 60% respondents families had their monthly income less than Rs. 3000 per month and were living in hand to mouth conditions. While 12% respondents families had their monthly income from 5001 to 6000 and above.

Effect of air pollution on human health caused by factories and furnaces. Table V reveal that less than one half i.e. 42% of the respondents were facing the discharging material of furnace, that is gasses like acid black smoke and less than one third i.e. 31% respondents had to face the discharging material of foundries like liquid, solid and smoke wastage. While 27% were facing the discharging material of straw board mill bearing bad smell and smoke. To them that this material is very harmful to human health.

Table VI reveals that all the respondents had awareness about disease caused by air pollution. The table shows that less than half of respondents i.e. 46% suffered from throat disease which caused fever especially in children, while 30% had to face lungs disease like asthma and T.B. The remaining 20% had to face Eye burning and skin disease by material of factories and furnaces. All the respondent i.e. 100% said the there is no treatment plant in these factories/furnaces and to them these factories would be very dangerous in future.

Table VI shows that less than a half of respondents i.e. 40%, were aware of Malaria caused by solid waste, while more one third of respondents i.e. 35% had information about cholera. One fourth i.e. 25% respondents were also aware of typhoid caused by solid waste. Table VII reflects that majority of respondents, i.e. 62%, were feeling the taste of water as sweet, whereas 33% of the respondents felt light bitter. Only 5% were feeling it salty. Data given in above Table IX shows that more than a half of the respondents i.e. 53%, were using fresh water, to them, they if place the

Table I. Distribution of the respondents with regard to their age

Age categories (in years)	Frequency	Percentage
Young Age (16-35)	47	47.0
Middle age (36-55)	43	43.0
Old age (56 plus)	10	10.0
Total	100	100.0

Table II. Distribution of respondents with regard to their educational status

Educational status	Frequency	Percentage
Illiterate	30	30.0
1-4 years (Informal)	14	14.0
Primary	17	17.0
Middle	20	20.0
Matric	9	9.0
F.A.	6	6.0
B.A. and above	4	4.0
Total	100	100.0

Table III. Distribution of respondents with regard to their economic activity

Occupation	Frequency	Percentage
Labour	57	57.0
Factory workers	20	20.0
Business man	10	10.0
Govt. Employs	13	13.0
Total	100	100.0

Table IV. Distribution of respondents with regard to their monthly income

Monthly Income (Rs.)	Frequency	Percentage
Upto 3000	60	60.0
3001-4000	19	19.0
4001-5000	9	9.0
5001-6000	5	5.0
6001 Plus	7	7.0
Total	100	100.0

Table V. Distribution of respondents with regard to type of factories and their material creating air pollution

Type of factories and material furnaces	Frequency	Percentage
Gas like Acid and Smoke (foundries)	42	42.0
Liquid and solid waste	31	31.0
Straw Board Mill (Bad smell and smoke)	27	27.0
Total	100	100.0

Table VI. Distribution of respondents with regard to disease caused by material of factories/furnaces

Diseases	Frequency	Percentage
Lungs disease	34	34.0
Throat Disease	46	46.0
Any other	20	20.0
Total	100	100.0

water in a container or pot its colour changed into yellow, after some time, twenty seven of the respondents told that water had no color, whereas 13% respondents of the were felt in mix with silt. Seven per cent of the respondents were feeling the water rusty. Table X indicates that more than one third, i.e. 41.8%, of the respondents were aware of Jaundice caused by polluted water, while 35.1% of respondents had information about disease cholera. About 23% of respondent were aware of Hepatitis "B" and "C" caused by polluted water. Table XI describes that to more than one third, i.e. 37% of the respondents they wanted that factories and furnaces be shifted from their area. While more than a half i.e. 63% of respondents this problem can be solved by Government efforts.

CONCLUSIONS

Pollution in its various forms is increasing tremendously day by day so the main objective of the research was to check the ill effects of Air pollution on human health, which are creating different types of factories, iron foundries and furnaces in Gujranwala city. This study was carried out in three different localities of Gujranwala, where in first locality Bahari Colony where in furnaces, waste of insulation including rubber, plastic and PVC is being used to melt copper, brass and tubes of refigration and melting of lead soaked in Acid, on burning plastic and rubber with furnace oil make the atmosphere very dangerous for people of this area. All this process happened at night to avoid the law enforcing authority.

In second area which is situated near Gulshan Iqbal Park, in iron foundries iron is melted, which is scrape of every type of iron metal and summulged for Aghanstant, when this raw material is melted to mold it the molding parton sand mixed with molasses, these molasses gives fumes to air with hot and molten metal the atmosphere of these localities is spoiled by these molasses fumes, which had bad effect on respiratory system of people especially causing T.B. In third area straw board will was located near Hafizabad road locality around this will people were lady affected by smoke because when the digester of this mill open a storm of bad smell, smoke and Acidic gasses spread over this area time to time.

The factories and furnaces are creating air as well as land pollution by discharging black smoke, solid and liquid waste openly in streets and with this throat disease especially spreading in these areas. People who live in these areas were belong to poor class so they cannot protest against factories and furnaces owners because they have much resources to defend themselves against any legal activity. Government should take necessary steps to check and solve this environmental damaging problem.

Table VII. Distribution of respondents with regard to diseases caused by solid waste

Diseases due to solid waste	Frequency	Percentage
Typhoid	25	25.0
Cholera	35	35.0
Malaria	40	40.0
Total	100	100.0

Table VIII. Distribution of respondents with regard to taste of water

Taste of Drinking Water.	Frequency	Percentage
Sweet	62	62.0
Light Bitter	33	33.0
Salty	5	5.0
Total	100	100.0

Table IX. Distribution of respondents with regard to Color of Water

Color of drinking Water	Frequency	Percentage
Colourless	27	27.0
Silt	13	13.0
Rust	7	7.0
Any other	53	53.0
Total	100	100.0

Table X. Distribution of respondents with regard to disease caused by polluted water

Diseases	Frequency	Percentage
Cholera	31	41.8
Jaundice	26	35.1
Hepatitis	17	22.9
Total	74	100.0

Table XI. Distribution of respondents with regard to controlling Air pollution

Controlling of Air pollution Acting on	Frequency	Percentage
Govt. Act community efforts.	63	63.0
Community efforts	0	0
Any other	37	37.0
Total	100	100.0

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