Pakistan Journal of Applied Sciences 2(8): 822-825, 2002

Water Pollution and its Effects on Human Health in Rural Areas of Faisalabad

[1]Samina Farid, [2]Mehnaz Gul, [3]Asma Usman and [1]Khuram Iqbal
[1]Department of Rural Sociology, University of Agriculture, Faisalabad, Pakistan
[2]Social Psychologist Punjab University Lahore, Pakistan
[3]ISO Punjab Rural Support Program, Pakistan

Abstract: The present study was envisaged to assess the water pollution and its effects on human health in rural areas of Faisalabad. The study was conducted in three villages of Faisalabad district using simple random method. 150 respondents were selected from three villages (i.e. 50 from each village). The data were collected from the rural areas through well structured interviewing schedule by using face to face survey method. The collected data were analyzed by using appropriate statistical techniques.

Key Words: Water Pollution, Human Health, Rural Areas

Introduction

Comprising over 70 percent of the earth's surface, water is undoubtedly the most precious natural resource that exists on our planet. Without the seemingly invaluable compound comprised of hydrogen and oxygen, life on earth would be non-existent. It is essential for everything on our planet to grow and prosper. The pure water is prepared in the laboratories and its use is also restricted. Only 3.0 percent of the total quantity is potable water and 97.0 percent water is not fit for human consumption. Although we as human recognize this fact, we disregard it by polluting our rivers, lakes and oceans. Subsequently, we are slowly but surely harming our planet to the point where organisms are dying at a very alarming rate. Water pollution occurs when a body of water is adversely affected due to the addition of large amounts of materials to the water. When it is unfit for its intended use, water is considered polluted. In the third world, million of people obtain water for drinking and sanitation from unprotected streams and ponds that are contaminated with human waste. This type of contamination has been estimated to cause more than 3 million deaths annually from diarrhea in third world countries most of are children. (http://www.thinkquest.org/library)

People in Pakistan have miserable and serious problems of water pollution and its effect on human health. Main source of water pollution are domestic sewage. Industrial pollution means any matter which is being discharged in the air, water and soil unfavourably in the form of chemical, gases, toxic, material, industrial waste is noxious, impure injurious and detrimental to the health and safety.

Water pollution is associated with industrialization by municipal sewage and industrial wastes. Thus water coming out from factories has a variety of chemicals present in the textile waste water. The untreated waste water flows in the surrounding areas and water bodies, an thus causing serious health hazards for the human beings. The underground water gets polluted due to leakage of injurious chemicals and turn to be unfit for human consumption and agricultural use. When vegetables produced with such water are taken the raw from result in stomach disorder and consequently the human health is deteriorated. Land pollution, sullage water chemical and solid waste goes into soil through drainage and cause land pollution or soil pollution. Such soil becomes hard and causing low production and poor quality of vegetables and crops surrounding the industrial area. Only 3 percent of industries treat their wastes, while the rest discharge untreated effluent into river, lakes and sea.

In Pakistan, the problems of water pollution are also growing at an alarming rate. The phenomenal increase in country's population has brought unprecedented pressure on safe drinking water. Water born diseases account for 20 to 30 percent of all hospital cases and 60 percent of infant deaths in country. (Govt. of Pak, 1999-2000).

In rural areas water is either contaminated at the source or it is subjected to contamination during domestic storage. In order to improve human health and decrease infant mortality rates in rural as well as in urban area, it is need of the hour that this problem should be addressed of priority bases. Thus supply of safe drinking water is challenge for planners and rural masses. It is sad crucial fact that 1/4 of the total population of the world is deprived of the facility of the potable water. Requirement of the water per head per day is 150 to 200 liters.

Water borne bacteria cause many diseases like cholera, diarrhea, typhoid, dysentery, allergy, stomach problem, kidney cancer, tuberculosis, food poisoning, hepatitis and skin ailments. Sixty percent infant deaths occur in early ages at world level. Kids of age 5, years numbering 200,000 expire due to dysentery per annum. Overall 54 million people are seriously affected every year.

Clearly, the problems associated with water pollution have the capabilities to disrupt life on our planet. Water pollution, indeed, is a serious issue. But the government alone cannot solve the entire problem. It is ultimately up to us, to be informed, responsible and involved when Government comes to the problems, we face with our water. The main aim of the present study is to look into the reason of water pollution and its effect on human health.

Objectives: The specific objectives of the study were:

- To study the socio-economic characteristics of the respondents.

Table 1: Selected Village Profile

S.No.	Villages	Population	Education Facilities	Community Facilities	Distance from Faisalabad	Distance from Main Road
1	Chak 72-J.B. Gadhia	8328	Higher secondary school for Males and Females	Electricity Phone Mosque Dispensary	26 Km	6km
2	Chak 65-R.B. Lokay	4818	Primary school for boys and Girls	Electricity Phone Mosque Dispensary	29 Km	2km
3	Chak 75-R.B. Gujar Singh	6214	Government Middle school for girls, Primary school for boys	Electricity Phone Mosque Dispensary Pacca Road	32 Km	1 Km

- To examine the awareness knowledge of the respondents about the water pollution.
- To know about the various diseases caused by polluted water in rural areas.
- To find out the methods to control the effects of water pollution on human health.

Materials and Methods

The focus of present study was water pollution and its effects on human health in rural areas of Faisalabad. Therefore the universe selected for the study consisted of all villages in district Faisalabad. After this a list of all these villages was constructed then from this list three villages were selected i.e. Chak 72/G.B, Chak 65/R.B and Chak 75/R.B. from each village 50 respondents were taken by using sample random sampling method. The respondents were the head of the house hold. In the absence of these persons respondents were other family members which may be Males or Females.

Black (1981) pointed out that apart from the obvious morbidity and mortality and resultant burden on the health care system, many water borne infectious diseases adversely affect the growth and development of children in developing countries.

Haines (1981) concluded that increased discharges of domestic sewage, industrial wastes and organic matter is a major source of reduction of the oxygen content of the water, causing considerable damage to the living organisms. He also reported that such effluents cause serious health hazards to human health particularly in early life period.

Samdani *et al.*,: (1982) were of the opinion that industrial units while processing various raw materials often produce material which pollute surrounding environment, if proper control on their disposal is not exercised. Industrial units while processing various raw material, often produce material which pollute surrounding environment, if proper control on their disposal is not exercised industrial wastes are dumped or allowed to find their way into water and air as suspended or dissolved particles thereby causing pollution various liquids, salts, acids and gases etc. pollute water rendering it corrosive, impure and harmful for life.

Iqbal (1993) said that main source of water pollution are domestic sewage industrial wastes and agricultural pollutant etc. Among these sources industrial pollutants and domestic sewage played an important role in water pollution in rural areas. Regardless of the manners of population man's health is affected by polluted water either directly or through food or by the use of such water for the purpose of personal hygienic and recreation.

New York State Department of Health (1995) reported that protection of public health implies first that the treated water must be free of micro-organism capable of causing human diseases and second that the concentration of any chemical substance which were poisonous or otherwise harmful must be reduced to safe levels.

Hussain (2000) studied that water supply and sewerage system in most cities of Pakistan are neither sufficient nor adequate. Sewerage is usually carried in most of the town and cities by open surface flow drains, which ultimately discharge into a stream, river or sea effecting water.

Table 2: Association Between Age of The Respondents and Awareness About Water Pollution

Age (years)	Awareness about water pollution		Total (f / %)
	Yes (f / %)	No (f / %)	
(Less than 30)	58 (90.6)	6 (20.4)	64 (42.7)
(30-47)	43 (79.6)	11 (20.4)	54 (36.0)
(48 +)	25 (78.1)	7 (21.9)	32 (21.3)
Total	126 (84.0)	24 (16.0)	150 (100.0)

X^2 = 3.67925 d.f. = 2 Significance .1589

Table 2 Reveals: The value of X^2 shows a significant association between age and awareness of he respondents about water pollution.

Drinking water lines and sewage lines in most areas are laid side by side resulting in frequent contamination of potable water, pipes erode. Water pollution is also aggravated by the addition of untreated effluent i.e. from small scale cottage, used cutting oils from workshops, engine oil from automobile workshops and tonic or infections waste from hospital. On water domestic and industrial waste water which is a serious health hazard as it contains chromium.

Results and Discussion

With out interpretation and analysis of data collected no one can reach at any conclusion and generalization and hence research is on no use. This chapter deals with the interpretation and analysis of data collected.

Table 3: Association Between Education of The Respondents And Awareness About Water Pollution

Education of the respondent	Awareness about water pollution		Total (f / %)
	Yes (f / %)	No (f / %)	
Illiterate	36 (73.5)	13 (26.5)	49 (32.7)
Upto Primary	25 (80.6)	6 (19.4)	31 (20.7)
Upto Matric	65 (51.58)	5 (8.3)	70 (46.67)
Total	126 (84.0)	24 (16.0)	150 (100.0)

X^2 = 8.83137 d.f. = 2 Significance .0316

Table 3 Reveals: The Value of X^2 shows a significant association between education and awareness of the respondents about water pollution.

Table 4: Association Between Income of The Respondents and Awareness About Water Pollution

Income of the respondent (Rs.)	Awareness about water pollution		Total (f / %)
	Yes (f / %)	No (f / %)	
(Less than 3000)	62 (81.6)	14 (18.4)	76 (50.7)
(3001-5000)	47 (85.5)	8 (14.5)	55 (36.7)
(5001-7000) *25	17 (89.47)	2 (10.53)	19 (12.67)
Total	126 (84.0)	24 (16.0)	150 (100.0)

X^2 = 1.08760 d.f. = 2 Significance .7801

Table 4 Reveals: The value of X^2 shows a significant association between income and awareness of the respondents about water pollution.

Main Findings: On the basis of data following conclusions were made:

- A Major proportion of the respondents i.e. 43.3 percent were of age group 14-30 years.
- A Majority of the respondents i.e. 57.3 percent were males.
- A significant percentage of the respondents i.e. 32.0 percent were illiterate.
- Occupation of 33.3 percent of the respondents were housewife.
- A simple Majority of the respondents, i.e. 50.67 percent had monthly income less than 3000.
- A vast majority of the respondents i.e. 60.67 percent lived in joint family system.
- Majority of the respondents i.e. 58.70 percent had 1-3 male members. Majority of respondents i.e.50.0 had 1-3 female members.
- A major proportion of the respondents i.e. 49.3 percent had pacca houses.
- Majority of the respondents i.e. 51.30 percent had rooms between 1-2.
- All the respondents had the facility of water in their houses but 68.7 percent of the respondents were not using this water for drinking purpose.
- A significant majority i.e. 100.0 percent respondents reported that the taste of water was saltish.
- A Majority of the respondents 66.99 were not using their house water for drinking purpose, fetched water from hand pup and the water available in their houses, was colorless and had no smell.
- A Majority of the respondents i.e. 84.0 percent old that they were aware of water pollution.
- A Majority of the respondents i.e. 62.0 percent of the respondents replied that someone of their families was involved in cultivation of land.
- A simple majority of the respondents i.e. 53.8 percent were those who used the canal water for irrigation.
- Majority of the respondents i.e. 62.36 percent reported that if they use ground water then the nature of soil was disturb.
- A majority of the respondents i.e. 66.7 percent were that in their localities there was industrial units.
- Majority of the respondents i.e. 79.0 percent of the areas where there were industrial units reported that water was discharged from these units as a material wastage.
- Majority of the respondents i.e. 53.3 percent stated that there was a proper arrangement of industry wastage.
- A majority of the respondents i.e. 90.0 percent of the respondents told that industrial waste was not effecting their drinking water.
- A large majority of the respondents i.e. 87.3 percent told that there was not proper water disposal system.
- All the respondents i.e. 100.0 percent reported that their streets were cleaned irregularly.
- A large number of the respondents i.e. 81.3 percent told that in their areas the rain water remained in streets.
- A major proportion of the respondents i.e. 37.7 percent told that the rain water remained in streets

and was the cause of typhoid cholera and other diseases.

- A large majority of the respondents i.e. 88.7 percent stated that polluted water was a cause of many diseases.
- A vast majority of the respondents i.e. 94.0 percent told that there was no death any of their family member due to polluted water.
- A simple majority of the respondents i.e. 55.70 percent stated that they went to dispenser for treatment of diseases.
- A large majority of the respondents i.e. 80.7 percent had toilet facilities.
- A majority of the respondents i.e. 88.4 percent respondents that they threw their toilet water into drains.
- All the respondents i.e. 100.0 percent told that there was need to create awareness about water pollution.
- A large majority of the respondents i.e. 66.0 percent stated that government had played no role in creating awareness about water pollution.
- A majority of the respondents i.e. (54.9%) got awareness from the newspapers.
- A major proportion of the respondents i.e. 45.3 percent stated that there should be proper drainage system in their localities and streets should be cleaned.
- A majority of the guests of the respondents i.e. 40.60 percent, found the water was not good for health.
- A simple majority of the respondents i.e. 43.30 percent stated that they had no intention to migrate as a result of polluted water because of their financial problem.

Suggestions: Keeping in view the above mentioned salient features the following suggestions were formulated for interest of reader.

- Cleanliness is the key of good health. There should be proper arrangements of cleanliness in the rural areas.
- There is need to improve the condition of streets and water disposal system in rural areas.
- Industrial units must be legally bound to set up the treatment plants for liquid waste.
- Govt. should provide the facility of water supply in those areas where water is not fit for drinking purpose.
- Mass media can play a key role in order to create awareness among the public about the problems of water pollution.

References

Black, R.E., K.H. Brown and M. Younas, 1982. Longitudinal Studies of Infectious Diseases and Physical Growth of Children in Rural Bangladesh. Patrons of Morbidity. Am. J. Epidermal.:305-314.

Goode, T and H. Hatt, 1952. Research Techniques. The Uni. of Chicago Press, Chicago.

Haines, T.W., 1981. Industrial and Domestic Effluent and Living Organism. Public Health Reports, Washington, D.C, U.S.A.

Hussain, T., 2000. Environmental Hazards and Their Management. The Daily Newspaper "Dawn".

Iqbal, M.T., 1993. A Comparative Study of the Awareness of Rural and Urban Communities About Water Pollution and Effect on Health. M. Sc. Thesis, Department of Rural Sociology Uni. of Agri., Faisalabad.

New York State Department of Health, 1995. Manual of Instructions for Water Treatment, P.O. Box 7283 Albany, N.Y. 122, 100.

Samdani, G.M., 1982. Environmental Aspect in Pakistan. Environment and Urban Affairs, Division/Ministry of Housing and Works, Islamabad.