INTERNATIONAL JOURNAL OF AGRICULTURE & BIOLOGY
1560–8530/2003/05–4–460–462
http://www.ijab.org

Water Contamination, Health Hazards and Public Awareness: A Case of the Urban Punjab, Pakistan

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ABSTRACT

The rapid urbanization coupled with the industrial revolution has not only brought unprecedented changes and comforts in the human life styles but has also created a series of problems. Among these, the most prominent is the pollution hazards that have made almost every one familiar with the term environment. The pollution hazards are due to release of toxic substances into the environment which have subsequently damaged the life processes. This is a global issue now and Pakistan is not an exception. The cities, especially are facing serious problems including the environmental problems. This study was designed to provide an insight into the problem of water contamination and its effects on human health. Data was collected from Gujrat city which is a major industrial town of Punjab. A total of 150 respondents were interviewed from the three localities of the city. Chi square test was applied to examine the impact of water contamination upon the health of the respondents. The study found that young age respondents were having a very low level of awareness about the health hazards caused by contaminated water. Education was also significantly related with the level of awareness.

Key Words: Industrialization; Water; Contamination; Health; Awareness

INTRODUCTION

Water and human health are closely linked. According to a recent UNICEF report, about 800 million people in Asia and Africa are living without access to the safe drinking water and suffering from various diseases as a consequence of that. The report has further stated that situation will get worst in near future and developed nations will also face a serious crisis of water quality and scarcity. There is plenty of water on earth but unfortunately 97% is not fit for drinking or for agricultural purposes because of salt (sea water) or location (polar ice caps) (Zomer, 1998). Clean water supply improves health and decreases the disease burden from water-caused illness.

Pakistan is also facing serious problems regarding the quality and accessibility of water. UNICEF report (2002) has stated that Pakistan is currently facing an alarming situation regarding the supply and quality of drinking water. The report found that both ground and the under ground water reserves of Pakistan are rapidly being polluted by the industrial wastes, untreated sewerage and the agricultural wastes. These are creating serious health hazards for the public. According to Economic Survey of Pakistan (Government of Pakistan, 2002) about 40% of the total population is without access to the safe drinking water. Furthermore, about 60 % of infant deaths in Pakistan were being caused by water born diseases such as cholera, diarrhoea, and typhoid. The diseases not only bring social misery but also put extra economic burdens on the families and in this way are contributing towards the enhancement of poverty which is already at a very high level of 37% in Pakistan (World Bank, 2002).

This paper has focused on three aspects: the level of contamination of drinking water, the public awareness about water contamination, and the factors affecting the level of awareness about water contamination. It is assumed that this study will help in creating understanding about how the water quality can be checked through an increased level of public awareness.

MATERIALS AND METHODS

The study was conducted in Gujrat city. Gujrat is an industrial town. The water supplied by the Municipal committee was the main source of water in the city. Industry is scattered through out the city. Three localities were randomly selected for this purpose. A total of 150 respondents were interviewed by taking 50 respondents from each locality. Households were selected through systematic random sampling technique and male heads of the household were interviewed. Statistical techniques such as frequency distribution, cross tabulation were used to analyse the data. SPSS package was used for this purpose.

RESULTS AND DISCUSSION

The picture presented by the data was both interesting and informative. It not only offers academic aspects but also raises serious concern for the health care departments. The various aspects of the problem highlighted in the study are discussed here.

Background characteristics. Background characteristics of the respondents are of vital importance in any sociological study. They help greatly to develop an understanding of the socio physical environment of the target population which is important in suggesting any solutions to the problem under study. The huge majority (80%) of the respondents in this study

were having age up to 40 years. Furthermore, 82% were married and living in families of 5-11 people. The literacy figures were not very encouraging with 30% illiterate respondents. Another 20% were only having few years of schooling which is totally insufficient to create any impact upon the attitudes and opinions of the respondents. Only 24% reported that they have few years of college education. Respondents with a Masters degree were less than 3%. These figures from a major industrial town of the country were not at all up to any standard. More than 80% respondents were living in their own houses.

Water supply and storage. About 90% respondents reported that municipal water supply was the main source of water at their homes. It is interesting to know that 88% respondents reported to have a second source of water at their homes. This second source was the electric motors or the hand pumps. More than 60% reported to have proper storage systems. This was either a concrete or a fibreglass overhead water tank. More than 75% reported to perform a periodical cleaning of the storage tank.

Water quality and health. More than 60% respondents reported water as tasteless while another 20% reported water as saltish. Only 2.66% reported that water they use is sweet in taste. In addition to that all the respondents had some sort of complaint about the water. Regarding this, 27 % reported bad small while 28% reported suspended particles in the water. The rest of 45% reported that water changes the colour to yellow after some time. Furthermore, 62% reported that they were boiling or filtering the water before use. Ninety percent reported that they and their families had suffered from the water born diseases quite often.

Industrial wastes. All the localities, where this research was conducted were located near the industry. Regarding this, 82% reported that they were living very close to some industrial units. The rest of 18% were also not far from it. All the respondents mentioned that they were having the problem of industrial waste in their locality mainly because of the very poor disposal of the industrial waste. More than 74% reported that industrial waste was mixing with the water that was being supplied to them.

Water contamination and public awareness. The above paragraphs have highlighted different aspects of water contamination. These include the background characteristics of the respondents, the supply, storage and quality of the water and the impact of industrial waste upon the water. The data indicated that overwhelming majority of respondents were dependent on the Municipal water supply but unfortunately all were having problems with the water. Occurrence of water born diseases was also reported. In this alarming situation, the question arises that what was the level of public awareness about the problems being created by the water and what were the correlates of this awareness. The data exhibited the fact that in spite of facing many problems that originated from the quality of water, the public awareness was not very good. It was found that 33% were not aware at all of the fact that water is causing serious health problems for them. 49% exhibited a moderate level of awareness. These 49 % respondents were not concerned seriously about the health hazards but only about the quality of water. Only 18% respondents showed serious concern about the quality of water and its impact upon their health. This situation of public awareness raises serious questions about public safety and health. The bi variate analysis of data presented interesting picture. It was found that only age and educational level of respondents were significantly associated with their awareness about water quality and public health.

Age and public awareness. The relationship between age and public awareness is given in Table I.

Table I. Public awareness and age

Age group (in years)	Highly aware %	Moderately aware %	Low awareness %
Up to 30	11.1	37.8	61.2
31 – 40	66.7	40.5	20.4
41 – 50	18.5	13.5	10.2
51 – 60	3.7	8.1	8.2

Chi-square: 22.3; Significance: 0.001

Above table highlights the fact that a significant majority of respondents (66.7%) in the age group of 31 to 40 years were highly aware of the fact that water contamination causing/may cause very serious health problems. Similarly, the respondents who were moderately aware of the ill effects of water contamination belonged to the age group of up to 40 years. Furthermore, the majority of respondents (61.2%) with a very low level of awareness belonged to the age group of up to 30 years. All this suggests that people of age 31-40 years were having a better level of awareness as compared to other age groups. It means that younger age groups and older age groups were not concerned much about the health hazards caused by poor quality of water. This is quite alarming that younger residents of Gujrat who are supposed to have a better understanding of the happenings around were unaware of a big health hazard which can ultimately raise serious questions about their health and in this way may cease them to perform their productive role in the society.

Table II. Public awareness and education

Educational level	Highly aware %	Moderately aware %	Low awareness %
Illiterate	11.1	14.8	61.2
Middle	14.8	32.4	12.2
Matric	18.5	32.4	6.1
Up to graduation	55.6	13.5	20.4

Chi-square: 57.7; Significance: 0.000

Table II presents a very strong relationship between educational level and the awareness level of the respondents. Table clearly demonstrates the fact that education has clearly created a high level of awareness about the ill effects of water

up on the human health. This relationship strongly suggests that educated classes in the society may be involved to teach people about water contamination at various levels. On the other hand, efforts should be made to educate people about such issues.

IMPLICATIONS/CONCLUSIONS

This study has exhibited the fact that water contamination is presenting serious threats to the human health. The data indicated that water quality was absolutely unsatisfactory. It was further found that people were suffering from water born diseases quite often. The serious concern raised from the study was that people were not properly aware of the fact that how this contaminated water is going to affect their health. They were only aware of minor facts but were unable to conceptualise the whole situation in the broader perspective of their health. In other words, they were aware of the diseases occurring from time to time but they failed to asses the long term effects of this situation on the social, physical and economic health of their families. Since industry and residential areas are in close neighbourhood in all the major city of Pakistan, it is easy to say that a majority of all the urban residents in Pakistan are may be under the same threats to their health.

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(Received 11 July 2003; Accepted 15 August 2003)