WATER POLLUTION AND HUMAN HEALTH — AN ESTIMATION OF HEALTH SPENDING

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There is a trade off between economic development and environmental deterioration. Environmental pollution problems are, in fact, a necessary evil of modern industrial era and water pollution is one of them. A larger proportion of population is badly affected by water pollution. The municipally supplied water is generally blamed for its poor quality and held responsible for the wide spread occurrence of stomach ailments in the Faisalabad Metropolis. In the present study, a pioneering effort has been made to estimate the prevalence of water borne diseases and financial cost of polluted water use in Faisalabad city.

INTRODUCTION

The advancements in medicine and technology have improved the living standard of the masses which is reflected by a significant decline in the adult mortality rate and an increase in the life expectancy in many of the Asian countries (World Bank, 1985). However, improvements in the mortality situation have not kept pace with improvements in the health status of overall population. Pakistan is one of the few countries in the ESCAP region where infant mortality rate still exceeds 100 per thousand live births. Although, Pakistan is economically better off than its neighbours, it is still considered far behind in improving its overall health situation, judged on the basis of infant mortality rates and life expectancy. Historically, expenditure on health alongwith education sector has received low priority in Pakistan. At present, only 2.9% of the total Government expenditures constituting roughly 0.85% of GNP is allocated to Health sector (Anonymous, 1990-91). The poor health status of Pakistan's population is reflected in high infant mortality rate of 126 per 1000 live births and total fertility rate of 7 per woman in 1984. The scanty hospital data compiled by the government agencies show that many of the diseases treated there are caused by water-borne microbes indicating that a substantial proportion of morbidity in Pakistan is due to the use of polluted water. Gastrointestinal infections, resulting in diarrhoea, show high frequency among children as well as adults, accounting for about 25% of patients treated at hospitals and clinics (Karim, 1989).

Besides poor health status of population, the situation regarding the availability of health statistics in Pakistan is equally poor. No study has so far been conducted to assimilate information about the diseases caused by use of polluted water and associated costs. In the present study, a pioneering effort has been made to measure the prevalence of waterborne diseases and correlate the monthly income level and expenditure incurred on the treatment of waterborne diseases in the scenario of the use of polluted water by the human beings in Faisalabad city.

MATERIALS AND METHODS

A total of 232 samples of potable water

were collected at random from various colonies of Faisalabad city. Based upon the biochemical analysis of water samples, Faisalabad was divided into 5 zones, out of which two model zones were identified for detailed study.

Zone "P" comprises Gulistan Colony where the potable water, in general, is polluted and is, therefore, injurious for human health (P for polluted potable water).

Zone "S" refers to Mansoorabad and Abdullahpur - the colonies situated on the west bank of Rakh Branch Canal, where the potable water is unpolluted and safe for household consumption (S for safe potable water).

Having gathered the preliminary information about the quality of potable water, a comprehensive interview schedule was administered to 100 randomly selected households in each zone. The questionnaire was so designed as could permit the determination of prevalence of sickness during the reference period of past one month, the nature of the diseases, curative measures adopted and the expenses incurred on illness (especially on waterborne diseases).

RESULTS AND DISCUSSION

Prevalence of waterborne diseases: In zone "S", only 17.14% of the employed personnel (15-60 years) suffered from waterborne diseases, while in zone "P", the corresponding figure rose to 79.31%. However, the age specific morbidity pattern had the same trend in both the zones.

In zone "P", 68% of the unemployed persons were reported ill while in zone "S", only 26.6% fell sick due to waterborne diseases. The age specific morbidity pattern for the unemployed class took the form of U-shaped curve for zone "S", while in zone "P", waterborne disease prevalence was abnormally high for the ages between 45-64 years and thus an irregular curve was obtained for the people using polluted water.

In zone "P", 46.47% of the infants (<5 years) were reported ill while in school going ages (5-25 years), 41.07% of the individuals were reported ill, mainly because of waterborne diseases. Thus, on an average, 42.25% of the members of respondent families aged 0-25 years, suffered from waterborne diseases.
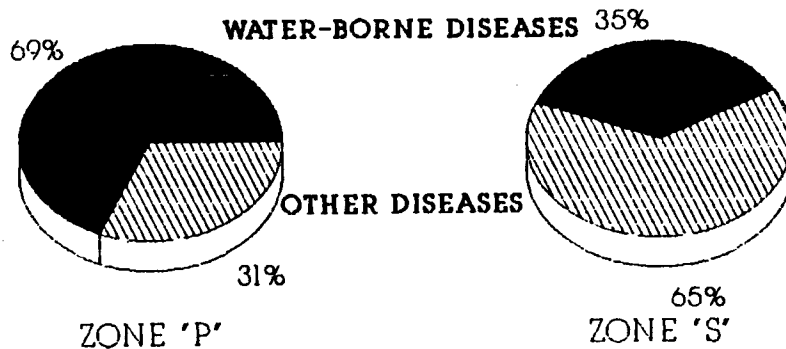

Fig. 1. Monthly health-care expenditure on the treatment of water borne and other diseases in zone "P" and "S".

In zone "S", 25% of the infants and 30% of the school going youth were reported ill with a cumulative average of 28% for these two categories. However, the age specific morbidity rates exhibited a U-shaped curve for both the zones, higher among children under 5, about half of that among children aged 5-14, then gradually increasing afterwards and reaching fairly high level at advanced ages.

Estimation of health spending: In zone "P", control treatment of waterborne diseases accounted for 69% of the monthly health care expenditure, while in zone "S", only 35% of monthly health care expenditure was incurred on the control and treatment of such diseases as shown in Fig. 1: In both the zones, the poorest spent substantially lower amount on treatment as compared to the affluent class. However, in both the zones, the low income households spent a higher percentage of monthly income than the affluent class on health care. The people consuming polluted water spent 7.64% of monthly income on treatment of waterborne diseases with 3.5% on other diseases, while those using unpolluted drinking water spent only 2.7% of their monthly income on treatment of waterborne diseases (with 4.9% on other diseases). Thus, the cost of using polluted water was about 5% of the monthly income. Moreover, the expenditure on the treatment of waterborne diseases was about two-thirds of the monthly health care budget for zone "P", while it was only about one-third for zone "S". These nearly contrary situations of health spending can only be explained in the scenario of the quality of potable water being consumed ˉby the households in the respective colonies.

Policy implications

1. A high degree of prevalence of water-borne diseases among the school going youth, employed personnel and unemployed persons calls for an immediate solution of the water pollution problem in Faisalabad city.

2. Water pollution is severely affecting the health of school going youth. Therefore, it is suggested that emergency arrangements be made to supply unpolluted drinking water to the educational institutions to save the future generations from the ill effects of waterborne diseases.

3. The use of polluted water extols 5% of the monthly income in the form of increased health care expenditure on waterborne diseases. As a social case, the, local government institutions like Faisalabad Municipal Corporation/Development Authority must take notice of the grim situation and either supply unpolluted drinking water or make compensation to adversely affected residents.

4. Supply of good quality potable water will spare about 5% of the monthly income which will reduce the financial strain on the urban dwellers and improve the standard of living of the people.

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