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Disease pattern, health services utilization and cost of treatment in Pakistan

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Abstract

Population based data on disease palterns, health services utilization and cost incurred on treatment in Pakistan were collected through a nation -wide sample survey In 1982-83. The survey for the first time revealed, the burden of disease on the society. The analysis done here suggest that about one-sixth of the population suffered from an illness during the past one month period. As expected, illness was more prevalent among children, women in reproductive ages and the elderly. Over two-thirds of those who fell ill, suffered from malaria and fever and one-fifth from diarrhoea and dysenteries. There was heavy reliance on private physicians for treatment of those who fell, about two- thirds in the urban and one-third in the rural areas, consulted private physicians. On the other hand, In both the areas, less than one-sixth utilized the government health facilities. The cost of health care on an average, was 4% of the total income In the urban and 5% in the rural areas. In both the areas, this constituted over 7% of the monthly household income of the poorest. Suggestions are made to overcome the high cost of health care through broad based national health policy and implementation of primary health care programme (JPMA 43:159,1993).

Introduction

In the second half of this century, the overall economic development and advancements in technology and medicine, have brought about improvements in the life styles of the people. This has resulted in substantial decline in mortality rate in most Countries in the developing world[1]. Declines in adult mortality, however, has not necessarily meant improvements in the health status of the population in many developing countries. In many of these countries, of those who are fortunate enough to survive and happen to be at the bottom of the ladder, in terms of social and economic status, a majority still does not enjoy better health care, neither in quality nor in quantity. While information on mortality in most of the developing countries are available[2] population based data on disease patterns and utilization of health services are rarely collected, which could provide avenues for monitoring progress toward health for All by the Year 2000. However; information available on health and other related indicators show a great deal of variation between these countries. For example, in the early 1980s, infant mortality rate in Pakistan was 28 percent higher than in India and over three times higher than in Sri Lanka and China, even though GNP per capita was higher in Pakistan as compared to all the three countries (Table I). Thus, Pakistan is one of the few countries in Asia, where the infant mortality rate still exceeds 100[1], which is likely due to lower source allocation to the health sector on the one hand and the general apathy towards development of any concrete health policy by the successive governments since Independence in 1947, on the other hand. Judged on the basis of infant mortality rate and life expectancy at birth, the overall health status of Pakistan's population appears to be poor. In the absence of any population based data, however, very little is known about the health status of the population in general and morbidity patterns in particular, in the country. Traditionally the indicators of morbidity in Pakistan have been based on statistics maintained at government hospitals and dispensaries. The scanty hospital based data compiled by the Government[3], as reported in Table II, however show, that many of the diseases treated there are caused by water borne parasites and viruses,

indicating that a substantial proportion of morbidity is due to communicable diseases.

Data and Methods

Realizing the general absence of population based morbidity data in Pakistan, the Federal Bureau of Statistics conducted a nation-wide sample survey, during 1982-83[4]. The survey, known as the National Health Survey (NFIS), involved a stratified probability design, aimed at representing the entire country's population. A total of 1400 primary sampling units (792 in rural and 608 in urban areas) were selected, in which about 11,000 households were interviewed. This survey, for the first time, provided base-line information on disease patterns in the country as a whole and for its urban and rural areas as well as the four provinces. To minimize the seasonal effects one-fourth of the sample was interviewed in each of the four rounds of data collection, which was started in the last quarter of 1982 and ended in the third quarter of 1983. The objectives of the survey were to determine the prevalence of sickness during the past month, the nature of diseases; curative measures undertaken, expenses incurred on illness and environmental effects on disease patterns. The survey utilized two questionnaires, the first obtained socioeconomic, demographic and health related information on all members of the sampled households as well as households' characteristics. The second concentrated on obtaining further information on those who were reported ill during the reference period of the past one month. Morbidity was defined quite strictly in the NI-IS. A person was classified as ill only if, during the past one month he or she was unable to take normal food and/or required bed rest for atleast 24 hours. Ordinary headaches were excluded and chronic diseases were included, irrespective of restricted activity. Interviews were conducted by non-medical persons and the information provided, were based on the perception of illness by the respondents as defined above.

Results and Discussions

When the definition of illness is based on the perception of the respondents as compared to the diagnosis by a trained health personnel, some of the diseases may remain un-reported, especially when interviewers are not familiar with the diseases and are also strangers to the respondents. Furthermore, when the interviewers as well as the respondents are males, the likelihood of under-reporting of females' illness also increases. On the other hand, those who are more concerned about their health, are more educated and wealthy, are likely to identify their illness more frequently than others. Although such biases are possible in population based studies, but data collected through such surveys remain quite valuable.

Morbidity Patterns and Differentials

The NHS reports, an overall morbidity rate of 171 per 1,000 population in the country, with substantial differentials reported by geographic areas.

Table I. Selected Economic, Health and Demographic Indicators Pakistan and Neighbouring Countries.

	Pakistan	India	Sri Lanka	China
GNP per capita (US$ 1983)	390	260	330	300
Federal Government's allocation to health (%)	1.1	2.2	3.3	NA
Expenditure on Health (% of GNP), 1982	0.2	0.9	1.7	1.4
Population per doctor 1980	3,480	3,690	7,170	1,740
Population per nurse 1980	13,350	5,460	1,340	1,710
Infant mortality rate (per 1000 live births) 1983	119	93	37	38
Life expectancy at birth 1983	50	55	69	67

Source: World Bank World Development Report 1983 New York, Oxford University Press, 1983: 174, 212, 218-220 and 224.

Table II. Percentage distribution of patients who received treatment at Government facilities.

Disease type	Percent
Gastrenteritus (including parasitic diseases)	13.0
Respiratory diseases	5.8
Tuberculosis (all forms)	4.4
Malaria	6.2
Fevers	5.1
Diseases of genito-urinary tract	12.6
Diseases of nervous system	2.6
Skin diseases	1.8
Diseases of bones, joints and muscles	2.0
Diseases of the eyes	9.9
Diseases of the ear, nose and throat	1.5
Dental diseases	1.1
Tumours (all forms)	1.2
Injuries (general and local)	10.9
Other diseases	20.4
Total	100.0

Data not available for Sindh Province.

Source: Government of Pakistan, Ministry of Health and Social Welfare (1983), Annual Report of the Director General Health - 1981-82. Biostatistics Section, Islamabad, 1983:61.

Table III. Morbidity rates per 1000 population by urban-rural areas and Provinces of Pakistan.

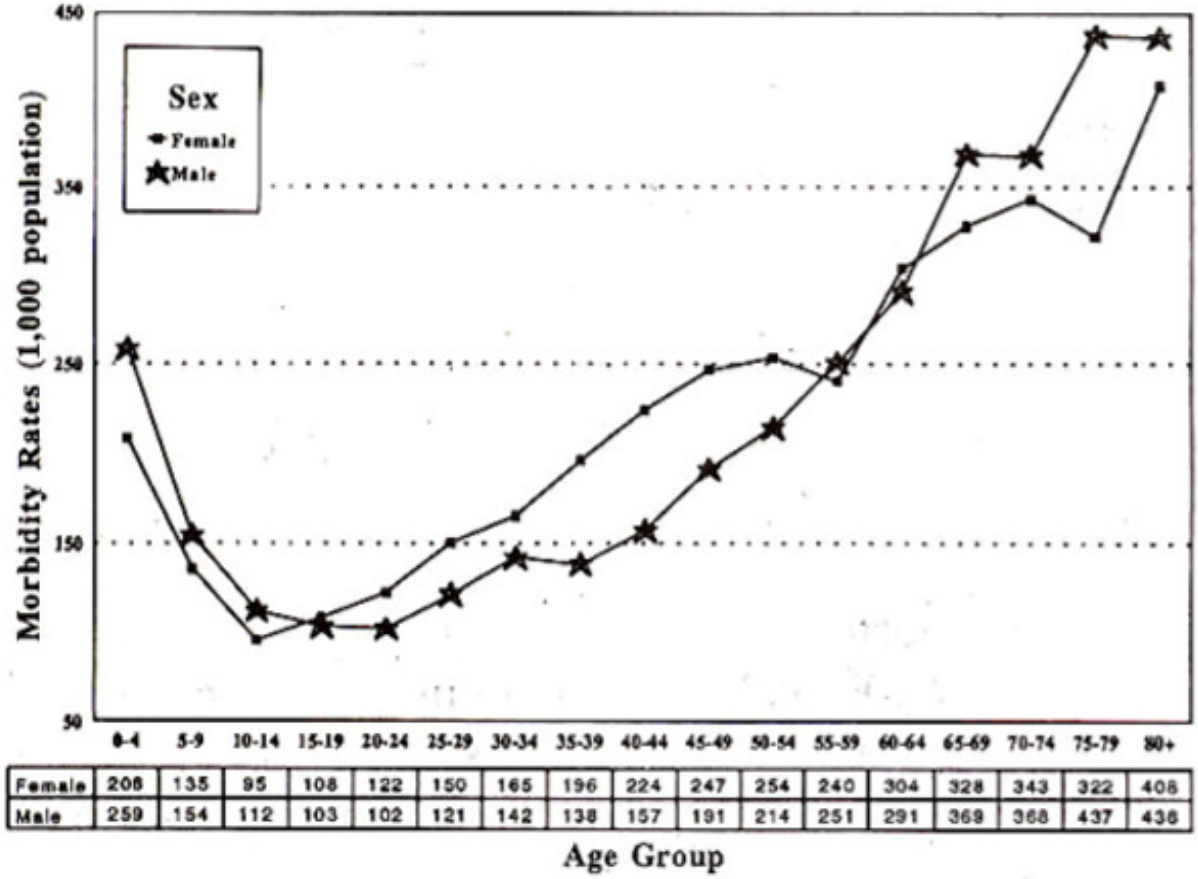
Province	Areas		
	Urban	Rural	All
Balochistan	85	102	99
NWFP	196	206	204
Punjab	145	188	177
Sindh	136	162	150
Pakistan	143	182	171

Source: Government of Pakistan, Statistics Division. National Health Survey 1982-83. Karachi: Federal Bureau of Statistics, 1986:13.

As shown in Table III, a higher morbidity rate was reported for the rural, than for the urban areas. These rates are however, substantially lower than the findings from surveys conducted in various areas of Pakistan. For example, in a study conducted in two communities of Karachi[5], morbidity rate of 400 per 1,000 population was reported for Orangi during the past 30 days, whereas in Karimabad, the rate was 285 per 1,000 during the past 15 days. Similarly unpublished data from surveys conducted by the Community Health Sciences Department of the Aga Khan University in rural areas of Gilgit (Northern Pakistan) and Thatta (Sindh) indicate morbidity rates of 270 per 1,000 in the former and 180 in the latter, during the past 15 days. In neighbouring India, a higher morbidity rate was also reported[6], where one in three persons fell ill annually with a similar rate for the rural and the urban areas. In the NHS, morbidity rates however, were found to be inversely related to the percentage of urban population in the three largest provinces. Sindh-43 percent urban-reported a morbidity rate of 150 per 1000, followed by Punjab-28 percent urban and morbidity rate of 177 per 1000- and North-West Frontier Province which is 15 percent urban, had a morbidity rate of 204 per 1000. This suggests, that comparatively, more illness is reported among the rural than among the urban residents. However, for Balochistan, the least developed and the smallest province - it contains 5 percent of the country's population and is only 15 percent of its population is urban - a morbidity rate of 99 per 1000 was reported. This could be perhaps due to the under-coverage of sampled households located in the rural areas of the province. Moreover, even in the urban areas of Balochistan, morbidity rate of 85 per 1000 was reported. It appears that due to field related problems in Balochistan, the data for the province are not reliable. However, since the province contains only 5 percent of the population of Pakistan, the national rate would not be much affected due to this discrepancy. Urban areas of Sindh, Punjab and North-West Frontier Province reported different morbidity rates of 136, 145 and 196 per 1000 respectively. Such differences may be due to the differentials in the levels of development, since the urban areas of Sindh and Punjab are relatively more developed than the urban areas of NWFP.

Age and Sex Differentials in Morbidity

A similar morbidity rate in the country is reported for males as well as females (172 and 171 per 1000 respectively) which is somewhat unusual since generally, illness is more common among females than males. In the urban areas, however, overall females morbidity rate is higher than among males (148 and 138 per 1000 respectively) in the rural areas a some what higher rate for males is reported. This could be likely due to the under-reporting of illness among females in the rural areas, since interviews were conducted by male interviewers, who were perhaps unable to obtain proper information about females, from male respondents. Major differences are found in morbidity rates by age, for each sex (Figure 1),



	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80+
Female	208	135	95	108	122	150	165	196	224	247	254	240	304	328	343	322	408
Male	259	154	112	103	102	121	142	138	157	191	214	251	291	369	368	437	436

Source: Government of Pakistan, Statistics Division, National Health Survey, 1982-83, Karachi: Federal Bureau of Statistics, 1986 : 75

Figure 1. Age and sex specific morbidity rates.

showing a J-shape curve, higher among children under 5, about half of that among children ages 5-14, gradually increasing afterwards and fairly high at older ages. As expected, the age pattern of morbidity is quite different among the males than the females. Morbidity rates among the males under 15, is higher than among their female counterparts, which may be a reflection of reporting biases. however, females in the child- bearing and post-menopausal age groups show higher morbidity rates, clearly as a consequence of successive child bearing and the burden of child care. Older men however, have higher morbidity rate than their female counterparts. This may be due to the post-retirement inactivity among The age pattern of morbidity (Figure 2)

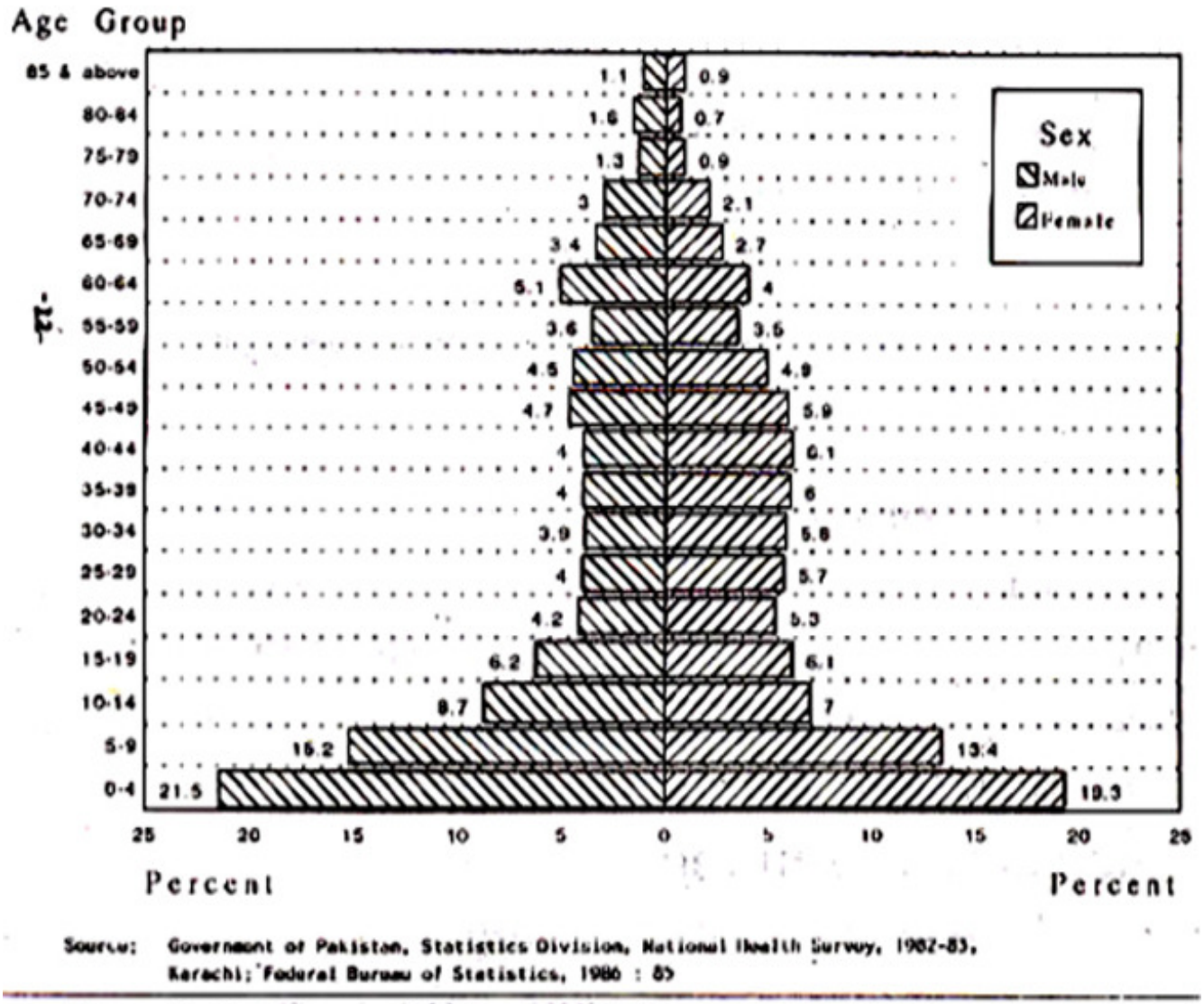


Figure 2. Percentage distribution of those reported ill by age and sex.

provides a clear indication of a higher prevalence of illness among children, especially those under five, who constitute one fifth of all those who fell ill. Among the males who fell ill, a slightly higher percentage were children than among the females. Although a similar age pattern of illness is noted among the females at younger ages, women in the reproductive ages are more prone to illness than the males, for the reasons described above.

Disease Patterns

The survey findings show a disease pattern in Pakistan, which is typical of many less developed countries. Of those reported ill, about two-thirds reportedly suffered from such major diseases as malaria/fever, gastrointestinal infections and respiratory infections (Table IV).

Table IV. Percentage distribution of those reported ill by major disease categories and sex by urban-rural residence.

Major diseases category	All areas		Urban		Rural	
	Male	Female	Male	Female	Male	Female
Infective disease common among children	3.2	3.0	3.3	3.2	3.2	2.9
Genital tract infections	0.4	1.7	0.5	1.1	0.4	2.0
Diarrhoea/dysenteries	21.5	18.9	26.1	21.3	19.2	18.2
All forms of tuberculosis	2.5	2.3	2.3	2.2	2.6	2.3
Malaria/fevers	41.1	39.6	32.7	30.8	43.5	42.4
Cardiovascular diseases	1.3	2.5	2.5	4.7	0.9	2.1
Diabetes	0.8	0.5	0.8	1.1	0.8	0.4
Deficiency disorders	0.5	0.5	0.8	0.8	0.4	0.5
Tumours	0.1	0.1	0.1	0.2	0.1	0.1
Pregnancy complications	-	2.2	-	3.0	-	2.0
Mental disorders	1.8	1.3	1.8	1.0	1.9	1.4
Diseases of eyes and ears	1.9	1.8	2.2	1.8	1.8	1.8
Other diseases (infective and non-infective)	24.9	25.3	25.3	29.2	24.7	23.9
Total	100.0	100.0	100.0	100.0	100.0	100.0

Source: Government of Pakistan, Statistics Division. National Health Survey 1982-83. Karachi: Federal Bureau of Statistics, 1986:22.

Malaria/fever seems to be more common among the rural population of Pakistan, where over two-fifths of those ill (as compared to about one-third in the urban areas), suffered from these diseases. Diarrhoea and dysenteries are the second major diseases affecting Pakistan's population, however, being more prevalent in the urban than in the rural areas. The diseases of affluence such as, hypertension, CVD and diabetes, on the other hand, are fairly less common even among the urban residents. This is contrary to the findings of a survey conducted in a middle income population of Karachi city, which showed hypertension, diabetes and CVD as commonly reported diseases among the residents of this community, as compared to those living in the low income areas[5]. Since a substantial proportion of the urban residents (one-third to one-hall) are rural migrants, or live under similar or worse environmental conditions than those living in the rural areas, they also have similar disease patterns. For example, unpublished data collected by the students of the Aga Khan University indicate, that in the squatter settlements of Karachi, of those reported ill, over one- fifth to one-third suffered from malaria, fever, diarrhoea and dysenteries as compared to about one-tenth reporting such diseases in the low-middle income area. On the other hand, in the former, while less than nine percent suffered from hypertension, diabetes and CVD, in the latter, 19 percent reported these diseases. Table IV, showing further breakdown of disease type by sex, for the urban and the rural areas of Pakistan suggests, sex as well as residential differences in the disease patterns. Hypertension, CVD or diabetes surprisingly, are more common among females than males. Although exact reasons for this are not known, but a higher rate reported for females could be possibly due to their living in seclusion and overcrowding within the house. Furthermore, as a consequence of frequent child bearing and the burden of child rearing, without the support of the extended family, as is available to the rural women, the urban women are more prone to such diseases. Further analysis of NHS data on age-specific disease patterns did not suggest any major differentials by age, in respiratory or gastrointestinalinfections. A similar percentage of children

suffering from diarrhoea and gastrointestinal infections as adult population, is however, surprising. Malaria/fever is more common among the paediatric population and as would be expected, hypertension, CVD and dithetes are somewhat more common at older ages.

Utilization of Health Facilities

Pakistan has only limited health manpower resources. In 1986, there were a total of about 28,650 doctors and about 7,900 nurses in the country, for an estimated population of 97.6 million[7]. Ironically, about 83 percent of doctors were located in the urban areas, which contained only 28 percent of the country's population. The urban population thus had over 10 times better, doctor to population ratio than the rural population. Similarly, most hospitals and health Even with the easy accessibility of the urban population to the government owned health facilities, their utilization by those who fell ill during the past one month, is far than adequate. In both the rural :and the urban areas, of those who fell ill, only about 4ie-sixth sought treatment at a government facility (Figure 3).

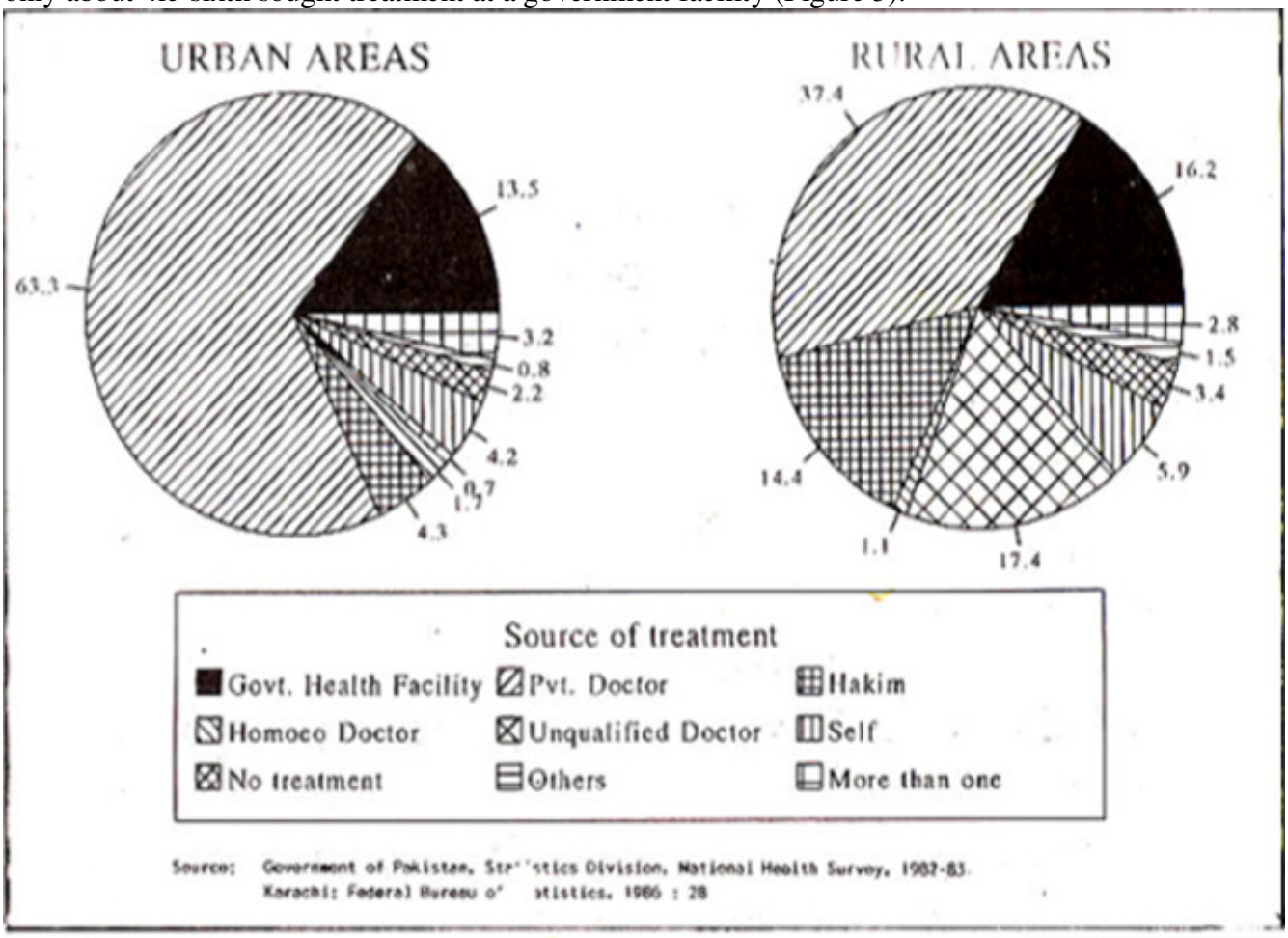


Figure 3. Percentage distribution of sick persons by source of treatment received and urban-rural residence.

While in the urban areas, about two-thirds of those who fell ill, were treated in a private facility, due to the severe shortage of qualified health personnel in the rural areas, about one-third of those who fell ill, consulted unqualified persons and another 14 percent were treated by traditional healers and hakims. However, in the urban areas, reliance on unqualified persons and hakims is much less. Those who seek treatment from them in the urban areas, perhaps belong to low income families and are thus unable to afford the high cost df treatment from the qualified doctors in the private sector.

Income Level and Cost of Treatment

Health status of a population is only partly determined by the health manpower availability and the

facilities available to the population. Type of facilities, socioeconomic status and cultural beliefs of the population, all are important. Moreover, in the absence of health insurance, income level and the cost of treatment also play crucial roles in the utilization of health services. The NHS reports an average household monthly income of Rs.1,768 in the urban and Rs.1,155 in the rural areas of Pakistan, each household supporting an average of 7 persons. Thus, families are left with only a small proportion of disposable income for health care espedaily a majority of the rural residents and those living in kachchi abadis and other poor urban localities, which are dominated by the rural migrants. At times the rural migrants to the urban areas are the worst sufferers. As a consequence of migration, the new arrivals to the city have to undergo changes in their lifestyle due to changed environmental conditions, poor housing, low nutrition status, changed occupations and high rate of unemployment. These migrants usually bring with them traditional health beliefs and several variants of parasites and at the same time, they usually have little resistance to the unfair urban environment. Especially women and children are under severe pressure, as they not only are more exposed to diseases but due to substantially low family income, are unable to meet the high cost of health care available in the private sector, especially when any hospitalization is required. Most of these families thus become highly vulnerable to poor health as a consequence of low income and poor living conditions. Since treatment at government owned facilities are either free or highly subsidized, the average cost of health care in Pakistan is low. However, since only a minority receives treatment at these facilities (as shown in Figure 3), the majority of those treated at privately owned facilities have to bear the cost of treatment themselves. Ironically, in urban areas, many of the upper and middle income groups (such as employees of large corporations, government officials and those workers covered under the social security schemes) are provided free medical coverage, while the concept of health coverage for the rest of the population barely exists. Most of those in low and lower middle income groups, have to pay their own medical bills. Thus, as pointed out by Zaidi[9], there is a clear bias in the provision of health care in favour of urban residents, specially those in the upper and the middle income categories.

Table V. Average household income and expenditure and percentage of income spent on treatment by urban-rural residence.

Income group (Rs.)	Percent of households	Average monthly income	Average monthly expenditure on treatment per household (Rs.)	Percent of monthly income spent on treatment
Urban				
500 or less	7.1	409	29	7.1
501-1000	33.9	801	40	5.0
1001-1500	19.9	1,286	64	5.0
1501-2000	14.7	1,800	90	5.0
2001-2500	7.5	2,290	96	4.2
2501 and above	16.9	4,590	149	3.2
Total	100.0	1,768	74	4.2
Rural				
500 or less	22.5	389	28	7.2
501-1000	44.2	752	47	6.3
1001-1500	16.8	1,250	68	5.4
1501-2000	7.7	1,776	95	5.3
2001-2500	3.4	2,295	103	4.5
2501 and above	5.4	5,745	211	3.7
Total	100.0	1,155	61	5.3

Source: Government of Pakistan, Statistics Division. National Health Servey 1982-83. Karachi: Federal Bureau of Statistics, 1986:82.

Table V indicates that on an average 4 to 5 percent of monthly household income is spent on health care by the households in the urban as well as the tural areas. Although breakdown of actual expenses are not available, but perhaps the rural population spends less on actual treatment than the urban population, since only 37 percent of the tural residents as compared to 63 percent of the urban residents, who fell ill sought treatment at private clinics or hospitals. The higher cost of treatment reported by the rural residents is perhaps due to extra expenditure by them on transportation to the health facilities, which are generally located at a distance mainly in urban areas. The NHS Report4 indicates that the rural residents have to travel considerable distance to reach a health facility (p 32). For example, after travelling for more than 10 kilometers, 70 percent reach a hospital, 56 percent a MCH centre, 36 percent a rural health centre and 25 percent a private clinic. Thus on an average, while the urban residents have a hospital within 4.3 kilometers, rural residents have one within 21.6 kilometers. Similarly the average distance to a dispensary is 1.7, residents have one within 21.6 kilometers. Similarly the average distance toadispensaryis 1.7 kilometers and to an MCH centre 2.5 kilometers for an urban resident. For a rural resident, on the other hand, a dispensary is located on an average, 10 kilometers away and an MCH centre 18 kilometers away. Table V further demonstrates that the poorest in both the urban and the rural areas, on an average, spend substantially lower amount on health care, as compared to the affluent. However, in both the areas, the poorest households spend a higher percentage of monthly income - about twice than the affluent - on health care. Furthermore, in

each income group, expenditure on treatment is about the same or little higher in the rural areas. As pointed out earlier, a lower expenditure by the urban residents could be either due to the location of health facilities close by, thus requiring little expenditure on transport, or reporting of only out of pocket expenses by those who are provided medical coverage by their employers.

Conclusions

On the basis of data available from the National Health Survey, the following specific conclusions can be drawn:

1. Most of those reported ill suffer from diseases which are preventable. In terms of the provision çor health care, there is a substantial imbalance between the rural and the urban areas, mostly in favour of the latter. However, it must be well understood, that it is not merely the mal-distribution of doctors and hospital beds in favour of urban areas that ensures better health of people, but it is more due to poverty, low literacy level and poor sanitation including unsafe drinking water which cause poor health. These are the salient features in the rural as well as in low income urban areas, which undermine the health of the population.

2. There is a substantially low utilization of government owned health facilities, with heavy reliance on the private sector. In the rural areas, due to the absence of Government health facilities and low quality of services -even where they exist - a substantial proportion of the population receives treatments from hakims and unqualified persons. Therefore, efforts are needed to provide proper services in the rural areas as well.

3. In the urban areas, due to the heavy reliance on the private sector, the cost of health care for the poor segment of the population is high. This suggests that there is demand for appropriate health services as well as the ability, even if constrained, among all segments of the population to pay the cost of health care. To streamline the demand and the paying capacity, Pakistan's health providers in the public and the private sector have to develop appropriate strategy to achieve health for all by the year 2000. This could only be done, if health care is acceptable and accessible to the masses and at the cost which they can afford.

4. If any improvements in the health system is aimed at, a broad based health infrastructure needs to be developed, through introducing appropriate preventive and curative intervention programmes. Following the WHO recommendations, in many developing countries, the approach has shifted towards the provision of Primary Health Care (PHC) through community health workers, who serve as back bone of the programme. Pakistan being a signatory of the. Alma Ata Declaration, made a commitment for Health for all by the Year 2000. This goal was to be achieved through the provision of primary health care activities in the Sixth Five Year Plan launched in 1986. However, the Government's primary health care activities have yet to be properly implemented.

5. Thus. If the Government and the health professionals are serious in improving the health status of the population in Pakistan, concerted efforts are needed to introduce broad-based health policy to suit the requirements of the country in general and the rural and deprived urban areas in particular. It is apparent that there is both demand for proper services as well as capacity to pay for it among the people.

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