Health for the Rural Masses

Insights from Chakaria

Edited by

Abbas Bhuiya

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Cover design
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Price: USD 25.00 (Outside Bangladesh)
        BDT 250.00 (Inside Bangladesh)

Dedication

To the villagers who struggle to make the most out of life and the unarmed well-intentioned Village Doctors who stand beside them.

Foreword

In many ways, the Chakaria *Upazila* has signaled a bright future for Bangladesh. The area is typical of rural Bangladesh, where the past decades have shown remarkable improvements in health conditions and fertility levels. Notwithstanding these advances, there remain enormous challenges of poverty, vulnerability to floods and cyclones, environmental poisoning, and a heavy burden of malnutrition and disease. The research in this volume provides new insights into how to address the continuing health problems of the population. The answer is not to simply do more of the same approaches that have been tried in the past, but to learn about health conditions and health services from the perspectives of ordinary people. This means understanding and influencing the market of health services that is actually operating in rural Bangladesh, rather than limiting our vision to an idealized but unrealistic plan that involves a small set of health providers.

The research described in this volume has similar objectives to research conducted by the seven partners of the Future Health Systems research consortium working in Afghanistan, Bangladesh, China, India, Nigeria, and Uganda. Working together and in their own countries, consortium members are seeking to generate knowledge about health systems that will benefit the world's poor. Finding ways to improve the delivery of health care, reduce the financial burden of health care, and develop policy processes to engage the poor are common themes. In each country, local stakeholders have helped to design the research along with research organizations to best address local priorities and interests.

ICDDR,B has had a close relationship with the people of Chakaria for the last 15 years, conducting community-based action research, demographic surveillance, and other health programs during this time. This has helped ICDDR,B to gain a deep understanding of the communities in Chakaria, which has helped them to identify the characteristics of health providers and community members concerning their health problems, care-seeking, and the financial implications of illness. In Chakaria, 96% of health care providers are not formally trained in medicine. The majority of households suffer substantial financial losses each year due to illness, with income losses due to chronic illnesses often playing a greater role than the direct costs of health care.

The messages emerging from this research are straightforward. To improve health care for ordinary Bangladeshis, you need to account for the health providers used by the people – predominantly village doctors and traditional birth attendants. The poor suffer significantly from poor quality of care and the high costs of health care and poorly treated illness. But expecting to reach the poor strictly through formally trained physicians will delay access to care. The research identifies opportunities for improving the quality of care on a wider scale, and addressing the economic consequences of illness. Using information about the health markets actually faced by the poor as an entry point, these opportunities involve bringing together key actors in the community, the private sector, and government. Working together, the prospects for improving the health and livelihoods of Bangladeshis shine even brighter.

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December 2008.

Acknowledgements

CONTENTS

Chapter 1
Introduction

Abbas Bhuiya

Background

Bangladesh is a country of approximately 150 million people with an area of 147,570 square kilometres. With per capita income of USD 463 in 2007, the country ranked 156th among the nations of the world (International Monetary Fund 2008). Forty percent of its population live below the poverty line (Bangladesh Bureau of Statistics 2008a). The literacy rate among people aged more than six years is 53%. The country is still rural with 70% of its population living in rural areas. Agriculture is the major means of living with 48.1% of the population aged above 15 years engaged in the agriculture sector (Bangladesh Bureau of Statistics 2008b). Forty percent of its population has inadequate consumption of food with average daily per capita intake of 2,239 kilocalories. Under nutrition among under-five children is still quite high with 36% stunted and 16% wasted (NIPORT, Mitra and Associates and MEASURE DHS Macro International 2007).

The population is young overall with 35.2% under the age of 15 years (UNDP 2007). The population growth has slowed down to 1.40% in the recent past from 2.33% in 1981 (Bangladesh Bureau of Statistics 2008c; Bangladesh Bureau of Statistics 2007). The total fertility rate has declined to 2.7 after a halt at 3.3 for nearly 10 years (NIPORT, Mitra and Associates and MEASURE DHS Macro International 2007). Life expectancy at birth was 65.4 years in 2006, a 16 year gain from 1980 (Bangladesh Bureau of Statistics

1 | Introduction

2007; World Bank 2003). Infant and childhood mortality though declining over the years, are still high at 52 per 1,000 live births and 14 per 1,000 children respectively (NIPORT, Mitra and Associates and MEASURE DHS Macro International 2007).

The country is subject to an array of natural disasters because of its location in the delta of the Bay of Bengal. The southern part of the country experiences cyclones, tidal surges, and flooding, causing loss of lives and properties. The north-west part of the country, on the other hand, experiences droughts which at times lead to a near famine situation. The low-lying plains in central Bangladesh are crisscrossed with rivers and are subject to moderate to severe monsoon flooding regularly. The country is also believed to be highly vulnerable to the consequences of climate change (Department of environment, UNDP and DFID 2007; Ministry of Environment and Forest 2005).

Despite all the challenges, in retrospect, Bangladesh has made tremendous progress in health improvement and population control during the last three decades. The life expectancy at birth has reached 65 years in 2006 from 49 years only 26 years ago (Bangladesh Bureau of Statistics 2008c; World Bank 2003). The infant mortality rate is now 52 per 1,000 live births which is less than half of the rate for 1981 (117 per 1,000 live births) (NIPORT, Mitra and Associates and MEASURE DHS Macro International 2007; Mitra *et al.* 1994). The decline has been faster in all age groups excepting the neonates. Sex differentials in mortality which was unfavourable to females has almost disappeared since the early nineties. Since then, females have a longer life expectancy at birth than males - a phenomenon common in developed countries. The nutritional status of children aged less than 5 years has also improved with a reduction in the proportion of under-nutrition from 35% in 1990 to 30% in 2004 (UNDP 2007; World Bank 2003). However, the prevalence of moderate malnutrition, in terms of percent underweight, among children is very high at 46.3% (Government of the People's Republic of Bangladesh 2007a).

The immunization coverage among children has increased from 2% in 1986 to 82% in 2007, an achievement quite often termed as a near miracle (NIPORT, Mitra and Associates and MEASURE DHS Macro International 2007; Chowdhury, Aziz and Bhuiya 1999). The use of ORS for managing diarrhoeal diseases among children is 81%, one of the highest in the world (NIPORT, Mitra and Associates and MEASURE DHS Macro International 2007; Larson *et al.* 2006; United Nations Children's Fund (UNICEF) 2005). The Total Fertility Rate has halved from 6.0 per woman in 1974 to 2.7 in 2004. Use of modern family planning methods among couples of reproductive age has increased to 48% in 2007 from 5% in 1975 (NIPORT, Mitra and Associates and MEASURE DHS Macro International 2007; Ministry of Health and Population Control 1978).

Improvement of the health and mortality situation has been possible due to successful implementation of large scale public health programmes, such as Expanded Programme for Immunization, availability of ORS, and countrywide woman-focused poverty alleviation programmes, especially microfinance and education. The health gain has been believed to be largest among females and the poorer section of the society, who have been the targets of pro-poor development programmes (Bhuiya *et al.* 2001). Yet, the inequities in health status among various socioeconomic groups persist (Bangladesh Health Watch 2007).

Over the years, the country has developed public sector health infrastructure with facilities at the Union, *Upazila*, District, Division and Capital levels. As of 2008, there were 1,399 and 413 facilities at Union and *Upazila* levels respectively, to provide primary care. The 59 district hospitals and two general hospitals provide secondary care in the country. There are 23 hospitals attached to medical colleges and universities to provide tertiary level care (Bangladesh Bureau of Statistics 2008c; Bangladesh Bureau of Statistics 2007; Government of the People's Republic of Bangladesh 2007b). These public health facilities are manned with 8,369 physicians (doctors and dentists), 25,699 paraprofessionals (medical assistants and health assistants), 14,971 nurses and 104,136 extension workers (Bangladesh Bureau of Statistics 2007;

1 | Introduction

Government of the People's Republic of Bangladesh 2007a). In addition, there has been a rapid growth of private sector hospitals and clinics and informal healthcare providers (Peters and Kayne 2003).

Building physical infrastructure in the public sector is one thing, and manning that infrastructure with professionals, supporting diagnostics, and ensuring quality healthcare services is another. The limited literature on the country's health system is replete with stories of inefficiency and failure to provide quality healthcare services to its people (Cockcroft, Milne and Anderson 2004) and the existence of a large informal healthcare sector with unknown quality of services (Bangladesh Health Watch 2008; Peters and Kayne 2003). Although the constitution of the country made health and access to healthcare one of the fundamental rights of its citizens, the country has been struggling to ensure health and provide healthcare services to its masses. At present, more than two thirds of the total expenditures on health are privately financed through out-of-pocket payments. Of the remaining one-third, about 60% are financed by the government and the other 40% are financed from international development assistance (Government of the People's Republic of Bangladesh 2007a). Provision of equitable quality health services for its citizens and making health systems function for all is one of the greatest challenges facing the nation.

A recent study revealed that Bangladesh has a serious shortage of health workforce, both in terms of absolute number and skill mix. It was estimated that the country has a shortage of 60,000 physicians, 280,000 nurses, and 483,000 technologists. Given the current level of production of the health workforce, it is highly unlikely that the country will ever meet its health workforce needs (Bangladesh Health Watch 2008). A natural response to the huge market of healthcare services and shortage of qualified providers is the large presence of informal healthcare providers constituting 95% of the workforce who are mostly unregulated (Bangladesh Health Watch 2008). This unregulated market makes the understanding of the existing health system hazy and actions to improve it difficult.

4

Bangladesh is undergoing a rapid social, economic, demographic, and epidemiologic transition. This has put the country in a situation with a high burden of infectious diseases on the one hand, and the emerging burden of non-communicable diseases on the other (Government of the People's Republic of Bangladesh 2008; World Health Organization 2008). The population in the rural areas are highly susceptible to arsenic induced health problems, as 29% of the tubewells used universally as a source of drinking water are heavily contaminated with arsenic (Khan *et al.* 2007; Leupin, Hug and Badruzzaman 2005). All the high-risk behaviours for HIV/AIDS are also present in the population and already there are indications of a concentrated epidemic among the high-risk groups making the entire population vulnerable to a potential epidemic (World Health Organization 2007). The situation of overcrowding with over 900 people per square kilometre, the rapidly increasing slum population, and the potential impacts of climate change on the health and well-being of the people may exceed any informed guesses currently made, for nowhere in the world has such a situation ever existed (Streatfield and Ahsan 2008; Bangladesh Bureau of Statistics 2008c; March 2004). While the health system is currently baffled with the large magnitude of the burden of communicable diseases, facing the emerging health threats is an enormous challenge for the nation in general and the health system in particular.

One important step towards providing health to the masses is to understand the health system in the country as it exists and the health seeking behaviour of the population, especially in the rural areas which constitute over 70% of the population. This understanding can help relevant parties to be better equipped to design effective policies and programmes now and in the future. It is against this background that this volume is written.

The data for this book came from the scoping studies carried out under the auspices of the Bangladesh component of the project entitled "Future Health Systems: Making Health Systems Work for the Poor" led by the editor of this volume. Data were collected during the first half of 2007 from the ICDDR,B field site in Chakaria *Upazila*, located in the southeast part of the country.

1 | Introduction

ICDDR,B has had a presence in some Unions of Chakaria through a community based health intervention project since 1994 and in addition it initiated a Health and Demographic Surveillance System (HDSS) in 1999. Chakaria HDSS is a member of INDEPTH (International Network of Demographic Evaluation of Population), a network of 40 sites in the world with the headquarter in Ghana.

Organization of the Book

The book is organized into eight chapters including this introduction. Chapter 2 presents the description of the area and its population from where the data for the book came. Chapter 3 and Chapter 4 are devoted to the inventory of health service facilities and characteristics of healthcare providers. Chapter 5, Chapter 6 and Chapter 7 deal with perceptions of the health problems and healthcare providers, health seeking behavior, and cost of healthcare respectively. Chapter 8 concludes the book with a summary and recommendations.

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Chapter 2
Study Area and the Population

S.M.A. Hanifi, Shahidul Hoque, Ariful Moula,
Rumesa Rowen Aziz

Abstract

Chakaria, the area from which data for this book was collected is a typical rural area in Bangladesh sharing socioeconomic and demographic characteristics of the low performing areas of rural Bangladesh. The area is situated in the south east coast of the Bay of Bengal. It is highly prone to cyclones and floods. The total fertility rate in Chakaria during 2007 was 3.5. The infant and under-five mortality rates during 2007 were 48.0 and 63.4 respectively. Infectious and non-infectious diseases comprised the major causes of death. Life expectancy at birth was 67.2 years for males and 69.7 years for females in 2007. Singulate mean age at marriage for male and female during 2007 was 27 years and 20 years respectively. Ninety percent of the population is Muslim and the rest are Hindus, Christians and Buddhists. Half of the population aged six years and above had been to schools. One tenth of the households owned either a radio or a TV. One fourth of the households had at least one NGO member. One third of the households had at least one member selling manual labour for making a living. 99% of households used tubewell water for drinking. Six percent of the households had no fixed place for defecation. The area is also characterised by the existence of socioeconomic inequities in various health indicators. Thus, the findings and conclusions derived from this area have relevance for other rural areas in the country.

Introduction

Data presented in this book come from eight of the 18 Unions of Chakaria *Upazila*. ICDDR,B started work in Chakaria in 1994 through its community development programme to promote self-help for health (Bhuiya, Ribaux and Eppler 2002). A sample-based health and demographic surveillance system (HDSS) has been operating in the project area since 1999. This chapter describes the

location of the area and selected health and socio-demographic characteristics of the study population based on the HDSS data sets. The Chakaria HDSS has been a member of the INDEPTH Network since 2007.

Geography of Chakaria

Chakaria is one of the 465 *Upazilas* (sub-districts) in Bangladesh. It is located between latitudes 21°34' North and 21°55' North, and longitudes 91°54' and 92°13' East on the southeastern coast of the Bay of Bengal. Administratively, it is under Cox's Bazar district with a population size of around 416,110 in 2007. The population density is 782 individuals per square kilometer. The highway from Chittagong to Cox's Bazar passes through Chakaria. The east side of Chakaria is hilly, while on the west side towards the Bay of Bengal, is lowland. A map showing the location of Chakaria and the study Unions is presented in figure 2.1. The climate of Chakaria from May to September is characterized by tropical monsoons and heavy rainfall, and it is mostly dry during the remainder of the year. The main economic activities in the area have been agriculture, forestry, and sea fishing.

Figure 2.1 Map of Chakaria
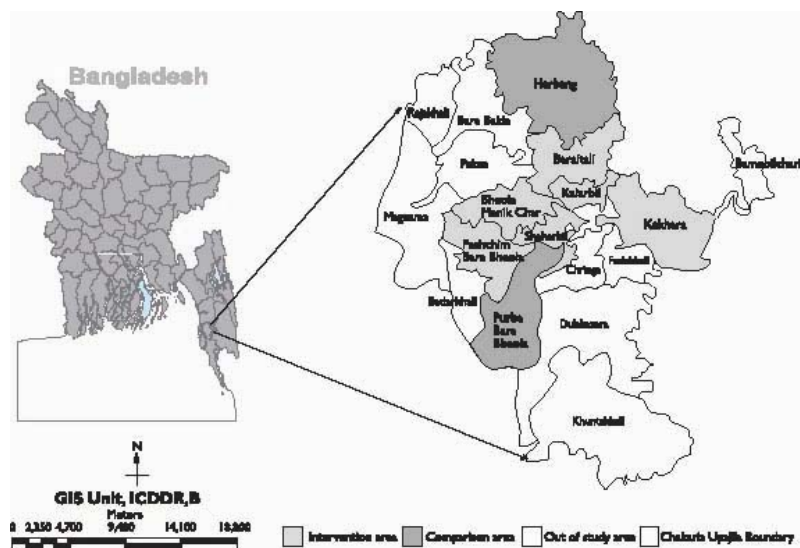
Socioeconomic Characteristics

The population of Chakaria is made up of mainly Muslims (89.9%) and a small number of Hindus (6.8%) and Buddhists (3.3%). *Bangalees* constitute 97.6% of the households, and the remainder is from an ethnic minority group called *Mogh (Rakhain)*. The main languages spoken are the local *Chittagonian* dialect and *Bangla*.

Around one-third (29%) of the population aged six years and above in 2007 had never attended school. Of those who had been to school, 86% attended secular schools, and 24% attended religious schools. Among the males aged six years or above, 30% were students, 24% day labourers, 11% farmers, 11% traders, 8% held jobs, and 9% were unemployed. A small proportion of males were self-employed, mostly in small trades. Among the females aged six years and above, 44% were housewives, 31% students, 21% unemployed, 3% day labourers, and 1% held jobs.

Seven percent of the households in the area were female-headed, and 93% were male-headed. Ninety-six percent of main earners were male. Eight percent of the households had a radio, 4% had a television, and 10% had electricity supply at home. Materials used in building dwellings included leaves, straw, polythene, corrugated tin, brick, and cement. Leaves were most commonly used for construction of roofs (37%), followed by tin (34%), straw (27%), cement (1%), and polythene (1%). About 26% of the households had family members who are members of an NGO (non-governmental organization). Thirty-six percent of the households had at least one member selling manual labour to make their living (Bhuiya, Hanifi and Mahmood 2006).

Six percent of the households did not have any fixed place for defaecation. Of those who had a fixed latrine, 22% had a ring slab or some kind of cemented latrine, and the remaining households had a fixed place without any protection against faecal contamination. Tubewell as a source of drinking water was almost universal with 99% of households reporting use of tubewell water for drinking. Forty percent of the households were using only

tubewell water for washing utensils, a similar proportion used either tubewell or surface water, and 21% only surface water. Ninety-three percent had at least one mosquito bed-net and 50% had two bed-nets (Bhuiya, Hanifi and Mahmood 2006).

Population and Population Changes

The population pyramid based on the sample households is presented in Figure 2.2. The shape of the pyramid is typical of a developing country with declining mortality and fertility. The sex ratio (males per 100 females) was 105 in 2007. The sex ratio was highest in the age group of 20-24 years among the under 50 years age-groups. Above 50 years, the sex ratio has shown an increasing trend for up to 60-64 years, after which the ratio declined (Figure. 2.2). The age-dependency ratio was 82 in 2007.

Figure 2.2 Male and female population by age and sex, Chakaria HDSS area, 2007
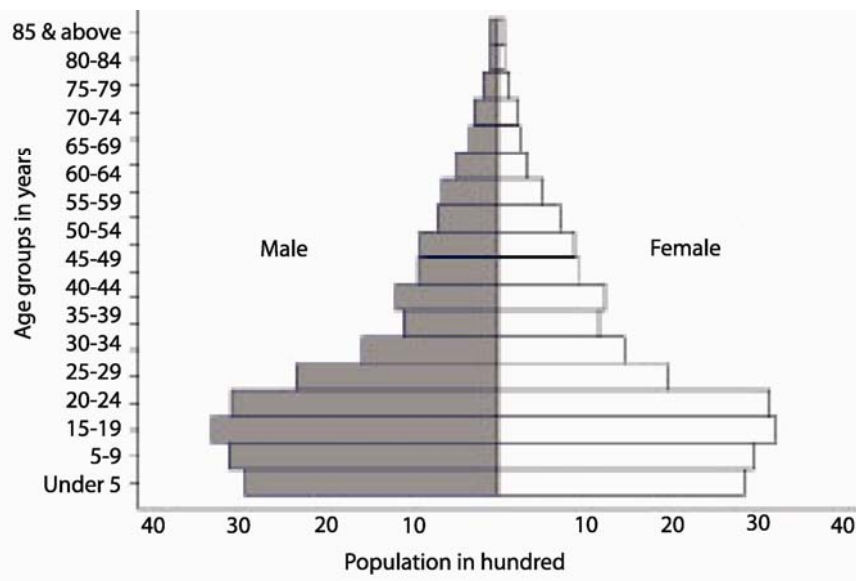
Mortality

The crude death rate in Chakaria was 6.0 per 1,000 population in 2007. The infant mortality rate of 48.0 per 1,000 live births has

declined sharply from 63.2 in 1999. The rate of mortality of children aged less than 5 years was 63.4 per 1,000 live births in 2007. Twenty-nine percent of all the deaths occurred before 5 years of age and 40% after the age of 60. Among the under-five deaths, 73% occurred during infancy (Bhuiya, Hanifi and Urni 2008; Bhuiya, Hanifi and Mahmood 2007; Bhuiya, Hanifi and Mahmood 2006). Socioeconomic inequalities existed in under-five mortality with an inverse relationship between mortality and household asset scores. The mortality rate of children from the lowest quintile was nearly twice that of children from the highest quintile. Gender-based inequalities in childhood mortality were absent during 2007.

Causes of Death

In terms of causes of death, Chakaria was similar to other rural areas, such as Matlab, which has somewhat comparable data (ICDDR,B 2008). Causes of death were recorded as reported by the informed household member during quarterly household visits for health and demographic surveillance. A physician classified the reported causes of death with medical synonyms. Table 2.1 presents distribution of deaths from various causes in the year 2004-2007. Asthma , neoplasm, respiratory infections, senility, stroke, various conditions during neonatal period, accidents, cardiovascular illness other than stroke and hypertension, diarrheal diseases and hepatitis were the 10 leading causes of death in Chakaria in 2007.

Table 2.1 Causes of Death, Chakaria HDSS, 2004-07

Rank	2004		2005		2006		2007	
	Cause	No. of deaths	Cause	No. of deaths	Cause	No. of deaths	Cause	No. of deaths
1	Respiratory infections	39	Stroke	29	Stroke	31	Asthma/ Bronchitis	30
2	Senility	30	Respiratory infections	28	Senility	28	Neoplasm (Benign and Malignant)	29
3	Asthma/ Bronchitis	26	Senility	28	Asthma/ Bronchitis	26	Respiratory infections	26
4	Neonatal (Premature and LBW, Birth asphyxia, Birth trauma, Sepsis and infection	17	Neoplasm (Benign and Malignant)	23	Respiratory infections	26	Senility	25
5	Diarrheal disease	15	Asthma/ Bronchitis	19	Neoplasm (Benign and Malignant)	21	Stroke	25

Table 2.1 Causes of Death, Chakaria HDSS, 2004-07 (Contd.)

Rank	2004		2005		2006		2007	
	Cause	No. of deaths	Cause	No. of deaths	Cause	No. of deaths	Cause	No. of deaths
6	Hepatitis	14	Neonatal (Premature and LBW, Birth asphyxia, Bone trauma, Sepsis and infection)	14	Neonatal (Premature and LBW, Birth asphyxia, Birth trauma, Sepsis and infection)	15	Neonatal (Premature and LBW, Birth asphyxia, Birth trauma, Sepsis and infection)	24
7	Neoplasm (Benign and Malignant)	14	Drowning	12	Drowning	11	Accident	16
8	Cardiovascular other than stroke and hypertension	14	Accident	10	Hepatitis	7	Cardiovascular other than stroke and hypertension	11
9	Stroke	12	Cardiovascular other than stroke and hypertension	8	Accident	6	Diarrheal Diseases	9

Table 2.1 Causes of Death, Chakaria HDSS, 2004-07 (Contd.)

Rank	2004		2005		2006		2007	
	Cause	No. of deaths	Cause	No. of deaths	Cause	No. of deaths	Cause	No. of deaths
10	Accident	11	Nutritional	7	Diarrheal diseases	6	Hepatitis	9
11	Malaria	8	Diarrheal diseases	6	Diabetes	3	Drowning	8
12	Drowning	8	Hepatitis	6	Hypertension	3	Nutritional diseases	5
13	Nutritional	7	Tuberculosis	4	Malaria	3	Diabetes	3
14	Homicide	7	Typhoid	4	Cardiovascular other than stroke and hypertension	3	Hypertension	3
15	Hypertension	6	Urinary	4	Urinary diseases	3	Urinary diseases	3
16	Diabetes	5	Rabies	3	Rabies	3	Epilepsy	2
17	Urinary diseases	5	Maternal death	3	Tuberculosis	3	Malaria	2

Table 2.1 Causes of Death, Chakaria HDSS, 2004-07 (Contd.)

Rank	2004		2005		2006		2007	
	Cause	No. of deaths	Cause	No. of deaths	Cause	No. of deaths	Cause	No. of deaths
18	Typhoid	2	Diabetes	3	Burn	2	Maternal death	2
19	Digestive disease	2	Hypertension	3	Digestive diseases	2	Suicide	2
20	Maternal death	1	Homicide	3	Nutritional diseases	2	Tuberculosis	2
21	Suicide	1	Burn	2	Congenital anomalies	1	Typhoid	2
22	Unknown	36	Malaria	1	Leprosy	1	Dysentery	1
23			Congenital anomalies	1	Tetanus	1	Digestive disease	1
24			Digestive disease	1	Unknown	42	Homicide	1
25			Suicide	1			Rabies	1
26			Snake bite	1			Unknown	32
27			Epilepsy	1				
			Unknown	46				
Total		280		271		249		274

Fertility

The fertility level in Chakaria, though declining, has been somewhat higher than the national level. The crude birth rate in 2007 was 26.6 per 1,000 population, which was higher than the rate in 2006 (25.6 per 1,000 population). Total fertility rates per woman showed a downward trend during 1999-2007, reaching a value of 3.5 in 2007. The age-specific fertility pattern has also been somewhat typical of Bangladesh (Figure 2.3) (NIPORT, Mitra and Associates and ORC Macro 2005). Socioeconomic inequality also existed in fertility with a 'U' shaped pattern (Table 2.2).

Figure 2.3 Age-specific fertility rate, Chakaria HDSS area, 2007
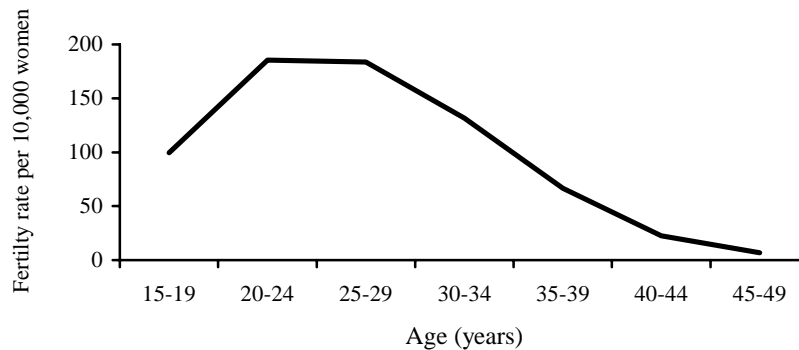
Table 2.2 Crude birth rates per 1,000 people by asset quintile, Chakaria HDSS, 2007

Asset quintile	Midyear population	Number of births	Birth rate
Lowest	8,085	210	26.0
Second	8,540	265	31.0
Medium	9,007	211	23.4
Fourth	9,465	236	24.9
Highest	10,238	286	27.9
All	45,335	1,208	26.6

Migration

The population of Chakaria is mobile with nearly 3% of the population moving in and out of the area annually. In 2007, the rate of out-migration and in-migration was 3.0% and 2.5% respectively. The migration rates are showing an increasing trend with more out-migration than in-migration. There was hardly any sex differential in migration. A marked seasonality has been observed in both in and out-migration. Migration was highest in January for both males and females. The overall migration rate is somewhat lower than other rural areas for which comparable data are available (ICDDR,B 2008).

Origin and Destination of Migrants

International migration has started to make its place in Chakaria. During 2007, 4.9% of 1,114 in-migrants were returnees from overseas countries and 12.5% of 1,442 out-migrants went out of Bangladesh. The proportion of international out-migrants was higher than the international returnees.

Reasons for Migration

Forty-four percent of the migrations were related to family reasons such as marriage/divorce and joining the family, followed by housing (33.5%), work (19.0%), and education (3%). Reasons for moving for males were different from those of females. 51.6% of male and 7.4% of female in-migrants moved into the HDSS area for work. On the other hand, 66.8% of female in-migrants moved due to family related issues - mostly marriage/divorce, while only 21.4% of males moved due to family related reasons. The reasons for movement for out-migration were similar to the reasons for in-migration (Table 2.3).

Table 2.3 Reasons for migration, Chakaria HDSS area, 2007

Reasons for migration	In-migration			Out-migration		
	Male	Female	Both	Male	Female	Both
Family-related	12.6	61.9	44.9	10.5	65.2	44.5
Housing-related	43.2	30.5	34.9	41.9	28.4	33.5
Work-related	35.4	3.5	14.5	43.5	4.0	19.0
Education related	8.7	4.1	5.7	4.1	2.4	3.0
Total	100.0	100.0	100.0	100.0	100.0	100.0
Total number of migrants	333	630	963	485	796	1,281

Marriage

In total, 819 marriages took place in the surveillance households in Chakaria during 2007. The highest number of marriages took place in the month of May and the lowest in October (Figure 2.4).

Figure 2.4 Marriages by month, Chakaria HDSS area, 2007
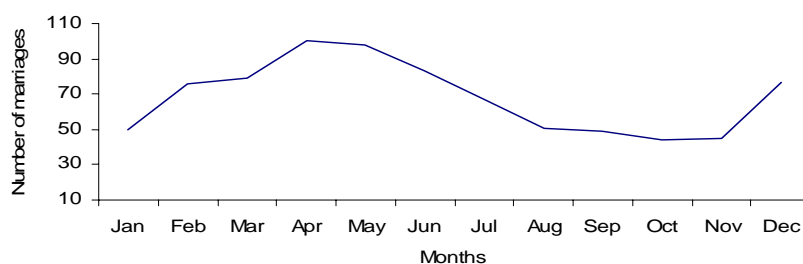
The singulate mean age at marriage (SMAM) was 27 years for males and 20 years for females in 2007. The SMAM remained the same as of 2006 for males and decreased for females. The median ages at first marriage were 27 years for males and 19 years for females. Both the singulate and median ages at marriage were positively associated with household socioeconomic status. The legal age of marriage is 18 years for females and 21 years for males in Bangladesh. In 2007, 43.2% of women got married before the age of 18 years. The percentage of under-age female marriage

has been showing a declining trend during 2004 to 2007. On the other hand, 25.6% of the males got married before the age of 21 years in 2007. The proportion of male marriages before 21 years remained static during 2004 to 2007 (Bhuiya, Hanifi and Urni 2008; Bhuiya, Hanifi and Mahmood 2007; Bhuiya, Hanifi and Mahmood 2006).

Child Nutrition

Data on nutritional status in Chakaria have been quite limited. Mid-upper arm circumference (MUAC) of children was collected in the HDSS area in 1994 and 1999. Table 2.4 presents distribution of children by their MUAC. According to the World Health Organization (WHO), children with MUAC less than 12.5 cm are considered severely malnourished. The proportion of severely malnourished children has decreased from 32.3% in 1994 to 24.0% in 1999.

Table 2.4. Distribution of MUAC of children aged 6-23, Chakaria, 1994 and 1999

MUAC (cm)	Year	
	1994 (%)	1999 (%)
<12.5	32.3	24.0
12.5 - 13.4	26.0	37.5
13.5 +	41.7	38.5
Mean	13.1	13.2
Standard deviation	1.5	1.2
Total number of children (N)	2116	6707

Findings from the census carried out in the Chakaria study area by ICDDR,B in 1999 indicated that the proportion of severely malnourished children was markedly higher among girls compared to boys. Data also indicated that a child's nutritional status in Chakaria was inversely related to the child's household economic status. The proportion of malnourished children decreased with increasing economic status (Figure 2.5).

21

Figure 2.5 Proportion of children aged 6-23 months severely malnourished (MUAC<12.5 cm) by asset quintiles, Chakaria HDSS area, 1999
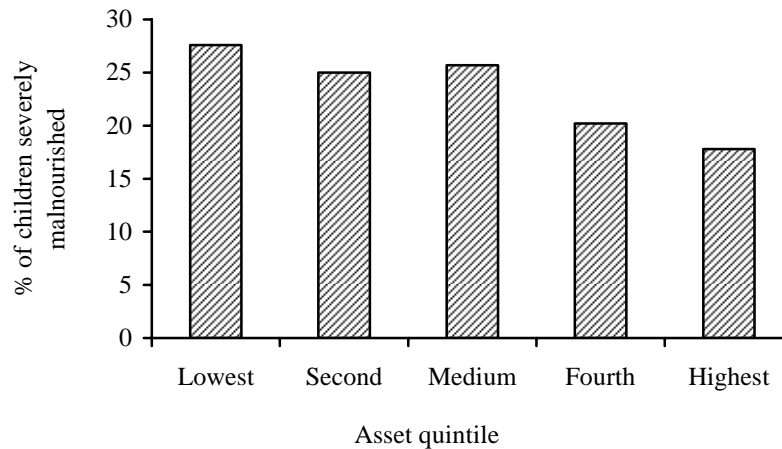
Morbidity, Injury and Accident

Disability

Vision Problem

A survey conducted in a village of Chakaria in 2007 showed that 65% of the people aged 40 years and above have vision problems, both short and long distance. These vision problems were identified by an ophthalmologist. The proportion of people having vision problems increased with age (Table 2.5).

Table 2.5 Proportion of people having vision problems by age in a village in Chakaria, HDSS area, 2007

Age group (years)	% with vision problem	N
40-49	47.4	76
50-59	62.5	40
60 and above	85.1	67
All	64.5	183

Rickets

There are many cases of nutritional rickets in Chakaria. The Social Assistance and Rehabilitation for the Physically Vulnerable (SARV), an NGO, identified a high prevalence of leg deformities in this area after the cyclone of 1991. The oldest cases were 27 years of age. Rickets can produce severe deformities of legs, and many children become disabled when no treatment is given. It is uncommon to find rickets in such a sunny country like Bangladesh as the sun allows vitamin D production in the human body. The main cause of rickets in this region is not vitamin D deficiency, but dietary calcium deficiency. The prevalence of rickets deformities in the Cox's bazaar district was about 0.9% in 1999 (Karim, Chowdhury and Gani 2003). Lack of calcium in vegetables, consumption of big fish instead of small fish (eaten with bones), and low consumption of milk are considered to be the main causes of rickets in Chakaria.

Discussion

The study area, located in a remote coastal area in the eastern part of Bangladesh, shares the socioeconomic, demographic and health characteristics of an area which lags behind the rest of the country in terms of health and development indicators. The scenario in terms of healthcare provision is comparable to the national scenario, where the common health systems challenges facing the nation in general and the rural areas in particular are present. The area has some unique features such as malaria endemicity, prevalence of rickets, vulnerability to cyclones and tidal surges and other issues related to climate change. The area also has a relatively lower concentration of NGOs compared to rest of the country.

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2 | Study Area and the Population

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Chapter 3
Inventory of Health Facilities and Healthcare Providers

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Abstract

The findings in this chapter help assess the availability and accessibility of the health workforce and formal health care facilities in Chakaria. All of the health facilities and healthcare providers practicing in the 18 unions and the municipality area of Chakaria *Upazila* in 2007 have been listed. The facilities in Chakaria are comprised of government and private hospitals/clinics, private chambers of MBBS doctors, dentists, diagnostic centres, and allopathic and homoeopathic pharmacies. Of the 161 facilities, the most dominant was the pharmacies/drugstores. The Upazila Health Complex is the only government facility in the area and there are 3 private sector hospitals. In total, there are 2564 health care providers practicing in Chakaria. Of them, 4% are working in the formal sector mostly with the public sector and a small proportion is working in the NGO sector. The fact that only 110 formally trained healthcare providers were available for health services to a population of 560,000 clearly indicated an acute shortage of qualified providers. Adjustment for the part-time presence of the guest physicians leads to 1.1 physicians per 10,000 population. This density is far short of WHO estimates of the 960 needed to achieve the MDG goals by 2015. There were only 8 nurses in Chakaria. This number is also far short of the recommended ratio of three nurses for one physician. The other important issue is the physical access to the available physicians and professionals as they are mostly based at the *Upazila* headquarters. Given the economic condition of the villagers and the direct and indirect costs involved in visiting a healthcare provider, access to modern health services is a major challenge for villagers in general and for the poor and women in particular.

Introduction

This chapter gives an inventory of health facilities and healthcare providers in the Chakaria *Upazila* from information collected in

2007. The health facilities surveyed included fixed public and private infrastructure with in-patient and out-patient healthcare and outreach services. The healthcare providers included any individuals involved in providing healthcare of any kind for cure and healing. Data presented in this chapter are intended to portray the health service delivery system and the density of the available health facilities and providers in the *Upazila*. Findings will be helpful to assess the nature of healthcare provision and estimate shortfalls and/or adequacies in the availability of health facilities and providers which may be helpful to project future requirements for meeting the health needs of the population.

Methodology

Listing and Mapping Health Facilities

All of the health facilities and healthcare providers practicing in the 18 Unions and the municipality area of Chakaria *Upazila* were listed and located on the map of the *Upazila*. A total of 18 data collectors with at least 12 years of schooling were recruited and trained on listing procedures. Data collectors were supervised by three field research officers from the Chakaria Community Health Project of ICDDR,B. The listing and mapping activities were done during March 2007. Interviewers visited each of the villages of Chakaria *Upazila* and the municipality area and listed all of the existing health facilities and healthcare providers. Geographical coordinates for all the facilities and providers were also collected. Locations of the facilities and providers were marked in the *Upazila* map by using their GPS coordinates.

After completing the list, it was cross-checked with a list of healthcare facilities that was collected from government and NGO offices in Chakaria. Additional information such as services available and the costs of services were obtained from the providers in the case of individual providers and administration offices in the case of healthcare facilities. In addition to GPS coordinates, the members of the project staff collected information about the road distance between the approximate centre point of

the Union and the location of the administrative headquarters of the *Upazila,* modes of transport available and cost of availing such transport.

Findings

The findings are presented in two parts. The first part contains descriptions of the health facilities and the providers available in the municipality area and the second part contains information from outside the municipal area as of 2007.

Health Facilities

Chakaria *Upazila* comprises of a municipality and Unions. Unions and municipalities are lowest level of civil administration for rural and urban areas respectively. Chakaria municipality area came into existence in 1994 covering an area of 15.4 square km with a population of approximately 85,000. Table 3.1 presents the number of fixed health service facilities located within the municipality area in 2007. The facilities are comprised of government and private hospitals/clinics, private chambers of MBBS doctors, dentists, diagnostic centres, allopathic, and homoeopathic pharmacies. Of the 161 facilities, the most dominant was pharmacies/drugstores (76), followed by private chambers of physicians (37), homoeopathic healthcare provider cum homoeopathic drugstores (18), diagnostic centres (18), chambers of dentists (7) and hospitals/clinics (5) with in-patient services.

Of the facilities with in-patient facilities, only the Upazila Health Complex (UHC) was a government facility. The UHC was established in 1973 with a thirty one bed hospital and out-patient services. It also has maternal and child health service provision with an operation theatre for sterilization and insertion of IUD to control fertility. In 2007 the UHC had 11 physicians, four nursing staff and three paramedics and one laboratory technician. In the same year the hospital served about 115,000 out-patients and 17,000 in-patients. The family planning services provided from the UHC during 2007 included female and male sterilization, pills,

injectable contraceptives, condoms and hormonal implants either free or with nominal prices.

The private sector hospitals situated in the municipality area included Zam Zam hospital, Life Centre Hospital and Maa-Shishu General Hospital. These three hospitals were established in 1997, 2005 and 2007 respectively. Zam Zam treated the highest number of patients in 2007 while Maa-Shishu General Hospital treated the lowest number of patients.

Health services were also provided by one NGO clinic and 37 private chambers attended by physicians. In addition, there were seven private chambers to provide dental services by dentists with diploma in dentistry. There were 18 diagnostic centres providing various pathological and biochemical laboratory services.

Table 3.1 Health facilities available in the Chakaria municipality area, 2007

Health facilities (municipality area)	No.	Type	Year started	Patients served	
				Out-patients	In-patients
Served by graduate doctors					
Upazila Health Complex	1	Govern-ment	1973	114,575	16,734
Zam Zam Private Hospital	1	Private	1997	19,982	3,361
Life Centre Hospital	1	Private	2005	7,200	250
Maa-Shishu General Hospital	1	Private	2007	2,640	602
SARPV clinic	1	NGO			
MBBS private chamber	37	Private			
Served by trained healthcare personnel					
Diploma Dentists' chamber	7	Private			

Health facilities (municipality area)	No.	Type	Year started	Patients served	
				Out-patients	In-patients
Diagnostic Centres	17	Private			
ICDDR,B Diagnostics Centre	1	NGO (discontinued since 2007)			
Served by untrained healthcare providers					
Allopathic pharmacy	76	Private			
Homeopathic pharmacy	18	Private			

Table 3.2 presents the type and number of health facilities that existed outside the municipality area in 2007. Christian Missionary Hospital is the only hospital located outside the municipality area. This was established in 1966 mainly for providing orthopedic healthcare. With time it has expanded its scope of services and now provides maternity services with the provision of caesarean section. In 2007, the hospital had 68 beds with one physician, nine nurses, 22 nursing aids and 18 paramedics to provide services. The hospital is on 45 acres of land with guesthouse facilities, a pharmacy, and a diagnostic laboratory. During 2007, it served about 3,300 patients through its in-patient department and 32,000 through its out-patient services. Of the in-patient services there were 614 normal deliveries and 229 cesarean sections that were conducted during 2007. The range of cost for out-patient services in the Christian Missionary Hospital was Tk. 50-110 (registration fee) and Tk. 50-60 (consultation fee). The patients were also charged for diagnostic tests and drugs. The cost of C-Sections including hospital stay and drug ranged from Tk. 15,000 to 25,000 and cost of a normal delivery ranged from Tk. 2,000 to 2,500.

Table 3.2 Types of health facilities outside the municipality area of Chakaria

Health facilities (non-municipality area)	No.	Type of Organization	Year estab-lished	Patients served (2007)	
				Out patients	In patients
Served by graduate doctors					
Missionary Christian Hospital	1	Missionary	1966	32,377	3,333
Village Health Post	7	Community	2000	9,531	-
MBBS private chamber	6	Private		NA[*]	-
Served by trained healthcare personnel					-
Rural Dispensary	2	Government		48,553	-
Family Welfare Centre (FWC)	13	Government		96,533	-
Satellite clinic	96	Government		52,096	-
NGO satellite clinic	21	NGO		NA[*]	-
SBA satellite clinic	3	Private		NA[*]	-
Diploma Dentists' chamber	1	Private		NA[*]	-
Served by untrained healthcare providers					-
Allopathic pharmacy	297	Private		NA[*]	-
Homeopathic pharmacy	62	Private			-

*not available

The rest of the facilities outside the municipality included consultation services by physicians, paraprofessionals, and dispensaries/pharmacies run by the private and public sectors

including NGOs and community initiatives. The facilities varied widely in terms of scope of services, type of healthcare providers, hours of operation, mode of operation and users fee. Of the 75 health facilities of the public sector, two were Rural Dispensaries (RD), 13 Union Health and Family Welfare Centres (UHFWC), and 96 Satellite Clinics (SC). RDs were established during the pre-UHFWC time and they are in fact almost equivalent to UHFWC. The RDs were manned occasionally by a graduate doctor and mostly by a Medical Assistant (MA) who has a three-year diploma from government training institutions after Secondary School Certificate (S.S.C.). RDs provided free general medical services and condoms at a cost of 1 taka per dozen. The UHFWC is usually manned by Sub-Assistant Community Medical Officer (SACMO), equivalent to MA and Family Welfare Visitors (FWV) who have a three-year diploma on family planning provided by government training institute after S.S.C. UHFWCs are equivalent to RDs in terms of services provided. The SCs are manned by FWVs and provide no cost family planning services.

Table 3.3 presents the type of services available in the UHC and the Zam Zam hospital in 2007. It can be seen that Zam Zam provided almost a similar set of services as that of the UHC with the exception of caesarean section, immunization and family planning services. The UHC provided immunization and family planning services and Zam Zam provided cesarean section. The services at the UHC were largely free at the point of service while none of the services were free at Zam Zam.

Table 3.3 Services available in UHC and Zam Zam

Health services	UHC	Cost (Tk)	ZamZam	Cost (Tk)
Outpatient care	√	5	√	100-120
Indoor patient care	√	Free	√	200-500
EPI	√	Free		None
Contraceptives	√	1/dozen		None
Medicine	√	Free	√	Actual
Antenatal care	√	Free	√	60-120

Health services	UHC	Cost (Tk)	ZamZam	Cost (Tk)
Postnatal care	√	Free	√	60-120
Delivery services	√	Actual	√	2,000-2,800
C-section	NA	-	√	7,000-9,500
Minor surgery	√	Actual	√	200-800
Accident management	√	Free	√	100-200

Note: √ - Service available; NA = Service not available

Table 3.4 presents the type of diagnostic services available at the UHC and Zam Zam in 2007. It can be seen that Zam Zam had more services to offer than the UHC.

Table 3.4 Diagnostic facilities available in UHC and Zam Zam hospital

Diagnostic Services	UHC	ZamZam Hospital
Blood test		
- TC/DC/Hemoglobin/ESR	√	√
- Bilirubin		√
- Malaria parasite	√	√
- Hepatitis B	NA	√
- Syphilis	NA	√
- Rheumatoid factor	NA	√
- Typhoid	NA	√
Stool routine examination	√	√
Urine routine examination	√	√
Pregnancy test	√	√
Sputum for AFB	√	√
Ultra-sonogram		√
X-Ray	√	√

Note: √ - Service available; NA – Service not available

Healthcare Providers

There were 2,564 healthcare providers of all kinds in Chakaria in 2007. Of them, 4% were working in the formal sector mostly with the public sector and a small proportion in the NGO sector (Table 3.5). The formal sector providers included physicians, paraprofessionals and midwives. All the midwives in the formal sector had 10 years of schooling and received more than 6 months of training in midwifery. Over 50% of the formal sector providers were physicians. Of the 59 physicians, 39 were based in Chakaria and the rest came to Chakaria once/twice a week from outside Chakaria to see patients in private facilities. In this chapter these visiting doctors are termed as guest doctors.

Informal healthcare providers were dominated by Traditional Birth Attendants (TBAs, with or without training), followed by traditional healers, Village Doctors, and homeopaths.

Table 3.5   Number and type of healthcare providers serving the population of Chakaria, 2007

Healthcare providers	No.
Formal (4%)	
Qualified physicians (regular)	39
Qualified physician (guest)	20
Paramedics	7
Family welfare visitor	13
Midwife (ICDDRB trained)	12
Midwife (Govt. trained)	13
Nurse	8
Informal (96%)	
Traditional birth attendants	950
Village Doctor (allopathic)	328
Village Doctor (homeopathic)	174
Kabiraj (Traditional)	239
Religious/spiritual healer	694

Distance of the Unions from Chakaria Town

As most of the clinics and health facilities equipped with physicians are based in Chakaria town, it is important to examine the distance of the villages from Chakaria town to get an impression about the physical access. It can be seen in Table 3.6 that the nearest Union was located within two kilometers of the town while the furthest Union was located at a distance of 25 kilometers. The largest time distance was around one hour combining a trip by road involving a light 4-wheel drive car and a bus. The maximum cost for a travel to the town would cost Tk. 50.

The Satellite Clinics and UHFWCs/FWCs and RDs were situated closer to the community than the facilities in the town. The Satellite Clinics were located in the villages.

Table 3.6 Distance between Union centre points and Chakaria municipality area

Union	Spatial distance (km)	Land distance (km)	Cost of travel (taka)	Travel Time (minutes)	Transport Type*
Shaharbil	2.4	4	5-20	10-20	R,T,J
Lakhyarchar	2.6	4	3-15	5-10	R,T,J
Chiringa	3.2	2	10	10	R
Fashiakhali	3.3	5	3-15	5-10	R,T,J
Purba Bara Bheola	3.5	7	10-40	25-45	R,T,J
Kaiyerbil	4.2	8	10-25	10-30	R,T
Kakara	4.4	6	10-35	20-35	R,T,J
BM Char	5.1	10	15-50	15-50	R,T,J
Baraitali	7.0	11	20-50	20-50	R,T,J
Manikpur Surajpur	7.5	11	25-30	25-30	T,J
Pachim B. Bheola	8.9	14	15-25	15-25	T,J,B
Konakhali	9.5	12	20-30	20-30	T,J
Dulahazara	9.8	12	10-20	10-20	T,J
Demoshia	10.5	16	25-40	25-40	R,T,J
Harbang	11.2	13	10-15	10-15	J,B
Badarkhali	12.7	17	20-35	20-35	T,J,B
Bamo	13.9	25	35-40	60-65	J,B
Kuntakhali	15.0	18	15-30	15-30	T,J

*R= Rickshaw, T= Motorized three wheeler, J=Light 4-wheel drive car, B=Bus

Discussion

Three important issues that came out of the mapping exercise included 1) the number and type of healthcare providers/services that existed on the ground, 2) share of formal and informal health sector in healthcare provision, and 3) status of physical access to healthcare services. It is important to throw some light on the implications of the above on the health of the rural mass and the future rural healthcare systems of the country.

There were only 110 formally trained healthcare providers available for providing health services to a population of 400,000 which indicated an acute shortage of qualified providers. 59 of the 110 trained healthcare providers were physicians and the rest were paraprofessionals. Of the 59 physicians, 20 were guest physicians who visited the area only two days a week and provided services through private healthcare facilities. Adjustments for the part-time presence of the guest physicians lead to a concentration of 1.1 physicians per 10,000 people. This density is far shorter than that of the WHO estimates (23 per 10,000) needed to achieve the Millennium Development Goals (MDG) by 2015 (World Health Organization 2006). Therefore, to meet the MDG Chakaria needs around 920 physicians.

There are 8 trained nurses in Chakaria which lead to a density of 0.2 nurses per 10,000 people. It is recommended that there should be 3 nurses per physician. To abide by this recommendation we need 132 nurses for the number of physicians available in Chakaria and therefore there is a shortfall of 124 nurses. To match the ideal number of physicians recommended by WHO, Chakaria would need 2760 nurses. How and when the desired number of trained healthcare providers can be made available with the current level of production is a recurrent question. The scenario in terms of other type of healthcare providers is as serious as that of physicians and nurses. A similar situation exists in the whole country according to the latest report of Bangladesh Health Watch (Bangladesh Health Watch 2008).

The other important issue is the physical access to the small number of physicians and professionals available as they are mostly based in the *Upazila* headquarters. Given the poor economic condition of the villagers and the direct and indirect costs involved in visiting a healthcare provider at the *Upazila* headquarter, access to modern health services remains a challenge for the villagers. Physical distance and cost has always been a major barrier in accessing health services for the rural people in general and poor and female in particular (Gwatkin, Bhuiya and Victora 2004).

With the existence of a large number of TBAs in the area, it is no surprise that over 90% of the deliveries take place at home and are attended by a TBA and/or a family member (Bhuiya, Hanifi and Mahmood 2007). Recently the Government of Bangladesh has started to train Family Welfare Visitors as Skilled Birth Attendants (SBAs). In Chakaria, ICDDR,B trained 15 village women with at least 10 years of formal education first as community paramedics and subsequently as community midwives. Almost all of these midwives are still practicing in the area. Despite the addition of SBAs and midwives the proportion of deliveries attended by them is still only 12%. This clearly indicates that it will take time to ensure an adequate supply of SBAs to attend a sizeable number of births in the area. Therefore, increasing the demand for facility-based delivery cannot be a short term goal.

The discussion above depicts a gap in the healthcare need and available services from qualified providers. The informal private sector, dominated by inadequately trained or untrained providers has seized the opportunity to fill the gap between supply and demand and now occupy a powerful position in the market. This position of power has been reflected in the phenomenal growth of the informal healthcare providers elsewhere in the country (Cockcroft, Milne and Anderson 2004). The authorities responsible for the public health system are aware of this issue and have failed to regulate the informal sector. It is important therefore, to acknowledge the important role of informal healthcare providers and promote mechanisms to engage with them to provide quality healthcare services to the communities.

In conclusion, the formal healthcare facilities in the rural area are inadequate for serving the population in their catchment areas. As health service is one of the constitutional rights of the citizen of Bangladesh, the nation has to work to find ways to meet its obligation. It needs long term vision and commitment to create adequate number of physicians, nurses and other formally trained healthcare professionals to meet the needs of the people of Chakaria and other rural areas of Bangladesh. In the mean time we need innovative programmes that engage both public and private healthcare providers as well as the informal sector healthcare providers to ensure quality healthcare services for the rural people in general and the poor in particular.

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Chapter 4
Characteristics of Village Doctors

Mohammad Iqbal, S.M.A. Hanifi, Tania Wahed

Abstract

This chapter is based on data collected from the existing non-physician health care providers practising allopathic medicine in all of the unions of Chakaria *Upazila* during February 2007. A total of 328 informal health care providers, mostly male (95%), were practicing in the area during the time of the interview. The majority of these practitioners in the informal sector (92%) provide services from a private setting and are commonly known as Village Doctors. The rest are engaged in employment in the public and NGO sectors. The majority of the Village Doctors (89.3%) included in the survey are educated in the general educational system and 66% of the Village Doctors have an education of at least 12th grade. Only a minority of the village doctors have government accredited qualifications in the system of medicine that they are practicing. However, 75% have availed an institutional training of short duration on specific health care related topics. The majority of the village doctors had embarked on the profession by attending courses or training, by being a trainee in a drug store or being an assistant in a doctor's chamber or of a village doctor or even by learning from family members who have previously been in the profession. They usually practice in personal chambers, pharmacies, and at their residences. However, these places are poorly designed in terms of maintaining patient privacy. The main diseases treated by the village doctors included cold, fever, diarrhoea, pneumonia, and dysentery. Evidence from the study indicated that there were significant deficiencies in the treatment practices of the Village Doctors. Approximately, 41% of the drugs prescribed for pneumonia and 14% of drugs recommended for cold and fever and diarrhoea were considered appropriate. The rest of the drugs prescribed were inappropriate and 5% to 15% of the drugs prescribed were classified as harmful. Study findings indicate that the majority of the Village Doctors had a financial incentive in dispensing medicine. Despite this, village doctors are widely sought and quite popular amongst the villagers due to their greater accessibility, polite attitude and villagers' lack of access to formal health care. The village doctors may also be perceived as a cheaper option as people may not have to travel far, thus saving time and travel costs. Furthermore, they are known to make adjustments in payments on the basis of ability to pay and prescribe or provide a partial dose of a drug.

Introduction

This chapter is based on data collected from the existing non-physician healthcare providers practising allopathic medicine in all of the Unions of Chakaria *Upazila* during February 2007.

Methodology

A list of the informal healthcare providers working in the public and private sectors in Chakaria was prepared before the start of the survey (see Chapter 3 for details). Of the total of 395 initially enlisted informal healthcare providers practicing allopathic medicine, some were found to be practicing in more than one place and had, therefore, been counted more than once. After eliminating duplication in the list, the actual number of informal healthcare providers who were practicing allopathic medicine was found to be 328. These 328 healthcare providers were interviewed for collection of data. Of the 328 informal healthcare providers, those providing services from a private setting in the informal sector have been studied in detail and are termed as 'Village Doctors' in this chapter. In addition, data from 250 (236 patients were willing to provide information during exit interviews) randomly chosen patients who were seeking care from 50 randomly chosen Village Doctors were collected through exit interviews during February 2007.

Three days of training for the interviewers/data collectors and their supervisors was conducted before the survey. A pilot data collection exercise was carried out after the training and before starting the survey to pre-test the system for data collection, and to assess the appropriateness of the field plan to implement the study. The lessons learnt from the pilot study in terms of field planning, quality control, data coding, analysis and reporting were used to modify the implementation strategy for the survey.

Findings

Characteristics of Informal Healthcare Providers

Of the 328 informal healthcare providers, 92% (302 in number) were practitioners providing services from a private setting in the informal sector, and are commonly known as Village Doctors. The

rest were engaged in employment in the public[1] and NGO sectors. In this chapter, the general characteristics, e.g. age and educational qualifications of all the informal healthcare providers have been presented. Details have been provided for the Village Doctors in the private sector as they operate on their own without supervision and their practices have considerable impact on the health of the population.

Among the 328 informal healthcare providers, 94.5% were male and 5.5% were female. The age distribution of the informal healthcare providers in Chakaria is presented in Table 4.1. The mean and median age of the informal healthcare providers were 39 years and 38 years respectively.

Table 4.1 Age distribution of the informal healthcare providers

Age (in years)	%
15-19	0.6
20-24	6.7
25-29	18.3
30-34	13.7
35-39	13.2
40-44	12.5
45-49	15.0
50-54	10.1
55-59	4.9
60+	5.2
Total	100
Mean age	39.1
Median age	38.0
N	328

The majority of the informal healthcare providers (89.3%) included in the survey were educated in the general educational system inclusive of pure and applied science, arts, business and social science. Only 6.7% of the informal healthcare providers attended *Madrasas*, schools with more emphasis on religious

[1] Family Welfare Visitors (8) ; Health Assistant (7); Assistant Health Inspector (3); SACMO (4); Physiotherapist (2); Health Inspector (1); Medical Assistant (1)

education and less on modern subjects, and approximately 4% were exposed to both systems. All of them had a minimum seventh grade of education. It is interesting to note that, 66% of the informal healthcare providers had an education of at least 12th grade. More males had at least 12th grade of schooling (65%) compared to females (33%).

Details of the Village Doctors

Figure 4.1 presents the distribution of Village Doctors (n=302) by the type of training they had received. When asked for information on the type of training they have had, only 4% of the Village Doctors mentioned that they had government accredited certification in the system of medicine that they practice. The majority (88%) had non-accredited certification of various durations. Only 5.3% of the Village Doctors were trained as paramedics or paraprofessionals (paramedics trained by ICDDR,B and Gonoshasthaya Kendra are included in this category) and 2.6% had some training in pharmacy.

Figure 4.1 Distribution of type of training received by the Village Doctors
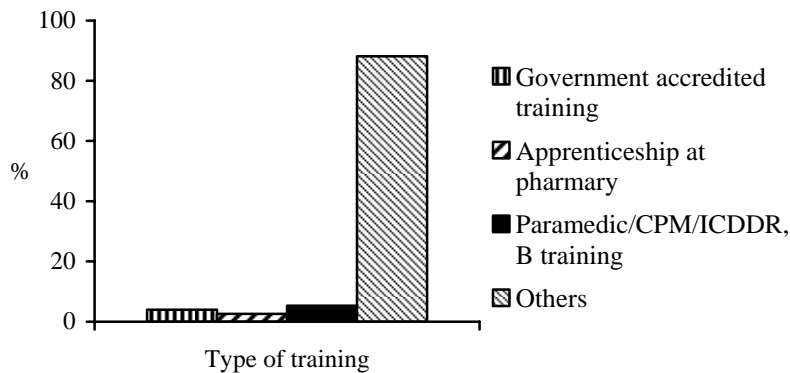
However, with respect to training of short duration on various topics related to health, approximately seventy-four percent of the Village Doctors had responded that they had availed training of some sort on various topics of healthcare. Nearly half of those who had received training had availed it from the Government and the

other half from non-government organizations and private institutions (Table 4.2).

Table 4.2 Distribution of source of training of the Village Doctors who had training of any type

Source of training (n=302)	%
Government	42.6
Private	35.6
NGO	14.3
ICDDR,B	7.5

The study findings indicate that the most common topics of training were diarrhoea, malaria, Acute Respiratory Infection (ARI), Integrated Management of Childhood Illness (IMCI), AIDs, tuberculosis and safe motherhood.

When asked for information about how they became a healthcare provider, the most frequently mentioned response was through attending courses or training followed by experience as a trainee in a drugstore, and assistant in a doctor's chamber or of a Village Doctor, and from family tradition (Table 4.3).

Table 4.3 Distribution of Village Doctors by the process of becoming a healthcare provider

Process	%
Trainee in pharmacy	21.6
Assistant in doctor's chamber	20.8
Assistant of Village Doctor	9.7
Attending trainings	42.4
Family tradition	4.3
Self / through practice	0.4
Selling medicine	0.4
Government job	0.4
Total	100.0
N	302

Table 4.4 provides information about the clinical settings from which the Village Doctors provide their services. The most commonly mentioned places of practice were personal chambers, pharmacies, and provider's and patient's residence.

Table 4.4 Place of practice of the Village Doctors

Places of practice	%
Personal chamber and pharmacy	75.3
Personal chamber	12.6
Pharmacy	4.1
Government Hospital/Private clinic	0.8
Home and pharmacy	1.3
Home of the provider	4.3
Visits to patient's home	1.0
Satellite Clinic	0.3
No fixed place	0.3
Total	100.0
N	302

The survey findings indicated that the majority of the Village Doctors recommend diagnostic services such as radiology, and laboratory tests (Table 4.5) for the patients. However, only a minority (4.6%) of the Village Doctors had any share in the ownership or proprietorship of diagnostic facilities, as such the majority of the providers apparently did not have any direct financial motivation in recommending diagnostic tests for patients as owners or shareholders.

Table 4.5   Distribution of the Village Doctors by commonly advised diagnostic tests

Diagnostic services (n=302)	%
Pathology	11.4
X-ray	0.4
Pathology and x-ray	83.2
No tests	5

The study findings showed that majority of the Village Doctors (62.2%) accepted payment for the services they provided. When the Village Doctors were asked for information on what they did when a patient was unable to pay cash for their services, approximately 15.2% responded that they allowed the patients to defer the payment, 30.1% accepted any form of payment, and 16.2% said that in such cases they exempted the patients from paying. Only two (0.7%) of the Village Doctors were unwilling to provide an answer, implying that they probably do not provide treatment for patients who are unable to pay.

The study attempted to determine if the Village Doctors were earning income by dispensing medicine to patients. The survey findings suggested that the majority of the Village Doctors sell medicine (81.5%) and 81.1% admitted to owning a drug store. When asked for information about what they did when a patient was unable to pay for the medicine, the majority (79.1%) responded that they provided the medicine on credit. It may be reasonable to assume that most of the Village Doctors probably had financial motivation in dispensing medicine.

Characteristics of Clinical Settings of the Village Doctors

The majority of the Village Doctors reported having the most common equipment needed for examination of patients, e.g. examination table (86%), thermometer (96%), stethoscope (92%), blood pressure machine (89%), artery forceps (75%), and scissors (84%) (Table 4.6). Only 22% and 9% reported that they had weighing machines for adults and children, respectively, in their chambers. Findings from the survey indicated that approximately 98% of the healthcare settings had usable water supply. However, only 1.3% had tap water facilities and approximately 96% had tube-wells as their regular source of water. Only 38.7% of the clinical settings had lavatories (modern ring slabs) and the majority had no such facility.

Table 4.6 Availability of common equipment needed for patient
          examination

Equipment	%
Thermometer	95.7
Stethoscope	92.1
Blood pressure machine	89.1
Examination table	86.9
Weighing machine	22.2
Weighing machine for children	8.9
Scissors	84.1
Artery forceps	74.8
N	302

Note: Multiple responses recorded

Patient privacy was another area explored through this study. It
was observed that in approximately one-fifth of the cases (21.5%),
the patients could be seen from outside of the chamber and in
52.7% of the cases the conversation with the provider could be
heard by others. In addition, in 46.4% of the cases, other people
were present and in 45.7% of the cases there were other patients in
the chamber during the examination of a particular patient (Table
4.7). Evidence from the survey suggests that the lack of privacy for
the patients in clinical settings compromised patient
confidentiality.

Table 4.7 Privacy at the practicing places

Condition of Privacy	%
Patient seen from outside	21.5
Conversation heard from outside	52.7
Other patients present in chamber during examination	45.7
Presence of non-patients in the chamber	46.4
N	302

Note: Multiple responses recorded

Quality of Treatment Provided by the Village Doctors

Village Doctors treat various conditions. Table 4.8 presents the percentage of Village Doctors who reported treating patients with various health complaints. It was revealed that the majority of them treated patients with pneumonia (95.4%), diarrhoea (98.7%), amoebic dysentery (98.0%) blood dysentery (97%), viral fever (97.4%), hypertension (71.5%), ANC/PNC and delivery related issues (51.3%), reproductive health problems (62.9%) and injuries from accidents (89%).

Table 4.8 Proportion of Village Doctors treating various types of diseases

Diseases	%
Pneumonia	95.4
Diarrhoea	98.7
Amoebic Dysentry	98.0
Blood Dysentry	97.0
ANC/PNC/Delivery	51.3
Viral Fever	97.4
Accident Patient	89.1
Drowning Patient	41.7
Tuberculosis	13.3
Hypertension	71.5
Diabetes	22.9
Goitre	27.2
Rickets	12.3
Reproductive Health Disease	62.9
N	302

Note: multiple responses recorded

The exit interviews of 236 patients provided information to evaluate the practices of Village Doctors in treating the common cold and fever, pneumonia and diarrhoea (Table 4.9; Figure 4.2).

Table 4.9   Prescription of drugs for treating pneumonia, cold and
fever and diarrhoea by appropriateness

Type of drug	Pneumonia	Cold and fever	Diarrhoea	Total
	N (%)	N (%)	N (%)	N (%)
Appropriate	11 (40.7%)	17 (15.0%)	8 (14.3%)	36 (18.4%)
Inappropriate				
Harmful	4 (14.8%)	7 (6.2%)	3 (5.3%)	14 (7.1%)
Not harmful	12 (44.5%)	89 (78.8%)	45 (80.4%)	146 (74.5)
Total number of drugs prescribed	27	113	56	196
Total number of cases	9	58	22	89
Total number of patients receiving harmful drugs	4	6	3	-
N				236

Figure 4.2   Appropriateness of treatment practices by Village
Doctors
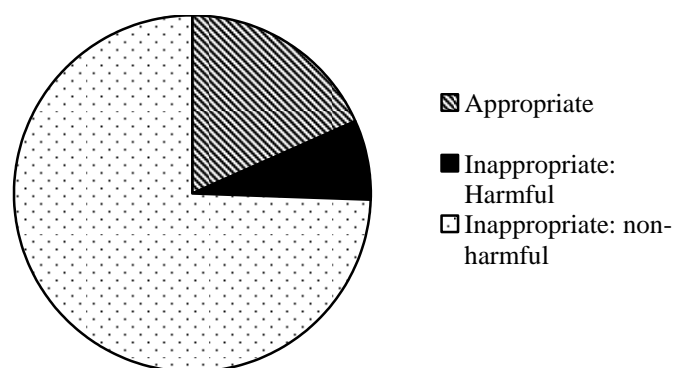
The survey findings revealed that 40.7% of the 27 drugs prescribed for pneumonia, 17 (15%) of the 113 drugs prescribed for cold and fever and 8 (14.3%) of the 56 drugs prescribed for diarrhoea were considered to be in the category of appropriate choices of drugs as recommended by the treatment guidelines of WHO, UNICEF and the Government of Bangladesh (Government of Bangladesh,

UNICEF and WHO 2003). Appropriate use of drugs for pneumonia included prescription of appropriate antibiotics (e.g. erythromycin, azythromicyn, amoxycillin, cotrimoxazole, penicillin, etc). The use of oxygen, saline nasal drops and paracetamol were within recommended guidelines for treatment. However, amongst the various medicines, prescribed use of dexamethasone, non-steroidal anti inflammatory drug (NSAID), prednisolone, and pseudoephedrine were categorized as unnecessary and harmful for the treatment of pneumonia in accordance with the guidelines. In addition, the findings indicated that none of the nine patients who had symptoms suggestive of pneumonia (fast breathing, cough or difficulty breathing, chest in-drawing, presence of stridor) were prescribed with only the appropriate choice of drugs. These drugs were prescribed in conjunction with drugs classified as inappropriate. Thus, none of the patients were treated in complete compliance with the standard treatment guidelines of WHO, UNICEF, and the Government of Bangladesh. In addition, four (44.4%) of the pneumonia patients were prescribed drugs that were categorized as harmful.

According to the guidelines, the prescription of acetaminophen and/or paracetamol is the only appropriate choice of drug for patients diagnosed with the common cold and fever, and ORS, intravenous cholera saline and Zinc Sulphate were the recommended choice of treatment for diarrhoea. Of the 58 patients diagnosed with cold and fever, six (10.4%) received drugs that were categorized as harmful for the condition. For diarrhoea, three out of the 22 patients were prescribed drugs that were classified as harmful according to the recommendations of the guidelines. None of the patients diagnosed with cold and fever or diarrhoea had been prescribed with only the drugs categorized as appropriate. The drugs were prescribed in combination with drugs that were considered as inappropriate choices for the disease considered. However, the excessive number of drugs prescribed for the different ailments indicated that over prescription of unnecessary and inappropriate drugs is prevalent in the study sample. The adverse consequences of inappropriate drug use are serious and may result in increasing microbial resistance, adverse drug reactions, spread of hepatitis B,C and HIV cases. Study findings

suggest that there is a significant gap in adherence to appropriate treatment in compliance with the standard guidelines for the diseases mentioned.

Discussion

Village Doctors are the largest source of care in Bangladesh and India (Peters and Kayne 2003; Peters 2002). The un-regulated, informal, often 'less than fully-qualified' practitioners are a major provider of healthcare in Bangladesh and have been cited to provide 60% of treatment services in rural Bangladesh (Cockcroft, Milne and Anderson 2004). Findings from the present study in Chakaria revealed that the Village Doctors were reported to have provided 65% of the healthcare sought for illness episodes occurring within 14 days prior to the survey. The significant share of the informal healthcare providers in the provision of healthcare in Chakaria and Bangladesh makes them a crucial contributor in the provision of healthcare (Bangladesh Health Watch 2008).

The healthcare provider survey in Chakaria revealed that the majority of the Village Doctors were providing care from a private setting. Only a minority of them had government accredited qualifications in the system of medicine in which they practice. However, 75% had availed an institutional training of short duration on specific healthcare related topics, and half of these trainings were provided from government sources and the other half from NGOs and private sectors. The most common type of training was on diarrhoea, malaria, acute respiratory infection (ARI), Integrated Management of childhood Illness (IMCI), tuberculosis, AIDS and safe motherhood. The majority of the Village Doctors had embarked on the profession by attending courses or training, by being a trainee in a drug store, assistant in a doctor's chamber or of a Village Doctor or by inheriting the livelihood from a family member. Furthermore, the majority of Village Doctors were found to recommend diagnostic services such as radiology, and laboratory tests. However, findings suggest that the Village Doctors did not have any financial motivation in recommending diagnostic tests for the patients. Conversely, study

findings indicate that the majority of the Village Doctors had financial incentive in dispensing medicine. In addition, the survey revealed that the majority of the Village Doctors accepted payment for the services provided, however, when the patients were unable to pay the fees, they either deferred the payment or did not take from the poor or accepted payment in any form. Furthermore, the findings showed that most of the Village Doctors had the common equipment needed for patient examinations, for example, examination table, stethoscope, blood pressure machine, artery forceps, and scissors. The healthcare settings from which they practiced lacked proper water and sanitary facilities. Although 96% had usable water supply, the majority had to use tubewells and only 42% had lavatory facilities available. Observations indicated that in the majority of the cases, patients could be seen or heard from outside. The observed presence of other people or patients in the chamber during examinations compromised patient confidentiality and privacy.

The study further indicates significant deficiencies in the treatment practices of the Village Doctors. The inadequacy of knowledge and advice deprives the patient of relevant, safe, effective and high quality care. An excessive number of drugs were prescribed by the Village Doctors, suggestive of over and inappropriate prescriptions. Approximately, 41% of the drugs prescribed for pneumonia and 14% of drugs recommended for cold and fever and diarrhoea were considered appropriate. The rest of the drugs prescribed were inappropriate and 5-15% of the drugs prescribed were classified as harmful. The findings are consistent with findings from other studies in Bangladesh, Sri Lanka and Yemen (Tomson and Sterky 1986) where it was found that ORS is under-prescribed – and drugs heavily over-prescribed – for childhood diarrhoea cases. Throughout the 1990s, studies provide evidence that private providers are more likely to prescribe antibiotics and anti-diarrhoeals than oral rehydration salts (ORS) when the latter would be preferable (Muhuri, Anker and Bryce 1996; Waters, Hatt and Axelsson 2002; Langsten and Hill 1995; Igun 1994). The findings suggest that there is a wide gap in adherence to appropriate treatment in compliance with the standard guidelines for diarrhoea, the common cold and fever, and pneumonia.

Village Doctors are a widely consulted and popular source of care amongst the rural population. The most commonly cited reasons are greater accessibility, respectful or polite attitude and lack of access to formal healthcare facilities. The Village Doctors may be perceived as an inexpensive option as people may not have to travel far, thus saving time and travel costs. They are also known to make adjustments in payments on the basis of ability to pay and prescribe or provide a partial dose of a drug (see chapter 5). The above study findings have important policy implications, mainly because the Village Doctors are an integral and significant contributor to healthcare in Bangladesh. Irrespective of policy direction, the popularity of the Village Doctors is an established fact. Thus, it will be pragmatically appropriate to incorporate them with necessary formal training within the healthcare system to avoid harmful practices and promote safe, effective and higher quality care.

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Chapter 5
Perception about Illnesses and Healthcare Providers

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Abstract

This chapter presents the perceptions of the villagers about illnesses and healthcare providers in relation to the treatment of the illnesses. The findings also reflect on the role of the elected representatives of the local government such as union *porishad* chairman and members in the health matters of the area. Data on people's perception about diseases of various age groups was collected and the perception of the villagers about major diseases was quite consistent with the epidemiological scenario of Bangladesh in general and rural areas in particular. Cognitive mapping was carried out to explore the patterns and linkages of providers and illnesses. For all the age groups it was found that people prefer to consult more qualified providers for diseases that they perceive to be severe. It was indicative that the villagers in their cognition relate type of health care providers and health seeking to specific diseases and/or conditions. The villagers think of MBBS doctors when it comes to acute life threatening conditions of newborns such as convulsions and pneumonia. For conditions like loose motion and skin disease, they think of village doctors. It was apparent that the village doctors are very popular among the villagers for the obvious reasons of being conveniently available with drugs and low cost. Regarding the role of the representatives of the local government, it was found that they were not involved in the governance of the healthcare providers; however, they showed interest in engaging themselves in such activities if the opportunity arises.

Introduction

This chapter presents the perceptions of the rural population about illnesses and healthcare providers in relation to the treatment of illnesses. The data presented in this chapter are expected to shed light on the perceived severity of various illnesses and the preference for different healthcare providers.

Methodology

Data for this chapter were collected from villagers in Chakaria by using various qualitative methods. Details of the methodology adopted are presented below.

Focus Group Discussion (FGD)

Six FGDs, three among females and three among males (aged above 18 years) were conducted among villagers living in: 'close', 'not too close', and 'distant' villages from Chakaria headquarters. One village was randomly chosen from each of the three categories in terms of distance. In each of the selected villages one FGD among male and one among female villagers was conducted. The number of participants in each of the FGDs varied between 6 to 12. A guideline was used to conduct the FGDs. The guideline included information on health, disease and healthcare providers. Six 'facility mappings' were conducted. After the discussion was finished, the group members were asked to help to draw a map of the village and to mark the physical locations of all types of healthcare providers in their villages. Then they were asked to draw arrows depicting their contact with the providers they go to for healthcare. The whole session was recorded and transcribed for analysis. At the focus group discussions, community members identified the 10 most common diseases for various age groups, namely newborns, children, adolescents, adults and elderly people. After identifying the common diseases the community members were asked to rank them according to their level of severity, a list of which is presented in Table 1.

In-depth Interviews

In-depth interviews were done with the practicing informal healthcare providers, e.g., Village Doctors, drug vendors, homeopaths, spiritual healers, *kabiraz* and traditional birth attendants as well as elected representatives of the local government such as Union *porishad* chairman and members. A total of 18 in-depth interviews were conducted with the informal

healthcare providers and six with the Union *porishad* chairman and members. Interviews with the informal healthcare providers gave the information about the relationship between informal healthcare providers and the community from the provider's point of view, the reasons for their popularity and the level of their accountability to the community.

The guidelines of FGD and in-depth interviews were pre-tested outside the study area in order to ensure appropriateness of language, sequence and consistency of the issues. Based on the feedback from pre-testing, the guideline was modified and rephrased where necessary. One male and one female graduate researcher were involved in each of the sessions. Both of them received training before pre-testing and underwent a series of training until the data collection ended.

Free Listing, Severity Ranking and Pile Sorting

Free listing exercises were carried out in which the male and female participants were asked to name the common health problems of newborns (0-28 days after birth), children (1-10 years of age), adolescents, adults and elderly people. After arriving at an exhaustive list of the health problems, the villagers were asked to group the health problems written on cards into different groups on the basis of any criterion specified by them. At a later stage a list of various types of healthcare providers existing in the area were recorded into cards, and was mixed with the cards containing names of various diseases. As was done earlier, the participants were asked to group the cards of health problems and types of healthcare providers into piles for whatever reasons they could think of. Data from the free listing exercise was analyzed for saliency, pile-sorting data were used to do cognitive mapping, and ranking data were analysed for severity position of the illnesses by using Anthropac (Borgatti 1993). The free listing, pile sorting and severity rating exercises were conducted with 15 males and 15 females who were purposively selected.

Data Management and Analysis

Data collected through FGDs and in-depth interviews were analyzed manually and ANTHROPAC (Borgatti 1993) was used to analyze free listing, pile sorting and severity ranking `data.

Findings

Common Illnesses in the Community

The illnesses mentioned in this chapter were reported symptoms or names of illnesses mentioned by the respondents themselves. The name of an illness mentioned was not validated by a physician. However, when labeling the Bengali terms or symptoms described by the participants by a medical name, a physician was consulted. Table 1 shows the common illnesses of individuals from different age groups.

Table 1 Common illnesses of individuals from different age groups

Severity ranking	Most severe illnesses				
	Newborn	Children	Adolescents	Adult	Elderly
01.	Convulsion	Jaundice	Jaundice	Ulcer	Stroke
02.	Pneumonia	Rickets	Malaria	Asthma	Paralysis
03.	Jaundice	Pneumonia	Gastric	Diabetes	Asthma
04.	Measles	Diarrhoea	Typhoid	High blood pressure	Arthritis
05.	Breathing difficulty	Measles	Diarrhoea	Arthritis	Memory loss
06.	Loose motion	Infant diarrhoea (breast feeding child)	Tonsil infection	Ear infection	Ear infection
07.	Fever	Fever	Skin disease	Gastric	Lower back pain

Severity ranking	Most severe illnesses				
	Newborn	Children	Adolescents	Adult	Elderly
08.	Skin disease	Cold	Fever	Weakness	Toothache
09.	Cold	Fungal infection	Growing pain	Headache	Blurry vision
10.	Excessive cry	Mouth ulcer	Conjunc- tivitis	Fungal infection	Hearing difficulty

Table 1 shows that the representatives from the community identified jaundice as one of the severe illnesses for the younger age group, including newborns, children and adolescents. Convulsion was identified as the most severe illness for the newborns. Pneumonia and diarrhoea or loose motion were considered as severe illnesses for both the newborns and children. Asthma, according to the community people, was considered to be a severe illness for the comparatively older age group, i.e. adults and the elderly. For the adults, stomach ulcer was mentioned as the most severe illness and for the elderly, stroke/cardiovascular illness was identified as the most severe disease. Rickets was identified as the second most severe illness for the children in Chakaria. Malaria was among the most severe illnesses of the adolescents.

Health-seeking Pattern and Role of Informal Healthcare Providers

Cognitive maps through pile sorting exercises are a useful exercise for exploring the patterns and linkages of providers and illnesses (Ross *et al.* 1998). Exploration of the ways and reasons by which people group things was done.

Figure 5.1 shows the cognitive mapping for newborn diseases and the preference of healthcare providers. It was revealed that for the newborns, the respondents grouped MBBS doctors with jaundice, breathing difficulty, convulsion and pneumonia. Loose motion and skin disease were grouped with Village Doctors and excessive crying was grouped with homeopathic doctors. There was a

tendency of grouping MBBS doctors with most severe diseases for this age group (Table 3). The not so severe diseases were grouped with Village Doctors. On the other hand, measles, cold and fever of neonates were not grouped with any healthcare provider (Figure 5.1). They also clustered paramedics, pharmacy, *kabiraj* and *Baidya* together and did not attach these healthcare providers to any specific diseases.

Figure 5.1 Cognitive mapping for newborn diseases and the
            preference of healthcare provider.

MDS Configuration for Newborns

Paramedics   *Kabiraz*
    Pharmacy   *Baidya*

                        Jaundice
Loose motion   Breathing difficulty

    Village doctor   Convulsion Pneumonia
Skin disease   MBBS

    Excessive cry   Measles
Homeopath

              Cold   Fever
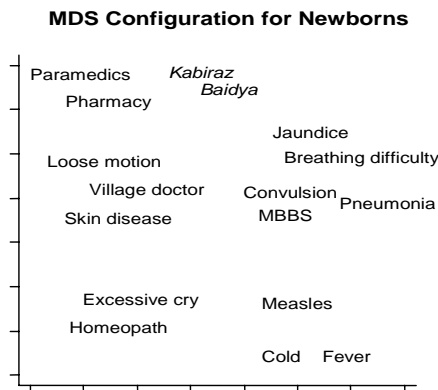
It was found that the grouping of healthcare providers varied somewhat for childhood diseases (Figure 5.2).

Figure 5.2 Cognitive mapping for child diseases and the preference
            of healthcare provider

MDS Configuration for Children

        Fungal infection

    Miseales
Pharmacy/drug sellers

                            Paramedics
Ricket   *Kabiraz*
                              Baidya

            Diarrhoea
    Fever   Homeopath
Oral ulcer

          Jaundice Cold
   MBBS   Village doctor
        Pneumonia
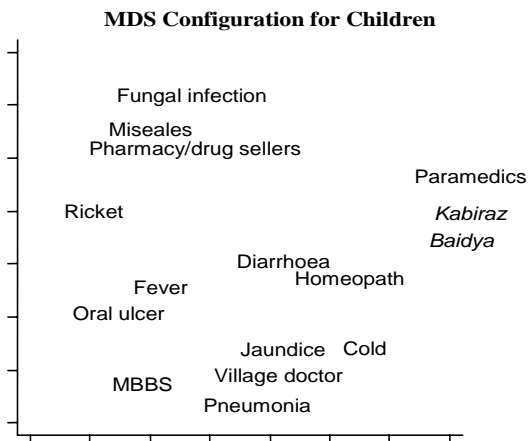
Figure 5.2 shows that people grouped MBBS doctors as well as Village Doctors with jaundice and cold. It should be mentioned here that jaundice was perceived to be the most severe disease for this age group. Homeopaths were grouped with diarrhoea. Fungal infection and measles of the children were grouped with drug sellers. Here again paramedics, *kabiraj* and *baidya* were grouped together and they were not attached to any specific disease. No preferences were indicated for fever, oral ulcer and rickets.

Another pile sorting exercise was conducted to observe the way rural community peoples' grouping of healthcare provider varied for diseases of the adolescent (Figure 5.3).

Figure 5.3 Cognitive mapping for diseases of the adolescent group
            and the preference of healthcare provider

MDS Configuration for Adolescents

Pharmacy/drug sellers

Village doctor
            Fever   Eye infection
      Growing pain
                                    Tonsil
   Diarrhoea   infection

Malaria   Skin disease
   .MBBS
Gastric
      Typhoid   Paramedics
   Jaundice   Homeopath   *Kabiraz*
                                       Baidya
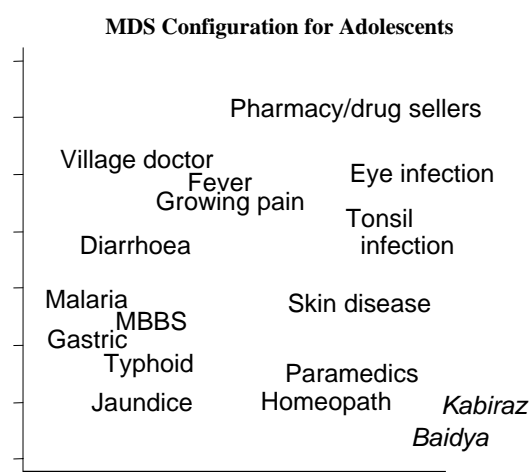
Figure 5.3 shows that for the adolescent group, MBBS doctors were grouped with malaria, gastric problems, typhoid and jaundice that are perceived to be the most severe (Table 1) and thus might require more qualified healthcare providers. Village Doctors were grouped with not so severe diseases like fever and pain associated with growth (growing pain). For skin diseases, eye infection, tonsilitis and diarrhoea of the adolescent group, people did not group the illnesses with any provider.

61

In order to validate the claim that the rural community people's decision regarding selection of providers varied according to the age and perception of severity of a particular illness, two more pile sortings were conducted to know the preference of healthcare providers for diseases of the adult and the elderly.

Figure 5.4 Cognitive mapping for diseases of the adult group and the preference of healthcare provider

MDS Configuration for Adults
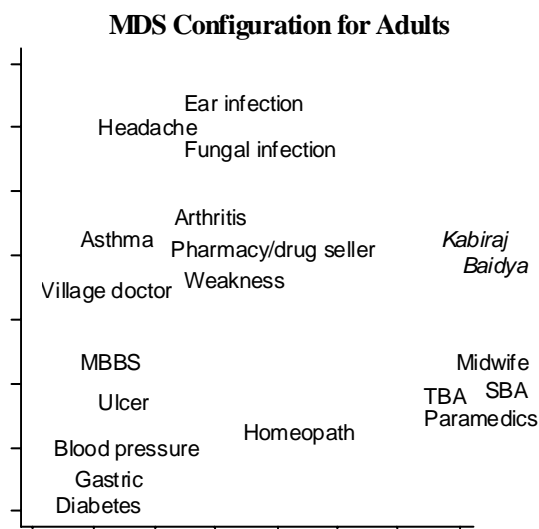
Figure 5.4 demonstrates that the diseases of the adults such as arthritis, asthma and weakness were grouped with the drug sellers/ pharmacies. Ulcer, which is perceived to be the most severe disease for adults, was grouped with the MBBS doctors. High blood pressure, gastric problems, diabetes, ear infection, headache and fungal infection were not grouped with any of the healthcare providers. This does not necessarily mean that these diseases are not perceived as severe by the community, rather they think that these are not treatable diseases.

It has already been mentioned that stroke and paralysis are perceived to be the two most severe diseases for the elderly. The

following figure shows the preferred providers for the health problems of the elderly as depicted by the cognitive mapping (Figure 5.5).

Figure 5.5 Cognitive mapping for diseases of the elderly group and the preference of healthcare provider

MDS Configuration for Elderly

Waist pain

Arthritis

Hearing problem   MBBS

                                                              Stroke

Toothache   Paralysis

Village Doctor

Ear infection   Pharmacy/ drug

Asthma

Memory

                            Blurry vision

                            Homeopath

Paramedics

Kabiraz

Baidya
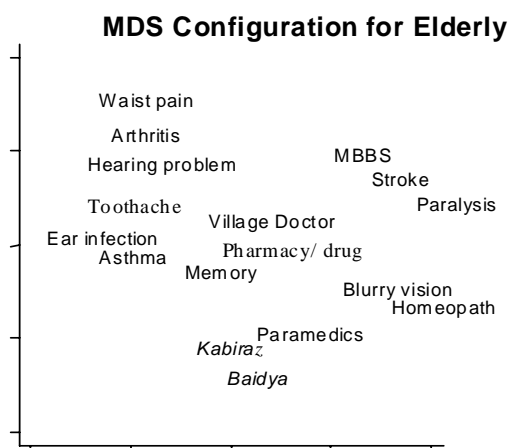
Figure 5.5 shows that people grouped stroke and paralysis with MBBS doctors. Toothache, ear infection, asthma and memory loss were grouped with Village Doctors and drug sellers. Homeopaths were grouped with blurry vision, another severe disease of the elderly. On the other hand, lower back pain, arthritis and hearing problem for this age group were not grouped with any of the healthcare providers.

Mobility Maps

It was found from the mobility mapping that both the male and female members of the community knew about the location of the healthcare providers in the area quite well. Females need to be accompanied, preferably by her husband or child, to visit a healthcare provider. Sometimes husbands go to the pharmacy, describe the symptoms of the illness and bring medicine for their

wives. Male participants of FGDs were concerned about the fees of the healthcare providers. On the other hand, female participants emphasized on the availability of the providers. Commonly, the members of the FGD mentioned the following reasons for choosing informal healthcare providers, especially Village Doctors:

- Available throughout the day
- Home visits in case of emergency
- Charge lower consultancy fee
- Refer patients to other doctors if and when needed
- Well behaved
- Patients get consultancy and medicine from one place
- Patients get medicine according to the money they have

One of the FGD participants mentioned, "*Dr. X (a Village Doctor) is very popular amongst us as he is always available and in cases of emergency he refers the patients to proper places.*" Another participant reported, "*In our village everyone goes to Dr. Y (a Village Doctor) for treatment because his consultancy fee is low, he is well behaved and patients can get medicine according to the money they have.*" These findings indicate that cost of treatment, availability of the provider and their behaviour towards the patients are important factors that determine the pattern of healthcare sought. A similar pattern of response was also seen from the in-depth interviews (see below).

Details of a participant from the in-depth interviews reveals that, "*Mr. J is a Village Doctor of 42 years of age. He is practicing homeopathic and allopathic treatment and has received 7 years of training from a local renowned homeopath doctor. He has a religious educational background. Inspired by his friend he came to this profession. He usually treats common diseases like the common cold, skin diseases, problems during urination and defaecation, newborn pneumonia, typhoid, diabetes, paralysis, leucorrhoea, gonorrhea, sinusitis, dysentery etc. He usually collects his medicine from different medicine shops and medical representatives of different pharmaceutical companies. Usually he does not receive any fees for his treatment only the price of the*

medicine. If the patient does not have any ability to pay the cost of the medicine then he exempts the patient from paying. He thinks this is the main reason for his popularity among the community. \ He does not take any money from the helpless on humanitarian grounds, not even the cost of the medicine."

Another participant said about a *kabiraj* (herbalist), *Ms. F, a 45 year old kabiraj does not have any formal training or education but has inherited her livelihood from her mother who came to know about a medicine in a dream. After her mother's death she started practicing Kabirazi. She started this profession to help the poor and sick people who benefitted from her mother's medicine. Afterwards, her popularity attracted more patients. She usually prescribes herbal medicine prepared by herself for ailments such as hydrocele, herniea, excessively crying child, pneumonia, cough, asthma etc. She usually takes 25 taka (30 US cents) as fees per person, but she does not take any money from those who are extremely poor. According to the Kabiraz "It is important to save a life. If someone does not have money should s/he die without treatment?" Many of her patients pay fees in installments. Moreover, sometimes when her patients can't pay for the medicine in cash she allows them to pay in kind to cover the expenses for preparing the herbal medicine.*

Bangladesh health watch reconfirmed the fact that the traditional healers have a density of 64.2 per 10,000 population in the rural area of Bangladesh (Bangladesh Health Watch 2008). All the elected representatives of the local government (a category of key-informant of this study) agreed that informal healthcare providers are the only option for poor people. In addition to low cost, they are more accessible, they sell drugs in partial doses if required, and they are available at convenient times. According to the government officials, rich people have the option to pay for treatment but the poor do not have any other choice. Another study conducted by BRAC shows a similar pattern that majority of the rural community people quest for treatment in the informal sector (Zaman 2004). One of the respondents mentioned, "*Rich people can go to the district hospital or faraway places if it is necessary*

but the poor have no choice. They have to go to the Village Doctor whether the treatment is appropriate or not."

The Union *Porishad* chairman and members said that they do not have any power to control the informal health sector. They very rarely complain to the high government officials against the providers. The Union *porishad* members do not have authority over the informal healthcare providers, however, they would like to have some authority so that the Village Doctors can be made accountable to the villagers.

Discussion

It was apparent that the Village Doctors are very popular among the villagers because they are conveniently available with drugs and low prices. It was indicated that the villagers in their cognition relate different types of healthcare providers with specific diseases and/or conditions. The villagers think of MBBS doctors when it comes to acute life threatening conditions of newborns such as convulsions and pneumonia. For conditions like loose motion and skin disease, they think of Village Doctors. The people's representatives have no role in the governance of the healthcare providers; however, they are interested to play a role if there is an opportunity. The perception of the villagers about major diseases was quite consistent with the epidemiological scenario of Bangladesh, particularly of the rural areas.

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Chapter 6
Health-seeking Behaviour

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Abstract

The findings in this chapter portray the health-seeking pattern of the villagers in Chakaria and the role of health care providers, especially the village doctors in the healthcare provision of the area. A survey was carried out during February 2007 among 1,000 randomly selected households of Chakaria. Information was collected from households having at least one member who fell sick during the 14 days preceding the survey. 43.5% of the villagers reported suffering from illness during 14 days preceding the survey and 47% of them sought treatment for their ailment. 40% of those not seeking treatment mentioned shortage of money as the deterring factor. A clear gender differential against females was observed in treatment seeking behaviour. Village doctors were identified as key actors in the provision of healthcare, providing 65% of the services, irrespective of the type of disease. Use of qualified health services (i.e. MBBS doctors) was as low as 14%. Moreover, Village doctors were the first line of care for the majority of the patients. Home remedy was also commonly practiced for all types of diseases and this was the second most frequently used treatment option. These findings reiterate the need to recognize the role of Village Doctors in the provision of healthcare in rural areas.

Introduction

This chapter focuses on the type of illnesses the villagers suffered from during the two weeks preceding the survey and their associated health seeking behavior. Data presented in this chapter are expected to provide an opportunity to assess the health needs of the people, the size of the health market and the market share of various healthcare providers. The findings will be helpful in projecting health market trends, adequacy of the healthcare system, and opportunities for interventions.

Methodology

Data for this chapter were collected from the villagers through a survey. Details of the methodology adopted are presented below.

Instruments

A questionnaire was developed to collect information on health-seeking behaviour of the villagers. The questionnaire was administered to villagers who reported being ill during the 14 days preceding the survey. This questionnaire was pre-tested outside the study area in order to ensure consistency, appropriateness of language and sequencing of the questions. Based on the feedback from pre-testing, the questionnaire was modified and rephrased where necessary. Data were collected on: symptoms of illnesses, care-seeking behaviour during illness including home remedy and consultation with healthcare providers, type of healthcare provider contacted, and the socioeconomic characteristics of the households.

Respondents

Respondents were adults who had been ill and for the ill children, the respondent was either their mother or their caregiver. In total, health-seeking behaviour was recorded for 767 individuals.

Interviewers

Twenty-one interviewers with 12 years or more of formal education were recruited for data collection, majority of whom had previous field experience. Two supervisors supervised the interviewers in two groups. Interviewers received in-class training for three days and had field practice for another two days followed by an extensive de-briefing by the supervisors at the end of each day. An instruction manual explaining the key terms in the questionnaire was developed and provided to the interviewers as a guide.

Data Collection

Information was collected from 1,000 households during February 2007. These households were randomly selected from the 7,600 households of the Chakaria Health and Demographic Surveillance System area. A total of 6,162 members were living in these 1,000 households at the time of data collection. From these selected households, 892 households had reported at least one member who was ill during the 14 days preceding data collection. For the households that had more than one ill person, one was selected randomly for data collection. Among the 892 patients, 120 were not available at the time of data collection, two refused to participate in the survey and there were missing information on another three patients. Therefore, information on health seeking behaviour was collected for 767 patients.

Quality Control

The supervisors of the data collectors, besides their day-to-day supervision, re-interviewed 3% of the households and any inconsistencies identified between the two interviews were corrected. Inconsistencies identified while checking the questionnaires were sorted out through additional field visits, if needed, by the supervisors.

Data Management and Analysis

Each questionnaire was scrutinized in the field and at the field office on the same day of the interview. Data entry using Foxpro database software was started within two days of the beginning of data collection. Data analysis was done using SPSS.

Variables

Health-seeking Behavior

Health-seeking behaviour has been defined as a "sequence of remedial actions that individuals undertake to rectify perceived ill-

health." In particular, information on time lag between the onset of illness and contacting a healthcare provider, type of healthcare provider, patient's compliance with treatment, reasons for choice of healthcare provider, and reasons for not contacting a healthcare provider were collected.

Home Remedy

Any remedial action undertaken by an individual without consulting a healthcare provider has been considered a 'home remedy'.

Illnesses

The illnesses mentioned in this paper are based on reported symptoms or names of illness reported by the respondents themselves. If the name of an illness was mentioned, the symptoms were also recorded. For ease of analysis, similar types of diseases were grouped together based on the coding scheme developed by a physician. The broad categories in which diseases were grouped together were: respiratory tract diseases, infectious diseases, neurological diseases, gastro-intestinal tract diseases, skin and soft tissue diseases, musculo-skeletal diseases, kidney and urinary tract diseases, eye problem, cardiovascular diseases, cancer, cold/fever, diarrhoeal diseases, and hepatobilliary. If a single patient mentioned multiple illnesses within the reporting time period, all were recorded. However, to minimize recall bias, health-seeking behaviour for that particular patient was recorded for the most recent illness.

Socioeconomic Status

The socioeconomic status of the individuals was derived by using the asset quintile approach. The list of assets included van/rickshaw, bicycle, motorcycle, television, telephone/cell phone, radio, watch/clock, couch, chair, table, bed *(Khat/Chouki)*, mosquito net, quilt/blanket, electricity connection, sewing machine, tube well, sanitary latrine, mattress, and Almirah (wardrobe).

All these assets were coded as dichotomous variables where ownership of an asset was coded as 1 or 0 otherwise. Each household asset for which information was collected was assigned a weight equal to the factor score generated through a principal component analysis. The factor analysis procedure in SPSS was used. This procedure first standardizes the indicator variables. Then the factor coefficient scores (factor loadings) are calculated; and finally, for each household, the indicator values were multiplied by the loadings and summed to produce the household's index value. The resulting sum is itself a standardized score with a mean of zero and a standard deviation of one. Individuals were then ranked according to the total score of the households they belong to (Rutstein and Kiersten 2004; Filmer and Pritchett 2001; Gwatkin *et al.* 2000; Hotelling 1933). Finally using these scores the sample was stratified in five quintiles from lowest to the highest quintile, the higher the quintiles the better off the households.

Findings

Health-seeking Behaviour

In Chakaria, 43.5% of the 6,162 individuals included in the community survey reported suffering from some kind of illness during the 14 days preceding the survey. This figure seems high but it was observed that a seasonal wave of viral fever was responsible for this high rate of illness. Around 58% of the patients included in the survey were suffering from cold and fever and if these patients are excluded, the illness rate falls to around 18%.

Disease Pattern

Table 6.1 presents the reported disease pattern. Cold and fever accounted for almost 58% of the reported diseases which was higher than average. A seasonal wave of viral fever and cold during the time of the survey could be responsible for such high proportions.

Musculo-skeletal diseases (8.8%), which included aches in different parts of the body, was the second most prevalent category of diseases. 8.5% reported gastro-intestinal tract diseases other than diarrhea while 5.4% suffered from neurological diseases. Respiratory tract and diarrhoeal diseases each accounted for 4.4% of the diseases.

Table 6.1 Disease pattern

Diseases	%
Cold/Fever	57.6
Musculo-skeletal diseases	8.8
Gastro-intestinal tract diseases	8.5
Neurological disease	5.4
Respiratory tract diseases	4.4
Diarrhoeal diseases	4.4
Skin and soft tissue diseases	2.7
Cardiovascular diseases	2.6
Infectious diseases	1.9
Eye problem	1.5
Kidney and urinary tract diseases	0.3
Hepatobilliary	0.3
Cancer	0.1
Other	1.4
Total	100
N	767

Age and Sex-specific Illness Pattern

Age-specific illness pattern is presented in figure 6.1. It shows that for patients of the younger age group, illnesses were reported more for the male children compared to their female counterparts. However, after the age of 10, illness was reported more by females compared to males. Interestingly, the percent of the males reporting any illness exceeded that of females after the age of 60 (Figure 6.1).

Figure 6.1 Age-sex specific illness pattern
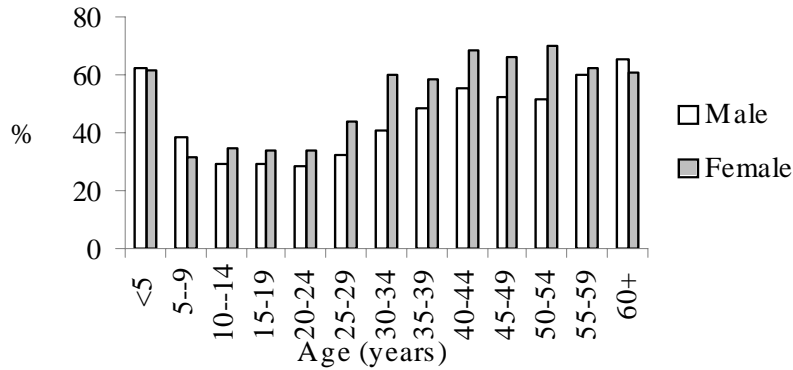
Treatment Seeking

Data show that 47.1% of the 767 individuals reporting any illness resorted to some kind of treatment for their illness, either home remedy or care from a healthcare provider and the rest did not do anything to treat their illness due to various reasons.

A clear gender difference was observed in treatment seeking behaviour (Fig 6.2). Although females reported diseases more than the males, treatment seeking was significantly higher for males compared to females. This was true for almost all the age groups (Fig 6.2 and Fig 6.3).

Figure 6.2 Reporting of illnesses and treatment seeking by sex
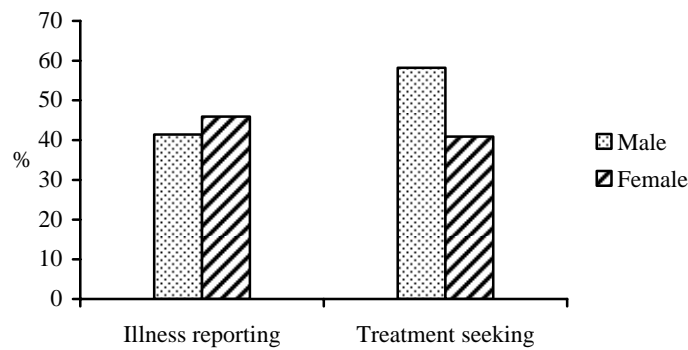
Figure 6.3 Age specific treatment seeking by sex
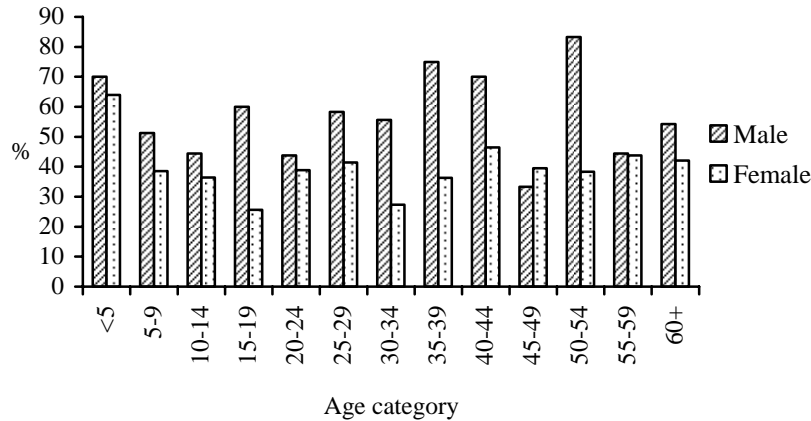
Patients mentioned different reasons for not seeking treatment. About 51% did not feel that the disease required any treatment and another 2.7% were waiting for the disease to get serious enough to consult a healthcare provider. Forty percent of the patients who did not seek treatment did so because they did not have enough money to consult a healthcare provider. Around 5% were self-medicating based on a past prescription by a healthcare provider for a similar health problem, whereas, 2% depended on self-medication without previous prescription. Only 1.7% mentioned that there were no healthcare providers available nearby. Some mentioned that they did not have the time to seek treatment from anyone while others mentioned that they were not in a state to personally contact the healthcare provider or they did not have anyone to help them to get treatment. There was another 2% who did not seek treatment because they did not believe that treatment would make a difference.

Type of Healthcare Sought

The majority of the 360 patients (64.7%) who sought treatment, consulted either a Village Doctor or a drug seller at some point during treatment. Forty-six percent of the patients sought treatment only from the Village Doctors or drug sellers. On the other hand, consultation with an MBBS doctor in combination with other types of healthcare providers was 14.2% and the percent of patients

consulting only MBBS doctors during the illness episode was even lower (9.4%). Around twelve percent sought homeopathic treatment at some stage of their illness, 2.5% depended on spiritual/traditional healers and 5.6% of the patients depended solely on home remedy (Table 6.2). The various types of home remedies practiced for the most frequently reported diseases are described in Box 1.

Box 1: Home remedy for different illnesses

Respiratory tract disease: Oil massage, self-medication, following previous prescription for a similar disease, herbal medicine, drinking hot water, sponging the body.

Gastro-intestinal disease: Oil massage, hot water bath, self medication, warm compress, following previous prescription for a similar disease, using herbal medicine, body massage, drinking spiritual water, putting on warm clothing, warm compress, eating sour food.

Neurological diseases: Self-medication, balm massage, warm compress, pouring water on head, following previous prescription for a similar disease, drinking a lot of fluid, head massage with oil, wrapping the hand with a piece of cloth.

Musculo-skeletal diseases: Oil massage, taking a mixture of oil and onion, gurgling with hot water, self medication, balm massage, warm compress, following previous prescription for a similar disease, herbal medicine, body massage, drinking hot water, rapping the waist with a piece of cloth, drinking spiritual water, drinking saline water, massaging with honey.

Cold and fever: Warm compress, self-medication, putting on warm clothing, oil massage, taking a mixture of oil and onion, balm massage, pouring water on head, following previous prescription for a similar disease, using herbal medicine, drinking hot water, body massage, taking a lot of fluid, putting oil on head, sponging the body.

Diarrhoeal diseases: Self-medication, drinking sherbet

Table 6.2 Type of healthcare provider consulted

Type of healthcare provider (n=360)	%
Village Doctor/pharmacy	64.7
Home remedy	27.8
MBBS	14.2
Homeopath	11.7
SACMO	5.8
Pir/Fakir(spiritual healer)	1.4
Kabiraj (traditional healer)	1.1
Others	1.9

Note: Multiple responses recorded.

Type of Healthcare Sought for Most Frequently Reported Diseases

Treatment seeking from various types of healthcare providers for the six most frequently reported diseases is presented in Table 6.3. Data shows that for all of these diseases, Village Doctors have been the dominant source of care, providing treatment for almost 60% of the cases. Village Doctors are therefore, an integral part of the existing healthcare system of the area.

Table 6.3 Disease specific preference for various healthcare
providers

Disease (n=360)	Type of healthcare provider	%
Cold/Fever	Village Doctors/Pharmacy	77.0
	Home remedy	24.6
	Homeopathic doctors	8.7
	MBBS	8.3
	Paramedics/SACMO	5.2
	Kabiraj (traditional healer)	0.4
	Pir/Fakir(spiritual healer)	0
Musculo-skeletal diseases	Home remedy	56.7
	Village Doctors/Pharmacy	53.3
	MBBS	16.7
	Homeopathic doctors	13.3

Table 6.3 Disease specific preference for various healthcare
providers (Contd.)

Disease (n=360)	Type of healthcare provider	%
	Paramedics/SACMO	3.3
	Pir/Fakir (spiritual healer)	3.3
	Kabiraj (traditional healer)	0
Gastro intestinal diseases	Village Doctors/Pharmacy	63.3
	Homeopathic doctors	20
	MBBS	16.7
	Home remedy	10
	Paramedics/SACMO	3.3
	Kabiraj (traditional healer)	3.3
	Pir/Fakir (spiritual healer)	3.3
Neurological diseases	Village Doctors/Pharmacy	68.8
	Home remedy	31.3
	MBBS	25
	Paramedics/SACMO	6.3
	Pir/Fakir (spiritual healer)	6.3
	Homeopathic doctors	0
	Kabiraj (traditional healer)	0
Respiratory tract diseases	Village Doctors/Pharmacy	59.3
	Home remedy	29.6
	MBBS	25.9
	Homeopathic doctors	7.4
	Paramedics/SACMO	7.4
	Pir/Fakir (spiritual healer)	3.7
	Kabiraj (traditional healer)	0
Diarrhoeal diseases	Home remedy	57.1
	Village doctors/Pharmacy	47.6
	MBBS	14.3
	Homeopathic doctors	4.8
	Paramedics/SACMO	4.8
	Kabiraj (traditional healer)	0
	Pir/Fakir (spiritual healer)	0

Note: Multiple responses recorded.

First Line of Care

For majority of the patients (50.3%) who were ill during the 14
days preceding the survey, Village Doctors or the drug sellers were

the first line of care or the very first choice of treatment for a particular illness episode (Table 6.4). Twenty-three percent of the patients used home remedy as the first line of care. Only 10.6% of the patients reported that MBBS doctors were their first choice. Homeopathic treatment was the first choice for around 8% of the patients while the spiritual/traditional healers were the first choice in 1.1% of the cases. (Table 6.4)

Table 6.4   First line of care

Type of healthcare provider (n=360)	%
Village Doctors/Pharmacy	50.3
Home remedy	23.3
MBBS	10.6
Homeopathic doctors	8.1
Paramedic/SACMO	4.7
Pir/Fakir (spiritual healer)	1.1
Others	1.9
Total	100

Note: SACMO=Sub assistant community medical officer

Apart from home remedy as a choice for illness management, about 340 patients (44.4% of the total ill) actually went to some type of healthcare provider to treat their illnesses. Patients consulted up to four healthcare providers for the illnesses that they reported. The number of patients seeking care from more than one provider, however, was very small. Therefore, information on health seeking was collected for up to the second healthcare provider consulted for a single episode of illness. The next section presents findings on treatment sought from the first and the second providers for diseases of 14 days preceding the survey.

First Healthcare Provider

Type

Excluding home remedy as a source of healthcare, 44.4% of the 767 patients suffering from an illness during 14 days preceding the

survey consulted a healthcare provider. Among these healthcare providers, Village Doctors were the most consulted (66.7%), followed by MBBS (12.1%) and homeopathic doctors (12.1%). A few people also consulted paramedics or traditional healers (Table 6.5).

Table 6.5   Type of first healthcare provider consulted

Type of healthcare provider (n=340)	%
Village Doctors	66.7
MBBS	12.1
Homeopathic doctors	12.1
Paramedic	6.7
Pir/fakir (spiritual healer)	1.2
Kabiraj (traditional healer)	0.3
Other	0.9
Total	100

Place of the First Contact with a Healthcare Provider

Among all patients who sought treatment, only 4.7% had their first contact with a healthcare provider at a public health facility. In contrast, 68.4% people had their first contact with a healthcare provider at a private facility. The rest of the people had their first contact with a healthcare provider at a pharmacy or drug store (16.4%) or at home through house calls (6.4%). Two of the patients consulted a healthcare provider over the phone and six patients availed the NGO health facilities.

Reasons Behind the Choice of the First Healthcare Provider

Most of the patients chose the healthcare provider based on the belief that they were receiving quality healthcare from them. Around 38% of the patients reported that they chose the healthcare provider, as they were the closest to their homes. The cost of treatment was another important reason for choosing healthcare

providers. Many patients preferred healthcare providers who offer low-cost treatment or provide treatment on credit. The behavior of the healthcare provider (14%), prior relationship with the healthcare provider (4%) and the lack of options regarding the healthcare providers practicing nearby (4.7%) were mentioned as reasons for choosing a particular healthcare provider (Table 6.6).

Table 6.6 Reasons behind the choice of the first healthcare provider

Reasons for choosing the healthcare provider (n=340)	%
Perceived good quality of treatment	73.1
Nearest healthcare provider	38.0
Treatment cost on credit	10.8
Low treatment cost	19.6
Well behaved healthcare provider	14.0
No other healthcare facility available nearby	4.7
Healthcare provider is a family member or a relative or a known person	4.0
Provision of free medicine by the healthcare provider	0.3
Advised by neighbours or others	0.6

Note: Multiple responses recorded.

Advice and Decision Making

The survey collected information on who advised the patient to seek treatment and also on who made the decision to consult a healthcare provider. The findings help to demonstrate the role of the family members, relatives and other surrounding people in the social network of the patient in his/her health-seeking behaviour.

Data showed that for 84% of the 166 patients aged up to 18 years, parents decided where treatment would be sought from. Thirty-eight percent of the 86 married female patients were advised by their husbands to seek care as opposed to only 4.1% of the 49 married male patients receiving advice from their wives and this difference was statistically significant. Around sixteen percent of

the married female patients also received advice to seek care from their grownup children, whereas for married male patients, only 2% received advice from their children. Among others, 8.2% of the patients of all age groups were advised by their relatives and 5% by their neighbours.

In terms of deciding to consult a healthcare provider, 52.3% of the adult patients (aged over 18 years) made the decision by themselves. However, a clear gender differential was observed in the decision making process to consult a healthcare provider. Only 43% of the adult female patients took the decision to consult a healthcare provider on their own compared to 71% of their male counterparts. Husbands were the decision makers for 43% of the female patients. These data highlight the fact that the decisions related to the health needs of a woman are dominated by the people living around her, in most cases, by her husband.

Compliance with Treatment

Medicine

Most of the 340 patients (79.8%) bought the full course of medicine suggested by their first healthcare providers. Around 13% bought a part of the medicine prescribed and one of the main reasons for not buying the complete dose was lack of money. Around 7% did not buy the medicine because they were provided free of cost. Only one patient did not buy any medicine because s/he did not have the money for it. Thirty-two patients reported that they ran out of medicine during the treatment period and 21 of them stopped taking the medicine as a result.

Diagnostics

Of the 17 patients advised to get some diagnostic tests, 15 went for the tests while the rest did not. Of the 6 patients advised to get an X-ray done, only 3 followed the advice.

Level of Satisfaction with the First Healthcare Provider

Around 90% of the 340 patients were either satisfied or satisfied to some extent with the quality of treatment that they received from their first healthcare provider, while the rest were not. It was also found that for 14.6 % of the patients, the condition of illness either remained unchanged or deteriorated after the treatment and 10% had decided not to consult the healthcare provider in future. Cost of treatment, distance from the patient's place and behaviour of the healthcare provider were the other reasons mentioned as factors influencing the satisfaction of the patients with the healthcare providers.

Referral Practice of the First Healthcare Provider

The first healthcare provider referred very few cases to other treatment providers. Only 5 out of the 340 patients were referred for further consultation, although 9 patients felt that their condition deteriorated after treatment and another 41 felt that their condition remained unchanged. Among the referred cases, three patients were referred by Village Doctors to an MBBS doctor, one was referred by an MBBS doctor to the medical college hospital and another by a homeopathic doctor to another homeopathic doctor. All three patients handled by Village Doctors were referred to MBBS doctors after two days of treatment. The MBBS doctor referred the patient to the medical college after 15 days, and the homeopathic doctor referred the patient after five days of treatment.

Second Healthcare Provider

Most of the patients (88%) who were still sick on the day of the interview, did not seek care from a second healthcare provider mainly because they believed that they would be cured soon. For the rest, 47 patients could not consult a second healthcare provider due to lack of money and for five patients, lack of an alternate provider in close proximity was the reason for not consulting a second healthcare provider. A few did not have the time nor did

they have another person available to contact the healthcare provider on their behalf. For some patients, shortage of money (47), unavailability of a healthcare provider nearby (5), lack of time and lack of another person to seek healthcare on the patient's behalf were the reasons for not consulting a second healthcare provider.

In total, 30 patients went on to consult a second healthcare provider. The majority of these patients (83.3%) consulted the second healthcare provider on their own and only 5 patients were referred by their first healthcare provider.

The choice of second healthcare provider was very much similar to that of the first healthcare provider with over 48% of the patients going to the Village Doctors (Table 6.7). These results again highlight the fact that Village Doctors are an important part of the healthcare system of the study community.

Table 6.7 Type of second healthcare provider used for second
consultation

Type of healthcare provider	%
Village Doctors	48.4
MBBS	20.7
Homeopath doctor	17.2
Kabiraj (traditional healers)	10.3
Pir/Fakir (spiritual healers)	3.4
Total	100
N	30

Figure 6.4 shows the pathway from the first consultation to the second by type of healthcare provider. It helps us to observe whether a patient choosing a Village Doctor at the beginning of treatment always chooses a Village Doctor or does s/he seek treatment from any other type of provider in case the first provider fails to cure him/her. It was observed from the survey that only 30 patients had consulted a second healthcare practitioner for the

illness concerned. However, only 6 (20%) of them had consulted an MBBS doctor on the second round of which only one had previously consulted an MBBS doctor. The others had consulted Village Doctors or homeopaths during their initial visits. Interestingly, two of the patients who had consulted an MBBS on their first visit were observed to seek care from a Village Doctor and the other from a religious healer on the second consultation. This shows an overall picture of the eclectic pattern of pluralistic behaviour by the community people in choosing a healthcare provider.

Figure 6.4   Choice of first and second healthcare provider
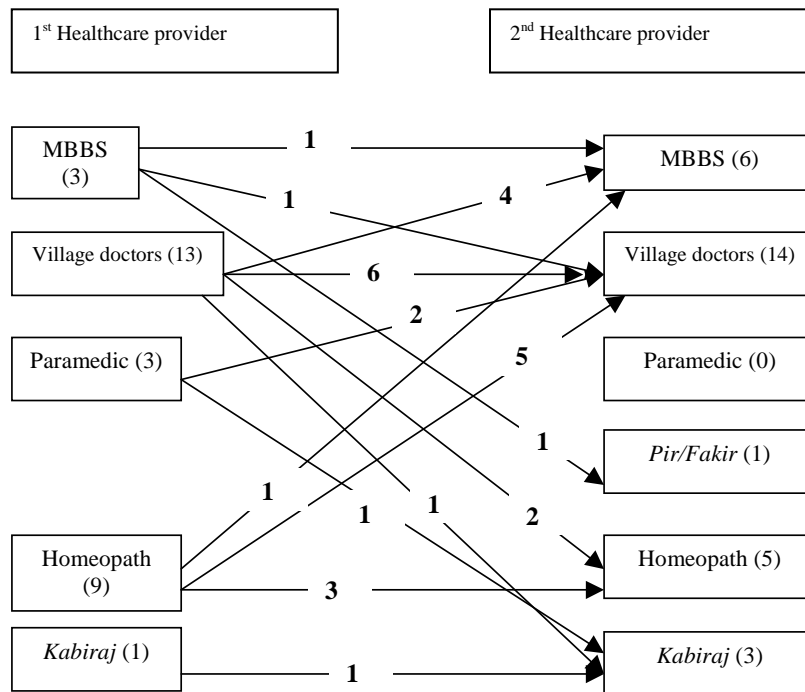
Reason for Choosing the Second Healthcare Provider

In the case of the second healthcare provider, the choice was made based on reasons similar to the first healthcare provider. The majority went to a particular healthcare provider based on the belief that they would receive better treatment. Proximity to the

service delivery place, behaviour of the healthcare provider and cost of treatment were among the other factors influencing the choice of the second healthcare provider.

Socio-economic Status and Health-seeking Behaviour

The socioeconomic status (SES) of individuals is believed to influence their health-seeking behaviour (Gwatkin *et al.* 2007; Ahmed 2005; Ahmed *et al.* 2005; Cockcroft, Milne and Anderson 2004; Bhuiya and Streatfield 1995). In this section, the health-seeking behaviour has been analyzed by household asset quintiles.

Illness Reporting and Treatment Seeking by SES

Data showed, of the 2,688 patients who had reported an illness during the 14 days preceding the survey, a significantly higher proportion of people from the lowest quintile reported being ill (47.3 %) compared to the highest quintile (42 %) (Table 6.8). Of these 2,688 patients, treatment-seeking behaviour was recorded for 767 randomly selected patients. It was observed that despite a higher reporting of illness in the lowest quintile, treatment seeking was lower (43.1%) than that for the patients in the highest quintile (53.2%). However, this difference was found to be significant only at 10% level of significance.

Table 6.8 Proportion of ill people in the various asset quintiles

Asset quintile	N	Sickness during the 14 days preceding the survey (%)
1 (Lowest)	1085	47.3
2	1090	46.2
3	1240	42.7
4	1372	40.5
5 (Highest)	1375	42.0
Total	6162	43.5

Table 6.9 shows a comparative picture of the number of patients reporting different diseases in the lowest and the highest quintiles. Cold and fever was reported most frequently by rich and poor

patients alike. Reporting of gastro-intestinal diseases was slightly higher among the poor patients compared to the rich. Rich patients reported musculo-skeletal diseases more than the poor. Reporting of other diseases did not vary much by the socioeconomic status.

Table 6.9 Number of patients suffering from different diseases in the lowest and the highest quintiles

Diseases	Lowest quintile	Highest quintile
Cold/fever	64.4	69.9
Gastro-intestinal tract diseases	11.9	7.1
Musculo-skeletal diseases	8.8	13.5
Respiratory tract diseases	6.3	4.5
Neurological diseases	6.3	8.3
Diarrhoeal diseases	4.4	4.5
Skin and soft tissue diseases	2.5	3.2
Cardiovascular diseases	1.9	3.2
Infectious diseases	1.9	1.3
Others	1.3	1.9
N	160	156

Note: Multiple responses recorded.

Choice of Healthcare Provider

Among the patients who sought treatment from a healthcare provider, 11.6%, 8 out of 69, in the lowest quintile went to MBBS doctors compared to 16.9%, 14 out of 83, in the highest quintile. Seeking care from Village Doctors was slightly higher among patients from the lowest quintile 69.6%, 48 out of 69 patients, compared to the patients from the highest quintile 67.5%, 56 out of 83 patients (Table 6.10). However, none of these differences were statistically significant.

Table 6.10 Choice of healthcare provider by asset quintiles

Type of healthcare provider	Poor (%)	Rich (%)	Total (%)
MBBS	11.6	16.9	14.2
Home remedy	18.8	32.5	27.8
Village Doctors	69.6	67.5	64.7
SACMO	4.3	4.8	5.8
Homeopath	11.6	13.3	11.7
Total	69	83	360

The findings presented so far in this chapter highlight the important role of Village Doctors in the health of the people of Chakaria, particularly of the poor.

Discussion

This chapter presents the health-seeking behaviour of the people in Chakaria, a rural area in Bangladesh. The results show that half of the people (47.1%) reporting any sickness during the 14 days preceding the survey had sought treatment for their illnesses. However, treatment seeking was not equitable throughout the community. A clear gender differential in treatment seeking was observed in the area. The study showed that although more females reported being ill compared to males, treatment seeking was significantly higher among males compared to the females. Also, those women who sought treatment, the decision came from the husband or other family members. In very few cases women were their own decision makers in seeking healthcare. This low level of treatment seeking and the dominance of others on decisions regarding health needs of a woman have far reaching implications, specifically for females of the adolescent and the reproductive age groups. This bias in availing treatment and the low level of control of a woman over decision-making could be a result of the cultural priority against women that has been in place for decades. At the same time, the subordinate status of women in many developing nations acts to limit their autonomy in decision-making (Ahmed *et al.* 2000; Okojie 1994).

In developing countries, constrained access to healthcare facilities reinforces the need to focus on local solutions in the management of illnesses (Hausmann-Muela, Ribera and Nyamongo 2003). In Bangladesh, so far few studies have looked into the role of home remedy or home based therapy in managing illnesses (Ahmed *et al.* 2005; Bhuiya and Streatfield 1995; Parker 1990; Chowdhury, Ashraf and Aldis 1982; Aziz 1977). This study collected information on the common practices regarding home-based illness management in Chakaria. Results show that in Chakaria home remedy is commonly practiced for almost all diseases. An account of these various types of home remedies that are practiced in treating different diseases has been presented in this chapter. These practices need to be further explored to identify the ones that are potentially harmful for the patients. At the same time, some useful practices might even be promoted in the community in order to facilitate home based management of minor illnesses (D'Souza 2003).

The Village Doctors in Chakaria were identified as key actors in the provision of healthcare of the area. Results show that Village Doctors are providing 65% of the healthcare in the area, irrespective of the type of diseases. Use of qualified health services, especially from the MBBS doctors, on the other hand, was as low as 14%. Studies conducted earlier in Bangladesh have also shown that Village Doctors are occupying the major share of the health market of the rural areas (Bangladesh Health Watch 2008; Cockcroft, Milne and Anderson 2004). In Chakaria, the Village Doctors were also the first choice of treatment in most cases and the only choice in some cases for the villagers.

In studying the effect of socioeconomic status on healthcare seeking behaviour, the findings show that illness reporting was highest in the lowest quintile. However, no socioeconomic differences were observed in treatment seeking. Also the preference for various healthcare providers did not vary significantly across the different socioeconomic status. It should be mentioned that this lack of statistically significant association between health-seeking behaviour and socioeconomic status could be a result of the small number of patients in the different quintiles.

Nevertheless, what is interesting is that the Village Doctors are popular among people from all socioeconomic strata.

Although many studies have questioned the quality of the health services provided by the informal healthcare practitioners, particularly by the Village Doctors and their level of knowledge (Ahmed 2005; NIPORT, Mitra and Associates and ORC Macro 2005; Peters and Kayne 2003; Bhuiya 1992), results show that the villagers choose them with the belief that they are receiving quality healthcare. Around 90% of the patients in Chakaria reported that they are either satisfied or satisfied to some extent with the services provided by the Village Doctors. However, the findings of the qualitative study presented in chapter 5 identified a clear gap between preference and practice in the use of healthcare providers by the villagers. It was found that for diseases that are perceived to be severe and thus require more qualified care, people tend to prefer MBBS doctors. On the other hand, for common diseases that are perceived as not severe, villagers prefer Village Doctors or homeopathic doctors. The factors that make people deviate from their actual preferences demand further exploration.

Despite the importance of the Village Doctors in meeting the health needs of the people and the poor in particular, little has been done to improve their quality. Interest in assessing and improving the quality of healthcare provided at the village level is often crowded out at the national level by the seemingly more immediate or overarching need to assure coverage and access. Similarly perhaps, interest in assessing and improving quality is dwarfed at the provider level by the pressing need to assure financial viability. In contexts such as these, the discussion of monitoring and improving quality of care, unfortunately, is viewed too often as a luxury (Heiby 2002). The findings in this chapter reiterate the need to recognize the role of the Village Doctors in meeting the health needs of the villagers, especially the poor. Where delay or difficulty in access to healthcare services is a reality in our health system, taking advantage of the wider availability of these Village Doctors to the poor might be an efficient and cost effective solution. Therefore, intervention programmes targeted towards improving the quality of services provided by the Village Doctors

have a greater potential to benefit the rural masses in general and the poor in particular.

Studies have shown that cost of healthcare may deter or delay healthcare utilization or promote use of less effective healthcare sources or practices, particularly by the poor (Koenig *et al.* 2007; Killewo *et al.* 2006; Bloom *et al.* 2000). Indeed, results from this study showed that 40% of the patients who did not seek treatment did so because they did not have enough money to consult a healthcare provider. Around 53% of the patients who suffered from an illness during the 14 days preceding the survey, did not seek any kind of care. Many patients even mentioned that they preferred a particular healthcare provider because the treatment cost was low and also because in some cases those providers offered treatment cost on credit. Thus to ensure universal access to reasonable healthcare, the cost must be minimized and policies to control healthcare cost at an affordable level need to be put in place. The findings also suggest that the cost of treatment could probably be a major factor determining the market share of various healthcare providers of an area.

Regarding the health market in Chakaria, the findings in this chapter help to shed light on the demand and supply side of healthcare. The health workers and the clients are the two major players of the health market. Regarding the health workers, there is evidence to suggest that for any health system, the number of health worker and quality of services are positively related to gains in health (Bangladesh Health Watch 2008; World Health Organization 2006; Joint Learning Initiative 2004). Bangladesh has been identified as one of the countries with a severe shortage of health workforce. The scenario is not different for Chakaria. According to the WHO recommendation, the required health worker (doctors, nurses and midwives) density is 2.5/1,000 population and the current health worker density for Chakaria is 0.13/1,000 population. This clearly indicates the severe shortage of health workers in Chakaria. To achieve the recommended level of density, Chakaria would need an addition of 1,328 health workers.

The required number of health workers can also be estimated based on the demand for it. The current illness prevalence rate in Chakaria can give an estimate of the size of demand in the market. According to the study, of the 6,162 individuals included in the survey, around 2,700 people (44%) suffered from some kind of illness within a 14-day time period. This would mean that in any one day for a population of 560,000 in Chakaria there would be about 17,600 people suffering from an illness. On the other hand, at the providers end, there are only 39 MBBS doctors practicing in Chakaria at present. If for instance, all the 17,600 patients decide to consult a qualified healthcare provider, specifically an MBBS, on a single day, then the existing pool of qualified providers within Chakaria will not suffice. This would mean a provider will then have to treat around 450 patients per day to ensure universal coverage, which is quite unrealistic. In an ideal situation where a provider takes a patient load of 30 per day, around 600 MBBS doctors will be required to fulfill this demand. All these point-out the prevailing provider inadequacy in the health market of Chakaria and the necessity to increase the number of skilled/qualified providers in the area. However, increasing the number of MBBS doctors will require tremendous resources and an immediate action towards reaching this number does not seem feasible. An alternate solution to the problem could be to make use of the available pool of under-skilled providers, particularly the Village Doctors. The health seeking pattern identified in this chapter shows that the Village Doctors are the most popular providers in the area. Therefore, ensuring an acceptable level of qualification among these providers through targeted training programmes could in turn ensure basic quality of healthcare for the majority of the villagers. However, further investigations into their practices are necessary to find out the challenges in terms of feasibility and sustainability.

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Chapter 7
Costs of Utilization of Healthcare Services

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Abstract

This chapter presents data on costs incurred for health care sought from various types of health care providers for an episode of illness. A survey of a thousand randomly selected households was carried out in Chakaria during February, 2007. Information was collected from those who had reported any illness within fourteen days prior to the survey. The survey collected information on direct medical costs incurred, which included costs of medicine, service fee for practitioners, transport, diagnostic tests, and indirect costs which refers to loss of earnings. Results show that the per capita cost for health care sought for an episode of illness was substantially higher for a qualified MBBS practitioner than any other type of informal provider, e.g. paramedics, Village Doctors and homeopaths. The indirect costs involved were also higher for an MBBS practitioner. It was observed that the costs of drugs constitute a major proportion of health care expenditure for all types of practitioners, and especially so for the informal health care providers. Other than the MBBS practitioners, all other types of practitioners were found to charge a negligible fee. The cost of transport associated with the MBBS doctors was also higher. Cost of health care did not differ significantly by socio-economic status or gender. The per capita cost for an episode of illness for the poorest quintile was quite substantial, indicating that health care costs incurred places an unfair burden on the poorest households. The higher fees and cost of transport associated with an MBBS doctor may result in a higher perception of costs and may act as a deterrent for seeking care from a qualified provider.

Introduction

This chapter addresses the issues related to the cost of utilization of healthcare services provided by different types of healthcare practitioners. In Bangladesh, an overwhelming majority of the population lives below the poverty threshold, thereby limiting their

access to critical healthcare and other basic needs. Cost of healthcare services may deter or delay patients, especially the poor, from seeking appropriate care as poor economic conditions and low income are known to suppress demand for health services. Affordability or perceived costs of care is a significant factor influencing healthcare behaviour such as choice of the provider and time of care. Consequences of delays and inadequacies of care can be severe, involving complications of the illness episode and additional costs. Episodes of illness and ill health may result in substantial medical expenses and trigger impoverishment of the households.

Existing constraints in public healthcare budgets limit public provision of subsidized healthcare in Bangladesh. Furthermore, in Bangladesh, similar to many other developing countries, there is a persistent shortage of skilled healthcare professionals who are not distributed optimally in rural and semi urban areas. Consequently, the private non-physician healthcare sector is the most common and significant source of curative care. This has serious implications on health equity as households, including the poor, have to spend a relatively large amount of money for healthcare from out-of-pocket expenses. In addition, the large informal private sector in Bangladesh consists of many different types of partially qualified and unqualified practitioners, providing care of low quality. It is evident from the community survey (Chapter 6) that, irrespective of their inadequate treatment practices, the informal healthcare practitioners are quite popular among a wide cross section of the rural population. The perceived costs associated with the different healthcare options are probably important factors determining healthcare seeking behaviour.

It is against this background that an attempt has been made to determine the economic burden of healthcare utilization in Chakaria, using community survey data. Economic burden is defined as expenditure on seeking treatment (direct cost), production and income losses (indirect cost), related coping strategies, and their consequences for the household livelihood in terms of indicators such as the number of workers and working days, asset portfolios, income and food consumption levels (Scoones 1998).

Methodology

The community survey was conducted in Chakaria, a rural *Upazila* near the south-eastern coast of Bangladesh during February 2007. The survey collected information on costs incurred for an episode of 'recent illness" defined as ill health experienced by the respondents within fourteen days prior to the survey. The survey included information on socio-economic characteristics of the households, the symptoms of illness, type of healthcare provider contacted for care, cost incurred for healthcare sought from various types of providers, healthcare costs for medicine, diagnostics, transport, and loss of workdays for illness.

Information was collected from a sample of 1,000 households, which were randomly selected from the 7,600 households included in the Chakaria Health and Demographic Surveillance System (HDSS) area. At the time of the survey, the total number of members of these selected households was 6,183. Approximately 89% (n=892) of the households reported illness of at least one member within 14 days prior to the survey. The survey collected information from those who had reported any illness within fourteen days prior to the survey; however, when there were multiple sick persons in a household, data were collected from a randomly selected member who was sick. If the person reporting an illness was a child, then data were collected from the mother or the relevant caregiver. Information related to illness was successfully collected from 767 respondents. It was observed from the community survey that not all who reported illnesses sought care from a healthcare provider. From the 360 (46.9%) who had sought care for the reported episode of illness, information related to the details of treatment costs associated with the illness were available for 342 respondents. The survey collected information on direct medical costs incurred, which included costs of medicine, service fee for practitioners, transport, diagnostic tests, and indirect costs which refer to lost earnings caused by illness. However, it is important to note that some of the respondents were unable to recall detailed information related to the various components of healthcare costs. The indirect medical costs were calculated by

multiplying the number of reported workdays lost by the minimum daily wage prevailing in Chakaria at that time.

A questionnaire was developed and pre-tested before the actual survey to assess the appropriateness of the data collection system, the field plan and relevance of the questions in achieving the objectives of the major study. An instruction manual explaining the key terms was provided for guidance. Twenty-one interviewers were trained for three days on the methods of data collection and subsequently field tested through a pre trial for a further two days. During the actual survey, the interviewer and the team supervisor scrutinized the completed questionnaires at the end of the day. The completed questionnaires were sent to the head office where the validity of the responses was checked, and if inconsistencies were found, the respondents were re-interviewed. A separate team resurveyed 2% of the households and data from the survey was crosschecked to ensure the validity and quality of data collected.

Findings

Cost of Treatment: Formal vs. Informal Healthcare Providers

Survey findings show that in the pluralistic healthcare system, the share of the MBBS physicians amounting to Taka 42,334 (1 USD= Taka 70) of the total amount of Taka 80,161 spent by the households for the episode of illness reported in the survey was foremost, with the Village Doctors' share representing quite a substantial amount (Tk 28,659) (Table 7.1).

Table 7.1 Share of different providers in the total amount spent

Type of healthcare provider	Share in total amount spent by households (in Taka)	%
MBBS	42,334	52.7
SACMO/Paramedic	3,734	4.7
Village Doctor	28,659	35.8
Traditional healers and others	5,434	6.8
Total	80,161	100

The results of the survey indicate that the per capita cost for healthcare sought for an episode of illness was substantially higher for a practitioner holding an MBBS degree than the costs incurred for all other types of practitioners (Table 7.2; Figure 7.1). The direct cost (which includes fees, transport) of being treated by a qualified MBBS provider is substantially higher than the costs incurred for healthcare providers in the informal sector. However, the differences in indirect costs involved were less in magnitude than the differences seen for direct costs. These differences in the costs of treatment were found to differ significantly by type of healthcare provider *(p<.001)*.

The mean cost for an MBBS practitioner was nearly four, five, and fifteen times more than the mean cost of treatment for an episode of illness by a paramedic, Village Doctor and a traditional healer, respectively for the first consultation. The median cost of treatment by an MBBS was nearly, six, eight and fourteen times higher, respectively, than a Village Doctor, paramedic and a traditional healer.

The indirect costs represent the loss of earnings associated with workdays lost or absenteeism due to illness. The number of workdays lost, as reported by the respondent, was multiplied by the minimum wage estimates (estimated at the minimum daily wage rate, Tk. 150, prevailing in Chakaria at the time of the survey)[1] to calculate the loss of earnings due to illness. Differences in wages by gender are quite significant in Bangladesh. However, the calculations for indirect costs did not include the differences in daily wage rates by gender. The mean and median number of workdays lost was nearly one and a half to two times more, respectively, for respondents being treated by a MBBS practitioner than any other practitioner (Figure 7.2). The preceding finding indicates that the severity of illness determines the source of care, i.e. people would prefer to consult an MBBS doctor if the illness is perceived to be serious. The suggested preference for qualified practitioners can also be supported by the findings of the

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[1] The average daily wage rate in Chittagong division was reported as Taka 125; and the national average was Taka 96 for 2006 (2).

qualitative study (see chapter 5 for details) where people expressed their preference for qualified healthcare providers for more severe illnesses.

Figure 7.1 Direct cost of treatment (in Taka) for all diseases at the first consult by type of healthcare provider
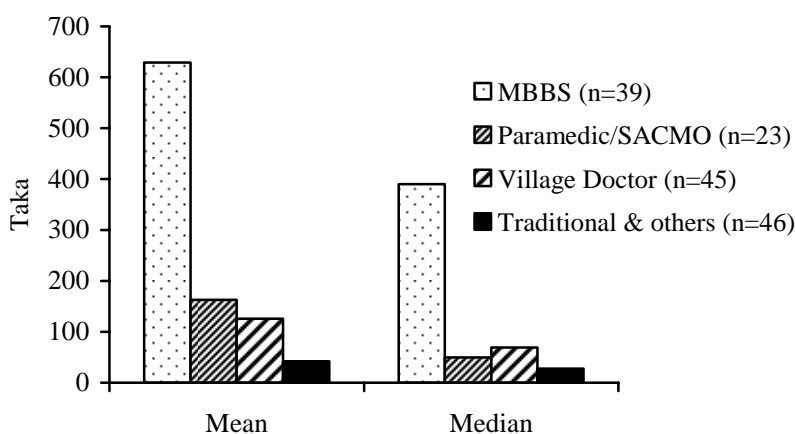
Table 7.2 Cost of treatment (in Taka) at the first consult by type of healthcare provider (all types of diseases included)

Type of healthcare provider		Direct Cost	Loss of workdays	Indirect Cost*
MBBS	Mean	629	11.97	1796
	Median	390	6	900
	N	39		33
Paramedic/SACMO	Mean	163	5.15	772.5
	Median	50	4.50	675
	N	23		20
Village Doctor	Mean	126	5.42	813
	Median	69	4	600
	N	212		167
Traditional and others	Mean	42	6.97	1046
	Median	28	4	750
	N	40		32

* Indirect Cost =Workdays lost multiplied by minimum daily wage for Chakaria.

Figure 7.2 Lost Workdays due to the illness episode
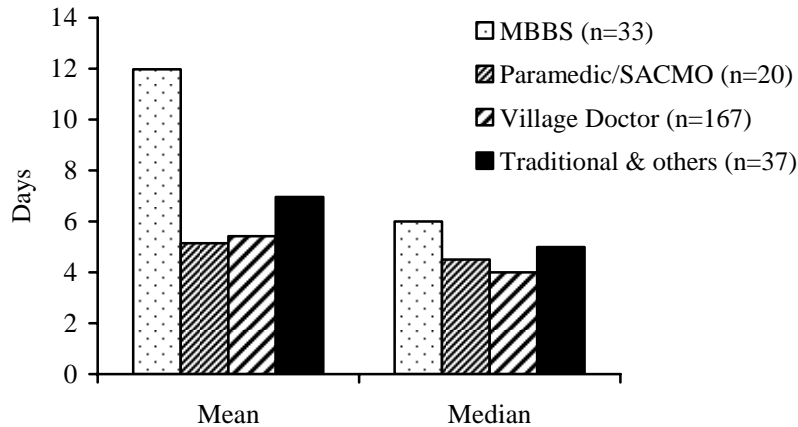
Recent studies have classified healthcare payments above 10% of income as 'catastrophic' for households, assuming that above this threshold, payments are likely to cause cuts to food consumption, debt and impoverishment (Ranson 2002; Prescott 1999). As information on household income was not available, the estimates of minimum wages prevailing in Chakaria at the time of the survey were used to calculate monthly income. Treatment costs above the threshold of Tk. 450 (10% of monthly income) represent costs that are classified as catastrophic costs for Chakaria. As observed, the direct mean cost involved for an MBBS is much more than Taka 450, and the median is nearly as much as the threshold cost. Thus, cost of treatment is probably an important deterrent of access to qualified healthcare providers. If gender differentials were incorporated, the threshold of catastrophic cost for females would have been lower and as such the cost of healthcare would be identified as more of a burden for females.

Survey findings reveal that only eight percent of the patients who had sought care for their illness had consulted a second healthcare provider for the reported illness episode. Table 7.3 shows that the per capita cost for an episode of illness for a second consultation was significantly higher for an MBBS practitioner than any other type of practitioner. The mean cost for a formal MBBS practitioner

was nearly 21 and 9 times more than the mean cost of treatment for an episode of illness by a Village Doctor and a traditional healer, respectively, for the second consultation. The median cost of treatment by an MBBS was nearly three to four times higher than a Village Doctor and a traditional healer, respectively. The per capita mean cost per episode of illness for an MBBS practitioner was substantially higher than that of the median, which probably is a reflection of catastrophic costs incurred. However, the difference in cost of treatment for the second consult by type of physician was not significant.

Table 7.3 Cost of Treatment , by type of physician for second consult.

Type of healthcare provider	Direct costs	Taka
MBBS	Mean	2970
	Median	390
	N	6
Village Doctor	Mean	142
	Median	117.5
	N	14
Traditional and others	Mean	334
	Median	140
	N	9

Cost of Treatment for Different Components of Healthcare

Survey findings illustrate that cost of medicine accounts for the major share in total cost incurred by the respondents for healthcare for the reported episode of illness. The amount spent for fees, diagnostics and transport were the other significant constituents of the total amount spent.

Table 7.4 provides the estimates of per capita costs for the different components of healthcare, which include consultations, laboratory tests, prescribed medicines, transport and clinic, or hospital costs.

As observed, cost of drugs constitutes a major proportion of healthcare expenditure for all types of practitioners (46.3% for MBBS doctors; 76% for SACMOs, 78.6% Village Doctors and 74% for traditional healers of total costs). The practitioners other than the MBBS doctors charge only a negligible amount as service fees. The mean service fee of an MBBS physician is 11, 9.5 and more than 100 times greater than the fees (mean) charged by a SACMO, Village Doctor, and traditional healer. Thus, it is possible that the higher fees involved in visiting an MBBS doctor result in a higher perception of costs involved, amongst the community members and may act as a deterrent for seeking healthcare from the qualified physicians. The cost of transport involved for an MBBS doctor is much higher than that for the other practitioners, implying that the distance (and cost) involved is more, acting as a barrier to utilization. Furthermore, informal healthcare providers are closer in proximity and the existing number serving in the community is substantial, which has an impact on people's health seeking behaviour and healthcare consumption.

Table 7.4 Breakdown of direct costs for first consult

Type of healthcare provider		Cost of treatment (in Taka)					
		Fees	Transport	Drugs	Diagnos-tics	X-ray	Clinic/ Hospital
MBBS	Mean	102	67	291	.7	13	0
	Median	100	40	170	0	0	0
	N	37	37	36	36	38	38
SACMO	Mean	9	11	124	12.17	0	0
	Median	0	0	50	0	0	0
	N	23	23	23	23	23	23
Village Doctor	Mean	11	6.4	99	1.3	0	0
	Median	0	0	55	0	0	0
	N	219	224	219	222	223	225
Traditional and others	Mean	12	7.4	28	0	0	0
	Median	0	0	20	0	0	0
	N	49	49	49	49	49	49

For the second consultation (Table 7.5), estimates of per capita costs for the components of healthcare reveal that costs of drugs constitute a major proportion of healthcare expenditure for all types of practitioners, except for MBBS practitioners (costs for diagnostics were higher) when mean costs are considered. Furthermore, when median costs are considered, drug costs remain a major constituent of healthcare expenditure for all types of practitioners. The mean cost for diagnostic tests was much higher for the MBBS doctors than that of the other practitioners. However, when median costs were considered, the cost involved were a minor proportion of total costs for healthcare. The observed difference was the result of the sizeable cost incurred for diagnostics by a patient, indicating that for complicated cases, the diagnostic tests required may be extensive and the costs incurred can be quite substantial.

Table 7.5 Breakdown of direct costs for second consult

Type of healthcare provider		Cost of treatment (in Taka)					
		Fees	Trans-port	Drugs	Diag-nostics	X-ray	Clinic/Hospital
MBBS	Mean	74	88	224	1197	100	0
	Median	60	50	200	10	0	0
	N	5	5	5	6	6	6
Village Doctor	Mean	11.4	15.3	114	1.4	0	0
	Median	0	0	87.5	0	0	0
	N	14	14	14	14	14	14
Traditional And others	Mean	2.2		264	0	0	0
	Median	0	20	100	0	0	0
	N	9	9	9	9	9	9

Differences in Costs by Type of Disease

The data when analyzed by type of disease resulted in a small number of observations in each category of disease. As such, the reliability of the findings should be viewed with caution. The differences in cost for the first consult and loss of workdays differed significantly by type of disease (p<.001). However, the costs for second consult did not differ significantly by type of

disease. The survey data reveals that the per capita cost of treatment and per capita loss of workdays per episode of illness for respiratory tract diseases, infectious diseases, kidney and urinary tract diseases, and hepatobiliary diseases were quite significant. If indirect costs are included, the per capita cost of treatment for all types of diseases is considerable (Table 7.6). The estimated per capita overall treatment costs were observed to be more than the mentioned threshold for catastrophic costs incurred for all type of diseases. It is observed from the survey data that indirect costs of illnesses (income losses), particularly for prolonged illnesses, were quite significant and the economic burden was more than direct costs. The considerable cost incurred for healthcare is probably the major reason for people missing needed medical treatment at the right time, leading to an increased risk of suffering and consequent impoverishment. When the total costs incurred in the survey population were considered, the economic burden of cold and fever was observed to be quite considerable as a substantial number of respondents were suffering from a viral fever at the time of the survey. As quite a few of the respondents had reported illnesses related to gastro-intestinal, musculo-skeletal and diarrheal diseases, the total costs incurred for these diseases were considerable although per capita costs were not significant (Table 7.7).

Table 7.6 Per capita cost of treatment (in Taka) by type of disease

Col 1		Col 2	Col 3	Col 4	Col 5	Col 6
Type of disease		Per capita cost of treatment for first consult	Per capita lost workdays	Loss of earnings per capita	Per capita cost for second consult	Per capita Overall Cost
Respiratory	Mean	452.54	7.29	1093.5	660	1628.5
Tract	Median	256	4	600	290	892.3
diseases	N	24	31		3	
Gastro	Mean	141.93	4.61	691.5	143.8	865.4
intestinal	Median	80	2	300	83.5	398.6
tract diseases	N	27	41		6	
Infectious	Mean	318.46	8.07	1210.5	7575	2694
diseases	Median	90	4	600	7575	1855
	N	13	14		2	

7 | Costs of Utilization of Healthcare Services

Col 1		Col 2	Col 3	Col 4	Col 5	Col 6
Type of disease		Per capita cost of treatment for first consult	Per capita lost workdays	Loss of earnings per capita	Per capita cost for second consult	Per capita Overall Cost
Neurological	Mean	135.64	4.38	657	150	814
Diseases	Median	49	2.50	375	150	445
	N	14	32		2	
Skin and	Mean	71.63	5.58	837	-	908.6
soft tissue	Median	40	5	750		790
	N	8	12			
Musculo-	Mean	163.50	6.57	985.5	445.8	1230.1
skeletal	Median	50.5	5	750	92.5	817.3
diseases	N	22	53		4	
Kidney and	Mean	1202	31.67	4750.5	-	5952.5
urinary tract	Median	1202	30	4500		5702
diseases	N	2	3			
Eye Disease	Mean	126.80	4.33	649.5	0	776.3
	Median	18	3	450	0	468
	N	5	9		1	
Cardiac	Mean	273.60	5.11	766.5	297	1073
disease	Median	45	5	750	297	828
	N	10	18		2	
Hepato	Mean	640	20.33	3049.5	185	3812.8
billiary	Median	30	14	2100	185	2253.3
disease	N	3	3		2	
Cold/Fever	Mean	123.48	4.61	691.5	242.9	824.7
	Median	58	3	450	250	518
	N	175	250		7	
Diarrhea	Mean	185.89	3.30	495	-	680.9
	Median	46	3	450		496
	N	18	23			

*Overall cost = Col 2+Col 4+Probability of seeking care from second healthcare provider*Col5

Table 7.7 Total direct costs incurred by the respondents by type of
disease

Diseases	Cost (in Taka)
Hepatobilliary	1,920
Neurological	2,199
Kidney and urinary tract	2,404
Cardio vascular	2,736
Diarrheal	3,346
Gastro-intestinal	4,695
Eye	634
Musculo-skeletal	5,380
Skin and Soft tissue	573
Respiratory Tract	12,841
Infectious	19,290
Cold/fever	21,609

Differences in Costs by Socioeconomic Status (SES)

This section presents the cost of treatment incurred by patients
from different socioeconomic groups. However, the following
findings should be accepted with caution, as the number of
observations was too small when the data was analyzed by
socioeconomic status. From the survey data it was observed (Table
7.8) that the cost of healthcare incurred for different types of
physicians did not differ significantly by socioeconomic status.
Interestingly, the results from the community survey indicate that
even amongst the higher SES group, quite a few of the respondents
have sought treatment from the informal healthcare providers.
However, qualified MBBS physicians were consulted more by the
higher SES group.

Table 7.8 Differences in costs of treatment of different socio economic groups for first consult by physician type.

Socio-economic status		Cost of treatment (in Taka)			
		MBBS	SACMO/ Paramedic	Village Doctor	Traditional and others
Lowest quintile (poor)	Mean	460.8	55	155.6	35.8
	Median	270	25	100	30
	N	6	3	39	9
Second quintile	Mean	214.7	83.3	122	58.3
	Median	252	10	57	29.5
	N	3	3	47	10
Third quintile	Mean	586	364.7	80.9	87.7
	Median	374	230	60	20
	N	9	7	35	11
Fourth quintile	Mean	752.3	47.3	180	53.3
	Median	500	28	62.5	50
	N	11	3	38	4
Highest quintile (rich)	Mean	755.8	101.7	99.7	27.4
	Median	372.5	40	60	25
	N	10	6	49	11

Note: SACMO=Sub assistant community medical officer.

From Table 7.9 it is observed that the total cost of treatment does not differ significantly with socioeconomic status for the first and second consults. However, the per capita cost for an episode of illness for the poorest quintile was substantial (Table 7.9), indicating that cost incurred for healthcare is regressive and places an unfair burden on the poorest households. The payment system for healthcare costs should be reformed as such that the whole structure of payment becomes more pro-poor and equitable.

Table 7.9 Differences in total cost of treatment by asset quintile

Socio-economic status	Total cost of treatment First Provider			Total cost of treatment Second Provider			Workdays lost		
	Mean	Median	N	Mean	Median	N	Mean	Median	N
Lowest quintile (poor)	163.5	70	57	201.3	122.5	4	6.49	5	51
Second quintile	114.5	50	63	115	50	7	5.85	4	47
Third quintile	187.5	80	62	237.5	190	4	5.87	5	53
Fourth quintile	276.5	90	56	2153	264	9	8.08	4	49
Highest quintile (rich)	175.7	56.5	76	183.8	240	6	6.42	4.5	52

Differences in Costs by Gender

Table 7.10 shows that the expenditure on healthcare by females was less than their male counterparts. However, the difference in costs was not found to be significant.

Table 7.10 Gender differences in expenditure on healthcare

Sex		Cost for first consult	Cost for second consult	Workdays lost
Male	Mean	211.86	1416.38	5.57
	Median	100	145	4
	N	140	13	182
Female	Mean	153.06	272.18	5.33
	Median	56	230	3
	N	183	17	317

Table 7.11 Gender differences in expenditure on healthcare by type of practitioner

Cost of treatment (in Taka)

Sex		MBBS	SACMO/ Paramedic	Village Doctor	Traditional and Other	Total
Male	Mean	676.26	261.0	141.11	39.69	213.24
	Median	500	170	80	30	100
	N	19	11	95	13	139
Female	Mean	583.35	71.92	113.29	42.52	153.09
	Median	245	26.5	60	25	55
	N	20	12	117	27	176

Table 7.11 shows the differences in costs by type of healthcare provider. The costs incurred were, in general, less for females than males for all types of healthcare providers.

Discussion

Studies have shown that cost burdens of healthcare may deter or delay healthcare utilization or promote use of less effective healthcare sources or practices, particularly by the poor (Bloom *et al.* 2000). Findings from the community survey revealed that 40% of those who did not seek treatment stated that it was because they did not have the money to consult a healthcare provider (for details see Chapter 6). The community survey of Chakaria generated profiles of illness, treatment and cost burdens for the study population. An important finding was that the majority of households incurred a substantial burden of healthcare costs. It was observed that the informal healthcare providers (paramedics, Village Doctors, traditional healers) were quite popular amongst all patients irrespective of their socio-economic status. However the higher SES group consulted the formally trained providers more often. Survey findings suggest that cost of treatment is probably a major factor determining the choice of healthcare provider. In the survey, many of the patients have mentioned that they preferred a particular healthcare provider because the

treatment cost was low and they sometimes offered treatment on credit (details in Chapter 6). The most commonly cited reasons for the popularity of the informal healthcare providers are greater accessibility, respectful or polite attitude of the informal HCPs, and lack of access to formal healthcare facilities. The informal HCPs are perceived as a cheaper option as people may not have to travel far thus saving time and travel costs and also the informal HCPs are known to make adjustments in payments on the basis of ability to pay and prescribe or provide a partial dose of a drug.

Survey findings have shown that the per capita cost for healthcare sought for an episode of illness was substantially higher for a qualified MBBS practitioner than any other type of provider. The indirect costs involved were also higher for a MBBS practitioner, which probably is an indication of the preference for qualified practitioners if the illness is perceived to be serious. It was observed from the study that costs of drugs constitute a major proportion of healthcare expenditure for all types of practitioners and especially so for the paramedics, Village Doctors and the other traditional types of providers. Other than the MBBS practitioners, all other types of practitioners were found to charge a negligible amount as fees. The higher fees involved in visiting an MBBS may result in a higher perception of costs associated with visiting an MBBS and thus may act as a deterrent for seeking care from the formal sector. The cost of transport associated with MBBS practitioners was higher, which probably acts as a barrier to access. The survey data revealed that per capita costs associated with respiratory tract diseases, infectious diseases, kidney and urinary tract diseases and hepato-biliary diseases were quite considerable. However, when indirect costs were included, per capita overall treatment costs were observed to be more than the mentioned threshold for catastrophic costs for all types of diseases. When total costs incurred in the community for each category of diseases were considered, the economic burden of cold and fever was observed to be quite considerable as a substantial number of respondents were suffering from a viral fever at the time of the survey. As quite a few of the respondents had reported illnesses related to gastro-intestinal, musculo-skeletal and diarrheal diseases, the total costs incurred for these diseases were quite considerable.

From the survey data it was observed that cost of healthcare did not differ significantly by socio-economic status or gender. However, the per capita cost for an episode of illness for the poorest quintile was quite substantial, indicating that healthcare cost incurred is regressive and places an unfair burden on the poorest households. The payment system for healthcare costs should be reformed as such that the whole structure of payment becomes more pro-poor and equitable.

Further analysis of cost of treatment in this study indicated that the exposure of the households to financial risks associated with illness was quite considerable, not only for the lower socio-economic group because of their vulnerability, but also, because the costs were found to constitute a significant proportion of income of the sample households. The costs incurred by the households were substantial and at a level where it can be classified as catastrophic income shocks that may result in progression into poverty. Income losses caused by illness, particularly serious and prolonged illness, are often a more significant cause of impoverishment than direct costs, undermining household members' command over essential goods and services. Episodes of illness and ill health can cause household impoverishment through income losses and medical expenses that trigger a spiral of asset depletion, indebtedness and cuts to essential consumption (Haines, Heath and Smith 2000; Kabir *et al.* 2000; Pryer 1989; Gilson 1988). Uncertainty about the timing of illness, unpredictability of healthcare costs required for episodes of illness and the low and irregular income of individuals makes it unfeasible for households to make provisions for illness related expenditures. Therefore, the cost of healthcare can be a strong determinant of healthcare use as well as a cause of poverty (Peters and Kayne 2003).

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Chapter 8
Conclusions

Abbas Bhuiya

The previous chapters provide a significant insight of the situation of health system as it exists in Chakaria. The findings highlight what constitutes health systems, people's health seeking behaviour, role of formal and informal healthcare providers, size of health market, and cost of healthcare. The understanding gained from this inquiry is invaluable with far reaching implications for future strategies.

Although the study area was not selected by using statistical procedures to ensure representativeness of Bangladesh; socioeconomically, demographically, health status and health service-wise the area is comparable with the eastern region of the country and reasonably well with the rest of the rural areas in the country. The conclusions derived from this study are relevant for improving the health of the rural masses in the country.

The findings from the study clearly depicted the heavy burden of illness prevailing in the study area. The nature of illnesses was a mixed bag of communicable and non-communicable diseases. Children suffered mostly from communicable diseases and the elderly population suffered from non-communicable diseases. This finding is consistent with the causes of death data from this and other rural areas (Bhuiya, Hanifi and Urni 2008; ICDDR,B. 2008). The villagers perceived the treatment provided by Village Doctors and physicians differently for different conditions, preferring physicians for life threatening conditions such as pneumonia among children and Village Doctors for commonly experienced conditions to begin with. However, the fact that nearly 70% of the

patients who contacted a healthcare provider for curative services contacted a Village Doctor and that they constituted 62% of the healthcare providers practicing modern medicine clearly established that the Village Doctors are a major player in the healthcare system in this *Upazila*. This finding is also consistent with the situation in the country as a whole (Bangladesh Health Watch 2008). The cost of healthcare from the Village Doctors was also substantially lower than physicians and their availability in the neighbourhood with flexible work hours and payment system made them a rational choice for the villagers. However, the issues concerning the inappropriate and harmful prescription of drugs should be taken into cognizance.

Actors in the Healthcare System

The proportion of formally trained healthcare providers in the whole *Upazila* was an insignificant four percent. The majority of the villagers who were sick during the two weeks preceding the survey had contacted a Village Doctor for healthcare. These Village Doctors were also the dominant group as first point of referral. These findings indicate that the Village Doctors are major players in healthcare provision for the rural masses. A similar picture was also revealed in a nation-wide survey carried out recently by Bangladesh Health Watch (Bangladesh Health Watch 2008). This raises the question of the healers that the healthcare system is comprised of at the grass roots level. Is it the formally trained providers or the providers without formal training? Obviously the sheer number of the Village Doctors and the extent of their use by the villagers make them the dominant actors in the healthcare system at the primary healthcare level. The public sector facilities, though present, constitute an insignificant share of the healthcare market, especially for services that do not require hospital admission.

Existing Number of Physicians and the Workload

With the observed level of illnesses, there would be 12,500 people sick in the *Upazila* in any one day. On the other hand, at the

providers' end, there were only 39 physicians and 328 Village Doctors practicing in Chakaria at the time of this study. If all patients were to be treated by a qualified physician, 320 patients would need to be seen by one physician per day. At present, villagers need to undertake arduous journeys from distant areas to see a physician. In an ideal situation a physician would treat 30 patients per day, so that a minimum of 417 physicians, an 11 fold increase of the current number, will be required to fulfill this demand. All these factors indicate the prevailing inadequacy of qualified providers in the health market of Chakaria and the necessity to increase their number. In addition to the current overall shortfall of qualified healthcare providers, their non-availability in the rural areas will certainly continue for a while. The situation will be aggravated by the emerging burden of chronic and other diseases and it is likely that the rural masses will be more disproportionately disadvantaged in the future in terms of healthcare.

Village Without Village Doctors

The Village Doctors have been very much a part of society and are interwoven in the prevailing healthcare system. They live in close proximity to the villagers and are available 24 hours a day. The Village Doctors offer services with very low or without consultancy fee and earns their living by selling drugs, at times which also is on credit. Many had received recognized short term training from the Government or NGOs, which gives them some legitimacy in their business. Thus the question of abandoning them, a total of 284,000 in the country, will raise many other related issues which include their rehabilitation and finding alternative arrangements for delivering health to the masses (Peters and Kayne 2003). Thus, it is unlikely that the nation will be able to take steps to abandon the practice of Village Doctors in the near future.

Outlook

Given the burden of illnesses, the number of physicians is seriously inadequate to attend to all cases of illness. The shortfall of physicians and other formally trained paraprofessionals in the country is huge (Bangladesh Health Watch 2008). At the current level of production, the shortfall of formally trained healthcare providers is unlikely to be met any time soon. The situation clearly demands innovative approaches to tackle the problems associated with the shortage of qualified healthcare providers. One such possibility is to gear up the production of formally trained healthcare providers.

Another solution to the problem could be to make use of the available pool of Village Doctors. The health seeking pattern identified in this study showed that the Village Doctors are the most popular providers for illnesses. Nevertheless, the major challenges in making the Village Doctors effective include minimizing their harmful and inappropriate practices, augmenting their skills, maintaining the quality of services and establishing their accountability. Thus ensuring an acceptable level of skills among these providers through targeted training programmes and introducing an oversight mechanism could in turn guarantee a minimum standard in the quality of healthcare provided for the majority of rural masses.

It is logical to assert that Village Doctors are a realistic and available option to deliver health in Bangladesh. The important issue is to decide on the level of involvement and the nature of services they will provide. This idea ties into task-shifting of service provision being explored globally in low income countries with the support of WHO (Bennett *et al.* 2005).

Improving the Quality of Services by the Village Doctors

Considering the existence of the Village Doctors and the potential contributions they can make, it is important that the quality of the

services they provide are improved. They should be trained to provide primary healthcare services for selected conditions to a certain limit and to refer cases to appropriate places when the need arises. It seems that the most urgent issues concern the appropriate use of drugs, consultation support, and referral. Their willingness to receive training and advice should be seen as an opportunity. There are many examples which indicate that village level workers can be trained to provide primary healthcare and related services and also to manage complicated health issues like newborn care. One of the challenges in training the Village Doctors, however, is to undo their learning of bad practices and provide a platform for consulting a physician when the need arises. The task of training Village Doctors and providing them with consultation support may be huge; nevertheless they have the potential to contribute significantly and provide huge returns in healthcare to the rural masses in a situation like Bangladesh.

Recommendations

The Ministry of Health and Family Welfare should develop an appropriate code of conduct for the Village Doctors. The Village Doctors should be brought under programmes to enhance the quality of services they provide and to establish accountability. Such a programme may include accreditation, incentives and disincentives for good and bad services respectively.

Village Doctors should be included in the purview of the health system. The national policy and planning framework should recognize and define the role of the Village Doctors in health service provision.

Village Doctors should be provided with continuous training, necessary information and consultation services to make them more efficient in their profession. This can be done through print and electronic media including mobile phones and the Internet.

A clear line of referral system should be defined between the Village Doctors and the public health infrastructure and providers. If intelligently done, this can reduce the patient burden on qualified

providers and bring the Village Doctors in close contact with the formal system, making the services more effective for the rural patients.

Village Doctors should also be used as promoters of public health, healthy lifestyles, hygiene behaviour, and for message dissemination.

Village Doctors should be prepared to play a pivotal role in providing community based primary care for the rural masses suffering from chronic diseases.

Ways should be found to make the Village Doctors eligible for institutional health financing systems such as demand side financing, insurance and the like.

In conclusion, the health of the huge rural masses in Bangladesh, given the human, financial and other constraints and the existing and emerging health threats, can be better achieved by making the best use of the existing workforce at the primary healthcare level in the villages. Among the various existing actors in the health system, the Village Doctors deserve maximum and immediate attention as they have been in existence for a long time, will continue to exist and have the largest reach especially amongst the poor. Any attempt to marginalize or ban the Village Doctors would be unwise and can result in depletion of resources with adverse consequences to health and wellbeing of the rural masses, especially the poor. Planning the future health systems by recognizing the potential role of the Village Doctors with necessary regulatory measures in place would be a very rational choice for Bangladesh.

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124

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