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Exploring health-seeking behaviour of disadvantaged populations in rural Bangladesh

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For the things we have to learn before we can do them, we learn by doing them.
-Aristotle

*Life is infinitely more stubborn than theory; it goes its way independent of it
and silently conquers it.*
-Alexander Hersen

ABSTRACT

Background: Improving ability of the health system to reach the poor/disadvantaged populations is important for health and essential to mitigate the income-erosion consequences of ill-health in Bangladesh. This study examined the health-seeking behaviour of some identified disadvantaged population groups, including the effect of poverty focused non-governmental development interventions.

Methods: The thesis is based on five studies from four different research projects, conducted during 1995-2004 in Bangladesh. The first three studies are descriptive cross-sectional studies while the last two used quasi-experimental design to test two interventions implemented by a non-governmental organization (NGO). One is microcredit-based targeted to the poor while the other is grants-based targeted to the 'ultra-poor'. Sample populations came from: a) 2,267 poor (households possessing ≤ 50 decimals of land, and selling manual labour) and 1,550 non-poor households (I); and 2,005 poor and 950 non-poor households (IV), both from a sub-district having microcredit-based integrated intervention; b) 2,550 households from five different ethnic communities in the Chittagong Hill Tracts (CHT) region (II); c) 966 households with at least one elderly (≥ 60 years) person from two sub-districts (III); d) and, 4,323 'ultra-poor' households (the 'poorest of the poor') from three famine prone districts having a grants-based development intervention with enhanced health-related inputs (V). Pre-tested structured questionnaires were used in face-to-face interviews to elicit relevant information on health-seeking behaviour with 15 days recall.

Results: The probability to access any type of healthcare, and professional allopathic care (MBBS doctors) was found to be greater for men than for women (OR 1.73 and OR 1.64 respectively). The same was for participation in microcredit-based integrated intervention (OR 1.92) (I). On average, no treatment was sought in 14% of reported illness episodes by different ethnic groups in the CHT region (II). The majority (60-70%) of the ethnic groups sought treatment from unqualified allopathic providers (untrained drug retailers/vendors) while resident Bangalis sought care in greater proportion from the semi-qualified 'para-professionals' (15%) and MBBS doctors (26%). No major difference in health-seeking behaviour and health-expenditure between the elderly and the younger adults (20 -59 years) was observed (III). Poverty emerged as the most significant determinant of health-seeking behaviour and individuals from poor households were nearly two times (OR 1.8, 95%CI: 1.43-2.36) more likely to practice self-care (III). The most commonly consulted provider was a para-professional while in around 20% of illness episodes in plain land, unqualified allopaths were contacted (I, III, IV). Self-care in the context of microcredit-based integrated intervention was associated with female gender (OR 0.69, 95%CI 0.48-0.90), the absence of low cost health services (OR 1.67, 95%CI 1.45-1.88) and illnesses of relatively short duration (IV). Also, grants-based integrated intervention was found to increase the proportion of ultra-poor households seeking 'formal allopathic' (MBBS+para-professional) care by 9% (95% CI 4.2-14.2, $p < 0.01$), and increase the capacity of these households to spend on illnesses in the reference period by 11% (95% CI 5.8—16.6, $p < 0.001$) which in Bangladeshi context reflects increased capacity for health expenditure by the poor/ultra-poor households (V).

Conclusions: An emerging cadre of 'para-professionals' as main provider of formal allopathic care to the disadvantaged populations was observed, in addition to the pre-dominance of self-care. Household poverty was instrumental in shaping health-seeking behaviour. By improving capacity for health-expenditure, a grants-based intervention initiated changes in health-seeking behaviour of the ultra-poor towards greater use of healthcare when ill, and use of 'formal allopathic' providers in preference to unqualified providers. The microcredit-based integrated intervention was found to increase the use of self-care.

Keywords: Bangladesh, disadvantaged populations, health-seeking behaviour, health-system, self-care

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- V. Ahmed SM, Petzold M, Kabir ZN, Tomson G. Targeted interventions for the ultra-poor: does it make any difference in their health-seeking behaviour? (*submitted*)

The papers will be referred to by their roman numerals I-V

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LIST OF ABBREVIATIONS

APTMNET	Asia-Pacific Traditional Medicine Network
BBS	Bangladesh Bureau of Statistics
BMDC	Bangladesh Medical and Dental Council
BMRC	Bangladesh Medical Research Council
BRAC/Brac	Formerly Bangladesh Rural Advancement Committee; now used as a proper noun (brand name) and written both as Brac or BRAC (www.brac.net , www.bracresearch.org)
CFPR/TUP	'Challenging the Frontiers of Poverty Reduction: Targeting the Ultra Poor/targeting social constraints'
CHT	Chittagong Hill Tracts
CHW	Community Health Worker
DSS	Demographic Surveillance System
DOTS	Directly Observed Treatment, Short course (for treatment of tuberculosis)
EHC	Essential Health Care
ESP	Essential Services Package
GDP	Gross Domestic Product
GHW	Global Health Watch
GoB	Government of Bangladesh
HBM	Health Belief Model
HDI	Human Development Index
HEU	Health Economics Unit
HH(s)	Household(s)
ICDDR,B	International Centre for Diarrhoeal Diseases Research, Bangladesh: Centre for Health and Population Research, Dhaka
IHE	Institute of Health Economics
IMR	Infant Mortality Rate
IGA	Income Generating Activities
KAP	Knowledge Attitude Practice
lbw	low birth weight
MA	Medical Assistants
MBBS	Bachelor of Medicine and Bachelor of Surgery (registered medical graduates with five plus one years of education including internship)
MDGs	Millennium Development Goals
MMR	Maternal Mortality Ratio
NGO	Non-government (Development) Organization
PHC	Primary Health Care (comprise facilities at <i>Upazila</i> level and below)
PHILL	Primary Healthcare in Later Life: Improving services in Bangladesh and Vietnam
PC	<i>Palli Chikitsok</i> (Village Doctor)
SDNP	Sustainable Development Network Programme (http://www.sdnbd.org/)
SES	Socioeconomic status
SWAp	Sector Wide Approach
TBA	Traditional Birth Attendant
UHFWC	Union Health and Family Welfare Centre
UNDP	United Nations Development Programme
UHC	<i>Upazila</i> Health Complex
UN	United Nations
UZ	<i>Upazila</i> (sub-district)
WB	World Bank
WHO	World Health Organisation

Glossary and definitions

BRAC eligibility criteria: criteria to be fulfilled by a household to be eligible for membership in BRAC and receive its micro-credit and other integrated interventions. These are: 1) household should possess no more than 50 decimals of land including homestead land and; 2) has to rely on selling manual labour for at least 100 days a year.

BRAC member: an individual enrolled in Brac programme through credit and development group (called Village Organization, VO). Ninety-nine percent of BRAC members are women.

BRAC member household: A household which has a BRAC member and through her/him receives the Brac development inputs.

Disadvantaged population: “Groups with diminished capacity to take advantage of opportunities for better health and who are often denied those opportunities, whether due to internal or external factors” (UNI-SOL 1999).

Equity: “the absence of systematic and potentially remediable differences in one or more aspect of health across populations or population subgroups defined socially, economically, demographically, or geographically” (ISEqH 2001).

Extreme poor: See Ultra-poor.

Inequality in health: Refers to differences in health outcome with respect to socioeconomic and demographic factors, or differences in sharing e.g., health-expenditure or healthcare use

Inequity in health: The subsets of health inequalities that are ‘*unnecessary, avoidable, unfair and unjust*’ constitute health inequities (Whitehead 1992).

Health-seeking behaviour: Health-seeking behaviour refers to the sequence of remedial actions that individuals undertake to rectify perceived ill health (Ward, Mertens & Thomas, 1996). Health-seeking behaviour is initiated with symptom definition, whereupon a strategy for treatment action is devised.

Kabiraj/Totka: Ayurvedic system of medicine based on diet, herbs and exercises; sometimes also combine allopathic medicine such as antibiotics and steroids etc. *Totka* combines ayurvedic, unani (a Muslim system of medicine originating from Greece) and faith healing. Some may have formal training in Govt. institutions.

Microcredit-based integrated intervention: includes collateral-free micro-credit loans, skill-development training, functional education and Essential Health Care inputs, delivered to a woman from a poor household (defined as household possessing <50 decimals land and selling manual labour for survival), through poor womens’ organisation at the village level. The loans are repaid in weekly installments and when one loan is repaid in full, become eligible to apply for another loan.

Para-professionals: Semi-qualified healthcare providers. Comprised of medical assistants, mid-wives, village doctors and community health workers. They have some kind of institutional training of varying length in preventive and basic curative healthcare services. They work at the village and union level.

Poorest of the poor: See Ultra-poor.

Pro-poor Health System: Health system with access irrespective of the ability or willingness to pay, and responsive to the needs and priorities of the poor and the other disadvantaged populations.

Qualified providers: Qualified providers are professional allopathic healthcare providers, the registered medical graduates with six years of training with one year of internship (the MBBS doctors).

Self-care is any treatment or therapy used without a physician's prescription or direct recommendation by a healthcare professional (Stevenson et al. 2003). Encompassing the decision not to consult professional healthcare provider (i.e., no treatment or nursing care only), it involves self-diagnosis by noting symptoms and treatment actions based on the association of symptoms with successful treatment outcomes in the past. Other self-treatment practices include: retaining and reusing old medications, purchasing scheduled drugs without prescription, using common remedies (traditional or modern) available within the household for what are perceived to be recurring illnesses, or experimenting with medicines recommended by a relative or friend.

South Asia: comprises India, Pakistan, Bangladesh, Sri Lanka and Maldives

Targeted, grants-based integrated intervention: include productive asset grants, monthly stipend during gestation period of the income-earning enterprise, skill training, Essential Health Care and additional health inputs, social development activities, all delivered to a woman from an 'ultra-poor' household for a period of eighteen months only. At the end of this period, the household is expected to attain the foundation for sustainable livelihood and participate and benefit from the mainstream microcredit-based integrated intervention described earlier.

Ultra-poor: The poorest section among the population with few or no asset base, highly vulnerable to any shock (e.g., natural disaster, death of the main income-earner etc.), and mainly depends on wage-labour for survival. A household labelled as 'ultra-poor', has the following characteristics in any combination: 1) household's land-holding <10 decimals or landless; 2) female headed household and households with divorced/abandoned/widowed women; 3) adult women in the household does manual labour outside homestead for survival; 4) households where male income-earner is physically not able to work regularly; 5) households where children of school going age have to do manual labour; 6) households having negligible assets beyond the homestead they live in. For a comparison of selected indicators between Brac-targeted ultra-poor and national rural average, see Appendix II.

Unqualified providers: Healthcare providers in rural Bangladesh who do not have any institutional training in diagnosing and treating illnesses. Comprises both allopathic practitioners such as drug vendors/ drug retailers and untrained practitioners of traditional medicine e.g., *Kabiraj/totka, Hakim* and faith-healers.

Upazila: sub-district, an administrative unit covering about 250,000 populations.

Union: an administrative unit covering about 25,000 populations. An *Upazila* usually have 8 to 10 unions.

Preface

This thesis is the result of a decade long journey in pursuance of the effects of poverty-focused development interventions on the lives of the poor, including their health and well-being. That this journey would culminate into a research training endeavour was not planned. The four research projects from which data have been used were conducted primarily to inform the programme on design, implementation and impact. The academic challenge was to link up scientifically these data originating from different projects into a coherent whole. It remains for the readers to judge how far I have succeeded in this.

Syed Masud Ahmed

1 Background

1.1 Introduction

In the words of Nobel laureate Amartya Sen, health, like education, is among the basic capabilities that gives value to human life (Sen 1999). It contributes to both social and economic prosperity. Health in itself is of great value as it enables people to enjoy their potential as human beings. Therefore, it is important to protect health through healthcare, besides other means such as socioeconomic development. Better health translates into greater and more equitably distributed wealth by building human and social capital and increasing productivity (Bloom et al. 2004, WHO 2001), though the concept of good health is relative. In the healthcare context, ethics require that a principle of ‘access according to need’ and ‘equal access for equal need’ is followed (Mooney 1992 cited in Gillström 2001). Access being defined as the ease with which health care is obtained (Agency for Health Care Policy and Research 1995 cited in Lawthers et al. 2003) or the freedom to use healthcare (Thiede 2005). However, the consistently inequitable nature of health systems limits the access of quality healthcare to the poor who need them most (Gwatkin et al. 2004). Health systems are frequently ineffective in reaching the poor, generate less benefit for the poor than the rich, and impose regressive cost burdens on poor households (Fabricant et al. 1999). Neglect, abuse and marginalization by the health system are part of their everyday experience (WHO 2002). Experience suggests that poor people will be effectively excluded unless services are ‘geographically accessible, of decent quality, fairly financed and responsive’ (Narayan et al. 2000).

Disadvantaged populations are defined as “groups with diminished capacity to take advantage of opportunities for better health and who are often denied those opportunities, whether due to internal or external factors” (UNI-SOL 1999). They are characterised by their inability to participate fully in social and economic activities, as well as those pertaining to decision making, and this social exclusion denies them the consumption of essential goods and services such as health care that are available to others (Santana 2002). Much of this disadvantage in health arises from the socioeconomic conditions in which they live and make them vulnerable to differential treatment by the health system and society in addition to various financial, socio-cultural and communication barriers (Woolf 2004). For example, disadvantaged patients such as those with mental health problems, disability or aged presenting in a Veterans Affairs medical centre in United States were found to perceive barriers to access even while “in-care” (Bauer et al. 2005). Such barriers included travel difficulties, travel distance, communication with providers, difficulties in navigating the healthcare system. Patients with the same clinical condition may be treated differently based on race or ethnicity (Freeman and Payne 2000). Unmet healthcare needs due to increased cost may vary according to racial and ethnic group (Shi and Stevens 2005). In a study from United Kingdom, ethnicity was found to be an important factor underlying gender inequality in health (Cooper 2002). Also, poor people living in the rural areas are disadvantaged due to low geographical access to health services (Haynes and Gale 2000). Thus, to improve their health and well-being, the disadvantaged populations need special attention so that they have access to services that the more advantaged already enjoy.

1.2 Setting the context: Bangladesh

1.2.1 The country, the people and the achievements

Born in 1971 after a devastating war, Bangladesh is a land of immense beauty and potential. Situated in South Asia bordering India, Myanmar and the Bay of Bengal, it is largely a flat deltaic country formed by the confluence of great river systems of the Padma (Ganges), the Brahmaputra and the Meghna. These river systems annually drain a vast basin about 12 times its own size and experience frequent and severe flooding which at times turns into catastrophic proportions. In normal flood years, some 18 per cent of Bangladesh's land mass is covered by flood waters, while in severe years this can reach 40 per cent (Roggie and Elahi 1989). The river flood plains cover most of the territory and support a triple cropping system in many parts of the country. A tropical monsoon climate generates frequent cyclones. In the country as a whole, between 15 to 20 million people are at risk from the effects of river-bank erosion (Hutton and Haque 2004). Bangladesh's people are resilient and known for their ability to survive great hardships. Their survival strategies, developed and fine-tuned over time immemorial, have generated a remarkable capacity for adapting to seemingly impossible circumstances and for overcoming gloomy prophecies. This was most recently apparent during the deluge of 1998 when the people of Bangladesh have faced, coped with and overcame the worst flood of the century (Ahmed et al. 1999a). The country has few natural resources. Its manufacturing base is small although it is now beginning to exploit natural gas. Fishing, tea, and jute are important products. With a land mass of 144,000 sq. km. and a population of more than 140 million, Bangladesh is one of the most densely populated (834 persons/sq. km. in 2001) countries in the world (UNDP 2004). According to UNDP, around 83% of the population lives on less than US\$2 a day and 36% on less than US\$1 a day. The population growth rate is 1.7% and it ranks 138th position (out of 177 countries) in UNDP's Human Development Index (UNDP 2004) with an estimated per capita Gross Domestic Product (GDP) of International \$1,900 of which 22 % is generated by agriculture. Income poverty has declined from an estimated 58% of the population in 1983/84 to just below 50% in 2000 (GoB 2004a).

Despite modestly declining poverty (at the rate of 1% per annum during the 1990s), and inadequate health services, Bangladesh has achieved substantial gains in the field of health in the three decades since the nation's independence in 1971 (GoB 2004a, Mahmud 2004). Table 1 below shows some selected Health and Demographic indicators in a historical perspective. It is one of the few low-income countries whose gains in human development have outpaced gains in income growth. The value for Human Development Index (HDI) for Bangladesh increased at an average rate of 8.8% per annum during the 1990s, the fastest growing HDI in South Asia (BDHDR 2000).

Bangladesh is also favourably placed to achieve some of the MDGs related to health (infant and under-five mortality, child malnutrition) and education (net primary and secondary enrollment and eliminating gender disparity in schooling) (World Bank 2005, GoB 2004a, Chowdhury et al 2002). Besides targeted public interventions (e.g., immunization, family planning, nutrition supplementation and stipend for female education), increased public expenditure on health (from 0.7% of GDP in 1990 to 1.5% in 1999-2001) and education (from 1.5% of GDP in 1990 to 2.3% of GDP in 1999-2001) is attributed to this progress in improving social indicators in Bangladesh. This is remarkable compared to even neighbouring India and helped the country in graduating to the 'medium human development' league of countries in 2003 (World Bank 2005, UNDP 2004). In other areas, food production almost

doubled between 1975-'76 and 1992-'93 (West 2002) and Bangladesh is now out of the 'shadow of famine' (GoB 2004a, Ahmed 2000). Through continuous efforts of the Government and non-governmental sectors, over time, there has been a significant decline in certain manifestations of extreme poverty---the intensity of seasonal deprivations have reduced considerably; the percentage of the population going without three meals a day has lowered substantially; access to basic clothing has become almost universal; and the proportion of the population living in houses vulnerable to adverse weather conditions has gone down (Hossain et al. 2000).

Table 1: Selected Health and Demographic indicators in a historical perspective, Bangladesh

	1972-'73	1989-'90	2004-'05
Crude Birth Rate (/1000)	47	33.5	20.1*
Crude Death Rate (/1000)	17	12.0	5.1*
Population Growth Rate	2.70	2.15	1.5*
Total Fertility Rate (per woman)	---	4.9	3.0**
Contraceptive prevalence (any method)	---	39.0	58.1**
% Immunized under EPI (12-23 months)	---	75.0	73.1**
Infant Mortality Rate (IMR) (/1000 live births)	150	94	65.0**
Maternal Mortality Ratio (MMR) (/1000 live births)	30	6	3.2 [§]
Life Expectancy at Birth (yrs)	45	54	64.9*

Source: Ahmed et al. 2001a; *BBS 2005; [§]NIPORT, ORC Macro and JHU 2003; **NIPORT, Mitra and Associates, ICDDR, B, and ORC Macro 2005

1.2.2 *The long road ahead*

Despite modest progress since independence, Bangladesh continues to face a number of significant challenges in the health sector. IMR and MMR continue to be unacceptably high compared to many other developing countries, with persisting socioeconomic differentials. More than one-third of the 3.33 million infants born annually weigh less than 2.5 Kg, the threshold for low birth weight (lbw). Of approximately 20 million under-five children, an estimated 380,000 die from pneumonia, diarrhoea, measles and neonatal tetanus every year (Baqui et al. 1998). Around 45% of the children under five years are either under-weight or stunted and some 13% are moderate-to-severely wasted. Results from latest large-scale food consumption survey undertaken in 1995-'96 reveal that nutritional status remained unchanged during the last two decades and intake of energy and macronutrients in rural Bangladesh declined since 1960s (Jahan & Hossain 1998). Anaemia is a serious public health problem in pre-school age children (49%), non-pregnant women (33%), and adolescents (26%) (BBS and UNICEF 2004). Morbidity burden of the population remains high, with one-fifth of the population suffering from recent illness (past 15 days).

Preventable communicable and poverty-related diseases still dominate the top 20 causes of morbidity (Table 2). While access to family planning is increasing, access to three other pillars of safe motherhood namely antenatal care, clean and safe delivery, and essential obstetric care, remain largely unfulfilled (NIPORT, ORC Macro, John Hopkins University, ICDDR, B 2003). The use of tube-well water for drinking is almost universal, but it is marred by arsenic poisoning of the sub-soil water termed as the "largest poisoning of a population in history" (Smith et al. 2000). Only 48% of the population uses a sanitary method of excreta disposal (UNDP 2004). Environmental degradation due to air, water and industrial pollution, deteriorating living conditions in the urban slums poses significant adverse outcomes for public health. The overall health service consumption (from any

source) in Bangladesh is low compared to other developing countries as well as level of need (World Bank 2003, Mercer et al. 2005). Also, the number of qualified physicians and

Table 2: Top 20 causes of morbidity, 2000 (%) (BBS 2005)

Rank	Disease/illness	Male	Female
1	Fever with cold/cough	23.5	25.6
2	Fever (Pyrexia of Unknown Origin)	14.1	14.0
3	Peptic ulcer	8.1	8.0
4	Diarrhoea	5.0	5.3
5	Blood dysentery	3.1	3.8
6	Bronchial asthma	2.7	2.9
7	Arthritis	2.5	2.3
8	Hypertension	2.5	2.1
9	Waist pain	2.4	1.9
10	Scabies	1.9	2.1
11	Influenza	1.8	1.6
12	Malaria	1.5	1.5
13	Diabetes	1.4	1.9
14	Toothache	1.4	1.1
15	Pneumonia	1.3	1.4
16	Dengue	1.3	1.3
17	Boil	1.2	1.4
18	Typhoid	1.1	1.3
19	Senility	0.9	0.9
20	Road traffic accident	0.9	1.5

nurses in Bangladesh is quite low, compared to other low-income countries. For example, in 1998 Bangladesh had 19 physicians and 11 nurses per 100,000 population compared to 73 and 132 respectively for low income countries and 286 and 750 respectively for high income countries (Cockcroft et al. 2004, p25). Around 26% of professional posts in rural areas remain vacant (Chaudhury and Hammer 2003). Both shortage of trained manpower coupled with ‘brain drain’ (Peters et al. 2003 cited in Cockcroft et al. 2004, p26), and lack of required investment in health sector are responsible for this. Ensor et al. (2002) found that overall levels of per capita consumption of essential service package (ESP) would have to increase by 40% in order to achieve the higher average level of other developing countries. A recent survey evaluating the performance of the latest Health and Population Sector Programme (1998-2003) noted that it could not fulfill the stated objective of delivering a pro-poor service catering to their needs (Cockcroft et al. 2004).

1.2.3 Disadvantaged populations in Bangladesh

There are quite a few population groups in Bangladesh who fall within the definition of ‘disadvantaged’ population as described above. They are all characterized by poverty and the inability to access necessary healthcare due to their position in the society. In the national context, the official poverty line corresponds to 2,112 kcal per person per day (Sen 2000). The proportion of population falling between upper (corresponding to the consumption of 2,112 kcal per person per day) and lower poverty line (corresponding to the consumption of 1,805 kcal per person per day) are termed as ‘moderate poor’ while those falling below the lower poverty line are variously termed as ‘extreme poor’, ‘poorest of the poor’ or ‘ultra-poor’ (Matin

and Halder 2004). The latter are the poorest section among the population with few or no asset base, highly vulnerable to any shock (e.g., natural disaster, illnesses requiring in-patient or costly out-patient care, death of an income-earner etc.), and mainly depend on wage-labour for survival, and are one of the several disadvantaged population groups in present day rural Bangladesh.

Other disadvantaged population groups studied in this thesis in the context of rural Bangladesh include the poor women, the elderly and the ethnic minorities. A brief description of these groups follows.

- *The Women*

The patriarchal gender norm in Bangladesh has important negative effect on health status of girls and women such as under-five mortality rate (Gwatkin et al. 2000), chronic energy deficiency (Ahmed et al. 1998), food and energy intake (Sudo et al. 2004), and self-reported health measures (Rahman et al. 1994). Gender bias is also observed in the use of health services for children, disfavours girls (Bhuiya and Streatfield 1995). Women are less likely to utilize health services, particularly from professional allopathic providers (MBBS doctors) (Levin et al. 2001, Streatfield et al. 2001). Measured according to the gender-related development index developed by UNDP (life expectancy, educational attainment and income adjusted for gender disparity), Bangladesh ranks 110 in a universe of 177 countries (UNDP 2004).

- *The elderly*

The current demographic scenario in Bangladesh is characterised by gradual ageing of the population. According to recent census, 6.2% of the population is ≥ 60 years, the absolute number being above 8.5 million (BBS 2001). Increasing landlessness, rural to urban migration, and changing lifestyles with small family norms have put the elderly population of Bangladesh in a disadvantageous situation (Bongaarts and Zimmer 2002, CPD 2000, HelpAge Int. 2000). Poverty and social exclusion are the greatest threats to their well-being (HelpAge Int. 2000). Elderly women are especially disadvantaged due to their marginal position in the society (Rahman 1997). The vulnerability of elderly people is also reflected in a higher burden of ill health and disability (Kabir et al. 2003, Rahman 2002, CPD 2000) as well as in the gradual deterioration in perceived health outcome measurement scores with advancing age (Ahmed et al. 2002).

- *The ethnic minorities*

The Chittagong Hill Tracts (CHT) in the hilly south-eastern region of Bangladesh represents 10% of the total land area of Bangladesh. It is the traditional homeland of the Jummas, a group of 12 different ethnic groups who together with plain-land Bangali residing in the region constitute about 1% of the population of the country. Political disturbances and civil strife continuing for more than two decades (1974-1996) largely prevented any meaningful development activity from occurring in the region (Chittagong Hill Tracts Commission 1991). The ethnic population groups became disadvantaged in terms of health and livelihood, being cast away from mainstream development activities (Rafi and Chowdhury 2001).

1.3 Poverty, health and equity

Poverty is considered as the 'biggest epidemic that the global public health community faces' currently (GHW 2005). Evidence exists about the two way causal relationship between poverty and health: *poverty breeds ill-health, and ill-health keeps poor people poor* (WB 1993, Subramanian 2002, Wagstaff 2002). In every society, morbidity and mortality are higher among the poor (World Bank 1993, Wagstaff 2002). Poverty affects health through poor nutrition, environmental degradation, illiteracy, harmful lifestyle, social exclusion, and lack of access to healthcare (Dahlgren and Whitehead 1992). Empirical data have shown that chronic poverty is more harmful for health than episodic poverty, long-term income is more important for health than current income, and income reductions appear to have greater effect on health than income increases (Benzeval and Judge 2001).

The other side of the coin is the fact that the cost of healthcare can be a strong determinant of its use as well as a cause of poverty. Studies done in India (Krishna 2004, Noponen and Kantor 2004), Vietnam (Segall et al 2002), Tajikistan (Falkingham 2004) and elsewhere (Russell 2004) have shown that, of all risks facing poor households, health risks probably pose the greatest threat to their lives and livelihoods. In 127 case studies in *Voices of the Poor* (Narayan et al. 2000) which examined why families have fallen into poverty, ill-health emerged as the single most common trigger for the downward slide into poverty, and ill-health is perceived by the poor both as a cause of increased poverty and as an obstacle to escaping it. Income erosion effect of ill health for the poor households in Bangladesh, especially the extreme poor, is also well documented (Hulme 2003, Sen 2003, Kabir et al. 2000).

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). It has been found that the poor and disadvantaged households with only a few assets are likely to struggle to meet even small extra-budgetary expenses (Pryer 1989). Underlying the adverse impact on households is costly. Potentially irreversible crisis coping mechanisms like selling of productive assets, mortgaging land, or borrowing from money-lenders at high interest rates push these households into a poverty trap from which they rarely recover. This process of household impoverishment is set into motion due to direct (e.g., medical and non-medical costs like transport, food etc.) and in-direct (e.g., opportunity costs for patient and care-givers) costs of illness resulting from interaction with poorly performing health system and coping mechanisms of households in developing countries (Russell 2004). The triad of poverty, health-service requiring payments, and the failure of social mechanisms to pool financial risks combine to cause 'catastrophic health expenditure' (Xu et al. 2003). Moreover, in middle and low-income countries, current trends of market-oriented reforms for the introduction of user fees for public services and the growth of out-of-pocket expenses for private services, constitute a major 'poverty trap' (Whitehead et al 2001). This phenomenon of poverty induced by medicine (i.e., encounter with health system) is called 'iatrogenic poverty', and is a matter of great concern in international public health (Meesen et al. 2003).

Increasing levels of poverty have been accompanied by growing inequality (GHW 2005). Research is needed to understand the pathways through which these inequalities are produced and reproduced, especially in the developing countries (Chopra 2005). The subsets of health inequalities that are 'unnecessary, avoidable, unfair and unjust' constitute health

inequities (Whitehead 1992). Equity in health is defined as “the absence of systematic and potentially remediable differences in one or more aspect of health across populations or population subgroups defined socially, economically, demographically, or geographically” (ISEqH 2001). Health inequities arise not only from injustices in the healthcare-sector, but also reflect hidden inequalities in other sectors (Evans et al. 2001, Sen 1998). Longitudinal studies have confirmed the causal link between higher risks of developing health problems and lower socioeconomic group (Schrijvers et al. 1999, Marmot et al. 1991). Diderichsen and colleagues (2001) in their framework of ‘social determinants’, offered four broad conceptual mechanisms-*social stratification, differential exposure, differential susceptibility and differential consequences*-to explain the generation of health inequities. These mechanisms explain how the social context relates to the emergence and entrenchment of health inequities, and predispose some population groups either to heavy social consequences from disease or injury or protect from such consequences. A number of entry points for policy to reduce health inequities are also identified from the above framework.

The highly stratified society in Bangladesh is characterised by substantial socio-economic differentials in health-care access, and utilization (Cockcroft et al. 2004), and health benefits gained from public and private health expenditures (NHA 1999), all disfavours the poor. This is reflected in gross inequity in health status, both in terms of socioeconomic condition and gender (Table 3). This high degree of inequality in health demands the restructuring and reorientation of the present health system which would be sensitive and responsive to the needs and priorities of the poor and other disadvantaged population groups in Bangladesh.

Table 3. Health inequity in Bangladesh (Gwatkin et al. 2000)

	Poorest quintile	Richest quintile	Poor/Rich ratio
Infant Mortality Rate (per 1000 live born)	96.3	56.6	1.7
<i>Male/Female</i>	<i>99.7/92.7</i>	<i>53.5/59.8</i>	
Under-five Mortality Rate (per 1000 live born)	141.1	76.0	1.8
<i>Male/Female</i>	<i>133.1/149.7</i>	<i>72.5/79.7</i>	
Immunization coverage (12-23 months children) %	47.2	66.7	0.7
<i>Male/Female</i>	<i>45.7/48.5</i>	<i>67.1/66.3</i>	
% Under-five children (Weight-for-age <-2Z)	60.3	28.1	2.1
<i>Male/female</i>	<i>59.8/60.8</i>	<i>29.1/27.1</i>	
% Under-five children (Height-for-age <-2Z)	50.5	23.5	2.1
<i>Male/Female</i>	<i>52.1/49.0</i>	<i>21.0/26.2</i>	
Total Fertility Rate (per woman 15-49 yrs)	3.8	2.2	1.7
% Skilled attendance at delivery	1.8	29.7	0.06
% mothers with Body Mass Index (BMI) <18.5*	64.4	32.6	1.9

*non-pregnant, non-lactating mothers of under-five children

1.4 Millenium development goals (MDGs), poverty alleviation and non-governmental development organisations in Bangladesh

At the turn of the millenium, the 189 countries of the United Nations adopted the UN millenium declaration, and later translated it into eight Millenium Development Goals, the MDGs (United Nations 2002) (Box 1). Three of the eight MDGs are explicitly health related goals (Box 2). Health occupies a central position in achieving the MDGs, for its leverage on other goals. For example, improved health could contribute to reduction of poverty (MDG 1) through several mechanisms, including reducing loss of income from ill-health and resulting catastrophic health expenditure (Xu et al. 2003), and improvements in the health of women and girls could reduce gender disparities in education (MDG 3).

Box 1: Millenium development goals (MDGs)

- 1 Eradicate extreme poverty and hunger
- 2 Achieve universal primary education
- 3 Promote gender equality and empower women
- 4 Reduce child mortality
- 5 Improve maternal health
- 6 Combat HIV/AIDS, malaria, and other diseases
- 7 Ensure environmental sustainability
- 8 Develop a global partnership for development

Box 2: Health related MDGs with targets and indicators

Goals and targets		Indicators to monitor progress
Goal 1	Eradicate extreme poverty and hunger	
Target	Halve between 1990 and 2015, the proportion of people who suffer from hunger	Prevalence of underweight children under five years of age Proportion of population below minimum level of dietary energy consumption
Goal 4:	Reduce child mortality	
Target	Reduce by two-thirds, between 1990 and 2015, the under-five mortality rate	Infant Mortality rate Under-five Mortality rate Proportion of 1 year-old children immunized against measles
Goal 5:	Improve maternal health	
Target	Reduce by three-quarters, between 1990 and 2015, the maternal mortality ratio	Maternal mortality ratio Proportion of births attended by skilled health personnel
Goal 6:	Combat HIV/AIDS, malaria and other diseases	
Target	Have halted by 2015 and begun to reverse the spread of HIV/AIDS	HIV prevalence among 15-24 year old pregnant women Condom use rate of the contraceptive prevalence rate Number of children orphaned by HIV/AIDS
Target	Have halted by 2015 and begun to reverse the incidence of malaria and other major diseases	Prevalence and death rates associated with malaria Proportion of population in malaria risk areas using effective malaria prevention and treatment measures Prevalence and death rates associated with tuberculosis Proportion of tuberculosis cases detected and cured under directly observed treatment short course (DOTS)

Critiques argue that MDGs' emphasis on selected interventions to improve health of the population bypass the need for development of health systems infrastructure (Susskind 2005, Ollila 2005). However, this need is getting increasing attention recently, as the time for attaining the MDGs draws closer (Freedman et al. 2005, Anand and Bärnighausen 2004, Task Force on Health Systems Research 2004). Contextual factors for achieving these MDGs include good governance, economic growth, physical security and basic Infrastructure, besides an equitable and functioning health system (Gwatkin et al. 2004, Task Force on Health Systems Research 2004). There is increasing evidence that availability of financial services for the poor households in the form of microcredit /microfinance is also a critical contextual factor with strong impact on the achievement of the MDGs, specifically the overarching target of halving extreme poverty and hunger by 2015 (International Year of Microcredit 2005, Littlefield et al 2003).

The poverty alleviation activities in the microfinance /microcredit development paradigm involve creating an enabling environment for the poor (Fig 1) so that they can participate in their own development and improve their quality of lives (Chowdhury and Alam 1997). Poverty is seen from a holistic perspective and conceptualized as not only a lack of income or employment, but also lack of access to education, health, power-structure of the society to fight exploitation etc. (Fig. 1). These programs extend small loans to poor people, mainly women, for income-generating self-employment and impacts by lessening seasonal vulnerability through diversifying income-earning sources, building assets, and strengthening crisis-coping mechanisms, and allow them to achieve a better quality of life (Zaman 2000, MkNelly and Dunford 1999, Panjaitan-Drioadisuryo and Cloud 1999, Hussain et al. 1998, Mustafa et al. 1996, Rahman 1995). Such efforts enhance women's income earning potential, their role in non-traditional activities in the informal sector and empowerment (MkNelly and Dunford 1999, MkNelly and Dunford 1998, Hashemi et al 1996). It increases the enrollment of poor children in schools who have either been drop-outs or never enrolled (Chowdhury et al. 2002, Barnes et al. 2001, Khandker 1998). Also, the importance of micro-credit programs as a health intervention tool (Pitt et al. 2003, Barnes et al. 2001, Nanda 1999, Schuler and Hashemi 1994) and as an efficient and equitable tool for directing resources to women (Kabeer, 2001) is emphasized in the literature.

One of the distinguishing features of current poverty-alleviation efforts in Bangladesh is to use micro-credit as *"a critical anti-poverty tool for the poorest, especially women"* (The Micro-credit Summit, 1997). Since the '90s, the microcredit-based non-governmental development organizations (NGOs) in Bangladesh have emerged as efficient partners in development through collaboration with government agencies in the field of health, education, self-employment generation and poverty alleviation. The largest four NGOs in the country are the Grameen Bank (Grameen 2005, Hossain 1988), Brac (BRAC 2005a, Lovell 1992), Association for Social Advancement- ASA (ASA 2004, Fernando and Meyer 2002) and PROSHIKA (PROSHIKA 2005, Mondal 2004). Together they cover about 10 million poor households in rural Bangladesh with microcredit/ microfinance based income generating activities (IGAs) together with non-formal education, primary health care, income-generating skill training and human rights and legal awareness.

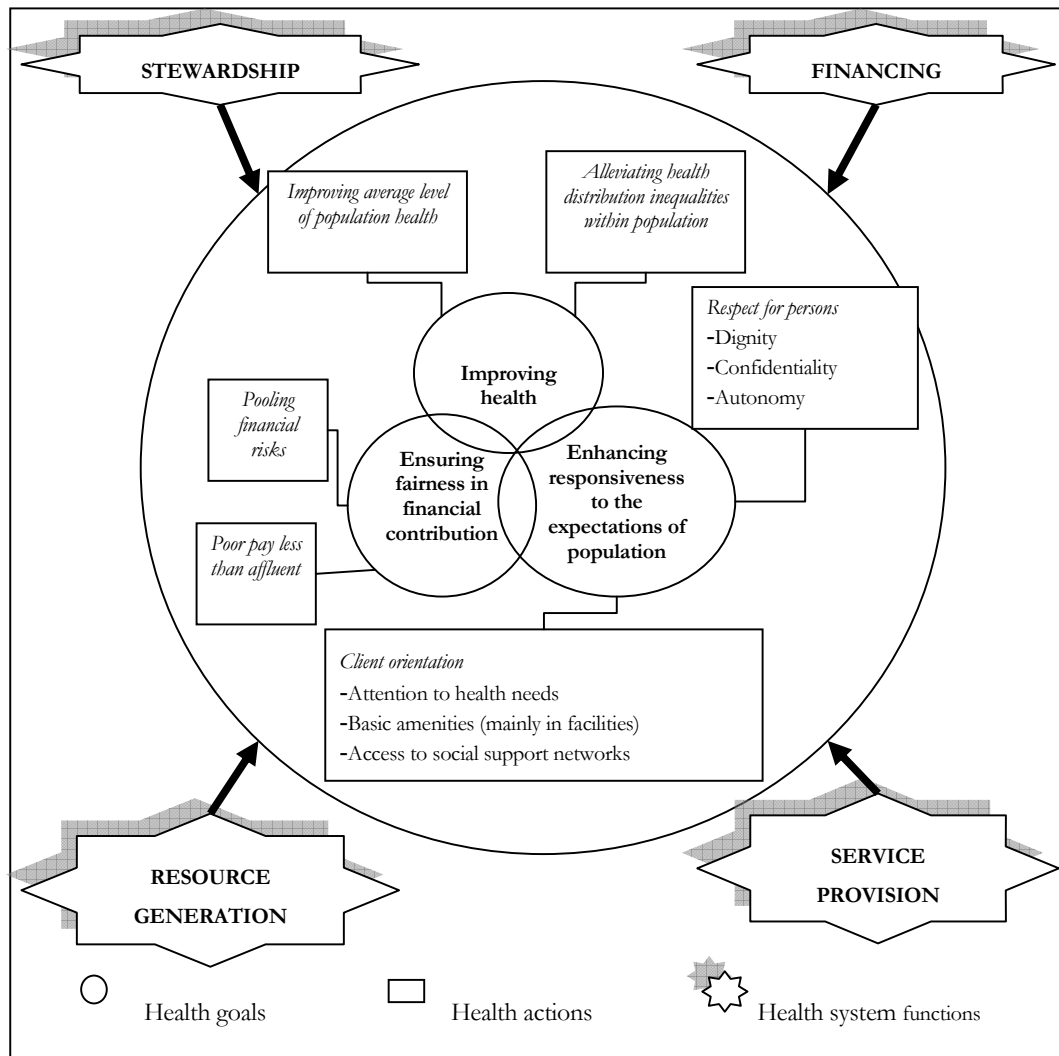
Figure 1: Poverty alleviation: creating an enabling environment (Source : Chowdhury and Alam 1997)



1.5 Health system: goals and functions

WHO defines health system as a system which “includes all activities whose primary purpose is to promote, restore or maintain health” (WHO 2000a). According to this view, the health system has three fundamental objectives: to improve the health of the population (health attainment), to respond to people’s expectations (responsiveness) and to provide financial protection for the poor against the costs of ill health (fairness of financing) (Fig 2). To achieve these, health system has to perform four basic functions: service provision (cost-effective and of an acceptable quality), resource generation (health labour-force, equipments, drugs and physical facilities), financing (through taxation, insurance, and out-of-pocket expenditure) and stewardship (coordination through policy formulation and supervisory regulation).

Fig:2 Function/action-based view on health system adapted from WHO 200a
(Source: Damme et al. 2004)



One of the current challenges in the field of Public Health is how health services can reach the poor and other disadvantaged groups so as to overcome the 'inverse care law' which stipulates that availability of good health services tend to vary inversely with the need for it (Yazbeck and Gwatkin 2005, Hart 2004). Empirical evidence from countries across Asia also reiterates the importance of health systems design, over and above economic growth, for the protection of poor against catastrophic expenditure (Rannan-Eliya and Somanathan 2005). Its importance is also reiterated for equitable attainment of the MDGs (Gwatkin 2004). Encouraging evidences from around the world show that this is possible through a variety of policies and approaches such as demand-side subsidies, community-based micro health insurance, involving the community in participatory health planning and management etc. (Yazbeck and Gwatkin 2005).

However, health system is one of many determinants of health, the others being socioeconomic (including entitlement to food, education, social capital), biological, environmental (including water and sanitation) and behavioural (including gender and cultural) factors (Commission on the Social Determinants of Health 2005, Mackenbach and

Howden-Chapman 2003, Diderichsen et al. 2001, Szeter 1999, Baum 1995). Given these, is also important how health system is organized to provide ‘access according to need’ and ‘equal access for equal need’ (Gillström 2001, Bunker 2001). Despite modest improvement in socioeconomic condition, the recent improvement in child survival in Bangladesh is attributed to targeted health interventions like immunization, oral rehydration therapy and fertility control (GoB 2004a, Mahmud 2004).

1.5.1 Health system in Bangladesh: medical pluralism

Like most transitional societies, the simultaneous existence of different systems of medicine or medical pluralism is a fact of life in Bangladesh (Ahmed 1993). Indeed, a wide range of therapeutic choices is available, from self-care to folk and western (allopathic) medicine (Box 3). The public sector is largely used for in-patient and preventive care while the private sector (a heterogeneous group differing in their training, legal status, system of medicine used, and type of organization) is used mainly for outpatient curative care (World Bank 2003). In the absence of any risk-pooling mechanisms and pre-payments, expenditure on health is mainly met by out-of-pocket payment by the households (63%) (Data International and Maxwell Stamp 1998). This mode of payment for health-expenditure is the most regressive one and exposes people, especially poor and other disadvantaged people, to great financial risk and makes the health system inequitable (McIntyre et al 2005). Fig 3 presents a graphical picture of the health hierarchy in Bangladesh.

Box 3: Categorisation of healthcare provision in rural Bangladesh (for details of training of the healthcare providers, see Appendix I)

Self-care (including self-treatment): expanding from no medication other than rest and nursing to instances when common home-remedies (e.g., Oral Saline), over-the-counter (OTC) drugs, or herbal preparations are taken without consultation with any healthcare provider including drug store salesmen.

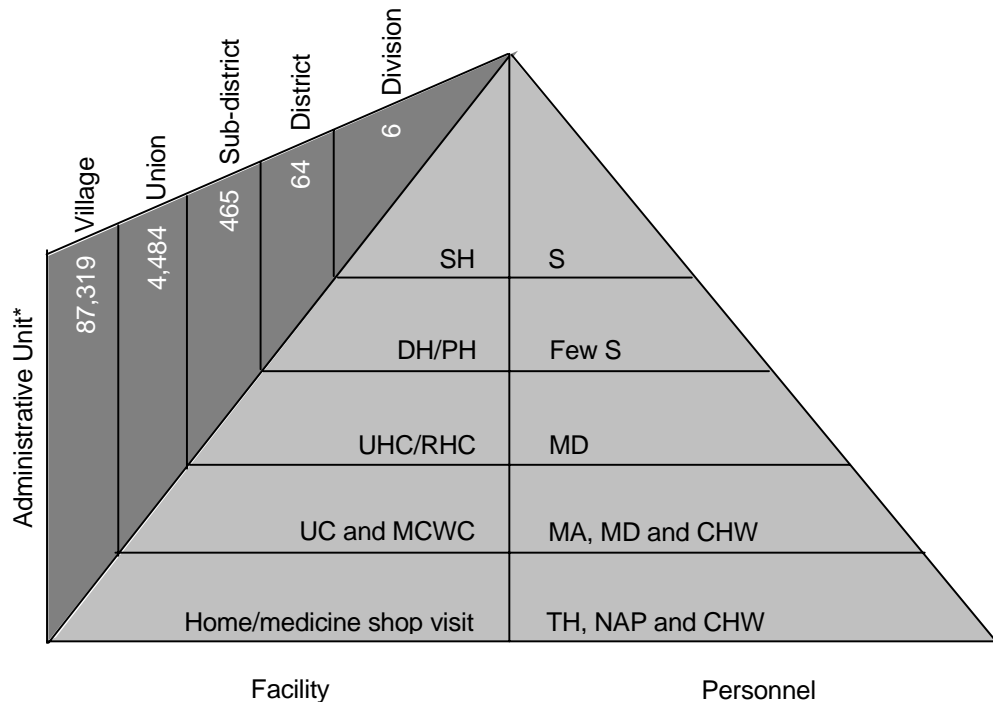
Drug store salesman (unqualified allopathic): when consultation is made to seek diagnosis and treatment from a drug store salesman (excludes purchase of OTC drugs without consultation); these drug retail outlets are mostly unlicensed and unregulated and only few of the salespeople may have 4 to 6 weeks certificate course on dispensing drugs.

Traditional: when treatment is sought from herbalists (*Kabiraj/totka*) and spiritual healers; also included are homeopathic practitioners, negligible in proportion.

Para-professional (semi-qualified allopathic): when seeking treatment from: a) village doctors (*Palli Chikitsok*) with short training in diagnosing and treating common ailments, mostly from private institutions of questionable quality; b) medical assistants who complete a three-year medical assistant training programme and family-welfare visitors who complete eighteen-months training in pregnancy and delivery care, from a public institution; and c) various government and non-government community health workers who have some basic preventive and curative health training.

Professional allopath: comprised of allopathic practitioners who have undergone six years of professional training including one year internship (MBBS doctors) and registered under BMDC.

Figure 3 Health hierarchy in rural Bangladesh (adapted from Paul 1999)



TH = Traditional healer, NAP= Non qualified allopathic practitioner, CHW=Community Health Worker, UC= Union Health and Family Welfare Centre, MCWC= Maternity & child welfare centres, MA= Medical assistant, MD= Doctor with graduate degree, UHC= Upazila health complex, RHC= Rural health centre, DH= District hospital, PH= Private hospital, S= Specialist, SH= Specialised hospital
 *There are additional 42 sub-districts in the four city corporations

- *Public sector*

The primary care in the public sector is organized around sub-district health centre (*upazila health complex*, UHC) with in-patient (31 beds) and basic laboratory facilities, supported by two or three union sub-centres (Union Health and Family Welfare Centre, UHFWC) at the lowest administrative level, and a network of community health workers, CHWs (GoB 1998). The UHC is staffed by eight to ten qualified allopathic practitioners and supporting staff, while the UHFWCs are staffed by paraprofessionals such as a medical assistant and a mid-wife (with three years training in therapeutics, and eighteen months training in delivery and MCH care respectively, both from public institutions). Unlike other countries, nurses are not trained or employed as public health clinicians for rural settings. While the UHC provides both inpatient and ambulatory care, the UHFWCs provide only ambulatory care.

Among the CHWs, there are three field-level health workers (males) in each union who are supposed to make home visits every two months for preventive healthcare services, and three family welfare assistants (females) who supply condoms, oral pills and injectables during home visits. They are supervised by a health inspector (male) and a family planning inspector (male) respectively, posted at the UHC. However, research indicates that there are high rates of

absenteeism (of about 40%), particularly among medical doctors, and that about 26% of professional posts in rural areas are vacant (Chaudhury and Hammer 2003). These centres also lack appropriate diagnostic facilities and medicines, causing a gradual decline in the use of government health services for treatment from 17% in 2000 to 13% in 2003 (Cockcroft et al. 2004). In the sector-wide approach (SWAp) adopted since 1998, a basic package of essential health care consisting of six main components: maternal health, family planning, communicable disease control, child health and basic curative care is provided free of cost from these centres (GoB 1998). However, the out-of-pocket costs for the consumer may still be substantial (Killingworth et al. 1999). Staff salaries in the public sector are low and the majority of professional staff at UHC and UHFWCs also practice privately to supplement their income, often clashing with their formal responsibilities, during normal working hours (Gruen et al. 2002).

Above sub-district are district hospitals (50-100 beds) and medical colleges (serving group of districts with around 650 beds) providing secondary care, and national tertiary level facilities. There is also a high level of 'unfelt' need among visitors to PHC facilities (Mercer et al. 2005). A usual phenomenon is the imbalance in service utilisation at public health facilities: there is low utilisation of most facilities at the primary level (*upazila* and below) and overutilisation of facilities at the secondary and tertiary levels i.e., district and teaching hospitals (Mahmud 2004).

- *Private sector*

In the private sector, there are traditional healers (*kabiraj, pir/fakirs*), a few homoeopathic practitioners, village doctors (*Palli Chikitsok*) with three months' training in diagnosing and treating common ailments mostly from private institutions of dubious quality, and drugstores in village markets that sell allopathic medicine on demand. In addition to dispensing medicine, sellers at these mostly unlicensed and unregulated retail outlets also diagnose and treat illnesses, despite having no professional training. According to Cockcroft et al. (2004) this whole lot of 'unqualified practitioners' (including the village doctors) in the private sector is responsible for providing 60% of treatment services in rural Bangladesh.

- *Traditional Medicine*

Over the last two decades, rapid population growth, the current state of public health and consequently the need for human resources for health (unfulfilled by the "western" trained medical and paramedical staff) has led policy makers to acknowledge the role of traditional medicine (Ayurvedic or '*kabiraji, totka*' and 'Homoeopathy'--- though of European origin) in the field of health care (APTMNET 2004). However, traditional systems of medicine currently occupy a very marginal position in the health system of Bangladesh (Cockcroft. et al. 2004) and it is not provided through mainstream health facilities.

1.6 Perspectives on ill-health

Health-seeking behaviour in this thesis refers to 'the sequence of remedial actions that individuals undertake to rectify perceived ill health' (Ward et al. 1996). It is initiated with symptom definition whereupon a strategy for treatment action is devised (Christakis et al. 1994). Previous research has established, however, that symptoms will not necessarily be identified in biomedical terms nor will their recognition necessarily result in health action of the variety that "scientific medicine" deems most appropriate. Treatment choice involves a myriad of factors related to illness type and severity, pre-existing lay beliefs about illness

causation, the range and accessibility of therapeutic options available, and their perceived efficacy (Helman 1995, Kleinman and Gale 1982, Kleinman 1980).

- *Disease, illness and sickness: curing and healing*

To begin with, the concepts of disease, illness, and sickness should be made clear (Helman 1995). Disease refers to abnormalities in structure and function of organ and organ systems based on biomedical concepts. This perspective does not include the social or psychological dimensions of the disease, the context in which it appears, or its culturally defined meaning. On the other hand, illness refers to the experience of the problem by the patient. It is influenced by the cultural, social and emotional context in which it occurs and by the individual's socioeconomic background and personality. Illness may be present where disease is absent and vice versa. It is the experience of illness, not the biological reality of disease, which causes an individual to consult others about his or her health. Lastly, sickness is the social role attached to a health problem by the society. It refers to the overall influence of the society on illness and the individual suffering from ill health. Sick individuals are attributed a different social role than the healthy. Very often they are exempted from work and other social responsibilities till they recover. According to Lundberg (1990, cited in Gillström 2001), different definitions of ill-health coincide i.e., a diagnosable disease or disability normally leads to perceived ill-health, and reduced ability to live a 'normal' life. In relation to disease and illness, there are two other concepts of curing and healing (Gestler 1984). These refer to health restoring practices from the bio-medical point of view and the patient's perspectives respectively. Healing is viewed differently across cultures and in different sectors of health care. According to Gestler (1984), healing has two functions: control of sickness and providing meaning for a person's experience of sickness. Success of therapy depends not only on curing the disease but alleviation of the illness as well.

- *In search of healing: different sectors of health care*

According to Kleinman (1980), in any transitional society, there are three interrelated sectors of health care: popular, folk and professional. The 'popular' sector is the "lay, non-professional, non-specialist" domain of society composed of individuals, family and social nexus where illness is first recognized and treatment is initiated. On the other hand, the folk sector consists of "non-professional healing specialists" like traditional birth attendants (TBAs), bone setters, snake poison removers to purely magico-religious practitioners like faith healer, sorcerer, etc. Together, these two sectors comprise indigenous healing ('traditional medicine') that is especially large in the developing world. Modern professional healthcare usually tends to treat disease but not illness. On the other hand, indigenous systems of healing also offer a satisfying and culturally meaningful interpretation of illness. However, in present day Bangladesh, traditional medicine is fast losing ground due to rapid expansion of 'modern' allopathic medicine, both from qualified or unqualified practitioners.

In this study, perceived illness as reported by the respondents or proxy respondents (in case of children or absent household members) in lay terms is used to categorize illness instead of diagnostic classification. The reason for this is discussed in materials and methods section.

1.7 Health-seeking behaviour models

A number of models are used for understanding health-seeking behaviour beyond knowledge, attitude and practice (KAP) surveys and ethnographic studies. The latter studies

produce descriptive data on practices without providing explanation for these practices. The health-seeking behaviour models provide relevant determinants for identifying problematic areas in order to intervene with specific health system strategies (Hausmann-Muela et al 2003). Some of the relevant ones are briefly described below:

1.7.1 The Health Belief Model (HBM)

According to Sheeran and Abraham (1995 cited in Hausmann-Muela et al. 2003), action in the HBM is guided by i) beliefs about the impact of illness and its consequences (threat perception); ii) health motivation i.e., readiness to be concerned about health matters; iii) beliefs about the consequences of health practices (behavioural evaluation); iv) clues to action, which include internal and external factors; and v) conditions such as socio-demographic and psychological characteristics of the interviewed person. These factors are considered to be transformable through health education/health promotion campaigns, in contrast to structural or cultural factors like poverty, gender, religious norms etc.

1.7.2 The “four As”

This popular model among researchers use different categories which group key factors for health-seeking behaviour into “four As”

- i) *Availability*: geographical distribution of health facilities, pharmaceutical products etc.
- ii) *Accessibility*: include transports, roads etc.
- iii) *Affordability*: direct, indirect and opportunity costs of health services
- iv) *Acceptability*: relates to socio-cultural barriers

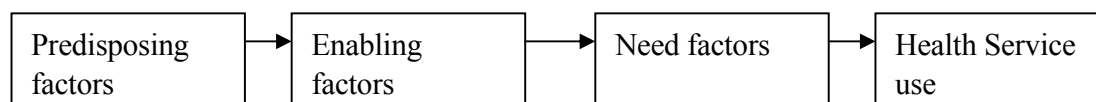
The model of the “four As” has been widely used by medical geographers, anthropologists and epidemiologists who mainly emphasize distance (both geographical and social) and economic aspects as key factors for access to treatment (Good 1987 cited in Hausmann-Muela et al. 2003). The advantage of this model is the easy identification of key potential ‘barriers’ for adequate treatment.

1.7.3 Pathways model

In this model, paths taken from recognition of symptoms to use of different health services are followed and the role of extended groups of relatives and friends in illness negotiation and management (“significant others”) is given importance. Most of the studies using pathways model investigate the path until the first contact with a health facility. The strength of the pathways model is that it depicts health-seeking as a dynamic process.

1.7.4 The healthcare utilization model (Socio-behavioural model)

In the socio-behavioural model originally proposed by Andersen (1995), three categories of factors which influence health-seeking behaviour are grouped into a logical sequence:

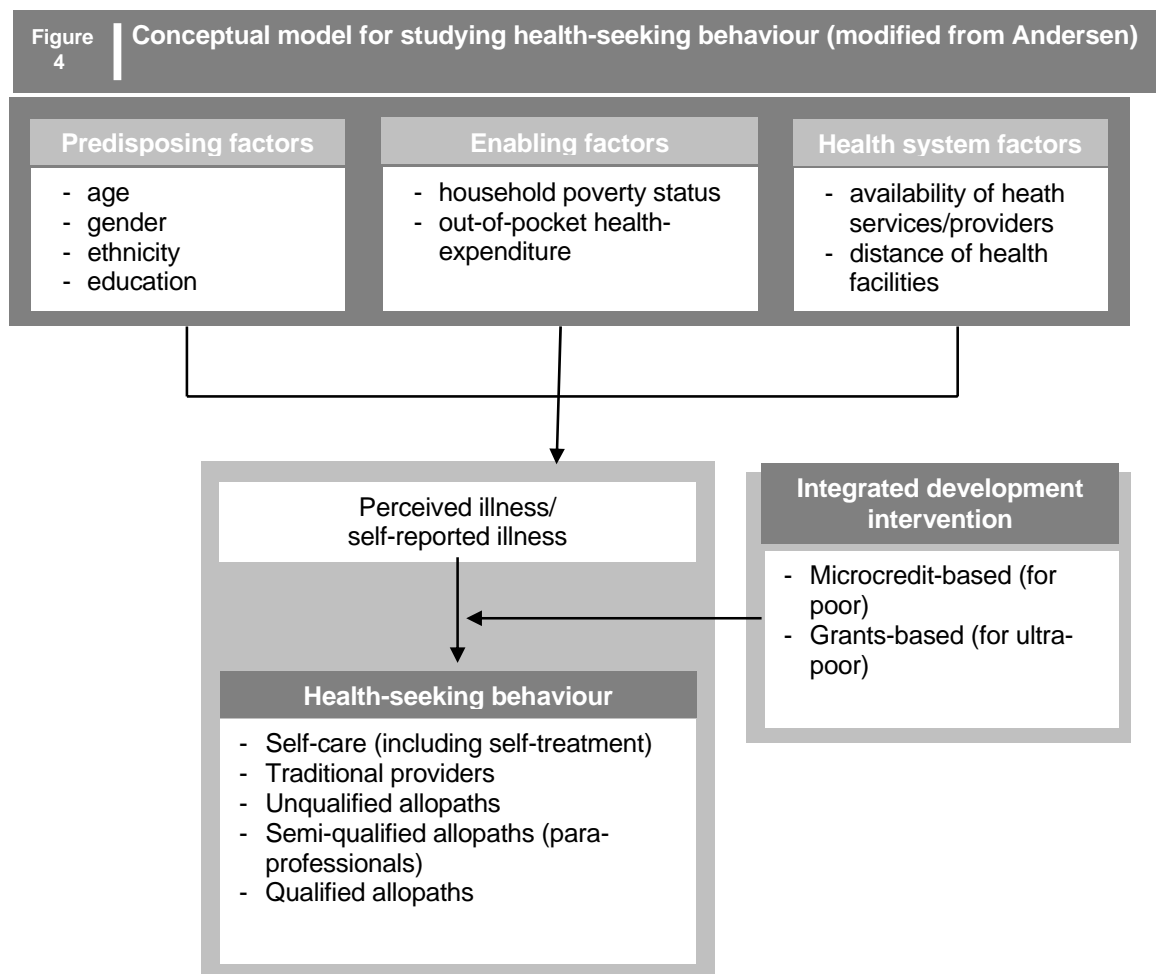


- i) *predisposing factors*: such as age, gender, religion, ethnicity, education, occupation, social capital, knowledge and prior experience about the illness and health services
- ii) *enabling factors*: such as availability of services, affordability, health insurance, social network support
- iii) *need factors*: such as perception of severity, days lost due to illness, help from outside for caring

There have been further modification and extension of this model over the years to describe healthcare utilization and the following factors were gradually added to the original model (Andersen 1995): health-service system factors (policy, resources, organization); consumer satisfaction; health status outcomes as influenced by external environment (physical, political, economic) and personal health practices (diet, exercise, self-care etc.). Finally, an emerging variant of the model emphasizes the dynamic and recursive nature of health service use and portrays the multiple influence on health service use and subsequently, on health status (Andersen 1995).

1.8 Conceptual framework

Most of the above models centre around the individual characteristics and tends to ‘blame the victim’ for inadequate behaviour. The health provider perspective and the context in which health-seeking behaviour operates are not appropriately addressed. Lately, argument



is also made for developing a tool for understanding how populations engage with health systems, rather than using health-seeking behaviour as a tool for describing how individuals engage with services (Mackian et al. 2004). This concern on looking at health-seeking behaviour from a holistic perspective is addressed in the healthcare utilization model or the socio-behavioural model of Andersen (1995) described above. This model takes into account both the material and structural factors into consideration unlike the other models.

In this thesis Andersen's behavioural model of healthcare utilization is used with some modifications. The model is used in the context of a low-income country, to identify the factors influencing health-seeking behaviour of the disadvantaged population groups in rural Bangladesh (Fig 4). In this conceptual model, health-seeking behaviour is postulated to be determined by a set of predisposing factors (such as age, gender and ethnicity), enabling factors (e.g., factors that are amenable to policy changes such as household's poverty status and out-of-pocket expenditure for healthcare) and health system factors (e.g., prevailing healthcare service available in the study community in the popular/folk, private and public sectors). These factors influence perceived illness/need which converts individual's subjective perception of her/his state of health and the need for care into wish or demand for medical care and taking steps to get treatment. This leads to specific health-seeking behavior. Given these background factors, integrated development interventions (IV, V) aimed specifically at the poor and the ultra-poor respectively act on the perceived illness/need factor through increase in the material and informational resources necessary for the preventive and therapeutic health care (IV) and additional inputs to remove some demand-side barriers (V). This is expected to result in change in health-seeking behaviour from use of unqualified providers to preferred use of 'formal allopathic' providers (comprising para-professionals and registered medical graduates, the MBBS doctors).

2 Rationale and objectives

2.1 Rationale

Bangladesh is committed to achieve the MDGs which includes among others, the pledge to halve the proportion of people living on less than one US dollar a day by 2015 in line with international commitment (SDNP 2004, GoB 2003, Sachs and McArthur 2005). Enhancing disadvantaged populations' ability to access quality healthcare at low cost has a potential poverty-alleviating effect. It acts through mitigation of the income-erosion consequences of ill-health. For achieving the health related MDGs also, improving health system's ability to reach the poor effectively is essential (Gwatkin 2005, Haines and Cassel 2004, Task Force on Health Systems Research 2004). To maximize this effect, health interventions need to be designed according to their needs and priorities. Knowledge and understanding about their current health-seeking behaviour including its differentials and determinants is required for this to happen. There is a lack of disaggregated information in this respect for different disadvantaged population groups in rural Bangladesh. Also, there is a need for studying the role of integrated socioeconomic development intervention in changing such behaviour. This thesis aims to fulfill some of these gaps in knowledge.

2.2 Objectives

General

To explore the health-seeking behaviour of different disadvantaged population groups and its determinants in rural Bangladesh, including the effects of poverty focused integrated development interventions.

Specific

1. To study health-seeking behaviour of poor people in rural Bangladesh from a socioeconomic and gender perspective and explore group level differences resulting from early association with an integrated development programme (Study I).
2. To study health-seeking behaviour of ethnic minorities and its determinants in the Chittagong Hill Tracts (CHT) region of Bangladesh (Study II).
3. To study whether and what type of healthcare is sought when the elderly member of a household gets ill, how it differs from other adult household members, and determinants of their health-seeking behaviour (Study III).
4. To study the effects of a microcredit-based integrated development intervention on health-seeking behaviour of the poor (Study IV).
5. To study the effects of a targeted, grants-based integrated development intervention on health-seeking behaviour of the ultra poor (Study V).

3 Materials and Methods

3.1 Introduction

This thesis is based on five studies originating from four different research projects, all conducted in Bangladesh during 1995-2004 (Fig 5). All these studies are part of larger studies conducted to inform programme (integrated interventions to improve the health and well-being of the poor) design (I, II, III) and impact evaluation (IV, V). These larger studies covered areas such as socioeconomic development, education, women's empowerment, income-generation and self-employment, social capital, besides health and nutrition. Data related to health-seeking behaviour only are used in this thesis. In the first three studies (I-III), cross-sectional survey data were used for descriptive analysis of health-seeking behaviour and its determinants in case of the poor/women, ethnic minorities and elderly population groups respectively. Studies IV (involving micro-credit based intervention for the poor) and V (involving targeted asset -grant based intervention for the ultra-poor) used a quasi-experimental design to study the effect of interventions (described later) in changing health-seeking behaviour, among others. Summary facts about different studies are shown in Table 4.

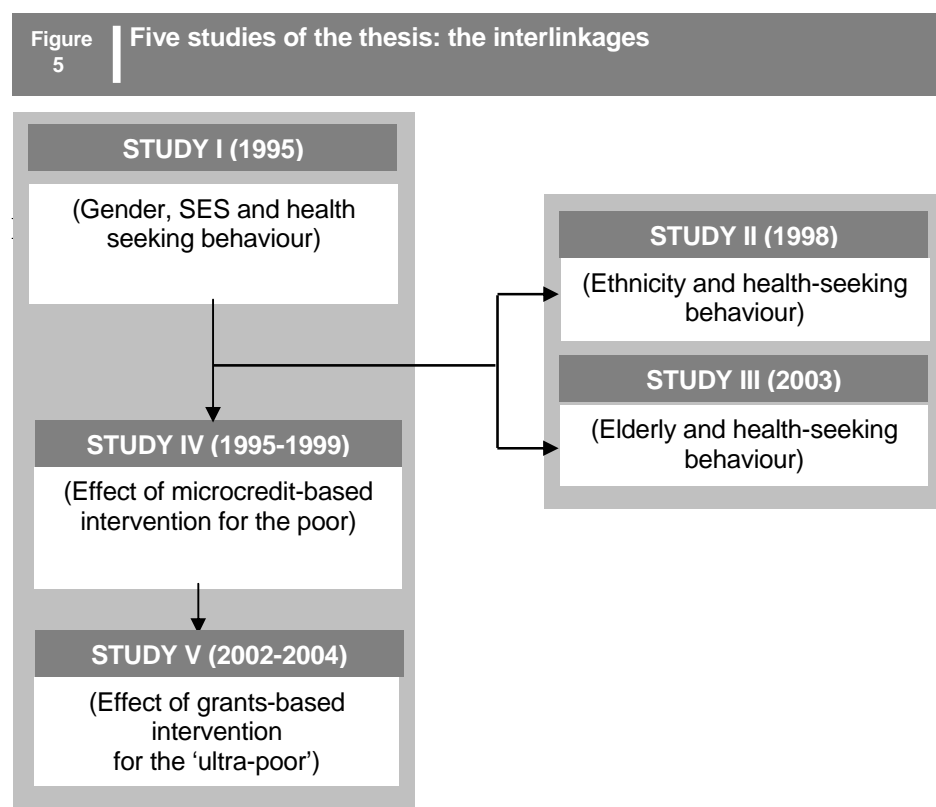
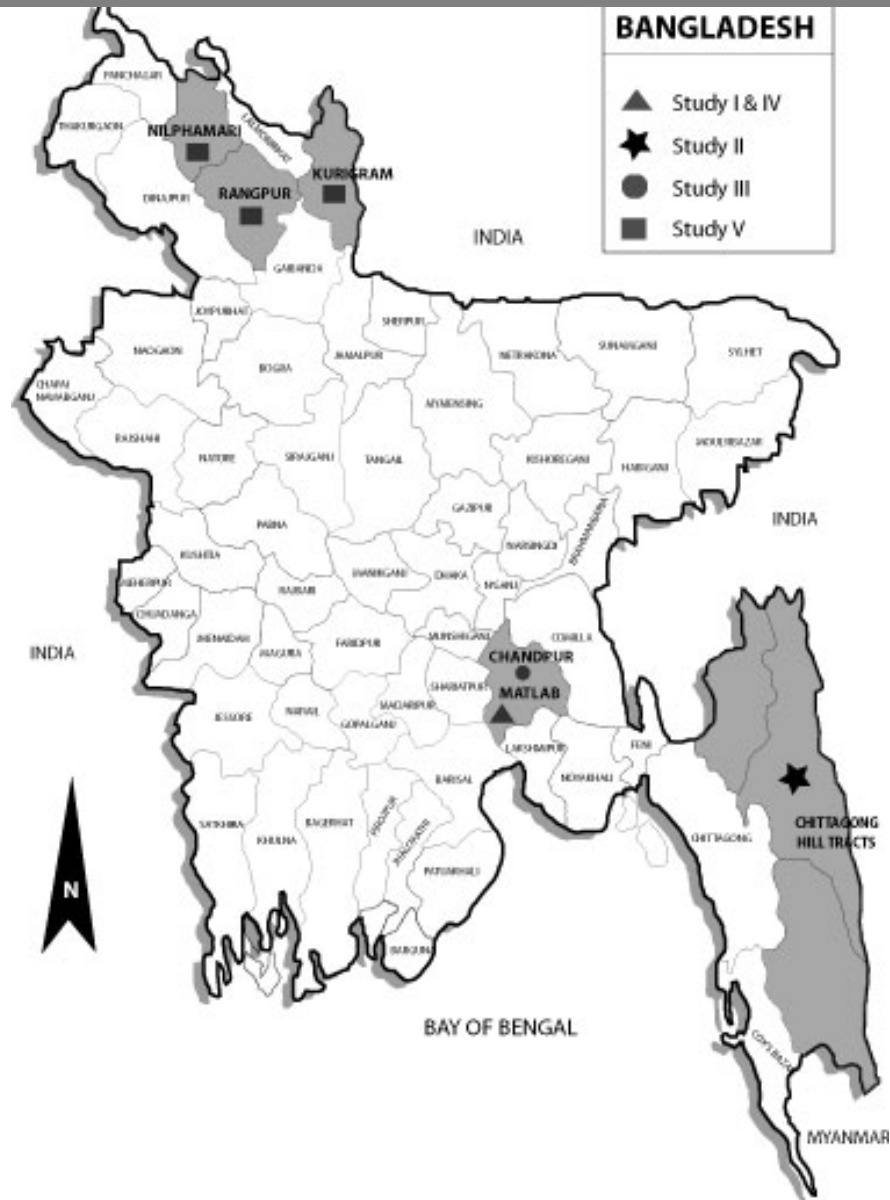


Table 4: Summary facts of the individual studies (I - V)

Title of study/paper	Study Design & Methods	Study population and sample size	Study period
I. Gender, socioeconomic development and health-seeking behaviour in Bangladesh.	Cross-sectional Survey/ Face to face interviews, structured questionnaires: ---household head ---spouse/ knowledgeable female member in the household	Household (HH) members from: BRAC HHs (608) Poor non-member HHs (1659) Non-poor HHs (1550)	1995 (April-July)
II. Differing health and health-seeking behaviour: ethnic minorities of Chittagong Hill Tracts, Bangladesh.	Cross-sectional Survey/ Face to face interviews, structured questionnaires: ---household head ---spouse/ knowledgeable female member in the household	Household members from major ethnic groups: Bangali (510) Chakma (510) Marma (510) Mro (510) Tripura (510)	1998 (April-July)
III. Socioeconomic status overrides age and gender in determining health-seeking behaviour in rural Bangladesh	Cross-sectional Survey/ Face to face interviews, structured questionnaires: ---household head/spouse ---primary care-giver ---elderly individuals	Adult members (≥ 20 years) from households having at least one elderly (≥ 60 years) Total HHs with at least one elderly: 966	2003 (April-June)
IV. Changing health-seeking behaviour in Matlab, Bangladesh: do development interventions matter?	Quasi-experimental/ Face to face interviews, structured questionnaires: ---household head ---spouse/ knowledgeable female member in the household	Household members from surveyed HHs: 1995 ---475 BRAC HHs ---1530 poor non-member HHs ---950 non-poor HHs 1999 ---400 BRAC HHs ---1500 poor non-member HHs ---420 non-poor HHs	1995 (Aug.-Nov) /1999 (Aug.-Nov.)
V. Targeted development interventions for the ultra-poor: does it make any difference in their health-seeking behaviour ?	Quasi-experimental/ Face to face interviews, structured questionnaires: ---household head ---spouse/ knowledgeable female member in the household	Household members from: ---Selected Ultra-poor HHs receiving programme in-puts in 2002 (2189) ---Not selected Ultra-poor HHs in 2002 (2134)	2002/ 2004 (July-Sept.)

The first study (I) set the context by providing descriptive data about current healthcare scenario in Bangladesh ('medical pluralism') and sought to study health-seeking behaviour in



rural communities from a gender and socioeconomic perspective. Also, it compares and contrasts between poor groups with or without involvement in Brac’s regular microcredit-based development interventions (see description below) and the early effects of such association. As a follow-up of the trends noted in this study, and using cross-sectional data from surveys undertaken in 1995 and 1999 as part of the BRAC-ICDDR, B Joint Research Project (see later), paper IV explored patterns of health-seeking behaviour over time resulting from continued implementation of Brac interventions. The tools and methodologies for eliciting health-seeking behaviour in study I were used for further studies (II, III, V) to explore the health-seeking behaviour of some of the other disadvantaged groups in the

population such as the minority ethnic groups and the elderly population with its determinants. Lastly, Study V was undertaken to examine whether a targeted grants-based development intervention for one of the major disadvantaged groups in the country, the 'ultra-poor', is effective in changing their health-seeking behaviour from use of unqualified providers to qualified providers. The sites of the different studies are shown in Map 1. The sites were chosen according to the availability of the targeted population as well as programme placement. Flood and famine-prone north Bengal was chosen for the concentration of 'ultra-poor' in the region and placement of the targeted intervention in the area (V). CHT region was chosen as the majority of the ethnic minorities live in this area (II). Similarly, Matlab was chosen because of placement of the BRAC-ICDDR, B Joint Research Project in the area (I & IV) and Chandpur was chosen conveniently because of logistic reasons (III).

The study projects with objectives, design and sampling are detailed below.

3.2 The Study Projects

3.2.1 BRAC-ICDDR, B Joint Research Project, Matlab: 1992-2002 (I and IV)

Brac (formerly known as Bangladesh Rural Advancement Committee) is an indigenous, non-governmental development organization (NGO) working for poverty alleviation with a holistic perspective (Fig 1) (BRAC 2005a). In 1992, Brac introduced its microcredit-based integrated intervention into Matlab thana (a rural sub-district situated about 55 km south-east of the capital Dhaka) that has been the field station of ICDDR, B for over 35 years. The ICDDR, B has been operating a Demographic Surveillance System (DSS) in Matlab thana (pop. 200,000) since the early '60s. In one-half of the DSS area, ICDDR, B provides intensive maternal/child health and family planning extension services through Community Health Workers, supported by mid-wives based in four sub-centres (Fauveau 1994). The other half has regular Government health services as described earlier. Prior to Brac's entry into Matlab, a research collaboration was established with ICDDR, B to examine the impact of Brac's integrated development activities on health and human well being of the poor (Bhuiya et al. 1995).

- *The intervention*

Brac's integrated development intervention targets the poor households (possessing < 0.5 acre land and selling manual labour for survival) with special emphasis on improving their socioeconomic and health conditions. This is accomplished through voluntary group formation (99% women), conscientization and awareness raising, skill training, health and education inputs, and collateral free microcredit loans for income-generating self-employment (Table 5) (Chowdhury and Bhuiya 2004, Pitt et al. 2003, Bhuiya and Chowdhury 2002, Kabeer 2001, Nanda 1999, Chowdhury and Alam 1997). It's health programme runs an Essential Health Care (EHC) package through community health volunteers (*Shasthyo Sebikas*) and community health workers (*Shasthya Kormis*), supported by static primary healthcare facilities (BRAC 2005b).

- *Design and Sampling*

A quasi-experimental research design (non-random allocation of study groups) was developed for baseline in 1992 (Ahmed et al 1994) that sampled 12,000 households from 60 villages (out of 149 villages) in the DSS area, with a post-intervention follow-up survey in 1999 (Ahmed et al. 2001b). This larger cohort analysis was supplemented by an extended survey of a sub-sample of 14 villages in 1995 and 1999 to monitor change in selected indicators, if any, due to health and development interventions of the two institutions.

The selection of villages and households for the baseline in 1992 occurred within the context of a four cell design as required by the research project. These cells were: villages with Brac interventions (with or without concomitant health extension services of ICDDR,B), villages with health extension services of ICDDR,B only, and comparison villages with regular government health services only as described earlier. A listing of villages with households in each cell was prepared. From this list, baseline villages were chosen by simple random sampling (SRS) technique (using a random number table) until required number of households in each cell was obtained. Households in the villages were categorized as poor (and therefore eligible to be included in Brac programme) and non-poor depending upon land and labour-selling criteria described above.

Table 5: Brac’s microcredit-based integrated intervention for the poor with rationale

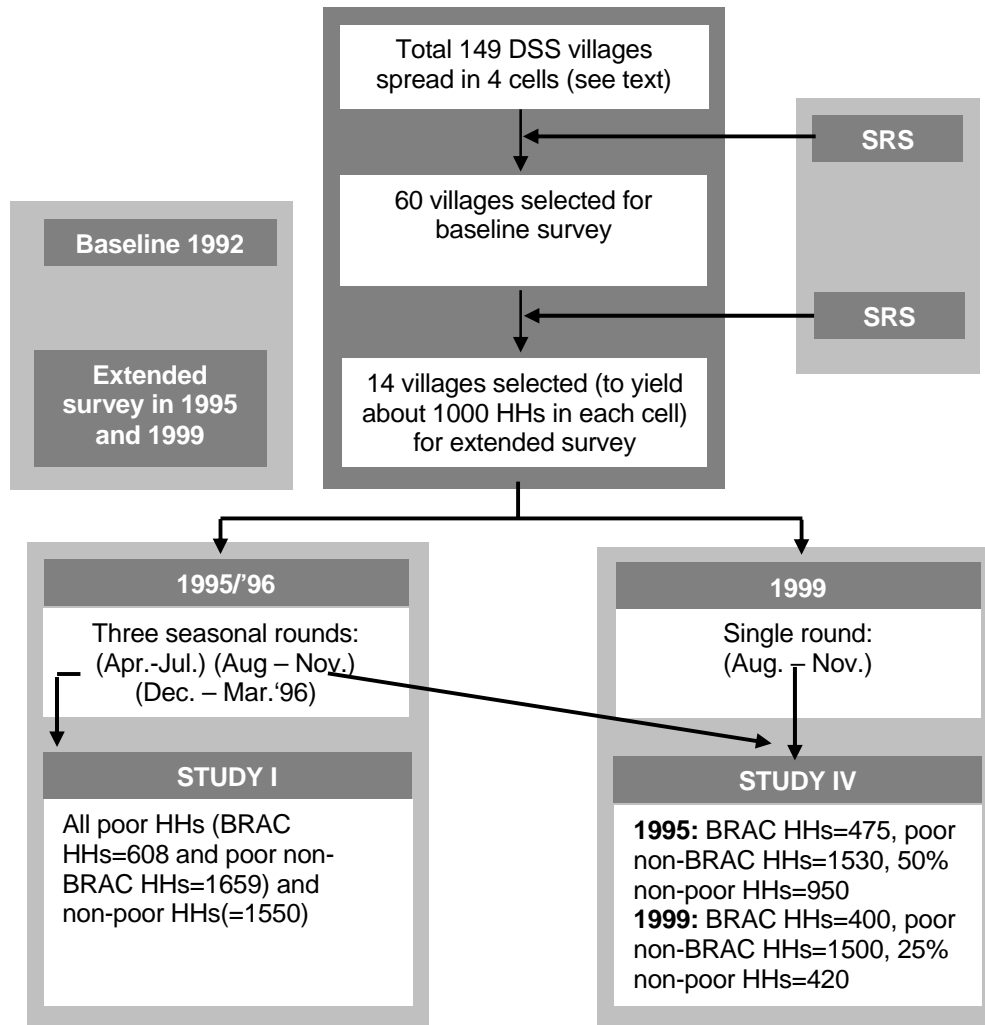
Component	Rationale
Women’s savings and credit group formation (village organization, VO)	Institution building of the poor
Social awareness and functional literacy	Awareness building on social issues, ability to understand and sign loan transaction papers
Collateral free microcredit	Income-generating self-employment (e.g., poultry and livestock rearing, vegetable gardening, grocery shop, rural transport etc.)
Skill development training and regular refresher	Ensure good return from enterprise
Technical follow-up of enterprise operations	Ensure good return from enterprise
Provision of all support inputs for the enterprise	Ensure good return from asset transferred
Health support Essential Health Care (EHC) package*	Reduce income-erosion effect of morbidity
Health commodities such as soap, iodized salt, sanitary napkins etc., including essential drugs, at cost price	Personal and domestic hygiene promotion
Social development	Knowledge and awareness of rights and justice
Non-formal Primary Education	Basic education for the drop-outs/never enrolled children

*health and nutrition education, child immunization, pregnancy care, basic curative care for ten common illnesses at cost price, installation of tube-wells and latrines at cost price, and delivery of DOTS (Directly Observed Treatment, Short course) for TB (Tuberculosis) patients

Data from the extended surveys in 1995 and 1999 were used in Studies I and IV (Fig 6). In 1995, three seasonal rounds of data collection and in 1999, a single round of data collection were undertaken. The sample size was calculated for some selected variables (e.g., immunization status of children <2 yrs) requiring a precision of ± 5 percentage units for 95% confidence interval, which yielded around 1,000 households in each cell. Ideally, minimum sample size should have been calculated for all the variables and then the largest one accepted. However, this was not practical. Rather, it was logistically necessary to select

villages from the four cells and then households from the selected villages. From the list of 60 baseline villages of 1992 (distributed in four cells), a sub-sample of villages was drawn

Figure 6 | Sampling (Study I & IV)
SRS: Simple Random Sampling; HHs: Households



randomly until around 1,000 households in each cell were obtained. The required sample was obtained from 14 villages. All poor households (including Brac member households) and, 100% and 50% of all non-poor households respectively in the first and the second/third seasonal rounds in 1995, and 25% of all non-poor households in 1999, were included for data collection. The proportion of non-poor households was decided given the time and resources available. Study I used data from the April-July seasonal round in 1995 while Study IV used data from the August-November seasonal rounds in 1995 and 1999.

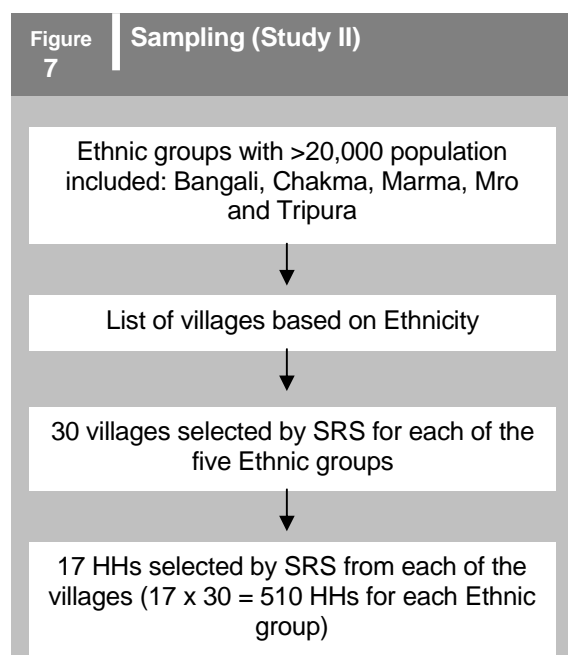
3.2.2 Counting the Hills: Assessing Development in Chittagong Hill Tracts (II)

The Chittagong Hill Tracts (CHT) in the hilly south-eastern region of Bangladesh represents 10% of the total land area of Bangladesh. It is the traditional homeland of the Jummas, a group of 12 different ethnic groups, who together with plain-land Bangali residing in the region constitute about 1% of the population. In the 1960's, 40% of the arable valley lands

was inundated by the erection of the Kaptai hydro-electric dam causing eviction of thousands of Jummas from their homes and lands and sowing the seed of discontent for the future. Political disturbances and civil strife ensued for more than two decades (1974-1996) that largely prevented any meaningful development activity (Chittagong Hill Tracts Commission 1991). Following the peace agreement in December 1997, BRAC began an integrated development programme to improve the quality of life of the poor in CHT (Chittagong Hill Tracts Peace Accord 1997). A comprehensive study was undertaken at this time to collect base-line information on socioeconomic, demographic, land and resource ownership, education and health status of the different ethnic minorities in the region, in order to provide feedback for programme design and implementation (Rafi and Chowdhury 2001).

- *Design and Sampling*

The data for this study originated from the baseline survey done in the summer of 1998. Sampling was done on the basis of ethnicity instead of administrative or geographical division to capture the diversity of development of the different ethnic groups. Only those ethnic groups with a minimum population of 20,000 (as per Government of Bangladesh census 1991) were included in this survey. The selected groups were: Bangali, Chakma, Marma, Mro, and the Tripura which comprised 48.6%, 24.5%, 14.6%, 2.3% and 6.3% of the CHT population respectively. Due to constraints in time and resources, about 4% of the CHT population representing 8 ethnic groups (who are sparsely distributed and geographically difficult to access) remains outside the scope of this study.

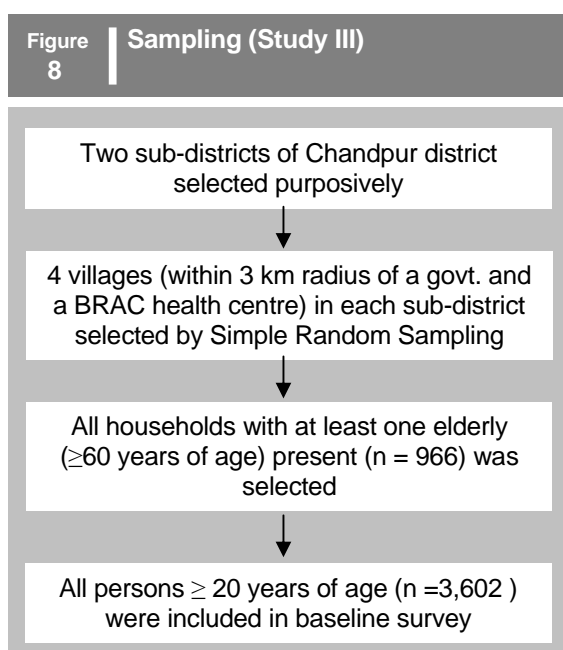


Because most of the villages were ethnically homogeneous, sampling on the basis of ethnicity was relatively straightforward (Fig 7). A list was made based on the ethnic identity of the villages (outside the municipality areas) from the census record, verified and updated in consultation with the local community leaders. Sample size was calculated for some selected variables (e.g., immunization status of children <2 yrs) requiring a precision of ± 5 percentage units for 95% confidence interval. A two-stage sampling procedure was

followed: first, from the list of villages by ethnicity, 30 villages were randomly selected for each of the ethnic groups; and next, from each village thus identified, 17 households were randomly selected. Thus, a total of 2,550 (30x17x5) households were interviewed (Fig 5). The population estimates were found by weighted analysis (calculated on the basis of the actual proportion of different groups in the CHT population).

3.2.3 Primary Healthcare in Later Life: Improving services in Bangladesh and Vietnam (PHILL): 2002-2005 (III)

The data for this study originated from the research project 'Primary Healthcare in Later Life: Improving services in Bangladesh and Vietnam (PHILL)'. It aims to study the effectiveness of low-cost preventive and health promotion interventions in improving PHC for the elderly in rural communities (PHILL 2004).



- *Design and Sampling*

A baseline survey for the PHILL project was done during April-June 2003 in Chandpur district situated 70 kms south of capital Dhaka. Two sub-districts with similar level of socioeconomic development were purposively selected (Fig 8). Sample size calculation (done with respect to the basic study unit i.e., the elderly individuals) yielded 400 elderly individuals each for the intervention and control areas to detect differences between areas/groups of 9% or more with a power of 80% and 95% confidence interval. For pre-intervention baseline survey, four villages (out of total 22 villages) from the intervention sub-district and another four villages (out of total 10 villages) from the comparison sub-district were randomly selected from the list of villages using a random number table. All villages were within 3 km radius of either a government or an NGO health centre. A census was completed for all households having at least one member aged ≥ 60 years in the selected villages. Age stated by the respondent or the family member was verified by the interviewer using an event calendar and life histories during the survey. Households were visited on three repeated occasions at weekly intervals, if the first attempt was not successful due to the absence of the respondents. When these repeated attempts failed, the interview was called-off. Non-response rate due to refusal of family members to cooperate, too weak to undergo interview etc. was around 5%. The final

sample consisted of 966 households with at least one member aged ≥ 60 years out of total 3031 households and 1136 elderly members and 2466 younger adults aged 20-59 years.

3.2.4 Challenging the frontiers of poverty reduction: targeting ultra-poor, targeting social constraints (CFPR/TUP): 2002-2006 (V)

It is now well recognised that microcredit-based integrated intervention failed to reach the 'poorest of the poor' or the ultra-poor (about 36% of the population) and may in fact actively exclude them for a number of reasons. These include lack of the ultra-poor's capacity to save and repay regularly, lack of time to attend meetings, absence of adult males in the family, less interaction with NGOs, opportunity cost and supply side factors like screening out the potentially risky clients by the programme staff and so on (Halder and Mosley 2004, Rahman & Razzaque 2000, Evans et al. 1999, Hussain 1998). This has encouraged testing of innovative approaches for reaching the extreme poor in recent years (Matin and Hulme 2003). Experiences gained from these activities were used to develop a grants-based integrated intervention for the ultra-poor called the CFPR/TUP Programme (BRAC 2001). The targeted intervention aimed to address poverty reduction by two broad strategies: 'pushing down' (through specific targeting of the ultra-poor) and 'pushing out' (expanding the domain within which existing poverty alleviation programmes operate). The idea behind it is to enable the ultra-poor develop new and better options for sustainable livelihood.

- *The intervention*

Once selected, the women members of the ultra-poor households were provided with two or more enterprise options including poultry rearing, livestock, agriculture, horticulture nursery and non-farm activities. These were provided as grants along with specialised health and other supports (Table 6). Once this grants phase is over, they are expected to attain the foundation of sustainable livelihood and continue with the income-earning activities by joining the mainstream micorcredit-based intervention.

Table 6. The CFPR/TUP programme components (delivered over a cycle of 18 months) with rationale (BRAC 2004)

Component	Rationale
Integrated targeting methodologies	Effective targeting of the extreme poor
Income generating asset transfer [range: Taka 3,000-9,000 (US\$ 50-150)]	Build economic asset base
Income generation skill training and regular refreshers (e.g., poultry/livestock rearing, vegetable cultivation, shoe-making etc.)	Ensure good return from asset transferred
Technical follow-up of enterprise operations	Ensure good return from asset transferred
Provision of all support inputs for the enterprise	Ensure good return from asset transferred
Monthly stipends for subsistence [range: Taka 10 (US\$ 0.17) daily for 12-15 months]	Reduce opportunity cost of asset operations
Health support	Reduce costly morbidity
Social development (e.g., social awareness and confidence building, legal awareness, social action on early marriage/dowry etc.)	Knowledge and awareness of rights and justice
Mobilization of local elite for support (pro-poor advocacy through seminar, workshop, and popular theatre)	Create an enabling environment

Experiences have shown that the poor, especially the ‘ultra-poor’, are often not able to take full advantage of services provided under existing EHC package at primary facilities (BRAC 2001). Reasons identified include lack of access to information on available services (when, where and whom to go for treatment), lack of health awareness (‘unfelt need’), lack of opportunity (‘exclusion’ from social and health institutions) and inability to pay (income poverty). The health support was tailored specifically to overcome these barriers and served as a safety net against the income-erosion effect of illness (Table 7).

Table 7: Health support under the CFPR/TUP programme with rationale
(BRAC 2004)

Component	Rationale
Essential Health Care (EHC)* package, installation of sanitary latrines and tube-wells free of cost	Developing health awareness, change ‘unfelt need’ to ‘felt need’ and control disease transmission
Consumer information package on locally available health services	To overcome information barrier
Identity Card for facilitated access to health services	To overcome barrier due to social exclusion and promote use of formal health services
Financial assistance for costly morbidity (e.g., illness requiring in-patient treatment or costly lab tests) from fund mobilized by programme and community	To overcome financial barrier
Intensive supervision and assistance from community health volunteers (CHVs) and health staff to avail services; developing referral network for severe illnesses	To optimize opportunity cost of accessing and attending services

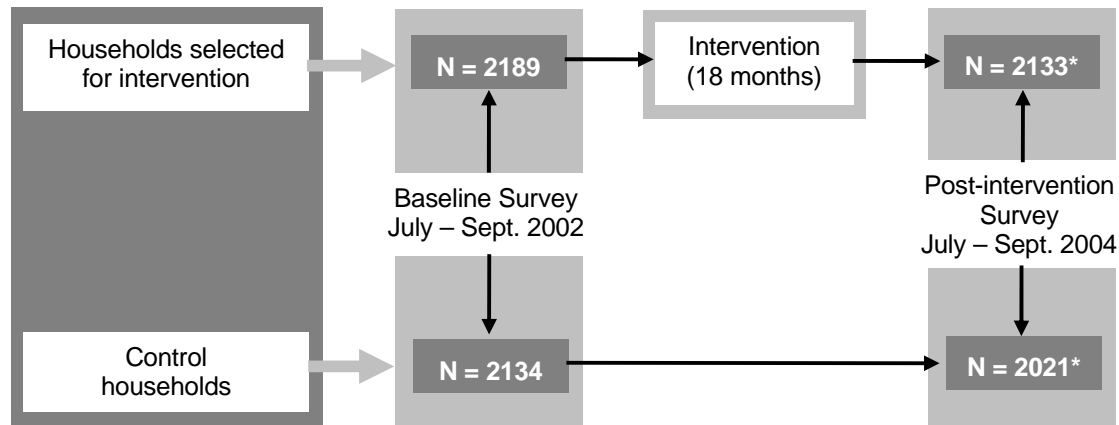
*health and nutrition education, child immunization, pregnancy care, basic curative care for common illnesses at cost prices (or free of cost if unable to pay), and delivery of DOTS (Directly Observed Treatment, Short course) for TB (Tuberculosis) patients

- *Design and sampling*

Initially, villages under *upazilas* with high concentration of poor households were selected by programme based on local level knowledge of Brac field staff. The ‘ultra-poor’ households were identified by villagers in Participatory Wealth Ranking (PWR) exercises, verified later by a brief household survey by Brac field staff against programme set targeting criteria. (see Appendix III), crosschecked by a senior programme staff to produce a final list of ultra-poor households to be included in the programme. Thus, the number of ‘ultra-poor’ households varied from village to village depending upon its density in the village, and ensured inclusion of households from all programme villages under the three districts.

For the baseline survey conducted during July-September 2002, one-third of the programme villages under each *upazila* were selected by systematic random sampling i.e., every third village was selected from a list of all villages under a particular *upazila*. Sample size calculation found this proportion of villages to yield adequate number of households (around 2,000 HHs each for intervention and control) for studying most of the variables of interest (e.g., immunization status of children <2 yrs) requiring a precision of ± 5 percentage units for 95% confidence interval. All ultra-poor households in these villages included in the CFPR/TUP

Figure 9 Sampling (Study V)



programme in 2002 comprised the intervention households (n=2189) and approximately an equal number of control households (n=2134) were recruited by simple random sampling from the pool of ultra-poor households in the same villages not included by the CFPR/TUP programme. A follow-up survey of the baseline households was done during July-September 2004 after completion of the 18-month intervention cycle in the intervention households (Fig 9). The response rate at follow-up was 96%, due to attrition from death, migration, drop outs etc.

3.3 Data collection and analysis (I-V)

Structured questionnaires (one for socio-demographic data and another for health-seeking behaviour data used in this thesis, see Appendix IV) were used in face-to-face interview for eliciting information in each of the research projects. The development of the questionnaires in Bengali was informed by the conceptualized pathways for health and development impact of the intervention and experiences of the researchers in social science studies (Scott et al 1995). All questionnaires were pre-tested in a village outside study areas for ascertaining consistency, appropriateness of languages, sequencing of the questions, and to have an insight into the field operation procedure. These were then modified, rephrased and edited in the light of feed-back received. The easily identifiable color-coded questionnaires were backed by an instruction manual in Bangla for the interviewers.

For each of the studies, the interviews were conducted by social science graduates experienced in survey methods and trained on the content of the questionnaire, techniques to elicit more information and strategies to establish rapport and neutrality essential for obtaining complete and accurate data. For study II, interviewers were recruited from each of the respective ethnic groups in the study, so as to overcome language and cultural barriers during field interview. All these interviewers had workable knowledge of Bangla (graduated from mainstream institutions in the country with Bangla as medium of instruction) and the training was conducted in Bangla, with the help of ethnic interpreters when needed. For rest of the studies (I, III-V), the interviewers were of Bangla origin. The training consisted of classroom lectures and role-playing, practice sessions in the field (outside the villages to be

included in the study) and debriefing sessions at the end of the day. Training sessions for each of the study lasted for 5 days, and a training manual was produced for ready reference in the field. The field activities were supervised and fine tuned by the study coordinator (author) with the help of field researchers based in the project office.

In studying health-seeking behaviour, this thesis saw increasing refinement of the methodologies. In earlier studies (I and II), taking no medication at all was grouped under 'no treatment', separately from self-treatment with home remedies and over-the-counter (OTC) drugs. However, experiences showed that even if no medication was taken, some nursing and other minor care (massaging painful limbs, relief of headache etc.) were taken by the patient or care-giver. Therefore, these two categories were merged in subsequent studies into 'self-care'. Similarly, illness categories were reorganised as deemed necessary (III). To study the predictors of health-seeking from the formal sector, MBBS doctors and para-professional care providers were grouped together in some of the analyses (III, IV, V). Chronologically, the first two cross-sectional studies (I, II) and the microcredit-based intervention (IV) was followed by the third cross-sectional study (III) and the other intervention study (V).

Data were analysed in two stages using SPSS software versions 7.5 (I), 9 (II, IV), and 11.5 (III). Analyses involved from running simple logistic regression (I-IV) to the use of multi-level modeling (V). First, bivariate analyses were done to characterize group level differences in health-seeking behaviour and differences tested by chi-square. Next, logistic regression analysis was performed to identify the determinants of seeking different types of health care (I-III), and impact of micro-credit based intervention on health-seeking behaviour (IV). In addition, random coefficient modeling allowing for clustering within families have been used for assessing the impact of grants-based development interventions on the lives of the ultra-poor (V). The procedure Proc Mixed and the GLIMMIX macro in SAS 8.2 software has been used in this analysis. The possibility of clustering in the data and the implications of this effect is discussed later.

3.3.1 Variables

- Background variables

Demographic and socioeconomic data were provided by the head of household (perceived by household members to be the prime decision-maker in the family and not necessarily the main income earner). The key variables in all the studies included the *age*, *sex* (male or female), *literacy* (the ability to read and/or write) and household socioeconomic status (SES). In study I and II, the latter is measured by the *occupation of the household head*. Occupation was defined as the activity in which the household head spends the major part of the working day, and is categorized as labour selling or non-labour selling. Labour selling households tend to be of lower socioeconomic status given their dependence on variable seasonal employment. In Study III and V, *self-rated poverty status* was used for determining the SES of the study households. This was derived by eliciting respondent's perception about the state of household's annual expenditure in relation to income in the past year, a valid indicator of household stratification in rural Bangladesh (Sen 2001). Thus, households were categorized as being in "chronic deficit" (running always in deficit), or "non-deficit" states. In study IV, Brac eligibility status (eligible to participate if posses ≤ 50 decimals of land and sells manual labour foe survival) was used as a proxy for SES of household.

Additionally, in the BRAC-ICDDR,B Joint Research project (I , IV), an *embankment* variable demarcated whether or not the household was located within or outside the embankment –

a large system of dams constructed on the banks of the rivers Meghna and Dhonagoda for the purposes of flood control, drainage and irrigation. Households located within the embankment area are presumed to be socioeconomically better-off due to the agricultural benefits of irrigation (Vaughn 1997). Also included is a variable identifying whether or not their community was located in an area in which the ICDDR,B's *health-extension services* were provided.

- Outcome variables

Specific information on recent illnesses among household members and related *health-seeking behaviour* was provided by any informed female member of the household or the ill person herself/himself if present on the spot. Data on the illness episode with longest duration that affected household members within 15 days before the survey were recorded. The respondent was asked to describe the symptoms of the illness (and not diagnosis) in her or his own words. These 'lay reporting of illnesses' were later classified into different 'types of illnesses' (such as fever, gastro-intestinal illnesses, respiratory illnesses etc.) according to a coding system used in Brac for morbidity studies.

The coding system used for categorizing illness types originated from that used in the Matlab Demographic Surveillance System for classification of diseases, injuries and causes of death by the CHWs and medical assistants (Razzaque and Streatfield 2002). For each of the studies, the classifications were cross-checked by a physician (author of this thesis). All reported illnesses occurring in the previous two weeks irrespective of severity were included for investigation. In this study, diagnostic classification such as followed in the International Classification of Diseases and related health problems (ICD 10) (WHO 2004) which requires laboratory facilities, was not used because it was impractical to implement in large population-based surveys. Here illness served just as a reference point for eliciting specific health-seeking behaviour with respect to a particular condition and therefore, was not of primary interest. Moreover, official statistics from Bangladesh does not report mortality and morbidity by ICD classification yet. Morbidity and mortality statistics are presented mostly as broad illness categories as used here (BBS 2005).

For instances in which a health-care provider was consulted, information was obtained about the first contact made to seek treatment and the *health-expenditure* incurred (comprising user fees, out-of-pocket fees, transport, etc.) for that person during the 15-day recall period. The choice of who is contacted first reflects a number of factors such as health beliefs, past knowledge of illness and its remedy, and faith in various therapies rather than the type or severity of illness alone. The treatments sought were grouped as shown in Box 3. A final set of variables indicate the *type and duration of the illness* experienced.

3.4 Ethical considerations

All the five studies had ethical approval from the Karolinska Institutet (KI) (Dnr. 03-172, Dnr. 02-123). Additionally, ethical approval was obtained from Bangladesh Medical Research Council (BMRC) for the BRAC-ICDDR, B Joint Research Project and the PHILL project. In the studies, no invasive techniques were used. Data were collected through face-to-face interviews. In each case, a written consent form was read to the prospective participant (majority being illiterate) in the presence of a witness, with clarifications made where needed. After the investigator was sure that the participant understood the contents well, and that s/he had no obligation to participate, and that even if s/he refused, it won't affect her/his receiving Brac inputs in any way, only then s/he was included in the study. The individuals were identified by code numbers and all data were used for solely research purpose. Confidentiality of the data was maintained throughout the relevant project periods and analysis.

4 Main findings

4.1 Gender, socio-economic development and health-seeking behaviour (I)

The health-seeking behaviour of poor (possessing < 0.5 acre land and selling manual labour for survival) people in rural Bangladesh is explored from a gender as well as socioeconomic perspective, using differences arising from early association with microcredit-based integrated intervention of Brac. Significantly lower prevalence of reported morbidity among members from Brac households (13%) compared to poor non-member households (20%) and similar to non-poor households (13%) was noted (data not shown here). Overall, there was no discernable difference in seeking healthcare between ill members from Brac and poor non-Brac households (HHs) (Table 8). However, women were less likely to seek care than men in both types of households: (m/w: 18.5%/25% and 23%/15% in Brac and non-Brac HHs respectively). A greater proportion of ill persons from Brac households sought treatment from unqualified allopaths compared to non-member HHs (25% and 16% respectively) while the poor non-member group relied mainly on treatment-seeking from para-professionals compared to Brac group (42% and 21% respectively), irrespective of gender.

Table 8: Health care-seeking behaviour by gender and BRAC membership %

	BRAC member households			Poor non-member households			All households
	Male (n=189)	Female (n=217)	All	Male (n=743)	Female (n=777)	All	(n=1926)
Health care sought in last 15 days							
No treatment	18.5	25.3	21.9	15.3	23.4	19.3	20.0
Home remedies	8.5	7.8	8.1	7.4	5.7	6.5	6.9
Traditional*	13.2	11.1	12.1	9.8	8.4	9.1	9.7
Para-professionals**	23.8	18.0	20.9	41.2	42.6	42.0	37.4
Unqualified allopaths	25.0	24.9	24.9	17.5	15.0	16.2	18.0
Qualified allopaths	11.0	13.0	12.0	8.7	4.9	6.8	8.0

Note: within each gender, the association between type of healthcare and membership status is significant, $p < 0.001$

*Ayurvedic, Unani, herbalists, faith-healers etc. including homeopath

** village doctors, medical assistants, mid-wives, Community Health Workers of ICDDR,B, BRAC and others who have had some form of institutional training in allopathic medicine

There was greater propensity for Brac households to seek treatment from professional allopathic providers (MBBS doctors) than poor non-member households, especially in case of women.

Age, gender, literacy of household head and Brac membership of HHs emerged as important determinants of treatment choice among these households (Table 9). The probability of men to access any type of healthcare and qualified allopathic care was found to be greater than women (OR 1.73 and OR 1.64 respectively). Brac membership had a significant negative effect on seeking para-professional care (OR 0.35), and a positive effect on

Table 9: Odds ratios of seeking different types of health care among poor households, Matlab 1995.

Characteristics	Types of health care sought in last 15 days (Odds Ratios)		
	Model 1 Any type	Model 2 Para-professionals	Model 3 Qualified allopaths
<i>Age (years)</i>			
≤15	1.00	1.00	1.00
16-30	1.69**	1.23	1.51
31-45	1.43*	1.45*	2.11**
46-60	1.17	1.10	1.53
60+	1.26	1.24	0.96
<i>Gender</i>			
Female	1.00	1.00	1.00
Male	1.73***	0.98	1.64*
<i>Literacy of HH head</i>			
Illiterate	1.00	1.00	1.00
Literate	1.30***	0.88	1.48*
<i>BRAC membership of HH</i>			
Poor non-member	1.00	1.00	1.00
BRAC member	0.87	0.35***	1.92***
<i>Village Health extension services present (of ICDDR,B)</i>			
No	1.00	1.00	1.00
Yes	2.00***	1.14	1.33
Overall predicted	80.1%	64.5%	92.1%

Significance levels *p<.05; **p<.01; *p<.001**

seeking care from qualified allopathic providers (OR 1.92). Literacy of the household head had a significant role in seeking healthcare in general, and health-seeking from qualified allopathic providers in particular. The location of the poor HHs vis-à-vis presence of health extension services (of ICDDR, B) was significant only in predicting health-seeking in general (OR 2.00), but not for specific types.

4.2 Ethnicity and health-seeking behaviour (II)

This study investigated the health and health-seeking behaviour of the five major ethnic groups residing in the Chittagong Hill Tracts (CHT) region of Bangladesh. Reported morbidity prevalence was found to be highest among the Bangalis (23%) and lowest among the Mros (9%). Poor socioeconomic condition (as proxied by landholding, labour-selling status of households and food insecurity) was mostly associated with higher morbidity prevalence in all ethnic groups (data not shown here). Findings also revealed that no treatment was sought for 14% of the ill population from the five major ethnic groups, with large disparities among the different ethnic groups (Table 10). Fifty-eight percent of ill persons from the Mro ethnic group and >25% from the Marma and Tripura ethnic groups did not seek any healthcare while ill. Self-care (including self-treatment) was used more frequently by the Mros (66%) than any other ethnic group. Around 15% of the Bangalis sought care from the semi-qualified 'para-professionals' and 26% from qualified allopaths while 'unqualified' allopaths (drug retailers/vendors) were consulted more frequently by other ethnic groups (60-70%).

Table 10: Health-seeking behavior of study population by ethnic group (%)

	Ethnic group					
	Bangali	Chakma	Marma	Mro	Tripura	All (weighted)
None	9.8	10.0	26.5	58.0	28.5	13.7
Home-remedies	17.0	16.3	12.7	63.6	5.1	13.9
Traditional*	4.2	7.9	7.8	9.1	2.8	4.5
Unqualified allopaths	37.0	59.9	70.6	9.1	55.2	40.0
Para-professionals**	15.4	4.4	2.9	---	0.6	9.9
Qualified allopaths	26.3	11.4	6.1	18.2	7.9	18.0
n	632	349	422	269	496	2168

*Kaboraji, Faith-healer, Herbalists etc. including homeopath, **PCs, MAs, CHWs of GO/NGO etc. who have some formal training in allopathic medicine

NB. The association between types of health-care sought and ethnic groups is significant ($p < .001$)

The probability of seeking ‘any type’ and ‘any allopathic type’ of health care was significantly predicted by sex of the ill person (probability less if female), education of household head (probability more if literate), landholding by the household (probability more if household has >50 decimals of land), types of illness (probability more if had an attack of malaria) and ethnicity (probability less if the ill person is other than Bangali or Chakma in origin) (Table 11). In addition, proximity to a fixed health facility also emerged as a significant predictor in seeking any allopathic care.

Table 11: Odds ratios of seeking any type and any allopathic type of health-care by the study population.

	Types of health care sought in last 15 days (Odds Ratios)	
	Model 1 (any type)	Model 2 (any allopathic)
<u>Sex</u>		
Male	1.00	1.00
Female	0.75*	0.74**
<u>Education of household head</u>		
Illiterate	1.00	1.00
Literate	1.70**	1.30*
<u>Land-holding status of household</u>		
Functionally landless (≤ 50 decimals)	1.00	1.00
Have > 50 decimals of land	1.47**	1.25*
<u>Types of illness</u>		
Fever	1.00	1.00
Gastro-intestinal diseases	0.82	0.33***
Malaria	2.24**	2.70***
Others	0.83	0.81
<u>Ethnicity</u>		
Bangali	1.00	1.00
Chakma	0.80	0.75
Marma	0.30***	0.52***
Mro	0.07***	0.05***
Tripura	0.27***	0.69*
<u>Distance from static health facilities</u>		
	---	0.97**
Overall predicted	79.52%	69.66%

Significance levels * $p < .05$; ** $p < .01$; *** $p < .001$

4.3 Elderly and health-seeking behaviour (III)

The health-seeking behaviour of elderly members (aged ≥ 60 years) of households in rural Bangladesh was studied to ascertain how their behaviour differs from that of younger people (aged 20–59 years) living in the same household and to discover the determinants of health-seeking behaviour. Elderly people reported significantly ($p < 0.001$) more illnesses (60%) occurring during the 15-day recall period than did the younger adults (20%) (data not shown here). No significant difference in health-seeking behaviour between the elderly (≥ 60 years) and the younger adults (20–59 years) was observed (Table 12). Self-care/self-treatment (35%) was the most common choice of treatment for the three most frequently reported illnesses irrespective of age group. For both age groups, the most commonly consulted type of provider was a paraprofessional (24%). Elderly people were less likely to choose self-care/self-treatment and more likely to choose any type of allopathic treatment. However, none of these

Table 12. Type of health care sought in past 15 days for the three most frequently reported illnesses in study area in Bangladesh by age group

Type of health care	Type of illness ^a							
	Fever		Bodily pain or aches		Gastrointestinal illness		All types of illness	
	20–59 years <i>n</i> = 152	≥ 60 years <i>n</i> = 114	20–59 years <i>n</i> = 131	≥ 60 years <i>n</i> = 208	20–59 years <i>n</i> = 59	≥ 60 years <i>n</i> = 72	20–59 years <i>n</i> = 482	≥ 60 years <i>n</i> = 687
Self-care	78 (51.3)	51 (44.7)	44 (33.6)	54 (26.0)	29 (49.2)	37 (51.4)	185 (38.4)	220 (32.0)
Traditional	3 (2.0)	2 (1.8)	4 (3.1)	8 (3.8)	5 (8.5)	(0.0)	18 (3.7)	24 (3.5)
Para-professional	37 (24.3)	30 (26.3)	32 (24.4)	58 (27.9)	13 (22.0)	12 (16.7)	114 (23.7)	173 (25.2)
Drugstore salesman	26 (17.1)	23 (20.2)	20 (15.3)	47 (22.6)	6 (10.2)	15 (20.8)	75 (15.6)	122 (17.8)
MBBS doctor	8 (5.3)	8 (7.0)	31 (23.7)	41 (19.7)	6 (10.2)	8 (11.1)	90 (18.7)	148 (21.5)

^a Figures in parentheses are percentages.

differences were statistically significant. Also, traditional medicine had only a marginal role in the health-seeking behaviour of this study population.

Level of education and self-rated poverty status of HHs emerged as the two most significant determinants of health-seeking behaviour in this study population (Table 13). Those with some education were found to be less likely to choose self-care/self-treatment (OR 0.74) or treatment from a drugstore salesman (OR 0.68) and more likely to seek care from a formally qualified allopathic practitioner (OR 1.50). On the other hand, poverty reduced the odds of seeking any allopathic treatment (OR 0.6 and 0.7 for drugstore salesmen and formal allopathic care respectively) and increased the odds of choosing self-care/self-treatment (OR 1.8).

Age and gender had a limited influence on healthcare expenditure during the recall period when compared with the household's poverty status (data not shown here).

Table 13. Odds ratio (OR) for seeking different types of healthcare in the past 15 days in study area in Bangladesh by age, sex, education and poverty status

Characteristic	Type of healthcare sought (n = 1169)					
	Self-care/self-treatment		Drugstore salesmen		Formal allopathic care (by para professionals or qualified medical doctors)	
	OR ^a	95% CI ^b	OR	95% CI	OR	95% CI
Age group (years)						
20–59	1.00		1.00		1.00	
≥ 60	0.72 ^c	0.55–0.95	0.99	0.70–1.42	1.33 ^c	1.01–1.73
Gender						
Man	1.00		1.00		1.00	
Woman	1.30	0.99–1.70	0.92	0.66–1.28	0.84	0.66–1.08
Education						
None	1.00		1.00		1.00	
Some	0.74 ^c	0.56–0.99	0.68 ^c	0.50–0.94	1.50 ^d	1.15–1.96
Self-rated poverty status of household						
Non-deficit	1.00		1.00		1.00	
Chronic deficit	1.84 ^e	1.43–2.36	0.57 ^d	0.40–0.78	0.75 ^c	0.60–0.95

^aOR = odds ratio; ^bCI = confidence interval; ^cP < 0.05; ^dP < 0.01; ^eP < 0.001.

4.4 Effect of microcredit-based development intervention on changing health-seeking behaviour (IV)

This study explored changing patterns of health-seeking behaviour over time (1995 and 1999) among the recipients of a microcredit-based integrated intervention (including preventive and basic curative health inputs) (Table 5). Findings revealed a generalized rise in self-care from 16-24% in 1995 to 50-58% in 1999 (Table 14).

Table 14: Health-seeking behaviour by gender, BRAC membership and year of survey (%)

Health care sought in last 15 days	BRAC member households			Poor non-member households			Non-poor non-member households		
	M	F	All	M	F	All	M	F	All
1995									
Self-care	15.7	27.1	22.0	19.9	27.8	24.1	16.6	16.3	16.4
Para-professional	34.8	23.6	28.6	42.3	41.9	42.0	37.4	38.9	38.2
Professional allopathic providers	14.8	12.8	13.7	9.0	6.2	7.5	13.4	14.4	14.0
Drugstore salespeople	23.8	27.5	25.9	21.7	15.9	18.6	22.5	21.5	21.9
Traditional*	11.0	8.9	9.8	7.2	8.2	7.7	10.0	9.4	9.4
N	210	258	468	433	485	918	409	535	944
1999									
Self-care	58.0	57.6	57.8	50.6	60.8	55.8	47.3	52.8	50.2
Para-professional	10.7	12.1	11.4	16.8	10.1	13.4	14.0	11.2	12.5
Professional allopathic providers	7.7	5.5	6.6	5.2	5.0	5.1	10.7	11.2	10.9
Drugstore salespeople	20.4	23.0	21.6	22.9	19.9	21.3	22.0	20.5	21.2
Traditional*	3.6	1.8	2.7	4.6	4.3	4.4	6.0	4.3	5.1
N	169	165	334	542	564	1106	150	161	311

*includes traditional medicine and homeopathy

Whereas the preferential use of self-care among women (m/w: 16%/27%), and para-professional care among men (m/w: 35%/24%) from households receiving intervention apparent in the 1995 survey disappeared in 1999 (m/w: 58%/58%, self-care; m/w: 11%/12%, para-professional), gender-specific differences in treatment seeking persisted in poor non-member households. Concomitant with this rise in self-care, there is a generalized decline in treatment-seeking from traditional and ‘formal medical’ (such as qualified allopaths and para-professionals) practitioners.

The odds of practicing self-care in 1995 and 1999 are compared in Table 15. Age (probability decreasing with increasing age), gender (probability decreased if men), and duration of illness (probability decreasing beyond three days of illness) were found to be the common determinant of self-care at both time periods. Unlike 1995, households living outside the area serviced by the ICDDR, B’s health extension activities were 1.7 times more likely to resort to self-care in case of illness in 1999, while those located in poor villages outside the embankment were 1.3 times more likely to practice self-care.

Table 15: Odds ratios of managing illness by self-care

Characteristics	Odds of managing illness by self-care	
	1995	1999
<i>Age (years)</i>	0.99**	0.99***
<i>Sex</i>		
Female	1.00	1.00
Male	0.74***	0.69**
<i>Sex of Household head</i>		
Female	1.00	1.00
Male	0.74*	-0.91
<i>Location of the household</i>		
Inside embankment	1.00	1.00
Outside embankment	0.93	1.29*
<i>Village Health Extension services present (of ICDDR,B)</i>		
Yes	1.00	1.00
No	0.85	1.67***
<i>BRAC membership status of household</i>		
Poor non-member	1.00	1.00
BRAC member	0.88	1.09
Non-poor non-member	0.67**	0.82
<i>Duration of illness</i>		
Up to 3 days	1.00	1.00
4 to 7 days	0.34***	0.74**
More than 7 days	0.76	0.71**
-2 log likelihood	2145.62	2248.34
Model improvement	90.43***	156.33***
Overall predicted	79.5%	63.1%
N	2209	1748

Significance levels *p<0.05; **p<0.01; ***p<0.001

In summary, findings reveal an unanticipated generalized rise in self-care in the context of microcredit-based integrated intervention during the study period 1995-1999. Self-care was

predicted by female gender, the absence of low-cost health extension services and illnesses of relatively short duration.

4.5 Effect of grants-based targeted development intervention on changing health-seeking behaviour (V)

An overall shift in health-seeking behaviour of the whole study population was observed (Table 16). The grants-based integrated intervention changed health-seeking behaviour during the period 2002 to 2004 with a decrease in self-care by 7 percentage units and an increase in households seeking allopathic care by about 4 percentage units, whether from professional allopathic providers or para-professionals. A marginal reduction in the use of traditional healers was observed while the use of drug store salesmen remained same during the study period. The use of ‘formal allopathic care’ (paraprofessionals and MBBS doctors together) increased by 9 percentage units (95% CI 3.2-14.2, $p < 0.01$) (data not shown in table). Also, In addition, sex of the ill person as well as the household head was also found to be positively associated with increased capacity of households for health expenditure (not shown in table): households where the ill person or the household head were a male had increased odds (OR 1.5, 95% CI 1.3–1.7 and OR 1.4, 95% CI 1.2–1.6 respectively) of greater health expenditure (>Taka 25) than others.

Table 16: Effect of intervention on health-seeking behaviour of the ill person(s) (15 days recall)

	Observed percentages		Estimation of intervention effect controlled for confounding		
	Intervention	Control	Estimated intervention effect (change in percentage unit)	95% Confidence Interval	<i>p</i> value
Self-care/self-treatment					
Baseline (2002)	49.3	43.1			
Post intervention (2004)	27.8	29.9	-7.2	-12.9 – -1.5	<0.01
Traditional healer					
Baseline (2002)	8.5	7.5	-1.3	-4.8 – 2.2	ns
Post intervention (2004)	11.1	11.8			
Drugstore salesman					
Baseline (2002)	19.4	24.4			
Post intervention (2004)	22.4	26.5	-0.00	-5.1 – 5.1	ns
Para-professionals					
Baseline (2002)	14.5	14.3			
Post intervention (2004)	30.2	25.9	3.9	-0.1 – 8.7	ns
Professional allopaths (MBBS doctors)					
Baseline (2002)	8.2	10.7			
Post intervention (2004)	8.5	5.9	4.4	1.1 – 7.7	<0.05

Note: The intervention effect has been estimated by an interaction term of intervention/control condition and time-point (baseline or post-intervention) using a random coefficient model with repeated measurements data (Diggle et al. 2002). PROC Mixed and GLIMMIX Macro in SAS 8.2 was used

Health-seeking from the formal allopathic care providers was found to be strongly predicted by the level of health expenditure (use increased when expenditure exceeded Taka 25) and time (use increased at post-intervention period) (Table 17). However, the size of the interaction term (time*health exp), although insignificantly different from unity, indicates that a relatively lesser proportion of households spending >Taka 25 sought ‘formal allopathic’ care at post intervention (2004) compared to baseline (2002).

Table 17: Odds ratios of seeking 'formal allopathic' (para-professionals and MBBS doctors) care by households for illnesses during the 15 days recall period

	Intervention		Control	
	OR	95% CI	OR	95% CI
Health expenditure(BD Tk ^a)				
≤ 25	1.00		1.00	
25+	3.56 ^a	2.69 - 4.70	4.50 ^b	3.35 – 6.02
Time				
Baseline (2002)	1.00		1.00	
Post-intervention (2004)	2.16 ^b	1.68 – 2.77	1.67 ^b	1.25 – 2.22
Time*health exp.	0.80	0.56 – 1.14	0.71	0.49 – 1.03

^aBD Taka 60=US \$ 1 in 2004; ^bp<0.001

In summary: the integrated, grants-based development intervention, specifically designed to overcome various demand-side barriers to access, was found to improve the use of health services by the extreme poor (‘ultra-poor’) during illness. Through improvement in household’s poverty status and capacity for health expenditure, it initiated changes in health-seeking behaviour towards greater use of formal allopathic providers during illness.

5. Discussion

This study showed the importance of an emerging cadre of para-professionals as the main provider of formal allopathic care to the disadvantaged groups. Self-care emerged as the predominant therapeutic activity pursued. Poverty level of households was the key determinant shaping their health-seeking behaviour. The grants-based integrated intervention was found to be effective in initiating changes in health-seeking behaviour of the ultra-poor towards greater use of healthcare and 'formal allopathic providers' (para-professionals and MBBS doctors). The microcredit-based integrated intervention was observed to increase the use of self-care presumably through increase in the needed material and informational resources. Despite women focus of the two interventions, gender differences in health-seeking and health expenditure disfavoured women were observed.

5.1 Methodological considerations

5.1.1 Design

The necessity for evidence-based public health to move beyond randomized trials was emphasized recently (Victora et al. 2004). For evaluating clinical or health service interventions, the Randomized Controlled Trial (RCT) cannot be applied in all situations due to costs and time required, ethical problems or lack of external validity (Black 1996). Other acceptable designs for population-based studies are non-randomized time series, before and after with or without control, and after only with or without control (Grimshaw et al. 2001, Cochrane Collaboration 1998). While designing interventions, the most pragmatic approach is to adapt to the availing opportunities in the environment and the goal is to find whether the intervention works in that setting (Fulop et al. 2001). In this thesis, the study designs evolved from simple descriptive design arising out of the need for providing baseline information for designing intervention (I, II, III) to quasi-experimental designs (non-random allocation of study groups) for evaluating the effects of intervention. The latter consisted of a separate sample pre-test, post-test design (IV), and a pre-test post-test control group design (V). The obvious concern with the quasi-experimental designs results from the method of choosing the comparison group. The comparison groups are not selected by random allocation but by the researcher using his/her subjective judgment or at the most, random selections as has been done in study V. Also, the interventions were applied in sequence; hence the effect of the whole intervention package was assessed as the study design did not permit separation of the effects of the different components of the intervention.

5.1.2 Methods

A combination of quantitative and qualitative methods is often the best way of handling research questions in public health (Russell 2005). Compared to 'how often' type of question in quantitative methods, qualitative methods explain 'why something is happening' and they are complementary to each other (Clancy 2002). In this thesis, quantitative methods were used mainly due to the fact that all of the studies in the thesis are sub-set of larger studies, primarily undertaken to inform policy and design of the programme interventions as well as impact evaluation. From the programme side, the demand was on measurable quantitative outputs. Moreover, qualitative studies have been done on health-seeking behaviour and relevant issues in some of the projects such as PHILL study (Biswas and Hossain 2004) and CFPR/TUP study (Zaman et al. 2004) which largely corroborate findings in this thesis. For example, fever and gastrointestinal illnesses were the most common illnesses reported by the respondents in these studies which were also seen in this thesis. Self-care as the most common therapeutic

activity and the use of para-professionals (e.g., village doctors), and the importance of SES and gender in deciding treatment options as observed in this thesis, was also supported from findings from these qualitative studies.

5.1.3 Tools

Structured face-to-face interviews with pre-tested questionnaires were used to elicit information from the respondents (I-V). To avoid subjective response with respect to health-seeking behaviour in general and the skepticism associated with its use in empirical analysis (Bertrand and Sendhill 2000), information on health-seeking behaviour was collected with respect to a particular illness episode actually occurring and the actions taken for its remedy. Several biases are common in this kind of interview survey. The Hawthorne effect (Last 1983) may arise due to the subject knowing that they are being observed. Interviewer bias may occur when certain characteristics such as experience and knowledge base of the interviewers, and quality of interviewer-respondent interaction influence the responses. There may also be information bias due to the respondents answering in a certain way to please the interviewers (Hardon et al. 2001, Yeneneh et al. 1993). To reduce these, several strategies were adopted. These include, for each of the studies, recruitment of experienced interviewers (for ethnic minorities, from the same ethnic groups), standardized training on questionnaire content, interview algorithm, probing techniques and strategies to establish rapport and neutrality essential to complete and accurate data collection for inter-observer variation and interviewer bias. We also used early deployment of interviewers in the field to allow time for rapport building activities and desensitization for Hawthorne effect and assuring the respondents of confidentiality of data for information bias. Finally, intensive supervision, on-the-spot checking for inconsistencies (I-V), and a random post-enumeration survey of 5% of the households surveyed in the past 72 hours on selected variables (I, IV, V) was carried out by an independent quality control team. They gave corrective feed-back to the interviewers in case of inconsistencies to ensure reliability of the data

5.1.4 Reported illness

In all studies (I-V), measurement of health-seeking behaviour is based on self-reported illness and treatment action, and not directly observed as the illness process unfolded. Illness refers to patients' perspective of her/his sufferings such as pain, discomfort and disability (Giang and Allebeck 2003, Helman 1995) and better represents the well-being of an individual than disease, clinically defined by the physicians (Lahelma et al. 1994). However, subjective measure of morbidity such as self-reported illness is sensitive to socioeconomic, cultural and individual factors (Segall et al. 2002, Gao et al. 2001, Sauerborn et al. 1996). Efforts to improve the reliability and validity of self-reported illness included the use of culturally appropriate language (lay reporting of symptoms), focus on the major morbidity experience and limiting the recall period to 15 days to reduce recall bias from over- or under-reporting (Fleming and Charlton 1998, Tipping and Segall 1996, Freij et al. 1977). A second limitation relates to the possible effect of illness stage on treatment choice, that more advanced illness (e.g., malaria) may be treated differently than early stage illness (such as fever) where home and folk remedies may initially suffice (Mwenesi 1993). However, the cross-sectional nature of the study, and the inclusion of all reported illness occurring in the previous two weeks irrespective of severity, helps obviate the potential confounding influence of illness stage in analysis.

5.1.5 Selection bias

Next is the issue of selection bias (I, IV), i.e., the concern that differences between Brac households and poor non-member households are not solely the result of programme effects

but due to unmeasured characteristics that make the two groups fundamentally distinct on baseline. Given that prior analyses of the Matlab data indicate that differences do exist between the poor who join Brac and those that do not (Zaman 1998), evidence of a Brac effect may overestimate the true impact of the programme. While the household samples interviewed in 1995 and 1999 were not identical, the use of a common sampling frame provides some measure of internal control against village level confounders (IV).

5.1.6 Clustering effect

Dependencies among the observations on different levels in the sequel called clustering, could theoretically be present in all of the included studies. This may be due to the fact that data are collected at the individual level which is often clustered within larger units such as households, communities and villages (Yin and Kaftarian 1997). Clustering would reduce the amount of information in the sample and requires adjusted statistical analysis methods (Murray 1998). The sampling procedures in study I-V contain group-randomisation on two levels; village and household. Study I, II and III are cross-sectional studies where the analyses have been conducted as for independent data. The descriptive parts presenting estimated proportions are not biased due to clustering. For the inferential parts where mainly ordinary logistic regression has been used, the rationale for this simplification has to be motivated. The potential clustering on village level was assumed to be negligible because the villages were found to be almost homogeneous both in terms of socio-cultural characteristics, livelihood opportunities, available health facilities, and in terms of main outcomes. Clustering on family level can not be ignored. For example, health seeking among family members exposed to the same economic conditions will not be independent. Conditional logistic regression analyses would then be more appropriate, but for technical reasons the available sample would be heavily reduced because of a large proportion of families with invariant family member outcomes. Thus, ordinary logistic regression was used to attain a reasonable precision in the estimates. Having a positive correlation within families, this can be assumed to be a conservative method for testing (Rothman and Greenland 1998). Further, relevant background variables describing the commonalities within the households related to the outcome were included in the analysis for adjustment. Study IV and V are pre-test/post-test control group designs. In study IV, the baseline and post-intervention results have not been statistically tested and the same arguments as above are true. In study V, a random coefficient model allowing for clustering on household level was applied yielding appropriate statistical inference when testing the intervention effect (Murray 1998).

5.2 Health-seeking behaviour: underlying factors

Socioeconomic status (SES) emerged as the most common significant determinant of seeking any healthcare at all (II, III, IV), and especially seeking allopathic care (I-V). This is plausible because in rural areas of Bangladesh, it costs about twice as much to visit a public health service as to visit an unqualified practitioner, and about twice as much again to visit a private qualified practitioner (Cockcroft et al. 2004). Similar influence of SES in shaping health-seeking behaviour was observed in studies from Vietnam (Khe et al. 2002, Toan et al. 2002), Philippines (Portero et al. 2002), and Palestine (Beckerleg et al. 1999). A number of predisposing (age, gender, ethnicity and education), enabling (household poverty status, capacity for out-of-pocket health expenditure) and health system (availability of health services and providers) factors were postulated in the conceptual framework for predicting health-seeking behaviour (Fig 4). Among these, factors such as ethnicity (II), age (I, III), education (I,

II, III), and distance of health facilities (I, II, IV) were found to be important predictors in this thesis. Similar observations were also made for ethnicity (Shi and Stevens 2005, Toan et al. 2002, Freeman and Payne 2000), age (Taffa and Chepngeno 2005, Balabanova et al. 2004, Danso-Appiah et al. 2004), education (Shaikh and Hatcher 2005, Balabanova et al. 2004) and distance of health facilities (Yanagisawa et al. 2004).

The higher prevalence of reported morbidity observed among the disadvantaged groups such as poor (compared to non-poor) (I), ethnic minorities of poor socioeconomic condition (compared to better socioeconomic condition) (II) and the elderly (compared to younger adults) (III) reiterates the inter-relationship between poverty/vulnerability and ill-health documented extensively in the literature (Bloom et al. 2004, Sen 2003, Wagstaff 2002, Lahelma and Arber 1994, Illsley and Svensson 1990).

Consistent with observations from other studies in Bangladesh, reported morbidity prevalence was found to be marginally higher among women compared to men (Kabir et al. 2003, Rahman and Barsky 2003). However, women were found to seek healthcare much less frequently than men during illness (I, II, IV). They were also found to resort to less costly healthcare such as self-care or care from unqualified providers (IV, V). Similar observations are also made from both developing (Pokhrel et al. 2005, Buor 2004, Yount 2003) and developed (Fernandez et al. 1999) countries. In Bangladesh, this may be due to the prevailing patriarchal norms which discourage women to be treated by male providers (Schuler et al. 2002). This occurs in a scenario where available healthcare providers are predominantly males in contrast to some other countries such as Laos (Wahlström et al. 2003). In rural Bangladesh, women require to take permission from husbands or in-laws, and also find someone to accompany them, before seeking out care from qualified providers (Levin et al. 2001, Streatfield 2001).

Interestingly, gender difference in health-seeking disfavours women (e.g., in the use of professional allopathic providers) noted in the earlier studies (I, II, IV) was not seen in a study done later in 2003 (III). Two explanations can be put forward for this observation. Beside advanced age composition (≥ 20 years) of the latter study, there is the possibility that with increasing age, men catch up with women in terms of illness burden, and being mostly chronic and complicated in nature, require treatment from qualified allopathic providers. Support of this explanation can be found in a WHO collaborative study comparing healthcare use by elderly populations from Egypt and Tunisia (Yount et al. 2004). In the Tunisian group, healthcare use among those with severe morbidities was similar between men and women while in case of the Egyptian group, women used less care from qualified doctors than men and is considered as a continuation of gender discrimination since childhood in the Egyptian society. An alternative explanation can be found in the changing scenario for women in present day Bangladesh. Though gender inequity and discrimination against women is widespread in Bangladesh, there are indications that this situation is changing for better in recent years (Gibson et al. 2004, Pitt et al. 2003). An increased labour-force participation of women (Kabeer and Mahmud 2004), greatly increased NGO activities (Bhuiya and Chowdhury 2002, Bhuiya et al. 2001, Nanda 1999) and development programmes implemented by the government and international agencies (including UNDP, UNICEF, World Bank) have contributed to this change.

5.3 Health-seeking behaviour: the mosaic

The different studies in this thesis covered a time span of about ten years, from 1995 to 2004 during which the healthcare scenario in rural areas were mainly characterized by an increase in the various cadre of health workers at the grassroots level. However, good health care at low cost for the poor and the disadvantaged populations remained to be realized (GoB 1998). Although there have been pluralism in the types of healthcare providers sought, bio-medicine (allopathic medicine) remained dominant, as also seen elsewhere (Mizrachi and Shuval 2005, Stevenson et al. 2003). Different aspects of this mosaic of health-seeking behaviour are discussed below.

5.3.1 Self-care

Self-care was found to be the major therapeutic activity undertaken by the study populations for managing illnesses (I, II, III) in line with findings from rich and poor countries alike (Tuan et al. 2005, Stevenson et al. 2003, Syhakhang 2002, Bloom and Standing 2001, Sheftell 1997). Self-care was also practiced in the context of microcredit-based integrated intervention (IV). The importance of self-care for managing illnesses in Bangladesh was observed by others as well (Cockcroft et al 2004, World Bank 2003). The importance of engaging in ‘self-care with competence’, is emphasized in the literature (Illich 1995). This is also supported by recent policy changes in the National Health Services in UK (e.g., NHS Direct) to deregulate prescribed medicines and the introduction of telephone helpline services so as to promote self-medication (Pencheon 1998, Rogers et al. 1998). Again, empowering people through support for self-care is expected to make health services work for the poor by providing services corresponding to their needs and increased leverage over providers (World Bank 2004).

Use of self-care is also justified depending upon the type of illness and standardization of its treatment so that the common people can use it safely and effectively (WHO 2000b). For example, in case of minor illnesses of short duration such as uncomplicated fever, watery diarrhea or pain and body aches as observed in this thesis, self-care may be effective and practical. These are also among the top 20 causes of morbidity in Bangladesh (Table 2). However, self-care involves risks such as incorrect self-diagnosis, absence of knowledge of alternative treatments, irrational use of drugs including selection, incorrect dosage and duration as well as side-effects and neglect of interactions with other drugs (Chang and Trivedi 2003). This is especially important in a population with low literacy level like Bangladesh (41% in those above 15 years) (UNDP 2004) where self-care is largely uninformed, and may be harmful due to the above risks. The free availability of ‘prescription only drugs’ in the unlicensed and unregulated drug retail outlets also exaggerates risks inherent in self-care. While people taking responsibility for their own health has gained increasing acceptance from the health profession (Stevenson et al. 2003), it remains critical that healthcare decisions and actions taken by sick individuals or their care-givers are both safe and appropriate (WHO 2000b). Enhancing people’s capacity for safe and informed self-care along with the capacity to assess services available locally, to judge provider competence and to evaluate whether costs are justified and reasonable, are needed (Bloom and Standing 2001, Thawani and Gharpure 1997).

5.3.2 Unqualified providers

The importance of unqualified providers (both allopathic and non-allopathic) is decreasing over time and accounted for providing care in around 20% of illness episodes (III and V).

Similar observations on importance of unqualified providers were made by others from India and Bangladesh (Ager and Pepper 2005, Banerjee et al. 2004, Rahman 2000). By far the single largest group among them is the 'unqualified allopaths' who are the sales people in drug retail outlets, with little or no professional training in either dispensing of drugs or in diagnoses and treatment. Drug retail shops, are often the first and only source of healthcare outside home for a majority of patients in developing countries (Kamat and Nichter 1998). Thus, Bangladesh is no exception in this regard. This is facilitated by easy availability of essential drugs at low price following the National Drug Policy of 1982 (Islam 1999). According to an estimate, there are about 80,000 unlicensed drugstores in the country (Anon 2004). In an earlier study, they were found follow standard therapies rarely (Tomson and Sterky 1986). Rather, treatment tends to be a function of negotiation between patient and provider regarding what the patient or their families can afford. Medicines are usually sold per tablet, capsule or spoon in case of syrup on the basis of what is described by a relative, and seldom involve the direct examination of the patient (Ashraf et al. 1982). Misuse of antibiotics is a cause of concern due to development of resistance from inappropriate dose. They present a formidable barrier in the rational use of drugs in Bangladesh (Ronsmans et al. 1996, Guyon et al. 1994, Ashraf et al. 1982). Findings show that education (either of household head or the respondent) had a decreasing effect on seeking treatment from these unqualified allopaths (I, II, III). Thus, literacy may also play an important role in reducing this hazard.

5.3.3 Para-professionals

The 'para-professionals' (comprising medical assistants, mid-wives, village doctors and community health workers) with varying degree of training (Appendix I) from formal and semi-formal institutions accounted for care in more than 25% of illness episodes (I, III, IV, V), except in the Chittagong Hill Tracts (CHT) region (II). In the CHT, sparse public health facilities in the region led to greater use of sales people from drug shops (44%).

Community health workers (CHWs) trained in the preventive and basic curative services by the government as well as the NGOs to work at grassroots level were the largest proportion among these para-professionals. This cadre of health workers has been increasing in size since the nineties with the expansion of the government health system as well as the NGO network in the country. The CHWs have been found by others to be useful in the management of childhood pneumonia (Winch et al. 2005), acute respiratory infections of children (Hadi 2003), screening childhood hearing impairment (Berg et al. 2005), and DOTS treatment of tuberculosis (Chowdhury et al. 1997) in rural Bangladesh. The CHWs are also found to be cost-effective (Islam et al. 2002, Khan et al. 2002). Also, the CHWs can serve as a bridge between the community and the curative health providers especially for the disadvantaged populations (Nemcek and Sabatier 2003).

Currently, the first-level health facilities at union level (UHFWC) are staffed by the medical assistants and midwives, who are a higher level cadre of para-professionals than the CHWs. A previous review of their treatment activities found that they have limited knowledge about diagnosis of common diseases and their treatment practices do not follow accepted guidelines (Ahmed et al. 1999b). Another study on the quality of care provided to sick children under-five years in these facilities found that majority of the children received incorrect treatment and antibiotics were frequently overused and sometimes underused (Arifeen et al. 2005). The village doctors (*palli chikitsbaks*) have received some semi-formal training from private institutions, including those trained through a short-lived government sponsored program that ended in 1982. Given the varying degree of training and expertise of

these para-professionals, the quality of care remains a concern (HE/IHE /NIPORT 2003 cited in World Bank 2003).

5.3.4 Professional allopathic providers (MBBS Doctors)

Stated treatment-seeking from professional allopathic providers i.e., MBBS doctors (registered medical graduates) varied from around 10% (I, V) to around 20% (II, III, IV) in the different studies. Gender, SES and duration/ chronicity of illness were important predictors of their use. Male gender (I, II, IV, V), higher SES (I-V), chronic illnesses (III), duration of illnesses (IV), and types of illnesses including respiratory illnesses, rheumatism and malaria (I-IV) were found to be associated with greater use of the MBBS doctors. This is plausible, given the role of patriarchy and the need of care from professional allopathic providers for chronic and complicated illness of long duration which is costly compared to other types of providers (Cockcroft et al. 2004).

Apart from the Bangladesh Medical and Dental Council (BMDC) registration requirements, there is little assessment on the quality of physician care in Bangladesh, public or private sectors. Findings from few small-scale studies indicate that there is significant room to improve the technical quality of care provided by them (HEU/IHE /NIPORT 2003 cited in World Bank 2003) Similar problems with quality of care was reported from Vietnam as well (Tuan et al 2005). Improving quality of care is essential for the disadvantaged population so as to optimize the opportunity cost of visiting a health centre. However, quality of care of the MBBS doctors, especially in the public sector, does not depend only on their professional competence but motivational factors as well (Das and Hammer 2005, Gruen et al. 2002).

5.3.5 Traditional medicine

A decrease in the use of traditional practitioners (faith healers, *kabiraj/ totka*, and homeopathic) was noted over time among the study population (IV, V) which is consistent with the trend seen at the national level as well (Cockcroft et al 2004). This is unlike the use of traditional medicine in other Asian countries such as Laos, India and Vietnam (Sydara et al. 2005, Gogtay et al. 2002, Ladinsky et al. 1987). To avoid losing patients, many of the traditional practitioners also use allopathic medicine to supplement their treatment and maintain practice (World Bank 2003). However, improving the quality of traditional medicine through institutional training, registration and licensing so that they are dependable may reduce the cost of therapeutic care and pressure on the formal healthcare system. Bangladesh government has already taken some measures in this direction (APTMNET 2004).

5.4 Have the poverty focused development interventions any role to play?

Two types of integrated interventions of an NGO were studied. One, a microcredit-based targeted to the poor (implemented for four years) including a collateral-free microcredit loan, skill training, functional education and Essential Health Care (EHC) services (Table 6) (IV). The second was a grants-based intervention for eighteen months targeted to the ultra-poor and includes asset grants, monthly stipends, skill training, EHC and additional health inputs (Tables 7 & 8) (V). The latter intervention was designed when it became apparent that the regular microcredit-based intervention was not enough to effectively reach the most vulnerable section among the poor, i.e., the 'ultra-poor' (Halder and Mosley 2004, Rahman & Razzaque 2000, Evans 1999, Hussain 1998). At the end of this intervention, the ultra-poor are expected to attain the foundation for a sustainable livelihood and participate and benefit from mainstream development programmes including the microcredit-based intervention.

In the conceptual framework (Fig 4), it was hypothesized that the health and development inputs of the interventions will in general increase households' use of healthcare, and especially preferred use of 'formal allopathic' (para-professionals and MBBS doctors) providers. While this was observed to be the case in the second intervention implemented during 2002-2003, the assumptions were not met in the first intervention which was implemented during 1995-1999. A probable explanation is the additional health inputs beyond EHC services provided in the second intervention (Table 7) which facilitated access to the formal healthcare services.

With the microcredit-based intervention continuing for four years (IV), an unanticipated (not hypothesized) rise in self-care was observed with proportionate decline in the use of formal 'medical care' (para-professionals and MBBS doctors). Self-care was predicted by the female gender, absence of low-cost health extension services in the area, short duration of illness, and location outside a flood protection embankment in the area. Households located within the embankment area are presumed to be socioeconomically better off due to the benefits accruing from increased agricultural productivity (Vaughn 1997). Besides improving material resources of the households following intervention, as reported elsewhere (Hussain et al. 1996), exposure to preventive and health promotive EHC services also occurred through routine interactions with the community health volunteers and NGO health staff. Information on health issues increases individuals' choice of, and freedom to use, healthcare (Thiede 2005). As such, it helped in translating the perceived illness into informed decision making which was reflected in the rise in self-care. Also, due to the fact that the non-intervention households hailed from the same neighbourhood and the EHC services were provided through a community approach where services were offered to all households irrespective of NGO membership, diffusion of health information occurring through demonstration effect was only natural. This may be the reason underlying secular rise in self-care observed.

In contrast, the substantial reduction of self-care in the grants-based intervention (V) might have reflected the more disadvantaged ultra-poor households' immediate need for treating the cumulative burden of illnesses. This happened, presumably, through activities in the intervention to overcome specific demand-side barriers (e.g., informational, financial and social barriers) for accessing healthcare (Table 7). The research design did not allow evaluation of the individual components of the intervention e.g., the relative importance of financial vs the non-financial components. However, this supports the assumption that a combination of components that includes both health and social protection measures in an intervention would be more effective in meeting the health-related needs of the very poor (Green 2005). It is also plausible that the duration of intervention (18 months) may have been too short to reflect any self-care effect in this instance as observed for the microcredit-based intervention. Of special interest is the increased use of formal allopathic providers in preference to the unqualified providers observed in the second intervention. Greater proportion of this formal allopathic care is that provided by the para-professionals and this shift in health-seeking behaviour is a step forward which will go a long way towards making the health systems reach the poor and the disadvantaged (Gwatkin 2004, Gwatkin 2002).

Existing evidence indicates that providing health services for the poorest is more expensive than the average cost in any population due to a number of reasons such as cost of targeting, service needs, acceptable quality of services to attract people for service use etc. (Waddington 2005). The microcredit-based intervention is implemented as a sustainable model by BRAC and is currently scaled up to around 5 million households in 65,000 villages (BRAC 2005a). However, scaling up the grants-based intervention in a sustainable manner

remains a problem to be resolved due to large financial resources needed. In the second intervention (V), costs of assets given as grants to the ultra-poor households for income-generation, skill-training and some of the additional health-related costs (Tables 6 and 7) were covered by the programme budget and the community mobilized resources (BRAC 2001). At the end of intervention period, majority of these ultra-poor households (around 70%) were able to join the regular microcredit-based intervention and continue their income-earning activities. They also continued to receive regular EHC services provided by the microcredit-based intervention routinely. However, for the rest, a second cycle of intervention was necessary and needed which required additional financial commitment by the NGO (personal communication). For sustainable scaling up of this kind of intervention for the poorest and other similar disadvantaged groups, the problem of financing has to be resolved and the health system, along with other related sectors such as agriculture, employment generation, small and medium enterprise development, women's affairs etc. can play a critical role in this.

It is notable that women-focused development interventions as studied in this thesis (IV, V) were not found to reduce gender inequity in health-seeking from professional allopathic providers (MBBS doctors). This is disheartening, but not surprising in a situation where patriarchal norms are deeply rooted in the society (Cain et al. 1979). Even in a country with explicit policies for gender equity like Sweden, a recent study found that there have been little improvements in gender equity in advanced healthcare (e.g., coronary interventions) since 1990s despite pro-active policies (Jonsson et al. 2005). In the context of Bangladesh, this calls for a more concerted effort by the NGOs to raise social awareness about the value of women's health and well-being, and to increase the financial as well as cultural accessibility (Thiede 2005) to formal qualified healthcare for women in its interventions. Health policies at public sector also need to be sensitive to the gender issue, because women's health outcomes are ultimately dependent on it (Wisdom et al. 2005).

5.5 Conclusions and recommendations

The dominant role of household's socioeconomic level in shaping health-seeking behaviour of the disadvantaged groups is reiterated in this thesis, supporting the conviction that improving health is contingent upon reducing poverty (Braveman and Gruskin 2003). Reducing poverty through specific targeting of the disadvantaged groups with a pro-poor health system i.e., a health system accessible irrespective of the ability or willingness to pay and responsive to their needs and priorities, in a country with large out-of-pocket payments for healthcare is possible (Garg and Karan 2005), and is urgently needed in Bangladesh.

An emerging cadre of para-professionals was found as the main provider of formal allopathic care to these populations. For meeting healthcare needs of the disadvantaged, it is necessary to have health manpower that is close to the community they serve in terms of cultural and ethnic characteristics and also, s/he should be able to communicate with them socio-culturally (Willems et al. 2005, Wyss 2004, Nemcek and Sabatier 2003). Empirical evidence shows that human resources for health is important for population health outcomes (Anand and Barninghausen 2004), and presumed to be one of the limiting factors in achieving the MDGs (GHW 2005, Task Force on Health Systems Research 2004). In this context, the importance of para-professionals for healthcare in the rural areas of Bangladesh should be recognised, and their capacity developed to ensure that the poor and the disadvantaged get an acceptable level of care (Campbell et al. 2000).

A microcredit-based integrated intervention was found to increase self-care, through its presumed effect on increasing the informational and material resources necessary for preventive and basic therapeutic healthcare. This increased capacity to recognize and diagnose common illnesses and undertake self-treatment by the people may be considered as a step towards their empowerment (World Bank 2004).

The grants-based integrated intervention, specifically designed to overcome various demand-side barriers to access, was found to improve the use of health services by the extreme poor (ultra-poor) during illness. Through improvement in household's poverty status and capacity for health expenditure, it initiated changes in health-seeking behaviour towards greater use of formal allopathic providers during illness.

Despite women focus of the two interventions studied, gender difference in health-seeking and health expenditure disfavoured women was observed. More pro-active efforts are needed by the NGOs to address this persistent gender inequity in health-seeking behaviour while designing the interventions.

The predominance of self-care for managing illnesses by the disadvantaged groups was observed. Self-care is regarded as 'a primary public health resource in the health care system' (WHO 2000b). This resource should be used to its full potential for the benefit of both the people and the health system in a resource-poor situation like that in Bangladesh. Thus, integration of self-care as an essential, informed and efficient component of the primary health care, and as a cost-effective complement to the formal healthcare, is long overdue in Bangladesh.

Lastly, the substantial role of the unqualified drug vendors/retailers in the management of illnesses observed calls for supervision and regulation with potential impact on quality of services as found in studies from Vietnam (Chuc 2002), Laos (Syhakhang 2002), Thailand and Nepal (Chalker 2003).

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Appendix I

Healthcare providers in rural Bangladesh

Provider	Training	Type of services provided	Health sector
Faith healer (<i>Ojha/pir/jakir</i>)	Not applicable	Non-secular; based on religious belief	Private
Traditional healer (<i>Kabiraj</i>)	Mostly self-trained, but some may have training from Govt. or private colleges of traditional medicine	Ayurvedic, based on diet, herbs and exercise etc. Sometimes also combine allopathic medicine such as antibiotics and steroids etc.	Private
Traditional healer (<i>totka</i>)	Self-trained, combines ayurvedic, unani (traditional muslim medicine originating from Greece) and shamanistic systems; also use allopathic medicine	Combination of ayurvedic, unani and faith healing	Private
Village Doctors (<i>Palli Chikitsok</i>)	Few have one year training from Govt. Organizations which stopped in 1982; majority have three to six months training from private organizations of doubtful quality	Allopathic	Private
Homeopath	Mostly self-educated, but some possess recognized qualification from Govt. or private Homeopath Colleges	Homeopathic	Private
Drug vendor/drug seller; also village 'quack'	No formal training in dispensing; none of them are trained in diagnosis and treatment; some learn treatment through apprenticeship or working in drug stores ('quack')	Allopathic; in addition to dispensing, they also diagnose and treat	Private
Community Health Workers (Health/Family Welfare Assistant, <i>Sbastyasebika</i> etc.)	Training on basic curative care for common illnesses and preventive health by Govt./private/NGO organizations of varying duration	Allopathic: curative and preventive/ health promotion	Public/private/ non-profit NGOs
Traditional Birth Attendant	No training or short training on safe and clean delivery by Govt./private organizations/NGOs	Assisting normal delivery	Private
Family Welfare Visitor (FWV) (Midwives)	1 ½ years training in Govt./private facilities on midwifery and clinical contraception management	Conducting normal delivery; clinical contraception and Immunization services	Public/private
Medical Assistant (Sub-assistant Community Medical Officer, SACMO)	3 years training in Govt. Medical Assistant Training School (MATS)	Allopathic; curative	Public/private
Qualified allopathic (Medical Officer)	Bachelor of Medicine and Bachelor of Surgery, MBBS (5+1yr)	Mostly curative; training of the various cadres of health workers	Public/private

Appendix II

The ultra-poor compared to the national rural average: selected indicators

Characteristics	Brac-targeted ultra-poor	National rural average
% of female-headed households	40	8
% of households owning homestead land	54	6
% of household who cannot afford two meals a day	48	8
Under-five mortality	14	11
EPI coverage (12-23 months)	68	70
% of 6-59 months old children who are underweight	64	51
% of 12-59 months children who are wasted	14	12
Total fertility rate per woman	5.45	3.54
Gross enrolment rate at primary schools	87	108
Literacy rate (7+yrs) %	9	33
Adult literacy rate (15+yrs) %	7	38
% of households with at least one literate person	20	58

Source: BRAC 2004

Appendix III

Targeting indicators used in the CFPR/TUP programme and their rationale

Targeting indicators	Rationale
Exclusion criteria (Households excluded if)	
Any member of the household has current NGO participation	Targeting those extreme poor who do not/cannot participate in existing NGO programme
Any member of the household receives benefit from GoB programmes (e.g. VGD)	Targeting those extreme poor who do not/cannot participate in existing GoB programme
No physically able adult woman in household	This is a women-targeted enterprise programme
Inclusion indicators (Households included if satisfies any two)	
Owned land of household including homestead less than 10 decimals	Landlessness and extreme poverty highly correlated, though not all landless are extreme poor
No adult working man in household	Absence of able bodied male labour power is an important characteristic of extreme poor households
School-going aged children working	Child labour is predominant in extreme poor households
Adult woman selling labour	Adult woman selling labour is more prevalent in extreme poor households. This also signals the desperation and motivation of the household
No productive assets	Extreme poor households tend not to own any productive assets

Source: BRAC 2004

Appendix IV: Common format of relevant questionnaires used (I-V)

A: Core module for eliciting household socio-demographic information

Ind. Serial No.	Name of regular member of the HH	Relation with HHH	Sex	Date of Birth dd/mm/yy	Whether suffered from illness during the last 15 days?	Whether physically handicapped?	Education (6+ years)			Occupation (6 yrs+)	Any contribution in family income ? (6 yrs+)	Marital Status (12 yrs+)	Whether member of an NGO (15yrs+)
							Can read & write	Last class passed	Type of School				
		1 Husband 2 Wife 3 Son 4 Daughter 5 Father 6 Mother 7 Brother 8 Sister 9 Daughter-in-law 10 Son-in-law 11 Grandson 12 Grand daughter	1 Male 2 Fem.		1 Yes 2 No (If Yes, fill in the Health Seeking Behaviour Form)	1 Blind 2 Deaf 3 Dumb 4 Can't walk 5 Can't move hands Other (specify) 6 Not handicapped	1 Can read & write 2 Can read only 3 Can sign name only 4 Illiterate	1 Class I 2 Class II = 10 SSC 11 HSC 12 B/A/BSC/BCOM 13 MA/MSC/MCOM 14 Hafez-e-Quran 99 (4 in previous col) 98 (same as above, but didn't go to school)	1 Govt. Pri. 2 Private Pri. 3 Kindergarten 4 NFPri 5 Govt. High 6 Private High 7 Madrasha 8 Govt. College 9 Private College 99 not student	Agriculture=1 Daylabour=2 Agri-labour=3 Service=4 Trade=5 Fisheries=6 Student=7 HHwork=8 Self-employment=9 Other=10 specify.....	Unmarried=1 Curr.married=2 Divorced=3 Separated=4 Deserted=5	1 BRAC 2 Grameen 3 Proshika 4 ASA Other(s): specify... 9 Not member	
1	3	4	5	6	7	8	9	10	11	12	13	14	15
		HHH											

16. Type of household: 1 Husband+wife+children; 2 Joint (1+ any other); 3 Single parent with children; 4 Single;

17. Total no. of household members:---/---/

Note: for children up to two years, collect information on 'immunization'; for 6months to 6 years, collect information on 'night blindness' and 'Capsule Vit A' distribution

B. Core module for eliciting health-seeking behaviour

(Health Seeking Behaviour Form)

To Interviewer: record a detailed description of the major illness (by duration of illness) experienced by the household members during the past 15 days: (fill in for those marked '1' in column 7 of the Household Composition Form)

Indiv serial no.	Name of ill person	Illness Symptoms (as stated by respondent or proxy respondent)	Management of illness	If the service of a HCP * was sought (nos. 4 to 9 in col. 4), how many days after onset of illness? (days)	If the service of a HCP* was sought (nos. 4 to 9 in col. 4), how did the consultation take place?	Total expenses for treatment in the last 15 days			Total duration of illness (from onset to recovery) (days)	Did illness interfere with income earning? (15+yrs only)	If Yes in Column 9, how many days ?
1	2	3	4	5	6	7			8	9	10
			1. Traditional home remedy 2. Modern home remedy 3. ORS/LGS 4. Qualified MBBS 5. Para-medics (PC/FWV/CHW/SS/HA/MA etc.) 6. Kabiraj/Hekim 7. Faith healer 8. Allopathic medicine seller** 9. Homeopath 10. No treatment Other, specify...	98 had previous illness 97 no help from HCP taken	1. Patient taken to HCP 2. HCP came to visit patient. 3. Drugs bought by describing illness	Visit (Taka)	Medicine (Taka)	Transportation (Taka)	99 illness still continuing	1 Yes 2 No 99 illness still continuing	99 illness still continuing

* Health Care provider (HCP): Nos. 4 – 9 in column 4

**When contacted for advice on treatment