

**Poverty alleviation programmes reduce inequities
in health : evidence from Bangladesh***

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* Chapter of a (still untitled) book to be published by Oxford University Press, UK, in December 1999.

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Summary

Over the previous two decades many poverty alleviation programmes have been implemented in developing countries. Evaluation of such programmes have traditionally looked at their success in increasing the income levels of participants but less on the broader goals of human well-being. This chapter looks at the poverty alleviation programme of BRAC, a large non-governmental organization in Bangladesh, and, based on a scientifically designed study, presents its impact on selected components of 'human well-being'.

The study found better child survival and nutritional status in households served by the programme. Similar impacts were also found in other areas such as expenditure pattern, family planning practice and children's education. The likely influence of 'selectively bias' on the above results is also discussed.

Introduction

This chapter examines a women-focused development intervention in terms of its impact on human well-being and health equity. In a country like Bangladesh, the major goal of any development intervention is the alleviation of poverty. This is not surprising as a majority of the population live in abject poverty without equitable access and entitlement to the basic minimum needs of individuals. Evaluation of such programmes have traditionally looked at their success in increasing the income levels of participants. Less attention has been paid to how far these successes are translated into improvements in various aspects of human well-being.

Bangladesh

Bangladesh broke away from Pakistan in 1971 to become an independent nation. The economy was wrecked and the infrastructure normally associated with nationhood did not exist. However, over the past several years, there have been many positive changes. Between 1975-76 and 1992-93 food production almost doubled (Gov't of Bangladesh, 1996); life expectancy has increased by 30 percent between 1970 and 1996, and under 5 mortality rate has decreased by 55 percent between 1960 and 1996 (UNICEF, 1998).

Bangladesh has also achieved impressive results in many other fields. Immunization coverage reached over 70 percent in the early 1990's from a low of 2 percent in 1985, although recently it has started to decline (Chowdhury et al, in press). The contraceptive prevalence rate (CPR) has risen to nearly 50 percent from under 10 percent in the mid-1970's, and total fertility rate has declined from over 6 in the 1970's to 3.2 in late 1990's (UNICEF, 1998). Net enrollment in primary schools has increased to 77 percent and the gender gap has all but disappeared (Chowdhury et al, 1999). In terms of poverty alleviation, government and non-governmental organizations (NGOs) have made significant progress; micro-credit programmes now serve nearly seven million families, more than half of the country's 12 million poor households (Abed, 1999). Based on the direct calorie intake method the percentage of poor households has declined from 63 percent in 1983-84 to 47 percent in 1995-96 (Bangladesh Bureau of Statistics, 1997).

Despite these impressive strides, Bangladesh remains one of the world's poorest nations. In the World Bank's new system of measuring the wealth of nations (PPP), Bangladesh ranks 18th from the bottom among 123 countries (World Bank, 1998). Per capita income has grown but at a very slow rate of only two percent a year, and is currently only US\$280. This and other socio-demographic information about Bangladesh are provided in Table 1.

Table 1: Bangladesh in statistics

Population (1996)	126 million
Density (population per sq.km)	850
Human Development Index rank (1998)	147
Population growth rate (%) (1980-96)	1.9
Life expectancy (years) (1995)	
Female	57.0
Male	56.9
Infant mortality (1996)	83
Adult literacy (%) (1995)	
Female	26.1
Male	49.4
Primary school net enrollment rate (1998)	77
GNP per capita (1998)	US\$ 280
Under-weight children under age 5 (1990-1997)	56

Source: UNDP (1998); UNICEF (1998); Chowdhury et al. (1999).

BRAC : from relief work to development and poverty alleviation

In Bangladesh the constitutional responsibility for development of the country rests with the government. However, it has not always performed this role to its full potential. This is particularly true in the area of poverty alleviation. The history of poverty alleviation efforts in Bangladesh dates back to the early days of Pakistan in the 1950's when programmes such as the 'green revolution' and the establishment of the Bangladesh (then Pakistan) Academy of Rural Development in Comilla were initiated. However, such efforts did not make any significant dent on the poverty situation.

The War of Liberation in 1971 raised new expectations and provided fresh impetus to create a just and poverty free Bangladesh. The non-governmental organizations (NGOs), which were born in the aftermath of the War for relief and rehabilitation operations, started involving themselves in this task and the relatively unknown field of development. BRAC was one such organization.

BRAC was set up in 1972 as a response to humanitarian need following the independence of the country. Its objectives at the time were reflected in its initial name : Bangladesh Rehabilitation Assistance Committee. However, it became clear early on to the leaders in BRAC that relief work was a short-term measure given the multiple problems that the people faced. There was a shift in the objectives of the organisation from addressing the 'acute crisis' of the aftermath of the War to dealing with the 'persistent crisis' of development. In keeping with this change, the organisation was renamed as the Bangladesh Rural Advancement Committee, which since 1996 has been simply known as BRAC.

Over the years BRAC has grown exponentially in developmental innovation and scale. Considerable experience has been gained; some experiments were successful but others failed. Perhaps the most important lesson learned by BRAC has been that there is no fix-all strategy or blue-print for development and that only through constant learning and adaptation could it effectively

serve the poor. Further details about the early experiences are available elsewhere (Chowdhury and Chowdhury, 1978; Chen 1983; Lovell 1992; Chowdhury and Cash 1996; Abed and Chowdhury, 1998).

BRAC programmes today

BRAC is now the world's largest NGO in terms of the scale and diversity of its intervention. Table 2 presents the scale of current BRAC programmes. One of the initial activities which earned national coverage and international attention was its oral rehydration therapy (ORT) programme for diarrhoea. During the 1980s hundreds of female BRAC workers visited households in 95 percent of the country's villages to instruct mothers how to prepare ORT with home ingredients. ORT has now become a part of the Bangladeshi culture (Chowdhury and Cash, 1993). The current health programme provides essential health services to villagers with emphasis on women's health and specific diseases such as tuberculosis, through village-based voluntary health workers (Chowdhury et al., 1997; Chowdhury, 1999).

Table 2 : Some basic facts about BRAC (May 1999)

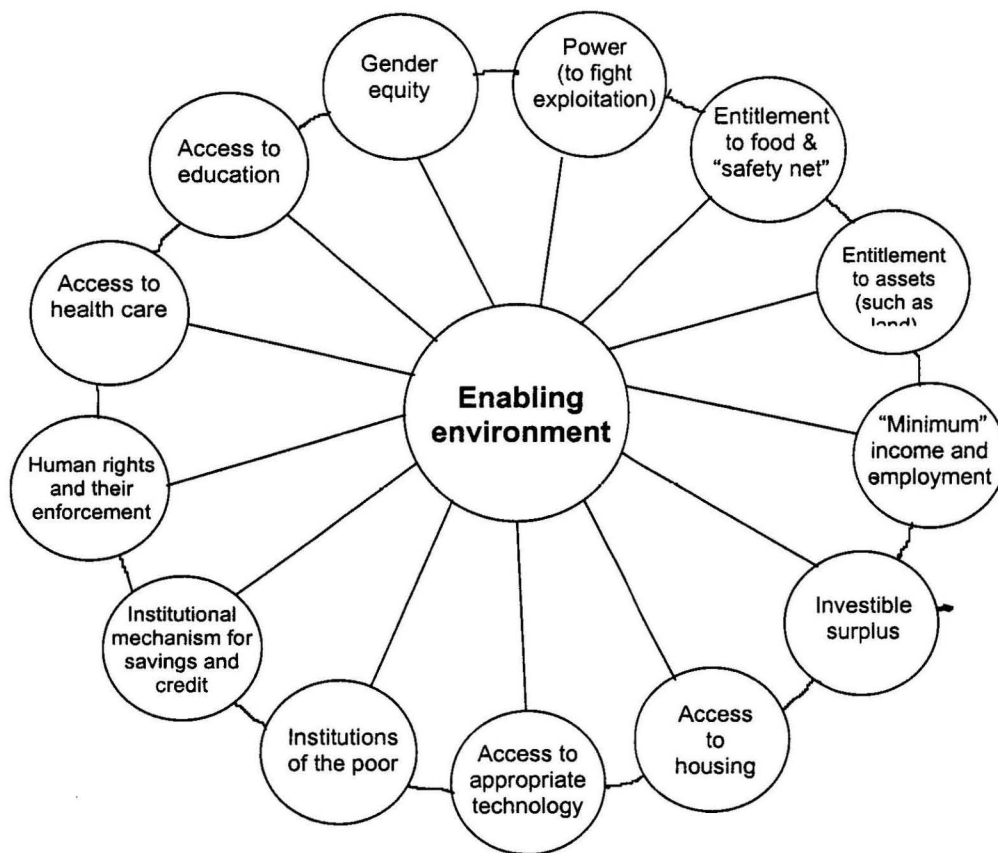
Full-time staff	23,978
Part-time staff	33,746
Participants in poverty alleviation programme	2.9 million households
Amount of loan disbursed to the poor	US\$ 700 million
Percentage of loans repaid	98%
Amount saved by Village Organisation members	US\$ 65 million
Total primary schools run by BRAC	34,517
Total school students enrolled	1.1 million (70% girls)
Mothers taught oral rehydration for diarrhoea	13 million
Total budget (annual)	US\$ 131 million
Villages with BRAC poverty alleviation programme	50,000
Number of field offices	800
Number of districts with BRAC programme	64 (out of 64)

The education programme runs over 34,000 primary schools that are outside of the formal state system for 1.1 million pupils. Seventy percent of the BRAC school attendees are girls and come from the poorest sections of the community to whom the formal public sector schools are least accessible. The effectiveness of the BRAC schools in terms of dropout, attendance, achievement and costs is very high (Ahmed et al., 1994; Chowdhury et al., 1999).

The other BRAC programme, which is the main focus of the present paper, is the Rural Development Programme (RDP). RDP is the primary poverty alleviation effort of BRAC. It is active in over 50,000 of Bangladesh's 84,000 villages and involves nearly three million poor women, representing as many families. The twin goals of BRAC, poverty alleviation and empowerment of women, are reflected in the activities and strategies of RDP. Poverty is looked at from a holistic viewpoint; it is characterised not only in terms of insufficient income or an absence of employment opportunities but as a complex syndrome which manifests itself in many different forms. In the words of Amartya Sen (1995). "The point is not the irrelevance of economic variables such as personal incomes, but their severe inadequacy in capturing many of the causal influences on the quality of life and the survival chances of people."

Along with income and employment generation, BRAC helps in forming organizations of the poor, conscientization and awareness raising, gender equity, and human resource development training. The logic of these programmes is the creation of an 'enabling environment' in which the poor can participate in their own development and in improving the quality of their lives (see Figure 1).

Figure 1: Deficiencies leading to poverty



Source : Chowdhury and Alam (1998)

RDP works through a process of social mobilization, delivery of inputs and creation of an environment of choice for the poor. Like most other poverty alleviation programmes in Bangladesh (Hashemi et al, 1996; Pitt et al, 1996), BRAC defines the poor as those having half an acre of land or less. The process of social mobilization in a village starts with the identification of those who fulfill this definition of the poor. As soon as an adequate number of eligible individuals show definite interest an institution of the poor, called a village organization (VO), is formed. In Bangladesh about half of the households would fall under the BRAC eligibility criteria and about 30 to 40 percent of the eligibles in the villages where BRAC has a presence have so far joined the VOs.

The emphasis on gender has changed over time in BRAC: in the 1990s most VOs formed were composed of women only. A VO has 40 to 50 members, but it can start functioning with as few as 20 members.

Once a VO is established two activities start simultaneously: a programme to raise consciousness and awareness and one for compulsory savings. Through the consciousness raising programme, the women are made aware of the society around them; they analyze the reasons for the existing exploitative socio-economic and political system and what they could do to change it in their favour. A formal course on Human Rights and Legal Education (HRLE) is provided to the members which covers Constitutional/Citizen's Rights, and Family, Inheritance and Land Law (Rafi et al, in press). Members also participate in a compulsory savings scheme which has a minimal level of 5 Taka (10 US cents) per week. Savings are considered (by BRAC and group members) as a form of old age security.

The educational process occurs in a variety of situations : weekly and monthly meetings of the VO, training programme at different centres outside the community, and the continuous interactions that take place between the VO members and BRAC staff from organising meetings to disbursement and collection of loans. In each VO, members are trained by BRAC in different trades. Thus one member may be trained as a village health worker, and another as poultry vaccinator. These cadres cater to the need of VO members and also sell their services to other villagers for a small fee.

Within a month of formation, VO members are allowed to apply for BRAC loans on an individual basis. Three types of credit are disbursed. The members may request credit for (a) any traditional activity such as rural trading, transport (boat and rickshaw) and rice processing, (b) a non-traditional activity such as grocery shop and rural restaurant management, or technology-based activity such as raising poultry, sericulture or mechanized irrigation; they can also request credit for (c) housing loans. Interest on a housing loan is 10 percent, while for other activities it is 15 percent. The impressively high proportion of

loans that are repaid (98%) is the result of a combination of members consciousness, peer group pressure and BRAC staff supervision.

An important feature of poverty alleviation activities is that an attempt is made to create a 'backward and forward linkage' for most of the technology-based activities. For example, in the case of poultry programmes, BRAC starts by providing training to women on how to rear high yielding varieties (HYV) of chickens. Loans are given for operating a low-cost hatchery to supply day-old chicks to other village women. The women then rear these chicks until they start laying eggs. The eggs are then sold to the hatchery as well as to consumers. One of the major problems of poultry rearing in Bangladesh is the high mortality of the birds. The government livestock department keeps stock of vaccines but these are very much under used. A VO member is trained to vaccinate poultry, and she is then linked to the local livestock department of the government which supplies vaccines. After receiving the vaccine, the VO member inoculates village chickens for a small fee. The woman increases her own income and ensures survival of her neighbours' chicken. Similar backward and forward linkages have been established for other programmes such as sericulture, where BRAC has established a highly successful marketing outlet for the producers through a shop-chain called *Aarong*.

Who joins BRAC ?

From the beginning BRAC has recognised and taken account of the existing socio-economic stratification in the rural society and as a consequence went for an approach that targeted only the poor and the women (Chen, 1983; Lovell, 1993). The definition of the poor (i.e., owning half an acre of land or less) was a functional one but other characteristics, such as whether family members sold their manual labour for survival (a very low status occupation in Bangladesh) were also considered in choosing VO members. It became evident that among the 'poor' (as defined through the BRAC criteria), there were further stratifications; there were the extreme poor who belonged to households headed by a woman (where there was no male member or the male member(s) were invalids), households having neither land nor homestead, and the marginal or moderate poor who are better off than the extreme poor.

Several studies have examined the composition of the VO members in terms of their economic status, and have confirmed that the majority of the members belonged to the target group defined by BRAC. Members coming from outside the target group varied from 11 percent in a large population based survey (Evans et al., 1999) to 20 percent in a 'national' study (Mustafa et al., 1996) to 29 percent found in a sub-district (Zaman, 1996). While Evans et al used rapid rural appraisals (RRA) with "wealth ranking", the other two studies utilized questionnaire survey methods.

There has been particular concern about the composition of the people involved in the BRAC micro-credit based poverty alleviation programmes, specifically whether the poorest VO members were included or not. Hulme and Mosely (1996) estimated that the poorest 20 percent of the population were excluded from micro-credit programmes. Montgomery et al (1996) in their study of the BRAC programme estimated that 20 percent of the BRAC membership came from the very poor and vulnerable group, and 15 percent from outside the target group. Evans et al. (1999) developed a conceptual framework that examined the barriers to participate in micro-credit programmes. These included programme-related barriers (such as insufficient supply of micro-credit, membership requirements, peer group expectations and institutional incentives) and client-related barriers (such as insufficient resources, ill-health or vulnerability to crisis, female head of household, lack of education and individual and household preferences). This framework was used to analyse the BRAC programme using a large population-based survey of 24,234 households using RRA. Their conclusions in this respect was based on the data reproduced in Table 3. From these results they concluded that poorer households were more likely to be BRAC members compared to non-poor or less poor. They found that although the VO membership did include some people outside of the target groups, the overwhelming majority were poor as defined by BRAC and the share of the poorest of the poor in VO's was greater than their proportion of the population. As all the village poor are not included in the VO (a VO consists of 40-50 members whereas a typical village would consist of about 100 poor households), the Evans et al study hypothesized a

'natural selection' mechanism through which households with more credit-worthiness ended-up being differentially enrolled as members. Rutherford (1993) in his study of the Grameen Bank in Bangladesh stressed on the problem of 'self exclusion', and opined that the ritua of membership such as rigid attendance in meetings and forced savings enhanced the 'fears and timidities' of the extreme poor, including widows and women household heads.

Table 3: BRAC VO membership status by wealth group.

	Wealth group			n
	1	2	3	
VO membership (%)	11	28	61	5,535
Population (%)	24	27	49	24,234

Source: Evans et al (1999)

Note: Group 1: Food secure; own >0.5 acre of land (well-off)
 Group 2: Periodic food insecurity; own <0.5 acre of land (moderate poor)
 Group 3: Chronically food insecure; own <0.5 acre of land (poorest of the poor).

Impact of BRAC programmes on health and equity

The remaining parts of this chapter concentrate on the evidence of BRAC's programmes actually having an impact on welfare and health.

Although BRAC works all over Bangladesh, the data for the present analysis came mostly from one sub-district called Matlab, the field station of the International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B). Located 50 kilometres south of Dhaka city in a riverine area of Chandpur district, the ICDDR,B has maintained this surveillance area since 1963 and the many studies conducted there on demographics and action research attest testimony to its worldwide reputation (Van Ginneken et al, 1998; D'Souza, 1984).

In 1992, BRAC started its Rural Development Programme in Matlab. The inputs introduced in the villages included : VO formation and organization of the poor, micro-credit, training of VO members on human and legal rights, and skills, and non-formal primary education for children. In 75 villages a total of

164 VOs were formed with 6,736 members (all woman), covering over half of the villages' poor households. Since 1993 BRAC vilage organisation members saved over US\$ 300,000 and an amount of US\$ 2.8 million was disbursed to them as loans with 99.7 percent recovery rate. In addition BRAC opened 81 non-formal schools which enrolled 2,658 students. In the period up to 1998 4,098 students completed the 3-year cycle of education (70% girls) and 94 percent of them gained entry to the formal government primary schools.

Evaluation design

Given the availability of reliable individual level data, BRAC and ICDDR,B initiated a research project to examine the impact of the development related activities on the health and well-being of the population which became known as the BRAC-ICDDR,B Joint Research Project.

A 4-cell research design was followed with villages being divided into those that had either (i) only BRAC inputs, (ii) only ICDDR,B inputs, (iii) both BRAC and ICDDR,B inputs and or (iv) no interventions (Chowdhury et al, 1995). Except for the minimal government development programmes which are thinly spread, no other significant development programme operated in the area (Khan et al., 1997).

The data used in the present analysis came from the following sources :

A. Baseline survey. Prior to BRAC's interventions in 1992 a survey of over 12,000 households (pop. over 60,000) in villages belonging to the above 4 cells collected quantitative information on assets, expenditures, education, nutritional status, health seeking behaviour, women's empowerment, family planning and involvement with development activities.

B. Seasonal surveys. Three rounds of seasonal surveys were carried out in a sub-sample of the baseline population in 1995-96. These collected the same information as at baseline (see A. above).

C. Ethnographic surveys. Several ethnographic and other qualitative investigations were carried out using indepth interview, focus group

discussion, and observations focusing on women's status and intra-household food distribution.

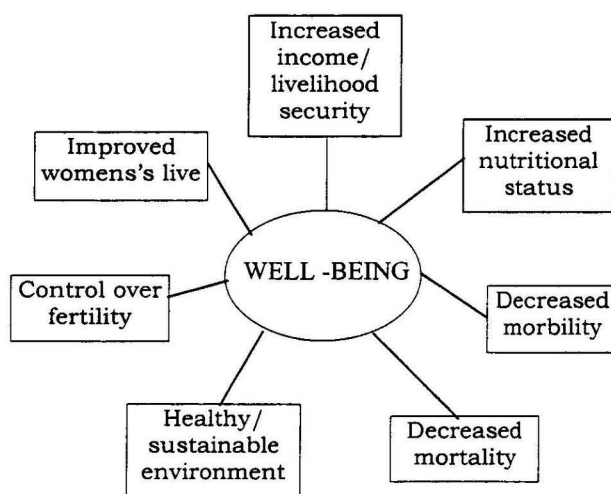
D. Demographic surveillance data. The Demographic Surveillance System (DSS) of ICDDR,B provided mortality information on all households in the villages under study. ICDDR,B routinely collects the following information on a monthly basis : births, deaths, in-and out-migration, and marriage.

E. Management information. BRAC maintains a Management Information System (MIS) for its projects. Information pertaining to the inputs received from BRAC, such as date of joining, amount of loan received, etc., for households joining the BRAC programme were linked with the DSS information.

The concept of human well-being

A major objective of the research was to study the impact of BRAC on human well-being which was defined as a concept with seven dimensions as shown in Figure 2.

Figure 2: Seven dimensions of human well-being



Source: Chowdhury et al., (1995)

Hypothetical pathways linking the BRAC programme inputs with each of the dimensions were delineated and were addressed through the research. Table 4 shows the conceptual framework linking the inputs with the expected impact.

Table 4 : The conceptual frame linking expected impacts with inputs of BRAC in Matlab, Bangladesh

Input	Process	Health Impact
Institution building	Feeling of self-worth	Nutritional status
Children's education	Literate self and children	Intra-family food allocation
Adult's education on human and legal rights	Better skills	Fertility (level, age at marriage, birth spacing)
Training (skill & human development)	More Income employment savings & assets	Morbidity (type, transmission, complications, resistance to infection)
Savings and Credit	Control over income assets	Mortality (level, cause)
Health Services : • BRAC • ICDDR,B --Surveillance --MCH-FP	Less hunger Access to and utilization of 'modern' health care	

Source: Chowdhury et al. (1995)

Here in this chapter we examine the programme impact on nutritional status and mortality and relate the findings to some of the hypothetical pathways (process). The analyses compared the following three groups:

- a. Women who joined BRAC (BRAC members);
- b. Poor eligible women who didn't join BRAC (poor non-members); and
- c. Non-poor women not eligible to join BRAC (non-poor non-member).

Household and individual level data have been compared between the above groups and between 1992 and 1995. Further analyses based on the 4 cells of the research design are in progress now.

Impact on nutritional status of children

The BRAC - ICDDR,B project collected mid upper arm circumference (MUAC) information at two points of time: 1992 when the BRAC intervention was about to start and 1995 when the intervention was about three years old. Table 5 compares the severe protein-energy malnutrition (PEM) (represented as MUAC <125 mm) of children 6 months to 72 months of age according to their mothers' participation in BRAC. The prevalence of severe PEM has significantly declined among the children of BRAC member households but there was no such change among the children of non-members.

Table 5: Prevalence of severe PEM of children by BRAC membership status during pre (1992) and post (1995) intervention period.

Malnutrition	Year of survey				1 vs. 2	1 vs. 3
	1992 baseline Poor individuals (n=827)	1995 BRAC Member (n=273)	1995 Poor Non Member (n=707)	1995 Non- poor non- members (n=538)		
Severe PEM (MUAC<125 mm)	23.2	12.1	21.2	11.5	p<0.01	NS

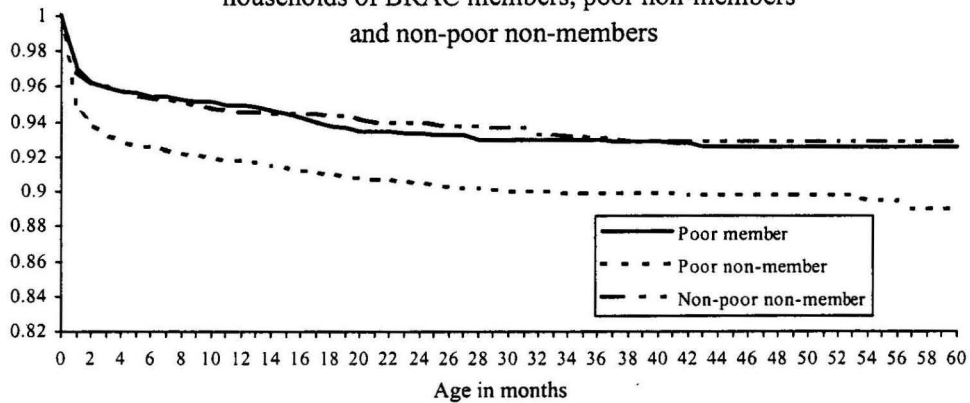
Source : Khatun et al (1998)

The same information when analysed by gender showed a significantly higher prevalence of severe PEM in females among both BRAC members and poor non-members, but not among non-poor non-members.

Impact on child survival

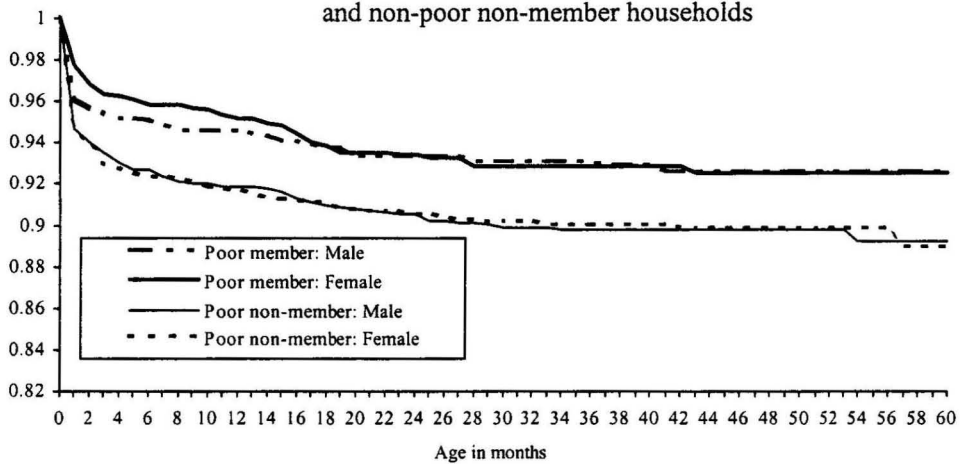
Survival rates of children belonging to BRAC member households in comparison to poor non-member and non-poor non-member households is seen in Figure 3. It shows that survival of children belonging to BRAC households is better than that for children from poor non-member households, and is in fact rather similar to survival of children from non-poor households. The pronounced survival advantage of children of poor members compared to poor non-members is seen for girls as well as boys. (Figure 4). It is striking that the survival advantage associated with BRAC membership among the poor was largely the result of mortality differences in the first few months of life, particularly in the neonatal period.

Figure 3: Life table probability of survival of children belonging to households of BRAC members, poor non-members and non-poor non-members



Source : Bhuiya et al (in press)

Figure 4: Life table probability of survival of male and female children belonging to BRAC member, poor non-member and non-poor non-member households



Food and family expenditure

The patterns in intra-family food distribution was explored through observations of a small sample of 25 households having both girls and boys. It showed that among BRAC member households girls more commonly received equal treatment; boys were more favoured in terms of being given culturally preferred/superior parts of the fish, chicken, meat, etc.(Roy et al, 1998).

In a separate assessment conducted in a larger geographic area, BRAC member households spent more overall and spent significantly more on consumption of food items than poor non-members (Table 6). Proportion of non-food expenditures, indicating the capacity of households to spend money beyond food, was also greater among BRAC member households. Finally, the per-capita calorie intake was also significantly higher in BRAC households.

Table 6: Expenditure pattern of BRAC and non-BRAC sample households

Expenditure pattern	BRAC Length of membership (in months)				Comparison (n=223)	BRAC vs Comp. (t value)
	1-11 (n=360)	12-47 (n=417)	48+ (n=295)	Total (n=1,072)		
Per capita monthly expenditure (Taka)	686	686	689	687	540	3.43***
% cereal to total food expenditure	45.9	45.0	46.4	45.7	46.1	-0.26
% non food to total expenditure	37.9	35.4	34.2	35.9	32.4	3.57***
Per capita calorie consumption	2,279	2,304	2,342	2,306	2,182	3.37***

*** p <0.01

Source : Husain (1998).

Family planning

Table 7 shows that the current use of family planning methods was greater among the currently married BRAC members than among poor non-members (p<0.05). BRAC members actually had higher rates of use of family planning than the non-poor non-members.

Table 7: Current use of family planning by BRAC membership

BRAC membership	No. of respondents	Current FP use %
Member	500	57.0
Poor non-member	1,194	49.6
Non-poor non-member	1,088	51.3

Education

Table 8 shows the level of education achieved by children 11-15 years old, at baseline in 1992 and then in 1995. Educational achievement was determined

using a competency test. This test, which was curriculum-independent, was administered on children aged 11-15 years. A child satisfying a minimum level of competency in reading, writing, arithmetic and life skills was considered to have 'basic education' (Chowdhury et al., 1993). Educational performance improved for both member and non-member groups but the gain was much greater in the case of BRAC member households than poor non-member households and more in girls than boys.

Table 8: Distribution of children (11-15 years) achieving 'basic education' by membership status in 1992 and 1995.

Sex	1992	1995	1995	1995
	baseline poor individuals	BRAC members	poor non-members	non-poor non-members
Girl	9.6 (188)	23.7 (152)	12.6 (340)	33.5 (337)
Boy	14.9 (215)	30.7 (163)	15.5 (330)	41.2 (381)
All	12.4 (403)	27.3 (315)	14.0 (670)	37.6 (718)

Figures within parentheses indicate the number of children.

Violence against women

The prevalence of self-reported violence against women has been studied. A total of 2,038 currently married women aged 15-55 years were interviewed with a structured questionnaire. Women were asked about occurrence of five types of violence in previous four months: (a) physical abuse; (b) money taken against will; (c) prevented from going to natal home; (d) prevented from working outside; (e) jewelry taken against will. In the present analysis we report only the first one which is physical violence. Table 9 compares the incidence of reported physical violence against women between BRAC member and non-member households. It shows a higher incidence of violence among BRAC members than among non-member households. When the incidence figures were analysed according to length and 'depth' of membership (Chen and Mahmud, 1995), however, the prevalence tended to decrease with increasing membership length. The peak in violence is reached when credit is introduced, but tapers off when other inputs, such as 'training' are offered.

Table 9: Occurrence of physical violence during last four months by BRAC membership, membership length and membership depth, Matlab 1995.

	Physical violence %
BRAC membership	
BRAC member (n=438)	8.9
Poor non-member (n=1550)	5.8
<i>X² Significance</i>	<i>p</i> <.05
Length of BRAC membership	
≤ 2 year (n=185)	10.8
2+ year (n=260)	7.3
<i>X² Significance</i>	NS
Depth of BRAC membership	
Poor non-member (n=1595)	5.6
Only savings (n=56)	5.4
Savings+credit (n=268)	11.2
Savings+credit+training (n=119)	3.4
<i>X² Significance</i>	<i>p</i> <.01

Source : Khan et al (1998)

Discussion

The stated objectives of BRAC is the alleviation of poverty and empowerment of the poor, particularly women, so as to reduce inequities between the rich and the poor, and between men and women. Whether existing development programmes, including those of BRAC, achieve this is a crucial question that donors, academics and development specialists have all asked.

A large body of literature has emerged that attempts to examine the effect and impact of development interventions (Chowdhury et al., 1991; Pitt et al., 1996; Mustafa et al., 1996; Husain 1998). These studies usually examine how a programme delivers services, manages production, or trains participants. What is less well documented is their impact on human well-being as defined in the present study. The BRAC-ICDDR,B Joint Research Project in Matlab, Bangladesh, was designed specifically to examine such an impact.

Of the seven dimensions of human well-being identified by BRAC ((Figure 2), preliminary analyses relating to nutritional status and child survival have

been presented. These data suggest two things: (a) there was a measurable improvement in terms of nutrition for the BRAC household members in comparison to a 'comparable' non-member group; and (b) child survival is better in BRAC households in comparison to that in poor households that did not belong to BRAC; (c) these differences in nutritional status and child survival were equally discernible for male and female members of BRAC households.

Two important questions arise : Firstly, how can we explain these differences according to BRAC membership ? Are they the result of the BRAC programmes or could they be artefacts due to selection bias in the recruitment process, whereby the "poor" who become BRAC members are better off in a number of important ways at entry. Secondly, if the differences are due to BRAC programmes, what was the mechanism or pathways through which the interventions led to these improvements.

BRAC recruits poor women with a landholding of half an acre or less. Studies have documented that a certain proportion of BRAC and other NGO participants (between 11% and 29% in case of BRAC) come from a less poor group. There are several reasons why people from outside the target group are recruited. Participants may lie to field staff about their actual landholding at the time of joining or they may have improved their situation since joining. A recent study found that women who had joined BRAC for four years or more had each added ten decimals (1 acre = 100 decimals) to their landholding (Husain, 1998). The 'comparison' group selected for the present study conformed to the definition of BRAC membership. Zaman (1998) examined the background of the two groups in Matlab sub-district and found that 29 percent non-poor women were also VO members. When compared with members who actually conformed to the BRAC eligibility criteria (i.e., landholding of 0.5 acre or less), the comparison group had more land, assets and number of earners in the family. Information presented in the text from other studies indicated that the majority of BRAC membership conformed to the eligibility criteria of BRAC and the share of the poorest of the poor in the village organisations was more

than their proportion in the population. Nevertheless, researchers have speculated that there may still be a 'natural selection' mechanism that favour the more credit-worthy among the poor, thus allowing room for self selection (Evans et al., 1999). Further studies to detect the possible presence of selection bias and its impact on the present results are being carried out. One analysis traced the mortality history of children belonging to BRAC and non-BRAC poor prior to 1992 when the intervention started, using the data available through the Demographic Surveillance System of ICDDR,B. Although both groups were similar prior to 1992 in mortality levels, the BRAC group children experienced a greater fall in mortality over the past seven years. Early results from an analysis of nutritional status data collected in 1992 and 1995 showed similar results. Evans et al. (1999) noted that the women members who did not qualify BRAC eligibility criteria but were inducted into VOs were the better-off poor but were not village elites. The mortality data presented in the text showed that the BRAC members were actually very close to the elites; even when the non-poor members were excluded from the analysis, the better performance of BRAC members still persisted.

Most of the impact on mortality occurred during the neonatal period. Yet most of the child survival technologies have their impact later in childhood; something is happening to the women during pregnancy and/or during the birth process that is affecting the neonates. One of the determinants could be the psychological well-being (PW); and the initial analyses of a study on PW showed that BRAC members PW was marginally higher (Khatun et al., 1998). Research is underway to better understand this phenomenon.

Figure 2 suggested the various factors that could affect well-being. One of these was improved nutritional status. In BRAC participant households, the intra-family allocation of food is more equitable, although there is still the tendency to favour boys. The average calorie consumption is higher among BRAC participants. The per capita monthly expenditure is greater as is the proportion of the expenditure spent on food. BRAC women were greater users of family planning methods which may have given them a longer time between

pregnancies and opportunity to participate in micro-credit financed income generating activities. The increased violence against women that occurs in the earlier phases of the BRAC was reduced over time when credit was accompanied by other inputs such as human development and skill training. When a woman receives a loan, a new transaction and relationship emerges in her own and extended family. A small amount of money works as a miracle in a cash-hungry society and significantly raises the woman's power in the family (Zaman, 1998; Hashemi et al, 1996). Not all men are ready to accept this new power relationship and some may resort to violence to express their anger. The changes in women's economic role within the family may initially be met with resistance/resentment and in extreme cases with violence (Khan et al., 1998). We also need to be somewhat cautious in accepting and interpreting this information. It may be that BRAC members, because of their increased awareness, report more details of their marital life. Other studies have also documented reduced incidence of violence in households that are served by micro-credit programmes (Hadi, 1997).

Improvement in the level of basic education of children is dramatic, and more so in girls than boys. This might be expected as BRAC schools are positively discriminative in favour of girls. In recent years, there has been improvements in performance of basic education at the national level as well (Chowdhury et al., 1999) and this is reflected in Matlab.

Based on the above observations the following conclusions can be drawn.

1. Poverty alleviation programmes focused on women as implemented by BRAC are effective in improving well-being, particularly in the areas of childhood nutrition and mortality;
2. These impacts could be partially explained by other effects that take place as a result of BRAC's intervention; and
3. There are indications that the BRAC programme has been successful in reducing inequity in health between the rich and poor but not between men and women.

BRAC is now a large NGO in Bangladesh and is one of the largest in the world. It is also one of the oldest development organization in the Third World. BRAC's Philosophy of "learning from doing" has bestowed it with many successes. Several of its programmes have been replicated all over the country by itself and by others. For example, BRAC's non-formal primary education (NFPE) programme is being implemented by over 25 local NGOs in Bangladesh, in addition to BRAC itself. Many of the learnings are also used by the government. Based on BRAC's Pilot Programme on nutritional supplementation in Muktagach sub-district, (Chowdhury et al., 1998), the government is implementing this in 60 other sub-districts of the country with World Bank assistance. Internationally also, some of BRAC learnings have been adapted in several countries of Asia and Africa. BRAC's NFPE is now implemented with local adaptation in Ethiopia, Uganda, Pakistan and India (Kaur, 1997).

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Acknowledgement

The BRAC-ICDDR,B Research Project is the result of the joint effort of many. Professor Demissie Habte, the former Director of ICDDR,B and Mr. F.H. Abed, the Executive Director of BRAC were the prime movers and provided all support. A large team of researchers was involved which included Alayne Adams, Amina Mahbub, Gulrukh Selim, Hassan Zaman, M. Jahangir, Kit Vaughan, Mahmuda Khan, Maliha Mayeed, M. Mannan, Masud Rana, Masuma Khatun, Mehnaz Momen, Mohsena Khatun, M. Mohsin, Momena Islam, Monirul Khan, Syed Masud Ahmed, H. Nasreen, Parul Biswas, Rafiquddoulah, Rita Das Roy, Sabah Tarannum, Sabina Rashid, Sabrina Rasheed, Saira Ansary, Samiha Huda, Shahrier Khan, Simeen Mahmud and Ziauddin Hyder; the large number of working papers and other papers that have come out of the project were done by them. Besides, others provided crucial support at various stages including Aminul Alam, R. Bairagi, Ian Scott, Jane Menken, Jim Ross, John Cleland, Kim Streatfield, Lincoln Chen, Marty Chen, Patrick Vaughan, Pertti Pelto, Pierre Claquin, Richard Cash, Sadia Chowdhury, Salehuddin Ahmed, A. M. Sardar, Tim Evans, Wahiduddin Mahmud, M. Yunus, and the staff of DSS and BRAC at Matlab. Besides BRAC and ICDDR,B, various donors provided generous financial support to this project including the Ford Foundation, Aga Khan Foundation, and the US Agency for International Development. The authors also wish to express their special thanks to Richard Cash for his editorial help.

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