# Two studies on Healthcare seeking behaviour and Household sanitation practices of BRAC member and non-member households in Matlab, Bangladesh

**Syed Masud Ahmed**
**Mushtaque Chowdhury**
**Abbas Bhuiya**

# FOREWORD

Empirical evidence point to a causal relationship between the socioeconomic status of individuals and communities and their health. Indeed improvement in health is expected to follow socioeconomic development. Yet this hypothesis has rarely been tested; at least it has not undergone the scrutiny of scientific inquiry. Even less understood are the processes and mechanisms by which the changes are brought about.

The Rural Development Programme (RDP) of BRAC is a multisectoral integrated programme for poverty alleviation directed at women and the landless poor. It consists of mobilization of the poor, provision of non-formal education, skill training and income generation opportunities and credit facilities. The programme is the result of 20 years of experience through trial and error. However evaluation of its impact on human well-being including health has not been convincingly undertaken.

The Matlab field station of ICDDR,B is an area with a population of 200,000, half of whom are recipients of an intensive maternal and child health and family planning services. The entire population is part of the Center's demographic surveillance system where health and occasionally socioeconomic indicators have been collected prospectively since 1966.

A unique opportunity arose when BRAC decided to extent its field operations (RDP) to Matlab. ICDDR,B and BRAC joined hands to seize this golden occasion. A joint research project was designed to study the impact of BRAC's socioeconomic interventions on the well-being of the rural poor, especially of women and children, and to study the mechanism through which this impact is mediated.

In order to share the progress of the project and its early results, a working paper series has been initiated. This paper is an important addition in this endeavour. The project staff will appreciate critical comments from the readers.


**Fazle Hasan Abed**                                              **Robert M. Suskind**
**Executive Director, BRAC**                                     **Director, ICDDR,B**

## ACKNOWLEDGEMENTS

- **Healthcare seeking behaviour of BRAC member and non-member households: evidence from Matlab, Bangladesh p 1-20.**

- **Household sanitation and hygiene practices of BRAC member and non-member households: evidence from Matlab, Bangladesh p 1-14.**

**Healthcare seeking behaviour of BRAC member and non-member
households: evidence from Matlab, Bangladesh**

**Table of contents**

## Executive Summary

***Background*** Understanding the morbidity profile and healthcare seeking behaviour of different socioeconomic strata of the community is important for planning and delivery of appropriate health services, especially for the poor. This paper attempts to explore the effects of the BRAC development interventions on changes in healthcare seeking behaviour of the beneficiary households. It is hypothesized that BRAC's economic and non-economic inputs (like preventive health and nutrition intervention) through it's comprehensive Rural Development Programme (RDP) will influence the healthcare seeking behaviour of the participant households by reducing the proportion of those who currently go without treatment or seek spiritual healing or largely in-effective traditional medicine.

***Methods*** The data used for the study comes from the BRAC-ICDDR,B Joint Research Project in Matlab for studying the pathways through which socioeconomic development impacts on the lives of the poor. A pre-tested structured questionnaire was administered to the household head or spouse or any knowledgeable adult member of the household present at the time of survey to collect information on demographic and socioeconomic characteristics, any illness occurring in the household and healthcare seeking behaviour for the particular illness episode. The recall period was 15 days from the day of survey. In all, 3,687 households were surveyed of which 604 were BRAC member households and 1,658 were BRAC eligible non-member households. The analysis was done in two stages: first, bivariate analysis is done to compare and contrast the morbidity prevalence and healthcare seeking behaviour of BRAC member and non-member households. Then, a logistic regression was run to identify the predictors of specific types of healthcare seeking behaviour of the study population.

***Results*** Out of a total population of 18,774, 16% were found to have had any illness during past 15 days. Reported morbidity was found to be less among those from BRAC member households compared to eligible non-member households controlling for sociodemographic variables (p<.001). There was no significant difference in illness profile among the study households. One-fifth of the ill personss (20%) did not seek any treatment and another 6-8 percent used only home remedies. Among all age and sex categories, a greater proportion of ill persons from BRAC member households were treated by qualified allopaths compared to those from 'quacks' (unqualified allopaths in drug stores) was more frequently sought by BRAC member households while treatment from para-professionals was more frequently sought by eligible non-member households. Literacy of household head appears to have a favourable influence on seeking healthcare of any sort (the proportion seeking no treatment dropped from 23% to 17%). Treatment by qualified allopaths is more frequently sought by BRAC member households inside embankment. The receipt of MCH-FP inputs by the households appeared to greatly increase the proportion seeking healthcare of any sort (the proportion seeking no treatment dropped from 27% to 16%) as well as seeking healthcare from para-professionals. The presence of a gender dimension in the findings is too burden of illness compared to males, proportionately they were also more among those for whom no treatment was sought. They were found to be proportionately less treated by qualified allopaths and more by traditional healers or homeopaths.

From the results of logistic regression, BRAC membership status of the household, categories of illness and age, emerged as the most significant variables explaining healthcare seeking behaviour of the study population.

***Conclusion*** The importance of BRAC membership status of the household in influencing reported morbidity among the beneficiaries and shaping their healthcare seeking behaviour is emphasised from this analysis. It is recommended that healthcare behaviour modification should be undertaken by Essential Heath Care (EHC) of RDP to discourage treatment seeking from unqualified allopaths and faith healers and reduce gender discrimination in seeking healthcare.

*INTRODUCTION*

Understanding the morbidity profile and healthcare seeking behaviour in different socioeconomic strata of the community is important for planning and delivery of appropriate health services, especially for the poor. Morbidity may be defined as the attributes of sickness like illness, disability, handicap and other compromised states of physical, social and mental well-being. Self-perceived morbidity refers to measures that are perceived and reported by an individual in response to inquiries regarding illness or symptoms over a defined time period. It is a function of both the burden of pathology and the individual's social and cultural context. This most common form of morbidity data in the developing world may be biased by factors like individual knowledge and experience, personal predisposition in the perception of illness and it's social acceptance, somatization and conscious misreporting of illness to achieve other goals. To characterize a full range of morbidity, measuring both self-perceived and observed morbidity is advocated. Measures of self-perceived morbidity is important for three reasons: perceived illness gives an indication of the burden of disease in the community; second, only through the individual can we learn about the true burden of pain and suffering and third, over a short period of time sudden changes in self-perceived morbidity may reflect change in the burden of pathology and thus may be an useful monitoring tool (1).

Healthcare seeking behaviour is any activity undertaken by individuals who perceive themselves to have a health problem or to be ill for the purpose of finding an appropriate remedy (2). Studies have shown it to be erroneous to assume that symptoms of disease are always identified in health terms and the recognition of symptoms of disease are always identified in health terms and the recognition of symptoms will necessarily result in seeking healthcare of the form that scientific medicine thinks is most appropriate. Once the symptoms are recognized the choice of therapy depends upon a number of factors. In addition to availability and accessibility of healthcare services, this choice is influenced by pre-existing lay health beliefs about illness causation and 'explanatory model' offered for that particular episode of illness (3-4).

In a medically pluralistic society like Bangladesh, people who are not helped by home remedies after becoming ill, make choices about whom to consult in the 'popular', 'folk' or 'professional' sector for further help (5). According to Zola, the decision to consult a doctor may be related to sociocultural and behavioural factors, rather than the severity of illness (6). In a study in rural Mexico it was found that people's perception of the gravity of the illness, past knowledge of the illness and its remedy, and the faith in the efficacy of the various therapies were some of the factors which helped in making the initial choice (7). People in less developed areas of the world tend to distinguish the kinds of illness that can be cured by the physician from those that will respond only to the therapy of indigenous healers. Usually 'modern' medicine is used for critical acute conditions while patients are inclined to go to indigenous healers for the treatment of chronic incapacitating conditions. In a study in Mali on health seeking behaviour (of 179 households over a period of six months) it was found that in conditions like fever, diarrhoea and acute illnesses, cosmopolitan (modern) medicine was sought (8). On the other hand, for genitourinary diseases thought to be of spiritual origin, traditional (indigenous) methods were followed. Use of indigenous medicine in these illnesses was unrelated to family's socioeconomic, hygienic or educational level. In another study done to examine the social dimensions of the health behaviour of rural women, researchers conducted focus group discussions with women and men in three villages of Nigeria (9). They found that rural women chose only traditional (indigenous) healers to cure diseases thought to be caused by supernatural forces (e.g., convulsions, insanity, snake-bites etc.) and biomedical healers to treat diseases caused by natural factors (e.g., fever, anaemia, dysentery, appendicitis, hernia etc.). Also, when the women perceived medical services to be beneficial neither distance, lack of transportation, and poor quality care nor unsympathetic staff would prevent them from using the particular treatment. The prevalence of

indigenous health beliefs about the causes of illness have not prevented the use of modern medicine where its effectiveness has been shown.

Studies done on healthcare providers of rural Bangladesh found 'modern' or allopathic medicine practiced by qualified and non-qualified persons to be most popular. This is also illustrated by the number of allopathic drug stores even in small localities. Traditional practitioners of ayurvedic, unani and herbal medicine including faith healers and home remedies appear to stand second. In these studies a declining role of homeopathy in rural Bangladesh was noted. In fact, practitioners who considered themselves homeopaths also prescribed allopathic medicine quite frequently because that was more in demand and led to better income (10-14). For people who utilize both 'modern' and 'traditional' medicine, the type of illness has an influence on the choice made. Some people consider medicine better for treatment of symptoms than eliminating the cause, especially if it is thought to be supernatural. Feldman S. found that a number of villagers noted homeopathy and kabiraji to be slower treatments, whose cure is relatively permanent while allopathic treatment is quick but not permanent (11). It is said that this is why the former are often used by children and women. Men, on the other hand, are not assumed to tolerate sickness as well as women and are thought to require quick remedy by seeking allopathic treatment. In Ashraf *et al*'s study, it was found that homeopathy was preferred for children, 'folk' or 'traditional' medicine for female diseases and 'bad' air, and allopathy for RTI and dysentery (10).

The strong influence of socioeconomic factors on heath is well documented in the literature (15). Non-government development organisations like BRAC are trying to improve the health status of the poor people by comprehensive development interventions aimed to uplift the socioeconomic condition of the poors. This paper attempts to explore the effect of BRAC interventions on changes in healthcare seeking behaviour of the beneficiary households. It is hypothesized that BRAC's economic and non-economic inputs (including preventive health) through it's comprehensive Rural Development Programme (RDP) will influence the healthcare seeking behaviour of the participant households by reducing the proportion of those who currently go without treatment or seek spiritual healing or self-educated practitioners of traditional medicine. This is expected to guide the policy makers in designing effective healthcare programmes for the rational management of illness episodes and thereby contribute to their socioeconomic development.

*Materials and methods*

*The BRAC-ICDDR,B Joint Research Project*

Founded in 1972, BRAC is a large indigenous non-governmental organization involved in rural poverty alleviation. BRAC's RDP targets the poorest of the poor with special emphasis on improving the health and socioeconomic condition of women and children. RDP through its Essential Healthcare component (EHC) promotes the use of safe water, sanitation and health and nutrition education in addition to immunization facilitation, family planning and basic curative services for some common diseases. These services are delivered by Shasthya Sebika (SS) or the community health worker through household visits at regular intervals (16).

In 1992, BRAC extended RDP activities including micro-credit and non-formal education to 100 villages of Matlab thana where the International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B) has been operating a Demographic Surveillance System (DSS) since the early 1960s. A research collaboration between BRAC and ICDDR,B was established to examine prospectively the relationship between socioeconomic development and health and well-being of the rural poor (17). A baseline survey was carried out in 1992 in 60 villages covering about 12,000 households to assess existing differences in the population prior to BRAC's RDP interventions and also elucidate the socioeconomic and environmental context within which the programme would operate (18). Exploraory and qualitative studies were also undertaken to map the various pathways by which BRAC RDP inputs might influence health behaviours and outcomes.

*The Data*

Informed by the baseline and the various exploratory and qualitative studies in the first phase, three seasonal rounds of panel data were collected in phase II from a sub-sample of 14 of the 60 baseline survey villages during April '95 to April '96 (19). The timing of the three rounds was as follows: 1$^{st}$ round from Apr to Aug (monsoon), 2$^{nd}$ round from Aug to Dec (post-monsoon) and the 3$^{rd}$ round from Dec to April (dry). This study mainly utilized data from the 1$^{st}$ round survey. The 2$^{nd}$ and the 3$^{rd}$ round data were used to compare only crude changes in morbidity prevalence and healthcare seeking behaviour of the study population over the year.

A Pre-tested structured questionnaire was administered to the household head or spouse or any knowledgeable adult member of the household present at the time of survey by experienced male and female interviewers to collect information on demographic and socioeconomic characteristics, prevalence of illness episodes and healthcare seeking behaviour of the household members. In all, 3,687 households were surveyed in the 1$^{St}$ round of which 608 were BRAC member households and 1,659 were BRAC-eligible non-member households. The BRAC non-eligible households were excluded from analysis. Households possessing less than 0.5 acre of land and selling manual labour for at least 100 days a year are considered eligible to be included in BRAC's rural development programme. These households rank among the poorest of the poor. Households that are not eligible for BRAC's RDP are comparatively better-off socioeconomically, and include rural elite as well.

Categories of illnesses (occurring within last 15 days) were deduced from lay reporting of symptoms by the respondent (wife of the household head or any knowledgeable adult member of the family in her absence, mother in case of children, or the ill person her/himself when present) using a comprehensive coding system and were cross-checked by a physician. When there was more than one episode of illness, data were collected with reference to the illness which was the longest in duration. Data on types of healthcare were obtained by asking the respondent about treatment measures undertaken first either at home or outside home and grouped into five categories. The category `home

remedies' comprises analgesic & anti-pyretic tablets, oral rehydration solutions (ORS), antacids etc. commonly available in rural households. All kinds of faith healing and traditional systems of medicine like *kabiraji/hakimi* including homeopathy is included in the 'traditional' group. 'Para-professionals' consists of *Palli Chikitsoks* (village practitioners), Medical Assistants and different types of government and non-government community health workers with some formal institutional training who treat mainly with allopathic drugs. 'Unqualified allopaths' refer to the dispensers at medicine retail shops and others who practice allopathic medicine but do not have any formal training. These 'Unqualified allopaths' or quacks, as they are usually called, treat mainly infectious diseases rather indiscriminately with antibiotics and steroids. Medicine is given through a process of negotiation depending upon the economic condition of the patient or relatives. Usually they do not give full courses of medicine. Treatment may, in fact, be harmful to health (10). The `qualified allopaths' included professionals like MBBS, LMF or "National" doctors.

Literacy is enumerated in terms of ability to read, write or sign. Those who could both read and write are taken as literate. Occupation of the household head is defined as the activity in which the concerned individual spends major part of her/his time in a working day. Accordingly, households are categorized either as a labour-selling or a non labour-selling depending upon whether the household head is engaged in wage-labour or not.

A medium scale embankment on the banks of the river Meghna and Dhonagoda was constructed between 1982 and 1989 for flood control, drainage and irrigation. Study villages under DSS area fall both within and outside the embankment and accordingly, proportionate households from both side of the embankment were sampled.

**Analysis plan**

The analysis was done in two stages: first, bivariate analysis was done to study the morbidity prevalence and healthcare seeking behaviour between BRAC member and non-member households controlling for age, sex, literacy and occupation of household head, location of the household, presence of MCH-FP programme of ICDDR,B and length and depth of BRAC membership. Then a logistic regression was run to see the influence of these factors on healthcare seeking behaviour with respect to: i) any type of treatment sought ii) semi-qualified and, iii) qualified 'allopathic' medicine. The statistical software package SPSS 7.5 for Windows was used for analysis.

*Results*

a)   **Demographic characteristics of the study population**

Around 40% of the study population was under the age of 15 years. Proportionately, there were more females than males in the 15 to 49 age group (48% Vs 45%) while there were more males than females (5% Vs 4.5%) above the age of 65 years. The majority of the males (60%) can write and/or read compared to only 47% of the females who can do so. Only 24% of the males and 14% females have accessed any kind of formal schooling (5+ years). A substantive proportion of the study population (39% of the males and 33% of the females) is currently student. Of the remaining, the majority of males (35%) earned their living from wage-labour and self-employment while majority of the females (95%) were engaged in household chores. Agriculture (either in own or other's land) and service/petty trade were the second most important source of livelihood for the males (24%) and females (3%) respectively (20).

### b)  Morbidity Prevalence

Prevalence of morbidity during the last 15 days (including current illness) among study household members is shown in Table 1. As can be seen, the prevalence of illness in this community during the reference period was high (15 to 17%). Morbidity was found to be less among those from BRAC member households compared to eligible non-member households (p<.001). This trend is consistently seen between these two categories of households even when the age and sex of the ill persons, household head's literacy and occupation, location of the household with respect to embankment and presence of MCH-FP programme of ICDDR,B in the village are controlled (Tables 2-4).

### c)  Healthcare seeking behaviour

There was no significant difference in illness profile among the three types of study households. The three most frequently reported illnesses were fever of various types and duration, gastrointestinal diseases including diarrhoea and dysentery, and pain/aches of various types in different parts of the body (Table 5).

Tables 6a and 6b shows healthcare seeking behaviour according to age and sex respectively. Among all age and sex categories, a greater proportion of ill persons from BRAC member households were treated by qualified allopaths compared to those from eligible non-member households. It is interesting to note that treatment from `quacks' (unqualified allopaths in drug stores) was more frequently sought by BRAC member households while treatment from para-professionals was more frequently sought by eligible non-member households. These trend are universally seen even when the effects of household head's literacy, occupation, location of the household with respect to embankment, and presence of MCH-FP programme of ICDDR,B in the villages are controlled (Tables 7-8).

Literacy of household head appears to have a favourable influence on seeking healthcare of any sort (the proportion of no treatment dropped from around 23% to around 17%) as well as improvement in seeking treatment from qualified allopaths. On the other hand, labour-selling households lagged behind the non labour-selling households with respect to seeking healthcare of any sort as well as qualified allopaths and para-professionals (Tables 7a and b.).

Treatment by qualified allopaths is more frequently sought by BRAC member households inside the embankment. Interestingly, the proportion without treatment was more in case of BRAC member households outside embankment compared to those from inside embankment. The presence of the MCH-FP programme appeared to greatly increase the proportion in seeking healthcare of any sort (the proportion of no treatment dropped from around 27% to around 16%) as well as seeking healthcare from para-professionals. However, it did not influence the use of qualified allopaths.

Table 9 presents the results of logistic regression for predicting either seeking any healthcare at all or seeking healthcare from para-professionals or qualified allopaths. For predicting whether any healthcare was sought, any type of healthcare sought is coded "1" and no healthcare sought as "0"; for predicting whether healthcare from para-professionals was sought, para-professionals are coded "1" as representing semi-qualified allopaths and all others as "0"; and lastly, for predicting whether healthcare from qualified allopaths was sought, qualified allopaths are coded as "1" and all others as "0". The predictors for all the above three are: age and sex of the ill person, size and labour-selling status of the household, household head's literacy, location of the ill person's household with respect to embankment, whether the household is receiving MCH-FP programme inputs, and lastly, BRAC membership status of the household.

These variables were found to influence healthcare seeking behaviour significantly in the bi-variate analyses. Two more variables, sex of the household head and categories of illness, were introduced in the final model based upon prior knowledge regarding their influence on healthcare seeking behaviour and their contribution to reduction of log likelihood.

The probability of seeking any type of healthcare at all was found to be significantly predicted by age (the probability was more if the patient was in the 16-30 age group), sex (the probability was more if the patient was male), literacy of household head (the probability was more for patients with a literate household head), and receipt of MCH-FP programme inputs by the households (the probability was more for those households receiving MCH-FP inputs). Also, certain categories of illness such as Eye, Skin and ENT diseases, appeared to predict seeking of healthcare more compared to ordinary fever.

When predicting healthcare from para-professionals only, the effects of sex, household's literacy and MCH-FP inputs were removed but BRAC membership status, in addition to age and categories of illness, emerged as significant variable. On the other hand, in predicting healthcare from qualified allopaths, the significant predictors for seeking any type of healthcare (excepting MCH-FP inputs) were also found to significantly predict healthcare from qualified allopaths; in addition, BRAC membership status and location of the household also emerged as significant variables. Thus the final model appeared to best predict seeking healthcare from qualified allopaths compared to the other two categories.

From the model, BRAC membership status of the household, categories of illness and age to a certain extent, emerged as the most significant variables explaining healthcare seeking behaviour of the ill persons. The presence of MCH-FP inputs in the households appeared to be a significant predictor of seeking any healthcare, but not necessarily allopathic medicine. However, BRAC membership was significant in predicting semi-qualified and qualified allopathic care, though in the opposite direction. Sex-differential was important for either seeking any healthcare at all or seeking healthcare from qualified allopaths (the probability of either was more for the males). Again, location of the household outside embankment was found to be significant only for the latter above (probability more for those from households outside embankment).

### d) *Seasonal changes in morbidity prevalence and healthcare seeking behaviour*

Table 10 presents changes in morbidity prevalence in the 2nd and 3rd round of the seasonal survey. As can be seen, the prevalence gradually decreased over post-monsoon and dry period, irrespective of sex and BRAC-membership status of the households. Also, the difference between BRAC and non-BRAC households seen in the 1st round disappeared. The healthcare seeking behaviour in the 2nd and 3rd round is shown in Table 11. Overall, trends in the latter two rounds with respect to the proportion seeking any type of healthcare, seeking care from 'unqualified' and 'qualified' allopaths by BRAC households, and lastly, disadvantaged condition of women in accessing any and 'qualified' healthcare were found to be similar as seen in the 1st round.

### *Discussion*

This paper attempts to explore the effect of BRAC's development interventions in the study area on morbidity prevalence and healthcare seeking behaviour of the beneficiary households. We have tried to improve the reliability and validity of morbidity reporting by various methods: use of culturally sensitive language and wording of the interview instruments, limiting recall period to 15 days; deriving disease entities from lay reporting of the symptom complex by the respondent using a comprehensive pre-tested coding list and a re-survey of 5% of the households within 3 days by an

independent quality control team. Moreover, the principal focus of the study was to elicit healthcare seeking behaviour of the respondents, and the illness episodes only served as the referral point from where we proceeded.

The overall morbidity for the study population is similar to the national figure for the rural population (21). It is interesting to note the consistently lower morbidity prevalence in the 1st round (summer/monsoon) in BRAC member households compared to non-member households even when the effects of sociodemographic factors were controlled for. This decrease in morbidity may be due to improved household economic condition resulting from BRAC's income-generating inputs like credit, skill development training etc. flowing into these households. This is manifested by increased land and non-land productive assets, livestocks, savings and monthly food-expenditure by the same BRAC member households compared to their non-member counter-parts during this time (22). However, with the decrease in morbidity prevalence in the 2nd and 3rd rounds, this difference based on BRAC membership status of the households disappeared. The concurrent changes in household economy, if any, during 2nd and 3rd rounds remain to be analysed before reaching any conclusion on linking better economic condition with decreased morbidity prevalence in the beneficiary households.

That there was no difference in illness profile between BRAC member and non-member households points to the common environment they shared Major prevalent illnesses in the area such as fever, diarrhoeal diseases etc. are all related to environmental factors which is consistent with findings from elsewhere (23).

One-fifth of the ill persons (20%) did not seek any treatment and another 6-8 percent only home remedies. Two conditions may be postulated: either they weren't sick enough or they weren't able to access healthcare of any sort, for one reason or another. The proportion of ill persons who did not seek any treatment was more among BRAC member households. This may be related to the worse poverty condition of these households compared to eligible non-member households, which motivated them to join BRAC in the first instance. From an analysis of economic conditions of the same households, it was found that the proportion of poor based on calorie consumption, both moderate (<2112 calories per day) and hardcore (<1805 calories per day), was more among BRAC member households (24). On the other hand, increased use of qualified allopaths by the BRAC member households compared to others also points to the increased capacity of some of these households to meet the costs of this type of treatment (22). Thus, a kind of polarisation is seen with respect to accessing types of healthcare by BRAC member households. This may be due to both increased proportion of household income available for expenditure on health and also, indirect effect of health education and other EHC inputs of RDP which motivated them to seek `modern medicine'. With the development of health awareness resulting from interactions with the EHC, it is expected that the BRAC member households will increasingly use para-professionls who provide rational allopathic medicine at a much cheaper price than the unqualified allopaths (commonly known as 'quacks') or the costly qualified allopaths. But this was not the case. Rather an increased use of 'quacks'by the BRAC member households compared to para-professionals was found. This gradually shifting trend towards seeking healthcare from allopathic practitioners, less of 'qualified/semi-qualified' and more of 'unqualified', pretty well reflects the current scenario in rural Bangladesh and is of concern because the quality of healthcare provided by the unqualified allopaths is questionable (10). Similar trend in healthcare seeking behaviour was observed in the 2nd and 3rd rounds of the study as well. Possible explanations for this apparent discrepancy are: a) since BRAC works to improve the condition of it's beneficiaries, it may be assumed by the para-professionals---a part of the formal sector of 'modern' medicine and mainly of government origin---that their health concerns will also be taken care of by BRAC and that they need not be given much attention; b) economic returns from credit-based income-generating activities are not the same for the recipients; due to differential skill, opportunities and entrepreneurship of the VO members, their

contribution to the household income differs which may effect household's health-related expenses. Further in-depth studies are needed to look into this puzzling matter.

The presence of a gender dimension in the 1st round findings is repeated in latter rounds as well. Females of reproductive ages were found to suffer more from the burden of illness than males, but also more sought less treatment than males. Women often do not get the opportunity to seek healthcare unless it is related to their socially defined roles of wife and mother and most often not even then (25). They were proportionately less treated by qualified allopaths and more by traditional healers or homeopaths, which may reflect the importance given to women's health in the community. Alternatively, these healers may be more closer to the community, requiring less travel and may be more sympathetic to women's problems. This corroborates the findings of Ashraf *et al*. (10) and Feldman *et al*. (11) that 'slower' homeopathic, traditional and 'folk' medicine are more frequently used for women and children and the 'quicker' allopathic for men in rural Bangladesh because the latter need to get quick well for maintaining the flow of income in the family.

In conclusion, it can be said that changes resulting from credit based income generating activities as well as preventive health and nutrition intervention are beginning to impact on morbidity prevalence in the beneficiary households to some extent. Also, some questionable changes are occurring towards using 'modern' medicine. It is recommended that healthcare seeking behaviour modification by preventive health interventions should be undertaken to discourage treatment seeking from unqualified allopaths and faith healers and reduce gender discrimination in seeking healthcare.

*References*

1. Murray CJL, Chen LC. Understanding morbidity change. *In:* Chen LC, Kleinman A, editors. Health and social change in international perspective. Harvard series on population and health. Boston: Harvard University Press, 1994. pp 87-114.

2. Ward H, Mertens TE, Thomas C. Health seeking behaviour and the control of sexually transmitted disease. *Health policy and planning* 1996;12(1):19-28.

3. Kleinman A. Patients and healers in the context of culture. Berkely: University of California Press, 1980. pp 49-57.

4. Helman C. Culture, Health and Illness. 3rd Edition. Oxford: Butterworth-Heinemann, 1995. pp 101-145.

5. Ahmed SM. Medical Pluralism: The case of Bangladesh. *Journal of preventive and social medicine* (JOPSOM) 1993;12(1):30-5.

6. Zola IK. Culture and symptoms: an analysis of patients presenting complaints. *Am Social Rev* 1966;31:615-30.

7. Young JC. Medical choice in a Mexican village. New Brunswick: Rutgers University Press, 1981.

8. Coppo P, Pisami L, Keita A. Perceived morbidity and health behaviour in a Dogon community. *Soc Sci Med* 1992;34(11):1227-35.

9. Okojie CE. Social dimensions of the health behaviour of rural women: findings from focus group research in Nigeria. Presented at: Seminar on measurement of mortality, morbidity and healthcare: Inter disciplinary approaches. Cairo, Egypt, November 4-7, 1991 [Unpublished].

10. Ashraf A, Chowdhury S, Streefland P. Health, disease and healthcare in rural Bangladesh. *Soc Sci Med* 1982;16:2041-54.

11. Feldman S. The use of private healthcare providers in rural Bangladesh: a response to Claquin. *Soc Sci Med* 1983;17:1887-96.

12. Claquin P. Private healthcare providers in rural area of Bangladesh. *Soc Sci Med* 1981;15B:153-7.

13. Bhardwaj SM, Paul BK. Medical pluralism and infant mortality in a rural area of Bangladesh. *Soc Sci Med* 1986;23:1003-10.

14. Sarder AM, Chen LC. Distribution and characteristics of non-govt. health practitioners in a rural area of Bangladesh. *Soc Sci med* 1981;15A:543-50.

15. Feinstein JS. The relationship between socioeconomic status and health: A review of the literature. Milbank Q 1993;71:279-322.

16. BRAC. Rural development Programme (RDP): Phase III Report (1993-1995). Dhaka: BRAC,1996.

17. Bhuiya A, Chowdhury M. The impact of social and economic development programme on health and well-being: a BRAC-ICDDR,B collaborative project in Matlab. Working Paper No.1. Dhaka: BRAC-ICDDR,B Joint Research Project, 1995.

18. Ahmed SM, Mohsin M, Bhuiya A, Chowdhury AMR, Rana AKMM. Baseline Survey Matlab, 1992: Final Report May 1994. Dhaka: BRAC, 1994.

19. Chowdhury M, Bhuiya A, Vaughan P, Adams A, Mahmud S. Effects of socioeconomic development on health status and human well-being: determining impact and exploring pathways of change. Working Paper No.6. Dhaka: BRAC-ICDDR,B Joint Research Project, 1995.

20. Ahmed SM, Chowdhury M, Bhuiya A, Khan MI. Socioeconomic development and human well-being: BRAC-ICDDR,B Joint Research Project, Matlab (Phase II). Report of the first round survey: health. Dhaka: BRAC Research and Evaluation Division, 1996.

21. Bangladesh Buraeu of Statistics. Bangladesh health and demographic survey: Statistics on morbidity, health, social and household srroundings 1995. Dhaka: Statistics Division, Ministry of Planning, April 1996.

22. Husain S, Hasan GM, Mahmud S, Chowdhury M, Bhuiya A, Khan MI. Socioeconomic development and human well-being: BRAC-ICDDR,B Joint Research Project, Matlab (Phase II). Report of the first round survey: household economy. Dhaka: BRAC Research and Evaluation Division, 1996.

23. Khan MR. Sickness, diseases, treatments and medical costs by socioeconomic variables in Bangladesh. Research Monograph No. 15. Dhaka: Bangladesh Institute of Development Studies; 1994.

24. Zaman H. Poverty and BRAC's micro-credit programme: exploring some linkages. Working Paper No.18. Dhaka: BRAC-ICDDR,B Joint Research Project; 1997

25. Haider R. A perspective in development: gender focus. Dhaka: University Press Limited, 1995. pp 93-113.

*Tables*

**Table 1. Percent of study population reported to have had illness during last 15 days by sex and BRAC membership status of the household, Matlab 1995**

| Variables | BRAC member HHs | % Individuals from | | All HHs | $X^2$ | |
| | | Non-member HHs | | | (2) vs (3) | (2) vs (4) |
| | | BRAC eligible | BRAC non-eligible | | | |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) |
| Male | 12.5 | 20.4 | 12.0 | 15.4 | p<.001 | NS |
| N | 1513 | 3650 | 3830 | 8993 | | |
| | | | | | | |
| Female | 13.3 | 20.3 | 14.1 | 16.6 | P<.001 | NS |
| N | 1634 | 3845 | 4002 | 9481 | | |

**Table 2a. Percent of study population reported to have had illness during last 15 days by BRAC membership status of HHs and age, Matlab 1995 (%)**

| | Age (yrs) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | ≤15 | | 16-30 | | 31-45 | | 46-60 | | >60 | |
| | BRAC member HHs | BRAC eligible non-member HHs | BRAC member HHs | BRAC eligible non-member HHs | BRAC member HHs | BRAC eligible non-member HHs | BRAC member HHs | BRAC eligible non-member HHs | BRAC member HHs | BRAC eligible non-member HHs |
| % | 13.9 | 22.2 | 8.9 | 13.8 | 11.6 | 20.8 | 17.3 | 23.5 | 17.6 | 25.1 |
| N | 1439 | 3363 | 665 | 1674 | 584 | 1296 | 306 | 763 | 153 | 399 |
| Significance ($X^2$) | $p<.001$ | | $p<.01$ | | $p<.001$ | | $p<.05$ | | ns | |


**Table 2b. Percent of study population reported to have had illness during last 15 days by BRAC membership status of HHs and sex, Matlab 1995 (%)**

| | Male | | Female | |
|---|---|---|---|---|
| | BRAC member HHs | BRAC eligible non-member HHs | BRAC member HHs | BRAC eligible non-member HHs |
| % | 12.5 | 20.4 | 13.3 | 20.3 |
| N | 1513 | 3650 | 1634 | 3845 |
| Significance | $p<.001$ | | $p<.001$ | |

**Table 3a. Percent of study population reported to have had illness during last 15 days by BRAC membership status of HHs, HHH's literacy status and sex, Matlab 1995 (%)**

| Literacy of HHH> | Male | | | | Female | | | |
|---|---|---|---|---|---|---|---|---|
| | Illiterate | | Literate | | Illiterate | | Literate | |
| | BRAC member HHs | BRAC eligible non-member HHs | BRAC member HHs | BRAC eligible non-member HHs | BRAC member HHs | BRAC eligible non-member HHs | BRAC member HHs | BRAC eligible non-member HHs |
| % | 12.6 | 20.2 | 11.2 | 21.1 | 13.4 | 19.5 | 13.4 | 22.5 |
| N | 944 | 2581 | 565 | 1057 | 984 | 2757 | 644 | 1072 |
| Significance ($X^2$) | p<.001 | | p<.001 | | p<.001 | | p<.001 | |

**Table 3b. Percent of study population reported to have had illness during last 15 days by BRAC membership status of the household, HHH's occupation and sex, Matlab 1995 (%)**

| Labour selling status of the HH> | Male | | | | Female | | | |
|---|---|---|---|---|---|---|---|---|
| | Labour-selling HH | | Non-labour selling HH | | Labour-selling HH | | Non-labour selling HH | |
| | BRAC member HHs | BRAC eligible non-member HHs | BRAC member HHs | BRAC eligible non-member HHs | BRAC member HHs | BRAC eligible non-member HHs | BRAC member HHs | BRAC eligible non-member HHs |
| % | 11.4 | 21.7 | 12.9 | 19.8 | 13.8 | 19.0 | 13.2 | 20.9 |
| N | 413 | 1218 | 1100 | 2429 | 420 | 1200 | 1214 | 2643 |
| Significance ($X^2$) | p<.001 | | p<.001 | | p<.001 | | p<.001 | |

**Table 4a. Percent of study population reported to have had illness during last 15 days by BRAC membership status of the household, residence in embankment and sex, Matlab 1995 (%)**

| | Male | | | | Female | | | |
|---|---|---|---|---|---|---|---|---|
| | Inside embankment | | Outside embankment | | Inside embankment | | Outside embankment | |
| | BRAC member HHs | BRAC eligible non-member HHs | BRAC member HHs | BRAC eligible non-member HHs | BRAC member HHs | BRAC eligible non-member HHs | BRAC member HHs | BRAC eligible non-member HHs |
| % | 13.6 | 19.2 | 11.7 | 21.7 | 13.8 | 16.3 | 13.0 | 24.2 |
| N | 633 | 1849 | 880 | 1801 | 652 | 1884 | 982 | 1961 |
| Significance ($X^2$) | p<.01 | | p<.001 | | ns | | p<.001 | |

**Table 4b. Percent of study population reported to have had illness during last 15 days by BRAC membership status of the household, presence of ICDDR,B's MCH-FP programme and sex, Matlab 1995 (%)**

| | Male | | | | Female | | | |
|---|---|---|---|---|---|---|---|---|
| | MCH-FP | | Non-MCH-FP | | MCH-FP | | Non-MCH-FP | |
| | BRAC member HHs | BRAC eligible non-member HHs | BRAC member HHs | BRAC eligible non-member HHs | BRAC member HHs | BRAC eligible non-member HHs | BRAC member HHs | BRAC eligible non-member HHs |
| % | 13.1 | 23.2 | 11.9 | 17.8 | 12.8 | 24.6 | 13.9 | 16.2 |
| N | 781 | 1763 | 732 | 1887 | 823 | 1907 | 811 | 1938 |
| Significance ($X^2$) | p<.001 | | p<.001 | | p<.001 | | ns | |

**Table 5. Types of illness among study population during last 15 days by BRAC membership status of the household, Matlab 1995 (%)**

| | | % Individuals from | | | $X^2$ | |
| Variables | BRAC member HHs | Non-member HHs | | All HHs | | |
| | | BRAC eligible | BRAC non-eligible | | (2) vs (3) | (2) vs (4) |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|---|---|---|---|---|---|---|
| **Types of illness*** | | | | | | |
| Fever | 45.2 | 45.5 | 39.9 | 43.5 | | |
| Gastrointestinal diseases | 20.9 | 20.7 | 21.5 | 21.0 | | |
| Pain/aches | 14.3 | 11.5 | 12.9 | 12.3 | **NS** | **NS** |
| Respiratory diseases | 5.4 | 5.7 | 5.9 | 5.7 | | |
| Skin/Eye/ENT diseases | 3.7 | 4.1 | 2.5 | 3.5 | | |
| Others | 10.6 | 12.6 | 17.4 | 14.0 | | |
| **N** | **407** | **1527** | **1025** | **2958** | | |

*categories of illness were deduced from lay reporting of symptoms using a comprehensive coding system and cross-checked by physician (First author).

**Table 6a. Healthcare seeking behaviour (for persons reported to have had illness during last 15 days) by BRAC membership status of households and age, Matlab 1995 (%)**

| | Age (yrs) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | ≤15 | | 16-30 | | 31-45 | | 46-60 | | >60 | |
| | BRAC member HHs | BRAC eligible non-member HHs | BRAC member HHs | BRAC eligible non-member HHs | BRAC member HHs | BRAC eligible non-member HHs | BRAC member HHs | BRAC eligible non-member HHs | BRAC member HHs | BRAC eligible non-member HHs |
| **Healthcare sought** | | | | | | | | | | |
| *None (no treatment)* | 25.0 | 20.9 | 17.2 | 15.6 | 19.1 | 17.3 | 22.6 | 21.3 | 18.5 | 20.2 |
| *Home remedies/traditional** | 25.0 | 22.5 | 17.2 | 11.7 | 16.2 | 7.9 | 11.3 | 7.9 | 18.5 | 7.1 |
| *Unqualified allopaths* | 16.0 | 13.0 | 27.6 | 22.5 | 30.9 | 15.0 | 47.2 | 18.0 | 25.9 | 26.3 |
| *Para-professionals*** | 24.0 | 38.7 | 20.7 | 44.2 | 19.1 | 48.5 | 7.5 | 43.3 | 25.9 | 40.4 |
| *Qualified allopaths* | 10.0 | 4.8 | 17.2 | 6.1 | 14.7 | 11.3 | 11.3 | 9.6 | 11.1 | 6.1 |
| **N** | **200** | **746** | **58** | **231** | **68** | **266** | **53** | **178** | **27** | **99** |
| **Significance ($X^2$)** | **p<.01** | | **p<.01** | | **p<.001** | | **p<.001** | | **ns** | |

**Table 6b. Healthcare seeking behaviour (for persons reported to have had illness during last 15 days) by BRAC membership status of households and sex, Matlab 1995 (%)**

| | Male | | Female | |
|---|---|---|---|---|
| | BRAC member HHs | BRAC eligible non-member HHs | BRAC member HHs | BRAC eligible non-member HHs |
| **Healthcare sought** | | | | |
| *None (no treatment)* | 18.5 | 15.3 | 25.3 | 23.4 |
| *Home remedies/traditional** | 21.7 | 17.2 | 18.9 | 14.0 |
| *Unqualified allopaths* | 24.9 | 17.5 | 24.9 | 15.1 |
| *Para-professionals*** | 23.8 | 41.2 | 18.0 | 42.6 |
| *Qualified allopaths* | 11.1 | 8.7 | 12.9 | 4.9 |
| **N** | **189** | **743** | **217** | **777** |
| **Significance** | **p<.001** | | **p<.001** | |

*Ayurvedic, Unani, herbalists, faith-healers etc. including homeopaths **Palli Chikitsok (trained village doctors), Medical Assistants, community health workers of ICDDR,B, BRAC and others who have some formal training in allopathic medicine.*

**Table 7a. Healthcare seeking behaviour (for persons reported to have had illness during last 15 days) by BRAC membership status of households, literacy of household head, Matlab 1995 (%)**

| | Literacy of Household Head | | | |
| | Illiterate | | Literate | |
| | BRAC member HHs | BRAC eligible non-member HHs | BRAC member HHs | BRAC eligible non-member HHs |
|---|---|---|---|---|
| **Healthcare sought** | | | | |
| *None (no treatment)* | 24.7 | 20.7 | 17.5 | 16.8 |
| *Home remedies/traditional** | 21.1 | 14.6 | 18.8 | 17.7 |
| *Unqualified allopaths* | 22.7 | 15.7 | 28.6 | 17.1 |
| *Para-professionals*** | 19.9 | 43.3 | 22.1 | 39.1 |
| *Qualified allopaths* | 11.6 | 5.7 | 13.0 | 9.3 |
| **N** | **251** | **1054** | **154** | **463** |
| **Significance (X²)** | **p<.001** | | **p<.001** | |

*Ayurvedic, Unani, herbalists, faith-healers etc. including homeopaths **Palli Chikitsok (trained village doctors), Medical Assistants, community health workers of ICDDR,B, BRAC and others who have some formal training in allopathic medicine.*

**Table 7b. Healthcare seeking behaviour (for persons reported to have had illness during last 15 days) by BRAC membership status of households and occupation of household head, Matlab 1995 (%)**

| | Labour selling status of the HH | | | |
| | Labour-selling HH | | Non-labour selling HH | |
| | BRAC member HHs | BRAC eligible non-member HHs | BRAC member HHs | BRAC eligible non-member HHs |
|---|---|---|---|---|
| **Healthcare sought** | | | | |
| *None (no treatment)* | 31.4 | 18.7 | 18.9 | 19.8 |
| *Home remedies/traditional** | 12.4 | 15.3 | 22.9 | 15.7 |
| *Unqualified allopaths* | 30.5 | 15.5 | 22.9 | 16.6 |
| *Para-professionals*** | 15.2 | 44.8 | 22.6 | 40.6 |
| *Qualified allopaths* | 10.5 | 5.7 | 12.6 | 7.3 |
| **N** | **105** | **491** | **301** | **1028** |
| **Significance (X²)** | **p<.001** | | **p<.001** | |

*Ayurvedic, Unani, herbalists, faith-healers etc. including homeopaths **Palli Chikitsok (trained village doctors), Medical Assistants, community health workers of ICDDR,B, BRAC and others who have some formal training in allopathic medicine.*

**Table 8a. Healthcare seeking behaviour (for persons reported to have had illness during last 15 days) by BRAC membership status and location of households, Matlab 1995 (%)**

| | Location of the Households | | | |
| --- | --- | --- | --- | --- |
| | Inside embankment | | Outside embankment | |
| | BRAC member HHs | BRAC eligible non-member HHs | BRAC member HHs | BRAC eligible non-member HHs |
| **Healthcare sought** | | | | |
| *None (no treatment)* | 18.2 | 23.7 | 25.2 | 16.3 |
| *Home remedies/traditional** | 19.3 | 16.1 | 20.9 | 15.2 |
| *Unqualified allopaths* | 20.5 | 10.0 | 28.3 | 21.0 |
| *Para-professionals*** | 27.8 | 42.3 | 15.2 | 41.6 |
| *Qualified allopaths* | 14.2 | 7.9 | 10.4 | 5.9 |
| **N** | **176** | **659** | **230** | **861** |
| **Significance ($X^2$)** | **p<.001** | | **p<.05** | |

*Ayurvedic, Unani, herbalists, faith-healers etc. including homeopaths **Palli Chikitsok (trained village doctors), Medical Assistants, community health workers of ICDDR,B, BRAC and others who have some formal training in allopathic medicine.*

**Table 8b. Healthcare seeking behaviour (for persons reported to have had illness during last 15 days) by BRAC membership status of households and presence of ICDDR,B's MCH-FP programme, Matlab 1995 (%)**

| | Programme area | | | |
| --- | --- | --- | --- | --- |
| | MCH-FP | | Non-MCH-FP | |
| | BRAC member HHs | BRAC eligible non-member HHs | BRAC member HHs | BRAC eligible non-member HHs |
| **Healthcare sought** | | | | |
| *None (no treatment)* | 16.5 | 15.1 | 28.0 | 25.5 |
| *Home remedies/traditional** | 20.4 | 16.3 | 20.0 | 14.6 |
| *Unqualified allopaths* | 25.2 | 20.6 | 24.5 | 10.3 |
| *Para-professionals*** | 25.7 | 40.9 | 15.5 | 43.2 |
| *Qualified allopaths* | 12.1 | 7.1 | 12.0 | 6.4 |
| **N** | **206** | **877** | **200** | **643** |
| **Significance ($X^2$)** | **p<.05** | | **p<.05** | |

*Ayurvedic,Unani, herbalists, faith-healers etc. including homeopaths **Palli Chikitsok (trained village doctors), Medical Assistants, community health workers of ICDDR,B, BRAC and others who have some formal training in allopathic medicine.*

**Table 9. Logistic estimates and odds ratios of seeking different types of healthcare (for persons reported to have had illness during last 15 days) in BRAC-eligible households, Matlab1995.**

| | Types of healthcare | | | | | |
| | Any type | | Para-professionals | | Qualified allopaths | |
| | Estimate | Odds ratio | Estimate | Odds ratio | Estimate | Odds ratio |
|---|---|---|---|---|---|---|
| *Age (years)* | | | | | | |
| ≤15 | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 |
| 16-30 | 0.52 | 1.69** | 0.22 | 1.23 | 0.41 | 1.51 |
| 31.45 | 0.36 | 1.43* | 0.37 | 1.45* | 0.75 | 2.11** |
| 46-60 | 0.15 | 1.17 | 0.10 | 1.10 | 0.43 | 1.53 |
| 60+ | 0.23 | 1.26 | 0.21 | 1.24 | -0.03 | 0.96 |
| | | | | | | |
| *Sex* | | | | | | |
| Female | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 |
| Male | 0.54 | 1.73*** | -0.01 | 0.98 | 0.49 | 1.64* |
| | | | | | | |
| *Sex of household head* | | | | | | |
| Female | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 |
| Male | -0.11 | 0.89 | -0.07 | 0.93 | 0.24 | 1.27 |
| | | | | | | |
| *Household Size* | 0.06 | 1.06 | 0.05 | 1.05 | -0.05 | 0.95 |
| | | | | | | |
| *Household Head's education* | | | | | | |
| Illiterate | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 |
| Literate | 0.26 | 1.30* | -0.13 | 0.88 | 0.40 | 1.48* |
| | | | | | | |
| *Labour-selling status of HH* | | | | | | |
| Non labour-selling HH | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 |
| Labour-selling HH | -0.07 | 0.92 | 0.06 | 1.06 | -0.29 | 0.75 |
| | | | | | | |
| *BRAC membership status of HH* | | | | | | |
| BRAC-eligible non-member | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 |
| BRAC member | -0.14 | 0.87 | -1.06 | 0.35*** | 0.65 | 1.92*** |
| | | | | | | |
| *Location of the HH* | | | | | | |
| Inside embankment | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 |
| Outside embankment | -0.05 | 0.95 | -0.21 | 0.80 | -0.48 | 0.62* |
| | | | | | | |
| *Presence of MCH-FP programme in the village* | | | | | | |
| No | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 |
| Yes | 0.70 | 2.00*** | 0.13 | 1.14 | 0.28 | 1.33 |
| | | | | | | |
| *Categories of illness* | | | | | | |
| Fever | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 1.00 |
| Gastrointestinal diseases | 0.17 | 1.18 | -0.63 | 0.53*** | 0.68 | 1.97** |
| Pain/aches | -0.37 | 0.69 | -0.47 | 0.62** | 0.84 | 2.31** |
| Respiratory diseases | -0.26 | 0.77 | -0.53 | 0.59* | 0.57 | 1.77 |
| Skin/Eye/ENT | -0.99 | 0.37*** | -1.02 | 0.34*** | 1.20 | 3.33** |
| Others | -0.38 | 0.68* | -0.88 | 0.41*** | 1.02 | 2.79*** |
| **-2log likelihood** | 1833.07 | | 2418.32 | | 995.103 | |
| **Model improvement** | 95.70*** | | 132.48*** | | 69.18*** | |

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

**Table 10. Seasonal changes in study population reported to have had illness during last 15 days by sex and BRAC membership status of the household, Matlab 1995 (%)**

| | 2nd Round | | | | 3rd Round | | | |
|---|---|---|---|---|---|---|---|---|
| | BRAC member HHs | BRAC-eligible non-member HHs | BRAC non-eligible HHs | All HHs | BRAC member HHs | BRAC-eligible non-member HHs | BRAC non-eligible HHs | All HHs |
| Male | 13.6 | 13.0 | 11.4 | 12.4 | 9.0 | 7.3 | 6.2 | 7.2 |
| **N** | **1567** | **3364** | **3637** | **8568** | **1538** | **3207** | **3528** | **8273** |
| Female | 15.6 | 13.6 | 14.0 | 14.1 | 8.5 | 8.6 | 8.2 | 8.4 |
| **N** | **1689** | **3585** | **3827** | **9101** | **1633** | **3379** | **3724** | **8736** |

*Note: the 2nd round data were collected during Aug.-Dec. '95 (post-monsoon) and the 3rd round data were collected during Dec. -Apr. '95 (dry) from the panel surveyed in the 1st round by the same group of interviewers.*

**Table 11. Seasonal changes in healthcare seeking behaviour (for persons reported to have had illness during last 15 days) among the study population by sex and BRAC membership status of the household, Matlab 1995 (%)**

| | 2nd Round | | | | 3rd Round | | | |
|---|---|---|---|---|---|---|---|---|
| | BRAC member HHs | | BRAC-eligible non-member HHs | | BRAC member HHs | | BRAC-eligible non-member HHs | |
| | M | F | M | F | M | F | M | F |
| **Healthcare sought** | | | | | | | | |
| *None (no treatment)* | 14.2 | 21.7 | 16.3 | 24.8 | 25.5 | 31.7 | 22.4 | 32.8 |
| *Home remedies/traditional** | 13.3 | 14.7 | 11.7 | 11.6 | 10.3 | 11.5 | 14.5 | 10.8 |
| *Unqualified allopaths* | 23.2 | 27.1 | 20.5 | 15.7 | 26.9 | 23.0 | 23.2 | 18.2 |
| *Para-professionals* | 34.6 | 23.6 | 42.3 | 41.8 | 21.4 | 21.6 | 33.2 | 31.1 |
| *Qualified allopaths* | 14.7 | 12.8 | 9.2 | 6.0 | 15.9 | 12.2 | 6.6 | 7.1 |
| **N** | **211** | **258** | **435** | **483** | **145** | **139** | **241** | **296** |

*Note: the 2nd round data were collected during Aug.-Dec. '95 (post-monsoon) and the 3rd round data were collected during Dec. -Apr. '95 (dry) from the panel surveyed in the 1st round by the same group of interviewers*

Household sanitation and hygiene practices of BRAC member and
non-member households: evidence from Matlab, Bangladesh

Table of contents

## Executive Summary

***Background*** Provision of potable water and sanitation facilities for the vast majority of the poverty-stricken people of developing countries remains a formidable challenge for sustainable development. To accomplish this task, policy makers agree that water and sanitation should be a task of the people with government participation rather than being a task of the government with people's participation. The health benefits resulting from improved sanitation and water supplies will be limited if behaviour modification does not occur simultaneously. NGOs can play a significant role in this field. BRAC's EHC integrates preventive health inputs with RDP's mainstream activities in a comprehensive package. We tried to see how these activities translate into desirable health behaviour among beneficiary households by comparing them with households of a similar socioeconomic status but not receiving these inputs.

***Methods*** The data used is a sub-set of a panel data collected by BRAC-ICDDR,B Joint Research Project for studying the pathways through which socioeconomic development impacts on the lives of the poor in rural Bangladesh. A pre-tested structured questionnaire was administered to a knowledgeable adult female member of the household, usually the wife of the household head available at the time of survey.

***Results*** Of the 2061 successfully surveyed households, 604 were BRAC-member households and 1,658 were BRAC-eligible non-member households. The average size of the households was around five, the BRAC member households being a bit larger than the eligible non-member households. Literate persons were more likely to be head of a BRAC household. Fewer BRAC member households were labeled as labour selling.

From the findings of this study, there is an apparent trend towards hygienic household sanitation practices among the BRAC member households. Some of these differences in sanitary excreta disposal persisted when literacy or labour-selling status of the households is controlled for. To break the transmission chain of faecally-transmitted diseases, in addition to sanitary excreta disposal, good standards of personal hygiene like hand washing before eating is essential. In this study, BRAC-member households used tube-well water for hand-washing more frequently than those from the non-members, though not uniformly. These favourable health practices may be due to the fact that these are the targeted households and are the principal beneficiaries of credit related and preventive health inputs from BRAC. Almost all the households used tube-well water for drinking, but the use of this water for other domestic purposes was limited. Performing domestic work with pond water is more convenient to them than using tube-well water for cultural reasons.

***Conclusion*** *In* conclusion, it can be said that BRAC-member households have started to reap some benefits from the preventive health inputs of RDP-EHC, though a long road still lies ahead. More efforts from programme are needed to sustainable changes in hygiene behaviours of the beneficiary households.

*Introduction*

Three factors are needed to ensure a minimum level of health in a community. First, an accessible and safe water supply; second, appropriate and sanitary method of excreta disposal; and third, hygiene education. Provision of potable water and sanitation facilities for the vast majority of the poverty-stricken people of developing countries remains a formidable challenge for sustainable development. At the end of the International Drinking Water Supply and Sanitation Decade (1981-'90), 390 million people were still without safe water and close to 1000 million people had no proper excreta disposal facilities in WHO's south-east Asia region (1). At any given time ... one-half of all peoples in the developing world are suffering from one or more of the six main diseases associated with water supply and sanitation (diarrhoea, ascariasis, dracunculiasis, hookworm, schistosomiasis and trachoma). In Bangladesh, more than 75% of all illnesses are ascribed to the lack of safe drinking water and adequate sanitation facilities (2).

To attain coverage goals by the year 2000, water supplies will have to be increased twofold over the level 1990 and sanitation by about fivefold. To accomplish this huge task, policy makers agree that water and sanitation should be a task of the people with government participation rather than being a task of the government with people's participation. During the Water and Sanitation Decade, a partnership between the non-governmental Organizations and the Government of Bangladesh in the form of NGO forum, supplemented Government activities to provide water and sanitary facilities for communities through a 2-year rural Water Supply and Sanitation (WSS) project. An evaluation of the project showed that WSS achieved 100% of its targeted activities in terms of: tube-well installations, establishment of 40 sanitation centres by NGOs which constructed and sold 8838 latrines; and training and dissemination activities (3). During this time access to safe water increased in rural areas from 37% to 96% though only 16% of the population used tube-well water for all domestic purposes (4). Efforts to improve the scenario continued in the following years. In a recent publication, Bangladesh Bureau of Statistics (BBS) reports that in rural areas, 95% of households use safe water (tube-well+tap) for drinking and 59% for domestic work; 44% of the households have slab or pit latrines (5).

The health benefits resulting from improved sanitation and water supplies will be limited if behaviour modification does not occur simultaneously. In a study done in low land rural Bangladesh to improve hygiene practices and reduce diarrhoea morbidity, a community based intervention was implemented with the assistance of village leaders through a "Clean Life" campaign. The project workers were assisted by volunteer mothers who were chosen from the target households. Following intervention, it was found that the intervention site had substantially higher level of cleanliness, lower diarrhoea morbidity, and better growth status of children with differences increasing over time. The authors concluded that this type of community-based intervention could be very beneficial in modifying hygiene behaviours and lowering diarrhoea and malnutrition (7).

Since 1991, BRAC, an indigenous NGO of Bangladesh, has been promoting the use of safe water, sanitation and hygiene practices since 1991 among the poor. This paper attempts to explore the effect of the BRAC intervention on water, sanitation and domestic hygiene practices by comparing the beneficiary households with households of a similar socioeconomic condition but not involved in BRAC programmes. The data used is a sub-set of a panel data collected in 1995 for studying the pathways through which socioeconomic development impacts on the lives of the poor in rural Bangladesh.

1

*Materials and methods*

*The BRAC-ICDDR,B Joint Research Project*

Founded in 1972, BRAC is a large indigenous non-governmental Organization involved in rural poverty alleviation (8). BRAC's Rural Development Programme (RDP) targets the poorest of the poor with special emphasis on improving the health and socioeconomic conditions of women and children. Essential Healthcare (EHC) under RDP provides a selective mix of basic health interventions described as an "essential package of health services." These include provisions of: temporary family planning methods; basic curative services for some common diseases; tube-wells and latrines for safe water and sanitation; health and nutrition education; and mobilisation for immunisation. These services are delivered mainly to the BRAC member households by Shasthya Sebikas (SS), or the community health workers, through household visits at regular intervals (9).

In 1992, BRAC extended RDP activities including micro-credit and non-formal education to 100 villages of Matlab thana where the International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B) has been operating a Demographic Surveillance System (DSS) since the early 1960s. A research collaboration between BRAC and ICDDR,B was established to examine the pathways through which socioeconomic development effects health and well-being of the rural poor in a systematic, statistically valid manner (10). In Phase I of the project, a baseline survey covering about 12,000 households and a series of exploratory and qualitative studies were done to elucidate the socioeconomic and environmental context within which the programme would operate (11). Informed by these studies, phase II studies were conducted in three seasonal rounds (collected April '95 to April '96) of panel data on sociodemographic, health, sanitation and household economy from a sub-sample of the 1992 baseline households (12).

*The Data*

Data on household sanitation and hygiene practices for this study were taken from the first seasonal round (April-Aug'95) of the panel data referred to above. Pre-tested structured questionnaire was administered to a knowledgeable adult female member of the household, usually wife of the household head, present at the time of survey. Information on children's stool disposal, place of defaecation, garbage disposal and source of water for domestic purposes and hand washing were collected. Households possessing less than 0.5 acre of land and selling manual labour for at least 100 days a year is considered eligible to be included in BRAC's rural development programme. These households rank among the poorest of the poor. Households that are not eligible for BRAC's RDP are comparatively better off socioeconomically, and include rural elite as well. For our analysis, we included BRAC-eligible households only.

Information on stool disposal or place of defaecation was collected for children of 1-5 years only. The interviewers recorded appearance of the courtyard as observed on entering the household. Data regarding source of water for hand-washing was collected with reference to cleaning hands before taking food only. Literacy is enumerated in terms of ability to read, write or sign. Those who could both read and write are taken as literate. Occupation of the household head is defined as the activity in which the individual spends major part of her/his time in a working day. Accordingly, households are categorized either as a labour-selling or a non labour-selling depending upon whether the household head is engaged in wage-labour or not.

A medium scale embankment on the banks of the river Meghna and Dhonagoda was constructed between 1982 and 1989 for flood control, drainage and irrigation. Study villages under DSS area fall both within and outside the embankment and accordingly, proportionate households from both side of the embankment were sampled.

*Analysis plan*

Bivariate analysis is done to study the household sanitation and hygiene practices between BRAC member and non-member households controlling for literacy and occupation of household head, household size, location of the household, presence of MCH-FP programme of ICDDR,B and length and depth of BRAC membership. The statistical software package SPSS PC for Windows is used for analysis.

*Results*

*a) Socioeconomic characteristics of the study households*

Out of a total of 2262 BRAC-eligible households, 2061 were surveyed successfully. Of the households surveyed, 604 were BRAC-member households and 1,658 were BRAC-eligible non-member households. The average size of the households was around five, the BRAC member households being a bit larger than the eligible non-member households. The BRAC member households possessed greater amount of land and non-land assets compared to their counterparts. Also, literate persons headed a greater proportion of these households. On the other hand, the proportion of female-headed households was more among the eligible non-member households. Labour-selling households were proportionately less among BRAC member households (Table 1).

*b) Household sanitation and personal hygiene practices*

Regarding household sanitation/ hygiene practices by BRAC membership, literacy and occupation of household head and household size---only the safe disposal of children's excreta and the appearance of the courtyard were significantly linked to each of these variables. The BRAC-member households were found to be performing better in terms of household sanitation such as children's stool disposal or maintaining cleanliness of the court yard and hygiene practices like washing hands before taking food. In Tables 3-7, these effects have been examined in more detail when confounding factors are controlled.

Table 3 presents the sanitation and hygiene practices of the study households controlling for the literacy of the household head. Irrespective of literacy, BRAC-member households were found to be significantly better in using fixed places for children's stool disposal, thus maintaining cleanliness of the courtyard. The beneficial effect of literacy is evident from the increased use of a fixed place or sanitary latrine for children's stool disposal, BRAC-member households with literate heads did better compared to illiterates (47.5% Vs 37.3%). This literacy had no effect on disposal of garbage or domestic hygiene practices like hand washing before taking food or use of water for purposes other than drinking. Though not statistically significant, the BRAC-eligible non-member households were found to use tube-well water in greater proportion for domestic purposes. Significant differences between member and eligible non-member households was observed in the sanitary disposal of children's' stool, appearance of the courtyard, and water used for hand washing before taking food whether or not the household is a labour-selling one (Table 4).

Household size was not found to be an important determinant of use of fixed place or sanitary latrine for children's stool disposal by the BRAC-member households (Table 5). The same was also true for the appearance of the courtyard. However, BRAC-member households did better than their eligible non-member counterparts in these respects. On the one hand, large household size did not hinder the eligible non-member households in increasingly using tube-well water for hand-washing or washing utensils. The presence of MCH-FP programme of ICDDR,B, had little influence over and above the

better performance of BRAC-member households with respect to children's stool disposal; the influence was pronounced in case of the appearance of the courtyard (Table 6).

Significant differences existed between BRAC-member and eligible non-member households inside the embankment with regard to the use of fixed places for children's stool disposal or sanitary latrines, disposal of garbage, appearance of the courtyard and water used for hand washing purposes (Table 7). In all these matters, BRAC-member households fared better than the others except for disposal of garbage. Outside the embankment, differences were observed only in the case of appearance of the courtyard between these two types of households. When controlling for the length and depth of BRAC membership status of the households, no differences were observed with the exception of 'appearance of the courtyard' in case of length of BRAC membership and 'water for washing utensils' in case of depth of BRAC membership (Tables 8 & 9).

*Discussion*

This is part of a larger study done at Matlab to explore the pathways through which socioeconomic development effects health and well-being of the rural poor. We have included only BRAC-eligible households in our analysis, as we wanted to compare the BRAC beneficiary households with households of similar socioeconomic condition, thereby excluding BRAC non-eligible households. BRAC's EHC integrates preventive health inputs with RDP's mainstream activities in a comprehensive package. We tried to see how these activities translate into desirable health behaviour among beneficiary households by comparing them with economically similar households not receiving these inputs.

From the findings of this study, BRAC households apparently have begun moving towards hygienic household sanitation practices like disposal of children's excreta or kitchen garbage. In addition to sanitary excreta disposal, a strategy to break the transmission chain of faecally-transmitted diseases would include an improved standard of personal hygiene like hand washing before eating; In this study, greater use of tube-well water for hand-washing by BRAC-member households is seen. These differences are more pronounced for households inside embankment. BRAC households' favourable health practices may be due to the fact that these targeted households are the principal beneficiaries of credit and preventive health inputs.

For diarrhoea and other conditions related to water borne diseases to be reduced, water that is ingested must be clean from the tap, be properly collected and stored within the house, drunk from clean containers. Almost all the households used tube-well water for drinking, but the storage facilities were not always hygienic. Use of this water for other domestic purposes such as washing cooking utensils or bathing was quite limited. This may be due to several factors. Culturally, the rural people in Bangladesh are used to bath or wash in ponds, canals or river-bank and feel more comfortable because the high mineral content (especially of iron) of the water makes their hair sticky and stains clothes. Performing domestic work with pond water is more convenient to them than using tube-well water. Moreover, discrimination from the tube-well owners and distance to the tube-well site is other important factors which may hinder the use of tube-well water for all purposes (13).

In conclusion, it can be said that BRAC-member households have started to reap some benefits from preventive health inputs of RDP-EHC, though a long road still lies ahead. More efforts from programme are needed to sustainable changes in hygiene behaviours of the beneficiary households.

**References**

1.  Water and Sanitation. Regional Health Forum 1996;1(2):21-2.

2.  Ali A. Water, sanitation and health: role of NGOs. In Touch 1992;11(108):1-2.

3.  Hoque BA, Hoque MM. Partnership in rural water supply and sanitation: a case study from Bangladesh. Health Policy and Planning 1994;9(3):288-93.

4.  Local Government Division/UNDP/UNICEF. Bangladesh situation analysis: Water supply and sanitation sector. Dhaka: Local Government Division GoB;1994.

5.  Bangladesh Bureau of Statistics (BBS). "Progotir Pathey": Achieving the mid decade goals for children in Bangladesh. Dhaka: BBS, Ministry of Planning, GoB; January 1996.

6.  WHO. Improving water and sanitation hygiene behaviours for the reduction of diarrhoeal diseases: the report of an informal consultation (Unpublished document). WHO/CWS/90.7 /WHO/CDD/93.5. Geneva: Division of Child Health and Development, WHO;1993.

7.  Ahmed NU, Zeitlin MF, Beiser AS, Super CM, Gershoff SN. A longitudinal study of the impact of behavioural change intervention on cleanliness, diarrhoeal morbidity and growth of children in rural Bangladesh. Social Science and Medicine 1993;37(2):159-71.

8.  Smillie I. Words and Deeds: BRAC at 25. Dhaka: BRAC;1997.

9.  BRAC. Rural Development Programme (RDP): Phase III Report (1993-1995). Dhaka: BRAC;1996

10. Bhuiya A, Chowdhury M. The impact of social and economic development programme on health and well-being: a BRAC-ICDDR,B collaborative project in Matlab. Working Paper No.1. Dhaka: BRAC-ICDDR,B Joint Research Project; 1995.

11. Ahmed SM, Mohsin M, Bhuiya A., Chowdhury AMR, Rana AKMM. Baseline Survey Matlab, 1992: Final Report May 1994. Dhaka: BRAC;1994.

12. Chowdhury M, Bhuiya A, Vaughan P, Adams A, Mahmud S. Effects of socioeconomic development on health status and human well-being: determining impact and exploring pathways of change. Working Paper No.6. Dhaka: BRAC-ICDDR,B Joint Research Project;1995.

13. Hoque EH. Women in the context of sanitation, water supply and hygiene: a village based study. In Touch 1996;14(149):9.

**Tables**

**Table 1. Socioeconomic characteristics of the study households by BRAC membership status of household, Matlab 1995**

| (1) | BRAC member HHs (n=584) | BRAC-eligible non-member HHs (n=1477) | All HHs (N=2061) | 't' test |
|---|---|---|---|---|
| | (2) | (3) | (4) | (2) vs (3) |
| **Mean household size** | 5.3 | 4.7 | 4.8 | p<.001 |
| **Mean total land owned by household (decimal)** | 34.0 | 18.0 | 65.0 | p<.001 |
| **Mean total value of non-land assets of household (taka)** | 20,184 | 15,911 | 38,248 | p<.001 |
| | | | | $x^2$ |
| **Sex of Household head** | | | | p<.001 |
| Male% | 86.1 | 79.8 | 81.5 | |
| Female% | 13.9 | 20.2 | 18.5 | |
| **Households Head's literacy** | | | | |
| Illiterate% | 62.1 | 72.9 | 70.0 | p<.001 |
| Literate% | 37.9 | 27.1 | 30.0 | |
| **Labour selling status of household** | | | | |
| Labour-selling (farm and non-farm)% | 26.4 | 32.1 | 30.5 | p<.05 |
| Non labour-selling% | 73.6 | 67.9 | 69.5 | |

6

**Table 2. Household sanitation and hygiene practices of the study households by BRAC membership status, Matlab 1995 (%)**

| | BRAC membership status of households (HHs) | | |
|---|---|---|---|
| | BRAC member HHs | BRAC-eligible non-member HHs | All HHs |
| **Sttol disposal/place of defaecation of children (1-5yrs)** | | | |
| Surface water | 58.6 | 75.1 | 70.5 |
| Fixed place/sanitary latrine | 41.4 | 24.9 | 29.5 |
| **N** | | | |
| **Significance ($x^2$)** | | P<.001 | |
| **Appearance of courtyard** | | | |
| Dirty (children's stool, cowdung etc.) | 27.9 | 47.6 | 42.0 |
| Clean | 72.1 | 52.4 | 58.0 |
| **N** | **584** | **1477** | **2061** |
| **Significance ($x^2$)** | | P<.001 | |
| **Disposal of garbage\*** | | | |
| Anywhere outside courtyard | 41.3 | 39.5 | 40.1 |
| Fixed place | 58.7 | 60.5 | 59.9 |
| **N** | **276** | **534** | **810** |
| **Significance ($x^2$)** | | ns | |
| **Water for washing hands (before taking food)** | | | |
| Tube-Well | 88.9 | 92.8 | 91.7 |
| River/canal/pond | 11.1 | 7.2 | 8.3 |
| **Significance ($x^2$)** | | P<.01 | |
| **Water for washing utensils** | | | |
| Tube-well | 6.2 | 7.6 | 7.2 |
| River/canal/pond | 93.8 | 92.4 | 92.8 |
| **Significance ($x^2$)** | | ns | |
| **Water for bathing** | | | |
| Tube-well | 1.7 | 2.5 | 2.3 |
| River/canal/pond | 98.3 | 97.5 | 97.7 |
| Significance ($x^2$) | | ns | |
| **N** | **584** | **1477** | **2061** |

\*for households which where found to be clean

**Table 3. Household sanitation and hygiene practices by BRAC membership status of HHs and literacy status of household heald, Matlab 1995 (%)**

| | Literacy of HHH | | | |
| | Illiterate | | Literate | |
| | BRAC member HHs | BRAC eligible non-member HHs | BRAC member HHs | BRAC eligible non-member HHs |
|---|---|---|---|---|
| **Stool disposal/place of defecation of children (1-5yrs)** | | | | |
| Surface Water | 57.8 | 77.7 | 58.3 | 67.4 |
| Fixed place/sanitary latrine | 42.2 | 22.3 | 41.7 | 32.6 |
| **N** | **192** | **524** | **72** | **172** |
| **Significance ($X^2$)** | **p<.001** | | **ns** | |
| **Appearance of courtyard** | | | | |
| Dirty (children's stool, cowdung etc.) | 26.9 | 47.6 | 29.2 | 49.0 |
| Clean | 73.1 | 52.4 | 70.8 | 51.0 |
| **N** | **412** | **1111** | **144** | **296** |
| **Significance ($X^2$)** | **p<.001** | | **p<.001** | |
| **Disposal of garbage*** | | | | |
| Anywhere outside courtyard | 42.3 | 39.6 | 38.2 | 39.3 |
| Fixed place | 57.7 | 60.4 | 61.8 | 60.7 |
| **N** | **189** | **394** | **76** | **117** |
| **Significance ($X^2$)** | **ns** | | **ns** | |
| **Water for washing hands (before taking food)** | | | | |
| Tube-well | 87.9 | 92.6 | 91.0 | 94.0 |
| River/canal/pond | 12.1 | 7.4 | 9.0 | 6.0 |
| **Significance ($X^2$)** | **p<.05** | | **ns** | |
| **Water for washing utensils** | | | | |
| Tube-well | 7.2 | 10.2 | 4.7 | 6.6 |
| River/canal/pond | 92.8 | 89.8 | 95.3 | 93.4 |
| **Significance ($X^2$)** | **ns** | | **ns** | |
| **Water for bathing** | | | | |
| Tube-well | 1.2 | 2.2 | 2.4 | 3.2 |
| River/canal/pond | 98.8 | 97.8 | 97.6 | 96.8 |
| **Significance ($X^2$)** | **ns** | | **ns** | |
| **N** | **412** | **1116** | **144** | **298** |

* for households which were found to be clean

**Table 4. Household sanitation and hygiene practices by BRAC membership status of HHs and occupation of household head, Matlab 1995 (%)**

| | Labour-selling status of households | | | |
| --- | --- | --- | --- | --- |
| | **Labour-selling** | | **Non labour-selling** | |
| **Stool disposal/place of defaecation of children (1-5yrs)** | | | | |
| Surface water | 54.9 | 81.8 | 59.8 | 74.5 |
| Fixed place/sanitary latrine | 45.1 | 18.2 | 40.2 | 28.5 |
| **N** | **71** | **247** | **209** | **475** |
| **Significance ($x^2$)** | **p<.001** | | **p<.01** | |
| **Appearance of courtyard** | | | | |
| Dirty (children's stool, cowdung etc.) | 32.9 | 47.4 | 26.1 | 47.6 |
| Clean | 67.1 | 52.6 | 73.9 | 52.4 |
| **N** | **155** | **474** | **429** | **997** |
| **Significance ($x^2$)** | **p<.01** | | **p<.001** | |
| **Disposal of garbage*** | | | | |
| Anywhere outside courtyard | 41.7 | 43.2 | 41.2 | 37.9 |
| Fixed place | 58.3 | 56.8 | 58.8 | 62.1 |
| **N** | **60** | **162** | **216** | **372** |
| **Significance ($x^2$)** | **ns** | | **ns** | |
| **Water for washing hands (before taking food)** | | | | |
| Tube-well | 82.6 | 93.2 | 91.9 | 92.6 |
| River/canal/pond | 17.4 | 6.8 | 8.9 | 7.4 |
| **Significance ($x^2$)** | **p<.001** | | **ns** | |
| **Water for washing utensils** | | | | |
| Tube-well | 8.4 | 7.6 | 5.4 | 7.6 |
| River/canal/pond | 91.6 | 92.4 | 94.6 | 93.1 |
| **Significance ($x^2$)** | **ns** | | **ns** | |
| **Water for bathing** | | | | |
| Tube-well | 3.9 | 2.7 | 0.9 | 2.4 |
| River/canal/pond | 96.1 | 93.3 | 99.1 | 97.6 |
| **Significance ($x^2$)** | **ns** | | **ns** | |
| **N** | **155** | **474** | **429** | **997** |

*for households which where found to be clean

**Table 5. Household sanitation and hygiene practices by BRAC membership status of HHs and household size, Matlab 1995 (%)**

| | Household size | | | |
| --- | --- | --- | --- | --- |
| | **<5** | | **>5** | |
| | BRAC member HHs | BRAC-eligible non-member HHs | BRAC member HHs | BRAC-eligible non-member HHs |
| **Stool disposal/place of defaecation of children (1-5yrs)** | | | | |
| Surface water | 56.4 | 74.4 | 59.8 | 76.3 |
| Fixed place/sanitary latrine | 43.6 | 25.6 | 40.2 | 23.7 |
| **N** | **133** | **406** | **132** | **291** |
| Significance $(x^2)$ | P<.001 | | p<.01 | |
| **Appearance of courtyard** | | | | |
| Dirty (children's stool, cowdung etc.) | 25.6 | 45.9 | 29.7 | 51.6 |
| Clean | 74.4 | 54.1 | 70.3 | 48.4 |
| **N** | **308** | **906** | **249** | **502** |
| Significance $(x^2)$ | P<.001 | | p<.001 | |
| **Disposal of garbage*** | | | | |
| Anywhere outside courtyard | 42.6 | 37.5 | 39.5 | 44.0 |
| Fixed place | 57.4 | 62.5 | 60.5 | 56.0 |
| **N** | **136** | **352** | **129** | **159** |
| Significance $(x^2)$ | ns | | ns | |
| **Water for washing hands (before taking food)** | | | | |
| Tube-well | 89.0 | 92.0 | 88.4 | 94.5 |
| River/canal/pond | 11.0 | 8.0 | 11.6 | 5.5 |
| Significance $(x^2)$ | ns | | p<.01 | |
| **Water for washing utensils** | | | | |
| Tube-well | 6.8 | 6.9 | 4.0 | 9.1 |
| River/canal/pond | 93.2 | 93.1 | 96.0 | 90.8 |
| Significance $(x^2)$ | ns | | p<.05 | |
| **Water for bathing** | | | | |
| Tube-well | 1.9 | 2.5 | 1.2 | 2.6 |
| River/canal/pond | 98.1 | 97.5 | 98.8 | 97.4 |
| Significance $(x^2)$ | ns | | ns | |
| **N** | **308** | **908** | **249** | **507** |

*for households which where found to be clean

**Table 6. Household sanitation and hygiene practices by BRAC membership status of HHs and presence of ICDDR,B's MCH-FP programme, Matlab 1995 (%)**

| | Programme area | | | |
| --- | --- | --- | --- | --- |
| | MCH-FP | | Non-MCH-FP | |
| | BRAC member HHs | BRAC-eligible non-member HHs | BRAC member HHs | BRAC-eligible non-member HHs |
| **Stool disposal/place of defaecation of children (1-5yrs)** | | | | |
| Surface water | 62.0 | 78.2 | 55.2 | 72.4 |
| Fixed place/sanitary latrine | 38.0 | 21.8 | 44.8 | 27.6 |
| **N** | **137** | **331** | **143** | **391** |
| **Significance ($x^2$)** | **P<.01** | | **p<.001** | |
| **Appearance of courtyard** | | | | |
| Dirty (children's stool, cow dung etc.) | 28.0 | 52.9 | 27.8 | 41.8 |
| Clean | 72.0 | 47.1 | 72.2 | 58.2 |
| **N** | **311** | **760** | **273** | **710** |
| **Significance ($x^2$)** | **P<.001** | | **P<.001** | |
| **Disposal of garbage*** | | | | |
| Anywhere outside courtyard | 39.5 | 34.8 | 43.4 | 44.9 |
| Fixed place | 60.5 | 65.2 | 56.6 | 55.1 |
| **N** | **147** | **287** | **129** | **247** |
| **Significance ($x^2$)** | **ns** | | **ns** | |
| **Water for washing hands (before taking food)** | | | | |
| Tube-well | 88.7 | 90.6 | 89.0 | 95.2 |
| River/canal/pond | 11.3 | 9.4 | 11.0 | 4.8 |
| **Significance ($x^2$)** | **ns** | | **ns** | |
| **Water for washing utensils** | | | | |
| Tube-well | 6.1 | 4.2 | 6.2 | 11.2 |
| River/canal/pond | 93.9 | 95.8 | 93.8 | 88.8 |
| **Significance ($x^2$)** | **ns** | | **p<.05** | |
| **Water for bathing** | | | | |
| Tube-well | 1.3 | 1.2 | 2.2 | 3.9 |
| River/canal/pond | 98.7 | 98.8 | 97.8 | 96.1 |
| **Significance ($x^2$)** | **ns** | | **ns** | |
| **N** | **311** | **763** | **273** | **714** |

*for households which where found to be clean

**Table 7. Household sanitation and hygiene practices by BRAC membership status of HHs and location of household, Matlab 1995 (%)**

| | Location of Household | | | |
| --- | --- | --- | --- | --- |
| | Inside embankment | | Outside embankment | |
| | BRAC member HHs | BRAC-eligible non-member HHs | BRAC member HHs | BRAC-eligible non-member HHs |
| **Stool disposal/place of defaecation of children (1-5yrs)** | | | | |
| Surface water | 71.3 | 77.4 | 49.7 | 72.4 |
| Fixed place/sanitary latrine | 28.7 | 22.6 | 50.3 | 27.6 |
| **N** | **115** | **385** | **165** | **337** |
| Significance ($x^2$) | ns | | p<.001 | |
| **Appearance of courtyard** | | | | |
| Dirty (children's stool, cow dung etc.) | 24.6 | 38.1 | 30.3 | 56.3 |
| Clean | 75.4 | 61.9 | 69.7 | 43.7 |
| **N** | **244** | **708** | **340** | **769** |
| Significance ($x^2$) | P<.001 | | p<.001 | |
| **Disposal of garbage*** | | | | |
| Anywhere outside courtyard | 66.1 | 49.3 | 20.1 | 28.9 |
| Fixed place | 33.9 | 50.7 | 79.9 | 71.1 |
| **N** | **127** | **278** | **149** | **256** |
| Significance ($x^2$) | p<.01 | | ns | |
| **Water for washing hands (before taking food)** | | | | |
| Tube-well | 94.7 | 98.2 | 84.7 | 87.9 |
| River/canal/pond | 5.3 | 1.8 | 15.3 | 12.1 |
| Significance ($x^2$) | p<.01 | | ns | |
| **Water for washing utensils** | | | | |
| Tube-well | 11.5 | 11.2 | 2.4 | 4.3 |
| River/canal/pond | 88.5 | 88.8 | 97.6 | 95.7 |
| Significance ($x^2$) | ns | | ns | |
| **Water for bathing** | | | | |
| Tube-well | 3.7 | 4.0 | 0.3 | 1.2 |
| River/canal/pond | 96.3 | 96.0 | 99.7 | 98.8 |
| Significance ($x^2$) | ns | | ns | |
| **N** | **244** | **708** | **340** | **769** |

*for households which where found to be clean

**Table 8. Household sanitation and hygiene practices in BRAC member HHs by length of membership in BRAC, Matlab 1995 (%)**

|  | Length of BRAC membership of the | |
|---|---|---|
|  | ≤ 24 months | >24 months |
| **Stool disposal/place of defaecation of children (1-5yrs)** | | |
| Surface water | 65.9 | 56.1 |
| Fixed place/sanitary latrine | 34.1 | 43.9 |
| **N** | **44** | **187** |
| **Significance (x²)** | **ns** | |
| **Appearance of courtyard** | | |
| Dirty (children's stool, cow dung etc.) | 37.6 | 25.5 |
| Clean | 62.4 | 74.5 |
| **N** | **93** | **411** |
| **Significance (x²)** | **P<.05** | |
| **Disposal of garbage*** | | |
| Anywhere outside courtyard | 39.5 | 41.8 |
| Fixed place | 60.5 | 58.2 |
| **N** | **38** | **189** |
| **Significance (x²)** | **ns** | |
| **Water for washing hands (before taking food)** | | |
| Tube-well | 86.0 | 88.1 |
| River/canal/pond | 14.0 | 11.9 |
| **Significance (x²)** | **ns** | |
| **Water for washing utensils** | | |
| Tube-well | 2.2 | 7.1 |
| River/canal/pond | 97.8 | 92.9 |
| **Significance (x²)** | **ns** | |
| **Water for bathing** | | |
| Tube-well | 1.1 | 1.5 |
| River/canal/pond | 98.9 | 98.5 |
| **Significance (x²)** | **ns** | |
| **N** | **93** | **411** |

*for households which where found to be clean

**Table 9. Household sanitation and hygiene practices in BRAC member HHs by level of inputs from BRAC, Matlab 1995 (%)**

| | Level of inputs from BRAC | |
| --- | --- | --- |
| | **Basic** | **Basic plus** |
| **Stool disposal/place of defaecation of children (1-5yrs)** | | |
| Surface water | 64.0 | 50.6 |
| Fixed place/sanitary latrine | 36.0 | 49.4 |
| **N** | **136** | **85** |
| **Significance ($x^2$)** | **ns** | |
| **Appearance of courtyard** | | |
| Dirty (children's stool, cow dung etc.) | 31.2 | 23.3 |
| Clean | 68.8 | 76.7 |
| **N** | **263** | **206** |
| **Significance ($x^2$)** | **ns** | |
| **Disposal of garbage*** | | |
| Anywhere outside courtyard | 44.8 | 38.5 |
| Fixed place | 55.2 | 61.5 |
| **N** | **105** | **104** |
| **Significance ($x^2$)** | **ns** | |
| **Water for washing hands (before taking food)** | | |
| Tube-well | 89.7 | 86.4 |
| River/canal/pond | 10.3 | 13.6 |
| **Significance ($x^2$)** | **ns** | |
| **Water for washing utensils** | | |
| Tube-well | 1.9 | 11.2 |
| River/canal/pond | 98.1 | 88.8 |
| **Significance ($x^2$)** | **p<.001** | |
| **Water for bathing** | | |
| Tube-well | 0.8 | 2.4 |
| River/canal/pond | 99.2 | 97.6 |
| **N** | **263** | **206** |
| **Significance ($x^2$)** | **ns** | |

*for households which where found to be clean

*N. B. Basic package of BRAC inputs e.g., savings, loan and VO membership; Basic plus is Basic package + skill development training/para-professionals in BRAC*

anzurulMannan, Shahriar R Khan, Mahmuda Rahman Khan, Masud Rana, Samiha Huda, ShahedHussain and Karen Moore, 1996

16. Perspective of women about their own illness------*Amina Mahbub, Syed Masud Ahmed,1997*

17. An inventory of the development programmes in the selected unions of Matlab by Government and non-government Organizations (excluding BRAC and ICDDR,B,)—*Monirul Islam Khan, Mustaque Chowdhury and Abbas Bhuiya, 1997.*

18. Poverty and BRAC's Microcredit Progrrame:Exploring some lincages------*Hassan Zaman, 1997*

19. Two studies on the impact of Meghna-Dhonagoda flood control, drainage and irrigation project, 1997

20. An Emic towards well-being------*Amina Mahbub, Rita Das Roy, 1997*