

SOCIOECONOMIC DEVELOPMENT AND HUMAN WELL-BEING

A Joint BRAC-ICDDR,B Research Project

Seasonal Survey Report on Nutrition: First Round

**Masuma Khatun
Andrew MCKim
Sabah Tarannum
SM Ziauddin Hyder
Mustaque Chowdhury
Abbas Bhuiya
Monirul Islam Khan
Alayne Adams**

December 1996

**Research and Evaluation Division, BRAC
International Center for Diarrhoeal Disease Research, Bangladesh,
ICDDR,B**

Contents

<i>List Of Tables</i>	vi
-----------------------------	----

Chapter One : Introduction

1.1 Background	1
1.2 Conceptual Framework	2
1.3 Scope and Objective of the Study	6

Chapter Two : Methods and Materials

2.1 Study Design	7
2.2 Sampling	8
2.3 Survey Instrument	9
2.4 Data Management	9
2.5 Quality Control	9

Chapter Three: Food Availability and Consumption

3.1 Food Availability at the Household Level	11
3.1.1 Source and Amount of Food Items Entering in the Household	11
3.1.2 Source and Amount of Household Rice and Wheat Inflow	12
3.1.3 Source and Amount of Household Fruits and Vegetables Inflow	13
3.1.4 Sources and Amount of Household Fish and Meat Inflow	14
3.1.5 Sources and Amount of Household Milk and Egg Inflow	14
3.2 Food Outflow and Consumption	15
3.2.1 Amount of Incoming Food Consumed, Stocked, or Sold	15
3.2.2 Amount of Food Consumed : Grams per Capita per Day	16
3.2.3 Amount of Food Consumed : Calories per Capita per Day	18
3.2.4 Energy Consumption as Percentage of Dally Requirement	18
3.2.5 Consumption of First Round Nutritional Survey to National Nutrition Survey	19

Chapter Four : Infant and Child Feeding Practices

4.1 Introduction	45
4.2 Distribution of Study Children by Age, Sex, and Birth Order	46

4.3 Knowledge and Practices of Pre-lacteal Feeding	47
4.4 Colostrum and Breast-feeding	47
4.5 Weaning Practices	48

Chapter Five : Anthropometry

5.1 Nutritional Status of Children aged 0-11 years	83
5.1.1 Introduction.	83
5.1.2 Weight for Age	84
5.1.3 Height for Age	84
5.1.4 Weight for Height	85
5.1.5 Mid Upper Arm Circumference	85
5.2 Nutritional Status of Adolescents (11-18 years)	86
5.2.1 Introduction	86
5.2.2 Weight for Height	86
5.2.4 Mid Upper Arm Circumference	87
5.2.5 Body Mass Index	87
5.3 Nutritional Status of Adults	87
5.3.1 Introduction	87
5.3.2 (a) Mean Weight in Kg of young adults	88
5.3.2 (b) Mean Weight in Kg of Older adults	88
5.3.3 (a) Mean Height in cm of young adults	88
5.3.3 (b) Mean Height in cm of Older adults	88
5.3.4 (a) Mid Upper Arm Circumference of Young adults	89
5.3.4 (b) Mid Upper Arm Circumference of Older adults	89
5.3.5 (a) Mean BMI of young adults	90
5.3.5 (b) Mean BMI of older adults	90
5.3.6 BMI of adult women (15-60 years)	90
5.4 Nutritional Status of Elderly population (60+)	91
5.4.1 Introduction	91
5.4.2 Weight and Height	91
5.4.4 Mid Upper Arm Circumference	91
5.4.5 Body Mass Index	92

Chapter Six : Summary and Conclusion

6.1 Food Availability and consumption	139
---------------------------------------	-----

6.2 Infant and child feeding practices **141**

6.3 Anthropometric status **143**

Annexes:

Annex 1: Consumption unit. **145**

Reference **146**

List Of Tables

Food Availability and Consumption

Table 2.1: Distribution of study households according to cell, eligibility and BRAC membership status—	8
Table 3.1: Source and Amount of Total Food Entering the Household—	20
Table 3.1.1: Effect of Embankment on food stock and production—	22
Table 3.2 : Source and Amount of Household Rice and Wheat Inflow—	23
Table 3.3 : Source and Amount of Household Fruit and Vegetable Inflow—	25
Table 3.4 : Source and Amount of Household Fish and Meat Inflow—	27
Table 3.5 : Source and Amount of Household Milk and Egg Inflows—	29
Table 3.6 : Amount of Incoming Food Consumed, Stocked, or Sold—	31
Table 3.7 : Amount of Food Consumed—	33
Table 3.8 : Amount of Calories Consumed—	38
Table 3.9 : Energy Consumption as percentage of Daily Requirement (2310 calories per day)—	43
Table 3.10: Comparison of 1st round Nutrition survey to National Nutrition survey of 1981-82—	45

Infant and Child Feeding Practices

Table 4.1 : Distribution of the study children by age and sex—	49
Table 4.2 : Birth order of the study children—	51
Table 4.3 : Place of child birth—	52
Table 4.4 : Types of pre-lacteal feeding given to the children—	55
Table 4.5 : Reason for giving pre-lacteal feeding—	57
Table 4.6: Means of giving pre-lacteal feeding—	60
Table 4.7: Initiator of pre-lacteal feeding—	62
Table 4.8 : Proportion of children receiving colostrum—	64
Table 4.9 : The reason of giving colostrum—	67
Table 4.10 : Proportion of currently breast fed children—	70
Table 4.11 : Proportion of children given breast milk and liquid—	72
Table 4.12 : Age of initiating supplementary food—	74
Table 4.13 : Reasons for weaning—	76
Table 4.14 : Source of advice for weaning—	79
Table 4.15 : Types of first solid food given to the children—	81

Anthropometric Status

Table 5.1.1: Distribution of children (0-11) by age, sex, membership status and intervention cell-	93
Table 5.1.2: Percent distribution of children who are underweight (<80%) according weight-for-age (% Median)	94
Table 5.1.3: Percent distribution of stunted (<90%) children according to height-for-age (% of median)	96
Table 5.1.4: Distribution of wasted (80%) children according weight-for height (% of median)-	98
Table 5.1.5: Prevalence of low MUAC (<125) among children <5 Yrs (6 mo - 59 mo) according to sex	100
Table 5.2.1: Distribution of adolescents (11-18 Yrs) by age and sex-	103
Table 5.2.2: Mean Weight (kg) of adolescent according to sex	104
Table 5.2.3: Mean Height (cm) of adolescent according to sex	106
Table 5.2.4: Mean MUAC (mm) of adolescents according to sex	108
Table 5.2.5: Mean BMI of adolescents according to sex	110
Table 5.3.1: Distribution adults (18-60) by age, sex	112
Table 5.3.2(a): Mean Weight (kg) of young adults (18-45) according to age and sex	113
Table 5.3.2(b): Mean Weight (kg) of adult (45-60) population according to age and sex	115
Table 5.3.3(a): Mean Height (cm) of young adults (18-45) according to age and sex	117

Table 5.3.3(b): Mean Height (cm) of adult (45-60) population according to age and sex	119
Table 5.3.4(a): Mean MUAC (mm) of young adult (18-45) population according to age and sex	121
Table 5.3.4(b): Mean MUAC (mm) of adult (45-60) population according to age and sex	123
Table 5.3.5(a): Mean of BMI of young adults (18-45) according to age and sex	125
Table 5.3.5(b): Mean BMI of adult (45-60) population according to age and sex	127
Table 5.3.6: Nutritional Status of adult women(15-60 Yrs) according to cut off points of BMI	129
Table 5.4.1: Distribution of elderly (60+) population by age, sex, membership status and intervention cell	130
Table 5.4.2: Mean weight (kg) of elderly population according sex, membership status and intervention cell	131
Table 5.4.3: Mean height (cm) of elderly population according to sex, membership status and intervention cell	133
Table 5.4.4: Mean MUAC (mm) of elderly population according to sex, membership status and intervention cell	135
Table 5.4.5: Mean BMI of elderly population according to sex, membership status and intervention cell	137

INTRODUCTION

1.1 Background

The introduction of BRAC's Rural Development Programme (RDP) in Matlab thana of Chandpur district during early 1992 where ICDDR,B has already been monitoring demographic data for almost 25 years, provided an unique opportunity for longitudinal research on the relationship between socioeconomic development and health and well-being of the people. In the second half of 1992, a joint research project was initiated by both the institutions (1). On the part of ICDDR,B, it was primarily to evaluate the extent to which socioeconomic development might enhance the effectiveness of its health intervention. BRAC, on the other hand, grasped the opportunity to draw on ICDDR,B's demographic and health surveillance data to assess the health, non health impact of RDP and to evaluate and refine its rural development programmes. Common to both organizations was an interest in understanding the pathways through which socioeconomic development works to influence the health and well-being of the rural poor. The project employs an innovative, approach to study design that permits the development of innovative qualitative, quantitative and participatory methods to investigate the pathways.

The BRAC-ICDDR,B Joint Research Project consists of two phases of research, analysis and interpretation that takes place over a 5 year project cycle (5). Initiated in 1992, research in Phase I (1992-1995) involved a survey to assess existing differences in baseline conditions (e.g., attitudinal information on women's status and desired family size in addition to demographic, nutritional, and socioeconomic conditions) prior to BRAC's intervention, as well as a series of exploratory studies(1). These studies sought to elucidate the socioeconomic and environmental context within which RDP operates, and to evaluate specific BRAC inputs in terms of their content, implementation and adoption by rural people. Most of these studies were conducted on small samples close to the project research station located in Uddomdi village of Matlab thana. A mid-term review of the activities carried out in Phase I and the proposed activity for Phase II was undertaken by an international committee of experts in January 1995. The review team commended the progress made in the research and also cautioned against becoming too ambitious.

Informed by the baseline and exploratory studies referred to above, the currently operating Phase II of this project (1995-1997) involves both in-depth and longitudinal investigations of the hypotheses generated during Phase I. This report documents the nutrition component of the first of the three seasonal surveys of the longitudinal data collected during mid-April to August 1995.

1.2 Conceptual framework

In both developed and developing countries, literature consistently point to the strong influence of socioeconomic factors on health and well-being, providing opportunities for interventions. The emerging evidence on these factors along with identifying pragmatic interventions, have underlined the need for exploratory research. This type of research will help in mapping the complex interactions between them leading to health or disease. However, the large majority of studies that investigate this relationship are cross-sectional in design, and are thus not amenable to exploring the intervening pathways or mechanisms that link socioeconomic development and human well-being. As a result, these pathways are referred to with speculative assumptions, and remain an ill-understood "black-box" in models of socioeconomic development. This study, along with assessing the impact of BRAC's development interventions on human well-being broadly defined, wants to understand the mechanisms or pathways through which positive or negative change occurs.

A broad concept of human well-being is employed which encompasses seven dimensions including mortality, morbidity, nutritional status, fertility, household livelihood and income, women's lives and the environment. BRAC's RDP influences these different dimensions through a web of intersecting pathways. In the following section, nutritional well-being is described in terms of a number of hypothesized pathways which link them to BRAC's socioeconomic interventions.

Nutritional well-being depends not only on macro-nutrients such as energy and protein, but also on micro-nutrients such as iron, vitamin A, iodine, and so on. Food security, health status and caring have been identified as the major determinants of nutritional status in Bangladesh (World Bank

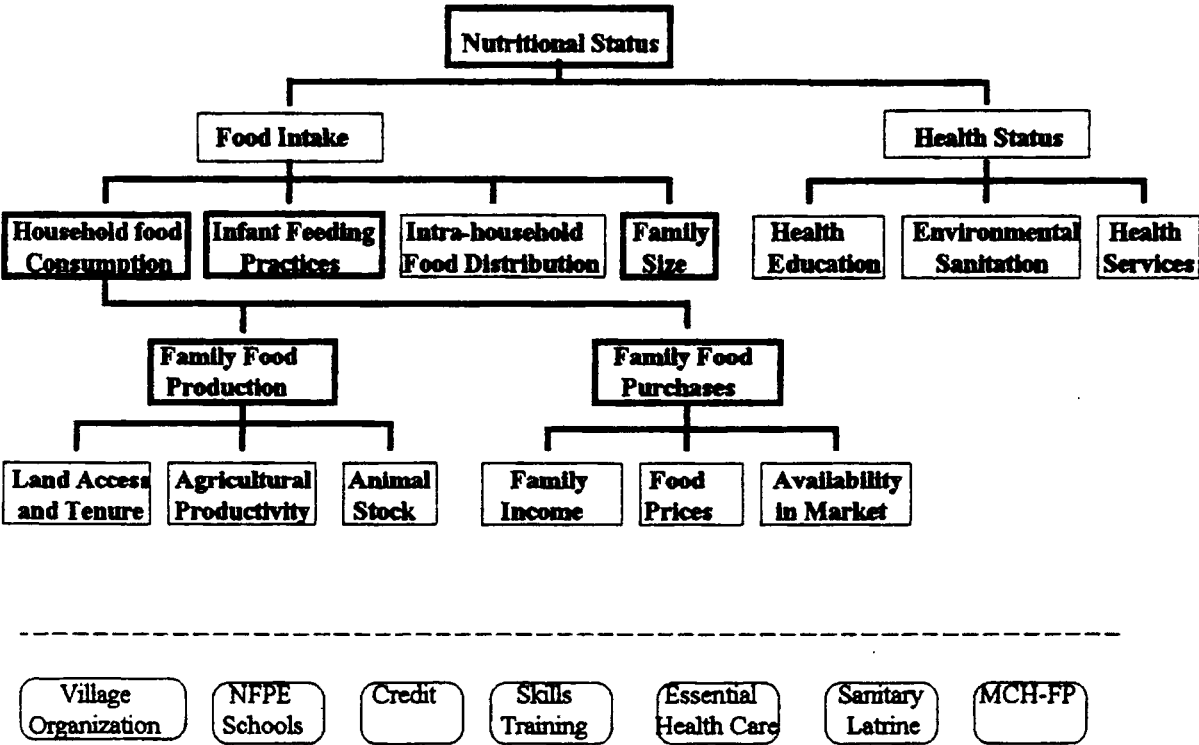
1995). Protein-energy malnutrition is generally considered to be the most critical public health problem in Bangladesh affecting about 94% of the population under 5 years of age (11). Since almost any diet (particularly in Bangladesh) that is adequate in energy will also be adequate in protein, the real obstacle to nutritional well-being in Bangladesh is inadequate energy intake. Inadequate implies that food intake is below the minimum standard requirement. The existence, let alone demarcation, of this standard has been the topic of much debate among nutritionists over the past two decades. Although the debate continues, most nutritionists agree with the definition of an energy requirement as:

“The level of energy intake from food which will balance energy expenditure when the individual has a body size and composition and level of physical activity, consistent with long-term good health and which will allow for the maintenance of economically necessary and socially desirable physical activity” (FAO/WHO/UNU 1985: 12) (13)

There remains the difficulty of how to measure nutritional well-being. There are two generally accepted major methods of measuring nutritional well-being: the dietary and the anthropometric approach. The dietary approach measures nutritional inputs while the anthropometric approach measures nutrition-dependent outcomes. The dietary approach is a plausible method of measuring nutritional well-being since inadequate diet is “undoubtedly the dominant determinant of undernutrition.”(10). However, the dietary approach is limited in that it does not account for the effects of several other factors that influence nutritional well-being such as: environmental quality, child feeding practices, prevalence of infectious diseases, and quality of primary health care among others and so on.

The following hypothetical causal model of factors affecting nutritional well-being is a modified version of one presented in a World Health Organization publication (3). Nutrition is highly interdisciplinary and as the model approaches the root causes of nutritional well-being, it increasingly depends on input from such diverse fields as: economics, agriculture, education, sanitation, public health, demography, and anthropology. Indicators that are collected and measured by this first round nutritional survey are highlighted in bold. Some of the other indicators will be measured through Economic Survey and the Health Survey under same project.

Figure 1: Hypothetical causal model of factors affecting nutritional well-being and BRAC's programme inputs



Pathways of influence: effect of BRAC and ICDDR,B interventions on nutritional well-being

One of the major aims of the BRAC-ICDDR,B joint research project is to better understand the “pathways” of influence of socioeconomic interventions on human well-being. It will be interesting to see which aspects of the above model are affected by BRAC and ICDDR,B interventions and how. It is hypothesized that:

“BRAC’s Rural Development Programmes and ICDDR,B’s Maternal and Child Health-Family Planning Programme will improve nutritional status.”

Two specific pathways of effect are briefly outlined below:

- a) *BRAC’s Rural Development Programme(RDP) will increase the quantity and quality of household food consumption.* BRAC’s credit and training programmes will increase agricultural productivity, increase household animal stock, and increase family income. This will lead to increase in home food production and food purchases which are the determinants of household food consumption. Moreover, the functional education and non-formal primary education programme would positively influence on intrahousehold food distribution and hence enhance equitable food distribution within households.
- b) *BRAC’s RDP will improve the health status of household members.* BRAC’s village organizations’ issue based meetings and BRAC’s NFPE schools will increase knowledge on health and nutrition issues. The sanitary latrine program will increase awareness and provide improved access to sanitary latrines. The Essential Health Care (EHC) programme will provide better health information and services at the doorstep. The combined effect will lead to better health awareness, environmental sanitation, and health services which are the main determinants of health status.

1.3 Scope and objectives of the study

The objective of the nutrition component of the study is to explore the effects of RDP and ICDDR,B inputs on related aspects of nutritional well-being including: food production and availability, food consumption, child feeding practices, and anthropometric status. This report documents the first round, i.e., baseline conditions with regard to the above factors obtained at the time of survey. When this data will be compared with the second and third round data, we will be able to see the changes, if any, over a period of a year (April '95-April '96).

METHODS AND MATERIALS

2.1 Study design

A common sampling frame and the four-cell study design which was followed in conducting the baseline survey in 1992 were used in designing this longitudinal seasonal survey (1). These cells are: villages with BRAC intervention, villages with ICDDR,B interventions, villages with both BRAC and ICDDR,B interventions and comparison villages without any interventions (having usual government interventions). This research design permits the comparison of the impact of the 2 programmes independently, and jointly. Also, 3 rounds of data spread over a year will permit the comparison of changes in the same cell over a specified period of time. The design is also sensitive because the impact of BRAC programmes may not be confined to the target group on account of deficiencies in the application of eligibility criteria. For this reason, all the 3 types of individuals and households - BRAC members, non-members who are eligible to become members and non-members who are not eligible to become members - were included in the study. Similar measure was taken to ensure that the actual impact of BRAC versus ICDDR,B interventions was captured. To ensure this, more households were sampled from BRAC areas.

The following figure shows that cell A includes those villages which are exposed to the programmes of both BRAC and ICDDR,B, cell B includes those exposed to the programmes of ICDDR,B only, cell C those of BRAC only, while cell D includes those that have not been exposed to either, although the usual government health services are present.

Figure 2: Four study cells

A ₀	BRAC + ICDDR,B	A ₁	B ₀	ICDDR,B Only	B ₁
C ₀	BRAC Only	C ₁	D ₀	Comparison	D ₁

The 4 cell design also permits the comparison of the situation prevailing during time 0 with the situation prevailing during time 1. Here it is assumed that changes or modifications observed during this period would be largely explained by the interventions made by BRAC and ICDDR,B.

2.2 Sampling

Selection of villages: Of the 60 villages within the DSS (Demographic Surveillance System) area of ICDDR,B where the baseline survey was conducted, 14 were selected for this study. Villages that were at risk of river erosion in the near future and villages which were on both sides of the flood protection embankment were excluded from the study. The 14 villages were distributed to the 4 study cells with 9 located outside the embankment, 4 inside the embankment, and 1 on both sides of the embankment.

Selection of Households: It was aimed to interview 500 households in each of the 4 cells. A series of outcome indicators related to nutritional status were used to calculated the total sample size. In anticipation of some households dropping out over the year, a few extra households were sampled for each cell. Within the selected villages, households were interviewed serially until the required number of households were met for each cell.

Table 2.1: Distribution of the study households according to cell, BRAC eligibility, and BRAC membership status.

Household type	BRAC + ICDDR,B	BRAC Only	ICDDR.B Only	Comparison	Total
BRAC member	199	97	—	—	296
Target Group (TG) non-member	115	146	304	379	944
Non-Target Group (NTG)	217	280	204	135	836
Total	531	523	508	514	2076

2.3 Survey Instruments

The longitudinal survey was done using structured questionnaires, administered by trained interviewers. For the first round of the nutrition survey there were 3 sets of questionnaires on: food stock form, infant and child feeding practices form, and anthropometry form. All the 3 sets were composed of several questions, some of which were pre-coded while others were open ended but amenable for post-coding. Necessary information were collected at nominal, ordinal and interval scales. Questionnaires were pre-tested to ascertain their simplicity and whether clearly understood by the respondents. All questions were phrased in Bangla.

The food stock form was administered to the head of the household. In absence of the household head, another responsible member who could provide reliable information about the household was approached. The survey on child feeding practices was administered to the mother (or caretaker) of children aged less than two years. The anthropometry survey was conducted on all household members aged 6 months and above. The individuals who had deformities in leg or spine were excluded from the anthropometric survey.

2.4 Data management

Computerised databases were created to compile information and to facilitate statistical analysis. Coding manuals were used by professional coders in Dhaka to code the open ended answers. A user friendly computer programme was developed to identify data inconsistencies. Using key variables, cross-matching was performed which was very important in linking different database files and carrying out analyses.

2.5 Quality control

A variety of measures were employed to ensure the quality of data. Pre-testing allowed to identify which questions were not understood by the respondents and which might yield incorrect

information. The sensitivity of the required information was carefully evaluated and the questions were framed accordingly, so that the respondents did not hesitate to provide information.

Two residential field research stations in the villages of Uddomdi and Narayanpur outside the embankment and two stations in the villages of Gourangabazar and Shahabazkandi inside the embankment were established. Qualified field investigators were grouped into four base teams to carry out the survey. Only female trained investigators were included in the four teams. A 3 day training on anthropometric data collection was conducted in Dhaka being assisted by Helen Keller International, Bangladesh. Before the actual survey began, the four teams were deployed to their respective bases for 2 weeks to get a first hand knowledge of the villages, to build rapport with the villagers and to pre-test and repeat-test the survey instruments. In addition, refresher trainings were conducted every month. There were supervisors for all field stations who facilitated troubleshooting in the field work, and who randomly cross-checked the data collection. Whatever errors were identified at the time of field editing were verified at the field level again.

To test the reliability and validity of the data, two independent one-person teams were constituted. The quality control visited the four bases at random and cross-checked certain important indicators from all households surveyed in the previous day. The variations were found to be within an acceptable limit (less than 5%). The teams also visited the bases at random and conducted in-depth interviews on specific themes to verify how well the respondents understood the concept and thus, provided some indication of the validity and accuracy of the instruments.

FOOD AVAILABILITY AND CONSUMPTION

3.1 Food availability at the household level

Food intake largely depends on the availability of food at the national, community, household, and individual levels. An examination of the types and sources of foods coming into the household can give greater insight to household food security.

The respondents were asked to give an account on the amount of different food stocked and the amount of foods entering into their households over the last 7 days from each of the following sources: purchased, home produced, borrowed, bartered, gift, aid/relief, and food as payment of wages in kind.

3.1.1 Source and amount of food items entering in the household

The majority of incoming foods were either home produced (harvested) or purchased (Table 3.1). About 67% of the incoming foods were home produced, 30.5% were purchased, and the remaining 2.5% were either gift/aid, borrowed, bartered, or received as wages in kind.

BRAC members households purchased significantly higher ($p<0.05$) and home produced significantly lower amount of foods ($p<0.05$) compared to the target group (TG) households who did not belong to BRAC.

The results in Table 3.1 show that non-target group (NTG) households produced significantly more ($p<0.001$) foods than BRAC members. Because of the high levels of home food production among the NTGs (by definition they had more land to farm), the total food entering the household was significantly higher than that of BRAC members ($p<0.001$).

The differences in the amount of food that is home produced varied greatly across the cells. In the BRAC-only cell for example, less than 1 kg of food per consumption unit (CU) was produced

while in the ICDDR,B-only cell, more than 52 kg of food per CU was produced. In Table 3.1, we can see that ICDDR,B-only cell had significantly higher amounts of total home produced food than all of the other cells, irrespective of TG or NTG ($p<0.05$).

The vast differences in home food production were unexpected since the percentage of family members working in agriculture and the average size of landholding did not vary significantly across the regions (1). The explanation for this difference in home production is that certain areas were located within a flood protection embankment. Different water levels on the two sides of the embankment resulted in different harvest times for rice. Households inside the embankment had already harvested their rice before the questionnaire was administered. Since we only asked about food inflow over the last week, it will not account for rice produced more than a week before the interview. The households inside the embankment had much greater levels of food stock since they had already harvested their rice while the households outside the embankment were in the process of harvesting their rice during the interview period (June 17 - August 17, 1995). Table 3.1.1. illustrates how the embankment affected overall food production and household food stock.

3.1.2 Source and amount of household rice and wheat inflow

Table 3.2 shows that the majority (74%) of incoming rice and wheat were home produced (harvested). About 24% was purchased, and 2% was received from other sources. When comparing BRAC members in the BRAC+ICDDR,B cell with those in the BRAC-only cell we found no significant differences in the amount of rice and wheat purchased, home produced, and total incoming rice and wheat. However, in aggregate membership comparison, it was found that the TG non-members home produced significantly more ($p<0.05$), received more as gift or aid ($p<0.001$), received more from other sources ($p<0.001$), and had a higher total rice and wheat inflow ($p<0.05$) than the BRAC members. Because of the higher levels of home food production (by definition they had more land to farm), the total rice and wheat entering the NTG households were significantly higher than that of BRAC members ($p<0.001$).

The embankment effect, already explained above, is perhaps the reason why total rice and wheat inflow, especially home produced, was significantly greater in the BRAC+ICDDR,B and ICDDR,B-only cells compared to other two cells. The BRAC+ICDDR,B cell was the only cell that had purchased significantly more rice and wheat than the other three cells. The Comparison cell had the highest amount of rice and wheat received as gift/aid.

3.1.3 Source and amount of household fruits and vegetables inflow

The majority of incoming fruits and vegetables were purchased (Table 3.3). About 66% of the incoming fruits and vegetables were purchased, 28.5% home produced, 3% received as gift or aid, and the remaining 2.5% either borrowed, bartered, received as payment of wages in kind, or from other sources. When comparing BRAC members with the TG non-members within the BRAC+ICDDR,B cell and BRAC-only cell, we found no significant difference in the amount of fruits and vegetables purchased, home produced, received as gift/aid, and total incoming fruits and vegetables. However, when we compared BRAC members with TG in all four cells, we found that BRAC members purchased significantly more ($p<0.01$), produced significantly more ($p<0.05$), and had a higher total fruits and vegetables inflow ($p<0.001$) than the TG households.

Table 3.3 also show that NTG had a higher total inflow of fruits and vegetables than BRAC members ($p<0.001$). If we break down this inflow by sources, we see that the NTG both purchased and home produced significantly more fruits and vegetables than BRAC members ($p<0.001$ and $p<0.05$ respectively).

The embankment did not affect the harvest of fruits and vegetables since they did not require irrigation like rice cultivation. The only cell difference in home production of fruits and vegetables is with the BRAC-ICDDR,B cell which produced significantly more than the ICDDR,B only cell ($p<0.05$ for TG and $p<0.01$ for NTG)- both of which are outside the embankment. The amount of fruits and vegetables purchased and the total inflow were significantly greater in the BRAC+ICDDR,B and the BRAC-only cells than the other two cells.

3.1.4 Sources and amount of household fish and meat inflow

As with fruits and vegetables, the majority of incoming fish and meat were purchased (Table 3.1.4). About 77% of the incoming fish and meat was purchased, and only about 10% was home produced. Around 2% was received as gift or aid, and about 10% either borrowed, bartered, received as payment in kind, or from other sources.

Comparing BRAC members to the TG non-members, within the BRAC+ICDDR,B cell and BRAC-only cell, we found no significant differences in the amount of fish and meat purchased, home produced, received as gift/aid, and total incoming fish and meat. However, in aggregate membership comparison, BRAC member group purchased significantly more ($p<0.001$), received significantly more from other sources ($p<0.05$), and had a higher total fish and meat inflow ($p<0.001$) than the TG non-member group.

The results also show that NTG had a higher total inflow of fish and meat than BRAC members ($p<0.001$). If the inflow was broken down by sources, we see that the NTG purchased and home produced significantly more fish and meat than BRAC member group ($p<0.001$ for both). Among the TG, the main cell difference of fish and meat inflow was that the TG in the BRAC-only cell purchased significantly more than the TG in the other three areas. Among the NTGs, the BRAC-ICDDR,B and BRAC-only cells purchased significantly more than the other two cells. The NTG in the BRAC-ICDDR,B and in the Comparison cells produced significantly more fish and meat than the other two cells. The total household meat and fish inflow among the NTG was significantly greater in the BRAC-ICDDR,B and the BRAC cells.

3.1.5 Sources and amount of household milk and egg inflow

Unlike the fruits and vegetables, and fish and meat, the majority of incoming milk and eggs were home produced (Table 3.5). About 54% of the incoming milk and eggs were home produced, while about 43% purchased. About 2% was received as gift or aid. The results showed that NTG had a higher total inflow of milk and eggs than BRAC members ($p<0.001$). If this inflow is

broken by sources, it was observed that the NTG purchased and home produced significantly higher amount of milk and eggs than BRAC members ($p < 0.001$ for both).

Among the BRAC members and the TG non-members, there were no significant differences in milk and egg inflow across the cells. Among the NTG, we observe the total inflow of milk and eggs was significantly greater in the BRAC+ICDDR,B cell. Similarly, we see that the NTG in the BRAC-ICDDR,B cell purchased significantly more milk and eggs than the NTG in the other three cells. The NTG in the ICDDR,B-only cell had significantly lower milk and egg production at home compared to other three cells.

3.2 Food outflow and consumption

The previous section presented information related to the availability of foods at the household level. The amount of foods coming into the house represents the amount of food available for consumption. Food inflow can be somewhat irregular since it is dependent on time of harvest and trips to the market. In this section, we will show the amount of food leaving the household whether it is consumed, sold, loaned out, lost, stolen, or given away over the last seven days. The most interesting and important information is the amount of food which is consumed. However, by examining the whole household food pattern, we can gain some insight into the overall household food security.

3.2.1 Amount of incoming food consumed, stocked, or sold

The overwhelming majority of incoming food over the last seven days was either stocked (73.3%) and consumed (26.3%), Table 3.6. "Stocked" means that the food entered the household over the last seven days but did not leave (i.e. it was not yet consumed, sold, borrowed, etc.). It was interesting to see a very low amount of food being sold (0.5%), even though so much was entering the household (rice was being harvested in the BRAC+ICDDR,B and ICDDR,B-only cells). The most common types of foods sold were milk (61% of cases), rice (16%) and eggs (7%). Although

for the most part harvest rice is not being sold, it might be sold in the future (when prices would be higher). The amount of food loaned out, given, lost, and stolen was negligible.

In the individual cell comparison, no significant difference was observed in the amount of food consumed, stocked, or sold between BRAC member households and the TG non-members. However, in aggregate membership comparison, we found that BRAC members consumed significantly ($p < 0.001$) more than the TG non-members.

As expected, the NTG group consumed more ($p < 0.01$), stocked more ($p < 0.001$), and sold more ($p < 0.05$) incoming foods than the BRAC members (Table 3.6). There were significant differences across the cells in terms of incoming foods consumed, stocked, and sold. The two BRAC cells have consumed significantly more incoming foods compared to two non-BRAC cells. The areas that stocked the most food were those who produced the most rice (the areas outside the embankment: BRAC-ICDDR,B and ICDDR,B) in the week before the interview. The NTG of the Comparison cell sold significantly more food than two of the other three cells.

3.2.2 Amount of food consumed: grams per capita per day

Table 3.7 shows the amount of foods consumed per person per day. No consistent difference was observed in the amount of food consumed between BRAC members and the TG non-members in the individual cell comparison but in aggregate membership comparison, BRAC members consumed significantly ($p < 0.001$) more food (810 g) than TG non-members (716 g). When the total food consumed were broken according to different food items, it was seen that BRAC members consumed more rice ($p < 0.05$), pulses ($p < 0.001$), leafy vegetables ($p < 0.001$), other vegetables ($p < 0.01$), fish ($p < 0.001$), and eggs ($p < 0.01$) than the TG non-members.

The results also showed that the NTG consumed significantly higher amount of foods than BRAC members ($p < 0.001$). In fact, they ate significantly more food than BRAC members for all food items except for rice, wheat (BRAC members ate significantly more than NTG), leafy vegetables, and other vegetables.

The difference in the amount of food consumed varies greatly across the cells. The highest total food consumption was found in the BRAC+ICDDR,B and BRAC-only cells (912 and 915 grams respectively). The Comparison cell had significantly less (725 g) and the ICDDR,B-only cell had significantly the least amount of food consumption (679 g). The differences across the cells depend on each food item and whether the BRAC members, TG, or NTG were looked into. For rice, there were no significant differences across the cells among NTG except that the BRAC-only cell consumed more rice ($p < 0.05$) than the BRAC+ICDDR,B cell. Among the TG non-members, the Comparison cell had significantly lesser rice consumption than the other three cells.

The BRAC+ICDDR,B and the Comparison cells had significantly more wheat consumption than the other two cells. These two cells ate considerably less rice, which is not surprising since wheat and rice are generally considered as substitute of each other. It would be interesting to see why those two cells had a greater preference for wheat than rice.

For all the remaining food items, the BRAC+ICDDR,B and BRAC-only cells had significantly higher levels of consumption than the ICDDR,B-only and Comparison cells. The differences are quite startling in some cases. For example, households in the BRAC-only cell ate leafy vegetables eight times higher and fish more than double compared to those of the households in the ICDDR,B-only cell. When comparing between the two BRAC-cells, in some cases the BRAC-only cell consumed leafy vegetables and fish significantly more than the BRAC+ICDDR,B cell and in the case of eggs, the BRAC+ICDDR,B cell ate significantly more than the BRAC-only cell. But for the most part, no significant difference were observed between the two BRAC cells. When two non-BRAC cells are compared, we see that leafy vegetables, other vegetables, fruit, and oil were consumed significantly more in the Comparison cell than the ICDDR,B-only cell. However, in the cases of fish, meat, and milk, no significant difference were observed between the ICDDR,B-only cell and the Comparison cell.

3.2.3 Amount of food consumed: calories per capita per day

Table 3.8 shows the amount of calorie consumed per person per day. The amount of food consumption reported by respondents were converted to calories using the “Table of Nutrient Composition of Bangladeshi Foods” (11). The pattern of calorie intake is similar to the pattern of the amount of grams of food consumed per day., described in the preceding section. However, since the information is now presented in calories, we can begin to better understand the relative importance of various foods to the diet. For the entire population surveyed, rice was by far the most important contributor to total dietary calorie 73.4%. The contribution of other foods are: wheat 6.8%; pulse 1.5%; vegetables 4.5%; fruits 2.3%; fish 3.0%; meat 0.5%; egg 0.2%; milk 1.3%;and edible oil 4.7%.

3.2.4 Energy consumption as percentage of daily requirement

Table 3.9 shows the percentage of the calorie requirement met by households in each group. The calorie requirement set for Bangladesh by FAO is 2310 kcal per person per day (2). As was mentioned in the Conceptual framework section, the existence let alone demarcation of a calorie requirement has been questioned and criticized by many nutritionists over the years. The requirement of 2310 kcal is based on “food production,” not on food actually consumed. Some food is lost due to spoilage, inedible portions of food, and cooking. This requirement value is thus appropriate for data collected in this survey which also did not include losses of food.

Comparing BRAC members with the TG non-members within the BRAC+ICDDR,B cell and BRAC-only cell no significant difference was observed in the percentage of households meeting the daily calorie requirement. However, in aggregate membership comparison, BRAC members were more ($p<0.001$) likely to meet the requirement and less likely to be far below the requirement. Only within the BRAC-ICDDR,B cell there were significant differences ($p<0.05$) between BRAC members and NTGs. Surprisingly in aggregate membership comparison, there were no significant differences between BRAC members and NTG in the percentage of households meeting the calorie requirement. Perhaps the biggest differences occur across the cells

with the BRAC-ICDDR,B and BRAC-only cells. These two cells had much higher percentage of households meeting the requirement.

3.2.5 Comparison of first round nutritional survey with national nutrition survey

Table 3.10 compares the average of all households from the first round nutritional survey with the results of the 1981-82 national nutrition survey. Since the national survey used a different calorie requirement the Matlab data was applied to the old standard. The Matlab nutritional survey has a slightly higher percentage of households meeting the requirement. Otherwise, the results are remarkably similar.

Table 3.1: Source and Amount of Total Food Entering the Household over the Preceding Week
(total food includes rice, wheat, pulses, fruit, vegetables, fish, meat, eggs, milk, and oil, expressed in kilograms per consumption unit)

BRAC + ICDOR.B cell													BRAC-only cell						
Variables	(1)	BRAC members		Non-members		Cell total	t - test		(2) vs (3)	(6)	(7)	(8)	Non-members		Cell total	t - test			
		TGs	(3)	NTGs	(4)		(5)	TGs					(9)	NTGs		(10)	(11)	(8) vs (9)	(9) vs (10)
Purchased		10.39 (± 24.71)	11.12 (± 15.00)	15.26 (± 17.20)	12.55 (± 20.10)		NS	P<.05				6.81 (± 5.990)	8.23 (± 9.14)	9.48 (± 24.68)	8.63 (± 18.85)	NS	NS		
Home Produced		6.57 (± 18.39)	4.82 (± 17.04)	25.09 (± 56.47)	13.82 (± 39.82)		NS	P<.001				.81 (± 1.28)	.61 (± .93)	1.16 (± 1.95)	.94 (± 1.62)	NS	NS		
Others*		.39 (± .54)	.27 (± .42)	.23 (± .93)	.31 (± .71)		NS	NS				.30 (± .67)	.55 (± 1.3)	.16 (± .42)	.30 (± .8)	P<.05	NS		
Totals		17.35 (± 30.26)	16.22 (± 26.38)	40.60 (± 57.05)	26.68 (± 44.29)		NS	P<.001				7.93 (± 6.04)	9.39 (± 9.34)	10.80 (± 24.64)	9.87 (± 18.86)	NS	NS		
N		199	110	216	525														
ICDOR.B-only cell													Comparison cell						
Variables	(1)	TGs	NTGs	Cell total	t - test		(2) vs (3)	(5)	(6)	(7)	(8)	Cell total	DTest (9) vs (7)						
					(2)	(4)													
Purchased		5.50 (± 6.60)	7.32 (± 20.22)	6.24 (± 13.83)		NS						5.66 (± 9.69)	NS						
Home Produced		26.89 (± 139.81)	89.37 (± 110.85)	52.08 (± 132.40)		P<.001						5.86 (± 25.02)	P<.05						
Others		.35 (± .68)	.14 (± .2)	.26 (± .5)		P<.01						1.99 (± 2.5)	NS						
Totals		32.73 (± 139.30)	96.84 (± 109.59)	58.58 (± 131.84)		P<.001						13.51 (± 26.64)	P<.05						
N		299	202	501								505							
Aggregate Membership Comparison																			
Variables	(1)	BRAC members		Non-members		All	t - test												
		TGs	(2)	NTGs	(3)		(4)	(5)	(6)	(2) vs (3)	(2) vs (4)	(7)							
Purchased		9.22 (± 20.59)	6.62 (± 8.86)	9.90 (± 20.59)	8.29 (± 16.39)							P<.03	NS						
Home Produced		4.68 (± 15.32)	10.91 (± 80.91)	30.59 (± 72.72)	18.10 (± 72.52)							P<.05	P<.001						
Others		.36 (± .6)	1.05 (± 1.5)	.45 (± 1.4)	.71 (± 1.4)							NS	NS						
Totals		14.27 (± 25.42)	18.58 (± 80.96)	40.94 (± 73.57)	27.11 (± 73.42)							NS	P<.001						
N		296	927	827	2044														

*Others includes: gift, aid, borrowed, bartered and received as payment in kind.

Variable	Member		TG non-members		NTGs	
	Cell comparison	p value + sig.	Cell comparison	p value + sig.	Cell comparison	p value + sig.
Purchased	(1) vs (2)	NS	(1) vs (2)	NS	(1) vs (2)	p<.01
			(1) vs (3)	p<.001	(1) vs (3)	p<.001
			(1) vs (4)	p<.001	(1) vs (4)	p<.001
			(2) vs (3)	p<.01	(2) vs (3)	NS
			(2) vs (4)	p<.01	(2) vs (4)	NS
			(3) vs (4)	NS	(3) vs (4)	NS
Home produced	(1) vs (2)	p<.001	(1) vs (2)	p<.05	(1) vs (2)	p<.001
			(1) vs (3)	p<.01	(1) vs (3)	p<.001
			(1) vs (4)	NS	(1) vs (4)	p<.01
			(2) vs (3)	p<.001	(2) vs (3)	p<.001
			(2) vs (4)	p<.001	(2) vs (4)	p<.01
			(3) vs (4)	p<.01	(3) vs (4)	p<.001
Others	(1) vs (2)	NS	(1) vs (2)	NS	(1) vs (2)	NS
			(1) vs (3)	NS	(1) vs (3)	NS
			(1) vs (4)	NS	(1) vs (4)	NS
			(2) vs (3)	p<.05	(2) vs (3)	NS
			(2) vs (4)	NS	(2) vs (4)	NS
			(3) vs (4)	NS	(3) vs (4)	NS
Totals	(1) vs (2)	p<.001	(1) vs (2)	p<.05	(1) vs (2)	p<.001
			(1) vs (3)	NS	(1) vs (3)	p<.001
			(1) vs (4)	NS	(1) vs (4)	p<.001
			(2) vs (3)	p<.01	(2) vs (3)	p<.001
			(2) vs (4)	NS	(2) vs (4)	p<.05
			(3) vs (4)	p<.01	(3) vs (4)	p<.001

Note : (1) - BRAC+ICDDR,B cell; (2) - BRAC cell; (3) - ICDDR,B cell; (4) - Comparison cell

Consumption Units: In Table 3.1 data is presented as kilograms per consumption unit. Consumption units are employed to reflect the age and sex composition of households. The following values are derived from FAO/WHO energy requirements:

Age (years)	Females	Males
< 1	0.3	0.3
1-6	0.5	0.5
7-13	0.7	0.7
14-19	0.9	0.9
20-59	0.9	1.0
> 59	0.7	0.9

Table 3.1.1: Effect of Embankment on Food Stock and Production Production Over the Last Week
 (expressed in kilograms per consumption unit)

	BRAC + ICDDR,B			BRAC only		
	Member	Non-Member		Member	Non-Member	
		TG	NTG		TG	NTG
% of HHs Inside Embankment	9	8	0	85	98	90
Food Stock	.76	1.42	.05	17.49	18.26	60.05
Home Production	6.57	4.82	25.09	.81	.61	1.16

	ICDDR,B only		Comparison	
	TG	NTG	TG	NTG
% of HHs Inside Embankment	0	0	100	100
Food Stock	.44	1.01	15.35	52.84
Home Production	26.89	89.37	3.89	11.41

Table 3.2 : Source and Amount of Household Rice and Wheat Inflow over the Week Preceding the Survey (expressed in grams per consumption unit)

BRAC + ICDDR,B cell										BRAC-only cell								
Variables	BRAC members		Non-members		Cell total		t - test			BRAC members		Non-members		Cell total		t - test		
	(2)		TGs	NTGs	(3)	(4)	(5)	(6)		(7)	(8)	(9)	TGs	NTGs	(10)	(11)	(12)	(13)
Purchased	6.53 (± 16.14)		7.50 (± 10.96)	9.97 (± 14.08)	8.15 (± 14.39)			p<.05		4.38 (± 5.77)		5.55 (± 8.25)	5.75 (± 22.26)	5.44 (± 17.01)				
Home Produced	5.57 (± 17.79)		3.72 (± 15.02)	20.82 (± 51.92)	11.44 (± 36.50)			p<.001		.07 (± .69)		.00 (± .00)	.01 (± .20)	.02 (± .33)				
Others	.15 (± .4)		.04 (± .1)	.02 (± .1)	.07 (± .3)		NS			.11 (± .5)		.15 (± .9)	.03 (± .2)	.08 (± .4)		NS	NS	
Totals	12.26 (± 23.80)		11.3 (± 17.68)	30.81 (± 51.06)	19.69 (± 37.89)			p<.001		4.56 (± 5.77)		5.69 (± 8.24)	5.79 (± 22.23)	5.53 (± 17.00)				
N	199		110	216	525					97		145	277	519				
ICDDR,B-only cell										Comparison cell								
Variables	TGs		NTGs		Cell total		t - test			TGs		NTGs		Cell total		t - test		
	(2)		(3)		(4)		(5)	(6)		(7)	(8)	(9)						
Purchased	4.04 (± 6.39)		5.07 (± 19.81)	4.46 (± 13.50)			NS		4.02 (± 6.80)		3.88 (± 14.36)	3.98 (± 14.36)						
Home Produced	25.56 (± 139.66)		88.66 (± 110.46)	51.60 (± 132.14)			p<.001		3.23 (± 15.68)		10.31 (± 40.97)	5.08 (± 24.98)						
Others	.12 (± .5)		.01 (± .1)	.08 (± .4)			p<.05		1.87 (± 2.0)		1.56 (± 2.9)	1.78 (± 2.4)			NS			
Totals	30.73 (± 139.10)		93.74 (± 109.97)	56.14 (± 131.38)			p<.001		9.12 (± 16.56)		15.75 (± 42.71)	10.86 (± 26.17)						
N	299		202	501					373		132	505						
Aggregate Membership Comparison										All								
Variables	BRAC members		Non-members		All		t - test			BRAC members		Non-members		All		t - test		
	(2)		TGs	NTGs	(3)	(4)	(5)	(6)		(7)	(8)	(9)	(10)	(11)	(12)	(13)		
Purchased	5.83 (± 13.66)		4.68 (± 7.60)	6.39 (± 18.72)				NS		5.52 (± 13.92)		5.52 (± 13.92)	NS					
Home Produced	3.77 (± 14.81)		10.30 (± 80.77)	28.74 (± 71.84)				p<.001		16.95 (± 72.01)		16.95 (± 72.01)	p<.05				p<.001	
Others	.14 (± .5)		.82 (± 1.4)	.26 (± 6.2)				NS		0.5 (± 1.3)		0.5 (± 1.3)	p<.001				NS	
Totals	9.73 (± 20.10)		15.82 (± 80.57)	33.40 (± 72.22)				p<.001		22.98 (± 72.29)		22.98 (± 72.29)	p<.05				p<.001	
N	296		927	927					2064									

Others include : aid, gift, borrowed, bartered and payment in kind.

Variable	Member		TG non-members		NTGs	
	Cell comparison	p value + sig.	Cell comparison	p value + sig.	Cell comparison	p value + sig.
Purchased	(1) vs (2)	NS	(1) vs (2)	NS	(1) vs (2)	p<.05
			(1) vs (3)	p<.01	(1) vs (3)	p<.01
			(1) vs (4)	p<.01	(1) vs (4)	p<.001
			(2) vs (3)	NS	(2) vs (3)	NS
			(2) vs (4)	p<.05	(2) vs (4)	NS
			(3) vs (4)	NS	(3) vs (4)	NS
Home produced	(1) vs (2)	p<.01	(1) vs (2)	p<.01	(1) vs (2)	p<.001
			(1) vs (3)	p<.01	(1) vs (3)	p<.001
			(1) vs (4)	NS	(1) vs (4)	p<.05
			(2) vs (3)	p<.001	(2) vs (3)	p<.001
			(2) vs (4)	p<.001	(2) vs (4)	p<.01
			(3) vs (4)	p<.01	(3) vs (4)	p<.001
Others	(1) vs (2)	NS	(1) vs (2)	NS	(1) vs (2)	-
			(1) vs (3)	P<.05	(1) vs (3)	-
			(1) vs (4)	P<.001	(1) vs (4)	NS
			(2) vs (3)	NS	(2) vs (3)	-
			(2) vs (4)	NS	(2) vs (4)	NS
			(3) vs (4)	p<.01	(3) vs (4)	NS
Total	(1) vs (2)	P<.001	(1) vs (2)	p<.01	(1) vs (2)	p<.001
			(1) vs (3)	p<.05	(1) vs (3)	p<.001
			(1) vs (4)	NS	(1) vs (4)	p<.01
			(2) vs (3)	p<.01	(2) vs (3)	p<.001
			(2) vs (4)	p<.01	(2) vs (4)	p<.05
			(3) vs (4)	p<.01	(3) vs (4)	p<.001

Note : (1) - BRAC+ICDDR,B cell; (2) - BRAC cell; (3) - ICDDR,B cell; (4) - Comparison cell

Table 3.3 : Source and Amount of Household Fruits and Vegetables Inflow over the Week Preceding the Survey
(expressed in grams per consumption unit)

BRAC + ICDDR,B cell										BRAC-only cell							
Variables	BRAC members		Non-members		Cell total		t - test			BRAC members		Non-members		Cell total		t - test	
	(2)	(3)	TGs	NTGs	(4)	(5)	(2) vs (3)	(2) vs (4)		(8)	(9)	TGs	NTGs	(10)	(11)	(8) vs (9)	(8) vs (10)
Purchased	1.60 (± 1.98)	1.97 (± 2.55)	3.39 (± 4.90)	2.41 (± 3.65)			p<0.01			1.44 (± 1.15)	1.51 (± 1.39)	2.23 (± 2.61)	1.88 (± 2.13)	NS	p<0.01		
Home Produced	.60 (± 1.31)	.73 (± 2.16)	2.42 (± 10.31)	1.38 (± 6.78)			p<0.05			.60 (± .83)	.48 (± .77)	.62 (± 1.52)	.58 (± 1.24)	NS	NS		
Others	.15 (± .2)	.12 (± .3)	.12 (± .7)	.13 (± .5)			NS			.10 (± .2)	.27 (± .5)	.07 (± .2)	.13 (± .3)	p<0.05	NS		
Totals	2.35 (± 2.22)	2.82 (± 3.17)	5.94 (± 11.23)	3.92 (± 7.65)			p<0.01			2.14 (± 1.33)	2.26 (± 1.44)	2.92 (± 2.95)	2.59 (± 2.38)	NS	p<0.01		
N	199	111	216	526						97	145	277	519				

ICDDR,B-only cell										Comparison cell							
Variables	TGs		NTGs		Cell total		t - test			TGs		NTGs		Cell total		t - test	
	(2)	(3)	(3)	(4)	(4)	(5)	(2) vs (3)	(5)		(6)	(7)	(7)	(8)	(6) vs (7)	(9)		
Purchased	.87 (± 1.98)	1.23 (± 2.01)	1.01 (± 1.56)				p<0.05			1.09 (± 1.90)	1.30 (± 1.66)	1.15 (± 1.84)					
Home Produced	.22 (± .54)	.30 (± 1.63)	.33 (± 1.12)				p<0.05			.43 (± .58)	.36 (± .65)	.48 (± .60)			NS		
Others	.09 (± .16)	.07 (± .16)	.08 (± .19)				p<0.05			.16 (± .32)	.25 (± .47)	.19 (± .36)					
Totals	1.18 (± 1.26)	1.80 (± 2.56)	1.43 (± 1.92)				p<0.01			1.71 (± 1.94)	2.11 (± 2.14)	1.81 (± 2.00)					
N	299	202	501							373	132	505					

Aggregate Membership Comparison										T ² - test					
Variables	BRAC members		Non-members		All		(2) vs (3)			(2) vs (3)		(2) vs (4)			
	(2)	(3)	TGs	NTGs	(5)	(6)	(5)	(6)		(5)	(6)	(5)	(6)		
Purchased	1.35 (± 1.75)	1.19 (± 1.75)	2.14 (± 3.27)	1.62 (± 2.51)			p<0.01			1.62 (± 2.51)	1.62 (± 2.51)	p<0.01			
Home Produced	.60 (± 1.17)	.42 (± .95)	1.05 (± 3.46)	.70 (± 3.55)			p<0.05			.70 (± 3.55)	.70 (± 3.55)	p<0.05			
Others	.13 (± .23)	.15 (± .33)	.11 (± .44)	.14 (± .37)			NS			.14 (± .37)	.14 (± .37)	NS			
Totals	2.28 (± 1.98)	1.76 (± 1.95)	3.31 (± 6.38)	2.45 (± 4.37)			p<0.01			2.45 (± 4.37)	2.45 (± 4.37)	p<0.01			
N	296	928	827	2065						2065	2065				

Variable	Member		TG non-members		NTGs	
	Cell comparison	p value + sig.	Cell comparison	p value + sig.	Cell comparison	p value + sig.
Purchased	(1) vs (2)	NS	(1) vs (2)	NS	(1) vs (2)	p<.01
			(1) vs (3)	p<.001	(1) vs (3)	p<.001
			(1) vs (4)	p<.001	(1) vs (4)	p<.001
			(2) vs (3)	p<.001	(2) vs (3)	p<.001
			(2) vs (4)	p<.01	(2) vs (4)	p<.001
			(3) vs (4)	NS	(3) vs (4)	NS
Home produced	(1) vs (2)	NS	(1) vs (2)	NS	(1) vs (2)	p<.05
			(1) vs (3)	p<.05	(1) vs (3)	p<.01
			(1) vs (4)	NS	(1) vs (4)	p<.01
			(2) vs (3)	p<.001	(2) vs (3)	NS
			(2) vs (4)	NS	(2) vs (4)	NS
			(3) vs (4)	p<.001	(3) vs (4)	NS
Others	(1) vs (2)	p<.05	(1) vs (2)	NS	(1) vs (2)	NS
			(1) vs (3)	NS	(1) vs (3)	NS
			(1) vs (4)	NS	(1) vs (4)	NS
			(2) vs (3)	p<.001	(2) vs (3)	NS
			(2) vs (4)	p<.01	(2) vs (4)	NS
			(3) vs (4)	NS	(3) vs (4)	NS
Total	(1) vs (2)	NS	(1) vs (2)	NS	(1) vs (2)	p<.001
			(1) vs (3)	p<.001	(1) vs (3)	p<.001
			(1) vs (4)	p<.001	(1) vs (4)	p<.001
			(2) vs (3)	p<.001	(2) vs (3)	p<.001
			(2) vs (4)	p<.001	(2) vs (4)	p<.01
			(3) vs (4)	p<.001	(3) vs (4)	NS

Note : (1) - BRAC+ICDDR,B cell; (2) - BRAC cell; (3) - ICDDR,B cell; (4) - Comparison cell

Table 3.4 : Source and Amount of Household Fish and Meat Inflow over the Week Preceding the Survey
(expressed in grams per consumption unit)

BRAC + ICDDR,B cell													BRAC-only cell			
Variables	BRAC members		Non-members		Cell total	t - test			BRAC members		Non-members		Cell total	t - test		
	(2)	(3)	(4)	(5)		(2) vs (3)	(6)	(7)	(8)	(9)	(10)	(11)		(8) vs (9)	(12)	(13)
Purchased	.37 (± .40)	.27 (± .46)	.65 (± .89)	.46 (± .68)				p<.001	.50 (± .37)	.50 (± .49)	.79 (± 1.57)	.65 (± 1.19)			p<.01	
Home Produced	.03 (± .11)	.06 (± .22)	.15 (± .39)	.08 (± .28)				p<.001	.02 (± .08)	.03 (± .10)	.06 (± .16)	.04 (± .13)			p<.01	
Others	.08 (± .14)	.10 (± .22)	.10 (± .34)	.09 (± .27)			NS	NS	.09 (± .13)	.11 (± .19)	.05 (± .09)	.08 (± .13)	NS		NS	
Totals	.48 (± .45)	.44 (± .60)	.91 (± 1.15)	.64 (± .86)			p<.001		.62 (± .34)	.64 (± .50)	.91 (± 1.56)	.78 (± 1.19)			p<.01	
N	199	111	216	526					97	145	277	519				
ICDDR,B-only cell																
Variables	TGs		NTGs		Cell total	t - test			TGs		NTGs		Cell total	t - test		
	(2)	(3)	(4)	(5)		(2) vs (3)	(6)	(7)	(8)	(6) vs (7)	(9)					
Purchased	.22 (± .33)	.31 (± .35)	.26 (± .34)				p<.01		.21 (± .23)	.33 (± .38)	.25 (± .28)				p<.001	
Home Produced	.03 (± .11)	.03 (± .08)	.03 (± .10)				NS		.05 (± .14)	.09 (± .21)	.06 (± .16)				p<.05	
Others	.07 (± .14)	.05 (± .09)	.07 (± .12)				NS		.01 (± .04)	.01 (± .03)	.01 (± .04)					
Totals	.33 (± .37)	.39 (± .36)	.35 (± .37)				p<.05		.27 (± .27)	.43 (± .44)	.32 (± .33)				p<.001	
N	299	202	591						373	132	505					
Aggregate Membership Comparison																
Variables	BRAC members		Non-members		All	t ² - test			BRAC members		Non-members		All	t ² - test		
	(2)	(3)	(4)	(5)		(2) vs (3)	(6)	(7)	(2) vs (3)	(6)	(7)					
Purchased	.41 (± .40)	.27 (± .36)	.57 (± 1.06)						.41 (± .74)	.41 (± .74)	p<.001	p<.001			p<.001	
Home Produced	.03 (± .10)	.04 (± .14)	.08 (± .24)						.05 (± .18)	.05 (± .18)	NS	NS			p<.001	
Others	.08 (± .13)	.06 (± .14)	.06 (± .19)						.06 (± .17)	.06 (± .17)	p<.05	p<.05			p<.05	
Totals	.52 (± .42)	.37 (± .41)	.71 (± 1.13)						.53 (± .80)	.53 (± .80)	p<.001	p<.001			p<.001	
N	296	928	827						2065	2065						

Variable	Member		TG non-members		NTGs	
	Cell comparison	p value + sig.	Cell comparison	p value + sig.	Cell comparison	p value + sig.
Consumed	(1) vs (2)	NS	(1) vs (2)	NS	(1) vs (2)	NS
			(1) vs (3)	p<.001	(1) vs (3)	p<.001
			(1) vs (4)	p<.01	(1) vs (4)	p<.001
			(2) vs (3)	p<.001	(2) vs (3)	p<.001
			(2) vs (4)	p<.001	(2) vs (4)	p<.01
			(3) vs (4)	p<.01	(3) vs (4)	NS
Stocked	(1) vs (2)	p<.01	(1) vs (2)	p<.01	(1) vs (2)	p<.001
			(1) vs (3)	NS	(1) vs (3)	p<.001
			(1) vs (4)	NS	(1) vs (4)	p<.001
			(2) vs (3)	p<.05	(2) vs (3)	p<.001
			(2) vs (4)	p<.01	(2) vs (4)	p<.01
			(3) vs (4)	p<.01	(3) vs (4)	p<.001
Sold	(1) vs (2)	NS	(1) vs (2)	NS	(1) vs (2)	NS
			(1) vs (3)	NS	(1) vs (3)	p<.05
			(1) vs (4)	NS	(1) vs (4)	NS
			(2) vs (3)	NS	(2) vs (3)	NS
			(2) vs (4)	NS	(2) vs (4)	p<.05
			(3) vs (4)	p<.01	(3) vs (4)	p<.001

Note : (1) - BRAC+ICDDR,B cell; (2) - BRAC cell; (3) - ICDDR,B cell; (4) - Comparison cell

Table 3.7 : Amount of Food Consumed during the Week Preceding the Survey
(in grams per capita per day)

Sex	BRAC + ICDDR,B cell						BRAC-only cell					
	BRAC members	Non-members		Cell total	t - test		BRAC members	Non-members		Cell total	t - test	
		TGs	NTGs		(2) vs (3)	(2) vs (4)		TGs	NTGs		(8) vs (9)	(8) vs (10)
	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Rice	434.95 (± 162.40)	421.40 (± 205.94)	414.89 (± 179.36)	423.86 (± 179.07)	NS	NS	426.21 (± 128.96)	470.62 (± 214.30)	453.20 (± 175.89)	453.02 (± 180.42)	p<.05	NS
Wheat	60.92 (± 81.72)	76.02 (± 127.42)	82.24 (± 99.55)	72.86 (± 100.29)	NS	p<.05	18.87 (± 53.85)	13.58 (± 53.57)	10.96 (± 50.46)	13.17 (± 51.97)	NS	NS
Pulses	13.72 (± 15.73)	17.49 (± 21.85)	25.17 (± 27.60)	19.22 (± 23.06)	NS	p<.001	19.10 (± 18.45)	17.98 (± 19.89)	24.77 (± 22.89)	21.81 (± 21.51)	NS	p<.05
Leafy Vegetables	48.44 (± 55.00)	43.15 (± 54.24)	77.62 (± 71.42)	59.31 (± 63.91)	NS	p<.001	72.29 (± 37.40)	87.79 (± 62.99)	79.53 (± 48.08)	80.49 (± 51.20)	p<.05	NS
Other Vegetables	94.19 (± 75.65)	110.81 (± 103.48)	111.17 (± 84.59)	104.66 (± 85.98)	NS	p<.05	92.29 (± 49.11)	92.97 (± 67.71)	99.77 (± 67.48)	96.47 (± 64.50)	NS	NS
Fruit	72.82 (± 109.55)	95.86 (± 176.45)	123.54 (± 132.53)	98.51 (± 136.85)	NS	p<.001	71.07 (± 114.26)	71.69 (± 100.22)	128.58 (± 187.10)	101.94 (± 157.10)	NS	p<.001
Fish	44.03 (± 42.89)	39.81 (± 50.94)	74.03 (± 85.10)	55.49 (± 66.70)	NS	p<.001	60.34 (± 33.85)	67.51 (± 54.94)	80.70 (± 58.40)	73.21 (± 54.21)	NS	p<.001
Meat	8.97 (± 20.16)	7.51 (± 20.18)	20.89 (± 37.99)	13.56 (± 29.47)	NS	p<.001	5.71 (± 14.33)	5.29 (± 14.41)	14.27 (± 29.77)	10.16 (± 24.24)	NS	p<.01
Eggs	2.92 (± 5.63)	3.15 (± 6.63)	6.98 (± 21.74)	4.64 (± 14.80)	NS	p<.05	1.34 (± 3.28)	1.18 (± 2.76)	4.05 (± 8.99)	2.74 (± 7.01)	NS	p<.01
Milk	27.45 (± 72.14)	35.21 (± 84.05)	72.82 (± 92.37)	47.72 (± 85.93)	NS	p<.001	20.26 (± 38.53)	24.95 (± 66.86)	72.60 (± 102.87)	49.50 (± 88.15)	NS	p<.001
Added Oil	8.58 (± 4.95)	10.15 (± 6.40)	16.28 (± 14.32)	12.07 (± 10.70)	p<.05	p<.001	9.65 (± 5.60)	9.83 (± 7.82)	14.84 (± 42.92)	12.47 (± 31.79)	NS	p<.05
Total	817.00 (± 317.95)	861.51 (± 486.91)	1025 (± 448.55)	912.17 (± 423.50)	NS	p<.001	797.13 (± 233.37)	863.40 (± 409.04)	983.29 (± 459.49)	915.00 (± 418.26)	NS	p<.001
N	199	110	216	525			97	145	277	519		

ICDDR,B-only cell				Comparison cell			
(1)	TGs	NTGs	Cell total	TGs	NTGs	Cell total	t - test (6) vs (7) (9)
Rice	408.25 (± 150.38)	449.13 (± 178.21)	424.73 (± 163.24)	376.52 (± 173.45)	442.00 (± 248.07)	393.64 (± 197.56)	p<.01
Wheat	20.61 (± 49.68)	22.60 (± 72.49)	21.41 (± 59.87)	60.45 (± 92.35)	31.21 (± 86.44)	52.81 (± 86.44)	p<.001
Pulses	11.36 (± 15.65)	19.21 (± 19.91)	14.53 (± 17.89)	6.51 (± 9.69)	11.14 (± 13.38)	7.72 (± 10.95)	p<.001
Leafy Vegetables	10.20 (± 26.36)	10.03 (± 29.61)	10.13 (± 27.69)	29.20 (± 31.48)	37.67 (± 43.83)	31.41 (± 35.28)	p<.05
Other Vegetables	64.43 (± 63.07)	69.05 (± 62.71)	66.30 (± 62.90)	81.66 (± 84.14)	90.31 (± 68.57)	83.92 (± 80.39)	NS
Fruit	47.58 (± 92.71)	72.29 (± 110.90)	58.75 (± 101.25)	72.10 (± 127.78)	118.34 (± 200.58)	84.19 (± 151.40)	p<.01
Fish	29.22 (± 34.54)	37.81 (± 32.64)	32.68 (± 34.01)	26.96 (± 26.49)	38.66 (± 37.37)	30.02 (± 30.12)	p<.001
Meat	7.50 (± 24.30)	7.05 (± 17.96)	7.32 (± 21.95)	3.59 (± 9.74)	10.70 (± 26.41)	5.45 (± 16.15)	p<.001
Eggs	1.55 (± 3.65)	2.96 (± 3.98)	2.12 (± 5.29)	1.34 (± 3.78)	3.11 (± 5.71)	1.80 (± 4.43)	p<.001
Milk	21.19 (± 46.26)	45.41 (± 66.40)	30.95 (± 56.47)	18.58 (± 36.45)	50.70 (± 77.56)	26.97 (± 52.38)	p<.001
Added Oil	8.62 (± 6.34)	12.73 (± 10.88)	10.28 (± 8.70)	6.94 (± 4.89)	9.39 (± 6.45)	7.58 (± 5.44)	p<.001
Total	630.53 (± 271.12)	751.28 (± 323.46)	679.21 (± 298.97)	683.86 (± 326.53)	843.23 (± 541.31)	725.52 (± 399.71)	p<.001
N	299	202	501	373	132	505	

Aggregate Membership Comparison									
	BRAC members		Non-members		All	t - test			
	(2)	TGs	NTGs	(4)		(5)	(2) vs (3)	(2) vs (4)	
		(3)					(6)	(7)	
Rice	432.08 (± 152.09)	406.80 (± 180.36)	440.41 (± 190.90)	423.74 (± 181.37)		p<.05	NS		
Wheat	47.14 (± 76.27)	42.12 (± 84.42)	35.65 (± 78.38)	40.33 (± 80.93)		NS	p<.05		
Pulses	15.48 (± 16.83)	11.18 (± 15.98)	21.34 (± 22.89)	15.83 (± 19.69)		p<.001	p<.001		
Leafy Vegetables	56.26 (± 51.10)	33.90 (± 47.34)	55.38 (± 59.13)	45.72 (± 54.14)		p<.001	NS		
Other Vegetables	93.57 (± 68.02)	81.33 (± 79.46)	93.73 (± 73.00)	87.96 (± 75.38)		p<.01	NS		
Fruit	72.24 (± 110.92)	66.95 (± 121.60)	112.61 (± 161.57)	85.72 (± 139.16)		NS	p<.001		
Fish	49.37 (± 40.82)	35.55 (± 40.56)	61.77 (± 62.37)	48.03 (± 51.86)		p<.001	p<.001		
Meat	7.90 (± 18.49)	5.59 (± 17.67)	13.67 (± 29.78)	9.13 (± 23.64)		NS	p<.001		
Eggs	2.41 (± 5.03)	1.60 (± 4.09)	4.40 (± 13.02)	2.81 (± 9.00)		p<.01	p<.01		
Milk	25.10 (± 63.14)	22.40 (± 52.73)	62.52 (± 89.10)	38.86 (± 73.36)		NS	p<.001		
Added Oil	8.93 (± 5.19)	8.31 (± 6.20)	13.83 (± 26.64)	10.61 (± 17.68)		NS	p<.001		
Total	810.49 (± 292.67)	715.82 (± 359.31)	915.32 (± 454.96)	808.82 (± 402.99)		p<.001	p<.001		
N	296	927	827	2064					

Variable	Member		TG non-members		NTGs	
	Cell comparison	p value + sig.	Cell comparison	p value + sig.	Cell comparison	p value + sig.
Rice	(1) vs (2)	NS	(1) vs (2)	NS	(1) vs (2)	p<05
			(1) vs (3)	NS	(1) vs (3)	NS
			(1) vs (4)	p<05	(1) vs (4)	NS
			(2) vs (3)	p<01	(2) vs (3)	NS
			(2) vs (4)	p<001	(2) vs (4)	NS
			(3) vs (4)	p<05	(3) vs (4)	NS
Wheat	(1) vs (2)	p<001	(1) vs (2)	p<001	(1) vs (2)	p<001
			(1) vs (3)	p<001	(1) vs (3)	p<001
			(1) vs (4)	NS	(1) vs (4)	p<001
			(2) vs (3)	NS	(2) vs (3)	p<05
			(2) vs (4)	p<001	(2) vs (4)	p<001
			(3) vs (4)	p<001	(3) vs (4)	NS
Pulse	(1) vs (2)	P<05	(1) vs (2)	NS	(1) vs (2)	NS
			(1) vs (3)	p<01	(1) vs (3)	p<05
			(1) vs (4)	p<001	(1) vs (4)	p<001
			(2) vs (3)	p<001	(2) vs (3)	p<01
			(2) vs (4)	p<001	(2) vs (4)	p<001
			(3) vs (4)	p<001	(3) vs (4)	p<001
Leafy Veg.	(1) vs (2)	p<001	(1) vs (2)	p<001	(1) vs (2)	NS
			(1) vs (3)	p<001	(1) vs (3)	p<001
			(1) vs (4)	p<001	(1) vs (4)	p<001
			(2) vs (3)	p<001	(2) vs (3)	p<001
			(2) vs (4)	p<001	(2) vs (4)	p<001
			(3) vs (4)	p<001	(3) vs (4)	p<001
Other Veg.	(1) vs (2)	NS	(1) vs (2)	NS	(1) vs (2)	NS
			(1) vs (3)	p<001	(1) vs (3)	p<001
			(1) vs (4)	p<01	(1) vs (4)	p<05
			(2) vs (3)	p<001	(2) vs (3)	p<001
			(2) vs (4)	NS	(2) vs (4)	NS
			(3) vs (4)	p<01	(3) vs (4)	p<01
Fruits	(1) vs (2)	NS	(1) vs (2)	NS	(1) vs (2)	NS
			(1) vs (3)	p<001	(1) vs (3)	p<001
			(1) vs (4)	NS	(1) vs (4)	NS
			(2) vs (3)	p<05	(2) vs (3)	p<001
			(2) vs (4)	NS	(2) vs (4)	NS
			(3) vs (4)	p<01	(3) vs (4)	p<05

Note : (1) - BRAC+ICDDR,B cell; (2) - BRAC cell; (3) - ICDDR,B cell; (4) - Comparison cell

Variable	Member		TG non-members		NTGs	
	Cell comparison	p value + sig.	Cell comparison	p value + sig.	Cell comparison	p value + sig.
Fish	(1) vs (2)	p<.001	(1) vs (2)	p<.001	(1) vs (2)	NS
			(1) vs (3)	p<.05	(1) vs (3)	p<.001
			(1) vs (4)	p<.001	(1) vs (4)	p<.001
			(2) vs (3)	p<.001	(2) vs (3)	p<.001
			(2) vs (4)	p<.001	(2) vs (4)	p<.001
			(3) vs (4)	NS	(3) vs (4)	NS
Meat	(1) vs (2)	NS	(1) vs (2)	NS	(1) vs (2)	p<.05
			(1) vs (3)	NS	(1) vs (3)	p<.001
			(1) vs (4)	p<.01	(1) vs (4)	p<.01
			(2) vs (3)	NS	(2) vs (3)	p<.01
			(2) vs (4)	NS	(2) vs (4)	NS
			(3) vs (4)	p<.01	(3) vs (4)	NS
Eggs	(1) vs (2)	p<.05	(1) vs (2)	p<.001	(1) vs (2)	p<.05
			(1) vs (3)	p<.01	(1) vs (3)	p<.05
			(1) vs (4)	p<.001	(1) vs (4)	p<.05
			(2) vs (3)	NS	(2) vs (3)	NS
			(2) vs (4)	NS	(2) vs (4)	NS
			(3) vs (4)	NS	(3) vs (4)	NS
Milk	(1) vs (2)	NS	(1) vs (2)	NS	(1) vs (2)	NS
			(1) vs (3)	p<.05	(1) vs (3)	p<.001
			(1) vs (4)	p<.01	(1) vs (4)	p<.05
			(2) vs (3)	NS	(2) vs (3)	p<.001
			(2) vs (4)	NS	(2) vs (4)	p<.05
			(3) vs (4)	NS	(3) vs (4)	NS
Added Oil	(1) vs (2)	NS	(1) vs (2)	NS	(1) vs (2)	NS
			(1) vs (3)	p<.05	(1) vs (3)	p<.01
			(1) vs (4)	p<.001	(1) vs (4)	p<.001
			(2) vs (3)	NS	(2) vs (3)	NS
			(2) vs (4)	p<.001	(2) vs (4)	NS
			(3) vs (4)	p<.001	(3) vs (4)	p<.01
Total	(1) vs (2)	NS	(1) vs (2)	NS	(1) vs (2)	NS
			(1) vs (3)	p<.001	(1) vs (3)	p<.001
			(1) vs (4)	p<.001	(1) vs (4)	p<.001
			(2) vs (3)	p<.001	(2) vs (3)	p<.001
			(2) vs (4)	p<.001	(2) vs (4)	p<.05
			(3) vs (4)	p<.05	(3) vs (4)	NS

Note : (1) - BRAC+ICDDR,B cell; (2) - BRAC cell; (3) - ICDDR,B cell; (4) - Comparison cell

	ICDDR,B-only cell					Comparison cell				
(1)	TGs	NTGs	Cell total	t - test (2) vs (3)		TGs	NTGs	Cell total	t - test (6) vs (7)	
	(2)	(3)	(4)	(5)		(6)	(7)	(8)	(9)	
	(± 520)	(± 617)	(± 565)	(5)		(± 600)	(± 858)	(± 683)	(9)	
Rice	1413	1554	1470	p<.01		1303	1529	1362	p<.01	
Wheat	70	77	73	NS		206	106	180	p<.001	
Pulses	(± 169)	(± 247)	(± 204)	p<.001		(± 315)	(± 213)	(± 295)	p<.001	
Leafy Vegetables	39	66	50	NS		22	38	26	p<.05	
Other Vegetables	(± 54)	(± 68)	(± 61)	NS		(± 33)	(± 46)	(± 37)	NS	
Fruit	7	7	7	p<.01		20	26	21	p<.01	
Fish	(± 18)	(± 20)	(± 19)	NS		(± 21)	(± 30)	(± 24)	p<.001	
Meal	45	48	46	p<.01		57	63	59	p<.001	
Eggs	(± 44)	(± 44)	(± 44)	NS		(± 59)	(± 48)	(± 56)	p<.01	
Milk	26	41	32	p<.01		40	65	46	p<.001	
Edible Oil	(± 51)	(± 61)	(± 56)	NS		(± 70)	(± 110)	(± 83)	p<.001	
Total	37	48	41	p<.01		34	49	38	p<.001	
N	(± 43)	(± 41)	(± 43)	p<.01		(± 33)	(± 47)	(± 38)	p<.001	
	8	8	8	NS		4	12	6	p<.001	
	(± 27)	(± 20)	(± 24)	p<.01		(± 11)	(± 30)	(± 18)	p<.001	
	3	5	4	p<.01		2	5	3	p<.001	
	(± 6)	(± 12)	(± 9)	p<.001		(± 6)	(± 10)	(± 8)	p<.001	
	14	30	21	p<.001		12	34	18	p<.001	
	(± 31)	(± 44)	(± 38)	p<.001		(± 24)	(± 52)	(± 35)	p<.001	
	78	115	92	p<.001		62	84	68	p<.001	
	(± 57)	(± 98)	(± 78)	p<.001		(± 44)	(± 58)	(± 49)	p<.001	
	1740	1999	1844	p<.001		1763	2012	1828	p<.001	
	(± 615)	(± 774)	(± 694)	p<.001		(± 757)	(± 1074)	(± 857)	p<.001	
	299	202	501	p<.001		373	132	505	p<.001	

Table 3.8 : Amount of Calories Consumed during the Week Preceding the Survey
(in Kcal per capita per day)

BRAC + ICDDR,B coll														BRAC-only coll						
	BRAC members	Non-members		Cell total	t - test		BRAC members	Non-members		Cell total	t - test									
		TCs	NTCs		(2) vs (3)	(2) vs (4)		TCs	NTCs		(8) vs (9)	(8) vs (10)								
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)								
Rice	1505 (±562)	1458 (± 712)	1435 (± 620)	1466 (± 620)	NS	NS	1475 (± 446)	1628 (± 741)	1568 (± 608)	1567 (± 624)	p<.05	NS								
Wheat	208 (±279)	259 (± 434)	280 (± 339)	248 (± 342)	NS	p<.05	64 (± 184)	46 (± 182)	37 (± 172)	45 (± 177)	NS	NS								
Pulses	47 (±54)	60 (± 75)	86 (± 95)	66 (± 79)	NS	p<.001	65 (± 63)	62 (± 68)	85 (± 78)	75 (± 74)	NS	p<.05								
Leafy Vegetables	33 (± 37)	29 (± 37)	53 (± 48)	40 (± 43)	NS	p<.001	49 (± 25)	60 (± 43)	54 (± 33)	55 (± 35)	p<.05	NS								
Other Vegetables	66 (± 53)	77 (± 72)	78 (± 59)	73 (± 60)	NS	p<.05	65 (± 34)	65 (± 47)	70 (± 47)	67 (± 45)	NS	NS								
Fruit	40 (± 60)	53 (± 97)	68 (± 73)	54 (± 75)	NS	p<.001	39 (± 63)	39 (± 55)	71 (± 103)	56 (± 86)	NS	p<.001								
Fish	55 (± 54)	50 (± 64)	43 (± 107)	70 (± 84)	NS	p<.001	76 (± 43)	85 (± 69)	102 (± 73)	92 (± 68)	NS	p<.001								
Meat	10 (± 22)	8 (± 23)	23 (± 42)	15 (± 33)	NS	p<.001	6 (± 16)	6 (± 16)	16 (± 33)	11 (± 27)	NS	p<.01								
Eggs	5 (± 10)	5 (± 11)	12 (± 38)	8 (± 25)	NS	p<.05	2 (± 6)	2 (± 5)	7 (± 15)	5 (± 12)	NS	p<.01								
Milk	18 (± 48)	24 (± 56)	49 (± 62)	32 (± 57)	NS	p<.001	13 (± 26)	17 (± 45)	49 (± 69)	33 (± 59)	NS	p<.001								
Edible Oil	77 (± 45)	91 (± 58)	146 (± 129)	109 (± 96)	p<.05	p<.001	87 (± 50)	88 (± 70)	133 (± 386)	112 (± 286)	NS	p<.05								
Total	2065 (± 716)	2117 (± 1058)	2325 (± 943)	2183 (± 898)	NS	p<.01	1942 (± 521)	2099 (± 926)	2192 (± 912)	2119 (± 861)	NS	p<.001								
N	199	110	216	525			97	145	277	519										

Aggregate Membership Comparison							
	BRAC members		Non-members		AE	t - test	
			TGs	NTGs		(2) vs (3)	(2) vs (4)
	(1)	(2)	(3)	(4)		(6)	(7)
Rice	1495 (± 526)	1407 (± 624)	1524 (± 660)	1466 (± 627)	p<.05	NS	
Wheat	161 (± 260)	144 (± 288)	122 (± 267)	137 (± 276)	NS	p<.05	
Pulses	53 (± 58)	38 (± 55)	73 (± 78)	54 (± 67)	p<.001	p<.001	
Leafy Vegetables	38 (± 35)	23 (± 32)	38 (± 40)	31 (± 37)	p<.001	NS	
Other Vegetables	65 (± 48)	57 (± 56)	66 (± 51)	62 (± 53)	p<.05	NS	
Fruit	40 (± 61)	37 (± 67)	62 (± 89)	47 (± 76)	NS	p<.001	
Fish	62 (± 51)	45 (± 51)	78 (± 78)	60 (± 65)	p<.001	p<.001	
Meat	9 (± 21)	6 (± 20)	15 (± 33)	10 (± 26)	NS	p<.01	
Eggs	4 (± 9)	3 (± 7)	8 (± 22)	5 (± 16)	p<.01	p<.01	
Milk	17 (± 42)	15 (± 35)	42 (± 60)	26 (± 49)	NS	p<.001	
Edible Oil	80 (± 47)	75 (± 56)	124 (± 240)	95 (± 159)	NS	p<.01	
Total	2025 (± 660)	1850 (± 801)	2150 (± 925)	1995 (± 846)	p<.001	p<.05	
N	296	927	827				

Variable	Member		TG non-members		NTGs	
	Cell comparison	p value + sig.	Cell comparison	p value + sig.	Cell comparison	p value + sig.
Rice	(1) vs (2)	NS	(1) vs (2)	NS	(1) vs (2)	p<.05
			(1) vs (3)	NS	(1) vs (3)	NS
			(1) vs (4)	p<.05	(1) vs (4)	NS
			(2) vs (3)	p<.01	(2) vs (3)	NS
			(2) vs (4)	p<.001	(2) vs (4)	NS
			(3) vs (4)	p<.05	(3) vs (4)	NS
Wheat	(1) vs (2)	p<.001	(1) vs (2)	p<.001	(1) vs (2)	p<.001
			(1) vs (3)	p<.001	(1) vs (3)	p<.001
			(1) vs (4)	NS	(1) vs (4)	p<.001
			(2) vs (3)	NS	(2) vs (3)	p<.05
			(2) vs (4)	p<.001	(2) vs (4)	p<.001
			(3) vs (4)	p<.001	(3) vs (4)	NS
Pulses	(1) vs (2)	p<.05	(1) vs (2)	NS	(1) vs (2)	NS
			(1) vs (3)	p<.01	(1) vs (3)	p<.05
			(1) vs (4)	p<.001	(1) vs (4)	p<.001
			(2) vs (3)	p<.001	(2) vs (3)	p<.01
			(2) vs (4)	p<.001	(2) vs (4)	p<.001
			(3) vs (4)	p<.001	(3) vs (4)	p<.001
L.veg.	(1) vs (2)	p<.001	(1) vs (2)	p<.001	(1) vs (2)	NS
			(1) vs (3)	p<.001	(1) vs (3)	p<.001
			(1) vs (4)	p<.001	(1) vs (4)	p<.001
			(2) vs (3)	p<.001	(2) vs (3)	p<.001
			(2) vs (4)	p<.001	(2) vs (4)	p<.001
			(3) vs (4)	p<.001	(3) vs (4)	p<.001
Other veg.	(1) vs (2)	NS	(1) vs (2)	NS	(1) vs (2)	NS
			(1) vs (3)	p<.001	(1) vs (3)	p<.001
			(1) vs (4)	p<.01	(1) vs (4)	p<.05
			(2) vs (3)	p<.001	(2) vs (3)	p<.001
			(2) vs (4)	NS	(2) vs (4)	NS
			(3) vs (4)	p<.01	(3) vs (4)	p<.01
Fruits	(1) vs (2)	NS	(1) vs (2)	NS	(1) vs (2)	NS
			(1) vs (3)	p<.001	(1) vs (3)	p<.001
			(1) vs (4)	NS	(1) vs (4)	NS
			(2) vs (3)	p<.05	(2) vs (3)	p<.001
			(2) vs (4)	NS	(2) vs (4)	NS
			(3) vs (4)	p<.01	(3) vs (4)	p<.05

Table3.10: Comparison of First Round Nutrition Survey to National Nutrition Survey of 1981-82

Percent of Daily Requirement	Average of All Households	Adjusted Average of All HHs(see below)	National Survey 1981-1982
Less than 50	8	7	8
50 - 59	11	11	10
60 - 69	15	14	14
70 - 79	15	15	17
80 - 89	15	15	15
90 - 99	12	12	12
100 and Above	24	26	24

N.B.- The 1981-82 Nutritional Survey used the old nutritional standard of 2273 as opposed to the currently used 2310 calories per person per day by the Bangladesh Bureau of Statistics. The Adjusted Average shown in this table applies the data to the old standard for the sole purpose of comparing the results of the two surveys.

INFANT AND CHILD FEEDING PRACTICES

4.1 Introduction

Breast milk is ideal food for the newborn. Their survival and proper development largely depend on breast feeding. Breast milk contains highly bioavailable nutrients in adequate amounts for growth and development of infants. Colostrum, which continues to secret for about the first 2 or 3 days of lactation, contains high amounts of protein, immunoglobulin A, lactoferrin, vitamin A, sodium and zinc. Fat and lactose are present in lesser amounts (Cameron Margaret et al, 1983). Breast milk has immunological properties that protect the infant from infection during the early months of life. Breast feeding also helps in the neurological development of the child (Santi Ghosh, 1985).

It is often assumed that the breast feeding practice is widespread in Bangladesh. However, benefits of breast feeding becomes evident only if the baby is put to breast soon after birth to ensure intake of colostrum, no pre-lacteal feed is given, exclusive breast feeding is continued for 5-6 months. In Bangladesh, many mothers however, discard the colostrum and put their infants to breast after the first 1-2 days of delivery. They would rather give their infant water sweetened with sugar, honey, or crystalline sugar (*misri*) etc., with the assumption that colostrum is harmful for the infant. This action reduces the infant's hunger, delays the onset of breast feeding, causes breast refusal and reduces the suckling ability of the child. Though in many cases breast feeding continues for a whole year, in most cases the practice stops after the baby reaches the age of 6 months. They must depend on solid foods for nourishment after this period. The solid food is often given too early or too late. It is seen to be inadequate in quality, quantity and energy density. Poor food hygiene and increased disease load also affect the development of the child (NPAN, 1996).

This chapter presents the findings on the feeding practice of the study children aged less than 2 years nutritional knowledge of mothers and their attitude towards exclusive breast feeding and infant and child feeding practices.

4.2 Results

Distribution of the study children by age, sex and birth order

A total of 473 children (256 boys and 217 girls) were covered in this study. The distribution of the children by age and sex is shown in Table 4.1. The exact date of birth was available from the DSS record of ICDDR,B and age was calculated this date and the date of interview. There was no significant difference was observed in the age structure of male and female children in most of the cells. In case of the female children, only in the aggregate membership comparison cell the TGs were seen to have a considerably larger number of children under 2 years of age, than the BRAC members.

Birth order of the study children

Table 4.2 shows the distribution of children by birth order. In all the study cells, the highest proportion of children were either the 2nd or the 3rd child of their parents. Few were the 6th child of their parents. There was no significant difference between the study cells with respect to the birth order of the children .

Place of child birth

Most of the child deliveries (94-96%) took place at home (own or grand father's) (Table 4.3). This agrees well with the national data. There is significant difference between BRAC members and TG non-member HHs ($p < 0.001$) regarding the place of birth . Also, significant differences exist at aggregate level between cells.

Types of pre-lacteal feed

Any liquid other than breast milk that is given for the first time to the new born is defined as pre-lacteal feed. Mothers were asked if any liquid other than breast milk was given to the new born. Majority of the babies were given pre-lacteal fluids before breast feeding in all study cells except BRAC+ICDDR,B cell (Table 4.4). Honey alone or mixed with water was the most common pre-lacteal feed given. At aggregate level, the differences between BRAC members and TG non members and between BRAC members and NTGs were significant. Among TG non-members, the differences between cells with and without ICDDR,B intervention were significant.

Different reasons for pre-lacteal feed

Mothers were asked about the reasons for giving pre-lacteal feed. Table 4.5 shows that majority of the respondents gave honey water as a tradition. In all cells, mustard oil was used to clean the baby's mouth, this practice is higher in ICDDR,B only cell compare to other cells. There is no difference between BRAC cell for members while significant differences exists for TG non-members and NTGs in certain instances (Table 4.7)

Different means of providing pre-lacteal feed

Mothers were asked what instrument was used for feeding the baby pre-lacteal liquid. Most of them stated that usually the finger was used for this purpose in all study cells. However, the proportion of finger using for pre-lacteal feeding was highest (93-99%) in the comparison cell and lowest (49-64%) in the BRAC-ICDDR,B cell (Table 4.6), indicating the impact of health intervention in this cell. There is no significant differences between the cells. But there is significant differences between the membership status.

Initiator of pre-lacteal feed

The initiator of pre-lacteal feeding is the person who gave the first pre-lacteal liquid to the baby. Table 4.7 shows that in most of the cases in all study cells, the grand mothers were the initiators. The proportion of grand mother doing this job was highest in the comparison cell (51-78%). In the other three study cells, the percentage was 31-48%. Significant difference ($p < 0.05$) exists between the BRAC members and non-member non-target groups.

Colostrum feeding

Colostrum is very rich in proteins, vitamin A and antibodies. Table 4.8 shows that 85-91% babies in BRAC+ICDDR,B or ICDDR,B only cell received colostrum compared to 75-80% in the BRAC only cell and only 22-26% in the comparison area. This may be a long term impact of ICDDR,B's health intervention and indicates that proper intervention can bring about good results. Though there is no significant difference among different categories of HHs, at aggregate membership level significant differences exist between BRAC members and TG non-members ($p < 0.05$). Similar trend is also present among members between cells having BRAC intervention.

Reasons for colostrum feeding

The majority of the members in BRAC+ICDDR,B and BRAC-only cells mentioned colostrum as a nutritious food which protects the baby from Nightblindness and other diseases (Table 4.9). Significant difference was seen between the target groups and non-target groups in the comparison cell and also there is a significant difference between the aggregate membership status.

Proportion of currently breast fed children

Table 4.10 shows that almost all of the babies are breast fed currently. Only in the comparison area, some mothers (2-4%) are not breast feeding currently. No significant difference between the cells and membership status is found.

Proportion of children given breast milk and liquid

Table 4.11 reveals that majority of the mothers had given supplementary liquid (cow's milk, milk with rice powder, cooked rice water, barley water, diluted milk, etc.) along with breast milk in all cells. This practice is higher in BRAC and ICDDR,B cells, either alone or in combination (around

90%) compared to about 70% in the comparison cell. There is no significant difference between the cells and aggregate membership status.

Age of initiating supplementary food

Mothers were asked about the age of starting (introduced) weaning food. Table 4.12 reveals that majority of the mothers (79-89%) started weaning when the child had reached 10 months of age in all the study cells.

Different reasons for weaning

Most infants need additional foods by the age of six months. These foods are meant to complement breast milk and make certain that the young child gets enough energy, protein and other nutrients for normal growth. Mothers were asked about the reasons for commencing weaning food. Table 4.13 shows that many of the respondents, except in ICDDR,B cell mentioned that baby wants to eat or weaning food is needed to keep the baby healthy. There is not much difference between the TG and NTG non-member HHs in the comparison cell.

Source of advice for weaning

Most of the mothers (67-95%) in all the study cells stated that they themselves decided to initiate weaning food (Table 4.14). There is no significant difference between the aggregate membership status and cell levels.

Types of solid food given to the children

Table 4.15 shows that majority of the mothers used suji as the solid food in all the study cells but many in the BRAC+ICDDR,B cell (17-71%), followed by boiled rice (bhat) (15-47%) in the BRAC cell, *muri* (puffed rice) (8-25%) in the ICDDR,B and the comparison cells, and *khichuri* (3-16%) in the BRAC+ICDDR,B cell. TGs and NTGs differed greatly, particularly in the BRAC+ICDDR,B cell most of the NTGs (56%-71%) used suji compared to only 16-29% of the TGs.

Table 4.1 : Distribution of the children by age and sex in different study cells

BRAC + ICDDR,B cell										BRAC-only cell					
Age of the children (month)		BRAC members	Non-members		Cell total	χ^2 - test		BRAC members	Non-members		Cell total	χ^2 - test			
			TGs	NTGs		(2) Vs (3)	(2) Vs (4)		TGs	NTGs		(8) Vs (9)	(8) Vs (10)		
(1)		(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)		
1 - 6	M	26.1	18.8	20.8	22.2	NS	NS	18.2	23.5	21.1	21.2	NS	NS		
7 - 24		73.9	81.3	79.2	77.8			81.8	76.5	78.9	78.8				
N		23	16	24	63			11	17	38	66				
1 - 6	F	29.2	16.7	31.6	28.6	NS	NS	44.4	25.0	14.3	23.7	NS	NS		
7 - 24		70.8	83.3	68.4	71.4			55.6	75.0	85.7	76.3				
N		24	6	19	49			9	8	21	38				
ICDDR,B-only cell										Comparison cell					
Age of the children (month)		TGs	NTGs		Cell total	χ^2 - test		TGs	NTGs		Cell total	χ^2 - test			
			(2)	(3)		(2) Vs (3)	(5)		(6)	(7)		(6) Vs (7)	(9)		
(1)		(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)		
1 - 6	M	15.0	26.1	19.0	NS	21.3	16.7	20.3	NS	78.7	83.3	79.7	NS		
7 - 24		85.0	73.9	58.7		47	12	59		9.8	21.4	12.3		87.7	
N		24	23	63		51	14	65							
1 - 6	F	13.9	17.4	15.3	NS	90.2	87.6	87.7	NS	51	14	65	NS		
7 - 24		86.1	82.6	84.8		51	14	65		51	14	65			
N		36	23	59											

Aggregate Membership Comparison							
Age of the children (month)	BRAC members	Non-members		All	χ^2 - test		
		TG ₁	NTG ₁		(2) V ₃ (3)	(2) V ₃ (4)	(7)
		(3)	(4)		(6)		
(1)	(2)			(5)			
1 - 6	M	23.5	19.2	21.6	20.7	NS	NS
7 - 24		76.5	80.8	78.4	79.3		
N		34	120	97	251		
1 - 6	F	33.3	12.9	20.8	19.0	NS	NS
7 - 24		66.7	87.1	79.2	81.0		
N		33	101	77	211		

Table 4.2 : Birth order of the study children in different study cells

BRAC + ICDDR,B cell										BRAC-only cell				
Birth order	BRAC members	Non-members		Cell total	χ^2 - test		(2) Vs (3)	(2) Vs (4)	(8) Vs (9)	(8) Vs (10)	(12)	(13)	NS	NS
		TGs	NTGs		(6)	(7)								
(1)	(2)	(3)	(4)	(5)	(6)	(7)			(8)	(9)	(10)	(11)		
1st	29.2	21.7	34.9	30.4					4.8	23.1	25.4	20.8		
2 nd - 3rd	35.4	43.5	41.9	40.2					47.6	26.9	39.0	37.7		
4 th - 5th	22.9	21.7	20.9	20.5	NS	NS			28.6	34.6	27.1	29.2	NS	NS
6th	12.5	13.0	2.3	8.9					19.0	15.4	8.5	12.3		
N	48	21	43	112					21	26	59	106		
ICDDR,B-only cell										Comparison cell				
Birth order	TGs	NTGs	Cell total	χ^2 - test		(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
				(2) Vs (3)	(5)									
(1)	(2)	(3)	(4)											
1st	22.4	27.7	24.4						16.5	25.9	18.5			
2 nd - 3rd	40.8	40.4	40.7						36.9	44.4	38.5			
4 th - 5th	27.6	10.6	21.2	NS	NS				27.2	22.2	26.2			NS
6th	9.2	21.3	13.8						19.4	7.4	16.9			
N	76	47	123						103	27	130			
Aggregate Membership Comparison														
Birth order	BRAC members	Non-members			All	χ^2 - test		(2) Vs (3)	(2) Vs (4)	(7)	NS	NS	NS	NS
		TGs	NTGs	Cell total		(5)	(6)							
(1)	(2)	(3)	(4)	(5)										
1st	21.7	19.7	28.4	23.3										
2 nd - 3rd	39.1	37.7	40.9	39.1										
4 th - 5th	24.6	27.6	20.5	24.5										
6th	14.5	14.9	10.2	13.1										
N	69	228	176	473										

Table 4.3 : Place of child birth by BRAC membership status

BRAC + ICDDR,B cell										BRAC-only cell				
Place of birth	(1)	BRAC members	Non-members		Cell total	χ^2 - test		BRAC members	Non-members		Cell total	χ^2 - test		
			TGs	NTGs		(2) Vs (3)	(2) Vs (4)		TGs	NTGs		(8) Vs (9)	(8) Vs (10)	
		(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	
At home		27.7	31.8	16.7	24.3			66.7	61.5	50.0	56.1			
Paternal grand father's home		46.8	54.5	54.8	51.4			9.5	34.6	23.3	25.2			
Maternal grand father's home		23.4	9.1	16.7	18.0	NS	NS	19.0	3.8	23.3	17.8	NS	NS	
Others (hospital, health center)		2.1	4.5	11.9	6.3			4.8	-	3.3	2.8			
N		47	22	42	111			21	26	60	107			

ICDDR,B-only cell										Comparison cell				
Place of birth	(1)	TGs	NTGs	Cell total	χ^2 - test		TGs	NTGs	Cell total	χ^2 - test				
					(2) Vs (3)	(5)				(6) Vs (7)	(9)			
		(2)	(3)	(4)			(6)	(7)	(8)					
At home		64.9	46.7	58.2			70.3	29.6	61.7					
Paternal grand father's home		18.2	35.7	24.6			8.9	33.3	14.1					
Maternal father's home		16.9	13.3	15.6	NS	NS	20.8	37.0	24.2		NS			
Other's (hospital, health center)		-	4.4	1.6			-	-	-					
N		77	45	122			101	27	128					

Aggregate Membership Comparison						
Place of birth	BRAC members (2)	Non-members		All (5)	χ^2 - test	
		TGs (3)	NTGs (4)		(2) Vs (3) (6)	(2) Vs (4) (7)
		(1)				
At home	39.7	63.7	37.9	50.6	p<.001	NS
Paternal grand father's home	35.3	19.5	35.6	27.8		
Maternal father's home	22.1	16.4	21.3	19.0		
Other's (hospital, health center)	2.9	0.4	5.2	2.6		
N	68	226	174	468		

Variable	Member		TG non-members		NTGs	
	Cell comparison	p value + sig.	Cell comparison	p value + sig.	Cell comparison	p value + sig.
Place of Birth	(1) vs (2)	P<.001	(1) vs (2)	NS	(1) vs (2)	p<.001
			(1) vs (3)	p<.001	(1) vs (3)	p<.01
			(1) vs (4)	p<.001	(1) vs (4)	NS
			(2) vs (3)	NS	(2) vs (3)	NS
			(2) vs (4)	p<.01	(2) vs (4)	NS
			(3) vs (4)	NS	(3) vs (4)	NS

Note : (1) - BRAC+ICDDR,B cell; (2) - BRAC cell; (3) - ICDDR,B cell; (4) - Comparison cell

Table 4.4 : Types of pre-lacteal feeding giving to the children by BRAC membership status

Feeding type	BRAC + ICDDR,B cell						BRAC-only cell					
	BRAC members	Non-members		Cell total	χ^2 - test		BRAC members	Non-members		Cell total	χ^2 - test	
		TGs	NTGs		(2) Vs (3)	(2) Vs (4)		TGs	NTGs		(8) Vs (9)	(8) Vs (10)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Honey/honey with water	57.4	54.5	53.5	55.4	NS	NS	80.0	61.5	77.6	23.4	NS	NS
Breast milk	23.4	22.7	27.9	25.0			-	-	-	-		
Mustard oil	10.6	18.2	9.3	11.6			10.0	30.8	13.8	5.5		
Others (plain water, sugar water)	8.5	4.5	9.3	8.0			10.0	7.7	8.6	71.1		
N	47	22	43	112			20	26	283	329		
Feeding type	ICDDR,B-only cell						Comparison cell					
	TGs	NTGs	Cell total	χ^2 - test			TGs	NTGs	Cell total	χ^2 - test		
				(2) Vs (3)	(5)					(6) Vs (7)	(9)	
(1)	(2)	(3)	(4)	(5)			(6)	(7)	(8)			
Honey/honey with water	46.7	51.1	48.3	NS	NS	51.5	48.1	50.8	NS			
Breast milk	4.0	-	2.5			-	-	-				
Mustard oil	21.3	20.0	20.8			45.6	48.1	46.2				
Others (plain water, sugar water)	28.0	28.9	28.3			2.9	3.7	3.1				
N	75	45	120			103	27	130				
Feeding type	Aggregate Membership Comparison											
	BRAC members	Non members		All	χ^2 - test							
		TGs	NTGs		(2) Vs (3)	(7)		(2) Vs (3)	(6)		(2) Vs (4)	(7)
(1)	(2)	(3)	(4)	(5)								
Honey/honey with water	62.2	51.3	60.1	56.4	p<.001	p<.05						
Breast milk	16.4	3.5	6.9	6.7								
Mustard oil	10.4	33.2	19.7	24.9								
Others (plain water, sugar water)	9.0	11.9	13.3	12.0								
N	67	226	173	466								

Table 4.5 : Reason for giving pre-lacteal feeding by BRAC membership status

Aggregate Membership Comparison						
Reason	BRAC members (1)	Non-members		All (5)	χ^2 - test	
		TGs (3)	NTGs (4)		(2) Vs (3) (6)	(2) Vs (4) (7)
Giving honey is our traditional practice	41.3	16.0	31.5	25.6	< 0.001	NS
The child becomes normal and quiet	22.0	19.4	23.6	21.4		
No milk secretion immediately after delivery	20.6	49.0	27.9	36.9		
Mustard oil is used to clean baby's mouth	15.3	15.5	17.0	16.1		
N	63	206	165	434		

Variable	Member		TG non-members		NTGs	
	Cell comparison	p value + sig.	Cell comparison	p value + sig.	Cell comparison	p value + sig.
Reasons for pre-lacteal feeding	(1) vs (2)	NS	(1) vs (2)	NS	(1) vs (2)	p<.05
			(1) vs (3)	NS	(1) vs (3)	NS
			(1) vs (4)	NS	(1) vs (4)	NS
			(2) vs (3)	p<.001	(2) vs (3)	p<.001
			(2) vs (4)	NS	(2) vs (4)	p<.01
			(3) vs (4)	p<.01	(3) vs (4)	NS

Note : (1) - BRAC+ICDDR.B cell; (2) - BRAC cell; (3) - ICDDR.B cell; (4) - Comparison cell

Table 4.6 : Means of giving pre-lacteal feeding

	BRAC + ICDDR,B cell						BRAC-only cell					
Means of providing pre-lacteal feeding	BRAC members	Non-members		Cell total	χ^2 - test		BRAC members	Non-members		Cell total	χ^2 - test	
		TGs	NTGs		(2) Vs (3)	(2) Vs (4)		TGs	NTGs		(8) Vs (9)	(8) Vs (10)
		(2)	(3)	(4)	(5)	(6)		(7)	(8)	(9)	(10)	(11)
Using finger	60.5	63.6	48.8	56.6	NS	p<.09	85.0	96.2	86.4	80.9	NS	NS
Using spoon	2.3	9.1	17.1	9.4			10.0	3.8	8.5	5.9		
Using dropper	7.0	4.5	12.2	8.5			5.0	-	3.4	3.9		
Others	30.2	22.7	22.0	25.5			-	-	1.7	9.2		
N	43	22	41	106			67	26	59	152		
ICDDR,B-only cell												
Means of providing pre-lacteal feeding	TGs	NTGs	Cell total	χ^2 - test		TGs	NTGs	Cell total	χ^2 - test			
				(2) Vs (3)	(5)				(6) Vs (7)	(9)		
			(1)	(2)	(3)			(4)	(5)	(6)	(7)	(8)
Using finger	78.9	81.6	80.0	NS	99.0	92.6	97.7	NS				
Using spoon	14.0	15.8	14.7		1.0	7.4	2.3					
Using dropper	1.8	2.6	2.1		-	-	-					
Others	5.3	-	3.2		-	-	-					
N	57	38	95		103	27	130					
Aggregate Membership Comparison												
Means of providing pre-lacteal feeding	BRAC members	Non-members		All	χ^2 - test							
		TGs	NTGs		(2) Vs (3)	(2) Vs (4)						
		(1)	(2)	(3)	(4)	(5)	(6)	(7)				
Using finger	68.3	89.4	77.0	81.7	p<.001	p<.01						
Using spoon	4.8	5.8	12.1	8.0								
Using dropper	6.3	1.0	4.8	3.2								
Others	20.6	3.8	6.1	7.1								
N	63	208	165	436								

Variable	Member		TG non-members		NTGs	
	Cell comparison	p value - sig.	Cell comparison	p value + sig.	Cell comparison	p value - sig.
Means of providing feed	(1) vs (2)	NS	(1) vs (2)	NS	(1) vs (2)	p<.05
			(1) vs (3)	NS	(1) vs (3)	NS
			(1) vs (4)	p<.01	(1) vs (4)	NS
			(2) vs (3)	NS	(2) vs (3)	NS
			(2) vs (4)	NS	(2) vs (4)	NS
			(3) vs (4)	p<.001	(3) vs (4)	NS

Note : (1) - BRAC+ICDDR,B cell; (2) - BRAC cell; (3) - ICDDR,B cell; (4) - Comparison cell

Table 4.7 : Initiator of pre-lacteal feeding

	BRAC + ICDDR,B cell						BRAC-only cell							
Initiator of pre-lacteal feeding	(1)	BRAC members	Non-members		Cell total	χ ² - test		BRAC members	Non-members		Cell total	χ ² - test		
			TGs	NTGs		(2) Vs (3)	(2) Vs (4)		TGs	NTGs		(8) Vs (9)	(8) Vs (10)	
		(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	
Mother		41.9	42.9	33.3	38.8			5.0	7.7	5.1	5.7			
Grand mother		32.6	38.1	30.8	33.0			45.0	38.5	47.5	44.8			
Mid-wife		16.3	19.0	25.6	20.4	NS	NS	45.0	38.5	30.5	35.2	NS	NS	
Others		9.3	-	10.3	7.8			5.0	15.4	16.9	14.3			
N		43	21	39	103			20	26	59	105			
	ICDDR,B-only cell						Comparison cell							
Initiator of pre-lacteal feeding	(1)	TGs	NTGs		Cell total	χ ² - test		TGs	NTGs		Cell total	χ ² - test		
			(2)	(3)		(2) Vs (3)	(5)		(6)	(7)		(8)	(6) Vs (7)	(9)
Mother		21.8	8.2	16.5			12.6	7.4	11.5					
Grand mother		32.7	38.9	35.2			50.5	77.8	56.2					
Mid-wife		29.1	27.8	28.6	NS	NS	20.4	7.4	17.7			NS		
Others		16.4	25.0	19.8			16.5	7.4	14.6					
N		55	36	91			103	27	130					
	Aggregate Membership Comparison													
Initiator of pre lacteal feeding	(1)	BRAC members	Non-members				All	χ ² - test						
			(2)	TGs		NTGs		(5)	(2) Vs (3)		(7)			
				(3)	(4)	(6)			(4)					
Mother		30.2	17.6	13.0	17.7									
Grand mother		36.5	42.9	46.6	43.4									
Mid-wife		25.4	24.9	24.8	24.9									
Others		7.9	14.6	15.5	14.0									
N		63	205	161	429									

Variable	Member		TG non-members		NTGs	
	Cell comparison	p value + sig.	Cell comparison	p value + sig.	Cell comparison	p value + sig.
Initiator of feed	(1) vs (2)	p<.01	(1) vs (2)	p<.05	(1) vs (2)	p<.01
			(1) vs (3)	NS	(1) vs (3)	NS
			(1) vs (4)	p<.05	(1) vs (4)	p<.001
			(2) vs (3)	NS	(2) vs (3)	NS
			(2) vs (4)	NS	(2) vs (4)	p<.05
			(3) vs (4)	NS	(3) vs (4)	p<.05

Note : (1) - BRAC+ICDDR,B cell; (2) - BRAC cell; (3) - ICDDR,B cell; (4) - Comparison cell

Table 4.8 : Proportion of children receiving colostrum

Proportion of children received colostrum	BRAC + ICDDR,B cell						BRAC-only cell					
	BRAC members			Non members			BRAC members			Non members		
	TGs			NTGs			TGs			NTGs		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Yes	85.1	86.4	88.4	86.6	NS	NS	75.0	73.1	79.7	76.4	NS	NS
No	14.9	13.6	11.6	13.4			25.0	26.9	20.3	23.6		
N	47	22	43	112			21	26	59	106		
ICDDR,B-only cell												
Proportion of children received colostrum	TGs			NTGs			TGs			NTGs		
	(2)			(3)			(6)			(7)		
	total			total			total			total		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Yes	86.8	91.1	88.4	NS	NS	NS	25.5	22.2	24.8	NS	NS	NS
No	13.2	8.9	11.6				74.5	77.8	75.2			
N	76	45	121				102	27	129			
Aggregate Membership Comparison												
Proportion of children received colostrum	BRAC members			Non-members			All			χ ² - test		
	(2)			(3)			(5)			(6)		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Yes	77.9	57.5	75.9	67.3	p<.05	NS	25.5	22.2	24.8	NS	NS	NS
No	22.1	42.5	24.1	32.7			74.5	77.8	75.2			
N	68	226	174	468			102	27	129			

Variable	Member		TG non-members		NTGs	
	Cell comparison	p value + sig.	Cell comparison	p value + sig.	Cell comparison	p value + sig.
Children receiving colostrum	(1) vs (2)	p<.05	(1) vs (2)	NS	(1) vs (2)	NS
			(1) vs (3)	NS	(1) vs (3)	NS
			(1) vs (4)	p<.001	(1) vs (4)	p<.001
			(2) vs (3)	NS	(2) vs (3)	NS
			(2) vs (4)	p<.001	(2) vs (4)	p<.001
			(3) vs (4)	p<.001	(3) vs (4)	p<.001

Note : (1) - BRAC+ICDDR,B cell; (2) - BRAC cell; (3) - ICDDR,B cell; (4) - Comparison cell

Table 4.9 : The reason of giving colostrum by BRAC membership status

	BRAC + ICDDR,B cell						BRAC-only cell						
	BRAC members	Non members		Cell total	χ^2 - test		BRAC members	Non members		Cell total	χ^2 - test		
		TGs	NTGs		(2) Vs (3)	(2) Vs (4)		TGs	NTGs		(8) Vs (9)	(8) Vs (10)	(12)
Reason for giving colostrum	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Colostrum is the nutritious food for the baby		30.0	33.3	26.9	29.2			58.3	73.3	41.9	53.4		
Colostrum protects the baby from diseases		50.0	66.7	46.2	50.8			-	-	-	-		
Doctor suggests to give colostrum for better health		10.0	-	11.5	9.2	NS	NS	8.2	13.3	9.7	10.3	NS	NS
Colostrum is good for the baby		10.0	-	15.4	10.8			33.3	13.3	48.4	36.2		
N		30	9	26	65			12	15	31	58		

	ICDDR,B-only cell						Comparison cell						
	TGs	NTGs	Cell total	χ^2 - test		TGs	NTGs	Cell total	χ^2 - test				
				(2) Vs (3)	(5)				(6) Vs (7)	(9)			
Reason for giving colostrum	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Colostrum is the nutritious food for the baby		13.0	6.3	10.3		11.1	66.7	25.0					
Colostrum protects the baby from diseases		17.4	6.3	12.8		11.1	-	8.3					
Doctor suggests to give colostrum for better health		30.4	28.1	29.5	NS	38.9	33.3	37.5					
Colostrum is good for the baby		39.1	59.1	47.4		38.9	-	29.2					
N		46	32	78		18	6	24					

p<.05

Aggregate Membership Comparison						
Reason for giving colostrum	BRAC members	Non-members		All	χ^2 test	
		TGs	NTGs		(2) Vs (3)	(2) Vs (4)
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Colostrum is the nutritious food for the baby	38.1	25.0	27.4	28.4		
Colostrum protects the baby from diseases	35.7	18.2	14.7	20.0		
Doctor suggests to give colostrum for better health	9.5	26.1	17.9	19.6	p<.01	p<.01
Colostrum is good for the baby	16.7	30.7	40.0	32.0		
N	42	88	95	225		

Variable	Member		TG non-members		NTGs	
	Cell comparison	p value + sig.	Cell comparison	p value + sig.	Cell comparison	p value + sig.
Reasons for giving colostrum	(1) vs (2)	p<.05	(1) vs (2)	p<.01	(1) vs (2)	p<.01
			(1) vs (3)	p<.05	(1) vs (3)	p<.01
			(1) vs (4)	p<.05	(1) vs (4)	NS
			(2) vs (3)	p<.001	(2) vs (3)	p<.01
			(2) vs (4)	p<.01	(2) vs (4)	NS
			(3) vs (4)	NS	(3) vs (4)	NS

Note : (1) - BRAC+ICDDR,B cell; (2) - BRAC cell; (3) - ICDDR,B cell; (4) - Comparison cell

Table 4.10 : Proportion of currently breast fed children

	BRAC + ICDDR,B cell						BRAC-only cell			
	BRAC members	Non-members		Cell total	χ^2 - test		BRAC members	Non-members		χ^2 - test
		TGs	NTGs		(2) Vs (3)	(2) Vs (4)		TGs	NTGs	
Currently breast fed	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Yes	97.9	100.0	100.0	99.1			100.0	100.0	100.0	100.0
No	2.1	-	-	0.9	NS	NS	-	-	-	NA
N	47	23	43	113			21	26	60	107
	ICDDR,B-only cell						Comparison cell			
	TGs	NTGs	Cell total	χ^2 - test		Cell total	TGs	NTGs	Cell total	χ^2 - test
				(2) Vs (3)	(5)					
Currently breast fed	(2)	(3)	(4)			(6)	(7)	(8)		(9)
Yes	98.7	100.0	99.2			98.0	96.2	97.6		
No	1.3	-	0.8	NS		2.0	3.8	2.4		NS
N	77	46	123			101	26	127		
	Aggregate Membership Comparison						χ^2 - test			
	BRAC members	Non members		All	χ^2 - test		All	χ^2 - test		χ^2 - test
		TGs	NTGs		(2) Vs (3)	(2) Vs (4)		(2) Vs (3)	(2) Vs (4)	
Currently breast fed	(2)	(3)	(4)	(5)	(6)	(7)				
Yes	98.5	98.7	99.4	98.9						
No	1.5	1.3	0.6	1.1						
N	68	227	175	470						

Variable	Member		TG non-members		NTGs	
	Cell comparison	p value + sig.	Cell comparison	p value + sig.	Cell comparison	p value + sig.
Breast fed children	(1) vs (2)	NS	(1) vs (2)	NA	(1) vs (2)	NA
			(1) vs (3)	NS	(1) vs (3)	NA
			(1) vs (4)	NS	(1) vs (4)	NS
			(2) vs (3)	NS	(2) vs (3)	NS
			(2) vs (4)	NS	(2) vs (4)	NS
			(3) vs (4)	NS	(3) vs (4)	NS

Note : (1) - BRAC+ICDDR,B cell; (2) - BRAC cell; (3) - ICDDR,B cell; (4) - Comparison cell

Table 4.11 : Proportion of children given breast milk and liquid

		BRAC + ICDDR,B cell						BRAC-only cell					
Any other food (liquid) other than breast milk	(1)	BRAC members	Non members		Cell total	χ^2 - test		BRAC members	Non-members		Cell total	χ^2 - test	
			TGs	NTGs		(2) Vs (3)	(2) Vs (4)		TGs	NTGs		(8) Vs (9)	(8) Vs (10)
			(3)	(4)		(6)	(7)		(9)	(10)		(12)	(13)
			(8)	(9)		(11)	(12)		(13)				
Yes		84.8	82.6	88.1	85.6	NS	NS	85.7	88.5	90.0	88.8	NS	NS
No		15.2	17.4	11.9	14.4			14.3	11.5	10.0	11.2		
N		46	23	42	111			21	26	60	107		
		ICDDR,B-only cell						Comparison cell					
Any other food (liquid) other than breast milk	(1)	TGs	NTGs	Cell total	χ^2 - test		TGs	NTGs	Cell total	χ^2 - test			
					(2) Vs (3)	(5)				(6) Vs (7)	(9)		
					(2)	(3)				(4)	(7)	(8)	
					(9)	(10)				(11)	(12)		
Yes		91.8	87.0	89.9	NS	NS	68.3	66.7	68.0				
No		8.2	13.0	10.1			31.7	33.3	32.0				
N		73	46	119			101	27	128				
		Aggregate Membership Comparison											
Any other food (liquid) other than breast milk	(1)	BRAC members	Non members				All	χ^2 - test					
			TGs		NTGs			(2) Vs (3)	(6)	(7)			
			(2)	(3)	(4)	(5)		(8)					
			(9)	(10)	(11)	(12)							
Yes		85.1	79.8	85.1	82.6	NS							
No		14.9	20.2	14.9	17.4								
N		67	223	175	465								

Variable	Member		TG non-members		NTGs	
	Cell comparison	p value + sig.	Cell comparison	p value + sig.	Cell comparison	p value + sig.
Breast milk and liquied	(1) vs (2)	NS	(1) vs (2)	NS	(1) vs (2)	NS
			(1) vs (3)	NS	(1) vs (3)	NS
			(1) vs (4)	NS	(1) vs (4)	p<.05
			(2) vs (3)	NS	(2) vs (3)	NS
			(2) vs (4)	p<.05	(2) vs (4)	p<.01
			(3) vs (4)	p<.001	(3) vs (4)	p<.05

Note : (1) - BRAC+ICDDR,B cell; (2) - BRAC cell; (3) - ICDDR,B cell; (4) - Comparison cell

Table 4.12 : Age of initiating supplementary food

Age range (month) of weaning	BRAC + ICDDR,B cell						BRAC-only cell					
	BRAC members		Non-members		Cell total		BRAC members	Non-members		Cell total	χ^2 - test	
	(2)	(3)	TGs	NTGs	(4)	(5)		TGs	NTGs		(8) Vs (9)	(8) Vs (10)
(1)							(8)	(9)	(10)	(11)	(12)	(13)
1-3	5.0	7.0	11.1		7.9		6.1	6.8	7.1	6.8		
4-6	12.4	6.1	4.6		7.9		9.2	7.5	9.2	8.7		
7-10	1.5	2.6	0.9		1.5		2.0	0.7	2.5	1.9	NS	NS
>10	81.1	84.3	83.4		82.7		82.7	85.0	81.3	82.6		
N	201	115	217		533		98	147	283	528		
Age range (month) weaning	ICDDR,B-only cell						Comparison cell					
	TGs		NTGs		Cell total		TGs	NTGs		Cell total	χ^2 - test	
	(2)	(3)	(3)	(4)	(5)	(6)		(7)	(8)		(6) Vs (7)	(9)
(1)							(6)	(7)	(8)			
1-3	11.6	8.2		10.3		6.1	5.7	6.0				
4-6	7.7	9.2		8.3		4.5	3.5	4.3				
7-10	1.9	2.4		2.1		3.7	2.1	3.3			NS	
>10	78.7	80.2		80.7		85.6	88.7	86.4				
N	310	207		517		375	141	516				
Age range (month) weaning	Aggregate Membership Comparison						Aggregate Membership Comparison					
	BRAC members		Non-members		All		BRAC members	Non-members		All	χ^2 - test	
	(2)	(3)	TGs	NTGs	(5)	(6)		(5)	(6)		(2) Vs (3)	(2) Vs (4)
(1)												
1-3	5.4	8.1		8.1	7.7							
4-6	11.4	6.2		7.1	7.3							
7-10	1.7	2.5		2.0	2.2							
>10	81.6	83.1		82.8	82.8							
N	299	947		848	2094						p<.01	p<.05

Variable	Member		TG non-members		NTGs	
	Cell comparison	p value + sig.	Cell comparison	p value + sig.	Cell comparison	p value + sig.
Age of initiating supplementary food	(1) vs (2)	NS	(1) vs (2)	NS	(1) vs (2)	NS
			(1) vs (3)	NS	(1) vs (3)	NS
			(1) vs (4)	NS	(1) vs (4)	NS
			(2) vs (3)	NS	(2) vs (3)	NS
			(2) vs (4)	NS	(2) vs (4)	NS
			(3) vs (4)	NS	(3) vs (4)	NS

Note : (1) - BRAC+ICDDR,B cell; (2) - BRAC cell; (3) - ICDDR,B cell; (4) - Comparison cell

Table 4.13 : Reasons for weaning

Reasons for weaning food	BRAC + ICDDR,B cell						BRAC-only cell			
	BRAC members	Non-members		Cell total	χ^2 - test		BRAC members	Non-members		Cell total
		TGs	NTGs		(2) Vs (3)	(2) Vs (4)		TGs	NTGs	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
The baby wants to eat and he needs water	45.9	41.2	47.4	51.2			38.9	47.6	31.4	36.7
Breast milk is not sufficient in the growing age of the baby	29.7	41.2	23.7	32.9			33.3	38.1	31.4	33.3
It keeps the baby healthy	5.4	17.6	13.2	12.2	NS	NS	16.7	9.5	19.6	16.7
Others (don't know, no answer)	18.9	-	15.8	15.9			11.1	4.8	17.6	13.3
N	37	17	38	82			18	21	51	90

Reasons for weaning food	ICDDR,B-only cell						Comparison cell			
	TGs	NTGs	Cell total	χ^2 - test		Cell total	TGs	NTGs	Cell total	χ^2 - test
				(2) Vs (3)	(5)					
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
The baby wants to eat and he needs water	22.1	14.6	19.3			33.8	66.7	40.7		
Breast milk is not sufficient in the growing age of the baby	57.4	46.8	53.2			44.1	22.2	39.5		
It keeps the baby healthy	2.9	7.3	4.6	NS		4.4	11.1	5.8		p<.05
Others (don't know, no answer)	17.6	31.7	22.9			17.6	-	14.0		
N	68	41	109			68	18	86		

Table 4.13 : Reasons for weaning by BRAC membership status

Aggregate Membership Comparison						
Reasons for weaning food	BRAC members	Non-members		All	χ^2 - test	
		TGs	NTGs		(2) Vs (3)	(2) Vs (4)
(1)	(2)	(3)	(4)	(5)	(6)	(7)
The baby wants to eat and he needs water Breast milk is not sufficient in the growing age of the baby It keeps the baby healthy	43.6	31.6	35.1	34.7	NS	NS
	30.9	48.3	32.4	39.5		
	9.1	5.7	13.5	9.3		
Others (don't know, no answer)	16.4	14.4	18.9	16.2		
N	55	174	148	377		

Variable	Member		TG non-members		NTGs	
	Cell comparison	p value + sig.	Cell comparison	p value + sig.	Cell comparison	p value + sig.
Reasons for weaning	(1) vs (2)	NS	(1) vs (2)	NS	(1) vs (2)	NS
			(1) vs (3)	NS	(1) vs (3)	p<.01
			(1) vs (4)	NS	(1) vs (4)	NS
			(2) vs (3)	p<.05	(2) vs (3)	p<.05
			(2) vs (4)	NS	(2) vs (4)	NS
			(3) vs (4)	NS	(3) vs (4)	p<.01

Note : (1) - BRAC+ICDDR,B cell; (2) - BRAC cell; (3) - ICDDR,B cell; (4) - Comparison cell

Table 4.14 : *Source of advice for weaning*

Advisers for giving food	BRAC + ICDDR,B cell						BRAC-only cell					
	BRAC members		Non-members		Cell total		BRAC members		Non-members		Cell total	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Mother herself	79.5	78.9	94.7	85.4			66.7	90.9	74.1	77.4		
Senior household member	7.7	5.3	-	4.2			27.8	9.1	25.9	22.6		
Community health worker	10.3	5.3	2.6	6.3	NS	NS	5.6	-	-	-	NS	NS
Others (midwife, neighbors)	2.6	10.5	2.6	4.2			-	-	-	-		
N	39	19	38	96			18	22	54	93		
Advisers for giving food	ICDDR,B-only cell						Comparison cell					
	TGs		NTGs		Cell total		TGs		NTGs		Cell total	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Mother herself	79.7	78.0	79.1				85.5	68.8	82.4			
Senior household member	13.0	2.4	9.1				10.1	31.3	14.1			
Community health worker	7.2	17.1	10.9	NS	NS	NS	4.3	-	3.5			NS
Others (midwife, neighbors)	-	2.4	1.0				-	-	-			
N	69	41	110				69	16	85			
Advisers for giving food	Aggregate Membership Comparison						Aggregate Membership Comparison					
	BRAC members		Non-members		All		BRAC members		Non-members		All	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Mother herself	75.4	83.2	79.9	80.8			75.4	83.2	79.9	80.8		
Senior household member	14.0	10.6	13.4	12.2			14.0	10.6	13.4	12.2		
Community health worker	8.8	5.0	5.4	5.7			8.8	5.0	5.4	5.7		
Others (midwife, neighbors)	1.8	1.1	1.3	1.3			1.8	1.1	1.3	1.3		
N	57	179	149	385			57	179	149	385		

Variable	Member		TG non-members		NTGs	
	Cell comparison	p value + sig.	Cell comparison	p value + sig.	Cell comparison	p value + sig.
Advisors for weaning	(1) vs (2)	NS	(1) vs (2)	NS	(1) vs (2)	p<.01
			(1) vs (3)	NS	(1) vs (3)	NS
			(1) vs (4)	NS	(1) vs (4)	p<.01
			(2) vs (3)	NS	(2) vs (3)	p<.001
			(2) vs (4)	NS	(2) vs (4)	NS
			(3) vs (4)	NS	(3) vs (4)	p<.01

Note : (1) - BRAC+ICDDR,B cell; (2) - BRAC cell; (3) - ICDDR,B cell; (4) - Comparison cell

Table 4.15 : Types of first solid food given to the children

BRAC + ICDDR,B cell										BRAC-only cell					
Ist solid food	(1)	BRAC members	Non-members		Cell total	χ^2 - test		BRAC members	Non-members		Cell total	χ^2 - test			
			TGs	NTGs		(2) Vs (3)	(2) Vs (4)		TGs	NTGs		(8) Vs (9)	(8) Vs (10)		
		(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)		
Suji		41.9	16.7	71.4	49.3			46.2	29.4	50.0	43.5				
Khichuri		3.2	16.7	10.7	8.5			7.7	-	-	1.6				
Bhat		16.1	16.7	3.6	11.3			15.4	47.1	15.6	24.2	NS	NS		
Muri (puffed rice)		-	8.3	-	1.4			15.4	-	3.1	4.8				
Others (banana, biscuit)		38.7	41.7	14.3	29.6			15.4	21.5	31.3	25.8				
N		31	12	28	71			13	17	32	62				

ICDDR,B-only cell										Comparison cell					
Ist solid food	(1)	TGs	NTGs	Cell total	χ^2 - test		(2) Vs (3)	(5)	TGs	NTGs	Cell total	χ^2 - test			
					(2) Vs (3)	(2) Vs (4)						(6) Vs (7)	(6) Vs (9)		
		(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)						
Suji		50.0	34.6	44.4				32.7	41.7	37.7					
Khichuri		-	-	-			NS	-	-	-		NS			
Bhat		6.5	15.4	9.7				1.8	-	1.6					
Muri (puffed rice)		13.0	7.7	11.1				18.2	25.0	11.5					
Others (banana, biscuit)		30.4	42.3	34.7				47.3	33.3	49.2					
N		46	26	72				55	12	61					

Aggregate Membership Comparison										χ^2 - test					
Ist solid food	(1)	BRAC members	Non-members		All	χ^2 - test		(2) Vs (3)	(6)	(7)	(2) Vs (4)	(7)			
			TGs	NTGs		(2) Vs (3)	(6)								
		(2)	(3)	(4)	(5)										
Suji		43.2	36.9	51.0	43.0										
Khichuri		4.5	1.5	3.1	2.6										
Bhat		15.9	10.8	10.2	11.4						NS	NS			
Muri (puffed rice)		4.5	13.1	6.1	9.2										
Others (banana, biscuit)		31.8	37.7	29.6	33.9										
N		44	130	98	272										

Variable	Member		TG non-members		NTGs	
	Cell comparison	p value + sig.	Cell comparison	p value + sig.	Cell comparison	p value - sig.
Types of solid food giving	(1) vs (2)	NS	(1) vs (2)	NS	(1) vs (2)	NS
			(1) vs (3)	NS	(1) vs (3)	p<.05
			(1) vs (4)	p<.05	(1) vs (4)	p<.01
			(2) vs (3)	p<.001	(2) vs (3)	NS
			(2) vs (4)	p<.001	(2) vs (4)	p<.05
			(3) vs (4)	NS	(3) vs (4)	NS

Note : (1) - BRAC+ICDDR,B cell; (2) - BRAC cell; (3) - ICDDR,B cell; (4) - Comparison cell

ANTHROPOMETRIC STATUS

This chapter presents preliminary analysis of the anthropometric data which is used as a proxy indicators of nutritional status of the study populations. A total of 11,069 individuals of all ages and sex were measured during the first round survey. In addition to age and sex, different anthropometric measurements which were taken are: weight, height and mid upper arm circumference (MUAC). The study population was categorized into 4 groups: children aged 0-11 years; adolescents aged 11-18 years; adults aged 18-60 years; and elderly aged 60 years and above. The following sections summarize the results of the anthropometric survey.

5.1 Nutritional status of the children aged 0-11 years

5.1.1 Introduction

This section presents anthropometric data of the 3,148 children of both sex by different age groups such as pre-school (<5 years) and school aged (5-11years) children (Table 5.1). Of them, 52.2% were males. The proportion of children aged below 5 years and 5-11 years were about the same. The distribution of children by age and sex in different study cells is shown in Table 5.1.1.

Table 5.1. Total number of children surveyed in all the study cells

All 4 cells			
Age	Sex	No. of children	%
<5	M	639	52.4
	F	580	47.6
Total		1,219	100
5 - 11	M	1,002	51.9
	F	927	48.1
Total		1,929	100
0 - 11	M	1,641	52.2
	F	1,507	47.8
Total		3,148	100

5.1.2 Weight-for-age

This is an indicator of both recent and long term food deficiency. Table 5.1.2 shows the percentage of children who were underweight according to WHO classification (weight-for-age less than 80% of the NCHS median). The prevalence of underweight among the pre-school aged children was not significantly different ($p>0.05$) between BRAC-member and non-member belonged to the target group (TG). The proportion of underweight children was higher ($p<0.05$) among both the groups compared to the non target group (NTG) within BRAC + ICDDR,B and ICDDR,B-Only cells, while the other two cells did not show any significant difference within the groups. Interestingly, in aggregate comparison, none of the groups showed any difference ($p>0.05$). Comparing cells, the BRAC+ICDDR,B cell had the lowest percentage of underweight children for both BRAC- members and NTGs and the situation seemed to be similar in other three cells.

A similar pattern was also observed among school-aged children, except for comparison cell where no significant cell differences were observed among BRAC-members.

5.1.3 Height - for- age

Height-for-age is a measure of stunting indicates long term food deficiency which began at the earlier stage of life. Table 5.1.3 presents the percentage of children who were stunted according to the WHO classification (Height-for-age less than 90% of the NCHS median). Among the pre-schoolers, stunting showed no significant difference between the population groups and between the study cells. However, among school-aged children, the NTGs were nutritionally better-off in terms of prevalence of stunting than both non-member TGs and BRAC-members across the three cells (except in ICDDR,B only cell) and no difference was observed between non-member TGs and BRAC-members. Surprisingly, in aggregate membership comparison, there were no differences between different cells ($p>0.05$).

Comparing four cells, the BRAC+ICDDR,B cell had the lowest percentage of stunted children for both BRAC-members and the NTGs and no notable cell differences were observed within the non-member TGs ($p < 0.05$).

5.1.4 Weight-for-height

Weight-for-height is a measure of “wasting” which indicates recent or short term changes in nutritional status. Table 5.1.4 presents the percentage of children who were wasted according to WHO classification (weight-for-height less than 80% of the NCHS median). It was interesting to see that in aggregate membership comparison, both TGs and NTGs had significantly ($p < 0.001$, $p < 0.01$) lower proportion of wasted pre-school aged children than in BRAC-members. Among the four cells, only BRAC-members of the BRAC+ICDDR,B cell were significantly ($p < 0.001$) better-off than the other cells, but for both the TGs and NTGs, no consistent cell differences were observed. Among school-aged children, there were no notable differences between different population groups either in individual cell comparison or aggregate membership comparison level. Results of the cell comparison were similar to those of the pre-school aged children.

5.1.5 Mid upper arm circumference (MUAC)

Mid upper arm circumference (MUAC) gives a rough estimate of protein and energy stores which indicates recent changes in nutritional status. For children aged 6 months to 5 years, MUAC < 125 mm, 125-135 mm and > 135 mm measure severe, moderate and mild and normal degrees of protein-energy malnutrition (PEM) respectively. The distribution of children aged 6-59 months by different cut-off points of PEM according to sex, membership and study cells is shown in Table 5.1.5.

Interestingly, none of the population groups showed any significant difference in individual cell comparison. In aggregate comparison, percentage of different degree of malnutrition of both BRAC-members and the NTGs were found to be similar. Comparing BRAC-member with TGs, only among males of BRAC-member had significantly lower percentage of severe malnourished children. And also the proportion of normally nourished children was higher (p value ranges

from<0.01-<0.05) than the TGs. In the four cell comparison, no consistent cell difference was obtained in the percentage of different degree of malnourished children within different study groups.

5.2 Nutritional status of adolescents (11-18 years)

5.2.1 Introduction

A total of 1,850 adolescents of both sex were covered during the first round of the anthropometry survey (Table 5.2). Of them, 51.9 % were males. The total number of individuals covered of all cells is shown in the following Table and by different study cells is given in Table 5.2.1. The following section presents the results in terms of mean weight, height, MUAC and BMI.

Table 5.2 : Genderwise distribution of adolescents (11-18 Years) surveyed in all cells.

All 4 cells		
Sex	Total no.	%
M	961	51.9
F	889	48.1
Total	1850	100

5.2.2 Weight and height.

Tables 5.2.2 and 52.3 present the mean weight (kg) and height (cm) of the adolescents of both sex. The NTG adolescents were consistently heavier than both TGs and the BRAC-members in both individual cell (except in the Comparison cell) and the aggregate membership comparison levels. Among females, the mean weight of BRAC-members and TG non-members did not show any difference. However, among the males, BRAC-members were significantly heavier than the TG non-members. Comparing the four cells, only NTGs of the BRAC+ICDDR,B cell seemed to be heavier than the population of other three cells. Similar results were found with respect to mean height of the adolescents.

5.2.4 Mid upper arm circumference (MUAC)

Table 5.2.4 presents the mean MUAC of the adolescents who were included in the study. Among males, the NTG group had significantly higher MUAC than the TGs and BRAC-members in both BRAC+ICDDR,B and the Comparison cells. The NTG males were not significantly better-off in other two cells. Among females, no significant differences were observed between different study groups in individual cell comparison. In aggregate membership comparison, BRAC-members had higher mean MUAC than the TG non-members, and also no difference was seen between BRAC-members and NTGs. In cell comparison, again only NTGs of the BRAC+ICDDR,B cell seemed to have higher MUAC than other three cells and the other three cells did not show any significant differences within different study groups.

5.2.5 Body Mass Index (BMI)

Table 5.2.5 presents the mean BMI of the adolescents. In comparing the target groups, there were no consistent differences in the mean BMI between BRAC-members and TG non-members and also between NTGs in individual cell comparison. In aggregate membership comparison, the NTGs had a significantly higher BMI than both the TG non-members specially among males. In cell comparisons, again only NTGs of the BRAC+ICDDR,B cell had a higher mean BMI than the other three cells, but the mean BMI of the other population groups did not vary according to different study cells.

5.3 Nutritional status of adults (18-60 yrs)

5.3.1 Introduction

This section presents the anthropometry of the adult population aged 18-60 years. A total of 5,314 adults were covered during the first round of anthropometry survey, of which 47.3% were males (Table 5.3). For analysis, the population was categorized into two age groups: 18-45 years (younger adults) and 45-60 years (older adults). The distribution of the study population by different study cells is given in Table 5.3.1.

Table 5.3 : Total number of adult population (18-60 years) surveyed in all cells.

All 4 cells		
Sex	Total no.	%
M	2,513	47.3
F	2,801	52.7
Total	5,314	100

Anthropometry of younger adults

5.3.2 Weight

Table 5.3.2 (a) shows the mean weight (kg) for young adults. In individual cell comparison, there were no significant differences between BRAC-members and the TG non-members in the mean weight, but the NTGs were significantly heavier than both the TG non-members and the BRAC-members of all four cells (including aggregate comparison).

Table 5.3.2 (b) shows the mean weight (kg) for older adults. Within the target group, BRAC-members seemed to be significantly ($p<0.01$) heavier than the TG non-members only in the BRAC cell. In the BRAC+ICDDR,B cell alone, the NTGs were significantly ($p<0.05$) heavier than the BRAC members. In the aggregate membership comparison, only the females of the BRAC- members showed higher mean weight ($p<0.05$) than the TG non-members and no difference was observed with the NTGs.

In four cell comparison, the mean weight of the TGs of all the cells were similar, but BRAC-members of the BRAC-only cell seemed to be heavier than in the BRAC+ICDDR,B cell. Among NTGs, no consistent cell differences were observed.

5.3.3 Height

Table 5.3.3 (a) shows the mean height (cm) for young adults. In most cases, the different study groups did not show any differences in both individual cell and in aggregate membership

comparison levels except for the females of the BRAC-member who were significantly taller than the TG non-members in aggregate comparison. In comparing the four cells, both the TG non-members and the NTGs of the ICDDR,B cell were shorter than the other three cells and the mean height of different study groups were similar in other three cells.

Table 5.3.3 (b) shows the mean height (cm) for older adults. In individual cell comparison, there was no significant difference in the mean height among different study groups. But in the aggregate membership comparison, the female BRAC-members were taller than the TG non-

member females. In comparing the cells, within different study groups, mean height of the older adults were found to be similar for both the males and the females.

5.3.4 Mid upper arm circumference (MUAC)

Table 5.3.4 (a) presents the mean MUAC (mm) of young adults. No consistent differences were observed between different study groups in individual comparison. Interestingly, in aggregate comparisons, the mean MUAC of BRAC-members were significantly higher than the TG non-members but no differences were observed with NTGs. In four cell comparison, only the NTG of the BRAC+ICDDR,B cell had the highest mean of MUAC, but no remarkable differences were seen within other study groups in the other three cells.

Table 5.3.4 (b) presents the mean MUAC (mm) of the older adults. No significant differences were observed between the BRAC members and the TG non-members or NTGs in the individual cell comparison except for the NTGs of the BRAC+ICDDR,B cell, who had a higher mean MUAC than the BRAC members, and also, the NTGs showed a notably higher mean MUAC ($p < 0.01$) than the TG non-members in the ICDDR,B cell. In the aggregate membership comparison, no differences were observed between the different study groups. In comparing the four cells, in most cases the mean MUAC of the older adults were found to be similar for both the males and the females.

5.3.5 Body Mass Index (BMI)

Table 5.3.5 (a) shows the mean BMI of young adults. The NTGs showed consistently higher BMI than both the BRAC-members and the TG non-members (except in BRAC-only cell) in both individual and aggregate comparison levels. Among the TGs, there were no differences between TG non-members and the BRAC members. Interestingly, the mean BMI of different population groups did not vary according to the intervention cells.

Table 5.3.4 (b) shows the mean BMI of the older adults. No consistent differences were found between the different study groups in both individual cell and aggregate membership comparison levels. Interestingly, only BRAC members of the BRAC Only cell were found to have significantly higher mean BMI than the BRAC+ICDDR,B cell, but the mean BMI of the other population groups were found similar.

5.3.6 Body mass index (BMI) of adult women (15-60 years)

BMI is a composite measure of adult nutritional status. It is calculated as a ratio of weight (kg) divided by height (meter) squared i.e. $BMI = Wt(kg)/Ht(meter)^2$. For adult women, BMI <16 is considered as severe chronic energy deficiency (CED), 16-17 as moderate CED, 17-18.5 as mild CED and BMI >18.5 indicates normal nutritional status. The distribution of adult women by different BMI cut-off points according to membership status and intervention cell is shown in Table 5.3.6. In most cases, none of the population groups show significant differences in the prevalence of severe, moderate and mild CED in both individual and aggregate membership comparison but for the percentage of having normal nutritional status is significantly higher among the NTGs than both of the TG non-members and the BRAC-members. In all four cell comparison, prevalence of different degree of CED was found similar within different population groups but BRAC-members within BRAC-only cell had higher ($p<0.05$) proportion of normally nourished women than the BRAC members of the BRAC+ICDDR,B cell.

5.4 Nutritional status of elderly population (60 years and above)

5.4.1 Introduction

This section presents the mean weight, height, MUAC and BMI of the elderly population aged 60 years and above. During the first round of the anthropometric survey, 757 elderly individuals of the above age group were measured of which 52.7% were males. The distribution of the population by study cell is given in Table 5.4.1.

Table 5.4 : Total number of elderly (60+ years) population surveyed in all cells and the percentage of male and female

All 4 cells		
Sex	Total no. of pop'n	%
M	399	52.7
F	358	47.3
Total	757	100

5.4.2 Weight and height

Table 5.4.2 presents the mean weight and Table 5.4.3 presents the mean height of the elderly population. No significant differences were found in the mean weight between the different population groups in both individual cell and aggregate membership comparison levels. Except in BRAC only cell, where only females of NTGs were significantly heavier than the BRAC-members. The same results were revealed in aggregate comparison. Comparing the four intervention cells, within different study groups, the mean weight was found to be similar. In terms of mean height, the population groups (TG non-members, NTGs and BRAC member) were indistinguishable from one another.

5.4.4 Mid upper arm circumference (MUAC)

Table 5.4.4 shows the mean MUAC of the elderly population. There were no significant differences between BRAC members and the TG non-members in mean MUAC of both sex in both individual and aggregate membership comparison levels. When comparing NTGs with the BRAC-members, in most cases no significant difference was observed except in the ICDDR,B

cell, where mean MUAC of the NTGs were significantly higher than the BRAC-members. In aggregate membership comparison, only females of the NTGs were found to have higher MUAC than the BRAC members. In four cell comparison, mean MUAC of the BRAC members and the TG non-members did not vary according to intervention cells, but among NTGs, it produced mixed results.

5.4.5 Body mass index (BMI)

Table 5.4.5 presents mean BMI of the elderly population of both sex. Both in individual and aggregate membership comparison, a few differences were observed between BRAC-members vs. TG non-members and BRAC members vs. NTGs in the mean BMI. The two exceptions to this are that in the BRAC cell, male BRAC members had significantly ($p < 0.05$) higher BMI than the males TG and the NTG females had higher BMI than the BRAC member females. Also, within different population groups, mean BMI did not vary according to different study cells.

Table 5.11 : Distribution of children (0-11) by age, sex, membership status and intervention cell

Age in year	Sex	BRAC + ICDDR,B cell				BRAC-o	
		BRAC members	Non-members		Cell total	BRAC members	Non- TGs
(1)		(2)	(3)	(4)	(5)	(8)	(9)
< 5	M	61	36	63	160	28	40
	F	54	17	45	116	38	36
	ALL	115	53	108	276	66	76
5 - 11	M	102	52	79	233	51	81
	F	99	38	84	221	59	67
	ALL	201	90	163	454	110	148
		ICDDR,B-only cell				Comparison	
Age in year	Sex	TGs	NTGs		cell total	TGs	NTGs
(1)		(3)	(4)	(5)	(6)	(9)	(10)
< 5	M	79	55	134	343	132	36
	F	87	54	141	382	124	41
	ALL	166	109	275	647	256	77
5 - 11	M	129	91	220	440	228	65
	F	124	86	210	420	173	65
	ALL	253	177	430	883	401	130
		Aggregate Membership Comparison					
Age in year	Sex	BRAC members	Non-members		Cell total		
(1)		(2)	(3)	(4)	(5)		
< 5	M	89	287	256	632		
	F	92	264	221	577		
	ALL	181	551	477	1209		
5 - 11	M	153	490	350	1393		
	F	158	402	363	1209		
	ALL	311	892	713	2916		

Table 5.1.2: Percent distribution of children who are underweight (<80%) according weight-for-age (% Median) by age, sex and membership status and intervention cell

		BRAC + ICDDR,B cell							BRAC-only cell						
Age in year	Sex	BRAC members	Non-members		Cell total	χ^2 - test		BRAC members	Non-members		Cell total	χ^2 - test			
(1)		(2)	TGs	(3)	(4)	(2) vs (3)	(6)	(7)	(8)	(9)	(10)	(11)	(8) vs (9)	(12)	(13)
< 5	M	65.2	69.0	57.7	63.0	NS	NS	91.7	81.3	75.3	79.7	NS	NS	NS	NS
	F	74.4	84.6	44.8	65.4	NS	P<.05	83.3	86.7	82.8	83.9	NS	NS	NS	NS
	All	69.4	73.8	53.1	64.0	NS	P<.05	87.0	83.9	78.5	81.7	NS	NS	NS	NS
5 - 11	M	90.4	92.2	75.3	85.3	NS	P<.05	93.2	94.1	91.8	92.8	NS	NS	NS	NS
	F	89.8	83.3	84.7	86.9	NS	NS	98.0	98.2	89.7	93.8	NS	NS	NS	NS
	All	90.0	88.5	79.9	86.1	NS	P<.05	95.9	96.0	90.7	93.3	NS	NS	NS	NS
		ICDDR,B-only cell							Comparison cell						
Age in year	Sex	TGs	NTGs	Cell total	χ^2 - test			TGs	NTGs	Cell total	χ^2 - test				
(1)		(2)	(3)	(4)	(2) vs (3)	(5)		(6)	(7)	(8)	(6) vs (7)	(9)			
< 5	M	78.3	73.8	76.5	NS	NS		80.8	70.1	79.6	NS	NS			
	F	82.9	69.4	78.3	NS	NS		80.2	90.9	82.7	NS	NS			
	All	80.8	71.8	77.4	P<.001			80.5	81.7	80.7	NS	NS			
5 - 11	M	95.8	96.4	96.1	NS	NS		93.9	89.5	93.0	NS	NS			
	F	92.9	92.2	92.5	NS	NS		96.6	87.7	94.0	P<.05				
	All	94.3	94.4	94.3	NS			95.1	83.3	92.3	P<.001				
		Aggregate Membership Comparison													
Age in year	Sex	BRAC members	Non-members		All	χ^2 - test									
(1)		(2)	TGs	(3)	(4)	(2) vs (3)	(7)								
< 5	M	74.3	78.7	69.7	493	NS	NS								
	F	78.2	82.2	74.4	444	NS	NS								
	All	76.2	80.4	71.8	937	NS	NS								
5 - 11	M	91.3	94.3	88.7	91.9	NS	NS								
	F	92.7	94.9	88.6	91.9	NS	NS								
	All	92.1	94.3	86.5	91.1	NS	NS								

Age	Member		TG non-members		NTGs	
	Cell comparison	p value + sig.	Cell comparison	p value + sig.	Cell comparison	p value + sig.
<5	(1) vs (2)	p<.05	(1) vs (2)	NS	(1) vs (2)	p<.0001
			(1) vs (3)	NS	(1) vs (3)	p<.001
			(1) vs (4)	NS	(1) vs (4)	p<.0001
			(2) vs (3)	NS	(2) vs (3)	NS
			(2) vs (4)	NS	(2) vs (4)	NS
			(3) vs (4)	NS	(3) vs (4)	NS
5-11	(1) vs (2)	NS	(1) vs (2)	NS	(1) vs (2)	p<.01
			(1) vs (3)	NS	(1) vs (3)	p<.0001
			(1) vs (4)	p<.05	(1) vs (4)	NS
			(2) vs (3)	NS	(2) vs (3)	NS
			(2) vs (4)	NS	(2) vs (4)	NS
			(3) vs (4)	NS	(3) vs (4)	p<.01

Note : (1) - BRAC+ICDDR,B cell; (2) - BRAC cell; (3) - ICDDR,B cell; (4) - Comparison cell

Table 5.1.3: Percent distribution of stunted (<90%) children according to height-for-age (% of median) by age and sex, membership status and intervention cell

		BRAC + ICDDR,B cell							BRAC-only cell				
Age in year	Sex	BRAC members	Non-members		Cell total	χ ² - test		BRAC members	Non-members		Cell total	χ ² - test	
			TGs	NTGs		(2) vs (3)	(2) vs (4)		TGs	NTGs		(8) vs (9)	(8) vs (10)
(1)		(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
< 5	M	50.0	61.5	32.1	44.6	NS	NS	50.0	57.1	46.7	50.6	NS	NS
	F	55.0	44.4	15.4	40.5		NS	61.1	63.2	31.4	41.0		P<.05
	All	52.3	54.6	26.8	43.0		P<.05	55.9	60.0	40.0	46.7		NS
5 - 11	M	58.2	62.7	42.7	53.6	NS	NS	81.8	71.6	64.2	70.0	NS	NS
	F	66.3	70.3	48.6	60.9		P<.05	73.7	76.4	60.9	65.3		P<.001
	All	62.6	65.9	45.6	57.2		P<.01	77.8	73.8	62.5	67.7		NS
		ICDDR,B-only cell							Comparison cell				
Age in year	Sex	TGs	NTGs	Cell total	χ ² - test		TGs	NTGs	Cell total	χ ² - test			
					(2) vs (3)	(5)				(6) vs (7)	(9)		
(1)		(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)				
< 5	M	56.2	45.8	44.6	NS	60.3	56.3	59.6	NS				
	F	62.5	52.6	59.3		69.4	58.3	66.7					
	All	59.7	48.8	55.7		64.7	57.5	63.2					
5 - 11	M	65.6	61.5	64.6	NS	76.3	62.1	7373.2	P<.05				
	F	75.2	62.3	70.2	NS	82.2	62.1	77.2	P<.01				
	All	70.4	61.9	67.3	NS	79.0	62.1	75.0	P<.001				
Aggregate Membership Comparison													
Age in year	Sex	BRAC members	Non-members		All	χ ² - test							
			TGs	NTGs		(2) vs (3)	(2) vs (4)						
(1)		(2)	(3)	(4)	(5)	(6)	(7)						
< 5	M	50.0	59.0	44.2	52.2	NS	NS						
	F	57.9	65.0	37.5	52.2								
	All	53.8	62.0	42.2	52.9								
5 - 11	M	66.4	71.2	58.0	66.0	NS	NS						
	F	68.7	78.0	59.2	68.2	NS	NS						
	All	68.0	74.3	58.8	67.3	NS	NS						

Age	Member		TG non-members		NTGs	
	Cell comparison	p value + sig.	Cell comparison	p value - sig.	Cell comparison	p value - sig.
<5	(1) vs (2)	NS	(1) vs (2)	NS	(1) vs (2)	NS
			(1) vs (3)	NS	(1) vs (3)	NS
			(1) vs (4)	NS	(1) vs (4)	p<.01
			(2) vs (3)	NS	(2) vs (3)	NS
			(2) vs (4)	NS	(2) vs (4)	NS
			(3) vs (4)	NS	(3) vs (4)	NS
5-11	(1) vs (2)	p<.0001	(1) vs (2)	NS	(1) vs (2)	p<.0001
			(1) vs (3)	NS	(1) vs (3)	p<.01
			(1) vs (4)	p<.01	(1) vs (4)	p<.01
			(2) vs (3)	NS	(2) vs (3)	p<.0001
			(2) vs (4)	NS	(2) vs (4)	p<.0001
			(3) vs (4)	p<.05	(3) vs (4)	NS

Note : (1) - BRAC+ICDDR,B cell; (2) - BRAC cell; (3) - ICDDR,B cell; (4) - Comparison cell

Table 5.1.4: Distribution of wasted (80%) children according weight-for height (% of media) by age and sex, membership status and intervention cell

		BRAC + ICDDR,B cell						BRAC-only cell					
Age in year	Sex	BRAC members	Non-members		Cell total	χ^2 - test		BRAC members	Non members		Cell total	χ^2 - test	
(1)		(2)	TGs	NTGs	(5)	(2) vs (3)	(6)	(8)	TGs	NTGs	(11)	(8) vs (9)	(12) vs (13)
< 5	M	4.2	25.0	7.1	9.4	NS	NS	43.8	42.9	24.4	32.9	NS	NS
	F	5.6	12.5	7.7	7.7	NS	NS	33.3	31.6	14.3	19.7		NS
	All	4.8	20.0	7.3	13.6	NS	NS	38.2	37.5	20.0	27.3		P<.05
5 - 11	M	15.0	17.7	12.0	14.6			22.7	16.4	19.3	19.1	NS	NS
	F	13.3	12.5	12.3	12.8	NS	NS	22.2	37.5	16.0	23.0		NS
	All	14.1	15.7	12.1	13.8			22.5	25.2	17.7	20.8		
		ICDDR,B-only cell						Comparison cell					
Age in year	Sex	TGs	NTGs	Cell total	χ^2 - test			TGs	NTGs	Cell total	χ^2 - test		
(1)		(2)	(3)	(4)	(2) vs (3)	(5)		(6)	(7)	(8)	(6) vs (7)	(9)	
< 5	M	13.3	12.5	13.0	NS	NS		18.2	-	15.2	NS	NS	
	F	22.9	5.6	17.0				20.0	13.4	18.3			
	All	18.5	9.5	15.0				19.4	7.89	17.3			
5 - 11	M	23.3	28.4	25.2	NS	NS		18.4	8.77	16.3	NS	NS	
	F	23.5	19.7	22.0				12.5	14.6	13.0			
	All	23.4	24.3	23.8				15.9	11.4	14.9			
		Aggregate Membership Comparison											
Age in year	Sex	BRAC members		Non-members		All		χ^2 - test					
(1)		(2)	TGs	NTGs	(4)	(5)	(6)	(7)					
< 5	M	20.0	21.4	14.3	NS	NS	18.5	NS					
	F	19.4	22.0	11.9			17.2	NS					
	All	26.3	22.1	13.9			19.4	P<.001					
5 - 11	M	17.7	19.3	18.0	NS	NS	18.6	NS					
	F	16.4	19.6	15.8			17.7	NS					
	All	17.1	19.5	17.0			18.2	NS					

Age	Member		TG non-members		NTGs	
	Cell comparison	p value + sig.	Cell comparison	p value + sig.	Cell comparison	p value + sig.
<5	(1) vs (2)	p<.0001	(1) vs (2)	NS	(1) vs (2)	NS
			(1) vs (3)	NS	(1) vs (3)	NS
			(1) vs (4)	NS	(1) vs (4)	NS
			(2) vs (3)	p<.05	(2) vs (3)	NS
			(2) vs (4)	p<.05	(2) vs (4)	NS
			(3) vs (4)	NS	(3) vs (4)	NS
5 - 11	(1) vs (2)	NS	(1) vs (2)		(1) vs (2)	
			(1) vs (3)	NS	(1) vs (3)	p<.01
			(1) vs (4)	NS	(1) vs (4)	NS
			(2) vs (3)	NS	(2) vs (3)	NS
			(2) vs (4)	p<.05	(2) vs (4)	NS
			(3) vs (4)	p<.05	(3) vs (4)	p<.01

Note : (1) - BRAC+ICDDR.B cell; (2) - BRAC cell; (3) - ICDDR.B cell; (4) - Comparison cell

Table 5.1.4: Distribution of wasted (80%) children according weight-for height (% of median) by age and sex, membership status and intervention cell

		BRAC + ICDDR,B cell						BRAC-only cell					
Age in year	Sex	BRAC members	Non-members		Cell total	χ^2 - test		BRAC members	Non members		Cell total	χ^2 - test	
(1)		(2)	TGs	(3)	NTGs	(4)	(5)	(8)	TGs	(9)	NTGs	(10)	(11)
< 5	M	4.2	25.0	7.1	9.4	NS	NS	43.8	42.9	21.4	32.9	NS	NS
	F	5.6	12.5	7.7	7.7	NS	NS	33.3	31.6	14.3	19.7	NS	NS
	All	4.8	20.0	7.3	13.6	NS	NS	38.2	37.5	20.0	27.3	P<.05	
5 - 11	M	15.0	17.7	12.0	14.6			22.7	16.4	19.3	19.1		
	F	13.3	12.5	12.3	12.8	NS	NS	22.2	37.5	16.0	23.0	NS	NS
	All	14.1	15.7	12.1	13.8			22.5	25.2	17.7	20.8		
		ICDDR,B-only cell						Comparison cell					
Age in year	Sex	TGs	NTGs		Cell total	χ^2 - test		TGs	NTGs		Cell total	χ^2 - test	
(1)		(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
< 5	M	13.3	12.5	13.0	NS	18.2	-	15.2					
	F	22.9	5.6	17.0		20.0	13.4	18.3					NS
	All	18.5	9.5	15.0		19.4	7.89	17.3					
5 - 11	M	23.3	28.4	25.2	NS	18.4	8.77	16.3					
	F	23.5	19.7	22.0		12.5	14.6	13.0					NS
	All	23.4	24.3	23.8		15.9	11.4	14.9					
		Aggregate Membership Comparison											
Age in year	Sex	BRAC members		Non-members		All		χ^2 - test					
(1)		(2)	TGs	(3)	NTGs	(4)	(5)	(2) vs (3)	(6)	(7)	(8)	(9)	(10)
< 5	M	20.0	21.4	14.3	14.3	18.5	NS	NS	NS	NS	NS	NS	NS
	F	19.4	22.0	11.9	11.9	17.2		NS	NS	NS	NS	NS	NS
	All	26.3	22.1	13.9	13.9	19.4		P<.001	P<.01	P<.01	P<.01	P<.01	P<.01
5 - 11	M	17.7	19.3	18.0	18.0	18.6		NS	NS	NS	NS	NS	NS
	F	16.4	19.6	15.8	15.8	17.7		NS	NS	NS	NS	NS	NS
	All	17.1	19.5	17.0	17.0	18.2		NS	NS	NS	NS	NS	NS

Age	Member		TG non-members		NTGs	
	Cell comparison	p value - sig.	Cell comparison	p value - sig.	Cell comparison	p value - sig.
<5	(1) vs (2)	p<.0001	(1) vs (2)	NS	(1) vs (2)	NS
			(1) vs (3)	NS	(1) vs (3)	NS
			(1) vs (4)	NS	(1) vs (4)	NS
			(2) vs (3)	p<.05	(2) vs (3)	NS
			(2) vs (4)	p<.05	(2) vs (4)	NS
			(3) vs (4)	NS	(3) vs (4)	NS
5 - 11	(1) vs (2)	NS	(1) vs (2)		(1) vs (2)	
			(1) vs (3)	NS	(1) vs (3)	p<.01
			(1) vs (4)	NS	(1) vs (4)	NS
			(2) vs (3)	NS	(2) vs (3)	NS
			(2) vs (4)	p<.05	(2) vs (4)	NS
			(3) vs (4)	p<.05	(3) vs (4)	p<.01

Note : (1) - BRAC+ICDDR,B cell; (2) - BRAC cell; (3) - ICDDR,B cell; (4) - Comparison cell

Table 5.1.5: Prevalence of low MUAC (<125) among children <5 Yrs (6mo - 59mo) according to sex, membership status and intervention cell

		BRAC + ICDDR,B cell						BRAC-only cell					
MUAC (mm)		BRAC members (2)	Non members		Cell total (5)	χ^2 - test		BRAC members (8)	Non members		Cell total (11)	χ^2 test	
(1)			TGs (3)	NTGs (4)		(2) vs (3) (6)	(2) vs (4) (7)		TGs (9)	NTGs (10)		(8) vs (9) (12)	(8) vs (10) (13)
Male	<125	9.8	17.2	12.5	12.7			16.7	30.0	10.0	16.2		
	125-135	26.8	31.0	22.9	26.3	NS	NS	29.2	20.0	18.4	20.8	NS	NS
	135+	63.4	51.7	64.6	61.0			54.2	50.0	71.1	63.1		
Total	<i>n</i>	41	29	48	118			24	30	76	130		
Female	<125	30.2	7.1	17.9	22.4			25.0	23.3	12.7	18.6		
	125-135	27.9	57.1	32.1	34.1	NS	NS	28.6	36.7	30.9	31.9	NS	NS
	135+	41.9	35.7	50.0	43.5			46.4	40.0	56.4	49.6		
Total	<i>n</i>	43	14	28	85			28	30	55	113		

		ICDDR,B-only cell						Comparison cell					
Age in year		TGs (2)	NTGs (3)	Cell total (4)	χ^2 - test (2) vs (3) (5)	TGs (6)	NTGs (7)	Cell total (8)	χ^2 test (6) vs (7) (9)				
(1)													
Male	<125	19.4	28.2	22.8		27.6	18.5	25.8					
	125-135	48.4	43.6	46.5	NS	34.3	33.3	34.1	NS				
	135+	32.3	28.2	30.7		38.1	48.1	40.2					
Total	<i>n</i>	62	39	101		105	27	132					
Female	<125	33.3	25.0	30.6		45.4	29.4	41.5					
	125-135	38.9	30.6	36.1	NS	27.8	35.3	29.6	NS				
	135+	27.8	44.4	33.3		26.9	35.3	28.9					
Total	<i>n</i>	72	36	108		108	34	142					

Aggregate Membership Comparison							
MIUAC (mm)	BRAC members	Non members		All	χ^2 - test		
(1)	(2)	TGs	NTGs	(5)	(2) vs (3)	(2) vs (4)	(7)
		(3)	(4)		(6)		
Male	12.3	24.3	15.8	19.3			
125 135	27.7	35.8	26.8	31.2			
135+	60.0	39.8	57.4	49.5	P<.01	NS	
Total	65	226	190	481			
Female	28.2	36.2	20.3	29.5			
125 135	28.2	34.4	32.0	32.6	NS	NS	
135+	43.7	29.5	47.7	38.0			
Total	71	224	153	448			

Variable	Member		TG non-members		NTGs	
	Cell comparison	p value - sig.	Cell comparison	p value + sig.	Cell comparison	p value - sig.
Low MUAC (<125)	(1) vs (2)	NS	(1) vs (2)	NS	(1) vs (2)	NS
			(1) vs (3)	NS	(1) vs (3)	NS
			(1) vs (4)	p<.05	(1) vs (4)	NS
			(2) vs (3)	NS	(2) vs (3)	p<.05
			(2) vs (4)	p<.0001	(2) vs (4)	NS
			(3) vs (4)	NS	(3) vs (4)	NS

Note : (1) - BRAC-ICDDR,B cell; (2) - BRAC cell; (3) - ICDDR,B cell; (4) - Comparison cell

Table 5.2.1 : Distribution of adolescents (11-18) by age, sex, membership status and intervention cell

		BRAC + ICDDR,B cell				BRAC-only cell			
Age in year	Sex	BRAC members (2)	Non-members		Cell total (5)	BRAC members (8)	Non-members		cell total (11)
(1)			TGs (3)	NTGs (4)			TGs (9)	NTGs (10)	
11 - 18	M	81	46	105	232	48	50	145	243
	F	89	31	86	206	45	56	142	243
	ALL	170	77	191	438	93	106	287	486
		ICDDR,B-only cell				Comparison cell			
Age in year	Sex	TGs (3)	NTGs		cell total (5)	TGs (9)	NTGs		cell total (11)
(1)				(4)				(10)	
11 - 18	M	120		101	221	192		66	258
	F	110		88	198	180		59	239
	ALL	230		189	419	372		125	497
		Aggregate Membership Comparison							
Age in year	Sex	BRAC members (2)	Non-members		All				
(1)			TGs (3)	NTGs (4)					
11 - 18	M	129	408	417					954
	F	134	377	375					886
	ALL	263	785	792					1840

Table 5.2.2: Mean Weight (kg) of adolescent (11-18 Yrs) according to sex, membership status and intervention cell

BRAC + ICDDR,B cell										BRAC-only cell			
Sex	BRAC members	Non members		Cell total	t - test		BRAC members	Non members		Cell total	t - test		
		TGs	NTGs		(2) vs (3)	(2) vs (4)		TGs	NTGs		(8) vs (9)	(8) vs (10)	
(1)		(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	
M	28.6 (± 6.2)	24.6 (± 7.4)	32.6 (± 9.6)	28.6	p<.01	p<.01	25.9 (± 6.1)	31.1 (± 9.4)	30.0 (± 8.6)	29.1	p<.05	p<.05	
F	30.1 (± 8.6)	31.7 (± 8.2)	32.6 (± 8.2)	31.5	NS	NS	29.0 (± 7.6)	28.9 (± 7.7)	32.5 (± 8.6)	30.5	NS	p<.05	
All	29.5 (± 7.7)	27.9 (± 8.5)	32.6 (± 8.9)	30.1	NS	p<.01	27.6 (± 7.1)	29.8 (± 8.5)	31.3 (± 8.7)	29.7	NS	p<.01	

ICDDR,B-only cell										Comparison cell			
Sex	TGs	NTGs	Cell total	t - test		TGs	NTGs	Cell total	t - test				
				(2) vs (3)	(5)				(6) vs (7)	(9)			
(1)		(3)	(4)	(5)	(6)	(7)	(8)						
M	25.8 (± 6.5)	29.0 (± 8.0)	27.6	p<.05	27.2 (± 7.6)	29.5 (± 7.8)	28.4						
F	29.0 (± 8.5)	30.5 (± 8.2)	29.8	NS	28.7 (± 8.3)	30.2 (± 7.0)	29.5			NS			
All	27.6 (± 7.8)	29.8 (± 8.1)	28.6	p<.05	28.1 (± 8.0)	29.8 (± 7.4)	29.0						

Aggregate Membership Comparison									
Sex	BRAC members	Non members		All	t - test				
		TGs	NTGs		(2) vs (3)	(2) vs (4)			
(1)		(2)	(3)	(4)	(5)	(6)	(7)		
M	27.7 (± 6.3)	27.0 (± 7.7)	30.4 (± 8.7)	28.7 (± 8.2)			p<.01		
F	29.7 (± 8.3)	29.1 (± 8.3)	31.7 (± 8.2)	30.3 (± 8.3)	NS		p<.05		
All	28.8 (± 7.5)	28.1 (± 8.1)	31.1 (± 8.5)	29.6 (± 8.3)			p<.001		

Variable	Member		TG non-members		NTGs	
	Cell comparison	p value + sig.	Cell comparison	p value + sig.	Cell comparison	p value + sig.
Weight	(1) vs (2)	NS	(1) vs (2)	NS	(1) vs (2)	NS
			(1) vs (3)	NS	(1) vs (3)	p<.01
			(1) vs (4)	NS	(1) vs (4)	p<.01
			(2) vs (3)	p<.05	(2) vs (3)	NS
			(2) vs (4)	NS	(2) vs (4)	NS
			(3) vs (4)	NS	(3) vs (4)	NS

Note : (1) - BRAC+ICDDR,B cell; (2) - BRAC cell; (3) - ICDDR,B cell; (4) - Comparison cell

Table 5.2.3: Mean Height (cm) of adolescent according to sex, membership status and intervention cells.

		BRAC + ICDDR,B cell						BRAC-only cell					
Sex	(1)	BRAC members (2)	Non members		Cell total (5)	t-test		BRAC members (8)	Non members		Cell total (11)	t-test	
			TGs (3)	NTGs (4)		(2) vs (3) (6)	(2) vs (4) (7)		TGs (9)	NTGs (10)		(8) vs (9) (12)	(8) vs (10) (13)
M		139.8 (± 11.5)	131.8 (± 12.2)	145.3 (± 15.6)	138.9	P<.01	P<.05	134.9 (± 11.4)	140.9 (± 15.9)	140.7 (± 13.4)	138.8		P<.05
F		138.7 (± 12.5)	140.6 (± 9.4)	142.3 (± 10.3)	140.5	NS	NS	136.8 (± 11.5)	136.7 (± 9.8)	141.7 (± 10.1)	138.4	NS	P<.05
All		139.1 (± 12.0)	135.9 (± 11.7)	143.8 (± 13.4)	139.7	NS	P<.01	135.9 (± 11.4)	138.5 (± 12.9)	141.2 (± 11.8)	138.6		P<.001
		ICDDR,B-only cell						Comparison cell					
Sex	(1)	TGs (2)	NTGs		Cell total (4)	t-test		TGs (6)	NTGs		Cell total (8)	t-test	
			(3)	(3)		(2) vs (3) (5)	(2) vs (4) (9)					(6) vs (7) (9)	(6) vs (7) (9)
M		133.7 (± 10.4)	138.7 (± 13.4)	136.2		P<.05		136.1 (± 13.4)	138.5 (± 16.9)	137.3			
F		136.9 (± 11.0)	140.3 (± 12.2)	138.6		NS		136.9 (± 11.9)	139.8 (± 10.1)	138.4			NS
All		135.4 (± 10.8)	139.5 (± 12.7)	137.4		P<.01		136.6 (± 12.6)	139.2 (± 13.7)	137.9			
		Aggregate Membership Comparison											
Age in year	Sex	BRAC members (2)	Non members		All (5)	t-test		All (5)	Non members		All (5)	t-test	
			TGs (3)	NTGs (4)		(2) vs (3) (6)	(2) vs (4) (7)					(2) vs (3) (6)	(2) vs (4) (7)
M		138.1 (± 11.7)	135.6 (± 13.0)	141.1 (± 14.8)	138.6 (± 13.9)			138.6 (± 13.9)			NS		NS
F		138.1 (± 12.2)	137.2 (± 11.2)	141.2 (± 10.6)	139.1 (± 11.3)			139.1 (± 11.3)			NS		P<.01
All		138.1 (± 11.9)	136.4 (± 12.1)	141.2 (± 12.8)	138.8 (± 12.6)			138.8 (± 12.6)			NS		P<.01

Variable	Member		TG non-members		NTGs	
	Cell comparison	p value + sig.	Cell comparison	p value + sig.	Cell comparison	p value + sig.
Height	(1) vs (2)	NS	(1) vs (2)	NS	(1) vs (2)	p<.05
			(1) vs (3)	NS	(1) vs (3)	p<.01
			(1) vs (4)	NS	(1) vs (4)	p<.01
			(2) vs (3)	p<.05	(2) vs (3)	NS
			(2) vs (4)	NS	(2) vs (4)	NS
			(3) vs (4)	NS	(3) vs (4)	NS

Note : (1) - BRAC+ICDDR,B cell; (2) - BRAC cell; (3) - ICDDR,B cell; (4) - Comparison cell

Table 5.2.4: Mean MUAC (mm) of adolescents according to sex, membership status and intervention cells.

BRAC + ICDDR,B cell										BRAC-only cell				
Sex	(1)	BRAC members (2)	Non members		Cell total (5)	t - test (2) vs (3) (6)		BRAC members (8)	Non members		Cell total (11)	t - test (8) vs (9) (12)		(8) vs (10) (13)
			TGs (3)	NTGs (4)		TGs (9)	NTGs (10)		(12)					
M		180.9 (± 20.3)	172.6 (± 20.8)	192.3 (± 28.7)	181.9	NS	P<.05	172.9 (± 25.5)	185.6 (± 29.9)	182.8 (± 25.1)	180.4	NS	NS	NS
F		193.2 (± 25.7)	193.1 (± 27.1)	200.4 (± 27.6)	195.6			192.3 (± 25.0)	186.4 (± 24.5)	196.4 (± 28.9)	191.7			
All		187.8 (± 24.2)	182.0 (± 25.8)	196.2 (± 28.4)	188.7		P<.01	183.6 (± 26.8)	186.0 (± 26.7)	189.8 (± 27.9)	186.5			
ICDDR,B-only cell										Comparison cell				
Sex	(1)	TGs (2)	NTGs (3)		Cell total (4)	t - test (2) vs (3) (5)		TGs (6)	NTGs (7)		Cell total (8)	t - test (6) vs (7) (9)		
			TGs (3)	NTGs (4)		TGs (7)	NTGs (8)		(9)					
M		177.0 (± 20.9)	184.5 (± 23.9)	180.8	NS	P<.05	175.1 (± 21.1)	183.8 (± 26.3)	179.5					
F		186.5 (± 24.7)	190.2 (± 25.6)	188.4			185.7 (± 25.1)	189.8 (± 24.6)	187.8					NS
All		182.2 (± 23.5)	187.5 (± 24.9)	184.9			181.0 (± 24.0)	186.9 (± 25.5)	184.0				P<.05	
Aggregate Membership Comparison														
Sex	(1)	BRAC members (2)	Non-members		All (5)	t - test (2) vs (3) (6)		(2) vs (3) (6)	t - test (2) vs (4) (7)		(2) vs (3) (6)	t - test (2) vs (4) (7)		
			TGs (3)	NTGs (4)		TGs (7)	NTGs (8)		(7)					
M		178.2 (± 22.4)	176.7 (± 22.5)	185.8 (± 26.1)	181.3 (± 24.7)	NS	P<.05	NS	P<.05	NS	P<.05	NS	NS	NS
F		192.9 (± 25.4)	186.5 (± 25.0)	194.9 (± 27.4)	191.0 (± 26.4)			P<.05						
All		186.4 (± 25.1)	182.1 (± 24.4)	190.4 (± 27.2)	186.5 (± 26.1)			P<.05						

Variable	Member		TG non-members		NTGs	
	Cell comparison	p value + sig.	Cell comparison	p value + sig.	Cell comparison	p value + sig.
MUAC	(1) vs (2)	NS	(1) vs (2)	NS	(1) vs (2)	p<.05
			(1) vs (3)		(1) vs (3)	p<.01
			(1) vs (4)		(1) vs (4)	p<.01
			(2) vs (3)		(2) vs (3)	NS
			(2) vs (4)		(2) vs (4)	NS
			(3) vs (4)		(3) vs (4)	NS

Note : (1) - BRAC-ICDDR,B cell; (2) - BRAC cell; (3) - ICDDR,B cell; (4) - Comparison cell

Table 5.2.5: Mean BMI of adolescents according to sex, membership status and intervention cells.

BRAC + ICDDR,B cell										BRAC-only cell			
Sex		BRAC members	Non members		Cell total	t - test		BRAC members	Non members		Cell total	t - test	
			TGs	NTGs		(2) vs (3)	(2) vs (4)		TGs	NTGs		(8) vs (9)	(8) vs (10)
(1)		(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
M		14.4 (± 1.2)	13.8 (± 1.6)	15.0 (± 1.7)	14.4	P<.05	P<.05	14.1 (± 1.8)	15.2 (± 1.8)	14.8 (± 1.8)	14.7	P<.05	NS
F		15.3 (± 2.1)	15.8 (± 2.5)	15.9 (± 2.1)	15.7	NS	NS	15.2 (± 1.8)	15.2 (± 2.4)	15.9 (± 2.5)	15.4	NS	NS
All		14.9 (± 1.8)	14.7 (± 2.3)	15.5 (± 2.0)	15.0	NS	P<.05	14.7 (± 1.9)	15.2 (± 2.2)	15.4 (± 2.3)	15.1	NS	P<.05
ICDDR,B-only cell										Comparison cell			
Sex		TGs	NTGs	Cell total	t - test		TGs	NTGs	Cell total	t - test			
					(2) vs (3)	(5)				(6)	(9)		
(1)		(2)	(3)	(4)	(5)		(6)	(7)	(8)	(9)			
M		14.2 (± 1.8)	14.7 (± 1.7)	14.5	NS		14.4 (± 1.8)	14.7 (± 1.8)	14.5	NS			
n		15.2	15.2	15.2		15.0	15.2	15.1					
F		(± 2.5)	(± 2.4)			(± 2.2)	(± 1.9)						
n		14.8	15.0 (± 2.1)	14.9		14.7 (± 2.1)	14.9 (± 1.9)	14.8					
All		(± 2.2)											
n													
Aggregate Membership Comparison													
Sex		BRAC members	Non members		All	t - test							
			TGs	NTGs		(2) vs (3)	(2) vs (4)						
(1)		(2)	(3)	(4)	(5)	(6)	(7)						
M		14.4 (± 1.4)	14.4 (± 1.8)	14.8 (± 1.7)	14.6 (± 2.3)	NS	P<.05						
F		15.2 (± 2.0)	15.1 (± 2.3)	15.7 (± 2.3)	15.4 (± 2.3)								
n		14.9 (± 1.8)	14.8 (± 2.1)	15.3 (± 2.1)	15.0 (± 2.1)								
All							P<.05						

Variable	Member		TG non-members		NTGs	
	Cell comparison	p value + sig.	Cell comparison	p value + sig.	Cell comparison	p value + sig.
BMI	(1) vs (2)	NS	(1) vs (2)	NS	(1) vs (2)	NS
			(1) vs (3)		(1) vs (3)	p<.05
			(1) vs (4)		(1) vs (4)	p<.05
			(2) vs (3)		(2) vs (3)	NS
			(2) vs (4)		(2) vs (4)	NS
			(3) vs (4)		(3) vs (4)	NS

Note : (1) - BRAC-ICDDR,B cell; (2) - BRAC cell; (3) - ICDDR,B cell; (4) - Comparison cell

Table 5.3.1 : Distribution of adults (18-60) by age, sex, membership status and intervention cell.

		BRAC + ICDDR,B cell				BRAC-only cell			
Age in year	Sex	BRAC members	Non-members		Cell total	BRAC members	Non members		cell total
(1)		(2)	TGs (3)	NTGs (4)	(5)	(8)	TGs (9)	NTGs (10)	(11)
18 - 45	M	170	101	227	498	82	132	291	505
	F	225	101	233	559	102	124	319	545
	ALL	395	202	460	1057	184	256	610	1050
45 - 60	M	66	19	70	155	31	37	107	175
	F	52	27	72	151	28	62	121	211
	ALL	118	46	142	306	59	99	228	386
		ICDDR,B-only cell				Comparison cell			
Age in year	Sex	TGs	NTGs		cell total	TGs	NTGs		cell total
(1)		(3)	(4)		(5)	(9)	(10)	(11)	
18 - 45	M	250	203	453	457	308	119	457	
	F	275	225	500	509	357	152	509	
	ALL	525	428	953	966	665	301	966	
45 - 60	M	59	61	120	137	90	47	137	
	F	81	74	155	154	93	61	154	
	ALL	140	135	275	291	183	108	291	
		Aggregate Membership Comparison							
Age in year	Sex	BRAC members	Non members		All				
(1)		(2)	TGs (3)	NTGs (4)		(5)			
18 - 45	M	252	791	870	1913				
	F	327	857	929	2113				
	ALL	579	1648	1799	4026				
45 - 60	M	97	205	285	587				
	F	80	263	328	671				
	ALL	177	468	613	1258				

Table 5.3.2(a): Mean Weight (kg) of young adults (18–45) according to age, sex, membership status and intervention cells.

BRAC + ICODR,B cell										BRAC-only cell			
Sex	BRAC members	Non members		Cell total	t - test		BRAC members	Non members		Cell total	t - test		
		TGs	NTGs		(2) vs (3)	(2) vs (4)		TGs	NTGs		(8) vs (9)	(8) vs (10)	
(1)		(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	
M	46.4 (± 6.1)	45.9 (± 5.7)	47.3 (± 6.0)	46.5		NS	47.0 (± 4.4)	46.3 (± 5.5)	48.9 (± 7.0)	47.4		NS	
F	40.6 (± 5.0)	40.0 (± 4.9)	42.7 (± 6.8)	41.2	NS	P<.001	41.3 (± 4.8)	40.3 (± 5.6)	42.6 (± 6.0)	41.4	NS	NS	
All	41.7 (± 5.7)	41.9 (± 5.7)	43.9 (± 6.9)	42.5		P<.001	42.6 (± 5.3)	42.0 (± 6.1)	44.4 (± 6.9)	43.0		P<.05	
ICODR,B-only cell										Comparison cell			
Sex	TGs	NTGs	Cell total	t - test		TGs	NTGs	Cell total	t - test				
				(2) vs (3)	(5)				(6) vs (7)	(9)			
(1)		(3)	(4)	(5)		(6)	(7)	(8)					
M	44.6 (± 7.3)	47.9 (± 7.0)	46.2	P<.01		44.4 (± 6.5)	47.6 (± 7.7)	45.8	P<.01				
F	40.1 (± 5.9)	41.7 (± 5.8)	40.9	P<.01		39.6 (± 4.7)	40.6 (± 5.7)	40.1	NS				
All	41.1 (± 6.5)	43.5 (± 6.7)	4.3	P<.001		40.7 (± 5.5)	42.6 (± 7.1)	41.7	P<.001				
Aggregate Membership Comparison													
Sex	BRAC members	Non members		All	t - test								
		TGs	NTGs		(2) vs (3)	(2) vs (4)							
(1)		(3)	(4)	(5)	(6)	(7)							
M	46.6 (± 5.5)	41.8 (± 6.5)	48.1 (± 6.9)	46.6 (± 5.5)	P<.05	NS							
F	40.8 (± 4.9)	40.0 (± 5.2)	42.1 (± 6.2)	41.0 (± 5.7)	P<.05	P,.01							
All	42.0 (± 5.6)	41.2 (± 6.0)	43.8 (± 6.9)	42.4 (± 6.5)	P<.05	P<.001							

Variable	Member		TG non-members		NTGs	
	Cell comparison	p value + sig.	Cell comparison	p value + sig.	Cell comparison	p value + sig.
Weight	(1) vs (2)	NS	(1) vs (2)	NS	(1) vs (2)	NS
			(1) vs (3)	NS	(1) vs (3)	NS
			(1) vs (4)	p<.05	(1) vs (4)	NS
			(2) vs (3)	NS	(2) vs (3)	NS
			(2) vs (4)	p<.05	(2) vs (4)	p<.01
			(3) vs (4)	NS	(3) vs (4)	NS

Note : (1) - BR4C-ICDDR,B cell; (2) - BR4C cell; (3) - ICDDR,B cell; (4) - Comparison cell

Table 5.3.2(b): Mean Weight (kg) of adult (45-60) population according to age, sex, membership status and intervention cells

BRAC + ICDDR,B cell										BRAC-only cell				
Sex	(1)	BRAC members (2)	Non members		Cell total (5)	t - test (2) vs (3) (6)		BRAC members (8)	Non members		Cell total (11)	t - test (8) vs (9) (12)		(13)
			TGs (3)	NTGs (4)		TGs (9)	NTGs (10)							
M		41.4 (± 6.0)	43.0 (± 5.9)	45.6 (± 8.3)	43.3	NS	NS	46.3 (± 5.6)	43.1 (± 6.9)	44.9 (± 8.2)	44.7	NS	P<.01	NS
F		37.4 (± 5.7)	36.0 (± 3.9)	39.8 (± 7.5)	37.7			40.9 (± 7.4)	36.3 (± 5.7)	39.5 (± 7.0)	38.9			
All		38.5 (± 6.0)	37.7 (± 6.0)	41.6 (± 8.1)	39.3			42.5 (± 7.3)	38.0 (± 6.7)	41.1 (± 7.7)	40.5			
ICDDR,B-only cell										Comparison cell				
Sex	(1)	TGs (2)	NTGs (3)	Cell total (4)	t - test (2) vs (3) (5)		TGs (6)	NTGs (7)	Cell total (8)	t - test (6) vs (7) (9)		NS		
M		44.4 (± 6.9)	47.3 (± 8.8)	45.9	NS	NS	42.5 (± 6.1)	45.3 (± 6.6)	43.9	NS	P<.01	P<.01		
F		39.8 (± 5.6)	40.3 (± 8.8)	41.0			36.4 (± 6.3)	36.1 (± 5.2)	36.3					
All		39.8 (± 6.7)	42.3 (± 9.3)	41.7			38.3 (± 7.1)	38.8 (± 7.0)	38.6					
Aggregate Membership Comparison														
Sex	(1)	BRAC members (2)	Non-members		All (5)	t - test (2) vs (3) (6)		BRAC members (8)	Non members		Cell total (11)	t - test (8) vs (9) (12)		(13)
			TGs (3)	NTGs (4)		TGs (9)	NTGs (10)							
M		43.0 (± 6.2)	43.3 (± 6.4)	45.6 (± 8.0)	44.4	NS	P<.05	46.3 (± 5.6)	43.1 (± 6.9)	44.9 (± 8.2)	44.7	NS	P<.01	NS
F		38.5 (± 6.4)	36.7 (± 5.9)	39.1 (± 7.3)	38.1			40.9 (± 7.4)	36.3 (± 5.7)	39.5 (± 7.0)	38.9			
All		39.8 (± 6.6)	38.6 (± 6.7)	41.0 (± 8.1)	39.9 (± 7.5)			42.5 (± 7.3)	38.0 (± 6.7)	41.1 (± 7.7)	40.5			

Variable	Member		TG non-members		NTGs	
	Cell comparison	p value + sig.	Cell comparison	p value - sig.	Cell comparison	p value - sig.
Weight	(1) vs (2)	p<.01	(1) vs (2)	NS	(1) vs (2)	NS
			(1) vs (3)		(1) vs (3)	NS
			(1) vs (4)		(1) vs (4)	p<.05
			(2) vs (3)		(2) vs (3)	NS
			(2) vs (4)		(2) vs (4)	p<.05
			(3) vs (4)		(3) vs (4)	p<.01

Note : (1) - BRAC-ICDDR,B cell; (2) - BRAC cell; (3) - ICDDR,B cell; (4) - Comparison cell

Table 5.3.3(a): Mean Height (cm) of young adults (18–45) according to age, sex, membership status and intervention cells

BRAC + ICDDR,B cell										BRAC-only cell			
Sex	BRAC members	Non members		Cell total	t - test		BRAC members	Non members		Cell total	t - test		
		TGs	NTGs		(2) vs (3)	(6)		(7)	TGs		NTGs	(8) vs (9)	(10) vs (11)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	
M	162.3 (± 6.0)	160.2 (± 7.4)	162.5 (± 6.6)	161.7			160.6 (± 6.9)	160.8 (± 6.4)	162.6 (± 7.4)	161.3		NS	
F	150.3 (± 4.9)	149.6 (± 5.4)	150.4 (± 5.9)	150.1	NS	NS	150.0 (± 5.7)	149.9 (± 6.0)	151.2 (± 5.3)	150.4	NS	NS	
ALL	152.7 (± 7.1)	152.5 (± 7.7)	153.4 (± 8.0)	152.9			152.4 (± 7.4)	152.9 (± 7.8)	154.5 (± 7.9)	153.2		P<.05	
ICDDR,B-only cell										Comparison cell			
Sex	TGs	NTGs	Cell total	t - test		TGs	NTGs	Cell total	t - test				
				(2) vs (3)	(5)				(6)	(7)	(8)	(9)	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)					
M	161.0 (± 7.6)	161.7 (± 9.1)	161.4	NS	159.1 (± 7.1)	158.1 (± 17.1)	158.6						
F	149.6 (± 5.7)	150.3 (± 5.2)	150.0	NS	148.2 (± 7.4)	147.3 (± 11.6)	147.8	NS					
All	152.2 (± 7.8)	153.6 (± 8.3)	152.9	P<.05	150.9 (± 8.7)	150.3 (± 14.1)	150.6						
Aggregate Membership Comparison													
Sex	BRAC members	Non members		All	t - test								
		TGs	NTGs		(2) vs (3)	(6) vs (7)							
(1)	(2)	(3)	(4)	(5)	(6)	(7)							
M	161.7 (± 6.3)	160.1 (± 7.2)	161.7 (± 9.8)	161.0 (± 8.5)	NS								
F	150.2 (± 5.2)	149.1 (± 6.5)	150.2 (± 6.8)	149.7 (± 6.5)	P<.05	NS							
All	152.6 (± 7.2)	151.8 (± 18.2)	153.4 (± 9.3)	152.6 (± 8.6)	NS								

Variable	Member		TG non-members		NTGs	
	Cell comparison	p value + sig.	Cell comparison	p value + sig.	Cell comparison	p value + sig.
Height	(1) vs (2)	NS	(1) vs (2)	NS	(1) vs (2)	NS
			(1) vs (3)	NS	(1) vs (3)	NS
			(1) vs (4)	NS	(1) vs (4)	p<.01
			(2) vs (3)	NS	(2) vs (3)	NS
			(2) vs (4)	p<.01	(2) vs (4)	p<.0001
			(3) vs (4)	p<.05	(3) vs (4)	p<.01

Note : (1) - BRAC-ICDDR.B cell; (2) - BRAC cell; (3) - ICDDR.B cell; (4) - Comparison cell

Table 5.3.3(b): Mean Height (cm) of adult (45-60) population according to age, sex, membership status and intervention cell

BRAC + ICDDR,B cell										BRAC-only cell					
Sex	BRAC members		Non members		Cell total	t - test		BRAC members		Non members		Cell total	t - test		
	(1)	(2)	TGs (3)	NTGs (4)		(2) vs (3) (6)	(2) vs (4) (7)	(8)	(9)	TGs (10)	NTGs (11)		(8) vs (9) (12)	(8) vs (10) (13)	
M	158.5 (± 5.9)	157.0 (± 3.8)	160.3 (± 4.6)	158.6	NS			160.2 (± 6.0)	156.1 (± 5.7)	159.7 (± 6.7)	158.6				
F	148.7 (± 4.3)	146.1 (± 5.1)	147.8 (± 6.3)	147.5	P<.05		NS	149.3 (± 6.6)	147.5 (± 5.2)	148.0 (± 5.7)	148.2	NS	NS		
All	151.5 (± 6.5)	148.8 (± 6.7)	151.7 (± 8.2)	150.6	NS			152.5 (± 8.1)	149.7 (± 6.5)	151.4 (± 8.0)	151.2				
ICDDR,B-only cell										Comparison cell					
Sex	TGs		NTGs		Cell total	t - test		TGs		NTGs		Cell total	t - test		
	(1)	(2)	(3)	(4)		(2) vs (3) (5)	(6)	(7)	(8)	(6) vs (7) (9)					
M	157.9 (± 8.3)	155.7 (± 14.3)	156.8					158.0 (± 6.8)	159.3 (± 6.4)	158.7					
F	147.7 (± 6.1)	147.8 (± 5.6)	147.7		NS			146.5 (± 6.3)	145.4 (± 6.3)	145.9			NS		
All	150.8 (± 8.3)	150.1 (± 3.6)	150.4					150.0 (± 8.4)	149.6 (± 9.0)	149.8					
Aggregate Membership Comparison															
Sex	BRAC members		Non members		All	t - test		BRAC members		Non members		All	t - test		
	(1)	(2)	TGs (3)	NTGs (4)		(2) vs (3) (6)	(2) vs (4) (7)	(8)	(9)	TGs (10)	NTGs (11)		(8) vs (9) (12)	(8) vs (10) (13)	
M	159.0 (± 5.8)	157.5 (± 6.9)	158.9 (± 8.5)	158.4 (± 7.7)	NS			158.4 (± 7.7)	158.4	NS					
F	148.9 (± 5.0)	147.0 (± 5.9)	147.4 (± 6.0)	147.5 (± 5.8)	P<.05			147.5 (± 5.8)	147.5	P<.05			NS		
All	151.8 (± 7.0)	150.1 (± 7.8)	150.8 (± 8.6)	150.7 (± 8.1)	NS			150.7 (± 8.1)	150.7	NS					

Variable	Member		TG non-members		NTGs	
	Cell comparison	p value - sig.	Cell comparison	p value - sig.	Cell comparison	p value - sig.
Height	(1) vs (2)	NS	(1) vs (2)	NS	(1) vs (2)	NS
			(1) vs (3)		(1) vs (3)	
			(1) vs (4)		(1) vs (4)	
			(2) vs (3)		(2) vs (3)	
			(2) vs (4)		(2) vs (4)	
			(3) vs (4)		(3) vs (4)	

Note : (1) - BRAC+ICDDR.B cell; (2) - BRAC cell; (3) - ICDDR.B cell; (4) - Comparison cell

Table 5.3.4(a): Mean MUAC (mm) of young adults (18–45) according to age, sex, membership status and intervention cell

BRAC + ICDDR,B cell										BRAC-only cell				
Sex	(1)	BRAC members (2)	Non members		Cell total (5)	t - test		BRAC members (8)	Non members		Cell total (11)	t - test		
			TGs (3)	NTGs (4)		(2) vs (3) (6)	(2) vs (4) (7)		TGs (9)	NTGs (10)		(8) vs (9) (12)	(8) vs (10) (13)	
M		239.7 (± 16.4)	239.5 (± 17.5)	243.8 (± 19.9)	241.0		NS	236.8 (± 17.7)	234.2 (± 23.3)	239.4 (± 24.5)	236.8			
F		227.4 (± 19.2)	227.5 (± 19.4)	237.0 (± 26.9)	230.6	NS	P<.001	236.8 (± 19.8)	223.0 (± 19.1)	230.0 (± 21.8)	229.9	NS	NS	
All		229.9 (± 19.3)	230.8 (± 19.6)	238.7 (± 15.4)	231.8		P<.001	230.0 (± 19.6)	226.0 (± 20.9)	232.7 (± 23.0)	229.5			
ICDDR,B-only cell										Comparison cell				
Sex	(1)	TGs (2)	NTGs (3)	Cell total (4)	t - test		TGs (6)	NTGs (7)	Cell total (8)	t test				
					(2) vs (3) (5)	(6) vs (7) (9)								
M		237.3 (± 21.4)	143.8 (± 20.6)	190.5			230.8 (± 21.1)	232.8 (± 24.6)	231.8		NS			
F		224.4 (± 19.4)	225.5 (± 25.4)	224.9	NS		221.2 (± 20.1)	225.7 (± 22.5)	223.5		NS			
All		227.3 (± 21.3)	230.9 (± 25.5)	229.1			223.6 (± 20.7)	227.7 (± 23.2)	225.7		P<.05			
Aggregate Membership Comparison														
Sex	(1)	BRAC members (2)	Non members		All (5)	t - test		(2) vs (3) (6)	(2) vs (4) (7)					
			TGs (3)	NTGs (4)										
M		238.7 (± 16.8)	234.4 (± 22.2)	240.6 (± 22.7)	237.9 (± 22.0)		NS							
F		227.6 (± 19.4)	223.2 (± 22.2)	230.1 (± 24.6)	226.8 (± 22.1)		P<.01		NS					
All		229.9 (± 19.4)	226.0 (20.9)	233.0 (± 24.5)	229.6 (± 22.6)		P<.01							

Variable	Member		TG non-members		NTGs	
	Cell comparison	p value - sig.	Cell comparison	p value - sig.	Cell comparison	p value - sig.
MUAC	(1) vs (2)	NS	(1) vs (2)	NS	(1) vs (2)	p<.01
			(1) vs (3)	NS	(1) vs (3)	p<.001
			(1) vs (4)	p<.001	(1) vs (4)	p<.0001
			(2) vs (3)	NS	(2) vs (3)	NS
			(2) vs (4)	NS	(2) vs (4)	p<.05
			(3) vs (4)	p<.05	(3) vs (4)	NS

Note : (1) - BRAC-ICDDR,B cell; (2) - BRAC cell; (3) - ICDDR,B cell; (4) - Comparison cell

Table 5.3.4(b): Mean MU, IC (mm) of adult (45-60) population according to age, sex, membership status and intervention cell

BRAC + ICDDR,B cell										BRAC-only cell					
Sex	(1)	BRAC members (2)	Non members		Cell total (5)	t - test (2) vs (3) (6)		BRAC members (8)	Non members		Cell total (11)	t - test (8) vs (9) (12)		(13)	
			TGs (3)	NTGs (4)		TGs (9)	NTGs (10)		(2) vs (3) (6)	(8) vs (9) (12)					
M		231.3 (± 22.0)	235.7 (± 18.5)	241.6 (± 32.3)	236.2 (5)		NS	239.3 (± 20.2)	233.3 (± 30.5)	231.5 (± 22.6)	234.7 (11)		NS		
F		222.1 (± 24.6)	219.5 (± 17.2)	232.3 (30.8)	224.6 (5)		NS	222.2 (± 35.6)	216.2 (± 24.0)	227.2 (± 29.3)	221.8 (11)		NS		
All		224.7 (± 24.1)	223.4 (± 18.5)	235.2 (± 31.4)	227.8 (5)		P<.05	227.3 (± 33.3)	220.4 (± 26.6)	228.5 (± 27.5)	225.4 (11)				
ICDDR,B-only cell										Comparison cell					
Sex	(1)	TGs (2)	NTGs (3)	Cell total (4)	t - test (2) vs (3) (5)		TGs (6)	Cell total (8)	t - test (6) vs (7) (9)		NTGs (7)	Cell total (8)	t - test (6) vs (7) (9)		NS
M		239.2 (± 21.0)	243.3 (± 22.0)	241.3 (4)		NS	226.9 (± 16.0)	231.2 (8)			235.4 (± 21.5)	231.2 (8)			
F		221.3 (± 22.3)	238.0 (± 34.2)	229.7 (4)		P<.01	211.0 (± 20.9)	213.3 (8)			215.6 (± 25.0)	213.3 (8)			
All		226.7 (± 24.2)	240.7 (± 31.2)	233.7 (4)		P<.01	216.0 (± 20.8)	218.7 (8)			221.4 (± 26.3)	218.7 (8)			
Aggregate Membership Comparison															
Sex	(1)	BRAC members (2)	Non members		All (5)	t - test (2) vs (3) (6)		BRAC members (8)	Non members		Cell total (11)	t - test (8) vs (9) (12)		NS	NS
			TGs (3)	NTGs (4)		TGs (9)	NTGs (10)		(2) vs (3) (6)	(8) vs (9) (12)					
M		233.8 (± 21.7)	232.6 (± 22.5)	237.6 (± 25.5)	235.3 (± 24.0)			239.3 (± 20.2)	233.3 (± 30.5)	231.5 (± 22.6)	234.7 (11)				
F		221.1 (± 24.5)	216.1 (± 22.1)	228.2 (± 30.7)	22.8 (± 27.9)			222.2 (± 35.6)	216.2 (± 24.0)	227.2 (± 29.3)	221.8 (11)				
All		225.5 (± 27.1)	220.8 (± 23.4)	231.0 (± 29.5)	226.4 (± 27.4)			227.3 (± 33.3)	220.4 (± 26.6)	228.5 (± 27.5)	225.4 (11)				

Variable	Member		TG non-members		NTGs	
	Cell comparison	p value + sig.	Cell comparison	p value + sig.	Cell comparison	p value + sig.
MUAC	(1) vs (2)	NS	(1) vs (2)	NS	(1) vs (2)	NS
			(1) vs (3)	NS	(1) vs (3)	NS
			(1) vs (4)	NS	(1) vs (4)	p<.01
			(2) vs (3)	NS	(2) vs (3)	p<.01
			(2) vs (4)	NS	(2) vs (4)	NS
			(3) vs (4)	p<.001	(3) vs (4)	p<.0001

Note : (1) - BRAC-ICDDR,B cell; (2) - BRAC cell; (3) - ICDDR,B cell; (4) - Comparison cell

Table 5.3.5(a): Mean of BMI of young adults (18-45) according to age , sex, membership status and intervention cells.

BRAC + ICDDR,B cell										BRAC-only cell				
Sex	BRAC members (2)	Non members		Cell total (5)	t - test		BRAC members (8)	Non members		Cell total (11)	t - test			
		TGs (3)	NTGs (4)		(2) vs (3) (6)	(2) vs (4) (7)		TGs (9)	NTGs (10)		(8) vs (9) (12)	(8) vs (10) (13)		
M	17.6 (± 1.6)	17.9 (± 1.6)	17.9 (± 2.1)	17.8	NS	NS	18.3 (± 1.6)	17.9 (± 1.7)	18.5 (± 2.1)	18.2	NS	NS		
F	18.0 (± 1.8)	18.0 (± 1.7)	18.9 (± 2.7)	18.3			18.4 (± 1.9)	17.9 (± 2.2)	18.6 (± 2.3)	18.3				
All	17.9 (± 1.8)	18.0 (± 1.8)	18.7 (± 2.6)	18.2			18.3 (± 1.8)	17.9 (± 2.0)	18.6 (± 2.3)	18.2				
ICDDR,B-only cell										Comparison cell				
Sex	TGs (2)	NTGs (3)	Cell total (4)	t - test		TGs (6)	NTGs (7)	Cell total (8)	t - test					
				(2) vs (3) (5)	(6) vs (7) (9)									
M	17.2 (± 2.8)	18.5 (± 3.7)	17.9	P<.05	P<.05	17.4 (± 2.3)	18.6 (± 3.6)	18.0	P<.05	P<.05				
F	17.9 (± 2.4)	18.4 (± 2.1)	18.2			18.0 (± 2.0)	18.5 (± 2.5)	18.3						
All	17.7 (± 2.5)	18.4 (± 2.7)	18.1			17.8 (± 2.1)	18.5 (± 2.9)	18.2						
Aggregate Membership Comparison														
Sex	BRAC members (2)	Non-members		All (5)	t - test									
		TGs (3)	NTGs (4)		(2) vs (3) (6)	(2) vs (4) (7)								
M	17.8 (± 1.6)	17.5 (± 2.3)	18.4 (± 2.8)	NS	NS	NS								
F	18.1 (± 1.9)	17.9 (± 2.1)	18.6 (± 2.4)											
All	18.0 (± 1.8)	17.8 (± 2.2)	18.5 (± 2.5)											

Variable	Member		TG non-members		NTGs	
	Cell comparison	p value + sig.	Cell comparison	p value + sig.	Cell comparison	p value + sig.
BMI	(1) vs (2)	NS	(1) vs (2)	NS	(1) vs (2)	NS
			(1) vs (3)	NS	(1) vs (3)	
			(1) vs (4)	NS	(1) vs (4)	
			(2) vs (3)	NS	(2) vs (3)	
			(2) vs (4)	NS	(2) vs (4)	
			(3) vs (4)	NS	(3) vs (4)	

Note : (1) - BRAC+ICDDR.B cell; (2) - BRAC cell; (3) - ICDDR.B cell; (4) - Comparison cell

Table 5.3.5(b): Mean BAI of adult (45-60) population according to age, sex, membership status and intervention cell

		BRAC + ICDDR,B cell						BRAC-only cell					
Sex		BRAC members	Non members		Cell total	t-test		BRAC members	Non members		Cell total	t-test	
(1)	(2)	(3)	TGs	NTGs	(5)	(2) vs (3)	(6)	(8)	TGs	NTGs	(11)	(8) vs (9)	(12) vs (13)
M	16.4 (± 1.8)	17.4 (± 2.00)	17.7 (± 2.8)	17.7 (± 2.8)	17.2	NS	NS	18.0 (± 1.4)	17.6 (± 2.2)	17.9 (± 2.2)	17.8	NS	
F	16.9 (± 2.2)	16.9 (± 1.7)	18.2 (± 2.9)	18.2 (± 2.9)	17.3	NS	P<.05	18.3 (± 2.7)	16.7 (± 2.4)	18.0 (± 2.9)	17.7	P<.05	NS
All	16.8 (± 2.1)	17.0 (± 1.8)	18.1 (± 2.9)	18.1 (± 2.9)	17.3		P<.01	18.2 (± 2.4)	16.9 (± 2.4)	18.0 (± 2.7)	17.7	P<.05	
		ICDDR,B-only cell						Comparison cell					
Sex		TGs	NTGs		Cell total	t-test		TGs	NTGs		Cell total	t-test	
(1)	(2)	(3)	(3)	(3)	(4)	(2) vs (3)	(5)	(6)	(7)	(7)	(8)	(6) vs (7)	(9)
M	17.7 (± 1.8)	18.9 (± 3.2)	18.3	NS	18.3	NS	NS	17.0 (± 1.9)	17.8 (± 2.5)	17.4	17.4		
F	17.3 (± 2.2)	18.3 (± 3.4)	17.8	NS	17.8	NS	NS	16.9 (± 2.8)	17.2 (± 2.7)	17.1	17.1		NS
All	17.5 (± 2.0)	18.5 (± 3.4)	18.1	P<.05	18.1	P<.05	P<.05	17.0 (± 2.5)	17.5 (± 2.6)	17.3	17.3		
		Aggregate Membership Comparison											
Sex		BRAC members	Non members			AIH	t-test						
(1)	(2)	(3)	TGs	NTGs	(4)	(5)	(2) vs (3)	(6)	(7)	(2) vs (3)	(6)	(7)	(8)
M	16.9 (± 1.9)	17.4 (± 1.9)	18.0 (± 2.6)	17.7 (± 2.3)	17.7 (± 2.3)	17.7 (± 2.3)	P<.05	NS					
F	17.3 (± 2.4)	17.0 (± 2.4)	18.0 (± 3.0)	17.5 (± 2.8)	17.5 (± 2.8)	17.5 (± 2.8)	NS						NS
All	17.2 (± 2.3)	17.1 (± 2.3)	18.0 (± 2.9)	17.6 (± 2.6)	17.6 (± 2.6)	17.6 (± 2.6)	P<.05						P<.05

Variable	Member		TG non-members		NTGs	
	Cell comparison	p value + sig.	Cell comparison	p value + sig.	Cell comparison	p value + sig.
BMI	(1) vs (2)	p<.01	(1) vs (2)	NS	(1) vs (2)	NS
			(1) vs (3)		(1) vs (3)	NS
			(1) vs (4)		(1) vs (4)	NS
			(2) vs (3)		(2) vs (3)	NS
			(2) vs (4)		(2) vs (4)	NS
			(3) vs (4)		(3) vs (4)	p<.05

Note : (1) - BRAC+ICDDR,B cell; (2) - BRAC cell; (3) - ICDDR,B cell; (4) - Comparison cell

Table 5.3.6: Nutritional status of adult women (15-60 Yrs) according to cut of point of BMI by membership status and intervention cell

BRAC + ICDDR,B cell										BRAC-only cell							
BMI	(1)	BRAC members		Non members		Cell total	t - test		BRAC members	Non members		Cell total	t - test				
		(2)	(3)	(4)	(5)		(2) vs (3)	(6) vs (7)		(8) vs (9)	(10) vs (11)		(12) vs (13)				
Severe	<16	16.4	13.2	11.4	13.7				12.9	22.3	12.4	14.8					
Moderate	: 16-17	16.4	13.9	12.6	14.3				14.3	18.0	13.1	14.5					
Mild	: 17-18.5	27.3	29.9	22.9	26.9			NS	22.4	17.0	22.0	20.9	NS	NS			
Normal	: 18.5	39.9	43.1	53.1	46.1				50.3	42.7	52.5	49.8					
Total		311	144	341	796				147	206	510	863					
ICDDR,B-only cell										Comparison cell							
BMI	(1)	TCGs	NTGs	Cell total	t - test		TCGs	NTGs	Cell total	t - test							
					(2) vs (3)	(4) vs (5)				(6) vs (7)	(8) vs (9)						
Severe	<16	16.2	12.8	14.6			16.8	18.3	17.3								
Moderate	: 16-17	16.7	11.9	14.4			17.8	14.2	16.3								
Mild	: 17-18.5	25.6	25.3	25.5		NS	24.4	19.2	22.7		P<.05						
Normal	: 18.5	41.5	50.0	45.5			41.0	48.3	43.3								
Total		390	344	734			517	240	757								
Aggregate Membership Comparison												t - test					
BMI	(1)	BRAC members		Non-members		All	t - test										
		(2)	(3)	(4)	(5)		(2) vs (3)	(6) vs (7)									
Severe	<16	15.3	17.1	13.2	15.1												
Moderate	: 16-17	15.7	17.0	12.9	15.0												
Mild	: 17-18.5	25.8	24.2	22.5	23.7		NS										
Normal	: 18.5	43.2	41.7	51.4	46.4												
Total		458	1257	1435	3150		P<.05										

Table 5.4.1 : Distribution of elderly (60+) by age, sex, membership status and intervention cell.

		BRAC + ICDDR,B cell				BRAC-only cell			
Age in year	Sex	BRAC members	Non-members		Cell total	BRAC members	Non members		cell total
(1)		(2)	TGs	NTGs	(5)	(8)	TGs	NTGs	(11)
60+	M	21	18	61	100	16	24	68	108
	F	23	18	46	87	19	18	71	108
	All	44	36	107	187	35	42	139	216
		ICDDR,B-only cell				Comparison cell			
Age in year	Sex	TGs	NTGs		cell total	TGs	NTGs		cell total
(1)		(3)	(4)		(5)	(9)	(10)		(11)
60+	M	40	57	97	97	50	43	93	93
	F	37	44	81	81	51	30	81	81
	All	77	101	178	178	101	73	174	174
		Aggregate Membership Comparison							
Age in year	Sex	BRAC members	Non members		All				
(1)		(2)	TGs	NTGs	(5)				
60+	M	37	132	229	398				
	F	42	124	191	357				
	All	79	256	420	755				

Table 5.4.2: Mean weight (kg) of elderly population according to sex, membership status and intervention cell

BRAC + ICDDR,B cell										BRAC-only cell					
Sex	BRAC members		Non members		Cell total	t - test		Cell total	Non-members		Cell total	t - test			
	(1)	(2)	TGs	NTGs		(2) vs (3)	(2) vs (4)		TGs	NTGs		(8) vs (9)	(8) vs (10)		
M		39.3 (± 8.7)	39.1 (± 4.5)	41.3 (± 7.3)	39.9				43.9 (± 4.6)	40.8 (± 5.6)	44.1 (± 5.9)	42.9	NS		
F		34.7 (± 6.3)	35.6 (± 5.7)	37.4 (± 8.5)	35.9	NS	NS		33.2 (± 4.5)	34.3 (± 8.9)	38.2 (± 7.4)	35.2	NS		
All		36.9 (± 7.7)	37.1 (± 5.4)	39.3 (± 8.1)	37.8				35.8 (± 6.5)	36.8 (± 8.3)	40.8 (± 7.3)	37.8	P<.05		
ICDDR,B-only cell										Comparison cell					
Sex	TGs		NTGs		Cell total	t - test		Cell total	TGs		NTGs		Cell total	t - test	
	(1)	(2)	(3)	(4)		(2) vs (3)	(5)		(6)	(7)	(8)	(6) vs (7)		(9)	
M		41.2 (± 5.9)	44.0 (± 8.4)	42.6					39.4 (± 7.0)		40.7 (± 4.5)	40.1			NS
F		35.9 (± 6.4)	38.0 (± 8.0)	37.0		NS			34.3 (± 6.6)		34.0 (± 6.6)	34.2			
All		38.7 (± 6.7)	41.5 (± 8.7)	40.1					36.7 (± 7.3)		37.5 (± 6.5)	37.1			
Aggregate Membership Comparison															
Sex	BRAC members		Non-members		All	t - test		(2) vs (3)	(2) vs (4)		(2) vs (3)	t - test			
	(1)	(2)	TGs	NTGs		(4)	(5)		(6)	(7)					
M		40.4 (± 8.0)	40.2 (± 6.1)	42.8 (± 7.0)	41.7 (6.8)				41.7 (6.8)		NS		NS		
F		31.0 (± 5.5)	35.0 (± 6.7)	37.2 (± 7.8)	36.1 (± 7.3)				36.1 (± 7.3)		NS		P<.05		
All		36.5 (± 7.2)	37.4 (± 7.0)	40.0 (± 7.9)	38.9 (± 7.6)				38.9 (± 7.6)				P<.01		

Variable	Member		TG non-members		NTGs	
	Cell comparison	p value + sig.	Cell comparison	p value - sig.	Cell comparison	p value - sig.
Weight	(1) vs (2)	NS	(1) vs (2)	NS	(1) vs (2)	NS
			(1) vs (3)		(1) vs (3)	NS
			(1) vs (4)		(1) vs (4)	NS
			(2) vs (3)		(2) vs (3)	NS
			(2) vs (4)		(2) vs (4)	p<.01
			(3) vs (4)		(3) vs (4)	p<.01

Note : (1) - BRAC-ICDDR,B cell; (2) - BRAC cell; (3) - ICDDR,B cell; (4) - Comparison cell

Table 5.4.3: Mean height (cm) of elderly population according to sex, membership status and intervention cells

BRAC + ICDDR,B cell										BRAC-only cell			
Sex	BRAC members	Non members		Cell total	t - test		BRAC members	Non members		Cell total	t - test		
		TCs	NTGs		(2) vs (3)	(2) vs (4)		TCs	NTGs		(8) vs (9)	(8) vs (10)	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	
M	153.5 (± 15.6)	156.6 (± 5.0)	159.6 (± 9.5)	156.6			156.0 (± 4.0)	156.5 (± 7.4)	158.1 (± 6.5)	156.9			
F	143.7 (± 6.2)	148.2 (± 5.6)	146.9 (± 5.2)	146.3	NS	NS	145.5 (± 5.1)	142.8 (± 4.7)	146.6 (± 8.9)	144.9	NS	NS	
All	148.6 (± 12.6)	151.3 (± 6.7)	153.8 (± 10.1)	151.2			147.7 (± 6.5)	148.2 (± 8.90)	152.1 (± 9.7)	149.3			
ICDDR,B-only cell										Comparison cell			
Sex	TCs	NTGs	Cell total	t - test		TCs	NTGs	Cell total	t - test				
				(2) vs (3)	(5)				(6) vs (7)	(9)			
(1)	(2)	(3)	(4)	(5)	(5)	(6)	(7)	(8)	(9)	(9)			
M	155.7 (± 5.6)	157.7 (± 6.3)	156.7			153.4 (± 16.4)	158.4 (± 4.4)	155.9					
F	146.1 (± 4.50)	146.1 (± 6.7)	146.1	NS	NS	145.5 (± 10.7)	144.6 (± 5.2)	145.1		NS			
All	151.0 (± 7.0)	153.1 (± 8.6)	152.1			149.2 (± 14.1)	152.0 (± 8.4)	150.6					
Aggregate Membership Comparison										t - test			
Sex	BRAC members	Non members		All	t - test								
		TCs	NTGs		(2) vs (3)	(2) vs (4)							
(1)	(2)	(3)	(4)	(5)	(6)	(7)							
M	151.1 (± 13.7)	155.0 (± 11.1)	158.4 (± 7.0)	157.0 (± 9.2)	NS	NS							
F	144.6 (± 5.6)	145.7 (± 7.6)	146.2 (± 7.0)	145.8 (± 7.1)	NS	NS							
All	148.2 (± 10.4)	149.9 (± 10.5)	152.7 (± 9.3)	151.4 (± 9.9)	NS	P<.01							

Variable	Member		TG non-members		NTGs	
	Cell comparison	p value + sig.	Cell comparison	p value + sig.	Cell comparison	p value - sig.
Height	(1) vs (2)	NS	(1) vs (2)	NS	(1) vs (2)	NS
			(1) vs (3)	NS	(1) vs (3)	
			(1) vs (4)	NS	(1) vs (4)	
			(2) vs (3)	NS	(2) vs (3)	
			(2) vs (4)	NS	(2) vs (4)	
			(3) vs (4)	NS	(3) vs (4)	

Note : (1) - BRAC-ICDDR,B cell; (2) - BRAC cell; (3) - ICDDR,B cell; (4) - Comparison cell

Table 5.4.4: Mean MUAC (mm) of elderly population according to sex, membership status and intervention cells

BRAC + ICDDR,B cell									
Sex	(1)	BRAC members (2)	Non members		Cell total (5)	t - test		BRAC-only cell	
			TGs (3)	NTGs (4)		(2) vs (3) (6)	(2) vs (4) (7)	BRAC members (8)	Cell total (11)
M		217.7 (± 28.0)	218.2 (± 20.9)	220.5 (± 29.3)	218.8			223.5 (± 9.4)	224.7
F		204.2 (± 29.7)	217.1 (± 22.7)	221.1 (± 33.3)	214.1	NS	NS	204.0 (± 17.5)	212.4
All		210.7 (± 27.2)	217.6 (± 21.6)	220.8 (± 31.2)	216.1			208.9 (± 17.9)	216.5
ICDDR,B-only cell									
Sex	(1)	TGs (2)	NTGs (3)	Cell total (4)	t - test (2) vs (3) (5)	Comparison cell			
						TGs (6)	NTGs (7)	Cell total (8)	t - test (6) vs (7) (9)
M		218.1 (± 24.3)	235.8 (± 29.7)	227.1	P< .05	215.3 (± 19.2)	222.0 (± 21.5)	218.7	
F		210.1 (± 20.7)	225.5 (± 23.7)	217.8	P< .05	204.5 (± 22.7)	201.6 (± 27.9)	203.0	NS
All		214.5 (± 22.9)	231.6 (± 27.7)	223.1	P< .001	209.4 (± 21.7)	212.3 (± 26.6)	210.8	
Aggregate Membership Comparison									
Sex	(1)	BRAC members (2)	Non members		All (5)	t - test			
			TGs (3)	NTGs (4)		(2) vs (3) (6)	(2) vs (4) (7)	(8) vs (9) (12)	(8) vs (10) (13)
M		219.1 (± 24.7)	217.6 (± 20.9)	227.4 (± 26.8)	223.4 (± 25.1)				NS
F		204.1 (± 21.9)	210.0 (± 24.2)	217.5 (± 29.9)	213.4 (± 27.5)				P< .05
All		210.0 (± 23.9)	213.6 (± 23.0)	222.4 (± 28.8)	218.2 (± 26.9)				P< .01

Variable	Member		TG non-members		NTGs	
	Cell comparison	p value + sig.	Cell comparison	p value - sig.	Cell comparison	p value + sig.
MUAC	(1) vs (2)	NS	(1) vs (2)	NS	(1) vs (2)	NS
			(1) vs (3)		(1) vs (3)	p<.05
			(1) vs (4)		(1) vs (4)	NS
			(2) vs (3)		(2) vs (3)	p<.05
			(2) vs (4)		(2) vs (4)	p<.05
			(3) vs (4)		(3) vs (4)	p<.0001

Note : (1) - BRAC+ICDDR,B cell; (2) - BRAC cell; (3) - ICDDR,B cell; (4) - Comparison cell

Table 5.4.5: Mean BMI of elderly population according to sex, membership status and intervention cells

BRAC + ICDDR,B cell										BRAC-only cell				
Sex	BRAC members		Non-members		Cell total	t - test		BRAC members	Non members		Cell total	t - test		
	(1)	(2)	TGs (3)	NTGs (4)		(2) vs (3) (6)	(2) vs (4) (7)		TGs (9)	NTGs (10)		(8) vs (9) (12)	(8) vs (10) (13)	
M	16.2 (± 1.9)	15.7 (± 1.1)	16.3 (± 2.2)	16.1	NS	NS	NS	18.3 (± 1.60)	16.6 (± 1.3)	17.7 (± 2.4)	17.5	P<.05	NS	
F	17.0 (± 2.8)	16.6 (± 2.0)	18.0 (± 4.0)	17.2				15.4 (± 2.2)	16.8 (± 3.8)	18.5 (± 3.7)	17.0	NS	P<.01	
All	16.6 (± 2.3)	16.3 (± 1.8)	17.1 (± 3.3)	16.7				16.2 (± 2.3)	16.7 (± 3.0)	18.1 (± 3.2)	16.9	NS	P<.01	
ICDDR,B-only cell										Comparison cell				
Sex	TGs	NTGs	Cell total	t - test		TGs	NTGs	Cell total	t - test					
				(2) vs (3) (5)	(2) vs (4) (6)				(6) vs (7) (9)					
M	16.9 (± 1.7)	17.6 (± 2.8)	17.3	NS	NS	15.7 (± 2.0)	16.5 (± 1.6)	16.4	NS					
F	16.7 (± 2.5)	17.7 (± 3.3)	17.3			17.2 (± 2.2)	16.3 (± 3.5)	16.7						
All	16.9 (± 2.1)	17.6 (± 3.0)	17.3			16.2 (± 2.0)	16.4 (± 2.6)	16.2						
Aggregate Membership Comparison														
Sex	BRAC members		Non members		All	t - test								
	(1)	(2)	TGs (3)	NTGs (4)		(2) vs (3) (6)	(2) vs (4) (7)							
M	16.7 (± 2.0)	16.5 (± 1.6)	17.1 (± 2.4)	16.9 (± 2.2)	NS	NS	NS							
F	16.3 (± 2.5)	16.5 (± 2.6)	17.9 (± 3.7)	17.2 (± 3.2)										
All	16.4 (± 2.3)	16.5 (± 2.2)	17.5 (± 3.1)	17.0 (± 2.8)										

Variable	Member		TG non-members		NTGs	
	Cell comparison	p value + sig.	Cell comparison	p value + sig.	Cell comparison	p value + sig.
BMI	(1) vs (2)	NS	(1) vs (2)	NS	(1) vs (2)	NS
			(1) vs (3)		(1) vs (3)	NS
			(1) vs (4)		(1) vs (4)	NS
			(2) vs (3)		(2) vs (3)	NS
			(2) vs (4)		(2) vs (4)	p<.01
			(3) vs (4)		(3) vs (4)	p<.05

Note : (1) - BRAC-ICDDR,B cell; (2) - BRAC cell; (3) - ICDDR,B cell; (4) - Comparison cell

SUMMARY AND CONCLUSIONS

The most important findings and conclusions of the survey are briefly summarized in this final chapter. The chapter is divided into three sections according to the results of the three separate types of survey: food availability and consumption, infant and child feeding practices, and anthropometry.

6.1. Pattern of food availability and consumption

The patterns of food inflow and food stock at the household level, as described in section 3.1, showed that about two-thirds of incoming foods were home-produced, and about one-third were purchased. Very little food was borrowed, bartered, or received as gift aid, payment in kind, or from other sources.

The single largest important factor determining the amount of food stocked and coming into the household was the embankment. Households inside the embankment had very large food stocks but very little food entering the household: it seems that they had already harvested their rice stock. Households outside the embankment had very little food stocked but had very high levels of food inflow: it seems they were harvesting their rice during the interview period. It is important to note that the embankment only affected rice stock and inflow.

For virtually all food items, BRAC members did not have higher food inflows when compared to the TG non-members within the same cells. However, when BRAC members were compared to TG non-members in all four cells, we observed significantly higher food inflows among BRAC members. This is because the TG non-members in the non-BRAC cells had lower levels of food inflow than the TG non-members in the BRAC cells.

The NTGs purchased as well as home-produced more food than BRAC members for almost every single food item - the only exception being the amount of rice and wheat purchased.

In addition to the effect of the embankment, the amount of food purchased and home produced was higher according to presence of BRAC programme: the BRAC-ICDDR,B and BRAC-only cells had higher levels than the ICDDR,B-only and Comparison cells.

Data on patterns of food outflow and consumption at the household level are described in section 3.2. Most of the food outflow was in the form of food consumption, since very little food was sold, loaned out, lost, stolen, or given out. The most important food in the diet was rice which accounted for 73.4% of total calories consumed. It is interesting to note that the embankment did not have any effect upon food consumption during this round of data collection.

The overall nutritional well-being of the population surveyed, as measured by percentage of households meeting the daily requirement, is similar to that of the 1981-82 National Nutrition Survey: only 25% of the households met the requirement of 2310 kcal per person per day. BRAC members had, in few cases significant differences from TG non-members within the BRAC cell in terms of grams of food or energy consumed. BRAC members did consume more than the TG non-members in all four cells. The NTGs consumed almost all food items more than BRAC members. The single largest difference in food consumption is that the two BRAC areas had consistently higher levels of consumption than the two non-BRAC areas. The differences were much greater for food items such as leafy vegetables and fish than for other items such as rice.

Conclusions

Although the Bangladesh economy has been growing at a healthy rate throughout most of the 1980s and 1990s, the prevalence of poverty and malnutrition has remained stubbornly (alarmingly) high. While figures on the extent of poverty and malnutrition vary significantly, it is agreed more than half of the total population of the country (i.e. 67.5) million live in absolute poverty. More than 60% of all children under five years old are moderately or severely malnourished. One of the primary objectives of BRAC's Rural Development Program (RDP) is to improve the standard of living of the very poor through empowering poor rural women with various socioeconomic interventions.

This first round nutrition report should be regarded as a baseline with which future reports can be compared and thus contribute to further understanding the processes and mechanisms that influence nutritional well-being.

Preliminary analysis of the first round food availability and consumption data shows that households in the two BRAC cells are better off than the two non-BRAC cells. The embankment affects the amount of household food inflow but does not affect consumption. There were no observable differences between ICDDR,B and non-ICDDR,B cells.

These results do not necessarily mean that the differences are due to the inputs of BRAC's RDP. More analysis needs to be conducted to determine if other characteristics differ between the cells and cause the observed differences. The fact that the TG and the NTG in the two BRAC cells consume more food than the TG and NTG in the two non-BRAC cells, imply that there are some important cell differences that need to be investigated.

6.2. Infant and child feeding practices

A total of 475 children were studied for infant and child feeding practices. The number of boys were higher than the girls in three intervention cells compared to the comparison cell, in which the proportion of girls was higher. Most of the boys were between the age of 7-12 months and girls between the age of 13-24 months. Most of the infants (94-96%) were born at home, with little higher level of child birth occurring in the homes of TG non-members than the BRAC members. Only a few infants were born in hospitals in BRAC-ICDDR,B, BRAC or ICDDR,B only cells. It was observed that no child birth occurred in hospitals in the comparison cell.

Most of the babies (72%) were given honey, honey with water, sugar with water or water as pre-lacteal fluid in all the study cells except the BRAC+ICDDR,B cell, where 28% of the babies were given breast milk. A higher proportion of babies had received plain water or sugar with water in ICDDR,B only cell. Pre-lacteal feeding was custom in these cells. Usually finger was used for giving the pre-lacteal fluids and in most cases, grandmothers were the initiators of pre-lacteal feed. According to the aggregate membership comparison and cell levels, BRAC member

households were better off than non-member TG and NTG households in terms of pre-lacteal feeding practices. This may be a long term effect of health intervention of ICDDR,B or BRAC.

A satisfactory result has been displayed about colostrum feeding. In all three intervention cells, most of the babies (74-91%) had received colostrum. In the comparison cell, the percentage was only 22-26%. According to the aggregate membership status, higher proportion of mothers of BRAC members gave colostrum to their babies than the non-member TG mothers. Members were more aware about the importance of colostrum and breast milk. This may be the effect of different health programmes on them.

In the BRAC+ICDDR,B, BRAC and ICDDR,B cells a higher proportion of children were weaned at a younger age than in the comparison cell. Most mothers seemed to have a good concept about supplementary and weaning foods. Almost all mothers were introduced suji as solid food in all the cells. The TG households practice this less than NTG households. At the cell levels, there were a significant variation between the non-member TGs and NTGs but membership status did not show any appreciable variation.

Conclusions

- Cells having both intervention of BRAC and ICDDR,B has good knowledge and ideas about supplementary feeding and weaning.
- There were some notable differences between the BRAC members and non-member TGs and NTGs in terms of pre-lacteal feeding, colostrum and breast feeding, supplementary and weaning.
- BRAC + ICDDR,B cell was better off than other three cells in terms of child feeding practices.

6.3. Anthropometric status

Section 5.1 presents nutritional status of the children of Pre-school and the school-aged children in terms of prevalence of underweight, stunting, wasting and low MUAC. The cell having joint intervention of BRAC and ICDDR,B showed lowest prevalence of malnutrition indicated by all the indicators. The result also indicates that the children of the NTGs were consistently nutritionally better-off than the TG non-members irrespective of the membership status. However, insignificant differences existed between BRAC members and the TG non-members.

Section 5.2 presents the anthropometric status of the adolescents in terms of mean weight, height, MUAC and BMI. The findings show that both male and female adolescents among the NTGs were taller and heavier than both of the BRAC members and the TG non-members, but only males among the NTGs were having higher BMI. In terms of mean MUAC, no consistent difference were observed between different study groups except in aggregate membership comparison: BRAC member had the higher MUAC than the TG. No notable cell differences were observed within different study groups specially within TGs and the BRAC members, and only the male NTGs of the BRAC-ICDDR,B cell were significantly better off than other three cells.

Among younger adults, mean weight and BMI of the NTG group of both sexes were consistently higher than TGs whether BRAC member or not. But mean height was found to be similar for all study groups, except for the females of BRAC member who were significantly taller than the TGs in the aggregate membership comparison. Among older adults, in most cases, mean weight, height, and MUAC was found to be similar for all study groups in both individual and aggregate membership comparisons. Except for the females of the BRAC member who were taller and heavier than the TGs. In terms of mean BMI, no consistent difference was observed between different study groups. In most cases cells did not show appreciable differences for either younger or the older adults. Similar kinds of results were also revealed for the elderly population.

Conclusions

- The prevalence of malnutrition among children (0-11) is significantly higher among the TG groups compared to NTGs, irrespective of membership status.
- There were no significant difference between TGs and the BRAC-members .
- Cell having joint intervention of BRAC and ICDDR,B has the lowest percentage of undernourished children to a significant level.
- The anthropometric status of the adolescents of the NTG group was found to be better than that of TGs, but in most cases no differences exist between BRAC-members and the TGs.
- Only male adolescents of NTG group of the BRAC-ICDDR,B cell seemed to be nutritionally better off than in the other three cells, and other three cells had a similar status for different study groups.
- The anthropometric status of young adults of the NTG group was found better than that of the TG groups (whether BRAC member or not), except for the mean height which was similar for all study groups. In most cases no difference exist between BRAC-members and the TGs but in an aggregate membership comparison, female BRAC-members were heavier and taller than the TGs, but no appreciable cell difference were observed within different study groups. Among older adults and the elderly, the anthropometric status was found to be similar for all the study groups.

Annex

Annex 1. Consumption unit

Consumption units are employed to reflect the age and sex composition of households. The following values are derived from FAO/WHO energy requirements.

Age (years)	Females	Males
<1	0.3	0.3
1-6	0.5	0.5
7-13	0.7	0.7
14-19	0.9	0.9
20-59	0.9	1.0
>59	0.7	0.9

References

- Ahmed SM, Mohsin M, Chowdhury AMR and Rana AKMM , 1994
Baseline Survey Matlab, 1992 : Final Report 1994, BRAC-ICDDR,B joint research project.
- Bangladesh Bureau of Statistics, 1989-90
Report on the Child Nutritional Status Survey
- Begin, Ivan, Mirium Cap and Bruno Dujardin, 1990
A Guide to Nutritional Assessment, World Health Organization, Delhi.
- Bhuiya A. and Chowdhury AMR, 1995
Impact of Social and Economic Development Programs on Health and Well-being (Working Paper 1), BRAC -ICDDR,B joint research project.
- Bhuiya A. , Chowdhury AMR, Adams A. and Mahmud S. , 1995
Socio-economic Development and Human Well-being: Exploring the Pathways of Change (Working Paper 6), Phase 2 of BRAC-ICDDR,B joint research project.
- Cameron Margaret and Yngve Hofvander, 1983
Manual on Feeding Infants and Young Children
- Derrick B. Jelliffe E.F. Patrice Jallife, 1989
Community Nutritional Assessment with special emphasis to less technically developed countries, Oxford Medical Publication.
- Food and Agricultural Organization, Rome, 1990
Conducting Small -Scale Nutritional Surveys : A Field Manual
- Ghosh Shanti Dr., 1976
The Feeding and Care of Infants and Young Children
- Gopalan C. in S.R. Osmani (eds.)
Undernutrition: Measurement and Implications
- Heleln Keller International: *Table of nutrient composition of Bangladeshi foods*
- Institute of Nutrition and Food Science, University of Dhaka, Bangladesh, 1981-82
Nutritional Survey of Rural Bangladesh
- Lovel, C.H. *Breaking the Cycle of Poverty: The BRAC strategy*. West Hartford, Connecticut: Kumarian Press, 1992
- Ministry of Health and Family Welfare, Govt. of Peoples Republic of Bangladesh, 1995
National Plan of Action for Nutrition

Osmani, Siddiq R., Amartya Sen and Jean Dreze (eds.)
Nutrition and the Economics of Food : Implications of some recent controversies

University Press Limited, Dhaka
The Political Economy of Hunger: Entitlement and Well-being (Vol. I) .