

Impact of BRAC Reproductive Health and Disease Control Programme on Different Health Services Utilisation

Fazlul Karim, Abhilash Tripura and Md. Showkat Gani

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BRAC
Research and Evaluation Division
BRAC Centre, 75, Mohakhali C/A, Dhaka 1212
Phone: 880-2-9881265, 8824180-7
Fax: 880-2-8823542, 8823614
E-mail: research@brac.net

Summary findings

This study assessed the impact of BRAC's RHDC programme on different health services utilisation compared to the baseline status as well as the comparison area. In the baseline study (1992) fertility and mortality data were collected from 12,073 households (programme 8,072 and comparison 4,001) representing a total of 261 villages (programme 184 and comparison 77). But, in the follow-up study done in 2000, 103 villages (programme 80 and comparison 23) were revisited. Using the cluster survey method, data were collected from 8,033 households (programme 4,003 and comparison 4,030) in the follow-up study. The programme villages were drawn from Bogra and Dinajpur districts whilst the comparison villages from Jaipurhat district. It is to be noted that for measuring the level of different health service use data were collected from 10% and 25% of the total households covered for mortality and fertility estimate during the baseline and the follow-up studies respectively, because measurement of other service utilisation required lesser number of sample than the mortality and fertility estimates. However, the following sections present the key findings of the study.

Use of pregnancy and childbirth related health services

A higher proportion of childbirths in the programme area took place in the institutional facilities including BRAC *shushasthos* (15.2%) than in the comparison area (10.8%).

About one-fourth (24.2%) mothers suffered from incidence of any illness during their last pregnancy in the programme area, in contrast to 32.5% in the comparison area. About 53% mothers with illness took treatment from qualified physicians (including BRAC *shusahstho*) in the programme area as against 48.1% in the comparison area. A higher proportion of NTG than the TG in both the study areas received treatment from qualified physicians (programme 57% versus 46.7% and comparison 54.9% versus 33.3%). A higher percentage of mothers in comparison area (82.6%) compared to the programme area (77.6%) received two or more doses of TT vaccine during their last pregnancy. Trained TBAs attended over 44% of the childbirths that occurred at home in the programme area as opposed to only 13.7% in the comparison area.

Breastfeeding practices

Increase in colostrum feeding to the newborns (within 72 hours of birth) from baseline status to follow-up study was higher in programme area (30 percent) than in the comparison (24 percent). The level of exclusive breastfeeding to the infants (0-4 months) increased by 0.5 percent in the programme area but in the comparison area it declined by 26 percent.

Diarrhoea and treatment

The aggregated prevalence of diarrhoea (all types) increased to 55 percent in the programme area from the baseline period, which was higher than the comparison area (51 percent). The prevalence was always higher among the TG than the NTG in both the areas. Use of oral saline increased for diarrhoea treatment to 32.8% from the benchmark of 19.3% in the programme while in the comparison it increased to 30.2% from the benchmark of 17.6%. But the overall increase was higher in the comparison area than the programme area (72 versus 70 percent).

General illness (other than diarrhoea)

A higher percentage of the patients suffering from illnesses in both the study areas received treatment from the village doctors (programme 42% and comparison 59%). The second favourite source of treatment was the qualified physicians (programme 37% versus comparison 25%). NTG patients were more likely to receive treatment from qualified physicians than the TG in both the areas (programme 42.5% versus 31.7% and comparison 25.4% versus 22.8%).

Use of different health services

In the programme area, the proportion of children (12-23 months) fully immunised significantly increased to 91.4% from the baseline period of 80% ($p < 0.05$), contrary to a decline from 89.5% to 83.1% in the comparison area. The percentage of women in reproductive age receiving two or more doses of TT vaccine increased from a benchmark status of 70.6% to 78.1% in the programme area, in contrast to the comparison area where the rate fell from 80.9% to 74.7%.

The prevalence of nightblindness declined sharply from the baseline status by 92 percent in the programme area as oppose to 60 percent in the comparison area. However, the degree of decrease was much higher among the NTG than the TG in both the areas. The VAC intake increased to 93.8% from a benchmark of 85.6% in the programme but such increase was sharper in the comparison area, which rose to 94.5% from a benchmark of 67.8%.

The proportion of women using any modern family planning method was significantly ($p < 0.001$) higher in the comparison area (72.9%) than in the programme area (57%).

Pneumonia related practices

The proportion of respondents mentioning the medical name 'pneumonia' decreased from 32% in the baseline survey to 20% in the follow-up in the programme area, and from 10% to 7% in the comparison area. Such decrease was higher in the programme area than in the comparison area (39 versus 32 percent).

The proportion of opinion favouring allopathic treatment for pneumonia increased from the baseline status in both the areas (programme area 45% to 65%, and comparison area 51% to 65%). Indeed such opinion was higher in the programme area than in the comparison (45 versus 26 percent). The notion of belief in the possibility of home level management of pneumonia declined from the benchmark to the follow-up in both the study areas (programme 27.1% to 9.3% and comparison 26.5% to 7.1%). However, the proportion mentioning the use of 'traditional treatment' as a measure to home management increased substantially in both the study areas. The NTG preferred traditional treatment more than the TG did in both areas. The opinion on the use of 'allopathic treatment' and a 'village doctor' as a measure toward pneumonia management outside home increased remarkably from the baseline to the follow-up survey in both the areas. The notion of belief in treating pneumonia patients on the day of onset of the disease increased from the benchmark status in both the study areas (programme 52.6% to 73.4% and comparison 46.6% to 57.5%). But the increase was greater in the programme area than in the comparison (40 versus 23 percent).

The proportion of the respondents saying any foods could be given to the patients during pneumonia episodes decreased from the baseline in the programme area (from 6% to 4%), in contrast to an increase in the comparison area (from 5% to 11%). The respondents mentioned a variety of food items such as cold foods, fish, etc. that should not be given to the patients during pneumonia. However, the proportion of responses on restricting the cold foods declined from the baseline status of 56% to 32% in the programme area but increased from 64% to 79% in the comparison area. In the programme area, similar trend was found regarding restricting fish, meat/egg, fruits, and vegetables. While in the comparison area, no change between the baseline and the follow-up statuses was found with respect to restricting fish and meat/egg, but the proportion of responses on restricting fruits and vegetables increased.

The proportion reporting two or more symptoms of pneumonia increased to 89.7% from benchmark of 56.6% in the programme (an increase of 81 percent) and to 92.2% from 52.3% in the comparison area (an increase of 76 percent). Although the use of allopathic treatment in pneumonia increased from the baseline status to the follow-up survey in both the areas, the pace of increase was higher in the programme area (115 percent) than the comparison area (51 percent).

The RHDC programme proved its merit in bringing about positive changes in most health indicators in the programme area compared to the comparison, which can be attributed to RHDC programme. On the other hand, the data showed that people's awareness on different diseases, for example pneumonia, did not improve much in the programme area. This implies that community-based pneumonia control programme has shortcomings in improving positive knowledge on pneumonia in general, and programme emphasis might have shifted more toward material service delivery in particular.

Introduction

Extreme poverty, malnutrition, ignorance, illiteracy, unhygienic living conditions, and diseases compounded with the deplorable condition of the public health system are some of the major hindrances to the overall health and development of Bangladesh. The situation in the rural areas is even worse, where the vast majority faces incidence of pervasive poverty and a lack of personal hygiene. However, BRAC Reproductive Health and Disease Control (RHDC) programme offers a wide range of health services with the main thrust to improve the health and nutritional status of the most vulnerable segment of the population (i.e., women and children).

The RHDC, indeed, is the successor to BRAC's defunct Women's Health and Development Programme (WHDP). With the primary thrust to improve health and nutritional status of the most vulnerable segment of the population (i.e., women and children) the WHDP operated during 1991-1995. It had five interconnected projects: i) Comprehensive Health Development Project (CHDP), ii) Facilitation of the Expanded Programme on Immunisation (FEPI), iii) Primary Health Care in BRAC Development Programme (PHC-BDP), iv) BRAC Education Programme (BEP), and v) Health Resource Centre (HRC). The CHDP, a cornerstone of the programme, was implemented in 10 *upazilas* of Dinajpur, Bogra and Mymensingh regions covering a population of about 1.7 million; half of whom were poor. Through CHDP BRAC directly implemented antenatal care (ANC), growth monitoring (GM) for children, tuberculosis (TB) control, family planning (FP), training of traditional birth attendants (TBA), and development of village women's forum (WF), and facilitated expanded programme on immunisation (EPI), and vitamin A capsule (VAC) distribution.

Besides the above components, some supplementary elements such as establishment of maternity waiting home (MWH), facilitation to the government district hospitals for managing emergency obstetric cases were piloted for maternal mortality reduction (MMR) in the Bogra and Dinajpur sadar *upazilas*. In these *upazilas*, special inputs were given for safe motherhood and pneumonia control. All the services in the pilot *upazilas* were open for all, regardless of their socioeconomic background. While in other *upazilas* the WHDP services were targeted primarily to the poor (Karim et al,

1995). However, BRAC carried out a comprehensive baseline study covering a wide range of issues of WHDP to enable the management to evaluate the impact of the programme (Ali et al. 1992).

Nonetheless, BRAC consolidated, reinforced and augmented the core of the WHDP activities under the banner of the present RHDC in 1996. This helped make the RHDC consistent and compatible with the concept of reproductive health ratified in the 1994 International Conference on Population and Development in Cairo. Consequently, the goal of RHDC is to reduce infant, child and maternal mortality and morbidity, fertility, and the improvement in the nutritional status of children, adolescents, and women. In fact, this goal is consistent with that of the WHDP. However, the RHDC provides a package of essential reproductive health services viz. adolescent family life education, contraception, pregnancy related care including safe delivery and referral of complicated cases to the tertiary level of care, treatment and control of reproductive tract infections (RTI), sexually transmitted diseases (STD) and HIV/AIDS awareness, control of TB and acute respiratory infection (ARI), and basic curative care. Moreover, the RHDC offers possible backup and secondary referral services for the above services through BRAC's fixed Health Centres or *shushasthos* (Table 1). In addition, the RHDC facilitates the use of a number of government services including satellite clinics, immunisation, family planning, vitamin A capsule distribution, and water and sanitation programme. Originally BRAC health services were open to all, but in August 1997

Table 1 A Comparative picture of health services under WHDP and RHDC

WHDP		RHDC
Facilitation	Supplementation	
Satellite clinics, EPI and referral, Family planning, Vitamin. A Capsule, Water and Sanitation	Antenatal care where satellite clinic is not held, Iron supplementation and TBA training, Health, Nutrition, Family planning, Growth monitoring and selective supplementation, ARI control, TB control, Hygiene education and <i>Shebika</i> training, Maternity waiting home	Reproductive health: Pregnancy care, FP, RTI/STD, HIV/AIDS awareness, Adolescent reproductive health education, Supplementation to pregnant women and children. Disease control: Community based ARI and TB control, <i>EPI</i> , <i>VAC</i> and De-worming. BRAC Health Centre – <i>shushastho</i> : All primary and secondary clinical support

BRAC shifted its approach to focus on the pressing health needs of the poor, particularly those involved in NGO (including BRAC) micro-finance activities, because the poor do not have easy access to the existing health services, and their incomes are eroded due to ill-health.

BRAC trained community health workers (CHW) known as *Shastho shebikas* (SS) and traditional birth attendants (TBA) are the key resources used to mobilise people at the community level for RHDC services (BRAC 1999). The RHDC staffs regularly liaise with these community volunteers and supervise their activities.

RHDC has a coverage of over 9.7 million people across the country including the areas under the former WHDP, and provides comprehensive reproductive and disease control services. The educative, preventive and promotive care at the grassroots level is supplemented by secondary level of care through *shushasthos* located mostly at *upazila* towns. By now there are 90 *shushasthos* functioning throughout the country. Each *shushastho* has a physician, 2 paramedics or nurses or family welfare visitors, one ayah, one lab technician and one service staff. The available facilities in each *shushastho* include indoor, and outdoor services, maternity care, family planning, RTI/STD, basic pathological services and counselling.

Alongside preventive and curative health service delivery, the RHDC imparts extensive health education to increase the use of available health and population services of the people. As a result, positive changes in different health service utilisation are likely to occur. But to what extent? This study explored the answer to this question.

Methods and materials

Four years have elapsed since the WHDP activities have been amalgamated with that of the RHDC programme. If the WHDP period is taken into account the life span of the programme activities exceeds 8 years in 2000. At this stage, BRAC intended to evaluate the impact of RHDC on the use of different health services by tracking some important indicators compared to the benchmark information collected in March 1992 (Ali et al, 1993). It is expected that the study results will be useful to the programme managers and other agencies working in the same field for tracking/enhancing the effectiveness of the programme.

The specific indicators of the benchmark study were: use of different services, breastfeeding practices, prevalence of diarrhoea and its treatment as well as knowledge of pneumonia including care-seeking for it (the follow-up study 2000 variables are shown in Table 1.1).

Table 1.1 Variables/indicators of the baseline impact/follow-up studies

Independent	Dependent
1. Study area: Programme and Comparison, 2. Sex of household heads*, respondents, 3. Main occupations of household heads, 4. Household land holding, 5. BRAC target and non-target population (TG/NTG), 6. Education of household heads and adult members, 7. Age, 8. marital status,.	1. Antenatal care*, 5. Use of trained TBA*, 6. Place of delivery*, 7. Place of defaecation, 9. Prevalence of diarrhoea, 10. Treatment of diarrhoea, 11. Use of ORT in diarrhoeal episode, 12. General illnesses*, 13. Health care seeking behaviour*, 14. Source of health care*, 15. Nearest health centre*, 16. Child immunisation, 17. Maternal TT vaccination*, 18. Prevalence of nightblindness, 19. Vitamin A Capsule intake, 20. Family planning method use*, 21. Hand washing practice after defaecation, 22. Colostrum feeding practice, 21. Exclusive breastfeeding practice, 22. Local names of pneumonia, 23. Treatment of pneumonia, and 24. Feeding practice in pneumonia.

*Data on these indicators/variables were not collected in the baseline survey.

Study area

As noted before, the defunct WHDP areas were categorised into 'pilot' and 'intervention' *upazilas* in the baseline study. The pilot programme was implemented in the Bogra and Dinajpur sadar *upazilas* where special inputs were given to reduce maternal mortality and ARI. While such inputs were not given in intervention *upazilas* including Kahalu in Bogra district, Gobindaganj sadar in Gobindaganj district, Parbotipur and Fulbari in Dinajpur district and Mymensingh sadar, Muktagachha, Trishal and Phulpur in Mymensingh district. However, the baseline study was implemented in the Bogra and Dinajpur sadar *upazilas* (pilot area), and in Kahalu, Gobindaganj, Parbotipur and Fulbari *upazilas* (intervention area) in March 1992. The Jaipurhat sadar and Khetlal *upazilas* of the adjacent Jaipurhat district were studied as 'comparison area'. This study revisited the villages covered by the baseline study in Jaipurhat as well as the Bogra and Dinajpur sadar *upazilas* excluding the 'intervention' *upazilas*. The reason for exclusion of the 'intervention' villages was that the baseline study did not reveal much difference in many indicator values between the 'pilot' and 'intervention' villages. Secondly, concentration on 'pilot' villages helped substantially minimise costs and operational difficulties of the

present study without affecting the sample size and study quality. It is to be noted that in the follow up study 2000 the 'pilot' area was referred to as 'Programme' area.

The programme area received WHDP intervention from 1992-1995 followed by RHDC from 1996. In contrast, 23 villages of the comparison area received no BRAC health intervention but micro-credit until the impact study launched, while both micro-credit and EHC¹ interventions were given in 54 villages from mid 1997. In fact, we excluded the latter villages from the study.

Sample size

The baseline study (1992), on aggregate, covered 12,073 households (pilot 4,083, intervention 3,989 and comparison 4,001) from 261 villages (pilot 81, intervention 103 and comparison 77). This huge number of households was required for data collection on maternal mortality through "sisterhood method"², fertility and child mortality. Ten percent of the sub-sample of the total households was systematically visited during baseline survey (1992) for data collection on the coverage of different health services, hygienic behaviour and other variables. The impact study 2000, however, revisited 103 villages (programme 80 and comparison 23) and interviewed 8,033 households (programme 4,003 and comparison 4,030) following the same methods embraced in the baseline study. To have adequate sample for exclusive breastfeeding, the impact study/follow-up covered 25% of the households instead of the 10% addressed in the baseline study, but the measurement of other health service utilisation required even a lower sample size.

Sampling procedures

All the study villages were selected using the multistage sampling methods. Using the cluster survey methods, a total of 8,033 households were visited for collecting data on fertility and mortality. Health service related data were collected from 25% of the total

¹ Essential Health Care is an important component of health implemented through BRAC Development Programme. It comprised of Health and Nutrition Education, Water and Sanitation, Family Planning, and Basic Curative Services.

² An indirect technique for deriving population-based estimates of maternal mortality. It uses the proportions of adult sisters dying during pregnancy, childbirth, or the puerperium reported by adults during a census or survey, to derive a variety of indicators of maternal mortality. But the method gives a status of 10-12 years back.

study households³ (programme 1,032 and comparison 994). These households were chosen using the systematic sampling methods.

Tools and techniques of data collection

A pre-tested standard questionnaire containing structured and unstructured questions was used to collect data. Primarily responsible and competent mothers were interviewed by visiting the households. Alongside the mothers other competent members (such as household heads or elders) of the households were also consulted on information concerning sensitive variables such as landholding, etc.

Data collection

Twenty trained field investigators worked in 4 teams to collect data. Each team had a supervisor for guiding and monitoring the fieldwork. Five percent of the households covered by the interviewers were spot-checked or re-interviewed for consistency and completeness of data.

Quality control

Measures were taken for quality control at different levels of data collection and analysis. The questionnaire was pre-tested. Besides, the team supervisors acted as the primary quality control officers at field level. They spot-checked and re-interviewed 5% of the households covered by the interviewers. On return from fieldwork everyday the field supervisors checked the filled-in questionnaires for consistency and completeness of data.

The principal investigators also regularly visited and supervised the fieldwork. At the Head Office, the questionnaires were strictly scrutinised and edited under the close supervision of the principal researchers. Besides, the baseline data stored in the computer dBase software package were also retrieved and meticulously checked for quality and analysis.

Data processing and analysis

Data analysis was conducted using the SPSS software package. Two-way and crosstables were constructed for data presentation. Chi-square tests were performed to measure the

³ In the benchmark study it was 10 percent.

level of significance of differences between the baseline and the impact/follow-up studies as well as between the programme and the comparison areas. Only the significant differences between the variables or indicators are mentioned in the results ($p < 0.05$, $p < 0.01$, and $p < 0.001$).

However, the operational definitions of variables/indicators as well as the analysis strategy are outlined below.

Operational definition of variables/indicators

1. "Institutional facilities" (as a place of birth) represent any kind of hospitals/clinics including the BRAC *shushasthos* with minimum requisite facilities to handle obstetric care.
2. A "qualified physician" refers to an MBBS doctor (Bachelor of Medicine and Bachelor of Surgery) or any paraprofessional/nurse with a formal training in the modern health care.
3. "Trained Traditional Birth Attendants" (TBA) are those who received basic training on pregnancy care and hygienic delivery from either government or non-governmental organisations (NGO).
4. "Breastfeeding" means a child received breast-milk (directly from the mother's breast or expressed).
5. "Colstrum" is the first milk extracted from breast of the mothers and fed to the infants just after birth or within 72 hours of delivery.
6. "Exclusive breastfeeding" means that the infant received only breast-milk from his/her mother or a wet nurse, or expressed breast milk, and no other liquids or solids with the exception of drops or syrups consisting of vitamins, mineral supplements or medicines until five months of life.
7. "*Dudhaga*" or infantile diarrhoea means loose or watery motion occurring to the breastfeeding children usually under three years of age during the two weeks prior to the survey.
8. "Prevalence of diarrhoeal diseases" was calculated by aggregating all types of perceived diarrhoeal diseases (*dudhaga*, *ajirna*, *amasha* and *daeria*) and taking the total population as denominator.

9. A child was defined to be “fully” immunized if s/he received the recommended doses of all vaccines, otherwise s/he was treated “not” or “partially” immunized.
10. The VAC is administered for both prevention and cure of nightblindness but the preventive aspects were dealt with in this study. The children who received VAC during the six months prior to the survey were defined as “VAC intake” group.
11. “Modern family planning methods” include vasectomy, ligation, copper T, injection, pill and condom.
12. “Prevalence of perceived illness” means any individual suffering from any illnesses during the four weeks before the survey divided by total population in the study households.
13. “TG” (Target group) refers to the households owning 0-50 decimals of land (except the homestead), and any member aged 12 or more years sells manual labour for at least 100 days per annum for survival.
14. “NTG” (Non-target group) refers to the households, which do not fall under the above criteria of TG.

Analytical strategy

Multilateral comparisons were carried out to measure the changes in the study indicators. Firstly, comparisons were done between the outcomes of the baseline (1992) and the follow-up (2000) surveys across different variables/indicators for both programme and comparison areas. Secondly, within the follow-up survey results, comparisons were made between the programme and the comparison areas. It is to be noted that some new variables/indicators such as use of pregnancy related health services, use of family planning methods and general illnesses were included in the follow-up survey 2000. For these, comparisons were carried out between the study areas only. In case of any important result, a comparison between the target groups (TG) and non-target groups (NTG) was also attempted. Prevalence of diarrhoeal diseases was analysed first by different forms of perceived diarrhoea separately (*dudhaga, ajirna, amasha and daeria*) (Chowdhury, et al. 1986), and then by aggregating all the four perceived forms of diarrhoea.

Relative change from baseline period to follow-up period was measured by the following formula:

Relative change = Follow-up status - Baseline status/ Baseline status x 100.

Limitations

- i) BRAC's non-health interventions (i.e., micro-finance, issue-based routine meetings on health and other social issues), and continual interactions between the villagers and BRAC staff in some of the comparison villages might have contributed in changing certain health behaviour particularly of the micro-finance participants. Therefore, the health behaviour related data of the comparison area might have upward bias to some extent.
- ii) Some baseline data in computer were lost due to long time storage. It was apprehended that such an event might delimit the dimensions of data analysis. To prevent this, all the data were extensively checked, and missing variables were dropped from the analysis.
- iii) The spread of the study villages in the programme area was relatively wider than those in the comparison area. This was likely to shade the results of the programme area in some cases.

Results

Use of pregnancy and childbirth related health services

Table 2 shows that a higher proportion of childbirths in the programme area took place in the institutional facilities including BRAC *sushasthos* (15.2%) than in the comparison area (10.8%). It was higher among the NTG than the TG in both the study areas. However, only 6 of 455 (1.6%) childbirths of the programme area occurred at BRAC *shushasthos* (BS).

Table 3 shows that about one-fourth (24.2%) of mothers suffered from incidence of any illness during their last pregnancy in the programme area, in contrast to 32.5% in the comparison area.

About 53% of the mothers with illness got treatment from qualified physicians (including physicians of BRAC *shusahsthos*) in the programme area as against 48% in

Table 2 Childbirth by place of birth and study area

Place of birth	Follow-up survey, 2000					
	Programme			Comparison		
	TG	NTG	Total	TG	NTG	Total
1	2	3	4	5	6	7
Home	89.8 (159)	82.0 (228)	85.1 (387)	95.2 (118)	86.7 (247)	89.2 (365)
BRAC <i>shushastho</i>	0.6 (1)	1.8 (5)	1.6 (6)	NA	NA	NA
Hospitals/clinics	9.6 (17)	16.2 (45)	13.6 (62)	4.8 (6)	13.3 (38)	10.8 (44)
Total	100.0 (177)	100.0 (278)	100.0 (455)	100.0 (124)	100.0 (285)	100.0 (409)

Notes: 1. Figures in parentheses indicate cell frequency, 2. NA = Not Applicable, 3. Baseline not done

Table 3 Mothers by status of illness incidence during last pregnancy and study area

Status of illness incidence	Follow-up survey, 2000					
	Programme			Comparison		
	TG	NTG	Total	TG	NTG	Total
1	2	3	4	5	6	7
Yes	25.4 (45)	23.4 (65)	24.2 (110)	33.9 (42)	31.9 (91)	32.5 (133)
No	74.6 (132)	76.6 (213)	75.8 (345)	66.1 (82)	68.1 (194)	76.5 (276)
Total	100.0 (177)	100.0 (278)	100.0 (455)	100.0 (124)	100.0 (285)	100.0 (409)

Notes: 1. Figures in parentheses indicate cell frequency, 2. Baseline not done

the comparison area (Table 4). A higher proportion of NTG than the TG in both the study areas received treatment from qualified physicians (programme 57% versus 46.7% and comparison 54.9% versus 33.3%). A higher percentage of mothers in the comparison area (39.8%) received treatment from the village doctors than in the programme area (32.7%). These proportions were higher among TG households for both programme and comparison areas. More mothers (14.5%) in the programme area than in the comparison area (12%) did not receive any treatment during their illness in the last pregnancy.

Table 4 Mothers with incidence of illness during last pregnancy by source of treatment and study area

Treatment source	Follow-up survey, 2000					
	Programme			Comparison		
	TG	NTG	Total	TG	NTG	Total
1	2	3	4	5	6	7
BRAC <i>Shushastho</i>	8.9 (4)	18.5 (12)	14.5 (16)	NA	NA	NA
Qualified physicians	37.8 (17)	38.5 (25)	38.2 (42)	33.3 (14)	54.9 (50)	48.1 (64)
Village doctors	40.0 (18)	27.7 (18)	32.7 (36)	52.4 (22)	34.1 (31)	39.8 (53)
No treatment	13.3 (6)	15.4 (10)	14.5 (16)	14.3 (6)	11.0 (10)	12.0 (16)
Total	100.0 (45)	100.0 (65)	100.0 (110)	100.0 (42)	100.0 (91)	100.0 (133)

Notes: 1. Figures in parentheses indicate cell frequency, 2. Village doctors includes *Jarfuk*, ayurvedy etc. 3. Baseline not done

Table 5 Mothers by the number of TT doses received during last pregnancy and study area

No. of TT doses	Follow-up survey, 2000					
	Programme			Comparison		
	TG	NTG	Total	TG	NTG	Total
1	2	3	4	5	6	7
None	9.6 (17)	5.0 (14)	6.8 (31)	8.1 (10)	6.0 (17)	6.6 (27)
One	16.9 (30)	14.7 (41)	15.6 (71)	9.7 (12)	11.2 (32)	10.8 (44)
Two +	73.5 (130)	80.2 (223)	77.6 (353)	85.0 (102)	82.8 (236)	82.6 (338)
Total	100.0 (177)	100.0 (278)	100.0 (455)	100.0 (124)	100.0 (285)	100.0 (409)

Notes: 1. Figures in parentheses indicate cell frequency. 2. Baseline not done

Table 5 illustrates that a higher percentage of mothers in the comparison area (82.6%) received two or more doses of tetanus toxoid vaccine during their last pregnancy compared to the programme area (77.6%).

Table 6 presents that 44.8% of the childbirths that occurred at home were attended by trained TBAs in the programme area as opposed to only 13.7% in the comparison area ($p < 0.001$).

Table 6 Childbirth by status of using trained TBAs and study area

Trained TBAs attended	Follow-up survey, 2000					
	Programme			Comparison		
	TG	NTG	Total	TG	NTG	Total
1	2	3	4	5	6	7
Yes	30.2 (48)	55.0 (126)	44.8 (174)	6.8 (8)	17.0 (42)	13.7 (50)
No	66.7 (106)	42.8 (98)	52.6 (204)	90.7 (107)	82.6 (204)	85.2 (311)
Don't know	3.1 (5)	2.2 (5)	2.6 (10)	2.5 (3)	0.4 (1)	1.1 (4)
Total	100.0 (159)	100.0 (229)	100.0 (388)	100.0 (118)	100.0 (247)	100.0 (365)

Notes: 1. Figures in parentheses indicate cell frequency. 2. Use of trained TBA: col. 4 Vs col. 7 $p < 0.001$
3. Baseline not done

Breast-feeding practices

Table 7 shows that in both the study areas, colostrum feeding to the newborns within 72 hours of birth significantly increased from the benchmark period to the follow-up in both study areas (programme area from 69% to 94% and in comparison area from 67% to 82%). But the increase was higher in the programme area (30 percent) than in the comparison (24 percent).

Table 8 shows that the level of exclusive breastfeeding to the infants (0-4 months) slightly increased to 58.6% from 58.3% in the programme area but in the comparison area it declined sharply from 90% in the baseline to 67% in the follow-up. However, the

overall increase in the programme area was 0.5% percent contrary to a 26 percent decrease in the comparison area.

Table 7 Infants (0-6 months) by status of colostrum feeding and study area

Status of colostrum feeding	Baseline						Follow-up					
	Programme			Comparison			Programme			Comparison		
	TG	NTG	Total	TG	NTG	Total	TG	NTG	Total	TG	NTG	Total
1	2	3	4	5	6	7	8	9	10	11	12	13
Yes	72.2 (52)	64.4 (29)	69.2 (81)	69.0 (40)	63.6 (28)	66.7 (68)	93.3 (14)	93.9 (31)	93.8 (45)	83.3 (15)	81.8 (27)	82.4 (42)
No	27.8 (20)	35.6 (16)	30.8 (36)	31.0 (18)	36.4 (16)	33.3 (34)	6.7 (1)	6.1 (2)	6.3 (3)	16.7 (3)	18.2 (6)	17.6 (9)

Notes: 1) Figures in parentheses indicate cell frequency

2) Significance Row Yes: Col. 4 vs col. 10 $p < 0.01$, 7 vs 13 $p < 0.05$, 10 vs 13 $p < 0.001$

Table 8 Infants (0-4 months) by exclusive breastfeeding status and study area

Exclusive breast-feeding status	Baseline						Follow-up					
	Programme			Comparison			Programme			Comparison		
	TG	NTG	Total	TG	NTG	Total	TG	NTG	Total	TG	NTG	Total
1	2	3	4	5	6	7	8	9	10	11	12	13
Yes	58.3 (7)	58.3 (7)	58.3 (14)	80.0 (4)	100.0 (5)	90.0 (9)	42.9 (3)	63.6 (14)	58.6 (17)	72.7 (8)	63.2 (12)	66.7 (20)
No	41.7 (5)	41.7 (5)	41.7 (10)	20.0 (1)	0	10.0 (1)	57.1 (4)	36.3 (8)	41.4 (12)	27.3 (3)	36.8 (7)	33.3 (10)
Total	100.0 (12)	100.0 (12)	100.0 (24)	100.0 (5)	100.0 (5)	100.0 (10)	100.0 (7)	100.0 (22)	100.0 (29)	100.0 (11)	100.0 (19)	100.0 (30)

Note: Figures in parentheses indicate cell frequency

Diarrhoea and treatment

Table 9 reveals that the prevalence of *Dudhaga* increased from benchmark status to follow-up in both the study areas (programme area 13.5% to 16.7% and comparison area 13.6% to 16%). The prevalence of *ajima*, *amasha* and *daeria* also showed an increase at varying degrees from baseline to follow-up in both the study areas. The aggregated prevalence of diarrhoea (all types combined) increased from baseline status to follow-up in both the study areas (programme area from 7.1% to 11% comparison area from 9.6% to 14.5%). But the increase was higher in the programme area (55 percent) than in the comparison (51 percent). The prevalence was always higher among the TG than the NTG in both the areas. However, when considering the prevalence of diarrhoea (all types aggregated) the differences between the baseline and the follow-up surveys were significant for both the programme ($p < 0.001$) and the comparison areas ($p < 0.001$).

In the follow-up survey alone, a similar significant difference was found between the programme and the comparison areas ($p < 0.001$).

Table 10 shows that across all the study areas and surveys the prevalence of

Table 9 Prevalence of diarrhoea by types and study area

Types of diarrhoea	Baseline						Follow-up					
	Programme			Comparison			Programme			Comparison		
	TG	NTG	Total	TG	NTG	Total	TG	NTG	Total	TG	NTG	Total
1	2	3	4	5	6	7	8	9	10	11	12	13
Dudhaga	18.3 (19)	6.8 (5)	13.5 (24)	15.3 (13)	11.6 (8)	13.6 (21)	18.8 (59)	15.4 (77)	16.7 (136)	17.7 (33)	14.8 (66)	16.0 (99)
n	104	74	178	85	69	154	314	501	815	175	445	620
Ajirna	1.8 (18)	1.7 (19)	1.7 (37)	3.4 (25)	3.2 (35)	3.3 (60)	2.8 (43)	2.3 (74)	2.5 (117)	5.3 (50)	4.7 (147)	4.8 (197)
n	993	1129	2122	731	1099	1830	1561	3177	4738	968	3118	4086
Amasha	3.3 (33)	3.8 (43)	3.6 (76)	4.0 (29)	3.9 (43)	3.9 (72)	4.4 (69)	3.7 (116)	3.9 (185)	5.5 (54)	4.7 (147)	4.9 (201)
n	993	1129	2122	731	1099	1830	1561	3177	4738	968	3118	4086
Daeria	0.8 (8)	0.4 (5)	0.6 (13)	1.8 (13)	0.9 (10)	1.3 (23)	1.8 (28)	1.8 (56)	1.8 (84)	2.9 (28)	2.2 (70)	2.4 (98)
n	993	1129	2122	731	1099	1830	1561	3177	4738	968	3118	4086
All aggregated	7.8 (78)	6.4 (72)	7.1 (150)	10.9 (80)	8.7 (96)	9.6 (176)	12.7 (199)	10.2 (323)	11.0 (522)	16.8 (163)	13.8 (430)	14.5 (593)
n	993	1129	2122	731	1099	1830	1561	3177	4738	968	3118	4086

Notes: 1. Figures in parentheses indicate cell frequency

All aggregated (four types): col. 4 Vs col. 10 $p < 0.001$, col. 7 Vs col. 13 $p < 0.001$, col. 10 Vs col. 13 $p < 0.001$

Table 10 Distribution of diarrhoea (any types) cases by age and study area

Age (Years)	Baseline						Follow-up					
	Programme			Comparison			Programme			Comparison		
	TG	NTG	Total	TG	NTG	Total	TG	NTG	Total	TG	NTG	Total
1	2	3	4	5	6	7	8	9	10	11	12	13
<5	43.6 (34)	27.7 (20)	36.0 (54)	42.6 (34)	25.0 (24)	33.0 (58)	43.7 (87)	35.3 (114)	38.5 (201)	30.1 (49)	27.0 (116)	27.8 (165)
5-9	6.4 (5)	8.3 (6)	7.3 (11)	7.5 (6)	7.3 (7)	7.4 (13)	9.5 (19)	9.0 (29)	9.2 (48)	6.1 (10)	6.3 (27)	6.2 (37)
10-19	3.8 (3)	9.7 (7)	6.7 (10)	6.3 (5)	11.5 (11)	9.1 (16)	5.5 (11)	10.8 (35)	8.8 (46)	9.8 (16)	7.7 (33)	8.3 (49)
20-29	23.1 (18)	12.5 (9)	18.0 (27)	16.3 (13)	19.8 (19)	18.2 (32)	18.1 (36)	16.7 (54)	17.2 (90)	17.2 (28)	20.7 (89)	19.7 (117)
30-39	3.8 (3)	23.6 (17)	13.3 (20)	16.3 (13)	15.6 (15)	15.9 (28)	10.6 (21)	13.9 (45)	12.6 (66)	16.7 (27)	19.3 (83)	18.5 (110)
40-49	14.1 (11)	8.3 (6)	11.3 (17)	6.3 (5)	8.3 (8)	7.4 (13)	7.5 (15)	5.9 (19)	6.5 (34)	11.0 (18)	8.6 (37)	9.3 (55)
50 or more	5.1 (4)	9.8 (7)	7.4 (11)	5.0 (4)	12.5 (12)	9.1 (16)	5.0 (10)	8.4 (27)	7.1 (37)	9.2 (15)	10.4 (45)	10.1 (60)
Total	100.0 (78)	100.0 (72)	100.0 (150)	100.0 (80)	100.0 (96)	100.0 (176)	100.0 (199)	100.0 (323)	100.0 (522)	100.0 (163)	100.0 (430)	100.0 (593)

Note: Figures in parentheses indicate cell frequency

diarrhoea was higher among the children below five years of age compared to all other age groups. In the programme area, among this age group it increased to 7 percent from baseline status to follow-up study contrary to a 16 percent decrease in the comparison area.

Allopathic mode of treatment for diarrhoea increased in both the areas from the baseline status to the follow-up (from 58% to 93% in programme area and from 55% to 69% in comparison area). However, the increase in the programme area was sharper than in the comparison. Use of oral saline also increased to 32.8% from the benchmark of 19.3% in the programme while in the comparison it increased to 30.2% from the benchmark of 17.6%. But the overall increase was 72 percent higher in the comparison area than in the programme (70 percent). In the follow-up survey, the TG of both the study areas had lower use of oral saline for diarrhoea (Table 11). The proportion of no treatment for diarrhoea also decreased in both the areas.

Table 11 Diarrhoea patients by types of treatment and study area

Types of treatment	Baseline						Follow-up					
	Programme			Comparison			Programme			Comparison		
	TG	NTG	Total	TG	NTG	Total	TG	NTG	Total	TG	NTG	Total
1	2	3	4	5	6	7	8	9	10	11	12	13
No treatment	28.2 (22)	16.7 (12)	22.7 (34)	15.0 (12)	21.9 (21)	24.4 (43)	16.6 (33)	14.6 (47)	15.3 (80)	19.0 (31)	13.3 (57)	15.2 (90)
Allopathic	50.0 (39)	66.7 (48)	58.0 (87)	45.0 (36)	63.5 (61)	55.1 (97)	81.4 (162)	100.0 (323)	92.9 (485)	55.8 (91)	74.0 (318)	69.0 (409)
Homeopathic/ ayurvedic	16.7 (13)	19.4 (14)	18.0 (27)	13.8 (11)	10.4 (10)	11.9 (21)	(19.6) 39	22.3 (72)	21.3 (111)	12.9 (21)	9.5 (41)	10.4 (62)
Oral saline	26.9 (21)	11.1 (8)	19.3 (29)	18.8 (15)	16.7 (16)	17.6 (31)	20.6 (41)	40.2 (130)	32.8 (171)	28.2 (46)	30.9 (133)	30.2 (179)
n	78	72	150	80	96	176	199	323	522	163	430	593

Notes: 1. Figures in parentheses indicate cell frequency

2. Multiple responses considered

3. Oral saline includes ORS packets and *lobon-gur* saline

General illness (other than diarrhoea)

Table 12 shows that 21.7% of the population of the programme area compared to 22.3% of the comparison area suffered from general illnesses during the last one month recall period.

Table 13 shows that in the programme area, the prevalence of general illness was higher among children less than 5 years of age (24.3%) while in the comparison area it

Table 12 Population by status of general illness (except diarrhoea) and study area

Illness status	Follow-up survey, 2000					
	Programme			Comparison		
	TG	NTG	Total	TG	NTG	Total
1	2	3	4	5	6	7
Yes	22.0 (344)	21.5 (684)	21.7 (1028)	22.1 (214)	22.4 (698)	22.3 (913)
No	78.0 (1217)	78.5 (2493)	78.3 (3710)	77.9 (754)	77.6 (2420)	77.7 (3173)
n	1561	3177	4738	968	3118	4086

Notes: 1. Figures in parentheses indicate cell frequency
2. Baseline not done

was higher (22.7%) among people aged 20-29 years. In both the study areas, the people aged 60 or more years were least likely to suffer from general illnesses (2.7% in each area).

Table 14 shows that most patients had a high incidence of infectious diseases in both the areas (86.7% programme and 82.5% comparison). Other illnesses mentioned were gastrointestinal illness (programme 6.7%, comparison 9.6%), skin diseases (programme 3.5%, comparison 6.5%), and cardio-vascular diseases (programme 2.8%, comparison 2.7%).

Table 13 Prevalence of general illness by age and study area

Age (years)	Follow-up survey, 2000					
	Programme			Comparison		
	TG	NTG	Total	TG	NTG	Total
1	2	3	4	5	6	7
<5	28.2 (97)	22.4 (153)	24.3 (250)	25.2 (54)	19.6 (137)	20.9 (191)
5-9	12.8 (44)	13.6 (93)	13.3 (137)	11.6 (25)	12.9 (90)	12.6 (115)
10-19	11.9 (41)	16.7 (114)	15.1 (155)	12.6 (27)	15.2 (106)	14.6 (133)
20-29	22.7 (78)	16.8 (115)	18.8 (193)	21.4 (46)	23.1 (161)	22.7 (207)
30-39	11.6 (40)	13.9 (95)	13.1 (135)	12.6 (27)	14.9 (104)	14.3 (131)
40-49	5.8 (20)	9.8 (67)	8.5 (87)	9.8 (21)	17.9 (55)	8.3 (76)
50-59	4.4 (15)	4.1 (28)	4.2 (43)	3.3 (7)	4.0 (28)	3.8 (35)
60+	2.6 (9)	2.8 (19)	2.7 (28)	3.7 (8)	2.4 (17)	2.7 (25)
Total	100.0 (344)	100.0 (684)	100.0 (1028)	100.0 (214)	100.0 (698)	100.0 (913)

Notes: 1. Figures in parentheses indicate cell frequency. 2. Baseline not done

Table 15 shows that a higher percentage of the patients in both the study areas received treatment from the village doctors (programme 42% and comparison 59%). The second favourite source of treatment was the qualified physicians. It was higher in the programme area (37%) than in the comparison area (25%). NTG patients were more

likely to receive treatment from qualified physicians than the TG in both the areas (programme 42.5% versus 31.7% and comparison 25.4% versus 22.8%).

Table 16 shows that most households in both the study areas had a health centre within 2 km of their villages (programme 83.1% and comparison 71.3%).

Table 14 Patients by types of illness and study area

Type of illness	Follow-up survey, 2000					
	Programme			Comparison		
	TG	NTG	Total	TG	NTG	Total
1	2	3	4	5	6	7
Infectious disease	85.5 (294)	87.3 (597)	86.7 (891)	81.9 (176)	82.7 (577)	82.5 (753)
Genito-urinary	0.6 (2)	1.0 (7)	0.9 (9)	0.5 (1)	0.7 (5)	0.7 (6)
Direct-obstetric	0.6 (2)	0.9 (6)	0.8 (8)	0	0.4 (3)	0.3 (3)
Respiratory	0.6 (2)	0.6 (4)	0.6 (6)	1.9 (4)	1.3 (9)	1.4 (13)
Dental	0.6 (2)	1.5 (10)	1.2 (12)	0.9 (2)	1.0 (7)	1.0 (9)
Gastro-intestinal	8.1 (28)	6.0 (41)	6.7 (69)	9.8 (21)	9.6 (67)	9.6 (88)
Cardio-vascular	3.8 (13)	2.3 (16)	2.8 (29)	2.8 (6)	2.7 (19)	2.7 (25)
Arthritis	1.2 (4)	0.9 (6)	1.0 (10)	1.9 (4)	1.4 (10)	1.5 (14)
Neoplasm	0.3 (1)	0.3 (4)	0.4 (4)	0	0.3 (2)	0.2 (2)
Skin disease	3.8 (13)	3.4 (23)	3.5 (36)	7.0 (15)	6.3 (44)	6.5 (59)
Diarrhoeal disease	0.9 (3)	0.6 (4)	0.7 (7)	2.8 (6)	1.7 (12)	2.0 (18)
Epilepsy	0	0.1 (1)	0.1 (1)	0	0	0
Allergy	0	0	0	0	0.2 (2)	0.2 (2)
Accident	0.3 (1)	0.1 (1)	0.2 (2)	0.5 (1)	0.6 (4)	0.5 (5)
Mental disease	0	0.3 (2)	0.2 (2)	0	0.1 (1)	0.1 (1)
Diabetics	0	0.4 (3)	0.3 (3)	0	0	0
Miscellaneous	11.9 (41)	8.2 (56)	9.4 (97)	27.4 (59)	24.6 (172)	25.3 (231)
Total	100.0 (344)	100.0 (684)	100.0 (1028)	100.0 (214)	100.0 (698)	100.0 (913)

Notes: 1. Figures in parentheses indicate cell frequency, 2. Multiple responses considered, 3. Baseline not done, 4. Infectious diseases includes fever, typhoid, cough, cold, tonsil, eye disease, chicken pox, measles, pneumonia, TB, polio, whooping cough etc.

Table 15 Patient with illness (except diarrhoeal diseases) by source of treatment and study area

Source of treatment	Follow-up survey, 2000					
	Programme			Comparison		
	TG	NTG	Total	TG	NTG	Total
1	2	3	4	5	6	7
No treatment	14.2 (49)	12.4 (85)	13.0 (134)	14.0 (30)	12.2 (85)	12.6 (115)
BRAC <i>Shushastho</i>	1.5 (5)	1.6 (11)	1.6 (16)	NA	NA	NA
Qualified physician	30.2 (104)	40.9 (280)	37.4 (384)	22.8 (49)	25.4 (177)	24.8 (226)
Village doctor	44.2 (152)	40.8 (279)	41.9 (431)	57.7 (124)	58.7 (410)	58.5 (534)
Homeopathic doctor	11.6 (40)	8.0 (55)	9.2 (95)	6.0 (13)	7.0 (49)	6.8 (62)
n	344	684	1028	214	698	913

Notes: 1. Figures in parentheses indicate cell frequency, 2. Multiple responses considered, 3. NA = Not Applicable, 4. Village doctor includes ayurvedic, *jarfuk* etc, 5. Baseline not done physicians

The respondents were asked, "Where do you usually seek care for any illness?" About 26% of the respondents in the programme area, in contrast to 13% in the

comparison area answered that they generally sought care from the qualified allopathic physicians. In the programme area, more NTG preferred allopathic treatment than TG (Table 17).

Table 16 Household by distance of the nearest health centre and study area

Distance of health centre (km)	Follow-up survey, 2000					
	Programme			Comparison		
	TG	NTG	Total	TG	NTG	Total
1	2	3	4	5	6	7
<1	49.0 (176)	50.7 (341)	50.1 (517)	52.1 (135)	49.9 (367)	50.5 (502)
1-2	35.1 (126)	31.9 (215)	33.0 (341)	7.7 (20)	11.8 (87)	10.8 (107)
3+	15.9 (57)	17.4 (117)	16.9 (174)	40.2 (104)	38.2 (281)	38.7 (385)
Total	100.0 (359)	100.0 (673)	100.0 (1032)	100.0 (259)	100.0 (735)	100.0 (994)

Notes: 1. Figures in parentheses indicate cell frequency. 2. Baseline not done

Table 17 Respondents' opinion by source of care seeking in case of illness and study area

Source of seeking care	Follow-up survey, 2000					
	Programme			Comparison		
	TG	NTG	Total	TG	NTG	Total
1	2	3	4	5	6	7
Qualified physician	18.1 (65)	26.3 (177)	23.2 (242)	13.1 (34)	12.7 (93)	12.8 (127)
BRAC <i>Shushastho</i>	2.5 (9)	2.7 (18)	2.6 (27)	NA	NA	NA
Village doctor	77.2 (277)	68.9 (464)	71.8 (741)	86.5 (224)	86.3 (634)	86.3 (858)
Homeopathic doctor	2.2 (8)	2.1 (14)	2.1 (22)	0.4 (1)	1.1 (8)	0.9 (9)
Total	100.0 (359)	100.0 (673)	100.0 (1032)	100.0 (259)	100.0 (735)	100.0 (994)

Notes: 1. Figures in parentheses indicate cell frequency. 2. NA = Not Applicable. 3. Village doctor includes ayurvedic, *jharkuk* etc. 4. Baseline not done

Use of different health services

Table 18 portrays that in the programme area the proportion of children (12-23 months) fully immunised significantly increased to 91.4% from the baseline status of 80% ($p < 0.05$). Interestingly this trend was reverse in the comparison area where the percentage of fully immunised children declined from the benchmark of 89.5% to 83.1%. The proportion of fully immunised children increased 14 percent in the programme area compared to a 7 percent decrease in the comparison. The differences between two areas in the follow-up survey was also significant ($p < 0.05$). In the follow-up survey, unlike in the comparison area the immunization coverage was much higher among the TG children than the NTG in the programme area.

Table 19 shows that the percentage of women in reproductive age receiving two or more doses of TT vaccine increased from a benchmark status of 70.6% to 78.1% in the programme area. The comparison area experienced a reverse trend in this regard

Table 18 Children (12-23 months) by status of immunization and study area

Immuni- zation Status	Baseline						Follow-up					
	Programme			Comparison			Programme			Comparison		
	TG	NTG	Total	TG	NTG	Total	TG	NTG	Total	TG	NTG	Total
1	2	3	4	5	6	7	8	9	10	11	12	13
Complete	76.3 (29)	88.2 (15)	80.0 (44)	91.2 (31)	87.0 (20)	89.5 (51)	94.0 (63)	89.4 (76)	91.4 (139)	76.5 (26)	85.6 (77)	83.1 (103)
Partial	15.8 (6)	5.9 (1)	12.7 (7)	8.8 (3)	13.0 (3)	10.5 (6)	4.5 (3)	9.4 (8)	7.2 (11)	20.6 (7)	14.4 (13)	16.1 (20)
None	7.9 (3)	5.9 (1)	7.3 (4)	0	0	0	1.5 (1)	1.2 (1)	1.3 (2)	2.9 (1)	0	0.8 (1)
Total	100.0 (38)	100.0 (17)	100.0 (55)	100.0 (34)	100.0 (23)	100.0 (57)	100.0 (67)	100.0 (85)	100.0 (152)	100.0 (34)	100.0 (90)	100.0 (124)

Notes: 1. Figures in parentheses indicate cell frequency

2. Complete: col. 4 Vs col. 10 $p < 0.05$, col. 10 Vs col. 13 $p < 0.05$

Table 19 Women (15-49 years) by status of TT vaccination and study area

No. of TT doses	Baseline						Follow-up					
	Programme			Comparison			Programme			Comparison		
	TG	NTG	Total	TG	NTG	Total	TG	NTG	Total	TG	NTG	Total
1	2	3	4	5	6	7	8	9	10	11	12	13
None	20.4 (49)	25.2 (63)	22.9 (112)	9.1 (18)	15.4 (41)	12.7 (59)	15.6 (61)	13.0 (101)	13.9 (162)	17.7 (48)	20.5 (169)	19.8 (217)
one	7.5 (18)	5.6 (14)	6.5 (32)	7.1 (14)	6.0 (16)	6.5 (30)	6.4 (25)	8.9 (69)	8.0 (94)	7.4 (20)	4.9 (40)	5.5 (60)
2 or more	72.1 (173)	69.2 (173)	70.6 (346)	83.8 (166)	78.6 (209)	80.9 (377)	78.0 (306)	78.1 (608)	78.1 (914)	74.9 (203)	74.6 (615)	74.7 (818)
Total	100.0 (240)	100.0 (250)	100.0 (490)	100.0 (208)	100.0 (258)	100.0 (466)	100.0 (392)	100.0 (778)	100.0 (1170)	100.0 (271)	100.0 (824)	100.0 (1095)

Notes: 1. Figures in parentheses indicate cell frequency

2. Two or more doses of TT: col. 4 Vs col. 10 $p < 0.05$, col. 7 Vs col. 13 $p < 0.01$

where the rate fell from 80.9% to 74.7%. The proportion of women receiving 2 or more doses of TT increased in the programme area (11 percent) as oppose to 8 percent decrease in the comparison area. The changes observed in TT coverage between the baseline and the follow-up surveys across the study areas were statistically significant (programme area $p < 0.05$ and comparison area $p < 0.01$).

The prevalence of nightblindness declined sharply from the baseline status of 9.4% to 0.8% in the programme area (Table 20). Although the comparison area experienced a similar reduction in the prevalence of nightblindness (3.7% to 1.5%), the

pace was slower (60 percent in the comparison area) than the programme area (92 percent). The difference was significant between the baseline and the follow-up surveys for both the programme ($p < 0.001$) and comparison ($p < 0.05$) areas. However, the degree of decrease was much higher among the NTG than the TG in both the areas.

Table 21 shows that VAC intake increased to 93.8% from a benchmark of 85.6% in the programme area but such increase was sharper in the comparison area which rose to 94.5% from a benchmark of 67.8%. The difference was highly significant ($p < 0.001$) between the baseline and the follow-up surveys for both the programme and comparison areas.

The proportion of women using family planning methods were significantly ($p < 0.001$) higher in the comparison area (72.9%) than in the programme (57%) area (Table 22). An overwhelming majority of the FP users used any modern methods (98.2% programme area and 98% comparison). Use of vasectomy was slightly higher in the programme than in the comparison area (4% versus 2%), while the use of ligation followed an opposite trend. It was higher in the comparison area (8%) than in the programme (5%) (Table 23).

Table 20 Prevalence of night blindness among children (6-71 months) and study area

Status of night blindness	Baseline						Follow-up					
	Programme			Comparison			Programme			Comparison		
	TG	NTG	Total	TG	NTG	Total	TG	NTG	Total	TG	NTG	Total
1	2	3	4	5	6	7	8	9	10	11	12	13
Yes	6.3 (12)	12.9 (22)	9.4 (34)	4.0 (6)	3.4 (5)	3.7 (11)	1.6 (5)	0.4 (2)	0.8 (7)	2.2 (4)	1.3 (6)	1.5 (10)
No	93.7 (179)	87.1 (148)	89.6 (327)	96.0 (143)	96.6 (144)	96.3 (287)	98.4 (315)	99.6 (511)	826 (99.2)	97.8 (178)	98.7 (470)	98.5 (648)
Total	191	170	361	149	149	298	320	513	833	182	470	658

Notes: 1. Figures in parentheses indicate cell frequency

2. Yes: col. 4 Vs col. 10 $p < 0.001$, col. 7 Vs col. 13 $p < 0.05$

Table 21 Children (6-71 months) by status of VAC intake and study area

VAC intake status	Baseline						Follow-up					
	Programme			Comparison			Programme			Comparison		
	TG	NTG	Total	TG	NTG	Total	TG	NTG	Total	TG	NTG	Total
1	2	3	4	5	6	7	8	9	10	11	12	13
Yes	83.3 (160)	87.6 (149)	85.6 (309)	65.8 (98)	69.8 (104)	67.8 (202)	93.1 (298)	94.2 (483)	93.8 (781)	92.3 (168)	95.4 (454)	94.5 (622)
No	6.7 (31)	2.4 (21)	4.4 (52)	34.2 (51)	30.2 (45)	32.2 (96)	6.9 (22)	5.8 (30)	6.2 (52)	7.7 (14)	4.6 (22)	5.5 (36)
Total	191	170	361	149	149	298	320	513	833	182	476	658

Notes: 1. Figures in parentheses indicate cell frequency

2. Yes: col. 4 Vs col. 10 $p < 0.001$, col. 7 Vs col. 13 $p < 0.001$

Table 22 Currently married women (15-49 years) by status of Family Planning method use (any method) and study area

Status of FP method use	Follow-up survey, 2000					
	Programme			Comparison		
	TG	NTG	Total	TG	NTG	Total
1	2	3	4	5	6	7
Yes	53.1 (200)	59.1 (424)	57.0 (624)	69.7 (182)	74.0 (562)	72.9 (744)
No	46.9 (177)	40.9 (294)	43.0 (471)	30.3 (79)	26.0 (197)	27.1 (276)
Total	377	718	1095	261	759	1020

Notes: 1. Figures in parentheses indicate cell frequency. 2. Yes: col. 4 Vs col. 7 $p < 0.001$

Table 23 Currently married women (15-49 years) using FP by type of method and study area

Type of FP method	Follow-up survey, 2000					
	Programme			Comparison		
	TG	NTG	Total	TG	NTG	Total
1	2	3	4	5	6	7
Vasectomy	5.5 (11)	2.8 (12)	3.7 (23)	4.9 (9)	1.6 (9)	2.4 (18)
Ligation	8.0 (16)	4.2 (18)	5.4 (34)	13.7 (25)	6.2 (35)	8.1 (60)
Copper T	3.0 (6)	2.8 (12)	2.9 (18)	0	1.1 (6)	0.8 (6)
Injection	8.5 (17)	12.2 (52)	11.0 (69)	11.0 (20)	11.7 (66)	11.5 (86)
Pill	71.1 (143)	71.3 (303)	71.2 (446)	65.9 (120)	73.2 (412)	71.4 (532)
Condom	0.5 (1)	5.6 (24)	4.0 (25)	3.3 (6)	3.9 (22)	3.8 (28)
Others	3.5 (7)	0.9 (4)	1.8 (11)	1.1 (2)	2.3 (13)	2.0 (15)
n	200	424	624	182	562	744

Note: Figures in parentheses indicate cell frequency

Pneumonia-related practices

The respondents of both the study areas mentioned a diverse range of local names for pneumonia including *hapani*, *shlesha/sardil*/cold, pneumonia, *bukdaba*, bronchitis, fever, etc. during both the surveys. Some of the names reflect the signs/symptoms of the disease and some the disease itself. However, Table 24 shows that the proportion mentioning the medical name 'pneumonia' decreased from 32% in the baseline survey to 20% in the follow-up in the programme area, and from 10% to 7% in the comparison area. Such decrease was higher (39 percent) in the programme area than in the comparison (32 percent). In contrast, the proportion mentioning the local name *hapani* increased in both the study areas (from 24% to 51% in programme area, and from 22% to 39% in comparison area). This increase was higher in the programme area than in the comparison (112 versus 75 percent). The proportion saying *shlesha/sardil*/cold decreased from 28% in the baseline to 13% in the follow-up survey in the programme area but it increased from

14% to 34% in the comparison area. The proportion mentioning the name *bukdaba* and bronchitis decreased from the baseline status to the follow-up in both the study areas.

The respondents' opinions were sought on "What measures should be taken when any sign/symptom of pneumonia appears in anybody?" Table 25 reveals that in both the surveys, most respondents across the study areas mentioned resorting to allopathic treatment followed by a village doctor. 'Avoiding cold' and 'rubbing hot oil' were the next favourite modes of care that were reported for pneumonia. The proportion favouring

Table 24 Respondents by the folk names of pneumonia and study area

Local name	Baseline						Follow-up					
	Programme			Comparison			Programme			Comparison		
	TG	NTG	Total	TG	NTG	Total	TG	NTG	Total	TG	NTG	Total
1	2	3	4	5	6	7	8	9	10	11	12	13
Hapani	26.8 (57)	21.0 (39)	24.1 (96)	17.0 (31)	26.1 (55)	21.9 (86)	45.2 (165)	54.4 (363)	51.2 (528)	38.0 (98)	38.5 (283)	38.3 (381)
Shlesha/sardi/ Cold	28.2 (60)	26.9 (50)	27.6 (110)	28.5 (52)	22.3 (47)	25.2 (99)	14.2 (52)	12.3 (82)	13.0 (134)	36.4 (94)	33.4 (246)	34.2 (340)
Pneumonia	27.7 (59)	36.6 (68)	31.8 (127)	9.9 (18)	9.5 (20)	9.7 (38)	17.8 (65)	20.4 (136)	19.5 (201)	3.5 (9)	7.7 (57)	6.6 (66)
TB	0	0	0	0	0	0	0.8 (3)	1.5 (10)	1.3 (13)	5.4 (14)	4.6 (34)	4.8 (48)
Bukdaba	4.7 (10)	4.3 (8)	4.5 (18)	45.1 (82)	37.4 (79)	41.0 (161)	2.7 (10)	1.6 (11)	2.0 (21)	20.9 (54)	21.1 (155)	21.0 (209)
Bronchitis	4.2 (9)	10.2 (19)	6.5 (26)	2.2 (4)	6.6 (14)	4.6 (18)	4.9 (18)	3.9 (26)	4.3 (44)	1.2 (3)	2.6 (19)	2.2 (22)
Whooping cough	0	0	0	0.5 (1)	1.9 (4)	1.3 (5)	2.5 (9)	0.7 (5)	1.4 (14)	2.7 (7)	3.3 (24)	3.1 (31)
Cough	0	0	0	0	0	0	7.4 (27)	2.8 (19)	4.5 (46)	0	0	0
Fever	0.4 (1)	2.2 (4)	1.3 (5)	1.6 (3)	1.9 (4)	1.8 (7)	0.3 (1)	0.4 (3)	0.4 (3)	0.4 (1)	0.8 (6)	0.7 (7)
Ham	0	0	0	0	0	0	0.5 (2)	0	0.2 (2)	1.6 (4)	0.3 (2)	0.6 (6)
Unknown	1.9 (4)	1.1 (2)	1.5 (6)	1.6 (3)	2.8 (6)	2.3 (9)	4.4 (16)	2.1 (14)	2.9 (30)	1.6 (4)	0.7 (5)	0.9 (9)
n	213	186	399	182	211	393	365	667	1032	258	736	994

Notes: 1. Figures in parentheses indicate cell frequency

2. Multiple responses considered

allopathic treatment for pneumonia increased from the baseline status in both the areas (programme area 45% to 65%, and comparison area 51% to 65%). Indeed, the proportion of such opinion was higher in the programme area than in the comparison (45 versus 26 percent). Use of a village doctor showed the similar pattern of increase. On the contrary,

the proportion of respondents who opined to 'avoid cold' and to 'rub hot oil' substantially decreased from the baseline status to the follow-up in both the areas. In both the surveys across the study areas, more NTG than the TG reported to have resorted to the allopathic treatment for pneumonia.

Table 25 Respondents by opinion on treatment of pneumonia and study area

Types of treatment preferred	Baseline						Follow-up					
	Programme			Comparison			Programme			Comparison		
	TG	NTG	Total	TG	NTG	Total	TG	NTG	Total	TG	NTG	Total
1	2	3	4	5	6	7	8	9	10	11	12	13
Allopathic	43.7 (93)	46.2 (86)	44.9 (179)	48.4 (88)	54.0 (114)	51.4 (202)	57.3 (209)	69.6 (464)	65.2 (673)	59.3 (153)	66.6 (490)	64.7 (643)
Village doctor	9.9 (21)	11.8 (22)	10.8 (43)	12.6 (23)	1.9 (4)	6.9 (27)	26.8 (98)	17.1 (114)	20.5 (212)	23.6 (61)	18.2 (134)	19.6 (195)
BRAC <i>shushastho</i>	0	0	0.3 (1)	0	0	0	5.2 (19)	4.9 (33)	5.0 (52)	0	0	0
Homeopathic	0.5 (1)	0	1.3 (5)	0.5 (1)	0	0.3 (1)	1.9 (7)	1.5 (10)	1.6 (17)	0	0.8 (6)	0.6 (6)
Avoiding cold	1.4 (3)	1.1 (2)	18.5 (74)	2.2 (4)	1.4 (3)	1.8 (7)	0	0.3 (2)	0.2 (2)	0	0.3 (2)	0.2 (2)
Rubbing hot oil	16.4 (35)	21.0 (39)	18.5 (74)	32.4 (59)	27.5 (58)	29.8 (117)	1.1 (4)	0.7 (5)	0.9 (9)	7.8 (20)	9.5 (70)	9.1 (90)
Others	3.8 (8)	4.8 (9)	4.3 (17)	3.3 (6)	2.8 (6)	3.1 (12)	5.8 (21)	4.6 (31)	5.0 (52)	8.9 (23)	5.7 (42)	6.5 (65)
Don't know	4.2 (9)	4.8 (9)	20.3 (81)	5.5 (10)	8.5 (18)	7.1 (28)	4.1 (15)	2.1 (14)	2.8 (29)	0.4 (1)	0.1 (1)	0.2 (2)
n	213	186	399	182	211	393	365	667	1032	258	736	994

Notes: 1. Figures in parentheses indicate cell frequency. 2. Multiple responses considered

Table 26 reveals that the notion of belief in the possibility of home level management of pneumonia declined from the benchmark to the follow-up in both the study areas (programme 27.1% to 9.3% and comparison 26.5% to 7.1%). But the decrease in such opinion was higher (73 percent) in the comparison area than in the programme (66 percent). The difference was significant ($p < 0.001$) between the baseline and the follow-up surveys for both the programme and comparison areas.

Table 27 shows that during the baseline survey, a substantial proportion of the respondents across the study areas said that they would either 'consult a doctor' or 'rub hot oil' as measure to the home level. But in the follow-up study none mentioned about these items. However, the proportion mentioning the use of 'traditional treatment' as a measure to home management increased substantially in both the study areas (programme 266 versus comparison 1940 percent). The follow-up survey result showed a significant

Table 26 Respondents by opinion on whether pneumonia can be treated at home and study area

Opinion	Baseline						Follow-up					
	Programme			Comparison			Programme			Comparison		
	TG	NTG	Total	TG	NTG	Total	TG	NTG	Total	TG	NTG	Total
1	2	3	4	5	6	7	8	9	10	11	12	13
Yes	26.8 (57)	27.4 (51)	27.1 (108)	29.1 (53)	24.2 (51)	26.5 (104)	10.1 (37)	8.8 (59)	9.3 (96)	8.5 (22)	6.7 (49)	7.1 (71)
No	73.2 (156)	72.5 (135)	73.0 (291)	70.9 (129)	75.9 (160)	73.5 (289)	89.8 (328)	91.2 (608)	90.7 (936)	91.5 (236)	93.3 (687)	92.3 (923)
n	213	186	399	182	211	393	365	667	1032	258	736	994

Notes: 1. Figures in parentheses indicate cell frequency

2. Yes: col. 4 Vs col. 10 $p < 0.001$, col. 7 Vs col. 13 $p < 0.001$

Table 27 Respondents by modes of pneumonia management at home level and study area

Modes of home management	Baseline						Follow-up					
	Programme			Comparison			Programme			Comparison		
	TG	NTG	Total	TG	NTG	Total	TG	NTG	Total	TG	NTG	Total
1	2	3	4	5	6	7	8	9	10	11	12	13
Traditional treatment	14.0 (8)	15.7 (8)	14.8 (16)	3.8 (2)	3.9 (2)	3.8 (4)	45.9 (17)	59.3 (35)	54.2 (52)	63.6 (14)	83.7 (41)	77.5 (55)
Allopathic medicine	8.8 (5)	3.9 (2)	6.5 (7)	3.8 (2)	0 (2)	1.9 (2)	16.2 (6)	5.1 (3)	9.4 (9)	0 (3)	6.1 (3)	4.2 (3)
Homeopathic medicine	1.8 (1)	3.9 (2)	2.8 (3)	3.8 (2)	0 (2)	1.9 (2)	2.7 (1)	3.4 (2)	3.1 (3)	4.5 (1)	2.0 (1)	2.8 (2)
<i>Kabiraji</i> care	19.3 (11)	17.6 (9)	18.5 (20)	28.3 (15)	13.7 (7)	21.2 (22)	37.8 (14)	33.9 (20)	35.4 (34)	40.9 (9)	10.2 (5)	19.7 (14)
Consulting a doctor	24.6 (14)	43.1 (22)	33.3 (36)	13.2 (7)	17.6 (9)	15.4 (16)	0 (16)	0 (16)	0 (16)	0 (16)	0 (16)	0 (16)
Rubbing hot oil	33.3 (19)	31.4 (26)	32.4 (35)	67.9 (36)	62.7 (32)	65.4 (68)	0 (68)	0 (68)	0 (68)	0 (68)	0 (68)	0 (68)
n	57	51	108	53	51	104	37	59	96	22	49	71

Notes: 1. Figures in parentheses indicate cell frequency. 2. Multiple responses considered. 3. Traditional treatment: col. 4 Vs col. 7 $p < 0.005$. 4. *Kabiraji* treatment: col. 4 Vs col. 7 $p < 0.05$.

difference between the study areas in this regard ($p < 0.005$). The NTG preferred traditional treatment more than the TG did in both areas. Another important way for home management of pneumonia was *kabiraji* treatment. The proportion favouring this mode of care increased from the baseline to the follow-up survey for the programme area but it decreased for the comparison area.

Table 28 shows that the opinion on the use of 'allopathic treatment' and a 'village doctor' as a measure toward pneumonia management outside home increased remarkably

from the baseline to the follow-up survey in both the areas. On the contrary, 'consulting a doctor' as a measure drastically decreased to zero in the follow-up from the baseline status all over the study areas.

Table 28 Respondents by modes of pneumonia management outside home and study area

Modes of management outside home	Baseline						Follow-up					
	Programme			Comparison			Programme			Comparison		
	TG	NTG	Total	TG	NTG	Total	TG	NTG	Total	TG	NTG	Total
1	2	3	4	5	6	7	8	9	10	11	12	13
Allopathic	1.9 (3)	1.5 (2)	1.7 (5)	1.6 (2)	0	0.7 (2)	72.9 (239)	83.4 (507)	79.7 (746)	73.7 (174)	79.9 (549)	78.3 (723)
Village doctor	7.6 (11)	6.7 (9)	6.9 (20)	11.6 (15)	4.4 (7)	7.6 (22)	24.1 (79)	14.8 (90)	18.1 (169)	26.3 (62)	20.1 (138)	21.7 (200)
Consult a doctor	92.9 (145)	94.8 (128)	93.8 (273)	99.2 (128)	97.5 (156)	98.3 (284)	0	0	0	0	0	0
Don't know	0.7 (1)	0.7 (1)	0.7 (2)	0.7 (1)	1.9 (3)	1.4 (4)	4.3 (14)	2.1 (13)	2.9 (27)	0	0	0
n	156	135	291	129	160	289	328	608	936	236	687	923

Note: Figures in parentheses indicate cell frequency

Table 29 depicts that the notion of belief in treating pneumonia patients on the day of onset of the disease increased from the benchmark status in both the study areas (programme area from 52.6% to 73.4% and comparison area from 46.6% to 57.5%). The increase was greater in the programme area than in the comparison area (40 versus 23 percent). The difference was significant ($p < 0.001$) between the baseline and the follow-up surveys for both the programme and comparison areas.

Table 30 reveals that the proportion of the respondents saying that any foods could be given to the patients during pneumonia decreased from the baseline status in the programme area (from 6% to 4%), in contrast to an increase in the comparison area (from 5% to 11%). The follow-up survey data showed a significant difference between the study areas ($p < 0.001$). Opinion on feeding liquids and sweets increased from none in the baseline to substantial in the follow-up in both the areas. The proportion of the respondents reporting to give vegetables, milk/breast milk, meat/egg and fish also increased in both the areas from the baseline status.

The respondents mentioned a variety of food items that should not be given to the patients during pneumonia episodes (Table 31). Of them, the major was: cold foods, fish,

Table 29 Opinion of respondents on the appropriate time for initiating treatment of pneumonia and study area

Treatment time on the onset	Baseline						Follow-up					
	Programme			Comparison			Programme			Comparison		
	TG	NTG	Total	TG	NTG	Total	TG	NTG	Total	TG	NTG	Total
1	2	3	4	5	6	7	8	9	10	11	12	13
Within 1 day	47.9 (102)	58.4 (108)	52.6 (210)	46.2 (84)	46.9 (99)	46.6 (183)	71.0 (259)	74.8 (499)	73.4 (758)	59.7 (154)	56.8 (418)	57.5 (572)
Within 2 days	29.6 (63)	21.1 (39)	25.6 (102)	35.2 (64)	37.0 (78)	36.1 (142)	13.2 (48)	10.6 (71)	11.5 (119)	21.3 (55)	24.9 (183)	23.9 (238)
Within 3 days	15.0 (32)	13.0 (24)	14.0 (56)	12.6 (23)	10.4 (22)	11.5 (45)	10.1 (37)	11.2 (75)	10.9 (112)	17.4 (45)	17.1 (129)	17.5 (174)
Within 4+ days	3.3 (7)	2.1 (4)	2.8 (11)	2.7 (5)	2.3 (5)	2.5 (10)	1.4 (5)	1.3 (9)	1.4 (14)	1.2 (3)	0.4 (3)	0.6 (6)
Don't know	1.8 (4)	3.9 (9)	2.9 (12)	2.1 (4)	1.4 (3)	1.8 (7)	4.4 (16)	1.9 (13)	2.8 (29)	0.4 (1)	0.8 (6)	0.7 (7)
N	213	186	399	182	211	393	365	667	1032	258	736	994

Notes: 1. Figures in parentheses indicate cell frequency. 2. NA= Not applicable. 3. 1 day: col. 4 Vs col. 10 $p < 0.001$, col. 7 Vs col. 13 $p < 0.001$. study areas ($p < 0.01$).

meat/egg, fruits, vegetables, etc. However, the proportion of responses on restricting the cold foods declined from the baseline status of 56% to 32% in the programme area, but increased from 64% to 79% in the comparison area. In the programme area, similar trend was found regarding restricting fish, meat/egg, fruits, and vegetables. While in the comparison area, no change between the baseline and the follow-up status was found with respect to restricting fish and meat/egg, but the proportion of responses on restricting fruits and vegetables increased.

The respondents were asked as to whether anybody in their households had any pneumonia-related sign/symptom (viz., coughing, difficult breathing, chest in-drawing, fever and convulsion) in both the surveys. Overall, the data showed that the proportion reporting at least one sign/symptom declined from the baseline status to the follow up in both the study areas (23.8% to 13.2% in the programme area and 28.2% to 18.1% in the comparison area) (Table not shown).

However, Table 32 shows that the proportion reporting one symptom of pneumonia decreased to 10.3% from benchmark of 50.5% in the programme area and to 7.8% from 47.7% in the comparison area. In contrast, the proportion reporting two or more symptoms of pneumonia increased to 89.7% from benchmark of 56.6% in the programme and to 92.2% from 52.3% in the comparison area. But the overall increase in

reporting two or more symptoms was higher in the programme area (81 percent) than in the comparison area (76 percent).

Table 3.30 Opinion of respondents on the feeding practice during pneumonia and study area

Foods	Baseline						Follow-up					
	Programme			Comparison			Programme			Comparison		
	TG	NTG	Total	TG	NTG	Total	TG	NTG	Total	TG	NTG	Total
1	2	3	4	5	6	7	8	9	10	11	12	13
Rice	43.2 (92)	49.2 (92)	46.1 (184)	63.2 (115)	58.3 (123)	60.6 (238)	46.8 (171)	46.6 (311)	46.7 (482)	66.7 (172)	68.3 (503)	67.9 (675)
Vegetables	19.3 (41)	8.1 (15)	14.0 (56)	2.2 (4)	1.4 (3)	1.8 (7)	35.9 (131)	34.5 (230)	35.0 (361)	14.7 (38)	10.1 (74)	11.3 (112)
Milk/ breast milk	35.2 (75)	43.5 (81)	39.1 (156)	63.8 (116)	46.0 (97)	54.3 (213)	27.1 (99)	28.0 (187)	27.7 (286)	32.6 (84)	41.7 (307)	39.3 (391)
Meat/egg	3.8 (8)	4.3 (8)	4.0 (16)	3.9 (7)	1.9 (4)	2.8 (11)	30.7 (112)	37.6 (251)	35.1 (363)	13.2 (34)	11.6 (85)	12.0 (119)
Fruits	5.6 (12)	3.8 (7)	4.8 (19)	3.3 (6)	4.7 (10)	4.1 (16)	16.4 (60)	24.9 (166)	21.9 (226)	7.8 (20)	8.8 (65)	8.6 (85)
Fish	6.6 (14)	3.8 (7)	5.3 (21)	0.6 (1)	3.8 (8)	2.3 (9)	16.2 (59)	20.7 (138)	19.1 (197)	2.3 (6)	2.9 (21)	2.7 (27)
Bread/ biscuits	12.7 (27)	19.9 (37)	16.0 (64)	12.6 (23)	9.5 (20)	10.9 (43)	17.0 (62)	13.6 (91)	14.8 (153)	12.4 (32)	12.2 (90)	12.3 (122)
Liquids	0	0	0	0	0	0	12.1 (44)	10.0 (67)	10.8 (111)	19.8 (51)	21.2 (156)	20.8 (207)
All types of foods	6.1 (13)	5.4 (10)	5.8 (23)	5.5 (10)	5.2 (11)	5.3 (21)	3.6 (13)	4.6 (31)	4.3 (44)	11.2 (29)	11.1 (82)	11.2 (111)
Doctor's suggestion	0	0	0	0	0	0	4.9 (18)	6.0 (40)	5.6 (58)	2.3 (6)	4.9 (36)	4.2 (42)
Dry food	4.7 (10)	5.4 (10)	5.0 (20)	4.9 (9)	4.7 (10)	4.8 (19)	6.6 (24)	4.0 (27)	4.9 (51)	5.8 (15)	3.8 (28)	4.3 (43)
Sweet	0	0	0	0	0	0	3.0 (11)	1.2 (8)	1.8 (19)	1.2 (3)	0.5 (4)	0.7 (7)
Others	7.5 (16)	5.9 (11)	6.8 (27)	4.4 (8)	5.7 (12)	5.1 (20)	0.3 (1)	0.6 (4)	0.5 (5)	0.8 (2)	0.1 (1)	0.3 (3)
Don't know	23.6 (29)	10.2 (19)	12.0 (48)	8.2 (15)	8.1 (17)	8.1 (32)	6.0 (22)	3.6 (24)	4.5 (46)	5.4 (14)	4.9 (36)	5.0 (5)
n	213	186	399	182	211	393	365	667	1032	258	736	994

Notes: 1. Figures in parentheses indicate cell frequency. 2. Multiple responses considered
3. All types of foods: col. 4 Vs col. 7 p<0.001

Table 33 shows that in the comparison area the proportion reporting on coughing slightly increased to 16.6% in the follow-up survey from 12.5% in the baseline survey while in the programme area it remained almost similar. The proportion reporting on the difficult breathing increased slightly in both the study areas from the baseline status. The proportion saying about the chest in-drawing increased from the baseline status in the programme area, in contrast with a decrease in the comparison area.

Table 31 Opinion of respondents on the food restriction during pneumonia and study area

Foods	Baseline						Follow-up					
	Programme			Comparison			Programme			Comparison		
	TG	NTG	Total	TG	NTG	Total	TG	NTG	Total	TG	NTG	Total
1	2	3	4	5	6	7	8	9	10	11	12	13
Cold food	50.7 (108)	61.8 (115)	55.9 (223)	63.2 (115)	64.0 (135)	63.6 (250)	23.3 (85)	36.9 (246)	32.1 (331)	77.5 (200)	79.1 (582)	78.7 (782)
Fish	13.6 (29)	10.2 (19)	12.0 (48)	3.3 (6)	5.7 (12)	4.6 (18)	46.8 (171)	45.7 (305)	46.1 (476)	6.2 (16)	3.5 (26)	4.2 (42)
Meat/egg	26.3 (56)	23.7 (44)	25.1 (100)	6.6 (12)	7.1 (15)	6.9 (27)	75.3 (352)	71.3 (476)	72.8 (751)	5.8 (15)	6.9 (51)	6.6 (66)
Fruits	15.5 (33)	11.3 (21)	13.5 (54)	5.0 (9)	8.1 (17)	6.6 (26)	15.3 (56)	17.5 (117)	16.8 (173)	22.9 (59)	26.6 (196)	25.7 (255)
Vegetables	9.9 (21)	5.9 (11)	8.0 (32)	2.8 (5)	4.3 (9)	3.1 (12)	24.4 (89)	18.0 (120)	20.3 (209)	14.0 (36)	10.9 (80)	11.7 (116)
Bread	0	0	0	0	0	0	1.4 (5)	0.4 (3)	0.8 (8)	0.4 (1)	0.4 (3)	0.4 (4)
Sugar water	3.8 (8)	1.1 (2)	2.5 (10)	1.7 (3)	0.5 (1)	1.0 (4)	9.0 (33)	10.8 (72)	10.2 (105)	1.9 (5)	2.2 (16)	2.1 (21)
Fried food	2.4 (5)	1.1 (2)	1.8 (7)	0.6 (1)	2.8 (6)	1.8 (7)	0	0.1 (1)	0.1 (1)	1.2 (3)	1.4 (10)	1.3 (13)
Milk	2.4 (5)	3.2 (6)	2.8 (11)	3.3 (6)	3.3 (7)	3.3 (13)	5.2 (19)	7.0 (47)	6.4 (66)	3.9 (10)	4.6 (34)	4.4 (44)
Smoking	0	0	0	0	0	0	0.8 (3)	1.6 (11)	1.4 (14)	1.6 (4)	1.9 (14)	1.8 (18)
Doctor's restriction	0	0	0	0	0	0	3.8 (14)	3.7 (25)	3.8 (39)	3.1 (8)	4.1 (30)	3.8 (38)
No restriction	0	0	0	0	0	0	0.3 (1)	0.6 (4)	0.5 (5)	1.6 (4)	1.8 (13)	1.7 (17)
Others	9.4 (20)	6.4 (12)	8.0 (32)	2.2 (4)	2.8 (6)	2.5 (10)	2.2 (8)	2.1 (14)	2.1 (22)	0.8 (2)	2.9 (21)	2.3 (23)
Don't know	21.1 (45)	19.3 (36)	20.3 (81)	19.8 (36)	14.2 (30)	16.8 (66)	9.0 (33)	7.3 (49)	7.9 (82)	8.9 (23)	7.2 (53)	7.6 (76)
n	213	186	399	182	211	393	365	667	1032	258	736	994

Notes: 1. Figures in parentheses indicate cell frequency
2. Multiple responses considered

Table 32 Respondents reporting pneumonia-related signs/symptoms in their households by number of signs/symptoms and study area

No. of signs/symptoms	Baseline						Follow-up					
	Programme			Comparison			Programme			Comparison		
	TG	NTG	Total	TG	NTG	Total	TG	NTG	Total	TG	NTG	Total
1	2	3	4	5	6	7	8	9	10	11	12	13
One	52.7 (29)	47.5 (19)	50.5 (48)	43.4 (23)	57.7 (30)	47.7 (53)	11.9 (5)	9.6 (9)	10.3 (14)	5.8 (3)	8.6 (11)	7.8 (14)
Two+	47.3 (26)	52.5 (21)	49.5 (47)	56.6 (30)	48.3 (28)	52.3 (58)	88.1 (37)	90.4 (85)	89.7 (122)	94.2 (49)	91.4 (117)	92.2 (166)
Total	55	40	95	53	58	111	42	94	136	52	128	180

Note: Figures in parentheses indicate cell frequency

Table 34 shows that although the use of allopathic treatment in pneumonia increased from the baseline status to the follow-up survey in both the areas, the pace of increase was higher in the programme area (33.3% to 71.6%) than in the comparison (51.2% to 77.3%) (115 versus 51 percent).

Table 33 Respondents reporting pneumonia-related signs/symptoms in their households by specific signs/symptoms and study area

Specific signs/symptoms	Baseline						Follow-up					
	Programme			Comparison			Programme			Comparison		
	TG	NTG	Total	TG	NTG	Total	TG	NTG	Total	TG	NTG	Total
1	2	3	4	5	6	7	8	9	10	11	12	13
Coughing	12.2 (26)	10.8 (20)	11.5 (46)	14.3 (26)	10.9 (23)	12.5 (49)	10.7 (39)	12.0 (80)	11.5 (119)	17.8 (46)	16.2 (119)	16.6 (165)
Difficult breathing	1.4 (3)	2.7 (5)	2.0 (8)	8.8 (16)	5.2 (11)	6.9 (27)	6.3 (23)	6.9 (46)	6.7 (69)	10.9 (28)	6.4 (47)	7.5 (75)
Chest in-drawing	0.9 (2)	1.6 (3)	1.3 (5)	7.7 (14)	6.2 (13)	6.9 (27)	4.4 (16)	4.2 (28)	4.3 (44)	3.1 (8)	1.2 (9)	1.7 (17)
Fever	24.4 (52)	19.9 (37)	22.3 (89)	26.9 (49)	26.1 (55)	26.5 (104)	6.6 (24)	10.0 (67)	8.8 (91)	15.5 (40)	14.3 (105)	14.6 (145)
Convulsion	0.5 (1)	1.1 (2)	0.8 (3)	1.1 (2)	1.4 (6)	2.0 (8)	0.0 (0)	0.3 (2)	0.2 (2)	0.0 (0)	0.1 (1)	0.1 (1)
n	213	186	399	182	211	393	365	667	1032	258	736	994

Notes: 1) Figures in parentheses indicate cell frequency. 2) Multiple signs/symptoms counted

Table 34 Pneumonia cases by types of treatment and study area

Types of treatment	Baseline						Follow-up					
	Programme			Comparison			Programme			Comparison		
	TG	NTG	Total	TG	NTG	Total	TG	NTG	Total	TG	NTG	Total
1	2	3	4	5	6	7	8	9	10	11	12	13
<i>Kabiraji/Hekimi</i>	0	0	0	4.3 (1)	0	2.3 (1)	0	4.9 (4)	3.4 (4)	3.6 (2)	0.7 (1)	1.5 (3)
Homeopathic	66.7 (2)	11.1 (1)	25.0 (3)	13.0 (3)	0	7.0 (3)	20.6 (7)	17.1 (14)	18.1 (21)	10.9 (6)	12.2 (17)	11.9 (23)
Allopathic	33.3 (1)	33.3 (3)	33.3 (4)	47.8 (11)	55.0 (11)	51.2 (22)	70.6 (24)	72.0 (59)	71.6 (83)	74.5 (41)	78.4 (109)	77.3 (150)
<i>Jharfuk</i>	0	0	0	8.7 (2)	10.0 (2)	9.3 (4)	0	1.2 (1)	0.9 (1)	1.8 (1)	0	0.5 (1)
No treatment	0	22.2 (2)	16.7 (2)	0	0	0	14.7 (5)	13.4 (11)	13.8 (16)	9.1 (5)	7.9 (11)	8.2 (16)
Others	0	66.6 (6)	50.0 (6)	47.7 (11)	65.0 (13)	55.9 (24)	0	1.2 (1)	0.9 (1)	1.8 (1)	2.2 (3)	2.1 (4)
n	3	9	12	23	20	43	34	82	116	55	139	194

Notes: 1. Figures in parentheses indicate cell frequency. 2. Multiple responses considered

Discussion

The study revealed varying degrees of positive changes that occurred across different health service utilisation in the programme area compared to the comparison. The level of

changes also varied between the 'target' and 'non-target' groups. When comparing the use of prenatal services between the programme and the comparison areas, all the indicators except the proportion of women receiving two or more doses of TT vaccine were better in the programme area than in the comparison. These changes could be attributed to the BRAC RHDC programme.

It is to be noted that the RHDC gave special emphasis on the target segment of the population including the pregnant women. A focus on continuous behaviour change campaign on pregnancy care and relative health services along with proper treatment might have played important role in improving the understanding and care seeking behaviour of the mothers especially in antenatal care. This ultimately led toward increased use of different services and low incidence of illnesses during the last pregnancy. The indicators for measuring such improvement include proportion of deliveries at the institutional facilities, percentage of women suffering from illnesses during pregnancy, number of women seeking treatment from a qualified physician and number of deliveries attended by a trained TBA.

However, women from NTG households had higher use of qualified physicians and TG household had higher use of village doctors in both the areas. Notably, data on these issues were not collected during the baseline survey. Therefore, the study could not measure the level of changes that occurred between the baseline and the follow-up surveys across the TG and NTG. However, variation between TG and NTG in different study indicators persists like other areas of the country. This warrants special service provision for the TG to reduce gaps in health.

The level of exclusive breastfeeding and colostrum feeding showed a clear impact of the motivational work carried out by the RHDC field staff on breastfeeding. In contrast, the prevalence of diarrhoeal diseases showed an upward trend. Seasonal factor may be responsible for this variation. It is to be mentioned that the data for both the surveys were collected in two different seasons (baseline in March- April) and (follow-up in May-June). May-June is the peak season of diarrhoea incidence in Bangladesh. The increase in the diarrhoea prevalence from the baseline status in both the study areas indicate that seasonality could have been an important reason behind the trend. However, despite the higher prevalence of diarrhoea over time, the use of qualified physicians and

oral saline for diarrhoea treatment increased in the programme area compared to the benchmark period. This may be attributed to the RHDC's motivational campaign on the use of ORT and modern treatment in diarrhoeal episodes. However, lower use of ORT among the TG for diarrhoea treatment in both the areas during the follow-up survey indicated a need for further inputs to raise effective awareness among the TG in this regard. We know that bringing change in human behaviour is very difficult, and it is even more difficult to bring behavioural change among the poor due to their socioeconomic and cultural circumstances.

A lower prevalence of any general illnesses (other than diarrhoea) in the programme area was indicative of the programme impact. Likewise, more patients took treatment from a qualified physician and fewer patients sought treatment from a village doctor in the programme area compared to the comparison area for general illnesses. The data indicated a better situation in terms of lower incidence of general illnesses and a higher rate of treatment from a qualified physician in the programme area. But the comparisons between TG and NTG in the programme area showed that the TG households still lag behind compared to the NTG, especially in seeking treatment from qualified physicians requiring special drives to improve the situation.

Table 35 shows the extent of increase and decrease of different indicator values by study area. When inquired about the opinion on the place of seeking care in the case of illness more respondents mentioned about a qualified physician and fewer about a village doctor in the programme area compared to the comparison area. It indicates that treatment-seeking behaviour has improved. The preventive health services viz., women and children's immunisation increased in the programme area with a corresponding decrease in the comparison area. On the contrary, prevalence of nightblindness decreased highly in the programme area but increase in the intake of VAC was much higher in the comparison area. VAC intake coupled with easy access to other health services perhaps contributed to decrease the prevalence of nightblindness in the programme area.

But interestingly, fewer married women were using family planning method in the programme area than in the comparison area indicating that the family planning programme was not much successful. Indeed, BRAC staff mostly did the motivational work on FP in the early years of the programme and the government sector was

Table 35 Relative change in major indicator values from baseline status to follow-up study status by area (%)

Indicators	Baseline versus follow-up study status	
	Programme	Comparison
Children (12-23 months) fully immunised	+14	-7
Women (15-49 years) received 2 or more doses of TT vaccine	+11	-8
Prevalence of nighblindness	-92	-60
VAC intake	+10	+34
Prevalence of diarrhoea (all types)	+55	+51
ORT use	+70	+72
Medical name of pneumonia mentioned	-39	-32
Allopathic treatment used for pneumonia	+115	+51
Opinion on starting pneumonia treatment on the day of onset	+40	+23
Two or more signs/symptoms of pneumonia mentioned	+81	+76

Note: Minus (-) and plus (+) signs indicate increase and decrease in indicator values

responsible for supplying the contraceptives. The potential users were dependent on the government supply of contraceptives. Therefore, any lapse in supply might have influenced the use rate in the programme area.

A higher number of respondents could recognise two or more signs/symptoms of pneumonia and expressed them as pneumonia in the programme area during the follow-up survey. A positive impact in the treatment seeking of pneumonia was also revealed in the following indicators: higher number of respondents used allopathic mode of treatment for treating pneumonia, and higher number of respondents agreed that pneumonia should be treated on the same day of the onset of any sign/symptom. But a fewer of the respondents in the programme area compared to the comparison area said that no food should be restricted during pneumonia.

However, there was another side to this. The number of respondents who believed that pneumonia could be treated at home decreased modestly in the programme area than in the comparison (66 versus 73 percent). Another discernible finding was that although more respondents were aware of different signs/symptoms of pneumonia, fewer of them resorted to any treatment for pneumonia in practice, i.e., a wide gap between awareness and practice existed. This implies that despite appearance of any sign/symptom in anybody, people do not consider/identify it as pneumonia disease, and thus they do not go for treatment. Besides, a good number of the respondents in both the areas mentioned name of asthma (*Hapani*) as the local perceived name of pneumonia although they are different conditions. Such perception may lead to wrong care-seeking behaviour of the

people during illness. Besides, mention of medical name of pneumonia decreased in both the study areas with a higher rate in the programme (39 versus 32 percent). This implies that community-based pneumonia control programme has shortcomings in improving positive knowledge on pneumonia in general, and programme emphasis might have shifted more toward material service delivery in particular.

Overall, many observable positive changes were found in the use of different health services in the programme area. These changes are believed to contribute in improved reproductive health behaviour and reduced infant mortality and fertility. Accordingly, the level of infant mortality and total fertility considerably declined in the programme area than in the comparison area.

Conclusion

The RHDC programme proved its merit in bringing about positive changes in most health indicators in the programme area compared to the comparison, which can be attributed to RHDC programme. On the other hand, the data showed that people's awareness on different diseases, for example pneumonia, did not improve much in the programme area. This implies that community-based pneumonia control programme has shortcomings in improving positive knowledge on pneumonia in general, and programme emphasis might have shifted more toward material service delivery in particular.

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