

MANOSHI

working paper

Assessment of
performance of
community health
workers of
MANOSHI

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EXECUTIVE SUMMARY

Community Health Workers (CHWs) are considered as integral members of the health care workforce who expand access in the community, especially to the underserved. They are trusted community members who establish vital links between health care providers and the community. The ‘insider’ orientation of CHWs provides a cost-effective way to deliver culturally appropriate health care.

Bangladesh Rural Advancement Committee (BRAC) has started a program named Manoshi to improve maternal, neonatal and child health (MNCH) situation in the slums. The program, initiated in January 2007, uses CHWs such as *Shastho Shebika* (SS), *Shastho Karmi* (SK), Urban Birth Attendant (UBA), and Program Organizer (PO) to deliver maternal, neonatal and child health services. At this time, it is important to assess the performance of community health workers to inform the program officials of possible changes to improve current action plan of the program.

The study was carried out in the slums of Dhaka city in 2008 and 2009. CHWs in selected area offices were the subjects of the study. Data was also collected from members of households that used maternal/neonatal/child health services from Manoshi and those who did not.

Both qualitative and quantitative data were collected. Knowledge questionnaire and skill check list were designed based on the training curriculum for each type of CHWs and ‘Guideline for assessment of skilled providers’ by JHPIEGO and tools developed by Home Based Life Saving Skill (HBLSS) project.

The selection criteria were not properly followed while recruiting the SS and SK. The lack of literacy among SS is crucial for dispensing quality care and should be made mandatory for the future. Other than delivery care and family planning services, less than half of the SSs secured mean score and above in different knowledge areas. The mean knowledge score of the SK was higher in most of the knowledge areas. In terms of skills 50% of SS scored up to mean or above for family planning services and management of birth asphyxia. They lagged behind in essential newborn care and pregnancy identification. Less than 50% of the SK scored at the level of mean score and above in all the key test areas except pregnancy identification. In terms of responsiveness of the CHWs, we found that they were well accepted and the use of birthing huts did not depend on the CHW responsiveness. Though the number of maternal health services provided by the SS was satisfactory, the number of neonatal and child health services was poor.

The study documented MNCH services actually being delivered in the community by different types of CHWs with Manoshi program. Level of performance of CHWs, acceptability of CHWs in the community provided with important information about supply and demand side factors need to be considered to modify programs already existing and also to scale up Manoshi in other settings. The study findings will be disseminated in Manoshi Technical and Management committee meetings, Technical Advisory Group meetings, Manoshi web pages, national and international conferences. The investigators of the study also wish to publish journal articles, working papers from the study.

INTRODUCTION

Community Health Workers (CHWs) are considered integral members of the health care workforce who expand access to health care services especially for the underserved (PEW, 1994). They are trusted community members who establish vital links between health providers and the community. They possess indigenous qualities of the subculture such as verbal and nonverbal language skills; racial/ethnic qualities of the subculture; social/environmental familiarity; and an understanding of the community's health beliefs, health behaviors, and barriers to health services (Giblin, 1989). There are different models of CHWs. They may be salaried or unpaid volunteer (Gill et al., 1989).

According to World Health Organization (WHO) (1994), 'CHWs are men and women chosen by the community, and trained to deal with the health problems of individuals and the community, and to work in close relationship with the health services'. They should have had a level of primary education that enables them to read, write and do simple mathematical calculations (UNICEF, 2004). The 'insider' orientation of CHWs provides a cost-effective way to deliver culturally appropriate health care (Richter et al., 1974; Levine et al., 1992; Levine et al., 1994).

The effectiveness of CHWs in terms of maternal, neonatal and child health care and the range of services they can provide have been shown in projects around the world. Evidence from India suggests that CHWs can reduce neonatal mortality through prevention messages and case management for neonatal sepsis and pneumonia (Bang et al., 1999; Bang et al., 1994).

Other experiences from India (Bhandari, 2003) shows that CHWs can significantly improve early initiation of breastfeeding, exclusive breastfeeding, duration of exclusive breastfeeding, and reduce diarrhea through breastfeeding promotion efforts. Scaled up efforts in Africa also reported improved early initiation of breastfeeding and exclusive breastfeeding through a multi-level strategy (World Linkages, 2004).

CHWs have also proven effective in promoting birth spacing, linking recently delivered women with family planning services, and in transferring information to mothers about obstetric complications and the need for referral. The Home-based Life Saving Skills (HBLSS) approach shows that training of community workers (Trained Birth Attendant or others) can improve knowledge and practice related to maternal hemorrhage (Sibley, 2003). CHWs have also been used to deliver misoprostol to recently delivered women to prevent hemorrhage (Sanghvi, 2006). In fact, CHWs play important roles in achieving Millennium Development Goals targets and in addressing the human resource shortage (Andy et al., 2007).

In recent years, many countries have expanded their health systems through large scale training of CHWs. The BRAC health program uses CHWs to address the health and nutritional status of women and children in Bangladesh (BRAC, 2006). BRAC has recently started a slum-based program named Manoshi to improve maternal, neonatal and child health situation in the slums. This program uses CHWs to deliver maternal, neonatal and child health care. The cadres of CHWs under the Manoshi program are *Shasthya Sebika* (SS), *Shasthya Karmi* (SK), Urban Birth Attendant (UBA), and Program Organizer (PO).

Manoshi services revolves around birthing huts which are small health facilities located in the slums that provide care for normal vaginal delivery and referral care in case of complications. UBAs primarily provide delivery care in the program's birthing huts. The UBAs also provide delivery care at the homes of mothers if they are unwilling to come to the birthing huts. The outreach services for the birthing huts are provided by the SS, SK and PO. The *Manoshi* SSs are in charge of 150-200 households in a slum. They are assigned to deliver specific services (Table 1). SK is responsible for supervising the activities of 8-10 SSs in addition to providing some services. PO is in charge of supervision of the activities of SKs. They also organize community group meetings and take part in local level advocacy efforts. The CHWs are based in area offices of the *Manoshi* program where a branch

manager or area manager is in charge of overall supervision and monitoring of the implementation of program activities.

Table 1: Services delivered by the CHWs of Manoshi program

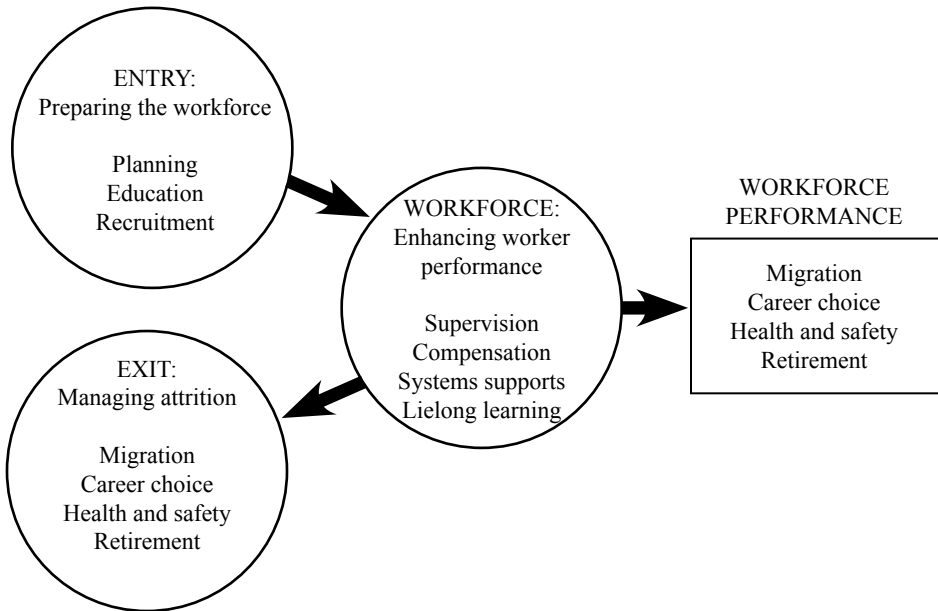
<i>Shasthya Shebika</i> (SS)	<i>Shasthya Kormi</i> (SK)	Urban Birth Attendant (UBA)
1. Couple follow up	1. Antenatal care	1. Conduction of normal vaginal delivery
2. Pregnancy identification	2. Postnatal care	2. Immediate postnatal care
3. Essential newborn care	3. Health education	3. Pick up danger signs during and after delivery
4. Detect, treat and refer neonatal sepsis and birth asphyxia	4. Weighing the newborn	
5. Detect Low Birth Weight (LBW) educate family members on kangaroo mother care and refer for complications	5. Follow-up LBW babies and complicated mothers	
6. Referral for immunization	6. Collect information on registers for Management Information System (MIS)	
7. Detect and treat ARI and diarrhea		
8. Provide misoprostol for PPH and refer		

Source: Manoshi Working Paper 1

CHWs of *Manoshi* started delivering services in the urban slums of Dhaka in January 2007. Though the CHWs of *Manoshi* include SS, SK, UBA and PO, in this working paper we evaluated the performance of SS and SK only.

In order to evaluate the performance of CHWs, we used a WHO framework (Figure 1), which outlines four dimensions of health worker performance: availability, competence, responsiveness, and productivity (WHO, 2006). Availability of health workers relates to their distribution and presence; competence covers technical knowledge and skills; responsiveness takes into consideration the attitude of health workers towards their clients and quality of care; and productivity includes actual health services delivered.

**Figure 1: Working lifespan strategies of health workers
(World Health Report 2006)**



OBJECTIVE

The study aimed to assess the performance of the community health workers (*Shasthya Shebika* and *Shasthya Kormi*) of Manoshi program.

Specific objectives of the study were:

1. Document the availability of community health workers (CHWs)
2. Report competence of CHWs in terms of knowledge and skill
3. Explore responsiveness of CHWs in terms of quality of services delivered by them
4. Describe the productivity of CHWs in terms of number of health services delivered over time

METHODS

Study area

The study was implemented in the slums of Dhaka city under three area offices of *Manoshi* program: Kamrangir chor, Uttara, and Gulshan. *Manoshi* interventions in these areas were in place for at least six months prior to the beginning of data collection (Table 2).

Table 2: Characteristics of the study area

Background Information	Kamrangir chor	Uttara	Gulshan
Start date of <i>Manoshi</i>	18.03.2007	02.04.2007	09.04.2007
Start date of data collection for the study	01.06.2008	03.08.2008	01.10.2008
Start date of <i>Manoshi</i>	18.03.2007	02.04.2007	09.04.2007
Start date of data collection for the study	01.06.2008	03.08.2008	01.10.2008
Total population	85,557	64,002	48,472
Total number of households	21,295	17,471	11,092
Average family members per household	4.02	3.66	4.36
Total number of birthing huts	7	6	5
Average population per birthing hut	12,222	10,667	9,694

Study design

The study was a mixed-method, cross-sectional study. Objectives 1, 2 and 4 were addressed using quantitative methods and objective 3 was addressed using both qualitative and quantitative research methods.

Study population

We studied all the SSs and SKs who provided maternal, neonatal and child health (MNCH) services in the study areas. In order to judge the responsiveness of SSs and SKs, in-depth interviews were carried out with mothers who gave birth in the Manoshi area and were either users or non-users of Manoshi services.

Sample size

Objective 1:

All the SS (202) and SK (25) of the three study areas were our sample. Information about the availability of SS and SK was collected from the area offices and verified by locating them in the field.

Objective 2:

Knowledge test: All SS (202) and SK (25) in the three areas were administered a knowledge questionnaire.

Skill test:

We administered a total of 150 (60 with SS and 90 with SK) skill tests in 10 categories of work (Pregnancy identification, birth asphyxia, essential newborn care and family planning services for SS and Pregnancy identification, antenatal care, postnatal care, management of low birth weight, management of diarrhea and management of pneumonia for SK). We performed 5 skill tests on key skills needed to deliver services in each category.

Objective 3:

Thirty in-depth interviews [15 mothers who used Manoshi delivery care services and 15 mothers who did not use Manoshi] were carried out.

Objective 4:

Information of services delivered by SS and SK was collected from the registers maintained by SKs and POs.

Study instruments and data collection

To collect information on the available positions, vacant positions, filled positions of SS and SK over the 6 months prior to data collection, a form was developed that could be used with each area office of our three study areas.

Knowledge questionnaires

Knowledge questionnaires were designed based on the *Manoshi* training curriculum for SS and SK, the ‘Guideline for assessment of skilled providers’ (JHPIEGO) and tools developed by the Home Based Life Saving Skill (HBLSS) project. The knowledge questionnaire for SS included five sections: basic information, maternal health and family planning and neonatal and child health. The knowledge questionnaire for SK had an additional section on supervision. The score for each

question was 1. There was no negative score for any wrong answer (which was scored as zero '0').

Skill checklists

Separate skill checklists were designed for SS and SK. The checklist for SS covered four health service areas: pregnancy identification, management of birth asphyxia, counseling for family planning, and essential newborn care. The checklist for SK covered six health service areas: pregnancy identification, antenatal care, postnatal care, management of low birth weight baby, management of pneumonia, and management of diarrhea. The health service areas were selected based on the job responsibilities of the different health workers.

Trained interviewers observed the SS and SK while delivering specific services mentioned above and recorded their skill using the checklist. For both SS and SK skill test checklists, one '1' point was given for performing the activity correctly and zero '0' point was given for non- performance or incorrect performance of activities.

A form was designed to collect information from the area offices of the three study areas on the number of different types of services delivered by SS and SK.

All study instruments were pretested. Three interviewers were trained for one week before the data collection started. The interviewers were also trained on qualitative techniques and several discussion sessions took place involving the interviewers and investigators of the study. The data collection was supervised by one research officer and the investigators of the study.

Data management and quality control

Six interviewers and one supervisor were recruited and trained in data collection for two weeks to familiarize them with different terms related to maternal, neonatal and child health care services. The study investigators also made regular field visits to monitor field activities. At the end of each day of data collection, the supervisor and investigators reviewed each forms for completeness, accuracy and internal consistency. For any inconsistency, supervisor or investigator revisited the participants for cross-checking and necessary corrections. Quantitative data was entered using SPSS 12.0 and qualitative data was transcribed for analysis.

Ethical issues

This study was approved by Research Review Committee (RRC) and Ethical Review Committee (ERC) of International Centre for Diarrhoeal Disease Research, Bangladesh (icddr,b). Participants were asked for verbal consent prior to the interview.

Limitations of the study

The sample size of SK was small (only 25 in all the three study areas combined), whereas the number of SS was 202. Association between knowledge and skill could not be analyzed as minimum number of skill tests were conducted as mentioned in the study proposal.

RESULTS

The results of the study have been organized in four subsections: a) Availability of the SS and SK, their socio-economic characteristics and fulfillment of selection criteria; b) Competence of SS and SK in terms of knowledge and skill; c) Responsiveness of CHWs; and d) Productivity of CHWs.

a) Availability of SS and SK and their characteristics

Total 263 SS and 25 SK were appointed in the three study areas to provide maternal, neonatal and child health (MNCH) services in the urban slum community. All posted SK positions were filled, but only between 72% and 92% of SS positions were filled (Table 3).

A substantial proportion of SS were illiterate (Table 4). On the other hand, the SK had at least completed secondary education. The proportion of SS and SK having BRAC VO membership was low in Kamrangir chor compared to other two areas. A large proportion of SS were members of NGOs other than BRAC. Almost all the SS and SK were Muslim. *Manoshi* job was the primary source of income of almost all the SK but same was not true for the SS. The SS were relatively new in their

Table 3: Availability of SS and SK by area

Type	Kamrangir chor		Uttara		Gulshan	
	SS	SK	SS	SK	SS	SK
Total number of posts	116	11	76	7	71	7
Total in position	98	11	55	7	65	7
% of positions filled	84.5	100.0	72.4	100.0	91.5	100.0
Total found and interviewed	94	11	47	7	61	7

Data source: program data

in their work and they worked fewer hours (2.1 hours) per day. Many of the SS were involved with other projects of BRAC. Few of them were providing services without receiving the basic training from *Manoshi*. On the other hand, SK had been working for BRAC for nearly 1 year on average and they were involved with *Manoshi* activities for more than 7 hours perday. Almost all the SK received basic training from *Manoshi* (Table 4).

Table 4: Socio-economic and Work characteristics of SS and SK

SES Traits	SS (n=202)	SK (n=25)
Education (%)		
No education (0)	29.2	-
Incomplete primary (1-4)	22.8	-
Complete primary (5)	12.9	-
Incomplete secondary (6-9)	29.7	-
Secondary and above	5.4	100
NGO membership (%)		
BRAC VO	43.1	20
NGO other than BRAC	56.9	20
Manoshi job as main source of income (%)	61.4	96
Mean income in Taka from <i>Manoshi</i> (SD)	304.6 (362.9)	1757.60 (369.473)
Mean duration of work as BRAC SS in months	8.5	11.96
Mean duration of work/day in hours	2.1	7.6
Median number of households per SS/SK	10.0	2004.0
Involved with other BRAC projects (%)	42.1	4.0
Received basic training from <i>Manoshi</i> (%)	82.7	96.0

During recruitment of SS and SK for Manoshi some selection criteria were proposed. When we assessed whether the selection criteria were followed we found that among the SS 46% were not recommended by VO members, 21% were not residents of that slum and 50% didn't meet the age criteria or criteria regarding children and 2% were not married. About half of the SS could not read and write in Bengali, a skill required for the performance of the job. Among the SK 40% were recommended by VO members, only 36% were slum residents, 68% did not meet age criteria and 16% were not married (Table 5).

Table 5: Fulfillment of selection criteria for SS and SK

Variables		Proportion (%) of SS (n=202)	Proportion (%) of SK (n=25)
Recommended from urban slums by VO members		53.5	40.0
Resides inside the slum		79.2	36.0
Age			
Criteria for SS = 25 - 40 years	Below age criteria	32.7	60.0
Criteria for SK = 20 - 35 years	Meets criteria	50.0	32.0
	Above age criteria	17.3	8.0
Marital status			
Criteria for SS = married	Doesn't meet criteria	2.0	16.0
Criteria for SK = married	Meets criteria	98.0	84.0
Living children			
Criteria for SS: Children \leq 2 years of age	Doesn't meet criteria	50.5	
	Meets criteria	49.5	
Education			
Criteria for SS: Reading and writing skills	Meets reading criteria	61.9	-
	Meets writing criteria	60.4	
Criteria for SK: Minimum SSC (10 years schooling)		Meets criteria	100.0

b) Competence of CHWs (SS and SK) in terms of knowledge and skill

As the mean score was influenced by extreme values both at upper and lower end, we calculated the percentage of SS and SK that secured mean score or above. Apart from the mean score for postnatal care, there was not much difference in mean score of knowledge areas. Other than delivery care and family planning services, less than half of the SSs secured mean score and above in different knowledge areas. The mean knowledge score of the SK was higher in most of the knowledge areas. The mean knowledge score for all the health care services was more than 50% of the total score. Around 60% of the SKs secured mean knowledge score and above in antenatal care, delivery care and child health care services. Details of score for each area has been provided in Annex 1.

Table 6: Overall knowledge score of SS and SK in different types of health services

Knowledge test areas	Total Points (SS)	Mean (SS)	% of SS with mean score and above (n=202)	Total Points (SK)	Mean (SK)	% of SK with mean score and above (n=25)
Antenatal care	52	20.4	39.2	71	42.84	60.0
Delivery care	27	13.7	50.7	20	15.68	60.0
Post-natal care	26	6.4	24.6	38	20.32	48.0
Family planning	21	10.7	51.0	17	10.28	40.0
Neonatal care	43	17.6	40.9	35	24.16	48.0
Child health care	41	11.8	28.8	23	14.00	56.0

Skill test score of SS and SK on family planning (FP) services, birth asphyxia (BA) management, essential newborn care (ENC) and pregnancy identification (PI) were calculated (Table 7). Less than 50% of the SS scored up to mean score and above in terms of family planning services and management of birth asphyxia. However, more than 50% of the SS scored up to mean score and above in essential newborn care and pregnancy identification. For the SKs, skill test was conducted on antenatal care (ANC), diarrhea, low birth weight (LBW), postnatal care (PNC), pneumonia and pregnancy identification. Less than 50% of the SK scored at the level of mean score and above in all the key test areas except pregnancy identification (Table 7).

Table 7: Skill test score of SS and SK

Skill test areas	Total score (SS)	Mean (SS)	% SS with Mean score and above (n=15)	Total score (SK)	Mean (SK)	% SK with Mean score and above (n=15)
Family planning	88	16.33	40.0	-	-	-
Birth Asphyxia	28	12.73	33.3	-	-	-
Essential Newborn Care	48	22.13	60.0	-	-	-
Pregnancy identification	31	10.40	53.3	32	17.93	60.0
Antenatal care	-	-	-	109	43.07	40.0
Diarrhea	-	-	-	31	18.07	40.0
Low birth weight	-	-	-	20	12.33	46.7
Postnatal care	-	-	-	125	35.33	40.0
Pneumonia	-	-	-	31	16.07	40.0

c) Responsiveness of CHWs (SS and SK)

The demand side perspective of the responsiveness of CHWs was explored through in-depth interviews with users and non-users of services from *Manoshi*. The user of the services meant ‘woman who received delivery care from birthing hut’, and non-user of services meant ‘woman who did not receive delivery care from birthing hut, but she might have received other services from Manoshi’. The main reason behind this distinction was based on the idea if the women received care from CHWs and the CHWs were responsive to their needs, they might also go to birthing huts for delivery care.

Background information on respondents

In this study total number of respondents was 30. Within this number, 5 respondents were VO members BRAC and 6 respondents were VO member of other than BRAC. Equal numbers of respondents were interviewed from both the types and they were quite similar in terms of age group of below 25 years and 25 years and above. Among them 53.33% were below 25 years and 46.67% were equal or more than 25. About 63.33% respondents had pregnancies less than or equal to 2 and all the outcome of recent delivery was live birth. 73.33% had less than or equal to 2 children. Almost all the respondents were Muslim. 63.3% Mothers

were housewives and 23.3% had no education. Household income apparently influenced using services from *Manoshi* program. Mothers with low family income were the higher portion among the user and at the same time comparatively high income were the major portion among the non-user of *Manoshi* services. Moreover 46.67% respondents had their monthly average household income as less than 5000 taka and 53.33% had monthly average household income equal or more than 5000 taka. About 33.33% respondent's husband had no education and 66.67% respondents stayed less than 0.5 km away from the BH. The rest 33.33% households were situated at equal or more than 0.5 km from the BH.

Knowledge about services delivered by Manoshi

Both users and non-users knew that CHWs of *Manoshi* deliver antenatal care, delivery care, post natal care, neonatal care and family planning services. Both users and non-users stated that the child health care was not available from *Manoshi*. Few of them believed that provision of child health care in *Manoshi* is limited within children of 1 to 6 months of age. One non-user respondent reported that she was not eligible to receive care from *Manoshi* because of previous history of cesarean section during delivery. Both users and non-users mentioned the type of service providers of *Manoshi* responsible for delivering different types of maternal, neonatal, child health and family planning services (Table 8).

Table 8: Received types of services and provider for user and non-user

Types of services delivered by <i>Manoshi</i>	Service providers	
	Mentioned by the users	Mentioned by the non-users
Pregnancy identification	SK, PO	SK
Antenatal care	SK, PO, FWV, UBA	SK, UBA
Delivery care	UBA	TBA, Relatives, Doctor
Post natal care	SS, SK, PO, FWV, UBA	SK
Neonatal care	SK, PO, FWV	SK, Doctor
Child health care	Not received from <i>Manoshi</i>	Not received from <i>Manoshi</i>

Reason for using delivery care

The users of *Manoshi* delivery care had confidence in the services they availed.

CHW related factors

BRAC-*Manoshi* providers offer antenatal care and counsel pregnant mother during their home visit to bring them under the delivery care. The community mothers were very appreciative of the counseling skills of CHWs and mentioned that skillful counseling convinced them to use BRAC delivery center. Few participants pointed out that the Traditional Birth Attendant (TBA) working for *Manoshi* delivery center were familiar with them which led them to take care from *Manoshi*.

Delivery center related factors

Study participants mentioned few advantages about the delivery center that leads them to receive care from BRAC delivery center. It included privacy, availability of TBA, cleanliness, referral system with cost and care at free of cost from delivery center. Very few participants mentioned that they were advised by family members or neighbor to take care from delivery center.

Household factors

One of the major causes behind the decision for delivering at the delivery center was proximity to resident of the community people. Few participants used birthing huts as they were not aware about other facility in the area. Some mentioned unavailability of family members at home to accompany the women during labor among the causes that led to utilize delivery care from delivery center.

Reason for not using birthing huts

While exploring the reasons for not utilizing birthing hut despite getting services from CHWs, it was found that the responsiveness of CHWs had little to do with it. Most of the respondents were well-informed about the delivery care provided by the birthing huts but stated that unavailability of injection (oxytocin) and infusion (*Sui-Saline*) during delivery was the primary reason for not going to the birthing hut for delivery. A few of the respondents reported that they heard about the sufferings of mothers at birthing huts and became reluctant to go. The other causes behind not using birthing hut included disapproval from the family members, involvement of local UBA, and preference for home delivery. Some of the respondents were afraid of cesarean section delivery and thought that they might be referred to the referral hospitals for cesarean section delivery. Few stated that there was no difference between delivery at birthing hut and home.

Acceptability of the community health workers and quality of *Manoshi* services

From the perspective of users and non-users, community health workers were very well accepted in the community. The slum dwellers trusted them, felt that they were like family members and sometimes the community people treated them as doctors. The respondents also had ideas about improving CHW acceptability. In their opinion, the CHWs need more training, equipment (stethoscope, blood pressure machine) and rapport building skills.

Both users and non-users of *Manoshi* were satisfied with the care they received from the *Manoshi* service providers. The workers behaved well with them. However, few mentioned that some SKs seemed to be inexperienced and were not willing to spend sufficient time with the mothers.

d) Productivity of CHWs (SS and SK)

The information of services delivered by SS and SK was collected from the registers maintained by SK and PO (Table 9). On an average, each SK was supervising about 8 SSs. Almost no SK maintained written documents regarding their supervision and no SS had documentation on their responsibilities and last work plan.

Table 9: General information obtained from the register books

Variable	Gulshan (Mean)	Kamrangir chor (Mean)	Uttara chor (Mean)
Number of SS per SK	8.29	8.73	8.0
Days spent on leave in the last month by SS	0.02	1.21	0.10
Number of SS evaluated by per SK	7.87	10.27	8.07
Number of SK with records of SS supervision	0.69	0.73	0.51
Number of SS who had documents of work plan and responsibilities	0.66	0.43	0.40
Number of SS who SKs complaint against to the higher authority in last three months	0	0.068	0
Number of SS against whom local people made complaints to the SK	0	0.037	0

The number of new couples and pregnant mothers identified by the SS in the last month prior to data collection, varied among the study areas. Though the number

of maternal health services provided by the SS was satisfactory, the number of neonatal and child health services was poor (Table 10). Almost no SS provided treatment for birth asphyxia and neonatal sepsis.

Table 10: Number of services provided by SS on an average in the last month

Number of services delivered by SS in the last month	Gulshan (Mean)	Kamrangir chor (Mean)	Uttara (Mean)
Pregnancy			
Identified new couple	95.71	148.36	62.14
Identified pregnant mother	11.7	25.91	30.57
Provided ANC	40.0	78.73	58.86
Distributed iron and folic acid among pregnant mothers	13.71	26.73	33.29
Accompanied mothers during delivery	2.86	1.73	3.86
After delivery (baby)			
Taken birth weights	4.71	8.82	10.71
Managed birth asphyxia	0.00	0.00	0.14
Identified low birth weight babies	0.29	1.18	0.43
Examined physically	3.57	8.18	10.14
Provided essential new born care	3.57	4.55	4.71
Managed neonatal sepsis	0.00	0.09	0.00
Ensured vaccination	2.57	104.55	18.0
Provided Vitamin-A	90.71	205.45	21.29
Provided treatment for diarrhoea	2.0	2.36	0.43
Provided treatment for ARI	0.86	0.82	0.71
After delivery (mother)	7.43	17.73	13.14
Provided Postnatal care			
Distributed iron and folic acid among mothers after delivery	4.57	7.91	5.0
Gave Vitamin-A among postnatal mothers	6.14	10.0	12.0
Provided oral contraceptive pills	25.14	28.36	28.14
Provided condom	2.14	6.45	2.86
Provided emergency contraceptive pills	0.00	0.00	0.00

DISCUSSION

This study provided a comprehensive idea of knowledge and skill of community health workers (*Shasthya Shebika* and *Shasthya Kormi*) of *Manoshi* program. This study also explored responsiveness of the CHWs and the productivity of the CHWs in terms of number of services delivered by them over time.

The selection criteria were not properly followed while recruiting the SS and SK. The lack of literacy among SS is crucial for dispensing quality care and should be made mandatory for the future. It was not therefore, surprising that most of the CHWs could not calculate the expected date of delivery (EDD) which maybe important for delivery preparations. According to UNICEF, the CHWs should have had a level of primary education that enables to read, write and do simple mathematical calculations. So, *Manoshi* program should at least abide by the educational criteria if better performance of the CHWs are expected.

Many of the SS were involved in additional activities of BRAC other than *Manoshi* services. When CHWs are overloaded with work we can expect a negative impact on their work quality. So it is important to either recruit additional CHWs or reduce the workload of the CHWs if we want them to perform better.

The knowledge of the CHWs on MNCH services widely varied. SKs were more knowledgeable than SSs in terms of their work areas. Further, substantial proportion of SS did not have knowledge on the number of married women of reproductive age (MWRA). To provide adequate MNCH services in a planned way, it is mandatory to have a clear knowledge on the working areas of the CHWs. In future, this point needs to be addressed.

When we analyzed the overall knowledge score of SS and SK for six different areas (antenatal care, delivery care, post-natal care, family planning, neonatal care, and child health care), we found that 50% of the SS scored at the mean or above. SKs appear to have better knowledge about these areas although much improvement is needed among them as well.

Regarding skill test, we found that less than half of the SSs scored at the level of mean score and above in terms of family planning services and management of birth asphyxia whereas more than half of the SS scored at the level of mean score and above in terms of essential newborn care and pregnancy identification. This is probably a reflection of the program emphasis. Surprisingly, we found less than

half of the SKs scored at the level of mean score and above in all the skill test areas except pregnancy identification.

Both users and non-users stated that the child health care services were not available in *Manoshi* program. *Manoshi* users were aware of the advantages of birthing huts including privacy, availability of trained birth attendant, referral linkage, and free care but these were not the only reasons behind the decision to deliver at the birthing hut. The proximity of the birthing hut to the residence and unavailability of persons to accompany the women during labor pain were also among the causes that led women to deliver at birthing huts. Non-use of the birthing hut by women enrolled in the project was related to the lack of commonly accepted procedures (oxytocin injections and saline infusions) rather than the CHWs role. Both users and non-users accepted and trusted the CHWs. It is important that in the future all efforts are made to maintain and improve the social capital created by the CHWs in the slums.

There is a debate whether CHWs should volunteer or receive a salary. If the CHWs become a volunteer, there is a question of accountability. Through informal discussion with the CHWs, we came to know that the SSs were not happy to serve without salary. Though they had options to earn some money by selling the commodities of BRAC, the income was very low for the amount of work they had to do. So they were engaged in other income generating activities to support their family. The impact of low pay can be seen when comparing SS with SK. SSs are considered volunteers and earn lower compensations compared to SKs. Their duration of stay with Brac was lower, hour of work was lower than that of the SKs and they were more likely to have multiple source of income. In the future it is important that a reasonable remuneration is designed for the CHWs to enable them to seriously dispense quality services.

Recommendation to the *Manoshi* program

- Focused refreshers to *Shasthya Shebika* (SS) and *Shasthya Kormi* (SK) are needed on topics directly related to the health services they provide, especially on neonatal and child health.
- SKs should maintain their written documents of the SS supervision and SSs should have the documents of their job responsibilities and work plan to provide all the health services they are assigned for.

- As many of the CHWs were involved in additional activities of BRAC other than *Manoshi* services, additional CHWs can be recruited to reduce their workload and to provide better quality services to the slum dwellers.
- Monitoring and supervision system should be strengthened to maintain the quality services by *Manoshi* program.

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ANNEX**Table 1.1: Knowledge of SS and SK on their working area**

Variables	Proportion (%) of SS (n=202)	Proportion (%) of SK (n=25)
Know the number of household	92.7	96.0
Knowledge about beneficiaries		
Do not know about number of MWRA	98.5	60.0
Do not know about number of eligible couple	96.0	40.0
Do not know about number of pregnant women	12.4	4.0
Do not know about number of lactating women	14.4	8.0
Do not know about number of neonates	14.4	12.0
Do not know about number of U5 children	91.6	20.0
Do not know about the beneficiaries	12.4	4.0

Table 1.2: Knowledge of SS and SK on signs and duration of pregnancy

Variables	Proportion (%) of SS (n=202)	Proportion (%) of SK (n=25)
Signs of pregnancy		
Cessation of menstruation	65.8	84.0
Vertigo	85.6	68.0
Nausea and vomiting	93.6	96.0
Food cravings	80.2	68.0
Fatigue	40.6	36.0
Know the duration of pregnancy	81.7	84.0
Can calculate expected date of delivery (EDD)	7.9	96.0

Table 1.3: Knowledge of SS and SK on medicine, nutrition supplements and vaccination during pregnancy

Variables	Proportion (%) of SS (n=202)	Proportion (%) of SK (n=25)
What medicines should women receive?		
Iron	95.0	100.0
Vitamin-B	25.2	56.0
Calcium	11.9	56.0
Multivitamin	48.0	40.0
A woman should start taking iron tablets within 4 months of pregnancy	69.8	48.0
Number of TT injections to be taken during pregnancy	96.0	88.0
When should a woman take first dose of TT?	95.5	96.0
When should a woman take second dose of TT?	95.0	96.0
Place from where TT vaccine can be taken	97.0	100.0

Table 1.4: Knowledge of SS and SK on advice during pregnancy

Variable	Proportion (%) of SS (n=202)	Proportion (%) of SK (n=25)
Advice should be given during pregnancy (Mentioned)		
Eat more food	89.1	96.0
Drink more water	25.7	52.0
Take iodized salt	9.9	16.0
Two hours rest at day time	81.2	80.0
Personal hygiene	22.8	56.0
Danger signs of pregnancy	6.4	20.0
Emergency transport	12.9	32.0
Emergency fund	25.2	28.0
Take TT vaccine	13.9	24.0
Use of safe delivery kit	4.0	16.0
Importance of delivery at BH	15.3	12.0
Not to have sex during 1 st and last 3 months	21.3	52.0

Table 1.5: Knowledge of SS and SK on danger signs of pregnancy

Variable	Proportion (%) of SS (n=202)	Proportion (%) of SK (n=25)
Danger signs of pregnancy (Mentioned)		
Hemorrhage	83.7	96.0
Convulsion	69.8	84.0
Severe headache	64.9	76.0
Severe anemia	14.4	8.0
Blurring of vision	56.9	84.0
Swollen feet/hands/face	67.8	72.0
High fever	72.3	92.0

Table 1.6 Knowledge of SS and SK on advantages of birthing hut

Variables	Proportion (%) of SS (n=202)	Proportion (%) of SK (n=25)
Advantage of delivery at birthing hut (Mentioned)		
Cleanliness	51.0	92.0
Use of safe delivery kit	35.1	40.0
Privacy	32.2	52.0
Delivery by trained TBA	62.4	92.0
Backup support from paramedics	7.9	12.0
BRAC covers cost of referral	62.4	60.0
Disadvantages of delivery care at home (Mentioned)		
Lack of cleanliness	49.5	80.0
Lack of safe delivery kit	20.3	28.0
Lack of privacy	39.6	52.0
Unavailability of trained TBA	52.0	96.0
Unavailability of backup support from paramedics	5.9	4.0
Delay in referral support	57.9	56.0

Table 1.7: Knowledge of SS and SK on cleaning practices during delivery

Variables	Proportion (%) of SS (n=202)	Proportion (%) of SK (n=25)
What are the cleaning practices during delivery? (Mentioned)		
Clean hands	74.8	92.0
Clean perineum	19.3	48.0
Nothing unclean introduced into the vagina	4.0	0.0
Clean delivery surface	62.4	84.0
Clean blade to cut the cord	55.9	60.0
Use of Clean thread	45.0	60.0
Clean cord care	3.5	0.0

Table 1.8: Knowledge of SS and SK on danger signs during delivery

Variables	Proportion (%) of SS (n=202)	Proportion (%) of SK (n=25)
The danger signs during delivery		
Excessive vaginal bleeding	79.7	76.0
Fits, convulsion, loss of consciousness	68.8	68.0
Labor pain lasting more than 12 hours	47.5	92.0
Hand/foot/cord coming first	79.2	76.0
Placenta not delivered within 30 minutes of delivery of the baby	35.6	52.0

Table 1.9: Knowledge of SS and SK on postnatal care (PNC)

Variable	Proportion (%) of SS (n=202)	Proportion (%) of SK (n=25)
Could tell the number (4) of postnatal visits	80.7	92.0
1 st postnatal visit on the day of delivery (could tell)	75.2	80.0
Topics that should be included in postpartum counseling:		
Maternal danger signs	3.5	12.0
Neonatal danger signs	6.4	8.0
Breastfeeding/exclusive breastfeeding	58.4	76.0
Care of breast	5.9	4.0
Personal hygiene	49.0	56.0
Diet and nutrition	59.9	68.0
Not to do heavy works up to 6 weeks after delivery	15.3	44.0
Not to have sex up to 6 weeks after delivery	19.3	28.0
Take a family planning method 6 weeks after delivery	21.8	40.0
Care of newborn	61.9	60.0
Immunization of the newborn	11.4	24.0
Post-partum vitamin A	12.9	24.0

Table 1.10: Knowledge of SS and SK on danger signs during postpartum period

Variable	Proportion (%) of SS (n=202)	Proportion (%) of SK (n=25)
What are the danger signs during postpartum period		
Excessive vaginal bleeding	81.2	88.0
Headache	27.7	32.0
Blurring of vision	26.7	44.0
Fits, convulsion, loss of consciousness	57.4	64.0
High fever	56.9	72.0
Foul smelling vaginal discharge	19.8	56.0

Table 1.11: Knowledge of SS and SK on family planning services

Variables	Proportion (%) of SS (n=202)	Proportion (%) of SK (n=25)
In response to different types of temporary family planning methods		
Combined oral Contraceptive pill	86.1	100.0
Progestogen only Pill	23.3	20.0
Condoms	95.0	100.0
Emergency contraception	2.5	0.0
Injectables	85.1	96.0
Norplant	62.9	84.0
Copper T	61.9	56.0
The permanent methods for family planning		
Vasectomy	70.8	96.0
Ligation/Tubectomy	93.6	100.0
Family Planning methods should be taken 6 weeks after delivery	83.2	92.0

Table 1.12: Knowledge of SS and SK on doses and side effects of contraceptive pills

Variables	Proportion (%) of SS (n=202)	Proportion (%) of SK (n=25)
Oral contraceptive pills should be started on the 1 st day of menstruation	40.6	80.0
The side effects of oral contraceptive pills		
Nausea	63.9	64.0
Vomiting	30.7	12.0
Headache	10.4	12.0
Vertigo	92.6	96.0
Irregular menstruation	23.3	12.0
Spotting	1.5	0.0
2 doses of emergency contraception should be taken to avoid pregnancy in case of unprotected coitus	50.0	24.0
1 st emergency contraception dose should be taken within 72 hours of coitus	13.9	16.0
2 nd emergency contraception dose should be taken within 24 hours of 1 st ECP	4.5	0.0

Table 1.13: Knowledge of SS and SK on newborn care

Variables	Proportion (%) of SS (n=202)	Proportion (%) of SK (n=25)
Essential Newborn Care		
Assessment of breathing	15.8	44.0
Dry with clean and soft clothes	95.5	88.0
Wrap the baby	71.8	88.0
Cut the cord with clean blade	58.9	84.0
Initiate breastfeeding within 1 hour	87.1	92.0
Measure weight	26.2	64.0
Check the color of the baby	9.9	44.0
Signs of birth asphyxia		
Failure to initiate breathing	69.8	40.0
Gaspings	33.2	16.0
No cry	35.1	92.0
Management of birth asphyxia		
Stimulation	44.1	72.0
Mouth-to-mouth breathing	55.4	80.0
Bag and mask breathing	1.5	0.0
Referral	72.3	84.0
Normal weight of the newborn (2500 gm or more)	88.6	88.0
Newborn care advice		
Delay bathing	61.9	92.0
Not to shave hair up to one month of age	62.4	88.0
Not to apply anything on the umbilical stump	12.4	24.0
Keep the baby warm	52.5	60.0
Colostrums feeding	69.8	88.0
Referral for danger signs	11.4	20.0

Table 1.14: Knowledge of SS and SK on newborn care (Care of LBW babies and danger signs of newborn)

Variables	Proportion (%) of SS (n=202)	Proportion (%) of SK (n=25)
Care for LBW babies		
Keep the baby warm	28.2	44.0
Use baby jacket	65.3	80.0
Immediate breastfeeding	58.9	64.0
Delay bathing for at least 7 days	37.1	56.0
Wash hands before taking care of the newborn	1.5	36.0
Danger signs of newborn		
Weak cry	1.0	0.0
Absent cry	14.4	12.0
Unable to feed	48.5	84.0
Lethargy	38.6	72.0
Cold hands and feet	11.4	12.0
Rapid breathing	41.6	52.0
Chest indrawing	51.5	80.0
High fever	62.9	68.0
Umbilical infection	53.5	84.0
Convulsion	45.0	52.0
More than 10 skin pustules	39.1	88.0
Red eyes with discharge	17.8	44.0

Table 1.15: Knowledge of SS and SK on exclusive breast-feeding and vaccination for child

Variables	Proportion (%) of SS (n=202)	Proportion (%) of SK (n=25)
Duration of exclusive breastfeeding	98.5	100.0
Vaccines should be given to a child within 1 year of age	67.8	56.0
Diseases against which a child should be vaccinated:		
Tuberculosis	64.9	92.0
Diphtheria	36.6	72.0
Whooping cough	34.7	68.0
Tetanus	51.5	80.0
Polio	62.4	92.0
Measles	75.2	100.0
Hepatitis-B	41.6	76.0
Dose of BCG vaccine	70.8	68.0
Doses of DPT vaccine	59.9	28.0
A child should receive Oral Polio Vaccine	66.3	20.0
Dose of Measles vaccine	80.2	92.0
The age at which child should receive Measles vaccine	46.1	84.0

Table 1.16: Knowledge of SS and SK on diarrhea and pneumonia of children

Variable	Proportion (%) of SS (n=202)	Proportion (%) of SK (n=25)
Signs of diarrhea		
Loose stool more than or equal to 4 times a day	59.4	52.0
Increase thirst	12.9	16.0
Restlessness	8.4	16.0
Skin pinch goes back slowly	3.0	4.0
Sunken eyes	20.8	48.0
Dry mouth and tongue	8.4	20.0
Lethargy	48.5	76.0
Management of diarrhea		
ORS (Oral Rehydration Saline)	100.0	100.0
More fluid	48.0	76.0
Zinc tablet (Baby zinc)	8.9	16.0
Antibiotics	6.6	0.0
Infusion (saline)	1.5	4.0
Referral	27.2	28.0
Duration of preservation of homemade ORS	37.6	48.0
Signs of pneumonia		
Breathing more than 60/min	16.3	28.0
Cough	23.8	12.0
Chest indrawing	91.1	96.0
Abnormal sound during respiration	31.7	12.0
Wheeze	54.5	68.0
Fever	31.7	36.0
Low body temperature	1.5	4.0
Stridor	27.2	52.0
Stopped feeding well	22.8	48.0
Convulsion	3.5	0.0

