

Client satisfaction and Competency of Healthcare Providers with the services of BRAC Maternity Centres – A Cross Sectional Study

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Abstract

Background

Client satisfaction and competency of the healthcare providers are key areas to ensure good health service delivery anywhere. The objective of this study was to understand the competency of the healthcare providers of BRAC maternity centres (BMC) in rural areas of Bangladesh and acceptance of their services at client level.

Methods

It was a cross-sectional exploratory mixed method study. For exploring client satisfaction and expected services of the clients, 2810 married women, aged 15-44 years with a delivery outcome within one year of interview, were included in the survey. In addition, 12 observations, and 19 in-depth interviews of patients and their attendants were used for collecting information on competency of the midwives and Community Skilled Birth Attendants (CSBAs) from four upazillas in Bangladesh. The BMC in Mithapukur was functioning for two years preceding the survey, whilst rest of the three were established before two months of the survey. For this reason client satisfaction information was collected only from BMC in Mithapukur. On the other hand, information on competency of midwives and CSBAs were collected from all BMCs.

Results

Mean age of the respondents was around 24 years and more than 96% were housewives. All facilities were well equipped to provide maternity services. We found that more than 92%, 91% and 87.5% of the beneficiaries of BMC in Mithapukur were satisfied with the antenatal care (ANC) check-up, normal delivery and episiotomy services. For all other centres, most of the clients expected caesarean section facilities, availability of doctors and financial support from the centres. In terms of competency, the midwives and CSBAs were satisfactorily competent to provide all required services.

Conclusion

Overall, the results suggest the BMC holds competent workforce and similar service delivery strategies can be replicated in poor resource settings and BMCs to ensure quality care and trust in the patients for healthcare service utilisation. **Keywords:** Antenatal care, delivery care, postnatal care, neonatal care, competency, midwife, community skilled birth attendant, client satisfaction

Background

Satisfaction can be explained by a patient's reaction to several aspects of their health service experience. It may influence further health-care utilization, which can also be a predictor of subsequent health-related behaviour (Schoenfelder, Klewer, & Kugler, 2011). Satisfaction level has a strong connection with healthcare utilization decision making. Many times, patient satisfaction is the result of congruent or

incongruent orientation towards a certain health care in the community (Bazant and Koenig, 2009; Jackson et al., 2001). Patients with higher satisfaction are more likely to stick to medical recommendations (Singh, Haqq, & Mustapha, 1999). Hence, this is a crucial aspect for a good quality healthcare service design. Various evaluation studies deal with the quality of healthcare either by the 'technocratic' perspective of health care professionals or from the amateur perspective of clients or communities who are using it. In the former perspective, services are considered to be of good quality, if they reach standards defined by health professionals. In the latter, clients play a central role in defining and assessing quality of health care (Van Duong et al., 2004). On the other hand, client satisfaction also depends on the competency of the healthcare provider. The competency of healthcare providers is essential to provide safe care to the patients and maintain the credibility of the health services. Standards must be established and adhered to both in practice and planning of any health service delivery. According to Schuster et al. good healthcare quality means "providing patients with appropriate services in a technically competent manner, with good communication, shared decision making and cultural sensitivity" (Schuster, McGlynn, & Brook, 1998). Healthcare professionals deliver services differently because of underlying factors such as experience, individual abilities, and of course the availability of resources. A healthcare professional's competency (i.e. the attitudes, knowledge, and skills) is essential to deliver high-quality services (Mosadeghrad, 2014). Therefore, it is evident that client satisfaction and competency of the healthcare providers is very important to be addressed for successful healthcare service delivery.

The prevailing narrative in global maternal health today is one of optimism. However, lack of access to maternal healthcare services cause over five million stillbirths among the poorest women in the world; 830 women die from preventable causes related to pregnancy and childbirth each day globally and 99% of these deaths occur in low and middle income countries (LMIC) (Blencowe et al., 2016). Bangladesh has made remarkable success in achieving Millennium Development Goals (MGDs) especially in reducing more than 70% of women dying from labour. From 650 deaths in 100,000 live births in 70's it now stands at only 194, which is glorified in the history of global health (Mehta, Kumar, & Kumar, 2018). Bangladesh was on track to achieve the reduction of MMR, the reduction rate was lower for Bangladesh (5% per year) (NIPORT, 2012). However, recent maternal mortality survey revealed that MMR in Bangladesh has stalled between 2010 and 2016 stagnating at 196 per 100,000 live births (BMMS 2017). Despite the success stories, the need for professional and trained healthcare providers at rural level is still on the rise. Rural women across Bangladesh has limited access to health services during pregnancy, delivery and postpartum period due to lack of emergency obstetric care (EmOC) facilities in their vicinity, poor financial condition and limited decision-making power (Sikder et al., 2015).

In Bangladesh, the Ministry of health and family planning has an extensive health infrastructure at primary, secondary, and tertiary level throughout the country. At the same time, many NGO clinics are functioning to improve maternal and reproductive health among the poor (Masud Ahmed et al., 2015). Despite all these efforts, a gap is observed in availability of health facilities across rural areas of Bangladesh. An earlier study found that about 44% of the Government health facilities and 28% of private clinics were rural based and only 8% of the rural population could only avail these amenities (Ahmed,

Adams, Chowdhury, & Bhuiya, 2000). Moreover, informal private health service providers are dominant in rural areas and act as primary point of contact for any kind of diseases suffered by rural people (Jackson et al., 2001). As a result, inequity in health service utilization is still prevalent in rural society. Unless having pregnancy related complications, rural women are still less likely to seek treatment from any formal healthcare facilities (Afsana & Rashid, 2001). Earlier studies have also shown that supply-boosting strategy for improving utilization of health care services did increase the uptake of services (Hjortsberg, 2003; Thaddeus & Maine, 1994). Instead, it was suggested that strategies for addressing barriers in accessing health services of both demand and supply sides would perhaps be more helpful in improving uptake of health care services. Here, access to health services means timely use of service according to the need of people suffering from various ailments (Peters et al., 2008).

With the intention of providing maternal and neonatal health care services, BRAC health, nutrition and population programme (HNPP) established a BRAC Maternity Center (BMC) in Mithapukur upazila of Rangpur district. The programme intends to establish another 14 maternity centers in 14 different upazilas across rural Bangladesh. Although BRAC has recently transformed from a philanthropic model to business model, still its mission and vision to serve the marginalized people has not changed. Therefore, to make BMC as a sustainable facility, it needs to implement a strategy for both recovering cost and providing quality health care services to the poor. Client satisfaction and competency of healthcare providers is the key to provide better maternal healthcare, motivate women for institutional delivery through trained healthcare providers; and thereby, reduce maternal mortality ratio (Ganguly & Sharma, 2014; Kumar Acharya, Kumar Sharma, Dulal, & Kumar Aryal, 2018). Thus, the study was conducted to understand the competency of the healthcare providers of BMC in rural areas and provision of its services that would be utilized by women. Therefore, an assessment of both supply and demand sides along with patient satisfaction and competency of the providers are required to devise strategies that would be effective in increasing utilization of health services of BMC and make their facilities sustainable.

Methods

It was a cross-sectional exploratory study. Both quantitative and qualitative methods were used for data collection. For exploring client satisfaction and expected services of the clients, we used various quantitative tools. To check the competency of the BRAC midwives and community skilled birth attendants (CSBA), we used qualitative explorative method. Data were collected from Mithapukur, Thakurgaon Sadar, Phultola and Nandail *upazila* of Rangpur, Thakurgaon, Khulna and Mymensingh district respectively in Bangladesh [see in the map]. All maternity centers were supervised by an MBBS doctor. BRAC HNPP implemented the improved maternal, neonatal and child survival (IMNCS) programme in Mithapukur and Nandail, while in Thakurgaon sadar and Phultola BRAC Essential Healthcare (EHC) is running. In 'Improving Maternal, Neonatal and Child Survival Programme' areas, BMC is run by only one midwife and three CSBs on the other hand, in EHC areas BMC is run by three midwives and only one CSBA. Another cadre of health workers like an attendant is also working there to assist them. However, they are not authorized to conduct delivery.

Sample size for quantitative part (client satisfaction)

Based on proportion of facility delivery and PNC of both mothers and neonates within 48 hours after delivery in rural Bangladesh (BDHS, 2016), this study intended to detect the number of women PNC from an medically trained provider (MTP) within 48 hours after birth, with a 95% confidence level and 5% precision. A total of 700 (seven hundred) married women aged 15-45 years with a delivery outcome (either live birth or stillbirth) within one year of survey were included in the survey. Therefore, overall the sample size in four *upazillas* was 2800 women.

Sampling procedure

Two different types of sampling procedure were followed in this study. In Mithapukur *upazila* 700 participants were selected from the patient register book, on the other hand, in Thakurgaon Sadar, Nandail and Phultola five unions were selected purposively around the BMC for random selection of the respondents.

In Phultola *upazila* consisted of only four unions, in this study we selected all of those four as sampling sites. From each union ten villages were selected randomly. However, in unions where the number of villages was less than ten, more than ten villages were selected from adjacent union to keep the total number of villages at 50 in each *upazila*. However, the scenario of BMC of Mithapukur was different. This BMC was successfully running for the last two years prior to the survey. Therefore, we wanted to know the level of satisfaction of the patients, who sought treatment there. In Mithapukur, we used the patient register book, for selecting participants, who went there for maternal healthcare services such as antenatal care (ANC) delivery care and postnatal care (PNC). In addition, referral cases from BMC to EmOC due to delivery complication were selected for interview. We only interviewed women who were available at their addresses, which were given during their admission at BMC. In other three *upazilas*, initially a census was conducted for exploring the mother according to the selection criteria. From the census, 700 women were selected randomly from each *upazilla* for interview.

Quantitative data collection

Face to face interview was conducted by using a structured questionnaire. We collected data by using tabloid mobile device through ComCare HQ platform (CommCare, 2019).

Qualitative (competency)

For qualitative exploration, two categories of participants were selected. One representing the patients and other representing the health service providers - both were from the four BRAC maternity centres. For the first category, midwives and CSBAs working at the BMCs were selected. Of the second category, patients and their accompanying caregivers/ attendants to receive ANC, PNC or normal vaginal delivery (

NVD) services in the BMC were selected. Therefore, this enabled the study to capture the contextual disparities between service providers and patient perspectives. A purposive sampling strategy was used to identify the potential participants.

Tools Development

A pre-structured questionnaire was developed to collect data on the satisfaction of the respondents and services expected by the respondents. The client satisfaction questionnaire was designed for the mothers who had received care/ treatment from the BMC in Mithapukur. The responses to the questions were measured using the following pattern of answers 1. Dissatisfied; 2. Partially dissatisfied; 3. Neither satisfied nor dissatisfied ; 4. Partially satisfied and 5. Satisfied. The respondents were asked about six to twelve questions for each of the services they received from the BMC to know the satisfaction level. The level of satisfaction was a composite score that ranged from one to five. For a particular service provided through BMC, satisfaction level of every single step was scored 1 to 5. After getting responses for all the steps, an average composite score was calculated. Finally, based on the average score the level of satisfaction was determined. A semi structured questionnaire for IDIs and checklist for observations was also developed. These questionnaires were pretested by the researchers of this study twice before commencing training and modified as required. The observational checklist was prepared by step wise process for ANC, delivery care, PNC and ENC .On the other hand, semi structured questionnaire for in-depth interviews (IDI) were prepared to explore knowledge and perception on service delivery, referral and infection prevention, their satisfaction and feedback regarding services provided by the BMC.

Data Collection Method

For exploring client satisfaction, in person interviews were carried out for data collection by trained data collectors using pre-developed tools. Skilled interviewers (comprising science graduates having survey experience) were recruited for data collection. A seven-day intensive training was organized which included lectures, mock interviews, role-play and field practice at the community level. A training manual was developed to guide the interviewers in the field. Four teams were formed for data collection each consisting of one supervisor and four interviewers. Respondents in all *upazillas* were asked questions by the interviewers Both IDI and observation were conducted by trained and experienced research team.

A total of 12 ANCs, NVDs and PNCs were observed by researchers with medical background (Table 1). Nineteen in-depth interviews were used for collecting information on competency of the midwives and CSBAs. In this regard, besides both service provider patients and their attendants were also included in the in-depth interview (IDI). These interviews were used to validate the information found through observation. In case of essential new born care (ENC), only observation and IDI of the health care providers were carried out as the attendants of the patients were not allowed in the labour room. Checklists for instruments and facility set up were prepared based on the information provided by BRAC HNPP. Data was collected by the researchers themselves including medical doctors.

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Table 1: Summary of qualitative data collection

Area	Observation				IDI- Service Provider	IDI- Patients	IDI- Attendants
	ANC	Delivery	ENC	PNC			
Mithapukur	4	3	3	6	4	3	6
ThakurgaonSadar	4	3	3	3	24	3	6
Phultola	4	2	2	3	4	3	6
Nandail	4	3	3	3	4	3	6

We used open-ended questions with unrestricted response with limited probing. Interview settings (either open or private) were set as preferred by the respondents. Each interview took around 45–60 min. All interviews were recorded by using electronic recorders along with rigorous note-taking by another researcher afterwards. A summary note was prepared by the researchers each day after data collection. Data was transcribed by a medical doctor and a public health researcher who understood the local dialect of the study areas. A Field test was conducted after training to ensure quality work outcomes in the field.

Data Analysis

Quantitative data analysis

The quantitative data was analysed by using SPSS 17. A chi-square test was performed to show the difference among the upazillas and data was shown as percentage (number) (% (n)). The continuous

variables were analysed by One- way ANOVA and data shown as Mean \pm Standard Deviation (SD).

Qualitative data analysis

We adopted Neuman's three-phase coding system (Neuman, 2010). First, taped data was transcribed and skimmed by the researchers to reach a certain level of data familiarization - to have an idea of the content of the data and identify themes. Secondly, priori codes, inductive codes, and sub codes were formed to define them in a broader group. These included code abbreviations, detailed descriptions, colour coding, when and which context to use, quotes and examples. Thirdly, a newer version of the data was re-read by each researcher and then themes were finalized. Another qualitative researcher checked all the transcript data. Then all the codes were triangulated and thematic analysis method was used. Each researcher attempted to derive a general, abstract theory of process, action or interaction ground on views of participants(Corbin & Strauss, n.d.).

Results

Socio demographic profile of the respondents

Table 2 describes the socio demographic profile of respondents. The average age of the respondents was higher in Nandail compared to other three study areas. Nearly in all the study areas, female respondents were mostly married (> 99%). Being a housewife turned out to be the main occupation amongst all the female respondents (> 95%). Literacy of female respondents varied across study areas; with respondents being able to read and write highest in Phultola (84.8%) and the lowest in Nandail (69.1%).

Table 2: Socio-demographic characteristics of the female respondents

Variable	Upazila				p-value
	Mithapukur	Thakurgaon Sadar	Phultola	Nandail	
	n = 698	n = 703	n = 709	n = 700	
Age, in year, Mean (SD)**	24.0(5.6)	23.4(5.7)	24.1(5.1)	24.8(6.0)	0.000
Religion % (n)*					
Muslim	94.6 (660)	69.3(487)	91.7(605)	99.9(699)	0.000
Hindu	4.4 (31)	30.3(213)	8.3(59)	0.1(1)	
others	1.0(7)	0.4(3)	0.0(0)	0.0(0)	
Marital status, %(n)*					
Married	99.3(693)	99.9(702)	99.6(706)	98.6(690)	0.233
Others	0.7(5)	0.1(1)	0.4(3)	1.4(10)	
Literacy, % (n)*					
Can read & write	77.2(539)	83.1(584)	84.8(60.1)	69.1(484)	0.000
Year of schooling, %(n)*					
No education	9.0(63)	9.2(65)	3.8(27)	22.1(155)	0.000
Primary incomplete	14.6(102)	9.8(69)	8.3(59)	10.9(104)	
Primary complete	19.2(134)	11.5(81)	9.0(64)	15.6(11)	
Secondary incomplete	46.8(327)	44.5(313)	52.5(372)	33.0(231)	
Secondary or Higher	10.3(72)	24.9(175)	26.4(187)	14.1(99)	
Main Occupation, %(n)*					
Housewife	97.4(680)	97.6(686)	96.6(685)	96.6(676)	0.102
Others	2.6 (18)	2.4 (17)	3.4(24)	3.4(24)	
Member of NGO, % (n)*	41.1(356)	51.7(509)	59.6(560)	15.8(160)	0.000
*Chi-square test **One way ANOVA					

Client Satisfaction

Table 3 illustrates opinions of the respondents on the services received from different BMCs. All the clients in Mithapukur were well aware of BMC. However, it varied in other upazilas. In Thakurgaon Sadar only 9% of the respondents knew about BMC, although this proportion was 7.5% and 13% in Phultola and Nandail respectively. Three-fourth of the respondents in Mithapukur quoted the services of BMC being 'excellent' and 13% reported as 'good', while 3.6% reported as being of 'moderate' service. In the other three upazilas, the number of clients who received services were too low to evaluate, however, all of them found the services to be 'excellent' or 'good'.

Table 3: Opinion of the respondents on services of BMC

Service received by the respondents	% (n)
Antenatal care check-up	18.9(530)
Delivery care	10.7(300)
NVD	10.3(289)
Episiotomy	0.4(11)
Postnatal care check-up	0.3(8)
Referred from BMC	2.9(82)

Figure 1 focuses on the level of client satisfaction for different services utilization at BMC in Mithapukur. The proportion of respondents in different levels of satisfaction or dissatisfaction is described in the figure. We found that more than 92%, 91% and 87.5% of the respondents were satisfied with the process of receiving ANC, NVD and episiotomy services respectively. About 87% of the respondents were satisfied with their first PNC and ENC experiences in the BMCs. In case of clients who received PNC check-up within 42 days after delivery at BMC, 70% of respondents were either satisfied or partially satisfied with the services received such as, newborn health examination by midwife or doctor, mother's health examination by midwife or doctor, attitude of services providers during postnatal care etc. About 25% (one in four) respondents were dissatisfied with consultations by CSBA on PNC check-up within 42 days after birth. Half of the respondents were dissatisfied with the referral process. They were also dissatisfied with the co-operation of referral POs at the referral hospital. High level of dissatisfaction on ambulance services fee and asking about health condition over phone after referring to hospital was also observed.

Figure 2 represents services expected from different BMCs by the clients. We found that the service expectation varied by different study areas. Since respondents in Mithapukur were already familiar with the services of BMC, their expectations were more on the services that were absent there. For instance, the highest proportion of women in Mithapukur wanted C-section delivery services (65.9%) from BMC followed by availability of doctors (50.9%), financial support for the poor (30.7%), essential drug supply (28.9%), free treatment (26.5%), ultrasonography facility (24.1%) etc. On the other hand, in Thakurgaon Sadar, Phultola and Nandail most of the respondents were not exposed to all the services of BMC. Their

major expectations were better treatment services, essential drug supply, availability of doctor, low price of treatment and, good behaviour of staff.

Competency of the healthcare providers

Experience and training of Midwives and CSBAs

All the midwives employed at BMC had proper training on midwifery and graduated from BRAC University. Midwives in Mithapukur, Thakurgaon Sadar and Phultola BMC had practical experience on maternity service delivery and did refresher courses with field exposure. However, in Nandail midwives were fresh graduates and did not have much field experience on maternity services.

CSBAs in four BMCs had completed their required training and participated in refresher courses. They had experience in conducting delivery at the field level. They mentioned that they were forbidden to conduct Episiotomy from programme and they followed this instruction strictly. CSBAs in Phultola required more time to become familiar with the maternity services of BMC as they were recruited just one week before the interview.

Antenatal check-up

Most of the patients came to BMC for first or second ANC check-up. The midwives and CSBAs gave the patient an MNCH card to those who came for the first ANC check-up. Some of the patients already had an MNCH card as they were visited by BRAC SKs in their households for the purpose of ANC check-up. The midwives and CSBAs had appropriate knowledge on physiological and pathophysiological measurements. They routinely examined fetal position movement and heart rate of baby, mother's pelvis and mother's height, after a general physical examination of the mother. They also performed urinary sugar, urinary albumin and measured hemoglobin percentage by Scala test using standardized procedures. However, the patients expressed the need of hemoglobin meter and glucometer for more accurate measurements. In case of prescribing drugs, all of them mentioned about iron and calcium tablets, but none of them was aware of folic acid being required with the iron tablets. There were discrepancies on advice given to mothers. All of them stated that they informed the mothers about maternal danger signs, but none could mention all of them. They also advised that the mothers should come for further ANCs, but did not mention about minimum requirements. Most of them had sound knowledge on ANCs. They had proper knowledge of lifestyle practices- nutrition and hygiene of pregnant women and preparations. They realized the importance of maintaining the MNCH card and updating it. They also knew the importance of counselling and cooperation of family members during pregnancy. Patients were satisfied with the ANC check-up of midwives and CSBAs. Patients were also unwilling for visiting another facility for the service of ultrasonography and blood grouping.

Normal Vaginal Delivery (NVD)

We observed that the midwives and CSBAs were well aware of the entire process of delivery. They followed the guidelines of history taking, counselling, and consent. However, they mentioned that sometimes patients came just before their delivery and sometimes they had to perform two or three tasks at the same time. As a result, they did not find enough time to check for all the procedures as set in guidelines. The midwives and CSBAs also talked to the guardians about the cost. They brought the mother to the labor room and waited for the delivery time. During that time, they were seen measuring vital signs, conducting vaginal and adnominal examinations. They ensured privacy of the mother and were also empathetic. They checked for instruments and supplies with the assistance of labor room staff. They were also observed for performing the entire delivery process smoothly as per standard procedure, thereafter performing controlled cord traction and giving uterine massage. The caregivers were also tasked to infused oxytocin and normal saline in time. They put the baby on mother's chest before cutting the cord and later placed the baby at the newborn care corner. The mother was checked for bleeding and put at rest. Later on, mothers were given vitamin A capsule during discharge. They had knowledge on providing misoprostol tablets in order to prevent postpartum Hemorrhage (PPH), however, it was not seen to be practiced during observation. The placenta was given in a wrapped cloth to the guardians for disposal, which is a common practice in that area and a demand from the patient side. They provided the updated MNCH card on discharge. Hygiene was maintained during delivery, however, there was no record keeping and partograph maintenance. The attendants of the NVD patients admitted that the services of midwives and CSBA were good. They felt confident with the services of midwives as these providers conducted other deliveries successfully. They were also satisfied with the confidentiality maintained during delivery. However, some of them wanted to go inside the labour room with the patients, which was restricted by the service providers of BMC. They complained that it was troublesome for them when their patients were inside the labour room and the service providers asked them to bring medicine from outside the BMCs.

Essential newborn care (ENC)

Newborn care was provided by the same caregiver who conducted the delivery. We observed that the neonates were wrapped and taken to the newborn corner and proper procedures were followed. Most of the caregivers showed decent knowledge on newborn care. Majority knew about the systematic process and cord care. Some knew about the management of low birth weight baby by kangaroo mother care. The service providers mentioned about giving the baby jacket, however, that was not available in all BMCs except in Mithapukur. They mentioned about skin-to-skin contact with mother and baby for thermal care. They also knew about bathing baby at the age of seven days, required hygiene practices, keeping the umbilicus dry, applying chrolahexidine and practicing exclusive breastfeeding. However, none could mention about feeding colostrum to the newborn. Nevertheless, there was a big gap in knowledge of sepsis and its management. In case of management and identification of birth asphyxia and sepsis, none

of them had adequate knowledge and few of them were aware of postpartum bleeding and its management.

Postnatal care (PNC) check-up

In BMC, PNC check-up was provided to the mothers and neonates immediately after delivery. In addition, any mother who came within six weeks of delivery also received this service. We found that very few mothers came for PNC check-up at the BMC. Most of the CSBAs and Midwives had sound knowledge on PNCs. They followed the standard guidelines of PNC procedure. They attended the patients with respect, took their history and updated the MNCH card. They had clear knowledge on physiological and pathological measurements, and what tests and examinations to be performed during PNCs. We observed them performing required physical examinations promptly and efficiently such as, blood pressure, anemia, jaundice, edema, temperature, pulse, abdomen, breasts, bleeding, any scar or discharge. In terms of prescribing drugs, they mentioned about iron tablet continuation for three months. They had adequate knowledge on lifestyle practices after delivery, nutrition. We found them counselling mother on proper maternal diet during lactation period, physical work, hygiene and exclusive breastfeeding for the infants. They advised mothers for adopting family planning methods after 42 days of delivery but were not sure about which specific methods to advice. Most of them did not mention about any further check-up or PNCs.

Knowledge and Practice of Infection Prevention of CSBAs and Midwives

Most of the BMCs maintained clean premises, reception, outdoor rooms, delivery and PNC rooms. There was adequate supply of cleaning materials; however we observed unhygienic latrines adjacent to the labour rooms. There was no hand-washing corner in most of the facilities. We did not observe the service providers washing their hands with disinfectants before ANC and PNC check-up; however, before delivery birth attendants washed both their hands according to guidelines of infection prevention. They used clean double gloves and mackintosh during delivery. We found that CSBAs and midwives were washing and cleaning the instruments with chlorine solution after delivery and were wrapped in clean cloths after sterilization. They informed that they were using autoclave regularly; however, we did not find such machine in BMC during study period. They did not have any UV Ray machine facility at the centre, nor had any knowledge regarding it. Specific disposal buckets with color codes were present in the delivery room; however, they were following the designated color codes for disposing waste. They did not follow the practice to dig hole in mud and bury placenta and cord, rather disposed them off in buckets. In Rangpur, placenta and cord were given to the relative or attendant of the patient as it was common practice there to bury placenta and cord in the premises of their own households.

Knowledge and Practice of Referral

Mothers and babies with complications were referred from BMCs to EmOCs. Most of the respondents could mention signs and symptoms of complications of both mothers and neonates. After identifying risk, pregnancy both CSBA and Midwife referred their clients to the nearest EmOC. These providers also arranged transport for the patient and contacted with the referral PO to provide them necessary support at hospital. In Mithapukur, subsidy was provided to the poor patients for the ambulance services. When patients showed reluctance of going to referral places, they counselled them and their relatives. At the same time, they called the MBBS doctor for better management. Phultola and Thakurgaon BMC, had linkages with numbers of local autos and an ambulance for helping patients. However, in Nandail, referral knowledge and practice of midwife and CSBAs were unsatisfactory. They stated that there was no proper referral facility at BMC in Nandail.

Satisfaction and Feedback

Most of the respondents were not satisfied with their salary. All of them thought that payment was very low in line with the responsibilities of their job. One of them also said,

“All of the salary is finished by paying for the transportation cost to get to the facility. Sometimes we have to come at night or work out of hours of the planned roster. This salary is no way enough for the service and time we provide.”

The CSBA and midwives expressed that their salary needed to be increased, as they had to work more now than earlier. In terms of service improvement, they believed that if SS and SKs were active in the field there would be increased patient inflow at BMC. Most of them thought that the charge for normal delivery should be reduced. In terms of facilities, all of them mentioned that incorporation of ultrasonography and diagnostic service would be helpful in increasing foot traffic at BMC. Some of them mentioned that the presence of a gynecologist might attract more patients. To improve their competency, the CSBAs wanted more refresher training, updated knowledge on services and conducting episiotomy. Moreover, the midwives also believed that CSBAs were competent to learn episiotomy process and training should be given on episiotomy.

Facility setup, instruments and supply

Overall facility setups were satisfactory. Most of the materials for reception and labor rooms were present. Display boards were updated and most of the posters were present. In terms of instruments, labor rooms, infection prevention corner, baby corners were well equipped though there was a lack of forceps. There was sufficient cleaning material for sterilization and facility maintenance and supplies in the BMCs of study areas.

Discussion

We found clients were mostly satisfied with the performances of caregivers, which was the backbone of maternity centres and most of them gave a good or excellent review for the services received on ANC, PNCs and NVDs. Most of the clients were impressed by the behaviour of the caregivers and the overall environment of the BMC. All the BMCs were found to have a good service setup, with available caregivers and clean environment. Clients, who were not satisfied with the services, mainly pointed out the unavailability of staff (especially medical doctors) and lack of ultrasound and blood grouping facility along with necessary medication. They opted for emergency care and did not appreciate pattern of the referral services available there. Patient centred healthcare delivery models are of utmost importance in lower income setting country like Bangladesh.

Bangladesh has achieved important health gains over the last decade. However, equivalent progress has not been realised in the area of maternal health (Mahmudur Rahman, 2018). The maternal mortality ratio as an indicator of maternal health in Bangladesh remains unacceptably high. In many ways the existence of a high MMR represents the failure of the health system to effectively respond to the needs of women in the country, yet it must also be seen as the end point in a life time experience of gender discrimination, neglect and deprivation for Bangladeshi women (Azizur, Justin, Parkhurst, & Normand, 2003). Good maternal care service delivery models can have an important impact on improving the overall scenario. Maternity centers, like BMCs, designed to deliver quality care at low cost is a much needed intervention in Bangladesh. Mothers and relatives must develop trust from good service delivery and further motivate more mothers in the areas, mostly across rural areas of Bangladesh, where quality of care is a less addressed issue.

From a health systems perspective, maternal mortality is an indicator not only of women's health but also of access, quality and effectiveness of the country's health sector. An understanding of the concerns of women about maternity care staff is important in the development of a woman-focused service and improving the service quality for those who provide and experience the service (Proctor, 1998). Unavailability of emergency services created a negative impression among the clients. Skilled birth attendance and EmOC are two recent strategies promoted to reduce maternal mortality (Dogba & Fournier, 2009). Therefore, a systematic development for patients requiring C-section and handling emergency should be a priority among those who require them. Most of the patients prefer normal delivery practice, for which BRAC staff are quite capable. Financial support or reducing the cost for the poor also came out as important factors to be addressed. A greater focus is needed on the implementation and evaluation of maternal-health interventions for poor people (Anwar et al., 2008). Another important observation was that BMC needed to enhance community level communication. Most of the people of Thakurgaon, Phultola and Nandail were not aware of the BMCs and their services. A well-organized referral system between public-private healthcare sectors should be developed not only to enhance the BMC services, but to benefit the clients as well.

Skilled attendance at birth is a distant reality in many developing countries and effective community-based strategies are needed to help reduce high levels of mortality (Sibley & Sipe, 2004). However, the "percentage of births attended by a skilled birth attendant (SBA) " is an indicator that has been adopted

by several global monitoring frameworks, including the Sustainable Development Goal (SDG) agenda for regular monitoring as part of target 3.1 for reducing maternal mortality by 2030 (Hobbs et al., 2019). As discussed, despite remarkable achievement in millennium development goal of reducing maternal mortality ratio to a 40% decline, Maternal Mortality Ratio (MMR) in Bangladesh is still quite high; thus, a priority health and development issue (Roy and Shengelia, 2016; UNDP, 2014). Therefore, competent healthcare providers and satisfied clients can contribute to service uptake and hence, overall improvement of the status. Trained and skilled healthcare providers are keys to draw patients towards formal settings in rural areas. This research found that CSBAs and midwives of BRAC maternity centres were well trained and competent in various service delivery aspects. They had adequate knowledge on ANC, NVD, PNC and ENC. They were skilled enough for performing their tasks. However, regular refresher training to the midwives and CSBAs on maternity services could improve their potential. Training should also be given on maintenance of partograph and record keeping. The study further showed that services providers were not satisfied with their salary. This alternate cadre of healthcare providers are shifting task from less available highly trained professional and thus frequently require totake on more work. Thus, it is essential to devise appropriate incentive packages and recognition systems to reward the service providers to reduce their attrition (Deller et al., 2015).

An increase in salary would make them more attracted to their job. Much of the success of any health intervention relies on positive and trusting relationships at individual, patient-provider and systemic levels. The magnitude of the role and the role of trust in health systems is often underestimated (Grant et al., 2017). Almost all the patients/ attendants were satisfied with the services received and expressed intentions to come back again and also refer to other people. Thus this qualitative exploration suggests the development of confidence between the competent service providers and patients/attendants, which can influence service utilization of patients towards formal healthcare settings. Although the BMCs were well equipped, modern technologies such as ultra-sonogram could be a key addition to the services to draw more patients and deliver better care. BMC has enormous potential to act as one stop maternal health service provider. Provision of essential drugs (pharmacy), diagnostic services including ultrasonography, experienced midwives and MBBS doctor services would help increase foot traffic at BMC. Also, the training provided to the midwives and CHWs will need regular refreshers to ensure quality service delivery in the ongoing program.

Conclusion

Overall, the assessment suggests the BMC holds competent workforce and similar strategies can be replicated in other settings and BMCs to ensure quality care and trust in the patients for healthcare service utilisation. This can have significant impact on maternal and child care delivery in low income settings like Bangladesh.

Declarations

Ethical approval and consent to participate

The study obtained ethical approval from ethical review board of Research and Evaluation Division (RED), BRAC following existing rules.. The participants of any age were informed about the study before the interviews and informed verbal consent was obtained initially. Before each interview, researchers comprehensively explained to each respondent about the nature of the programme, rationale of the study, questionnaire, and the risk and benefit of the study in front of a witness. Once they voluntarily agreed, they were then asked to sign or put on thumbprint on written informed consent paper. In terms of participants under 16 years of age, written informed consent was obtained from a parent or guardian.

Consent for publication

Consent for publication obtained from participants, with condition of anonymity.

Availability of data and materials

Data and materials available on request.

Competing interests

We declare that we have no competing interests.

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Authors' contributions

All authors have read and approved the manuscript.

Conceptualization: AA SPJ KA

Methodology: SPJ AA NK

Software: SPJ NK

Validation: SPJ NK TRC

Formal analysis: SPJ NK

Investigation: SPJ NK TRC

Resources: SPJ

Data curation: SPJ NK TRC

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Visualization: SPJ

Supervision: SPJ

Project administration: SPJ

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Abbreviations

HNPP= Health Population and Nutrition Program

ANC= Ante Natal care

PNC= Post Natal care

BMC= BRAC Maternity Centre

EmOC= Emergency Obstetric Care

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Figures

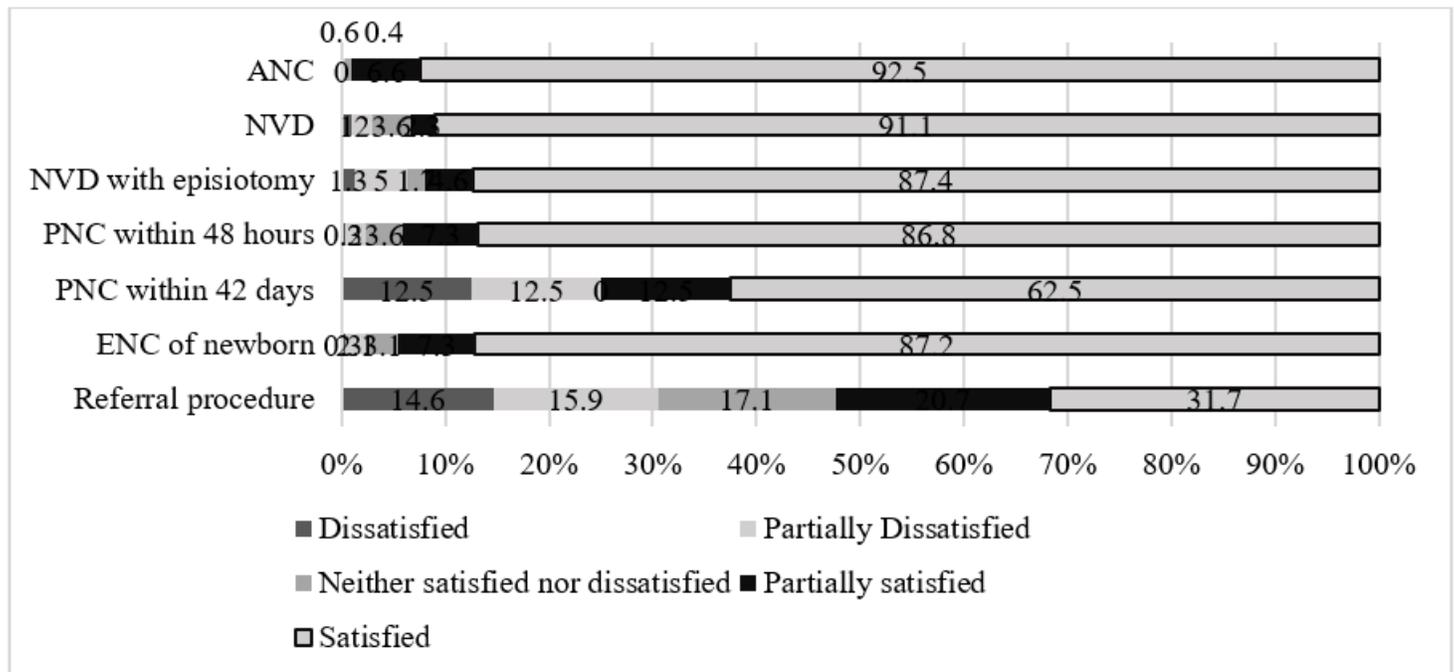


Figure 1

Level of satisfaction for different services of the clients of BMC services in Mithapukur

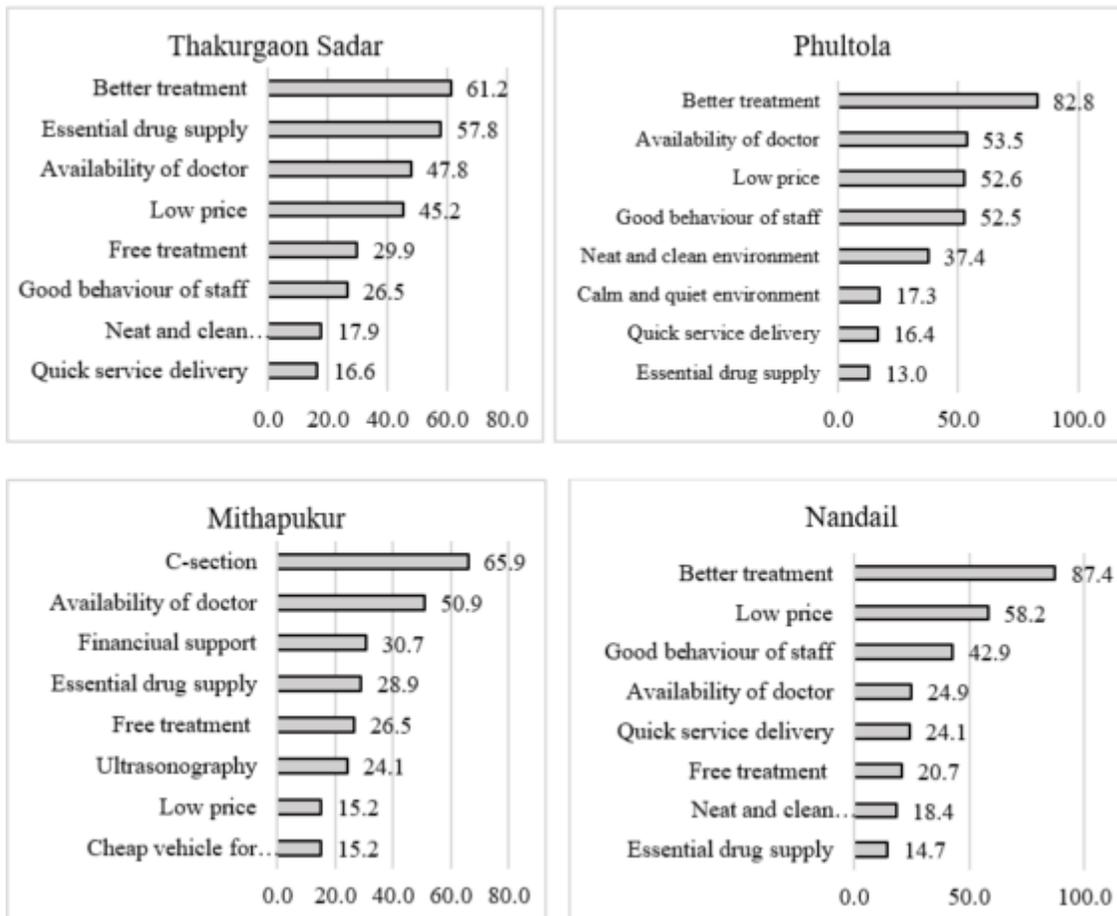


Figure 2

Services expected from BMC by respondents in four upazillas