

# **Complications of Pregnancy and Childbirth: Knowledge and Practices of Women in Rural Bangladesh**

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## Abstract

Pregnancy and childbirth-related complications are the leading causes of maternal mortality and morbidity in Bangladesh. An estimate shows that about 28,000 mothers die each year in Bangladesh due to obstetric complications. Recent estimates also suggest that there may be as many as 100 morbidities for every maternal death.

This cross-sectional study assessed rural Bangladeshi women's knowledge and care-seeking behaviour regarding obstetric complications. The study was done in 7 unions of Mirsarai and 5 unions of Abhoynagar thana in Chittagong and Jessore districts respectively. During October 1998-May 1999, 1,566 women: 999 from Mirsarai and 567 from Abhoynagar, who had a pregnancy outcome during the last one year, were interviewed at their homes. The trained interviewers used a pre-tested semi-structured questionnaire for interviewing the women.

Results of the study showed that more than 80 percent of the women in Abhoynagar and over half of the women in Mirsarai had knowledge about three and more types of pregnancy and/or childbirth-related complications. The knowledge was higher among women in Abhoynagar than those in Mirsarai. Knowledge about postnatal complications was comparatively limited, more so in Mirsarai. The sources of service for the management of obstetric complications, majority of the women mentioned the Thana Health Complex; only one-fifth mentioned about the untrained village allopaths and homeopaths.

Deliveries of about one-third of the women were attended by the trained providers, such as trained traditional birth attendants (TTBAs), paramedics, nurses, and doctors, and about 90 percent were delivered at home. Of the women reported to have experienced obstetric complications 61 percent women in Abhoynagar and 48 percent in Mirsarai had delivery-related complications. Postnatal complication was found two times higher in Mirsarai than in Abhoynagar. Commonly cited obstetric complications were Oedema, prolonged labour, bleeding and fever for more than three days after delivery in both the areas. A higher percentage of women, both in Mirsarai and Abhoynagar, consulted the untrained providers for the management of these problems. Regarding the management of postnatal complications, 46 percent of the women in Mirsarai and 30 percent women in Abhoynagar consulted either the trained providers or visited the government health facilities or the private clinics. With regard to antenatal care, 58 percent in Abhoynagar and 44 percent in Mirsarai sought care from trained providers and/or visited health facilities. Over half (55%) of the women in Abhoynagar and more than one-third (36%) in Mirsarai sought three or more antenatal care visits. However, use of postnatal care was found to be limited.

Since women of Bangladesh still seek care from the traditional providers for deliveries and for management of obstetric complications, such providers should be linked with the referral mechanism, so that they can contribute more by referring patients to the health facilities in time. The intervention of the Operations Research Project (ORP) on modified strategy for ensuring referral and linkage for EOC has involved these local providers in the referral mechanism.

## Introduction

Every year, worldwide, 200 million women become pregnant. Although most pregnancies of healthy mothers end with the birth of a live baby, on many occasions, childbirth is a time of pain, fear, suffering, and even death. Pregnancy and childbirth-related complications are among the leading causes of maternal mortality in Bangladesh. The current maternal mortality rate in Bangladesh is 4.5 per 1,000 live-births [1]. The target is to reduce it to 3 by the year 2002 [2]. The maternal morbidity situation is even more alarming. Until recently, it was estimated that there are 16.5 morbidities for every maternal death. More recent estimates suggest that this figure is far too low, and that there may be as many as 100 morbidities for every pregnancy-related death [3]. In a cross sectional study of parous women of reproductive age, 80 percent reported one or more morbidity--the majority linked to the postpartum period [4]. The major causes of direct obstetric deaths are haemorrhage, unsafe abortion, eclampsia, puerperal sepsis, and prolonged labour.

Efforts to reduce maternal mortality and morbidity have so far focused on preventive approaches, such as antenatal care (ANC), tetanus toxoid immunization, iron supplementation, training of traditional birth attendants (TBAs) for clean and safe-delivery practices, and family planning. In spite of all these efforts and of the existence of health service facilities, the use rate of services, particularly obstetric care services, is still very low, and maternal mortality continues to remain high in Bangladesh. Essentially, all women are at risk of complications during pregnancy and childbirth, and maternal mortality cannot substantially be reduced unless women have access to emergency obstetric care (EOC) services and they use services in time. Moreover, lack of knowledge about obstetric complications in the community often delays decision-making for service seeking, resulting in tragic consequences, where women die at home or on their way to the health facility. Identification of problems, timely care-seeking, and appropriate management of obstetric complications are, therefore, essential to reduce maternal mortality and morbidity.

In Bangladesh, most mothers do not receive any ANC, and home delivery is almost universal. Ideally, all pregnant women should have regular antenatal checkups either by a paramedic or by a doctor. It is reported that less than one-third (29%) of the pregnant women, who gave births during the five years prior to the 1996-1997 Bangladesh demographic and health survey (BDHS), received at least one ANC visit, and only 19 percent had two or more ANC checkups [1]. It is reported in the 1996-1997 BDHS that the trained personnel, such as physicians, nurses, or paramedics conducted only 8 percent of the deliveries. The number of deliveries attended by TBAs alone was very low. Results of an evaluation of the performance of the TBAs' showed that 17 percent of the deliveries were conducted by the government TBAs who are still continuing harmful practices when attending deliveries [5]. Results of a review of service use for deliveries at 25 Thana Health Complexes (THCs) showed that deliveries at the THCs ranged from 0.7 to 4.2 percent of the total estimated deliveries [6].

Findings of several studies indicate that women have limited knowledge of life-threatening complications of pregnancy and childbirth. Husbands, the decision-makers for use of obstetric care services, are even less knowledgeable than their wives [7,8]. Results of a study conducted in two rural field sites of the Operations Research Project (ORP) of the ICDDR,B: Centre for Health and Population Research showed that 16 percent of the women with obstetric complications were treated by the medically qualified practitioners, such as physicians, paramedics (FWVs), and medical assistants. The rest of the women consulted either village practitioners, or homeopaths, or did not consult anyone; these providers are not qualified to provide obstetric services [9]. Results of a qualitative study conducted in Abhoynagar showed that the majority of women consulted untrained providers for the treatment of their obstetric complications before coming to the THC [10].

Results of a review of the use of EOC services in Bangladesh showed that the average number of monthly admissions of obstetric cases at the THC was six. Seventy-two percent of these patients were referred to the district hospital [7]. This study suggested that, for the improved use of services, provisions should be made for transportation of patients from the referring to the referral centres, use of trained TBAs with functional linkages with the service-delivery tiers, and educating pregnant women and their husbands about the danger signs of complications for quick referral to appropriate facilities. Referral and linkages for EOC are very weak in the national programme, since historically very little emphasis has been placed on linkages for EOC. Due to this weak linkage women do not receive appropriate and timely care during emergencies. To make EOC services more effective and to refer patients to the appropriate higher level, the timely linkage between tiers of the healthcare-delivery system and availability of appropriate services at the referral facility is essential.

Based on the state of maternal health in Bangladesh and the lessons learned from the previous interventions, the former MCH-FP Extension Project (Rural) undertook an intervention, "Strengthening maternal and neonatal health: improving linkages at all levels," in June 1996. This intervention focused on improving maternal health by strengthening referral and linkage between the service-delivery tiers and raising awareness about complications of pregnancy and childbirth in the community. As part of this intervention, the THC maternity units were rehabilitated and upgraded to provide basic EOC services at Abhoynagar and comprehensive EOC services at Mirsarai. A pictorial card was introduced to raise community awareness about the symptoms of complications of pregnancy and childbirth, and to encourage women to use health facilities in emergencies. A pregnant Woman Register was also introduced for both FWAs and Family Welfare Visitors (FWVs) to record pregnancy care-related information and to ensure referral and linkage [11].

Findings of a mid-term evaluation of the intervention, done in April 1997, indicated that women's knowledge of common complications of pregnancy and childbirth had increased. An increased number of pregnant women established



contacts with the FWVs for ANC. The ANC visits by pregnant women to the qualified personnel increased from 25 percent to 39 percent in Mirsarai and 75 percent to 79 percent in the Abhoynagar intervention areas, and the pictorial card made an important impact in this regard. Pregnant women who received pictorial cards were more likely to use ANC services compared to those who did not receive it. Eighty percent of the pregnant women who had the pictorial card received ANC, while only 32 percent of those who did not have the card received ANC from qualified providers in Mirsarai. In Abhoynagar, 97 percent of the pregnant women who had the pictorial card visited qualified health providers, while only 74 percent who did not receive it visited qualified providers for ANC. Moreover, women who had a card were more likely to use institutional facilities for management of their obstetric complications compared to those who did not. The percentages of complicated cases admitted at the THC maternity wards in Mirsarai and Abhoynagar were 1.7 and 6.5 respectively during the pre-intervention period, which increased to 5.0 and 8.4 respectively during the mid-term evaluation [11].

Referral from the union to the THC was low. A total of 59 and 36 women, who were referred from the union level to the THC at Abhoynagar and Mirsarai respectively, were interviewed. Of them, 14 (24%) at Abhoynagar and 18 (51%) at Mirsarai visited their respective THC after referral. The reasons for not going to the THC were: the women did not feel the need to go (41%), did not understand the importance of going to the THC (24%), husbands objected (7%), the THC was too far away (7%), did not understand that the FWV had referred her (7%), and other reasons (13%). Most women who did not feel that there was a need to go where referred, were aged either less than 20 years or above 35 years, their height was less than 145 cm, or had oedema or anaemia. All of them had normal deliveries in their homes. This suggests that the above factors may not be high-risk factors [11].

It was also observed from the mid-term evaluation that women often consulted village practitioners first instead of going to FWVs or using THC facilities. These local service providers do not have any professional training in handling emergency obstetric cases. It was also found that husbands and mothers-in-law were usually the primary decision-makers with regard to the person(s) to be consulted for obstetric complications [11,12,13]. Additionally, untrained birth attendants were found to have attended most deliveries in both the areas.

In spite of the programme efforts made by the GoB, the use of EOC services was poor, referral for EOC was virtually non-functional and compliance was also not satisfactory. The respondents reported that they mostly visited the untrained providers for obstetric emergencies. These practicalities need to be considered while designing any future programme(s) concerning maternal health.

This intervention addresses two major components of an effective referral and linkage system for the use of EOC services: (a) raising community awareness about complications relating to pregnancy and childbirth, and consequences of delay in seeking appropriate care for these complications; and (b) strengthening the referral and linkages among and between different service-delivery tiers and the community.

The first activity includes: (a) introduction of a pictorial card and a poster depicting the symptoms and signs of complications of pregnancy and childbirth among women, their husbands, and the community, and (b) involvement of husbands, various formal and informal leaders, and local organized groups in the awareness-raising programme. The second activity includes: (a) involvement of village practitioners and TBAs in the referral process, (b) introduction of a referral slip, and (c) improvement of coordination among and between managers and providers of the government and NGOs at different tiers.

## **Objectives**

The objectives of this study were:

- to assess women's knowledge and care-seeking behaviour regarding complications of pregnancy and childbirth,
- to assess women's attitudes and practices concerning birth attendants and place of delivery, and
- to assess the coverage of antenatal and postnatal care.

## **Methodology**

As part of operations research to test the modified strategy, a baseline survey was conducted in Abhoynagar and Mirsarai during October 1998-May 1999. Seven unions, including three ongoing intervention unions of Mirsarai thana of Chittagong district and five unions, including ongoing intervention unions of Abhoynagar thana of Jessore district, were selected for the new intervention and data were collected from the said unions. Trained interviewers collected data, using a pre-tested structured questionnaire, from women having a history of pregnancy during last one year from the day of interview. Women were identified through the Sample Registration System (SRS) of the ORP. Information from 999 women from Mirsarai and 567 women from Abhoynagar was collected to assess their knowledge of complications of pregnancy and childbirth, their care-seeking behaviour, patterns of referral and selected socio-demographic characteristics.

Women were asked about common complications of pregnancy and childbirth for which care from trained facilities, THC, and District Hospital, should be sought. A list of obstetric complications was prepared before the interview was conducted, and women were only probed for answers for assessing their knowledge of obstetric complications. The respondents were allowed to give multiple responses for selected variables. They were also asked whether they had encountered any obstetric complications and the types of providers they have consulted or the health facilities they have visited for the management of their obstetric complications. Paramedics, nurses, and MBBS doctors, who had formal education or training in this regard were considered trained providers for the management of obstetric complications and any other types of providers, such as village practitioners, homeopaths, herbalists, were considered untrained providers in this study.

The SPSS statistical package was used for analyzing data. Frequency distribution was calculated, and contingency tables were used for comparing selected variables under study in Abhoynagar and Mirsarai thanas.

## **Results**

The findings from the 1,566 women, who had a pregnancy outcome within one year preceding the interview in Abhoynagar and Mirsarai, are presented here.

### **Sociodemographic characteristics**

Selected sociodemographic characteristics of the respondents and their husbands are presented in Table 1. The majority of respondents from both Abhoynagar and Mirsarai intervention areas were aged 20-24 years. The proportion of the women aged less than 20 years was almost double in Abhoynagar compared to Mirsarai. Majority of the husbands (29.6%) were aged 25-29 years in Abhoynagar while in Mirsarai majority (28%) of them were aged 40 years and above. The women of Abhoynagar were more educated than those of Mirsarai. The proportion of women with no schooling was 12 percent higher in Mirsarai compared to Abhoynagar. Husband's education was more or less similar in both the areas, but the husbands were less educated than their wives in Abhoynagar.

The table also shows that the women of Abhoynagar were married earlier than those of Mirsarai. The age at first marriage was 15 years or below for about 60 percent of the women in Abhoynagar, whereas in Mirsarai about 65 percent of the women were married at the age 16 years or above. About 60 percent of the Abhoynagar women had 1 or 2 pregnancies, and the majority of the Mirsarai women also had the same number of pregnancies.

Monthly expenditures in the both areas ranged from Tk. 2,000 to Tk. 5,000, but the women in Mirsarai were better off than that those of Abhoynagar. About 28 percent of the women of Mirsarai reported that their monthly expenditures were more than Tk. 5,000, whereas about 25 percent in Abhoynagar reported that their monthly expenditures were less than Tk. 2,000.

**Table 1.** Sociodemographic characteristics of respondents by intervention area

Characteristics	Abhoynagar (n=567) (%)	Mirsarai (n=999) (%)
Women's age		
15-19	23.1	13.9
20-24	36.3	31.2
25-29	21.3	29.6
30-34	11.8	14.3
35+	7.4	10.9
Husband's age		
≤24	8.9	4.8
25-29	29.6	16.1
30-34	24.8	25.6
35-39	19.7	25.7
40+	17.2	28.0
Women's education		
None	35.3	46.6
Primary	33.7	23.7
Secondary	28.2	27.0
Higher	2.8	2.6
Husband's education		
None	43.0	38.3
Primary	24.3	21.3
Secondary	25.4	31.4
Higher	7.2	8.9
Age-at-first marriage		
#15	59.6	33.6
16-20	37.6	59.5
21+	2.8	6.9
Total no. of pregnancies		
1-2	58.4	45.8
3-5	35.1	39.7
5+	6.5	14.4
Monthly expenditures		
<Tk. 2,000	23.5	5.1
Tk. 2,001-5,000	61.0	66.9
Tk. 5,001+	15.5	28.0

**Women’s reported knowledge of obstetric complications**

Women's knowledge of symptoms of complications relating to pregnancy, delivery, and after-delivery was found to be higher in Abhoynagar than in Mirsarai (Table 2). More than 60 percent of them had knowledge of severe vomiting as a complication during pregnancy in both the areas. Nearly three quarters of the Abhoynagar (74.4%) and Mirsarai (70.5%) women perceived prolonged labour as a complication during delivery. Nearly half the Abhoynagar women and one-third in Mirsarai were aware of severe bleeding as a post-delivery complication. One-fifth of the women in Abhoynagar and one-tenth in Mirsarai mentioned bleeding during pregnancy and convulsions as two danger signs of pregnancy and childbirth. More than two-fifth of the women of Abhoynagar and 30.7 percent of the Mirsarai women mentioned oedema as a danger sign of pregnancy. Fifty-four percent of the women of Abhoynagar and 38 percent of

**Table 2.** Women's knowledge of complications during pregnancy, delivery and after-delivery by intervention areas

Types of complications	Abhoynagar (n=567) (%)	Mirsarai (n=999) (%)
During pregnancy		
Bleeding during pregnancy	20.8	10.1
Oedema	42.5	30.7
Leaking membrane before delivery	17.8	8.6
Convulsion	21.5	11.0
Severe vomiting	68.1	61.0
Anaemia	24.5	3.2
During delivery		
Prolonged labour	70.5	74.7
Severe bleeding	26.6	31.4
Retained placenta	40.0	13.2
Malpresentation	54.1	38.0
Perennial tear	14.8	3.3
After delivery		
Fever more than three days	22.2	22.7
Convulsion	41.6	17.7
Severe bleeding	47.3	32.1
Smelly vaginal discharge	2.1	1.5
Vesico-vaginal fistula (VVF)	4.4	0.6
Recto-vaginal fistula (RVF)	1.9	0.4
Prolapsed uterus	23.5	4.3

*Multiple responses were allowed*

the Mirsarai women mentioned abnormal presentation as a complication of delivery. Retained placenta was mentioned by 40 percent and 13.2 percent of the women of Abhoynagar and Mirsarai respectively. More than one-fifth of the women of both Mirsarai and Abhoynagar could mention having a fever more than three days as a sign of complication after delivery. A very negligible percentage of the women of Mirsarai could mention perennial tear, prolapsed uterus, and vesico-vaginal and recto-vaginal fistula as complications of pregnancy and childbirth (Table 2).

In general the women of Abhoynagar were found to be more knowledgeable than those of Mirsarai (Table 3).

**Table 3.** Number of obstetric complications known by women by intervention areas

Number of complications	Abhoynagar (n=567) (%)	Mirsarai (n=999) (%)
Antenatal complications		
0	5.6	21.4
1-2	68.6	69.3
≥3	25.8	9.3
Delivery complications		
0	3.2	6.9
1-2	63.5	80.3
≥3	33.4	12.8
Postnatal complications		
0	16.4	44.8
1-2	74.5	51.1
≥3	11.1	4.1
Overall knowledge of complications		
None	1.9	8.9
One to two	15.0	34.8
Three to five	47.1	47.2
Six or more	36.0	9.0
Mean no. of reported complications	5	3

The mean number of reported complications relating to pregnancy and childbirth was found to be poor. The results showed that the women of Abhoynagar had more knowledge than the women of Mirsarai regarding complications of pregnancy and childbirth. Nearly 26 percent of the Abhoynagar women reported three or more antenatal complications, while only 9 percent of the Mirsarai women were familiar with

three or more pregnancy-related complications. Thirty-three percent of the women in Abhoynagar knew of three or more complications relating to childbirth compared to Mirsarai, which was only about 13 percent. Nearly half (44.8%) of the women of Mirsarai could not mention anything relating to postnatal complications. Thirty-six percent of the women of Abhoynagar knew of six or more pregnancy and childbirth-related complications, while it was only 9 percent in Mirsarai (Table 3).

**Knowledge of facilities for management of obstetric complications**

Women's knowledge of facilities for the management of obstetric complications was investigated. Multiple responses were allowed. The majority of the women mentioned the THCs followed by Health and Family Welfare Centre (H&FWC), as healthcare facilities for the management of obstetric complications in both Abhoynagar and Mirsarai. One-fifth of the women in Abhoynagar and 19 percent in Mirsarai mentioned untrained allopaths as a source of care. Private clinics were also mentioned by 4.5 percent of the women in Abhoynagar and 1.5 percent in Mirsarai (Table 4).

**Table 4.** Women's knowledge of source of care for obstetric complications

Facility/provider	Abhoynagar (n=567) (%)	Mirsarai (n=999) (%)
H&FWC/RD	29.2	20.3
THCs	80.9	78.2
District hospital	4.5	2.9
NGOs/private clinic	4.5	1.5
Private MBBS doctors	2.3	4.2
Untrained allopaths	20.3	19.2
Homeopaths	1.2	5.2

*Multiple responses were allowed*

**Knowledge of safe-delivery issues**

Women's knowledge of safe-delivery procedures, such as maintenance of hygienic delivery procedures and delivery by trained birth attendants, was assessed. Maintenance of hygienic delivery procedures, such as clean place for delivery, hand-washing of birth attendants with soap, use of boiled blades and threads for cutting umbilical cords, and use of clean pieces of cloth, were also assessed. The women who had knowledge of the four procedures were considered having a complete knowledge, and having knowledge of any two procedures was considered having a partial knowledge of hygienic delivery.

The women's knowledge of hygienic delivery was found to be poor in Mirsarai compared to Abhoynagar. Less than one-fifth of the Abhoynagar women and only three percent in Mirsarai had a complete knowledge of hygienic delivery procedures. Fifty-three percent of the Abhoynagar women and 47 percent of the Mirsarai women knew of the availability of TTBA's in their community. Of them, 34 percent in Abhoynagar and

only 10 percent in Mirsarai had received this information from the health workers (Table 5).

**Table 5.** Women's knowledge of safe delivery and source of knowledge by intervention areas

Knowledge	Abhoynagar (n=567) (%)	Mirsarai (n=999) (%)
Safe-delivery procedure		
No knowledge	1.1	1.5
Partial knowledge	81.0	95.1
Complete knowledge	18.2	3.4
Knowledge of availability of TTBA's		
Yes	53.4	47.1
Don't know/ No	46.6	53.0
Source of information about use of TTBA's	(n=282)	(n=399)
Health workers	34.7	10.3
Others	65.3	89.7

#### Knowledge of pictorial card

Pictorial cards were distributed in three of the five selected study unions in Abhoynagar and three of the selected seven unions in Mirsarai since June 1996. Of the 352 women interviewed in these unions in Abhoynagar and 479 women in the Mirsarai intervention areas where pictorial cards distributed, 93 percent in Abhoynagar and 49 percent in Mirsarai received the pictorial cards during their last pregnancy. The women who received the pictorial cards were asked about its purpose. Almost all of them had the correct understanding of the purpose of the pictorial card; for example, they stated that the pictorial card would help mothers recognize the signs of complications, so that they can seek care immediately. The service providers advised the pregnant women to share the pictorial cards with their husbands and neighbours. More than 75 percent of the women shared it with their husbands both in Abhoynagar and Mirsarai. They reported that they had also showed it to their mothers-in-law and neighbours (Table 6).



**Table 6.** Information on pictorial card-related issues by intervention areas

Characteristics	Abhoynagar (n=352) (%)	Mirsarai (n=479) (%)
Card received	93.0	49.0
Information on card known	(n= 327)	(n=234)
Correct	97.3	96.7
Incorrect	2.7	3.3
Card shared with		
Husbands	78.7	75.9
Mothers-in-law	51.4	45.6
Neighbours	56.8	64.1

*Multiple responses were allowed*

### Antenatal care

Table 8 shows that 82 percent and 48 percent, respectively of the Abhoynagar and Mirsarai women attended ANC visits from either trained and/or untrained providers. Of the women who received care from the medically trained providers, such as FWVs, nurse or doctors, more than half of them in Abhoynagar and more than one-third in Mirsarai received three or more visits for ANC. More than half the women in Mirsarai did not at all receive any pregnancy-related care (Table 7).

**Table 7.** Antenatal care-seeking behaviour of women for index pregnancy by intervention areas

Antenatal care	Abhoynagar (n=567) (%)	Mirsarai (n=999) (%)
ANC received by types of providers		
Trained	58.0	44.0
Untrained	24.0	4.0
Not received	18.0	52.0
No. of antenatal visits from trained providers	(n=329)	(n=443)
1	18.2	33.0
2	26.7	31.2
≥3	55.1	36.1

Table 7 (contd.)

**Table 7 (contd.)**

Antenatal care	Abhoynagar (n=329) (%)	Mirsarai (n=443) (%)
Source of information for ANC		
Field workers (FWAs)	67.5	16.0
Self	4.7	2.7
Husbands	7.6	15.6
Relatives/neighbours	8.2	22.1
Untrained providers	2.1	1.2
Others	10.1	42.3
<b>Antenatal care not received</b>		
Referral status for ANC referees	(n=238)	(n= 556)
Trained providers	35.0	21.2
TTBAs	2.7	1.2
Not referred	63.3	78.2
Reason for not accepting referral	(n=83)	(n=118)
No need	81.3	75.2
Family problem	8.0	14.0
Economic	1.3	8.0
Provider/facility-related	6.7	2.3

With regard to the source of information about ANC, 67.5 percent of the women in Abhoynagar and only 16 percent of the women in Mirsarai received information from the field workers. These field workers are supposed to advise the pregnant women to visit the trained providers for ANC. A higher percentage of the women of Mirsarai than Abhoynagar received information for ANC either from their husbands or from their neighbours.

Of the women who did not receive ANC, 35 percent of the women in Abhoynagar and 21 percent in Mirsarai who did not receive ANC stated that they were referred by the field workers for ANC. The women who were referred asked about the reason for not having ANC. The majority of them reported that they did not feel the necessity for such care. Financial constraint, family reasons, and problems at the service facility were also mentioned as reasons for not going for ANC services.

### **Complications experienced**

The women were asked about whether they experienced any complications during their last pregnancy and childbirth. Thirty-one percent of them in Abhoynagar and 30 percent in Mirsarai reported that they experienced complications relating to either pregnancy or childbirth during their last pregnancy.

Of the women who reported experiencing complications, delivery-related complications in both the areas were found to be higher. Only 17 percent experienced postnatal complications in Abhoynagar, which was more than double (35%) in Mirsarai (Table 8).

**Table 8.** Percentage distribution of women who experienced obstetric complications by intervention areas

Obstetric complications	Abhoynagar (n=567)	Mirsarai (n=999)
Yes	31.0	30.0
No	69.0	70.0
Types of complications	(n=174)	(n=300)
Antenatal	22.0	17.0
Delivery	61.0	47.7
Postnatal	17.2	35.3

### Types of complications

With regard to the types of complications experienced, bleeding during pregnancy was reported four times higher in Mirsarai than Abhoynagar. A relatively higher percentage of the women reported to have experienced oedema and severe vomiting during pregnancy. More than two-thirds complained of prolonged labour in both the areas. Severe bleeding during delivery was two times higher in Mirsarai than Abhoynagar. During the postnatal period, fever for more than three days and severe bleeding encountered by a higher percentage of women in Mirsarai than those in Abhoynagar (Table 9).

**Table 9.** Percentage distribution of women by types of obstetric complications experienced during last pregnancy by intervention areas

Types of complications	Abhoynagar (n=138)	Mirsarai (n=300)
During pregnancy	(n=38)	(n=51)
Bleeding during pregnancy	10.5	41.2
Oedema	34.2	31.4
Leaking membrane	15.8	9.8
Severe vomiting	28.9	19.6
Anaemia	31.6	3.9
Others	4.6	2.1
During delivery	(n=106)	(n=143)
Prolonged labour	69.8	69.2
Severe bleeding	7.5	16.8
Retained placenta	6.6	7.0
Mal-presentation	4.7	7.0
Perennial tear	12.3	4.2
Others	5.3	7.0
After delivery	(n=30)	(n=106)
Fever more than three days	34.8	39.6
Convulsion	3.3	11.3
Severe bleeding	56.7	52.8
Smelly vaginal discharge	4.3	2.8
Prolapsed uterus	16.7	2.8
Others	4.2	5.0

*Multiple responses were allowed*

### Care-seeking patterns

Fifty-nine percent of the women in Abhoynagar and 41 percent in Mirsarai who reported to have experienced pregnancy-related complications consulted the trained providers, such as paramedics, nurses, and doctors. The women of both the areas were less likely to consult the trained providers for delivery-related complications than for pregnancy-related complications. However, for the treatment of postnatal complications, the women of Mirsarai were more likely to consult the trained providers than those of Abhoynagar (Table 10).

**Table 10.** Types of providers chosen for management of obstetric complications by intervention areas

Type of provider	Abhoynagar (n=138) (%)	Mirsarai (n=300) (%)
Antenatal complications	(n=38)	(n=51)
Trained providers	59.3	41.2
Untrained practitioners	25.9	31.4
Others	14.8	27.5
Delivery complications	(n=106)	(n=143)
Trained providers	28.4	30.1
Untrained practitioners	42.0	36.4
Others	29.5	33.6
Postnatal complications	(n=34)	(n=106)
Trained providers	30.4	46.2
Untrained practitioners	56.5	37.7
Others	13.0	16.0

### Postnatal care

Women perceptions regarding the necessity of care after delivery were assessed. Table 11 shows that more than 90 percent of the women perceived the necessity of getting postnatal care (PNC) in both the areas. Table 11 shows that 23.4 percent of the Abhoynagar women and 29.4 percent of the Mirsarai women received PNC. Of the women who received PNC, the majority (65%) of them received care from the untrained providers, such as village practitioners, homeopaths, or field workers in both the areas.

**Table 11.** Women's perceptions on the need of postnatal care and their practice

	Abhoynagar (n=567) (%)	Mirsarai (n=999) (%)
Perception of PNC		
Needed	92.0	94.6
Not needed	6.9	2.7
Don't know	1.1	2.7
Postnatal care received		
Yes	23.4	29.4
No	76.6	70.6
Types of providers	(n=133)	(n=294)
Trained	34.2	35.0
Untrained	65.8	65.0

### Intended place and provider for delivery

Table 12 shows that more than half (54%) the Abhoynagar women and a quarter of the women in Mirsarai decided to have their deliveries at home whereas only five percent of the women of both the areas decided to have deliveries in an institutional facility. About 70 percent of the women in Mirsarai and about 42 percent of the women in Abhoynagar did not have any choice for the place of delivery. Regarding the birth attendant, only about 4 percent of the women decided before their deliveries to have them attended to by the trained medical providers in both the areas. About 61 percent of the Abhoynagar women and 42 percent of the Mirsarai women decided to have their deliveries attended to by the untrained birth attendants, such as TBAs, relatives, and neighbours.

**Table 12.** Intended place of delivery and birth attendants for index pregnancy by intervention areas

Characteristics	Abhoynagar (n=567) (%)	Mirsarai (n=999) (%)
Intended place of delivery		
Not decided	41.7	69.7
Home	53.7	25.3
Institutional	4.6	5.0
Intended delivery attendant		
Not decided	35.2	53.3
Medically trained	4.2	4.3
Untrained	60.6	42.4

### Delivery-related information

Table 13 shows that about 90 percent of the babies were born alive. More than 90 percent of the deliveries took place at home, and 69.4 percent deliveries in Abhoynagar and 67.8 percent in Mirsarai were attended by the untrained birth attendants. But about 96 percent of the women of both the areas received advice to have their deliveries attended to by the trained providers. Thus, a wide gap exists between the types of birth attendant used and the information received in this regard.

**Table 13.** Pregnancy outcome, place of delivery, and birth attendants for index pregnancy by intervention areas

Birth information	Abhoynagar (n=567) (%)	Mirsarai (n=999) (%)
Pregnancy outcome		
Live-birth	89.1	89.7
Still-birth	2.8	3.0
Abortion	8.1	7.3
Place of delivery		
Home	90.3	91.7
Institutional	9.7	8.3
Delivery attendant		
TTBAs	19.0	22.7
Medically trained providers	11.6	9.5
Untrained providers	69.4	67.8
Advised for trained birth attendants		
No one	2.3	1.0
Trained providers	2.1	2.3
Traditional providers	95.6	96.7

## Discussions

This study aimed to assess women's knowledge regarding obstetric complications, hygienic delivery procedure, complications that they encountered during pregnancy, childbirth and after delivery, and subsequent care-seeking behaviour through a survey conducted in Mirsarai and Abhoynagar thanas. Comparative analyses were done based on data collected from 567 women of Abhoynagar and 999 women of Mirsarai.

### Women's knowledge of obstetric complications

The results of the study showed that a considerable percentage of women in Abhoynagar had knowledge regarding severe vomiting, oedema during pregnancy, prolonged labour, retained placenta mal-presentation during delivery, severe bleeding, and convulsion after delivery. Except prolonged labour, women's knowledge was found to be lower in Mirsarai than that in Abhoynagar. About a half of the women in both the areas could mention 3-5 complications related to either pregnancy and/or childbirth whereas another study conducted in the same area [13] reported this to be only 23 percent. Comparatively fewer women knew about postnatal complications particularly in Mirsarai. These findings indicate that women's knowledge regarding obstetric complications has increased over time in both Abhoynagar and Mirsarai. This could be the effect of pictorial card, which is being distributed in the 3 unions of both Abhoynagar and Mirsarai for the last 3 years.

Women's knowledge of healthcare facilities for the management of obstetric complications was also assessed. The majority of respondents mentioned the THC as the facility for the management of obstetric complications. Traditional practitioners, such as untrained village allopaths and homeopaths, were also mentioned by about one-fifth of the women of both Abhoynagar and Mirsarai. This could be due to the effect of the pictorial card. The pictorial card is a card depicting the signs of obstetric complications which were being distributed by the FWAs. The FWAs were supposed to explain the card to the women and say that they (women) should go to the THC for the management of such obstetric complications.

### **Antenatal and postnatal care**

The proportion of women in Mirsarai who received ANC or were referred for ANC by any trained or untrained providers was found to be almost two times higher than that of the previous survey conducted in 1995-1996 [11]. The majority (58% in Abhoynagar and 44% in Mirsarai) of them received such care from trained providers. Field workers referred for antenatal care in most of the cases. Of those who did not receive ANC, the majority did not feel the necessity for such care. Regarding postnatal care, more than 90 percent of the women perceived the necessity of postnatal care, but only a quarter of them received such care. Of those who received care, the majority (65.8% in Abhoynagar and 65% in Mirsarai) received it from untrained providers. Although the proportion of women receiving postnatal care is far below the expected level of 80 percent [2] it has increased over time. To increase it further behavioural change communication activities need to be strengthened targeting the husbands, mothers-in-law, and mothers who usually play an important role in the decision making process.

### **Safe-delivery practices**

About one-third of the women in both Abhoynagar and Mirsarai had their deliveries attended by trained providers such as TTBA, FWV, nurses and physicians. This was found to have increased by two-folds as compared to the results of a study conducted during 1995-1996 [11]. More than half the women in Abhoynagar and 40 percent women in Mirsarai were aware of the availability of the trained TBAs in their community. But only 19 percent in Abhoynagar and 23 percent women in Mirsarai called on their services for attending deliveries. The use of trained TBAs for attending deliveries was found to have increased about two times in Mirsarai compared to 1995-1996 in the same area [11]. This could be due to the fact that the community might have better understanding about the importance of the trained providers in conducting deliveries.



### **Care-seeking for obstetric complications**

Of the women who encountered obstetric complications, 61 percent in Abhoynagar and 48 percent in Mirsarai reported having complications during delivery. In both the areas, the majority of them consulted the village practitioners, who did not have any professional training for the management of obstetric complications. This could either be due to their easy availability or because their care was less expensive. Other studies in the same areas also reported similar results [9,10,11,13]. These practitioners might, thus, be used in the referral process for ensuring early identification of obstetric complications, and refer women with such complications to the appropriate facilities. It was also found in the study that only a negligible proportion of the women were referred to the health facilities by the village practitioners. As women still seek care from the untrained providers, they should be oriented about the obstetric complications and the importance of timely care-seeking from trained providers for ensuring early identification of obstetric complications and timely referral to the appropriate facility.

Regarding the management of postnatal complications, the majority (59.3%) women in Mirsarai consulted either trained providers or visited GoB health facilities or the private clinics in contrast to Abhoynagar where over 50 percent visited the untrained providers.

Although more than 75 percent of the women in both the areas mentioned that care for the management of obstetric complications should be taken from the THC, a wide gap was found to exist in practice. So, efforts should be taken so that this gap is minimized. Since majority of the women consulted untrained providers for management of complications, they should be made aware of the complications of pregnancy and childbirth, and the importance of timely referral in case of emergency.

### **Pictorial card**

In Abhoynagar, more than 90 percent of the study women received the pictorial card and in Mirsarai only half of them received it. Almost all of the women who received the card could mention the purpose of the pictorial card in both the areas. It is encouraging to note that more than half the women shared the pictorial card with their husbands, mothers-in-law or neighbours. It was also found that knowledge regarding obstetric complications, ANC, and PNC was higher among those who had received the pictorial card [13]. Thus, in a country like Bangladesh with a low literacy rate, the pictorial card can be used as an important tool for raising community awareness regarding obstetric complications as well as other health related issues.

It has been reported in various studies that husbands played a major role in making decisions for the treatment of their wives with obstetric complications. It is, therefore, important to provide information to the husbands about the danger signs of complications and the place of referral to ensure that their wives get timely and appropriate treatment for the management of these complications.

## Conclusions

Women's knowledge about obstetric complications which require management by trained providers or visit to a health facility was found to be higher in Abhoynagar than in Mirsarai. With regard to the availability of obstetric care services, majority of them knew about THC, but use of these services for complications management was poor. Majority women with complications use the services from the untrained providers. Ninety percent of the deliveries were conducted at home in both the areas. Regarding the use of pictorial card, it was found that the women had correct understanding about the purpose of the card. Thus, efforts need to be made to encourage women to go for obstetric care during emergency. In Bangladesh cultural beliefs, religious and family norms have been influencing the entire process of motherhood. Many rituals which have very deep emotional basis are followed. These in-built behavioural and social patterns are difficult to change within a short period of time. Therefore, behaviour change communication activities need to be strengthened with the involvement of different formal and informal groups in the community for making the women and their families aware about the complication of pregnancy and childbirth, and motivate them to use the appropriate facility without any delay.

Based on the situation, the Operations Research Project (ORP) of ICDDR,B: Centre for Health and Population Research has designed an intervention to modify its existing intervention on 'strengthening maternal and neonatal health: improving linkages at all levels.' In the intervention "Modified strategies for ensuring referral and linkage for EOC" the village practitioners and the TBAs have been included in the referral process, and the males, particularly husbands, have been oriented with the complications of pregnancy and childbirth and with the consequences of delay in seeking care from appropriate trained providers for these complications. In addition, the local organized groups and the social elite have also been included in awareness-raising activities in the community.

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