COMMUNITY-BASED SELF-REPORTED SYMPTOMS OF ANTEPARTUM MORBIDITIES; THE HEALTH BURDEN AND CARE-SEEKING PATTERNS OF RURAL BANGLADESHI WOMEN

Mahbub-E-Elahi Khan Chowdhury[1], Halida Hanum Akhter[1] and Virasakdi Chongsuvivatwong[2]

[1]Bangladesh Institute of Research for Promotion of Essential and Reproductive Health and Technologies (BIRPERHT); [2]Epidemiology Unit, Faculty of Medicine, Prince of Songkla University (PSU), Hat Yai, Thailand

Abstract. In Bangladesh there is a dearth on information relating to complications during pregnancy. We followed up 1,019 pregnant women in rural Bangladesh sampled from all the 4 old administrative divisions of the country. Trained female interviewers visited households of the pregnant women at four-week intervals and interviewed them for their current pregnancy-related complications. Out of a total of 3,812 antepartum visits the percentage of reported symptoms of bleeding, fits and convulsions, excessive vomiting, fever >3 days, urinary problems, palpitations and symptomatic anemia were 0.3, 0.7, 1.4, 4.0, 26.8, 46.5 and 78.3 respectively. Morbidities were considered to cause a health burden if they imposed constraints in daily activities of the pregnant women and they were weighted according to intensity of the constraint. For each morbidity, the mean intensity of burden per episode and the population burden per 1,000 person months of observation of all the women were calculated. For common sustaining morbidities like symptomatic anemia and urinary problems the population burden was much heavier than that for more serious but rare morbidities like bleeding and convulsions. Among the visits in which the women had any symptoms, the percentages of care-seeking for less frequently reported morbidities such as fits and convulsions, bleeding, fever >3 days, excessive vomiting were about 74, 50, 34 and 33% respectively, whereas those for more commonly reported complications such as urinary problems, symptomatic anemia and palpitations were less than 20%. Care for these morbidities was mostly sought from untrained providers.

INTRODUCTION

More than half a million women die every year due to pregnancy complications or childbirth and about 99% of these deaths occur in the developing countries (WHO, 1991). Women in the developing countries bear about 200 times greater risk of dying from pregnancy related complications than those in the developed world (Mahler, 1987). Behind the death of each woman resulting from pregnancy complications there are many more women who suffer from serious, even long-term non-fatal pregnancy complications and in many situations without taking any appropriate measures for them. The earliest study (Datta *et al*, 1980), conducted on maternal morbidity in rural India, reported that for every maternal death 16.5 complications taking place related to pregnancy or puerperium. Based on this estimate Walsh *et al* (1989) estimated about 8 million pregnancy complications occur every year in the world. In 1993 Koblinsky *et al*, after evaluating several population-based studies in developing countries, assessed 40% of the pregnancies as complicated which revealed a several fold higher estimated total number of maternal morbidities than the earlier estimate, arising every year globally.

In Bangladesh since 1967-1968 several well designed maternal mortality studies (Chen *et al*, 1974; Khan *et al*, 1986; Alauddin, 1986; Koenig *et al*, 1988) have suggested that there has been a decline in maternal mortality in Bangladesh from 7.7 in 1967-1968 to 5.5 in 1976-1985 per 1,000 live births. In 1996 the maternal mortality ratio was estimated as 4.3 per 1,000 live births in Bangladesh (Islam and Hossain, 1997) which is still among the highest in the world. The severity of the problem of maternal morbidity in Bangladesh is also well conceived from these high maternal mortality ratios.

In 1992 a multinational collaborative retrospective study (Fortney and Smith 1996; Akhter *et al*, 1996) on maternal morbidity was conducted in four developing countries - Bangladesh, India, Egypt and Indonesia. We joined that study and

Correspondence: Mahbub-E-Elahi Khan Chowdhury, Epidemiology Unit, Faculty of Medicine, Prince of Songkla University, Hat Yai 90110, Thailand.
E-mail: g4228005@maliwan.psu.ac.th

added a follow-up component with currently pregnant women to assess the level of their pregnancy-related complications throughout the course of pregnancy. Duration of identification of pregnant women from the community for this study was September-October 1992 and admission of subjects into the follow-up process was from October to December 1992.

The objectives of this study were (1) to estimate the occurrence of symptoms of various antepartum morbidities during different trimesters of pregnancy, (2) to assess the health burden of the pregnant women due to those morbidities, (3) to find out the care-seeking behavior of the pregnant women for their reported symptoms of morbidities among a representative sample of rural Bangladeshi population.

METHODS

Study design and sampling

This was a community-based cohort study. The sample was collected from rural areas of all the four old administrative divisions, Dhaka, Chittagong, Rajshahi and Khulan, of Bangladesh. In Bangladesh the administrative hierarchy is division, district, thana and union. We selected one district randomly from each division and from each of the selected districts one thana was selected randomly. From each of the selected thanas two unions were randomly selected. We included all the villages of the selected eight unions to identify married women who were within 24 weeks of gestation to enroll into this study.

Training of interviewers and quality control of data

A total of 12 female interviewers, 3 for each division, was recruited. A male supervisor supervised each of the teams. All of the interviewers and supervisors were graduates in social science or related subjects from local universities. A two-week intensive training course was given to them by the experienced researchers. In addition to training on basic interview techniques the training also emphasized maternal morbidity. The interviewers were also trained to minimize the inter-observer variation. Research physicians visited data collection spots at biweekly intervals and gave necessary guidelines to supervisors and interviewers to assure the quality of the collected data.

Identification of subjects and admission into the study

At first, the interviewers visited all the households in the selected unions to come up with a master list of currently pregnant women within 24 weeks of gestation among the currently married. The gestational age of the women were calculated by the interviewers from the first day of their last menstrual period. Later on they filled-out an admission form for each of the subjects and enrolled them into this study. At admission women were interviewed for their socio-demographic and reproductive characteristics. This form also included data for their morbidities such as hypertension, diabetes, pulmonary tuberculosis and jaundice during the current pregnancy.

Antenatal follow-up

The interviewers visited the subjects at home at every 4 weeks and obtained the symptoms of their current pregnancy-related morbidities. Women who reported symptoms of any morbidity were asked whether they had problems in their daily activities due to that morbidity and the types of problems they had. Women were also asked whether they sought care for their reported health problems and in case of seeking care, the person who provided care, was also recorded.

We defined the 1st trimester of pregnancy as completion of 14 weeks of gestation, the 2nd trimester as over 14 weeks to completion of 28 weeks of gestation, and the 3rd trimester as over 28 weeks of gestation. We defined bleeding as hemorrhage from the genital tract occurring after first trimester but before childbirth, fits and convulsions as a state in which the woman's body was affected by convulsion and eventually passed into coma. We defined excessive vomiting as persistent vomiting perceived serious by the pregnant woman, fever > 3 days as fever accompanying any infectious illness like burning urination or vaginal discharge, headache as intense pain felt deep in the skull. Symptomatic anemia was defined as pallor of conjunctivae and palmer creases, palpitation was defined as awareness of the heart beat. Urinary problem was defined as irritation in the urinary tract or in mucous membrane of the genital tract during urination. Health burden was defined as constraints in daily activities of the pregnant women due to morbidities. Weights were applied to each report of morbidity according to intensity of constraints to estimate the summary measures of health burden. Constraints in activities were

categorized as follows - bed ridden for at least 3 days due to a morbidity and inability to do any work was defined as heavy health burden, daily activities hampered was defined as moderate burden, ability to continue daily activities despite difficulties as minimum burden, reported no problem in daily activities as no health burden. The mean intensity of burden for each episode of a morbidity was the weighted mean of burden over all the episodes of that morbidity. The population burden per 1,000 person months of a morbidity was the weighted mean of burden per 1,000 person months of observation of all the women in this study.

Statistical analysis

Descriptive analysis was used for percentages of symptoms of antepartum morbidities and percentages of types of burden in different trimesters of pregnancy. The health burden weighting scheme was as follows - bed-ridden and could not do any work:heavy=3, normal activities hampered : moderate=2, continued activities despite difficulties : minimum=1, no problem in activities : none=0.

RESULTS

Characteristics of sampled women (Table 1)

The sampled women had a low mean age at marriage (14.8 years) but at the time of interview (at mean age of 23 years) their parity was still relatively low (mean of 2.1). Their level of education and monthly per capita household expenditure were somewhat low. These characteristics were almost homogeneous except for parity, which was high in Chittagong (mean of 3.1) and low (mean of 1.4) in Rajshahi.

Dynamic cohort of the sampled women (Table 2)

Among 1,019 pregnant women 777 (76.3%) women were admitted into the study within 24 weeks of gestation as planned. The remaining 242 (23.7%) women entered after 24 weeks of gestation because there was a time lag between getting the master list and the time of first interview. During follow-up, some of the women were not at home and number of missed visits increased with increased gestation. Ten women were lost to follow-up - all of them due to a change of their usual residence. During the follow-up period, 37 (3.6%) reported having miscarriage and only 8 (0.8%) women admitted having induced abortion. We interviewed 964 women regarding their delivery. There was a total of 934 live births and 41 still births. We recorded 3 maternal deaths, occurring within 42 days of delivery, which gave an estimate of maternal mortality ratio of 3.2 per 1,000 live births.

Baseline morbidity from the admission records

Nearly 2% of the pregnant women reported having been diagnosed of having hypertension, more than 1% diabetes, nearly 4% jaundice, less than 1% (0.3%) pulmonary tuberculosis.

Occurrence of symptoms of antepartum morbidities (Table 3)

The percentages of visits in any trimester at which symptoms of morbidities were reported ranged

Table 1
Characteristics of the sampled women in 4 administrative divisions of Bangladesh.

Characteristics	Dhaka n=214	Chittagong n=262	Rajshahi n=274	Khulna n=269	Total n=1,019
Mean age of respondents in years (SD)	23.8 (5.7)	25.6 (6.7)	21.4 (5.4)	21.5 (5.3)	23.0 (6.1)
Mean age at marriage in years (SD)	15.7 (2.3)	14.8 (2.2)	14.7 (2.1)	14.1 (2.5)	14.8 (2.3)
Mean no. of parity (SD)	2.3 (2.3)	3.1 (2.6)	1.4 (1.7)	1.6 (1.9)	2.1 (2.2)
Percentage never attended school	55.1	46.9	56.2	62.5	55.3
Median monthly per capita expenditure (in Taka)	333.00	364.00	384.00	375.00	333.00

Table 2
Dynamic cohort of the sampled women.

Gestational weeks	Number of women						No. of antepartum visits
	Admitted	Miscarriage	Induced abortion	Delivered	Lost to follow-up	Continued pregnancy	
05-08	7	3	0	-	-	4	4
09-12	55	2	3	-	-	54	54
13-16	170	6	4	-	1	213	202
17-20	309	10	0	-	2	510	490
21-24	236	4	0	-	1	741	680
25-28	173	8	1	3	2	900	802
29-32	59	4	0	23	3	929	793
33-36	8	-		98	0	839	578
37-40	2	-		455	1	385	184
40+	-	-		385	-	-	25

Table 3
Symptoms of various antepartum morbidities among rural Bangladeshi women.

Symptoms of morbidity[a]	%(number) of visits in trimesters				%(number) of women
	1st n=134	2nd n=2098	3rd n=1580	All n=3812	n=1019
Bleeding		0.3 (6)	0.3 (4)	0.3 (10)	1.0 (10)
Fits and convulsions		0.5 (10)	1.1 (17)	0.7 (27)	2.3 (23)
Swelling of hands and legs		2.0 (43)	5.4 (86)	3.4 (129)	9.1 (93)
Excessive vomiting	4.5 (6)	1.4 (30)	1.2 (19)	1.4 (55)	4.4 (45)
Fever > 3 days	5.3 (7)	3.6 (75)	4.5 (71)	4.0 (153)	12.4 (126)
Headache	30.3 (40)	22.6 (474)	19.6 (309)	21.6 (823)	43.7 (445)
Urinary problem	23.5 (31)	26.3 (552)	27.5 (434)	26.8 (1,021)	48.2 (491)
Palpitation	37.9 (50)	44.9 (942)	49.5 (782)	46.5 (1,774)	69.0 (703)
Symptomatic anemia	65.2 (86)	74.5 (1,564)	84.4 (1,334)	78.3 (2,984)	91.7 (934)
None of the above	25.0 (33)	18.4 (386)	10.3 (162)	15.2 (581)	6.1 (62)

[a]Multiple responses.

Table 4
Percentage (number) of visits in each trimester in which women in rural Bangladesh experienced types of health burden for symptoms of any antepartum morbidity.

Type of burden	%(number) of visits in trimesters			
	1st n=101	2nd n=1,712	3rd n=1,418	All n=3,231
Bedridden - could not do any work	1.0 (1)	1.1 (19)	1.3 (18)	1.2 (38)
Normal activities hampered	11.9 (12)	7.2 (123)	7.6 (108)	7.5 (243)
Continued activity with difficulty	62.4 (63)	61.2 (1,048)	58.6 (831)	60.1 (1,942)
No problem in activity	24.8 (25)	30.5 (522)	32.5 (461)	31.2 (1,008)

Table 5
Health burden for different antepartum morbidities of the pregnant women in rural Bangladesh.

Symptoms of morbidity	No. of visits with types of burden				Weighted burden	
	Heavy n=38	Moderate n=243	Minimum n=1,942	None n=1,008	Mean intensity of burden	Population burden /1,000 person months
Bleeding	1	1	6	2	1.10	3.63
Fits and convulsions	8	8	10	1	1.85	16.52
Swelling of hands and legs	7	13	98	11	1.12	47.90
Excessive vomiting	3	10	32	10	1.11	20.15
Fever > 3 days	4	22	87	40	0.93	47.24
Headache	16	97	562	148	0.98	265.61
Urinary problems	11	105	616	289	0.84	283.78
Palpitation	20	169	1,092	493	0.84	492.24
Symptomatic anemia	29	216	1,810	929	0.78	769.41

Total time observed 1,019 women for antepartum morbidities = 3,027 person months

form 0.3% for bleeding to 78.3% for symptomatic anemia. The majority of the symptoms were more common in the second and third trimesters except excessive vomiting, headache and fever. The percentages of women who reported symptoms of morbidity at any time during pregnancy were 1% for antepartum bleeding and above 2% for fits and convulsions.

Health burden due to morbidity (Tables 4 and 5)

Most of symptoms of morbidity led to difficulty in daily activity in one way or another. Symptoms in the 1st trimester gave more health burden (75.2%) than those in the 2nd (69.5%) and 3rd (67.5%) trimesters. There was a inverse relationship between mean intensity of burden and population burden for most of the morbidities. For example, for fits and convulsions mean intensity of burden per episode of this morbidity was 1.85 and for symptomatic anemia it was only 0.78 whereas the population burden per 1,000 person months for fits and convulsions was about 4 but that for anemia was more than 700.

Care-seeking pattern for symptoms of morbidities (Table 6)

The percentage of visits in which women did not seek care from any provider for experiencing symptoms of different antepartum morbidities ranged from 25.9% for fits and convulsions to 87.4% for symptomatic anemia. For any episodes of convulsion and bleeding more than half of the attacks resulted in care seeking, in which majority of the care providers were either quack doctors or traditional healers.

DISCUSSION

Women in rural Bangladesh in our study were at a low socio-economic status and the symptoms of antepartum morbidities were very common. Health burden associated with their reported symptoms of morbidities was very heavy. Almost all of the women who had any symptom of morbidity had difficulty in one way or another in doing their daily activities. On the other hand, care-seeking behavior of the women having those symptoms was very poor. For most morbidities the majority of the times women did not seek care from any provider.

The number of women lost to follow-up from this study was quite low. The percentage of visits at which the woman was absent was low in 1st and 2nd trimesters but increased in the 3rd trimester because by tradition rural Bangladeshi women prefer to go to their father's home to deliver the baby and return to their husband's home afterwards.

Our finding of early marriage at the mean age of 14.2 years is consistent with the national statistic of median age at first marriage of the rural Bangladeshi women 14.0 years (Mitra *et al*, 1997). The majority of our study subjects (55.3%) never

Table 6
Percentage (number) of visits in which women in rural Bangladesh sought care from various types of providers for symptoms of different antepartum morbidities.

Care provider	Fits and convulsions n=27	Bleeding n=10	Fever>3days n=153	Excessive vomiting n=55	Headache n=823	Swelling of hands and face n=129	Symptomatic anemia n=2,984	Urinary problem n=1,021	Palpitation n=1,774
Physician	33.3 (9)	10.0 (1)	7.8 (12)	12.7 (7)	6.8 (56)	7.8 (10)	7.9 (235)	4.4 (45)	5.9 (105)
FWV/FWA/TBA/paramedic[a]	-	-	1.3 (2)	1.8 (1)	0.1 (1)	0.8 (1)	1.2 (36)	0.8 (8)	0.5 (9)
Homeopath	3.7 (1)	-	4.6 (7)	1.8 (1)	2.3 (19)	2.3 (3)	0.8 (24)	2.3 (23)	1.0 (18)
Quack[b]	33.3 (9)	10.0 (1)	19.0 (29)	14.5 (8)	13.5 (111)	6.2 (8)	7.6 (226)	5.9 (60)	4.3 (76)
Traditiona[c]	3.7 (1)	30.0 (3)	1.3 (2)	-	2.4 (20)	0.8 (1)	1.0 (29)	2.4 (25)	0.8 (15)
Relative/neighbor	-	-	-	1.8 (1)	0.2 (2)	3.1 (4)	0.7 (20)	1.6 (16)	-
Sought no care	25.9 (7)	50.0 (5)	66.0 (101)	67.3 (37)	74.6 (614)	79.1 (102)	80.9 (2,412)	82.7 (844)	87.4 (1,551)

[a]FWV/FWA/TBA/paramedic - Family Welfare Visitor/Family Welfare Assistant/Trained Traditional Birth Attendant/Medical Assistant
[b]Quack - Unqualified village doctor, [c]Traditional - Herbal medicine from traditional provider called Kabiraj

attended school, which is also consistent with the national data (of 57.1 %) of ever married rural women never having attended school (Mitra *et al*, 1997). This early marriage combined with the hardship of poverty and low education may easily make these women vulnerable to various complications during pregnancy. Differences in parity between two sampled areas, Chittagong and Rajshahi in our study is ineversely related with the contraceptive prevalence rate (CPR) in those two divisions of Bangladesh. CPR is low in Chittagong and high in Rajshahi; for example in 1993-1994 CPR in these two divisions were 29.3% and 54.8%, respectively (Mitra *et al*, 1997).

We can compare the 3.7% miscarriage among 1,019 women of our study with that of 5.0% among 33,473 pregnancies during 1982-1991 in Matlab, Bangladesh (Ahmed *et al*, 1998). However, our finding for induced abortion ratio of 8.6/1,000 live births was much lower than 20.0/1,000 live births in Matlab of the same study. The reasonable explanation for underestimation of our these two statistics in our study is that majority of our sampled women entered into the follow-up process after the first trimester. The still birth ratio of 43.9/1,000 live births of our study is somewhat higher than the estimate of 35.3/1,000 live births of the same study in Matlab, which is an intervention area of ICDDR,B (International Center for Diarrheal Diseases and Research, Bangladesh) for family planning and maternal and child health care. Our estimated maternal mortality ratio of 3.2/1,000 live births can be compared with the 1996 estimate of 4.3/1,000 live births (Islam and Hossain, 1997) and the slight difference may be due to chance for observation of rare events like maternal death.

Among baseline morbidities our findings on jaundice (4.0%) and pulmonary tuberculosis (0.3%) can be compared with 5.9 and 0.3%, respectively, of the retrospective study (Fortney and Smith, 1996). The same study found 3.6% of the women had hypertension during pregnancy whereas nearly 2% of our subjects reported diagnosed hypertension at the time of admission.

One percent of women in our study experienced antepartum bleeding either in 2nd or 3rd trimester. Among the other studies conducted in Bangladesh the Maternal Care Project in Matlab also found 1% antepartum hemorrhage (Stewart and Maxine, 1991). The retrospective study conducted among Indian women (Bhatia, 1995) found 0.9% women experiencing antepartum bleeding.

Fits and convulsions were reported 4 times more commonly in the 3rd trimester than in the 2nd trimester. More than 2% of the pregnant women in our study had fits and convulsions which can be compared with the findings of 3% fits/convulsion (Fortney and Smith, 1996) and 6% severe eclampsia found in Maternal Care Project in Matlab (Stewart *et al*, 1991).

The fact that fever >3 days and urinary problems were common may be due to high incidence of urinary tract infections. This suggests a need to study to confirm the clinical nature of these two problems. Palpitation and symptomatic anemia (as judged by the trained home visitors) were very common and increased with increased gestational age. Iron deficiency anemia is known to be very common in rural areas of South Asian countries due to poverty and undernourishment (Stewart and Maxine, 1991; Krishnaswami, 1998; DeMaeyer *et al*, 1985). This may be the explanation for the commonness of these symptoms in our population.

Despite the problem of clinical uncertainties over the precise medical diagnosis of the symptoms of antepartum morbidities, our study has shed some light on the extent of the burden on the pregnant women's daily life activities. The measures of burden are likely to be valid measures of the problem in such an area where medical facilities are not available. Looking at the seriousness of the symptoms alone might not be enough to reflect the magnitude of burden. Our study show that mild symptoms (such as palpitation and urinary problems) are very common. Each of these brings a little bit of burden every day but its commonness and long lasting nature lead to a large magnitude of population burden compared to those more serious symptoms such as bleeding and fits.

Poor care-seeking behavior has been observed among the pregnant women for their antepartum morbidities. Except for fits and convulsions, the majority of the times women sought no care for their health problems. For about three fourth of the episodes of having fits and convulsions, women sought care from a provider. If we consider physicians and family planning workers like family welfare visitors (FWV) and family welfare assistant (FWA) including trained traditional birth attendants (TTBA) and paramedics as trained providers and the rest as untrained providers for management of pregnancy complications, then the village women had a tendency to visit untrained providers, especially the quack, more frequently than their trained counterparts.

CONCLUSION

Since the symptoms of antepartum morbidities were very commonly reported by rural Bangladeshi women there is a need for further investigation to explore the underlying reasons for this immense problem. Further studies with appropriate clinical facilities are recommended. Care-seeking behavior of the pregnant women of rural Bangladesh was very poor whereas trained health care providers like FWVs, FWAs, TTBAs and paramedics were grossly underutilized. There is a need to conduct a research project to find out the reasons for this problem. Further understanding of the nature of these morbidities and the health care-seeking behavior will assist the implementation of a more appropriate prevention and treatment program for poor pregnant women of rural Bangladesh.

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