
Assessment of social, economic and medical determinant of safe motherhood in Dhaka City: a cross-sectional study

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Abstract: Maternal morbidity is high in developing country because of insufficient attention in pregnancy and lactating period. The objective of this study was to assess safe motherhood in Dhaka city of Bangladesh and to investigate the causes of maternal morbidity. A cross-sectional study with detailed questionnaire was used from January 2008 to December 2008 to collect primary data. A total of 410 respondents, including 245 pregnant women, 130 lactating and 45 delivery patients, were randomly selected from residential area and healthcare centers. Marital and conceptual age, living standards, safe drinking water, environmental hygiene, and sanitation, education, family income per month, money spent on food purpose per month food availability, food intake, vaccination and medicine intake, use of contraceptive, food taboos and misconception, infectious diseases, poor socio-economic condition, present of skilled birth attendant, nutritional education were used as important issue for the assessment of safe motherhood. The study showed that 4.4% of pregnant women did not have any concept about safe motherhood. 8.54% of pregnant women did not take any vaccination during pregnancy and 7.68% did not regular medical checkup. It was found that 9.36% were severely anemic during pregnancy, 3.84% during lactation and 6.00% were in delivery cases. UTI, APH, vomiting and high BP were found in most of the pregnant women in respect of other respondents. Strategies need to upgrade health care systems especially availability of emergency obstetric care is required. The results, therefore suggest that both socio-economic status, availability of medicine and health care facilities and role of husbands in safe motherhood are critical for saving lives of woman.

Keywords: Safe Motherhood, Maternal Morbidity, Pregnancy, Vaccination, Anemia

1. Introduction

Maternal morbidity—the illness of women during pregnancy and lactation period is high in developing countries because primary health-care programmes are not adequately focused on maternal health[1]. According to the World Health Report (2005), 20 million women each year will experience maternal disability, which can range from fever and depression to severe complications such as obstetric fistula and uterine pro-lapse[2]. Research indicates that the health of newborns is closely linked with the health of their mothers. About 30–40% of neonatal and infant deaths result from poor maternal health and inadequate care during pregnancy, delivery, and the critical

immediate postpartum period. Data also suggest that a mother's death affects the overall well-being of her surviving children in Bangladesh; the surviving children of a deceased mother are three to ten times more likely to die within two years[3].

Safe motherhood means that no woman or baby should die or be harmed by pregnancy or death. Safe motherhood aims at reducing maternal and new born mortality and morbidity. Safe motherhood is a critical part of saving lives in community. This approach seeks to ensure that women receive appropriate attention throughout their pregnancy and childbirth, providing pre- and postnatal care including care of the baby and breastfeeding support and delivery care with referral for women with obstetric complications[4]. The strategies adopted to make

motherhood safe vary among countries and include: Providing family planning services, providing post abortion care, promoting antenatal care, ensuring skilled assistance during childbirth, improving essential obstetric care, addressing the reproductive health needs of adolescents. The Safe Motherhood Initiative aims to enhance the quality and safety of women's lives through the adoption of a combination of health and non-health strategies: Ensuring women's access to health services, raising women's awareness of health services, promoting women's right to decide whether and when to have children, by providing access to family planning services, increasing the numbers of healthcare providers improving training for healthcare providers. Family planning can reduce maternal mortality and morbidity by reducing the total number of pregnancies, the proportion of high-risk births, and the proportion of pregnancies that end in unsafe abortions[5, 6,]. Spacing births three to five years apart not only improves child survival, but also can save mothers live[7].

2. Materials and Methods

It was a cross-sectional study amongst pregnant women, lactating mother and delivery patients (Within 3/4 days of delivery). Subjects were selected randomly. Outcome measures include socioeconomic status, information about pregnancy and some clinical information about the respondents[8,9]. A total of 410 respondents were randomly selected from residential areas and health care centers both government and non-government in Dhaka city from January 2008 to December 2008 in which 235 were pregnant women, 130 were lactating mother and 45 were delivery patient. The study was conducted using a questionnaire form and various clinical and bio chemical measurements. The respondents were interviewed directly for the information like age, number of family members, child of respondent, both of respondents and her husbands' educational qualification, monthly family income, work status, family status, hygienic condition, name of used contraceptives, amounts of daily food intake, about vaccination, awareness about common disorder during pregnancy, proficiency any food taboos etc.

Table 1. Distribution of Respondent

Group	Respondent (%)	Age Group	Respondent (%)	Age of 1 st concept (year)	Respondent (%)
Pregnant	235(57.00)	<20	13(3.17)	13-18	50(12.20)
Lactating	130(32.00)	21-25	198(48.29)	19-24	149(36.34)
Delivery	45(11.00)	26-30	143(34.89)	>25	211(51.46)
		>30	56(13.66)		
Total	410(100)		410(100)		410(100)

Table 2. Distribution of Respondent According to Socio-Economic and Demographic Characteristics.

Monthly family income (Tk)	Respondent (%)	Monthly Expense For Food (Tk)	Respondent (%)	Education level	Respondent (%)	Husband education level	Respondent (%)
<5000	40(9.76)	<3000	83(20.24)	Primary	88(21.46)	Primary	81(19.76)
5000-10000	160(39.02)	3000-5000	112(27.32)	Secondary	160(39.02)	Secondary	100(24.39)
10000-15000	102(24.88)	5000-7000	90(21.95)	Higher Secondary	93(22.68)	Higher secondary	79(19.27)
>15000	108(26.34)	>7000	95(23.17)	Graduate	64(15.61)	Graduate	147(35.85)
		Not response	30(7.32)	Illiterate	05(1.22)	Illiterate	03(0.73)
Total	410(100.00)		410(100.00)		410(100.00)		413(100.00)

Table 3. Occupational Characteristics and Breastfeeding Practices of Respondent.

Occupation	Respondent (%)	Work status	Respondent (%)	Duration of Breastfeeding	Respondent (%)
Day Labor	12(2.93)	Sedentary	184(44.88)	<12Month	12(09)
Service Holder	82(20.00)	Moderate	195(47.56)	12-24	70(54)
House wife	316(77.07)	Heavy	31(7.56)	>24	48(37)
Total	410(100)		410(100)		130(100)

This study was conducted to determine the health and socioeconomic status of pregnant, lactating and delivery women by determining the age of 1st concept, family income, educational level, occupation, work status, hygienic condition, various complication during pregnancy and lactating period, medical checkup, vaccination, medication, food taboos and food intake which are very important determinants for maternal morbidity and mortality. From this study, 12.20% of pregnant woman

concept at the age of 13-18 (Table 01), which can effect on mother health. The study showed that 9.76% of respondent's family incomes were less than Tk5000 and they were unable to serve nutritious food and proper care for prenatal and post natal period. Educational level both of respondent and also of their husbands play an important role for decision making and also for proper care. Study showed that 1.22% of respondent and 0.73% of their husbands were illiterate (Table2). Work status and food

intake level play an important role in mother's health. 2.93% were daily labor and among them 7.56% were heavy worker (Table 3).

Due to unhygienic living condition, infectious disease may effect on a mother and child. Study indicated that 17% of respondent were in unhygienic condition. Various complications during pregnant and lactating period may effect on maternal health. About 73.61% were UTI, 8.51% were APH, 95.74% were vomiting and 17% were high BP

Amongst pregnant women, 7.66% did not take medical checkup regularly. Among lactating women 59.23% took regular medical checkup and 40.77% did not take regular medical checkup. And for delivery patient, 13.33% took regular medical checkup and 86.67% did not take regular medical checkup (table 5). We find that, 8.54% were incomplete vaccination during pregnancy. 4.15% had food taboos/ misconception/ superstition. 23.17% took greater than normal amount of foods and 19.02% took less than

during pregnancy. For the lactating women, 80.74% were UTI, 3.7% were APH, 5.93% were vomiting and 11.11% were high BP. For the delivery patient, 11.11% were UTI, 33.33% were APH, 26.67% were vomiting and 55.56% were high BP. About 57.02% were non-anemic, 21.70% were mild, 8.94% were moderately anemic, 9.36% were severe, 20% were non-anemic, 6.67% were mild, 4.44% were moderately anemic, and 13.33% were severely anemic during pregnancy (table 6). normal amount of foods due to food taboos. 5.11% were not taking medicine (Table 4). Mainly, multi-vitamin and mineral containing medicine and others medicine were taken by the respondents according to their doctor's advice based on their any disease or complication. 95.6% had awareness from print and electronic media and health care facilities and 4.39% had no awareness about motherhood due to their illiteracy and poverty which is especially comes from lower class family.

Table 4. Distribution of Respondent According to Food Taboos, Food Intake, Use of Medication and Awareness about Safe Motherhood.

Food taboos	Respondent (%)	Level of food intake	Respondent (%)	Medication during pregnancy	Respondent (%)	Awareness about safe motherhood	Respondent (%)
Yes	17(4.15)	Normal	237(57.80)	Yes	223(94.89)	Yes	392(95.6)
No	393(95.85)	>Normal	95(23.17)	No	12(5.11)	No	18(4.39)
		<Normal	78(19.02)				
Total	410(100)		410(100.00)		135(100)		410(100.00)

Table 5. Pattern of Medical Checkup, Vaccination and Hygiene of Respondent

Medical Checkup	Yes (%)	No (%)	Vaccination	Respondent (%)	Hygienic condition	Respondent (%)
Pregnant(235)	217(92.34)	18(7.66)	Complete	242(59.02)	Very Good	104(25.37)
Lactating(130)	77(59.23)	53(40.77)	Under vaccination	133(32.44)	Good	237(57.80)
Delivery(45)	6(13.33)	39(86.67)	Non vaccination	35(8.53)	Bad	69(16.83)
Total(410)	300(73.17)	110(26.82)		410(100.00)		410(100.00)

Table 6. Pattern of Complications among Respondent.

Complications	Pregnant (%)	Lactating (%)	Delivery (%)
UTI (287)	173(73.61)	109(80.74)	05(11.11)
APH (40)	20(8.51)	05(3.70)	15(33.33)
Vomiting (245)	225(95.74)	08(5.93)	12(26.67)
High BP (80)	40(17.00)	15(11.11)	25(55.56)
Mild Anemic (58)	51(21.70)	04(3.07)	03(6.67)
Moderate Anemic (26)	21(8.94)	03(2.30)	02(4.44)
Severe Anemic (33)	22(9.36)	05(3.84)	06(13.33)

4. Discussion

The maternal health situation in Bangladesh appears to be poor. A nation's maternal mortality ratio is now widely considered to be an important indicator of the overall health status of women. High maternal morbidity and mortality represents failure of a health system to effectively provide services and care for women, and the failure of society to keep women in good health. It is clear that a number of important social and health system issues underlie the poor maternal health situation in Bangladesh. High rates of maternal morbidity and mortality continue to be important

challenges for Bangladesh health systems as three million mothers become pregnant each year in Bangladesh, out of which 600,000 are expected to develop complications. About nine million women suffer from lasting complications such as fistulae, prolepses, inability in controlling urination, or painful intercourse [10]. The services most often linked to reduction of maternal morbidity include antenatal care during pregnancy, tetanus toxoid vaccination, professional child delivery (including emergency services access), postnatal care and family planning services [11].

Safe motherhood is a critical part of saving lives in community. This approach seeks to ensure that women receive appropriate attention throughout their pregnancy and childbirth, providing pre- and postnatal care including care of the baby and breastfeeding support and delivery care with referral for women with obstetric complications [12]. Some die in the prime period of their lives and in great distress: from hemorrhage, convulsions, obstructed labor, or severe infection after delivery or unsafe abortion [13]. Marital age and first conceptual age is an important factor for conforming safe motherhood. Early marriage and early pregnancy is hampered for mother

health and also baby. Monthly expenses for food play important role in health status pregnant women. Nutritionally adequate food supply is essential for pregnancy period. In pregnancy period mother require above normal amount of diet for fill-up her additional needs. He must avoid various kinds of food taboos and complete full dose of vaccine. Avoid sedentary life. He must regularly take exercise and done regular medical check-up.

The socio economic status of husbands' is also an important determining factor of the management of complications of a woman. When a woman becomes pregnant, her husband can make sure that she gets proper antenatal care. Good nutrition and plenty of rest are also important during pregnancy. A husband can help his wife to have a safe pregnancy. Malnutrition and anemia in pregnancy contributes to intra-uterine growth retardation leading to low birth weight babies and increased MMR. 59% of urban mothers receive antenatal care, while in rural areas the rate is only 28%[14]. In the present study 42.98% pregnant women were anemic which were 21.70% mild, 8.94% were moderate and 9.36% were severe in condition. On the contrary in delivery cases 24.44% were anemic in which 6.67% were mild, 4.44% were moderate and 13.33% were in severe condition. Tetanus Toxoid (TT) vaccines are given during pregnancy for prevention of tetanus among newborns. For births occurring between 1992-96, 75% of mothers received at least one TT injection during pregnancy[15] and from 1995-1999 81% of mothers received this vaccination[16] the present study showed that 8.54% were not take any vaccine in their pregnant period.

One of the underlying factors leading to poor maternal situation in Bangladesh is that a lower percentage of women actually seek professional medical assistance for pregnancy related care, deliveries and complications. Only 7.9% deliveries take place in the health facilities and only 5% of the expected complications seek services of static health facilities[17]. The proportion of women seeking postnatal care from a 'medically competent person' is very low, both in the rural and urban areas[18]. The current study results show that respondents were suffering from UTI, APH vomiting and high BP. From this study, 12.20% of women were at the age of 13-18 years old at their first concept, 36.34% at 19-24 and 51.46% were at the age of over 25. The level of education attainment is still very low in Bangladesh and there is a distinct gender bias. The present study states that 1.22% women were illiterate and 21.46% were primary level. The World Bank, however, currently estimates the national MMR at 440 per 100,000 live births[19]. UNFPA has estimated lifetime risk of dying from pregnancy and childbirth related causes in Bangladesh as 1 woman in 21, which compares to 1 woman in over 4,000 in industrialized countries[20]. While the MMR tends to be considerably higher in low income countries, this study indicate that the monthly income of 9.76% family were below 5000 Tk, who were unable to give a mother proper food, treatment and medication during pregnancy

and lactating period.

Food taboos were also common during pregnancy and the puerperium in Bangladesh. For example, coconuts were believed to make a baby blind (a condition described as white eye), and duck's eggs were thought to cause asthma in the baby. Although there is some regional variation, one belief found to be common is that certain 'hot' foods should be avoided during pregnancy, and encouraged in the early postpartum period (although specific restricted foods vary by region). In addition, after childbirth Hindu women are not allowed to eat any meat or fish for one month, although for Muslim women were restricted for only seven days[21]. According to UNICEF, as many as 27 different types of superstitions have been identified in Bangladesh which is harmful in achieving healthy and safe motherhood. Mostly these practices involved restriction of mobility, consumption of adequate food and growth of the fetus (such as the belief that eating more will lead to dangerously large babies)[2]. In Dhaka city 4.15% women were found to follow various food taboos.

The present study may have both selection and information bias. Since our survey was carried out in immunization clinics and hospital, selection bias cannot be ruled out. We might miss to interview those mothers who delivered at home. Mainly this study was taken from the middle and lower-middle class family which does not indicate the all classes of inhabitants of the city. Extent study is needed for better accuracy.

5. Conclusions

Bangladesh has achieved improvement in different parts of health sectors but the maternal morbidity and mortality is still high comparing with developed country. In Bangladesh, many institutions are involved in a view to improve maternal health status. Apart from those agencies within the Ministry of Health and Family Welfare, there are many government and non-government organizations, which are involved in maternal health research and development. But the maternal health situation remains poor, even though most maternal deaths are avoidable if adequate preventive measures are taken.

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