

Review Article

An Analysis on Maternal Healthcare Situation in Bangladesh: A Review

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ABSTRACT

Maternal Mortality Ratio (MMR) in Bangladesh is still quite high; thus, a priority health and development issue. This study aims to describe maternal healthcare situation in Bangladesh to identify influences behind key causes, especially postpartum hemorrhage, of maternal morbidity and mortality. A literature review was conducted. Direct and indirect causes of MMR are 63.5% and 35.5%, respectively. Among direct causes only obstetric hemorrhage occupies 31% of all maternal deaths. Nearly two thirds of total maternal deaths occur during postpartum period. To reduce maternal deaths, government-initiated community-based skilled birth attendant programme outcome is insignificant. Nearly three-fourths of all deliveries are conducted by traditional birth attendants at home; thus, maternal deaths

from primary PPH barriers to MMR reduction. Unskilled deliveries are directly related to low education and rural dwelling. Overall, use of oral misoprostol for active management of third stage of labour has been found effective. Demand side financing programme has improved skilled deliveries. To reduce MMR, evidence-based skilled management of labor along with good referral system is a high priority. However, incentives for service providers and improvement of mass- population awareness are substantially important to reduce unskilled home deliveries for improving maternal health and wellbeing in Bangladesh.

Keywords: MMR; Maternal healthcare; Third stage bleeding; Misoprostol; Home delivery; TBAs; Bangladesh

Highlights

- Despite commendable reduction in maternal deaths, MMR is still quite high in Bangladesh.
- Postpartum haemorrhage is the commonest preventable cause of maternal deaths.
- Wide practices of unskilled home delivery are a barrier to reduction in maternal morbidity and mortality.
- Evidence-based 'active management of third stage of labour with provision of skilled delivery facilities is crucial to reduce MMR in Bangladesh.

Introduction

The millennium development goal 5 (MDG 5) highlighted maternal health as a global public health priority. Reduction of maternal mortality ratio (MMR) by three quarters between 1990 and 2015 and achieving universal access to reproductive health by 2015 were two indicators to assess countries' progress in the MDG 5. Out of 186 countries only 19 have achieved the goal¹. It is explicit that continuum of care during reproductive age at family, community and primary and referral healthcare facilities addressing equitable access to quality pre-pregnancy and maternity services, emergency obstetric care and family planning services are pivotal for maternal health and wellbeing².

Globally nearly 99% of 800 maternal deaths per day occur in developing countries. Maternal mortality has been reduced by 47% since 1990. However, the distribution of key causes of maternal deaths such as haemorrhage, hypertension, sepsis and abortion remain unchanged and occupy nearly 80% of maternal deaths; of which, postpartum haemorrhage (PPH) is the commonest cause of maternal deaths in many developing countries including Bangladesh that cluster around delivery. It indicates that access to skilled care during perinatal

period with provision of emergency obstetric services is crucial to reduce maternal deaths³. Maternal health is a not only health but also social and development issue since it has tremendous impact on the child health and economy of families and healthcare system². In Bangladesh, nearly one-fourths of total population lives below poverty level and households' out-of-pocket payments share over two-thirds of Total Health Expenditure. Moreover, over 55% of the total female populations are in age group 15-49 years with a total fertility rate of 2.3 and high MMR³⁻⁵. Thus, maternal health is a crucial social, health and economic priority of the country.

This study aims to analyze maternal healthcare situation in Bangladesh for describing key causes of maternal morbidity and mortality with a special emphasis to identify determinants, activities and interventions of reducing burden of PPH.

Methods

The study is based on a literature review along with contacts with local leading obstetricians. During December 2014, formal and informal searches were conducted on the websites of Health Ministry of Bangladesh, Bangladesh Bureau of Statistics, National Institute of Population

Research and Training, WHO, World Bank and Engender Health. Formal searches in three electronic databases: PubMed, Science Direct and Google scholar were conducted to retrieve articles which were published between 2000 and 2014 in English. The following key words and combinations were used searching literature: maternal mortality ratio, maternal healthcare, postpartum hemorrhage, home delivery, skilled delivery, traditional birth attendant, Bangladesh along with synonyms. Google were used as search engine for informal searches.

The following eligibility criteria were used to recruit article: primary research, review articles and reports on maternal health care services in Bangladesh describing mainly – determinants of maternal mortality and morbidity, specifically burden of postpartum hemorrhage, maternal healthcare situation and evidence-based interventions to reduce maternal deaths elsewhere.

Following a quick screen through reading titles and abstracts of all the available articles, the full text of the primarily accepted literatures was skimmed to assess the applicability and quality for final inclusion. Applicability of the primarily accepted article was assessed based on inclusion criteria. Quality was assessed using ‘Critical Appraisal Skills Programme’ (CASP) criteria. Each Yes-answer of the ten CASP criteria scored one point. An aggregate of Yes-scores ≥ 6 was considered as acceptable quality.

The next sections will describe the study findings which will follow a brief discussion emphasizing the overall achievements and challenges of maternal healthcare services in Bangladesh. Finally, conclusion and recommendations will be addressed.

Findings

The initial searches generated a total of 64 peer-reviewed articles and reports. Only 16 literatures (articles $n=10$;

reports $n=6$) were finally reviewed following exclusion of articles based on duplications, irrelevant titles and abstracts and quality assessment.

MMR and causes of maternal mortality with common maternal morbidities

There are differences between national and international agencies in estimating MMR and other maternal healthcare indicators of Bangladesh. According to the ‘Bangladesh maternal mortality and health care survey (BMMS) 2010’, estimated MMR was 194/100 000 live births. Life time risk of maternal death is 1 in 500. The MDG target for MMR is 143/100 000 live births (National Institute of Population Research and Training⁶).

According to BMMS 2010 report, among all causes of death in female of reproductive age (15-49), maternal causes comprise 14%, which is next to cancer (21%) and circulatory disorders (16%). Among the causes of maternal mortality, direct and indirect causes were 63.5% and 35.5%, respectively. Among direct causes, obstetric haemorrhage is the main burden that causes about one thirds (31%) of total maternal mortality that is followed by eclampsia (20%) (Figure 1a)⁶ which is nearly identical to the global prevalence of maternal mortality due to haemorrhage (35%) and eclampsia (18%) during 1997-2007 (Figure 1b)⁷. Reported proportion of indirect causes of maternal mortality is about double than in the globe. Notably, reported maternal mortality due to abortion is considerably low (1%) in compare to global burden (9%). Notably, comparing the BMMS report 2001 and 2010, it is identified that all direct causes of maternal mortality reduced, but indirect causes remained unchanged. No population-based information is available on the distribution of indirect causality of maternal mortality. Both verbal autopsy and household survey identified that about two thirds of total maternal deaths occurred during postpartum period⁶ (Figure 1).

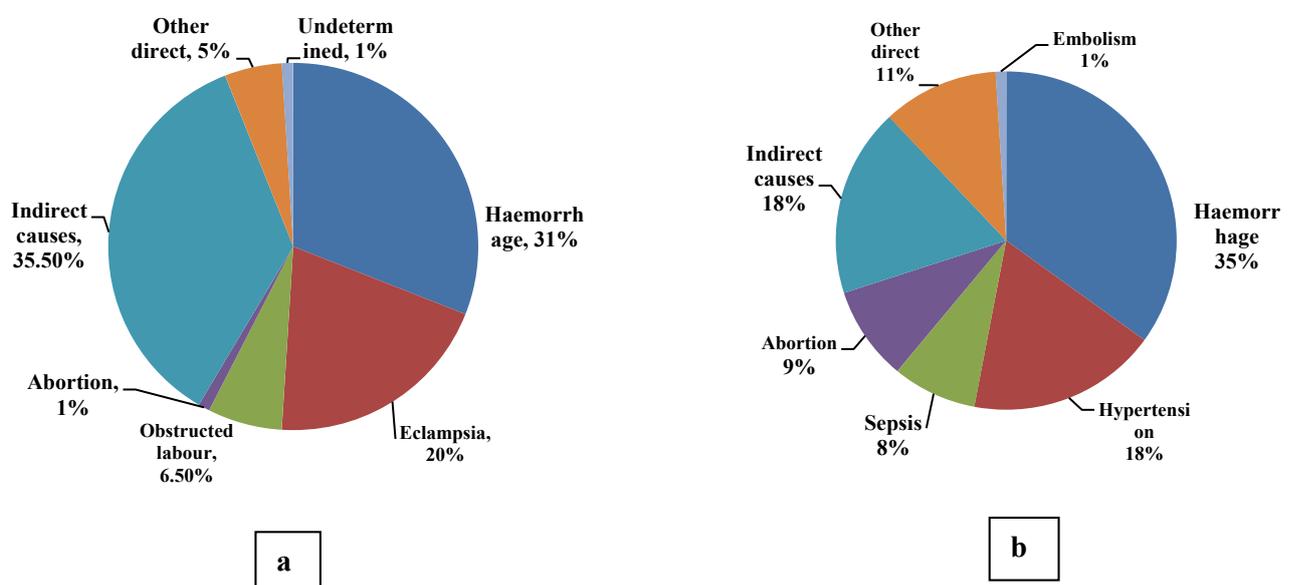


Figure 1: A diagrammatic comparison of distribution of maternal death causes in Bangladesh (a) in 2010 and that of globally (b) during 1997–2007^{6,7}.

Community-based studies concluded a high burden of maternal morbidity/disability in Bangladesh. The common maternal morbidities are: anaemia, genital and urinary tract infection, perineal tear, genital prolapse, urinary incontinence, hypertension and obstetric fistula^{8,9}. Currently, there are estimated about 71,000 obstetric fistula cases in Bangladesh⁵.

The provision of and the key factors influence access to maternity care

To achieve the MDG 5, government took initiatives to improve process indicators of maternity services, especially to increase antenatal care, skilled birth attendance (SBA) and emergency obstetric care (EmOC) coverage. Antenatal care and Basic Emergency Obstetric Care (BEmOC) are two common essential service components of all levels of the public facilities. To improve access to quality maternity care at remote areas, two distinct maternity services are implemented. The Demand Side Financing (DSF) scheme is one of those has been piloting since 2007. In the DSF programme, along with free maternity services, both clients and providers get additional financial incentives for normal and caesarean deliveries. DSF programme has been implemented in 94 primary and secondary facilities with encouraging impacts. The second one is the Comprehensive Emergency Obstetric Care (CEmOC) programme without incentives. Currently, all tertiary and secondary level facilities and 195 UHCs are under the CEmOC programme⁵. The private healthcare sector provides extensive market-based ambulatory and indoor maternal care mostly at urban areas.

By 2010, antenatal care coverage (at least once) increased to 71.2% from 47.3% in 2001. Prevalence of contraceptive use is about 61%. Government targeted to increase skilled attendance at birth from 12.2% in 2001 to 50% by 2015. However, by 2010, only about 27% births were conducted by SBAs at health facilities. Out of the rest 77% home deliveries, over 72% were conducted by traditional birth attendants (TBAs). The proportion of SBA conducted home delivery remained unchanged during 2001–2010⁶. To overcome the shortage of SBAs, government has been conducting community-based skilled birth attendant (CSBA) programme to train community female health workers⁵. However, the impact of CSBA programme in skilled delivery found insignificant, only 0.3%⁶. For this, it is understandable that skilled deliveries were mostly conducted by midwives, nurses and doctors. The number of the reported caesarean deliveries was increased by 5-folds from 2.6% in 2001 to 12.2% in 2010 among all socioeconomic groups. Proportion of caesarean section is higher in the private than in the public sector^{5,6}.

Since 2000, EmOC facilities have been increasing at public and private sectors. Absenteeism and non-deployment remain chronic problems in the rural public EmOC facilities; for this, rural complicated pregnancies have to travel to urban health facilities. There is a referral system

in the public sector; however, the interest of dual practice of public doctors, influence of private market and shortage of resources in the public facilities often disrupts the referral system and diverts patients to private facilities, which is a threat of health catastrophe¹⁰.

Postpartum haemorrhage: A maternal health burden in Bangladesh

Primary PPH is the most common obstetric hemorrhage causing maternal mortality and morbidity in Bangladesh. Primary PPH commonly occurs in the third stage of labour and within first few hours of delivery. While primary PPH is mostly secondary to uterine atony and retained placenta including others like genital trauma and bleeding disorders, secondary PPH is mainly associated with genital infection¹¹⁻¹³. Though no available data is found on the proportion of the causes of primary and secondary PPH, the leading local obstetricians inform that the primary PPH due to uterine atony and retained placenta is the commonest. Notably, information on the proportion of the complicated cases those were primarily handled by traditional birth attendants (TBAs) is also not available. In a country like Bangladesh, where nearly three fourths deliveries are conducted by TBAs at home and prevalence of PPH-related maternal deaths is high, an evidence-based maternal care package is an urgent priority to reduce MMR.

Determinants of PPH in Bangladesh

TBAs and culture of home delivery: There is huge shortage of SBAs in Bangladesh. Empirically, elsewhere including Bangladesh, home deliveries by TBAs are related to multiple factors like cultural norms, economic factors related to delivery, choice of mothers, geographic inaccessibility to health facilities, influence of family/community elders, low decision making power of women, influence of TBAs, lack of awareness and inadequate skilled antenatal care facilities¹³. Due to lack of knowledge, TBAs often mismanage deliveries, underestimate blood loss and fails to provide proper 'active management of third stage of labour' (AMTSL), which is related to delayed referral with consequent maternal death/disability from blood loss.

Socioeconomic status versus skilled delivery: Empirically, higher female literacy is associated with lower maternal and child mortality. In Bangladesh, adult literacy rate in females and male were 49.2% and 60.0%, respectively in 2010. Interestingly, BMMS 2010 report shows that utilization of facility-based skilled delivery increased in educated groups, which were related to increasing trends of female education. Direct obstetric deaths were detected high among low educated, poor and rural people⁶.

Access to emergency maternity services: Gradual reduction of MMR correlates with priority initiatives like BEmOC, CEmOC and DSF programmes in the public and elaboration of private facilities. However, BMMS 2010 identified that many maternal deaths occurred at non-CEmOC facilities⁶. Further, shortage of resources in the public facilities, no

financial protection for the poor mothers except the limited DSF programme and no cost control in the private market are likely to be associated with inadequate utilization of skilled delivery facilities including CEmOC. Shortage of skilled manpower is a crucial crisis in the health sector of Bangladesh¹⁰.

Activities and interventions to reduce PPH burden in Bangladesh

Several community-based operational and quasi-experimental studies and pilot projects have been conducted at multiple rural and urban settings to assess acceptability, feasibility and effectiveness of misoprostol to prevent PPH. All studies reported that adequate dose of oral misoprostol (600 µg) following delivery of fetus reduced the occurrence of PPH. Also a special “Quaiyum’s mat” supplied with misoprostol was reported effective to assess blood loss by TBAs and CHWs. Overall, misoprostol was well accepted both by TBAs and pregnant mothers^{11,14-16}.

AMTSL as recommended by international federation of Gynecology and Obstetrics (FIGO) and International Confederation of Midwives (ICM) is included in the CSBA training program but not in medical or nursing curricula. AMSTL is not practiced routinely. Only oxytocin and ergometrine are included in the national essential drug list. Though use of misoprostol in home delivery is recommended by multiple studies and pilot projects, it has not been supported officially. Oxytocin comprises about 80% use of uterotonics at facilities; however, correct use of oxytocin was identified only in 16.3% cases. Proper measure to prevent PPH was lacking in 84% of all facility-based deliveries¹⁷.

Discussion

Due to lack of established civil registration system in Bangladesh, MMR estimation is based on verbal autopsy, household survey and sisterhood methods. For this, misclassification and/or underestimation of maternal death causes are not unusual. To overcome this challenge, civil registration system needs to be established.

Maternal health is a national priority in Bangladesh. The gradual reducing trends of MMR even with higher proportion of home delivery indicate that access to emergency maternal healthcare services is improving. It is identified that an integrated package of actions addressing both the wider socioeconomic and health sector factors influencing maternal health is crucial to reduce MMR. Gradual increase in female education, utilization of skilled maternity services by the relatively educated and wealthier groups, and conversely, higher maternal deaths in the poor and illiterate segments indicate that increase in the health infrastructure is not enough to reduce maternal deaths. Again, the ineffective CSBA programme points that only increase in the number of SBAs is least effective. High proportion of unskilled home delivery is one of the key challenges for maternal health that needs long term strategic plan to overcome. Since about two thirds pregnancies attained only one antenatal

care visit, the number will be much lesser than that in terms of the WHO recommended ideal four antenatal visits. Considerably a high number of maternal deaths (about 55%) are secondary to indirect causes and eclampsia. It indicates that skilled antenatal service coverage to screen-out high risk pregnancies is still lacking. Further, high PPH related maternal deaths with complications related to misconduct of deliveries like obstetric fistula, genital prolapse and perineal tear undoubtedly explore inadequate access to quality delivery services.

The structural organization of the public healthcare facilities is commendable, though distribution of the private health facilities is not controlled. To improve accessibility and affordability to emergency obstetric care, stewardship in the health sector to improve optimal utilization of available resources, incentives to retain rural doctors and implementation of the existing referral system with good transport facilities are crucial. Moreover, public provision of maternity services at private sector including rural distribution of private facilities should be encouraged. Though incentives to providers and clients in DSF programme are reported showing localized improvement in both process and impact indicators of maternal health, it is not available countrywide. Nevertheless, the sustainability of the DSF programme is not beyond doubt. Further, functions of the CEmOC at primary facilities have yet to be ensured by incentive and sanction based regulation to improve rural mothers access to CEmOC.

Gradual reduction of the MMR in Bangladesh has been possible through the collaborative efforts among governments, NGOs, donors and research organizations. Piloting the misoprostol and Quaiyum’s mat project to prevent PPH is one of the examples of that. However, evidence-based professional training and implementation of PPH management interventions, especially AMTSL, is still lacking both at facility and home.

Strengths and weaknesses

We found integrated and comprehensive social, economic, cultural and health system related influences of maternal morbidity and mortality. We do not claim that all relevant articles have been made available from other databases in this review; however, the findings of this review are contextually relevant and useful to improve maternal healthcare situation in Bangladesh.

Conclusion

There are gradual improvements in the process and impact indicators of maternal health; however, a long way has yet to cross to reduce MMR further to an acceptable level. To accelerate the current success, Bangladesh needs to implement evidence-based continuum of care from family and community to PHC and referral level facilities with short and long term strategies to address distant and proximal influences of maternal deaths. To reduce maternal deaths the following recommendations are addressed.

Recommendations

Assurance of skilled attendance at birth is a high priority to reduce MMR. For a short term measure, TBAs needs to be trained and registered with the system to strictly supervise their activity by CSBAs. At the same time, community should be mobilized for female education and women's right to quality maternity services. Ultimately, in the long run, TBAs should be targeted to be replaced by SBAs. Structured antenatal care services should be ensured through mandatory registering of all pregnancies using existing skilled CHWs. Access to CEmOC facilities should be prioritized and implemented through following strategies: good referral and transport system from home and community level to referral facilities, incentives to retain rural maternity care providers at CEmOC facilities and provision of free maternity care. Mandatory maternal death notification with professional accountability for each maternal death should be ensured through clinical auditing or confidential enquiry of maternal death.

PPH should be encountered as high priority and a national guideline to prevent and manage PPH should be in place. All doctors, nurses, midwives, CSBAs and registered TBAs should have training on AMTSL along with provision of continuous professional development. Uterotonics, especially oxytocin should be made available at all delivery facilities and at skilled home deliveries. More research on the effectiveness and usability of misoprostol and Quaiyum's mat at community level could be conducted for strong evidence-based recommendation from the international leaders such as WHO, FIGO, Engender Health and ICM. Bangladesh needs to extend its current collaborative approach involving government sectors, NGOs, donors and community to reduce MMR.

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