

MATERNAL MORTALITY IN INDIA

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ABSTRACT

India has a high rate of maternal mortality, contributing to about 20% of the global incidence (Tandon, 2012). The MMR (maternal mortality ratio) in India shows geographic and person-wise distribution and is highly influenced by socio-economic factors like literacy and poverty. Institutional delivery by “skilled” persons has been recognized as an essential factor for controlling maternal mortality. Another essential factor is quick access to emergency obstetric care. Thus this study has been conducted taking into account the factors related with maternal mortality in India and the measures taken to control this problem in India and other developing countries.

Key words: *Maternal Mortality; Present status of Maternal Mortality; Skilled birth attendant; EmOC.*

INTRODUCTION:

Reduction of mortality of women is an area of concern for the Governments across the globe. MMR measures number of women aged 15-49 dying due to maternal causes per 1,00,000 live births. According to the latest MDG report published by the UN, one in every five global maternal deaths happened in India which accounted for 20% of the total mortality in this respect (Tandon, 2012). MMR in the developing countries remains 15 times higher than in developed regions. 15% of deaths of women in India in the reproductive age group are due to maternal deaths.

When there is a maternal death, the children, who lose their mother, suffer the most. In some developing countries, the risk of death of children less than 5 years of age doubles or trebles if the mother dies (RCH II Document 2, 2006). Also, the motherless children are likely to get less healthcare and scant education as they grow up.

OBJECTIVES:

- 2) To know about the current status of maternal mortality in India.
- 1) To take an account of the factors related with maternal mortality in India and the measures taken to control maternal mortality in India and other developing countries.

THE CURRENT STATUS IN INDIA:

The International Conference on Population and Development in 1994 had recommended reduction in maternal mortality by at least by 50% from 1990 to the

year 2000 and further one half by the year 2015. The Millennium Development Goals (MDG) of the United Nations has set the target of achieving 200 maternal deaths per lakh of live births (MMR) by 2007 and 109 per lakh of live births by 2015.

The current maternal mortality rate (MMR) of India is 212 per one lakh live births i.e. India is lagging behind the target of MDG in this respect, which is 109 per one lakh by 2015. Though MMR recorded a 38% decline in maternal deaths between 1999 and 2009, the country recorded around 57,000 maternal deaths in 2010, which translates in to a whopping six every hour and one every ten minutes (The Asian Age, 2012).

The Sample Registration System (SRS) is the largest demographic sample survey in the country that among other indicators provide direct estimates of maternal mortality through a nationally representative sample. According to the latest SRS data available (Sample Registration System, 2011), three states in India, viz., Kerala, Tamil Nadu and Maharashtra have realized MDG target in 2007-2009. Andhra Pradesh, West Bengal, Gujarat and Haryana are in closer proximity to the MDG target.

In order to understand the maternal mortality situation better in India, states have been categorized into three groups namely,

- i) “Empowered Action Group” (EAG) - states comprising of Bihar, Jharkhand, Madhya Pradesh, Chattisgarh, Orissa, Rajasthan, Uttar Pradesh & Uttarakhand and Assam;

- ii) "Southern" states which include Andhra Pradesh, Karnataka, Kerala and Tamil Nadu; and
- iii) "Other" states covering the remaining states/UTs.

Though Maternal Mortality Ratio of India has declined from 254 in 2004-2006 to 212 in 2007-09, the decline has been most significant in EAG states and Assam from 375 to 308. Among the "Southern" states, the decline has been from 149 to 127 and in the "Other" states it is from 174 to 149 (Sample Registration System, 2011).

FACTORS CONTROLLING MATERNAL MORTALITY:

The leading causes of maternal mortality are due to medical, socioeconomic and health system related factors (Centre for Reproductive Rights, 2008).

Medical Causes:

According to NFHS-3 (The National Family Health Survey, conducted in 2006) and other studies, the common medical causes of maternal deaths are:

- i) Haemorrhage (ante partum and post partum) 38%,
- ii) Sepsis 11%, Hypertensive disorders (toxemias of pregnancy) 5%,
- iii) Obstructed labour 5% and
- iv) Sequel of incomplete abortion 8%.

In India as well as globally, a significant portion of maternal deaths are ascribed to "indirect causes". In India, common "indirect causes" of maternal death are anaemia, malaria, heart disease etc, of which, anaemia deserves special attention.

Anaemia and Malnutrition:

Anaemia is a condition associated with poor nutrition and increases the risk of death several folds during child birth. The NFHS-3 and other studies indicate notable prevalence of anaemia as a cause of maternal mortality in India. In 2004, at least 22000 maternal deaths are directly attributable to anaemia (National Family Health Survey, 2006).

The prevalence of anaemia in females in India has been noted by UNICEF to be a symptom of gender-based discrimination in regard to access of food, nutrition and healthcare. UNICEF has attributed this fact to South Asia's deeply entrenched gender inequalities, which are a direct cause of poor maternal health (UNICEF, 2011).

Unsafe Abortion:

Complications from unsafe abortion account for a significant proportion of maternal deaths in India. Although abortion is legally permitted on several grounds, each year approximately 6.7 million abortions occur outside of government-recognized health centers, often in unhygienic conditions or by untrained abortion providers. This problem disproportionately affects adolescents, as unsafe abortions account for half of all maternal deaths of women aged 15-19. Most women in India are not able to obtain legal abortions for multiple reasons, including a dearth of information about safe abortion services; inconsistent and prohibitive costs; a shortage of trained providers and inadequate equipments and lack of knowledge about the legal status of abortion (WHO, 2007).

Socioeconomic Factors:

A higher incidence of mortality is found to occur among woman and girls who are poor, less educated and belong to socially disadvantaged castes and tribes (Murthy, 2010). Child marriage puts young girls and adolescents at significant risk of pregnancy-related complications and mortality. Pregnant women living with HIV/AIDS experience an increased risk of pregnancy-related fatalities due to outright discrimination.

i) Poverty:

Poor women are more susceptible to maternal death and morbidity than those economically prosperous. Of the 595 million of the world's poor that live in South Asia, 455 million are in India. An estimated 70% of the country's poor are women. The affordability of reproductive health services for women is a major concern. The burden of high out-of-pocket expenses for reproductive health care has been identified as a leading cause of poor reproductive health outcomes among low-income women in South Asian countries, including India.

ii) Illiteracy:

Female education and female literacy rates are strongly correlated to high rates of maternal mortality around the world. Lack of education adversely affects women's health by limiting their knowledge about nutrition, birth spacing and contraception. This is particularly evident in India, where a woman's level of education strongly correlates to many indices of maternal health, including fertility rate, utilization of prenatal care, need for

contraception and higher age at first birth (McAlister and Baskett, 2006).

iii) Child Marriage:

Child marriage is linked, both directly and indirectly, to maternal death and morbidity worldwide. That is an especially relevant problem in India, where according to the NFHS-3 almost 50% of girls are married before age. An estimated 50% of maternal deaths in India occur before age 25, and states with high rates of child marriage also have high rates of maternal mortality. For instance, Uttar Pradesh, Madhya Pradesh and Rajasthan all have higher rates of child marriage than the national average, as well as higher-than-average rates of maternal mortality (Institute for Research in Medical Statistics, 2003).

The high incidence of maternal mortality among adolescents in India reveals that adolescents lack access to reproductive health services and information, especially relating to fertility control, as well as a cultural self-motivation that disrespects the risks of unplanned pregnancy and childbearing for adolescents. Even if an adolescent girl bears a child at a young age and survives, her lifetime risk of maternal death is increased. As girls get married at an early age, they often find themselves in poverty with no access to education, and both these factors significantly increase the risk of maternal mortality later in life.

iv) Caste and Tribe:

Traditionally disadvantaged groups are formally recognized by the government as "Scheduled Caste" (SC), "Scheduled Tribe" (ST) and "Other Backwards Classes" (OBC). Together, the SC/ST comprises about 24% of the Indian population. However, studies show that while the SC makes up only 16% of India's population, it is estimated that they represent at least 25% of all maternal deaths.

Caste and tribe are not simply levels of stratification, but are major social determinants of access to education and other resources. This has been referred to as the "class-caste nexus" and is characterized by the accumulation of power by a few groups and the political marginalization and cultural subordination of other groups. Under this system, traditionally deprived groups, especially women, have less access to resources and education, and as a result have very little scope of upward mobility within this

class structure. The inability to access resources and health care facilities is further exacerbated by high rates of malnourishment, hunger, poverty, unhygienic living conditions (such as homes lacking toilets or access to clean water) and systematic deprivation of health care, such as lack of childhood vaccinations. Consequently, the majority of maternal deaths in India occur among women belonging to these social groups. Although SC, ST and OBC Indians are entitled to special protection under the constitution, official policies meant to prevent and ameliorate systemic discrimination against those groups have not resulted in better maternal health indicators.

Pregnant Women Living With HIV/AIDS:

The pregnant women living with HIV/AIDS in India are at enormous risk of being provided with substandard maternal health care, or even can be denied care totally. It is estimated that 2-3.6 million people in India are affected with HIV or AIDS, with women making up a significant and ever increasing proportion of this total. Denial of institutional health care can be especially devastating for pregnant women with HIV/AIDS since they are predisposed to a higher risk of complications and other infectious diseases, such as tuberculosis and malaria. They are also susceptible to an elevated threat of complications from the infections that can arise when they are bound to deliver in unhygienic conditions. These women face an increased risk of discrimination and, as a result, mortality, on account of the stigma associated with HIV/AIDS and unprepared health systems that prevent health care providers from treating patients with HIV/AIDS.

Health-System-Related Factors:

Essential reproductive health services are not available to greater part of women population in India. In the absence of basic reproductive health services including contraceptives, pre- and postnatal care and emergency obstetric care, as well as delays in seeking institutional care and the poor quality of care provided in government hospitals, maternal deaths is elevated.

Inadequate Access to Methods of Family Planning and Information:

High maternal mortality rates are associated strongly with inadequate access to family planning information and services. Unwanted pregnancies exposed women to significant risks of their maternal health, including complications from unsafe abortions (as mentioned

before) and high-risk pregnancies. The UNFPA estimated that one in three deaths related to pregnancy and childbirth could be avoided if all women had access to contraceptive services—meaning some 175,000 maternal deaths, and even more cases of maternal morbidity, could be avoided annually worldwide. Women with the least access to contraceptive services, including young and poor women, have particularly high rates of maternal mortality.

According to a study by WHO, women in India do not have access to a wide choice of contraceptives, particularly modern, nonpermanent contraceptives, leading to unwanted pregnancies that are poorly managed or often lead to hazardous abortions. The inadequacy of contraceptive use is revealed by the NFHS-3 which demonstrated that in India almost a quarter (21%) of all pregnancies that resulted in live births were unplanned and unwanted. Only 56% of Indian women use contraception, and even less (49%) use modern forms of contraception. More importantly, the use of modern contraceptives varies widely across states, and is as low as approximately 29% in Uttar Pradesh and Bihar, 27% in Assam and even lower at 18.5% in Meghalaya—all “high focus states” under the National Rural Health Mission (NRHM).

Role of Antenatal Care (ANC):

ANC is extremely important for the survival and well being of both the mother and the baby. Appropriate ANC can help to detect and control many life-threatening conditions in the mother and the fetus, like toxemia of pregnancy, Rh-immunization affecting the fetus, malpresentation and malposition of the fetus, maternal or neonatal tetanus, existence of twins, potentially life-threatening or teratogenic conditions in the mother, like coronary heart-disease, malaria, viral infections etc. It assists to check transmission of mother-to-child infections like syphilis, HIV/AIDS etc. Also, ANC adjusts the pregnant mothers to self-care, child-care, child nutrition, control of anemia (an important cause of maternal death), family planning etc. It has been observed that successful ANC services can inspire the mother and the family for institutional delivery, the most important factor helping to combat maternal death. However, there should not be pre-natal sex determination of the fetus and elimination of the female fetus during the antenatal

period.

According to NFHS-2, more than one in three women in India (34%) did not receive any antenatal check-up (National Family Health Survey (NFHS-2), 1998-99). Although WHO recommends that women receive four antenatal checkups during pregnancy, NFHS-3 (National Family Health Survey, NFHS-3) (2005-06) showed that about three-quarters of pregnant women in India receive at least some antenatal care (though the remaining quarter is completely deprived of this benefit).

Unavailability of Care:

Even the most basic maternal health services lie beyond the reach of the majority of women in India. Less than 50% of women give birth with the assistance of a skilled attendant and only 40% of deliveries occur in an institutional setting.

Access to maternal health care varies greatly in different states of India. In West Bengal over 90% of women received at least one prenatal examination, while in Bihar that number is only 34%. Low-income and rural women poor quality of life results in reduced access and below standard hospital care.

Likewise, there is a disturbing gap in the number of women who receive postnatal care. The NFHS-3 revealed that less than 36.4% of women across the country received postnatal care within two days of delivery. The percentage of maternal deaths in rural areas in India may be more than in urban areas due to the non-availability of proper health care facilities at the rural health centres.

The Three Delays in Emergency Obstetric Care:

Most maternal deaths are attributable to the ‘three delays’: 1) the delay in deciding to seek care, 2) the delay in getting the mother to the appropriate health facility and 3) the delay in receiving quality treatment by the mother at the health care centre.

For the first type of delay, lack of knowledge to perceive the inception of complications by the individual and family, gender issues, low status of women, socio-cultural barriers to inquire about care, poor economic conditions of the family etc are responsible. The first delay can also be caused by a woman’s lack of decision-making power within her household because the women can face life-threatening delay if she requires the permission of her

husband, mother or mother-in-law in order to receive care.

For the second type of delay, accessibility to facilities is hindered by distance, bad roads and meager transport in rural and underdeveloped areas.

The third type of delay typically results from untimely diagnosis and treatment due to poor skills and lack of training of the care providers. Other factors in this sections includes prolonged wait for the accessibility to the facility, shortage of equipments and blood supply, multiple referrals to different health facilities and shortages in electricity or water supply.

Low Utilization of Institutional Delivery Services:

Skilled attendance at delivery has been identified as one of the most effective measures required for reducing maternal mortality. The two terms—"skilled attendance at delivery" and "institutional delivery" can be used almost synonymously in India. Skilled attendants need the back up of a functioning health system, as without the necessary drugs, equipments, infrastructure and prompt access to EmOC (emergency obstetric care), the skilled attendant will be helpless. One case-control study in rural Maharashtra (a state in India) reports that women who delivered in institutions or were delivered by a trained attendant were twice as likely to survive as those who delivered at home or by untrained attendants (RCH II Programme Implementation Plans, 2006). However, it is clear that despite ongoing efforts of the Family Welfare Programme, skilled attendance at delivery is still beyond reach for most women in India. Complete ANC and institutional delivery are still "luxury items" for an average woman of India, reserved only for the women of the affluent and the educated families.

Strategies to Reduce Maternal Mortality:

It has been already mentioned that for good quality delivery care, a "skilled" attendant is essential. Here, "skilled attendant" as per UN definition, refers exclusively to people with midwifery skills, who must be able to manage normal labor and delivery, recognize the onset of complications, perform essential interventions, start treatment and supervise the referral of mother and baby for interventions that are beyond their competence or not possible in that particular setting. It has been perceived that TBAs (Traditional birth attendants/"Dai"), even after training, do not fulfill the criteria of skilled attendant (RCH II Programme Implementation Plans,

2006). Previously, in states where most deliveries occur at home, efforts were made to train TBAs and to provide them with Disposable Delivery Kits. But there is no evidence that this affected maternal mortality at all. It can be mentioned that, as per NFHS-3 (Preliminary findings), births assisted by a health professional increased to 48% from 42%. But 75% of urban women and only 39% of rural women could avail this benefit. According to NFHS-2, 35% deliveries are conducted by "Dai", 23% by relatives, friends etc, 11% by ANM/nurse etc., 1% by other health professionals and only 30% by doctors.

Skilled Attendance At Birth:

A skilled attendant is a qualified health professional, like midwife, nurses and doctors who has been knowledgeable and skilled to proficiency in the expertise needed to manage normal (uncomplicated) pregnancies, childbirth and immediate postpartum period and in the identification, management and referral of complications in women and newborns (UNFPA and the World Bank, 1999). In childbearing, the women need a variety of care and the skilled attendant is at the centre of the continuum of health care.

The skilled attendants may be midwives, nurses, doctors with midwifery skills and obstetricians. It is important that skilled attendants must be able to provide care outside the regular working hours and deal with unpredictable work patterns. The national health systems should keep careful records of the progress made in the provision of skilled attendants (WHO, 2004).

The skilled attendants require an 'enabling environment' to work efficiently, The facilities that must be present in such a environment are adequate supplies of equipments, a functional infrastructure, supportive regulations and policies and communications and referral mechanisms to reach a higher level of care (Bailey, Paxton, Lobis and Fry, 2006).

The studies of Sri Lanka and Malaysia show that MMR declined rapidly when the proportion of childbirth was assisted with skilled attendance and reached only about 40 to 50%. These two countries demonstrate how it is possible to train, deploy, and sustain large cadres of clinically competent midwives within relatively short time (Pathmanathan *et al.*, 2003).

It is important to regulate and license the skilled attendants in the institutions they work along with the

programmes used in their training. There should be time-to-time relicensing.

Emergency Obstetric Care:

Maternal mortality is a problem of the developing countries. Low MMR in the developed countries is mostly due to the fact that obstetric complications are identified and treated promptly in those countries by a functioning health system (Paxton, 2005).

A package of medical interventions required to treat the direct obstetric complications was identified by WHO, UNICEF and UNFPA ((UNICEF, 1997). This package of services is collectively known as emergency obstetric care (EmOC).

Types of EmOC:

EmOC is categorized as basic EmOC (BEmOC) and comprehensive EmOC (CEmOC) (Tandon, 2012). Their functions can be classified as follows:

Basic (BEmOC): Should possess skilled health personnel who can provide to the pregnant women: (i) Parenteral antibiotics, (ii) Parenteral oxytocic drugs, (iii) Parenteral anticonvulsant drugs, (iv) Manual removal of placenta, (iv) Manual removal of retained products (after abortion) and (v) Assisted vaginal delivery (forceps, vacuum extraction).

Comprehensive (CEmOC): Should possess skilled health personnel who can provide to the pregnant women all the basic EmOC functions plus: (i) Anaesthetic services, (ii) Surgical services (caesarean section) and (iii) Safe blood transfusion services.

UN guidelines recommend a minimum of one CEmOC and four BEmOC facilities per 500,000 populations. Findings from EmOC assessments globally show a consistent lack of basic EmOC facilities, especially in rural areas, but usually the minimum recommended number of comprehensive facilities is available (Bailey, 2006).

Referral systems are vital to communicate with the households, skilled birth attendants, providers of transport and a network of functioning BEmOC/CEmOC facilities so that it is attained in proper time. For the survival of mother proper system of roads and transport are no less important than blood bottles and oxygen. The concept of "Half way homes" should be introduced for households too far away or too difficult-to-

reach in regard to the health care facilities.

Other Channels to Combat Maternal Mortality: Post Partum Care:

Until recently, programmes intended to make pregnancy safer paid little attention to the post partum period, though it is evident that this period contributes to the maximum proportion (60%) of maternal deaths.

In reality, post partum care is neglected, both qualitatively and quantitatively. National data shows (Jejeebhoy and Varkey, 2004), among women who underwent non-institutional delivery, only 17% obtained a post partum check-up within 2 months and only 2% obtained this within 2 days of delivery as scheduled. Among them, only 35% reported to have an abdominal examination, 43-46% reported receiving breastfeeding and baby care advice and only 27% were counseled about family planning (IIPS & ORC Macro, 2000).

It is evident from various studies that in India, women who experienced post partum morbidity were unlikely to seek medical care on their own. This is due to the high cost of medical care, lack of awareness of the consequences and the mistaken perception regarding self-limiting morbidities (Jejeebhoy and Varkey, 2004).

Health workers must look after the mother along with the neonate on days 1, 2, 7, 14 and 28 with particular emphasis on the first 2 visits. As haemorrhage is the leading cause of post partum maternal deaths so, easy access to blood is essential. The government policy should be modified so that availability and access to blood can be improved.

Control of Anaemia:

Anaemia acts as an important indirect cause of maternal death, though it is almost entirely preventable and treatable. According to NFHS-3 (2005-06), prevalence of anaemia in pregnant women is 50% to 58% in India. Besides nutritional deficiency of iron, malaria and worms also act as contributing factors in the occurrence of anaemia. The government efforts to control maternal anaemia by providing iron and folic acid tablets to the mothers have not been proved to be effective so far. A new strategy has to be worked out for successful implementation of this project. Also, malaria chemoprophylaxis of the pregnant women can be included in the routine antenatal care services in the endemic states.

Strategic Choices to Reduce MMR in RCH II (RCH II, 2006):

1. The number of facilities offering safe delivery and EmOC services should be increased. This is the highest priority in RCH II. Two levels of institutions will be targeted:
PHCs & CHCs for BEmOC services.
FRUs (First referral unit) for CEmOC services.
2. CHCs must be made operational and at least 50% of PHCs must provide 24 hour safe delivery and BEmOC services by 2010.
Norms and guidelines for PHCs must be developed. These will cover infrastructure, staff, drugs, supplies and clinical care protocols, including use of partographs. Operationalisation of CEmOC services is to be provided at 2000 FRUs by 2010. A certification process will be instituted to accredit the quality of FRU services.
3. Access to safe blood at all district hospitals and FRUs must be assured.
4. Training on anaesthesia for EmOC services should be given to MBBS MOs. The lack of anaesthetic services led to the failure of previous government attempts to operationalise FRUs as CEmOC. To correct this, Department of Health and Family Welfare, Govt. of India, developed a 14-weeks course in

anaesthesia for MBBS MOs for working in EmOC facilities with the expectation that by 2010, 4000 MOs would be trained in anaesthetic skilled for provision of EmOC.

5. EmOC services should be provided to BPL (“Below Poverty Line”) families at recognized private facilities. This is important because to provide EmOC services universally will take more time. Voucher, insurance, or any other innovative schemes must be designed and piloted as is being done in Gujarat (the “Chiranjeevi” scheme) (Bhat *et al.*, 2009) through public-private partnership.

CONCLUSION:

An improved, accountable health care system at primary level is essential for decreasing maternal mortality to the desired level. The antenatal, intranatal and postnatal services should be made available to the women. Delivery by skilled attendant, nurses or doctors should be ensured. Institutional delivery should be encouraged for better health care facility. It is essential to establish linking to hospitals by an emergency transport and good referral system of network.

Peripheral/Village level interventions specifically directed towards major causes of maternal deaths are required. Finally, a strong political will as well as administrative efficiency is of utmost requirement in combating maternal mortality. The community should be informed and made aware about the needs of the pregnant women and motivated to utilize the services available.

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