Why Mothers Die: An Original Research in Odisha

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Abstract

Maternal mortality is defined as the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and site of pregnancy, from any cause related to or aggravated by the pregnancy or its management, but not from accidental or incidental causes. Each year in India, roughly 28 million women experience pregnancy and 26 million have a live birth. Of these, an estimated 67,000 maternal deaths and one million newborn deaths occur each year. In addition, millions more women and newborns suffer pregnancy and birth related ill-health. Thus, pregnancy-related mortality and morbidity continues to have a huge impact on the lives of Indian women and their newborns.

Keywords: *Maternal mortality ratio, epidemiology, maternal complications.*

Introduction

High maternal mortality is a major concern in India, especially in the northern Indian states. The maternal mortality ratio (MMR) is as high as 400 per 100,000 live births in India. The state of Uttar Pradesh, which has the largest population in the country, has the highest MMR at 599 per 100,000 and Rajasthan has the second highest maternal mortality rate at 670 per 100,000 live births. The main medical causes of maternal deaths are hemorrhage, severe anemia, obstructed labor, puerperal sepsis, and others. These preventable causes of mortality are well known and manageable through simple interventions with appropriate clinical and obstetric care. Notwithstanding the knowledge of causes and availability of technology needed to avert maternal deaths, the maternal mortality rate has remained unacceptably high. There has been a secular decline in IMR and CMR until 1996 and thereafter stagnation in IMR. The decline in IMR was on account of the decline in post neo-natal mortality. The future decline is anticipated due to decline in neonatal mortality. The neonatal mortality is primarily consequences of endogenous factors, which are largely governed by the maternal causes and thereby call for the monitoring of maternal mortality ratio in the population. The results of large-scale survey have however shown that there was no decline in MMR over time indicating an urgent public health concern[1,2].

In the Third World, every time a woman becomes pregnant, her risk of dying is 200 times greater than the risk run by a woman in the developed world. About 15% of all pregnant women experience complications that can be detected and appropriately managed given proper clinical care. Various reports and surveys have shown that MMR has not declined in India (ICMR, 2003). However, estimates of MMR are not reliable owing to methodologic complexities involved in the community based surveys. The complications of pregnancies and the births are found to be the leading causes of deaths and disability among women of reproductive age. The health problems of mothers and newborns arise as a result of synergistic effects of malnutrition, poverty, illiteracy, unhygienic living conditions, infections and unregulated fertility. Maternal mortality is called direct when it is a complication of the pregnancy, delivery or their management. It is called Indirect when there is a Pregnancy related death in a patient with a pre-existing or newly developed health problem. Maternal Mortality Rate is used as the measure of the quality of a health care system in a community. It is no. of maternal deaths per 100,000 live birth. In India Maternal Mortality Rate was 174 (2011-15) whereas in Odisha it is 222 (2011-2015)[3,4].

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Causes of Death as Per Who:

Maternal mortality can be attributed to various factors such as; Haemorrhage (26%)**,** Infection(13%)**,** Unsafe abortion (13%)**,** Eclampsia(12%)**,** Obstructed labour (8%), Other direct causes (8%)**,** Indirect causes like Malaria, Anaemia, HIV/AIDS, cardiovascular disease (20%). More than 90% of maternal death occurs in developing countries whereas 45% of post partum death occurs within 24 hours.

Methodology

It is a retrospective study of maternal death from year 2011 to 2016 from the available data in the Cuttack district. Cuttack district -14 block level hospitals. Two Sub-divisional hospital (Banki & Athagarh). 5 FRUs. One Secondary level hospital(DHH). One Tertiary care hospital (SCB MCH)**.** Total no of Deliveries in five years were 277051 out of which 276106 were live birth. Total Delivery includes deliveries from different districts of the state those who have delivered in cuttack district. It also includes deliveries in Private Institutions and nurshing homes (**Table 1).**

Table 1: Total no of Deliveries in five years

Year	Delivery	Live birth	Deaths in Cuttack
2011-12	50540	50142	30
2012-13	54230	54181	24
2013-14	54230	54181	21
2014-15	58027	57848	32
2015-16	55422	55417	26
Total	**277051**	**276106**	**133**

Maximum no of death occurred in the age group of 20-29 yrs. The analysis of the medical causes of deaths revealed that hemorrhage was responsible for the highest toll. Hemorrhage maximum maternal mortality followed by eclamsia, pregnancy induced hyper tension and other factors. postpartum hemorrhage alone accounted for one fourth of the total maternal deaths. Out of total death Haemorrage accounts for 30%, Sepsis 8%, Eclampsia 11.2%, PIH 9.7%, Pulmonary Embolism 5.2%, Ruptured Uterus 2.2%, Sepsis 0.75%, HELPP Syndrome 2.2%, Ut.Inversion 0.75%, Ectopic pregnancy 0.75% (**Table 2**).

Table 2: Primary cause of Maternal death

Primary cause of death	2011-12	2012-13	2013-14	2014-15	2015-16
Haemorrhage (APH & PPH)	7	4	8	11	10
Eclampsia	4	7	0	3	1
PIH	3	3	1	4	2
Heart Disease & CCF	0	2	0	5	5
Amniotic fluid embolism	1	2	3	1	0
Septicemia	6	2	2	0	1
Septicemia	2	1	4	2	0
Cerebral malaria & ARDS	2	2	1	2	0
Bronchial Asthma	0	1	0	0	0
Chronic Renal Problem (Helpp Syndrome)	1	0	1	1	0
Ruptured Uterus	2	0	0	0	1
Anesthetic complications	0	0	0	1	0
Hepatobiliary disease	0	0	0	1	1
TB/Diabetes/Others	0	0	0	0	2

Discussion

Maternal deaths are a significant cause of death in women in the 15–49 years age group, and they make up a larger proportion of all-cause deaths in the rural areas of poorer states, compared to other regions of India. We found that the distribution of cause specific mortality was the same across poorer and richer states, suggesting that the high burden of maternal death in poorer states

is not due to an excess of one or more causes of direct obstetric deaths.

Lack of quality care in the health facilities was perceived as the factor most contributing to the maternal deaths by family members of deceased women. Proximal factors, which encompassed any pregnancy complication or medical comorbidity, were the strongest predictors of women dying in pregnancy followed by lack of access to the health facility. More importantly, the study showed that the effects of living rurally and being poor could be mitigated by improving access to the health facility. Other risk factors identified were younger or older maternal age, belonging to a scheduled tribe or caste social group, and not being enrolled in a health scheme.

The WHO reported MMR for India in 2010 was 208/100 000 live births[5,6] compared with 383/100 000 live births calculated in our study population for a similar period (2007–2009). This discrepancy reflects the high burden of maternal mortality in India's nine socioeconomically disadvantaged states. Moreover, in our study, more than half of the maternal deaths had not been previously recorded. Efforts to create a national electronic database for maternal death surveillance in India began in 2013[7] but the progress is still limited, mainly due to lack of resources.[8]

The association between proximal factors and maternal death was strengthened after accounting for other factors showing that these complications remain the most important risk factors for maternal death, thus reinforcing the importance of high-quality antenatal care, availability of basic emergency obstetrical care and postnatal care. Nonetheless, in our study population, poor quality of care was reported as the factor most contributing to the maternal death in 55% of the deaths.

In 2005, the Indian government implemented the NRHM to address gaps in maternal healthcare. Improving the access to and quality of care, particularly for rural areas in high focus states, were the main objective of this initiative.[9] Since 2005, India has seen some improvements. Institutional deliveries increased from 39% in 2005 to 79% in 2013. Complete antenatal care coverage increased from 37% to 51% and postnatal care increased from 27% to 36%.[9]However, studies show that the programme has had little or no effect on clinical outcomes. For example, despite the increase in health facility deliveries, there has been no demonstrated decline in maternal mortality.[10]

Studies have repeatedly shown that quality of care is lacking in public health facilities, including non-availability of essential medicines such as uterotonics and antibiotics, and lack of facilities for caesarean section and blood transfusion. Further, government reports on the state of public facilities in these nine states have reported lack of toilet facilities, unreliable electricity and unsatisfactory cleanliness, and lack of basic measures of obstetrical care such as adequate hand hygiene. Moreover, there have been reports of verbal and physical abuse of staff towards patients.[11]

Conforming with the findings of other studies, age and maternal death exhibited a strong U-shaped association in which the youngest (women aged 13–19 years) and the oldest age group (women aged 40–49 years) had the highest risk of dying. India's National Family Health Survey showed that of women aged 20–49 years, 27% had been married before the age of 15 years and 58% were married before the legal age of marriage of 18 years. In addition, 30% of Indian women had given birth by age 19 years.[12] While age itself is not a modifiable risk factor, childbearing age should be regarded as one. Women should be able to exert control over when they choose to become pregnant. Policies supporting universal access to contraception, family planning counselling, safe abortion and promoting women's empowerment need continued attention in India.

Conclusion

According to this study it is observed that the high level of maternal mortality in India is a critical policy concern. A huge inter-state and intrastate disparities in MMR remain a major concern. it is important to mention that economic performance alone would be insufficient to achieve faster reductions in MMR. In India, these groups largely include women and tribal sub-groups living in unfavourable geographic locations demotivating (inaccessible rural areas and hilly regions). Moreover, states with high MMR also tend to have an unfavourable geography; therefore, economic growth would largely be confined to advantaged locations, and the remotest and tribal areas will remain underserved and have high levels of MMR. Economic growth may help initiate improvements in MMR but, to reduce MMR faster, simultaneous investment is important in strengthening the health system; education and empowering women; and making available qualified human resources in health, good governance, and transportation facilities.

Also, improvement in recording and sharing vital health (and health-related) information is critical to facilitate policymaking and enhance effectiveness of various interventions. India's developmental narrative should display increased socio-political commitment towards health, one that could place India ahead of other countries.

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