

Maternal mortality estimates for the year 2015-16 at district of Tumakuru: a revisit to dynamics of maternal mortality ratio in India

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Abstract

Background: Maternal mortality has been burden to the health care system and the society. It is rightly considered as a measure for efficiency of health care system of a given community and it is considered as one of the indicators of reproductive health care. The African and south Asian countries have failed considerably, as seen in historical data of these regions.

Objective of this study: India committed to work towards Millennium Development Goal by being a signatory of United Nation Millennium Declaration in the year 2000. MDG5A calls for 75% reduction in MMR between 1990 and 2015. National targets were set and monitored by international and national agencies. This study is taken out of interest to know the performance at the district level and relate the results with the performance at state, national and international level.

Material and Methods: The pooled data for maternal death is maintained at the district level by the Reproductive Health Office, which works under the purview of District Health Officer. Data for the year April 2015-March 2016 is taken for analysis.

Results: Total number of live births was 34432 among them 34321 were Institutional deliveries and 111 were home deliveries. Total number of maternal deaths were 20 and Maternal mortality ratio was 58.086 per 1,00,000 live births: Among maternal deaths 19(95%) delivered in hospital as compared to home delivery 1(5%); 4 (20%) died antepartum, 9(45%) died intrapartum, 7 (35%) died postpartum. 11(55%) had less than 3 antenatal care visits, 9(45%) had more than 3 visits; 2(10%) were aged less than 20 years, 15 (75%) were aged between 20 and 30 years and 3(15%) were aged above 30 years; 7(35%) were nulliparous, 12(60%) were between p2 and p5, 1(5%) was more than p5. 18(90%) were from rural background 2(10%) were from urban.

Conclusion: There has been a mixed trends in achievement in reduction of MMR (Maternal Mortality Ratio). The area where study was conducted had satisfactory achievements, mainly because of it being a developed district, socially and economically. However, the achievements towards MMR reductions have wide disparities between districts in the state and states within the country. South Indian states have a better performance as compared to north Indian states. None of the states achieved the targets set for 2015 under MDG5a. More efforts are required for achieving new target set under SDG by 2030.

Keywords: Maternal mortality, Maternal mortality ratio, MDG goals, Estimates of MMR

Introduction

Maternal death 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 the pregnancy, from any cause related to or aggravated by the pregnancy or its management, but not from accidental or incidental causes.

MMR, maternal mortality ratio is defined as the number of maternal deaths during a given period per 100,000 live births during the same period.⁽¹⁾

There is no single cause of death and disability for men aged 15-44 that is close to the magnitude of maternal death and disability.⁽²⁾

In the year 1990 when the global MMR was 385, the maternal mortality ratio in India stood at 556 per 100,000 live births accounting for 19.7% of all deaths among females in reproductive age (15-49 years). That nearly amounted to nearly 1.5 million maternal deaths a year. Such a high incidence of maternal deaths causes huge losses of human life and social welfare. Therefore reducing MMR is a fundamental and national concern.^(3,4)

International Conference on Population and Development, 1994, Cairo, Egypt recommended that maternal mortality should be reduced by at least 50

percent of 1990 by 2000, and another 50 percent by 2015. In the landmark Millennium Summit, 2000, the world's leaders accepted the United Nation's Millennium Declaration and pledged to work towards the Millennium Development Goals. MDG5a called for reduction of 75% in MMR between 1990 and 2015.^(4,5) The national MMR at 1990 stood at 556 per 1 lakh live births and to meet the target set by MDG it was supposed to achieve less than 109 per 1 lakh live births. This required annual reduction of 5.5% in MMR from 1990 to 2015.^(6,7,8)

Under the MDGs, the Indian government supposed to bring the MMR down to 200 by 2007 and 109 by 2015 from 437 in 1990. Karnataka was supposed to reduce to 79 from 315.9 by 2015.^(9,10)

Various health programmes were implemented since 1990 to improve maternal health and decrease MMR, namely Reproductive Child Health 1 & 2, National Health Mission. Committing to United Nation Global Strategy for Women's, Children's and Adolescent Health, India launched RMNCH+A programme in efforts to improve maternal health and thereby decreasing MMR.^(11,12)

The Office of the Registrar General of India (ORGI) under the Ministry of Home Affairs,

Government of India provides estimates of Maternal Mortality Ratio (MMR) using demographic data collected through the Sample Registration System (SRS). The maternal deaths being a rare event require large sample size to provide valid estimates. In order to enhance the SRS sample size, the MMR estimates are derived by pooling 3 years data to yield reliable estimates of MMR. The first Report on maternal mortality in India (1997-2003) –Trends, Causes and Risk Factors was released in October, 2006 and the latest estimates are available for the period 2011-13.⁽¹³⁾

Material and Methods

The study is related to district of Tumakuru, Karnataka, India. Monthly and Annual Maternal Death Data is collected and compiled by Reproductive and Child Health Office under the District Health Officer(DHO). The data at the DHO becomes the source of information for estimates of maternal deaths at district level, for further analyses. The maternal death for the year April 2015 to March 2016 was retrieved for analyses in this study.

Results

Total number of live births was 34432 among them 34321 were Institutional deliveries and 111 were home deliveries. Total number of maternal deaths were 20 and Maternal mortality ratio was 58.086 per 1,00,000 live births: Among maternal deaths 19(95%) delivered in hospital as compared to home delivery 1(5%); 11(55%) deaths occurred on the way to referral hospital, 8(40%) occurred in the hospital, 1(5%) occurred at home .4 (20%) died antepartum, 9(45%) died intrapartum, 7 (35%) died postpartum. 11(55%) had less than 3 antenatal care visits, 9(45%) had more than 3 visits; 2(10%) were aged less than 20 years, 15 (75%) were aged between 20 and 30 years and 3(15%) were aged above 30 years; 7(35%)were nulliparous, 12(60%) were between p2 and p5, 1(5%) was more than p5.18(90%) were from rural background 2(10%) were from urban.(Table 1).

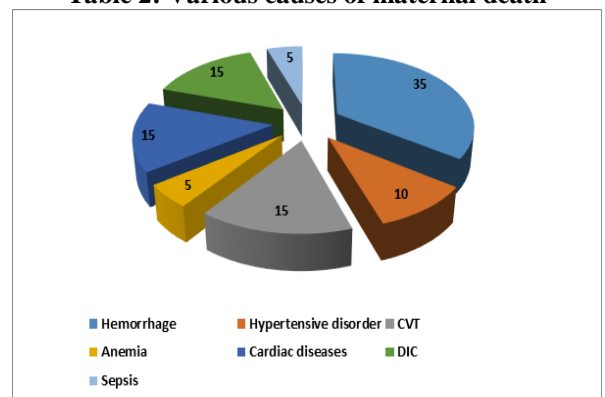
Haemorrhage which included both ante partum and post-partum accounted for majority (35%) of maternal deaths. Cardiac disease and Coagulative disorders both accounted for 15% each.(Table 2)

Table 1: Maternal deaths by various parameters

Characteristic	Frequency	Percentage
Deaths by Place of delivery		
Hospital	19	95
Home	1	5
Deaths by Place of death		
On the way to referral hospital	11	55
In the hospital	8	40
Home	1	5
Timing of death		

Antepartum	4	20
Intrapartum	9	45
Postpartum	7	35
Deaths by number of antenatal care		
<3	11	55
>3	9	45
Deaths by age		
<20 yrs	2	10
20-30 yrs	15	75
>30 yrs	3	15
Deaths by parity		
Nulliparous	7	35
P2-P5	12	60
>P5	1	5
Deaths based on residence		
Rural	18	90
Urban	2	10
Cause of death		
Hemorrhage	7	35
Hypertensive disorder	2	10
CVT	3	15
Anemia	1	5
Cardiac diseases	3	15
DIC	3	15
Sepsis	1	5

Table 2: Various causes of maternal death



Discussion

Maternal death can be classified, based on the cause, either as direct or indirect. Direct maternal deaths are those resulting from obstetric complications, intervention, omission, incorrect treatment, or chain of events resulting from above means. Indirect maternal deaths are due to previously existing disease or that developed during pregnancy and that was not due to direct obstetric cause but aggravated by physiological effects of pregnancy.⁽⁶⁾

One of the components of MDG5 is 5b, which calls for universal access to reproductive health care. Although the national statistics for registration of pregnancy stands at 91.9 percent, there exists difference between urban and rural population. There also exists

difference in different states. Our study noted 96.4% coverage for the given period.^(14,15)

In this study, the percentage of maternal deaths in the age group 20-29 was high as 75%. The portion of maternal death in age group 20-29 stood at 67% in 2010-12 compared to 63% in 2007-09 and that is a worrying issue. Higher deaths were noted between 20-24 at about 39%. It is because the pregnancy cases were highest in these age group.⁽¹⁶⁾

In our study deaths were more in those who received less than 3 Antenatal Care visits than those who received more, 55% versus 45%. Although the WHO recommends 4 minimum of 4 visits during pregnancy, utilisation of ANC services vary from state to state. Karnataka stands at 90 percent and Bihar, being lowest at 34%. Bihar had only 85.5percent and 36.7percent for at least one ANC in pregnancy and 3or more ANCAs per latest. There was a rise in women seeking ANC services from 66percent in NFHS- 2 to 75percent in NFHS-3.^(14,17,18) Going by the WHO requirement of at least 4 ANC care, only 27.7 percent of rural population complied with the requirement as compared to 62.4percent urban population. The use of Anganwadi or ICDS worker was high in Orissa (12%) and Chhattisgarh (10%), which are states with high MMR.⁽¹⁴⁾

Antenatal care has impact on reduction in MMR. There is more tendencies to have antenatal care from a doctor rather than other trained skilled birth attendant, with increase in educational levels. Also there is difference in the number of pregnant women who seek ANC among religious groups. 60% women in other category had at least 3 ANC compared to 40% in SC/ST.^(14,19)

A woman is considered to have full ANC if she gets at least 3 ANC, at least one TT Injection and has consumed 100+ IFA TABS. As per CES2009 Survey only 26.6percent women at all India level had full ANC.⁽¹⁵⁾

The desirable level for births attended by skilled health personnel is 100 percent to achieve the MMR targets. However it stood at 87.1%, urban at 98.2% versus 84.1% in rural areas.⁽²⁰⁾

Also the proportion of institution deliveries and safe delivery; which means deliveries attended by trained birth attendant decrease with increasing birth order, lower educational levels, SC/ST and rural pregnant women. It is more likely to be attended by a doctor among educated class and among Non-SC/ST category. Karnataka stands at 86.4percent against a national level of 72.9 percent. The percentage in the area studied was 94.4%.^(14,19)

Most maternal health programmes recommend first postnatal check-up within two days of delivery. Only 37% received that care and 58percent did not receive any.⁽¹⁴⁾

The major cause of death in this study was due to haemorrhage(35%), both antepartum and postpartum

haemorrhage. Pre-existing anaemia contributes together in these conditions. Anaemia is major contributor to maternal death. In strict criteria 96percent of pregnant woman suffered from anaemia, ranging from mild, moderate to severe. More seen in rural, poor and illiterates, only 47percent consumed 100 IFA tablets, 16.4percent consumed none. DLHS3.^(19,21)

In this study, many died on way to referral centre (55%), and strikingly 90% from rural area died, reinforcing that efforts should be made to upgrade lower hospitals and make efficient and affordable health care system available at lesser distance to any given place.

MMR in this study stands at a satisfactory, because the district is a relatively developed, socially and economically. Though it is noted that the reduction at lower rates of phenomena is difficult, some of the deaths this study were preventable deaths, especially those due to haemorrhage. Early identification of risk pregnancies and admission directly to tertiary care, antenatal treatment of anaemia and free and abundant supply of blood and blood products at lower centres of health care, staffing team of gynaecologist at first referral centre, quality laboratory and quick response team of health professionals can save even more lives, especially cases which died of haemorrhage.

It is interesting to track MMR estimates at state and national levels at different times arriving at 2015. Among the major States, the MMR ranges from 61 in Kerala to 300 in Assam in 2011-13. In the States of Bihar/ Jharkhand (208), Madhya Pradesh / Chhattisgarh (221), Orissa (222), Rajasthan (244), Uttar Pradesh / Uttarakhand (285) and Assam (300), the MMR estimates were reportedly higher than the estimates at all India level (167). Four States i.e. Uttar Pradesh, Bihar, Madhya Pradesh and Rajasthan together contributes to 67 per cent of MMR in the country. MMR in Karnataka was 133. In order to better understand the maternal mortality situation in India and to map the changes that have taken place especially at the regional level, the ORGI9 office of the registrar general of India) has categorised the states in to three Groups namely 'Empowered Action Group' (EAG) states comprising Bihar, Jharkhand, Madhya Pradesh, Chhattisgarh, Orissa, Rajasthan, Uttar Pradesh, Uttarakhand and Assam. 'Southern' States which include Andhra Pradesh, Karnataka, which Kerala and Tamil Nadu and the 'other' States covering the remaining state.⁽²⁰⁾

As per historical trend India is unlikely to have reached 140 rather than intended 109 per 100000 live births by 2015.⁽²⁰⁾ The latest estimates for the year 2015, by WHO and other inter agencies of united nation pegged the MMR for India at 174, with annual reduction rate of 4.6% as against expected rate of 5.5%. India stands second after Nigeria, with 15percent of all maternal death occurring globally. The global estimates are about 216.⁽³⁾

Continuing the efforts made under MDG, newer goals were set for 2030 under Sustainable Development Goals (SDG). Target of SDG 3.1 of SDG3 is to reduce global MMR less than 70 per 100000 live births by 2030. This requires reduction rate of 7.5% each year between 2016 and 2030. The national targets are set for short term and long term, which is 100 by 2017 and to less than 70 per 100000 by 2030 as per the SDG.^(8,22)

There are five broad strategic objectives laid out by WHO as a framework for countries to develop and implement interventions for Ending Preventable Maternal Mortality (EPMM):

1. To address inequities in access to health
2. To ensure universal health care
3. To address all causes of maternal mortality
4. To strengthen health systems
5. To ensure accountability to improve quality of care and equity.⁽⁸⁾

Conclusion

Maternal Mortality is a major cause of death for young woman and is worrying factor for the health delivery systems. Although some areas in India have shown progress there is wide disparity in health care availability and utilization between different states and different areas within the states. Even among those regions who have achieved the targets, there are many preventable deaths. Universal reproductive health care, affordable, accessible health care, and quality health care should help in achieving the targets by 2030.

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