e-ISSN: 0976-822X, p-ISSN:2861-6042

Available online on http://www.ijcpr.com/

International Journal of Current Pharmaceutical Review and Research 2023; 15(6); 73-78

Original Research Article

Rummaging The Inevitability of Death: A Retrospective Study on Maternal Mortality at A Tertiary Care Hospital in Rural India

Ruchi Birendra

Junior Resident, Department of Obstetrics and Gynecology, RIMS, Ranchi, Jharkhand, India

Received: 12-03-2023/ Revised: 15-04-2023 / Accepted: 19-05-2023
Corresponding author: Dr. Ruchi Birendra
Conflict of interest: Nil

Abstract

Background: Pregnancy, while considered a physiological state, entails the risk of major maternal morbidity and, in some cases, death. This is related to a variety of issues that may arise during pregnancy, childbirth, or afterwards. Maternal mortality has far-reaching consequences for the family, society, and nation. Maternal mortality is commonly regarded as a human development indicator in a country, determining people's health status.

Objectives: To assess the maternal mortality ratio and the causes of maternal death at a tertiary care hospital in rural India. A retrospective hospital-based analysis of 45 maternal deaths over a period of 1 year was done in a tertiary care hospital.

Results: There were 8112 deliveries and 7880 live births throughout the study period. 45 maternal deaths occurred giving MMR (Maternal Mortality Ratio) of 571 per 100,000 live births. Obstetrical haemorrhage was the most common direct cause, and anaemia was the most common indirect cause. The age range of 20 to 25 years old was critical. The majority were primigravida, and the majority of deaths occurred in unbooked cases, referred from outside.

Conclusion: The majority of maternal deaths can be avoided by making the best use of already available MCH facilities, locating any gaps in the health care delivery system, spotting high-risk pregnancies early on, and promptly referring them to tertiary care facilities.

Keywords: MCH, MMR.

Introduction

Maternal mortality is defined as the death of any woman while being pregnant or within 42 completed days of termination of pregnancy, irrespective of the duration and the site of pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes[1]. Maternal mortality is defined internationally, as maternal deaths per 1,00,000 live births.

Unfortunately, India has the highest rate of maternal mortality worldwide, accounting for 45,000 of them in 2015. [2]. There are significant intra- and inter-state differences. When compared to southern states like Kerala (66) and Tamil Nadu (90), the maternal mortality ratio (MMR) of northern states like Assam, Uttar Pradesh (including Uttarakhand), and Rajasthan is relatively high (328, 292, and 255 maternal deaths per 100,000 live births, respectively). [3]

Maternal mortality in India has decreased in recent years, falling from 556 per 1000 live births in 1990 to 174 in 2015 at a rate of 15.8% yearly [4]. This accomplishment has not gone unnoticed, and the WHO has

praised India for its outstanding performance in greatly lowering maternal mortality. [5]

SDG 3 has an ambitious target: "reducing the world's average MMR to less than 70 per 100,000 births, with no nation having a rate of maternal mortality that is over twice the global average."

Methods and materials

Forty-five cases of maternal mortality over a period of one year, in a tertiary centre in north India, were analyzed with special emphasis on parity, cause of death, time interval from admission to death and antenatal care.

Results

Over the course of the study, there were 45 cases of maternal mortality, giving an MMR of 571 per 100,000 live births. There were 7880 live births and 8112 deliveries during this time. 32 fatalities (or 71.11%) of them were caused by direct causes, while 13 deaths (or 28.88%) were caused by indirect causes.

Table1: Distribution of maternal deaths by Direct causes of deaths

Causes of Death	No. of Death	Percent
Direct Obstetric	32	71.11%
Haemorrhage	21	46.66%
Pregnancy-induced hypertension and Eclampsia	5	11.11%
Sepsis and unsafe abortion	4	8.88%
Amniotic fluid embolism	1	2.22%
Ectopic pregnancy	1	2.22%

Obstetrical haemorrhage is the most common direct cause of death accounting for 46.66% of all maternal deaths followed by PIH and eclampsia (11.11%) in our study. Sepsis and unsafe abortions resulted in 8.88% of deaths.

Table2: Distribution of maternal deaths by Indirect causes of death

Causes of Death	No. of Deaths	Percent
Indirect Obstetric	13	28.88%
Anaemia	6	13.33%
Heart Disease	3	6.66%
Renal Disease	1	2.22%
Complicated Malaria	1	2.22%
Cerebrovascular Accident	1	2.22%
Sickle Cell Crisis	1	2.22%

The above chart shows anaemia as the most common indirect cause of death (13.33%) followed by heart disease(6.66%).

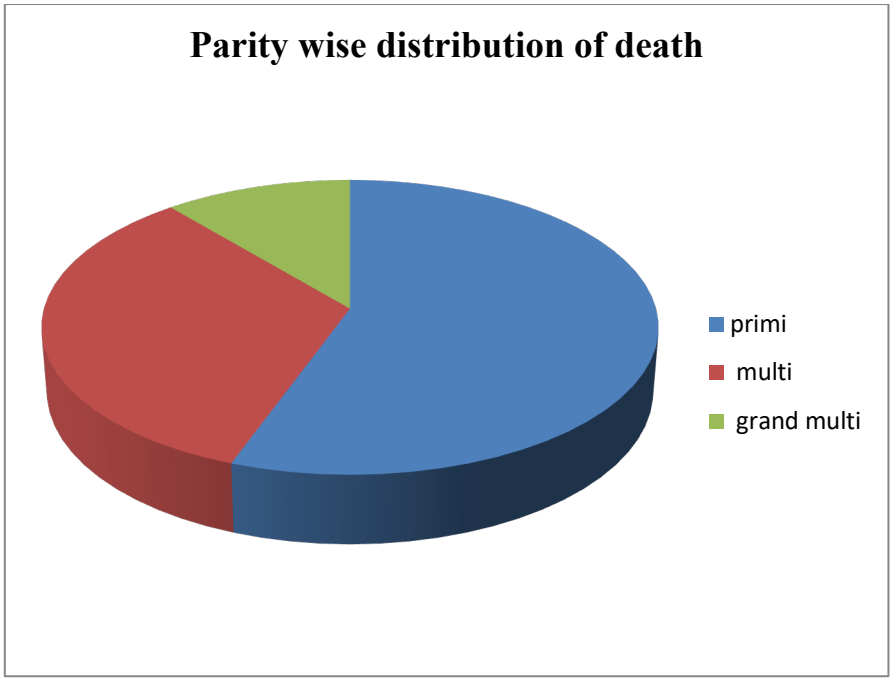

Figure 3: Parity wise Distribution of Death

Of the 45 deaths 25 (55.55%)were primigravida,15 (33.33%)multigravida and 5(11.11%)grand multigravida.

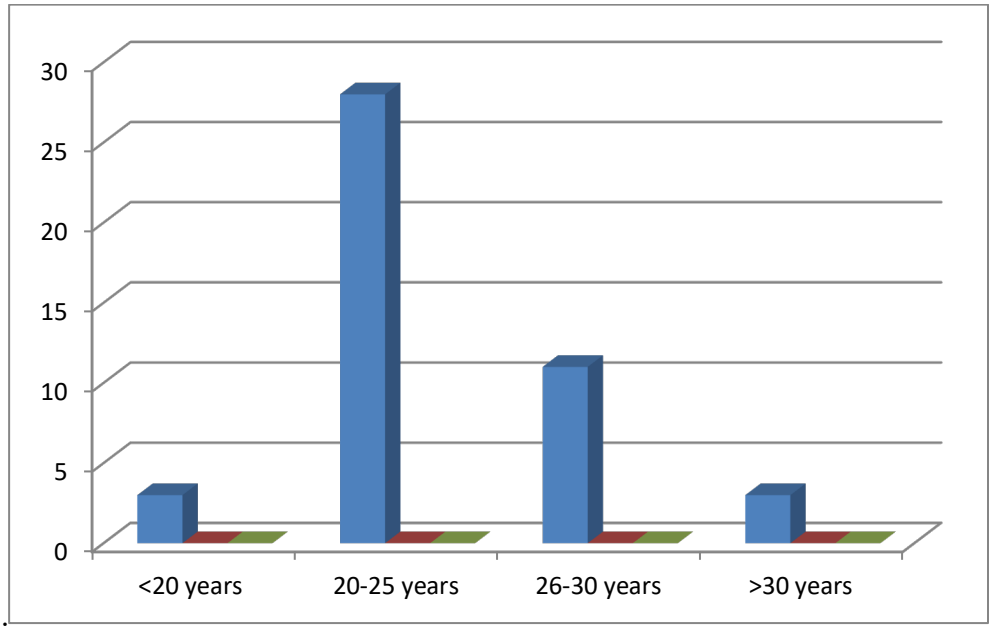

Figure 4: Age-wise distribution of death

The majority of deaths (28) were in the age group of 20-25 years, 11 were in the age group of 26-30 years, 3 deaths were in the age group below 20 years and 3 were over the age of 30 years

Of the 45 deaths 38 were unbooked and only 7 were booked. 40 of 45 women came from the lower socio-economic strata.

4 women died within 30 minutes of admission, 6 between 30 minutes and 6 hours, 20 between 6 and 24 hours and 15 after 24 hours of admission.

75 % of women had a Hb of less than 8gm/dl on admission.

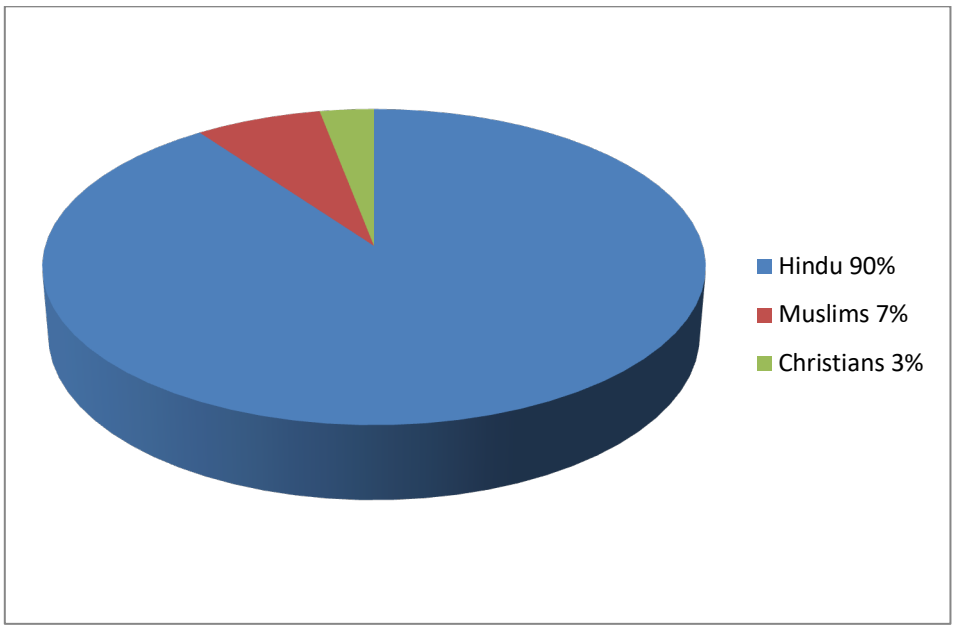

Figure 5: Religion-wise distribution of death

Around 90 % were Hindu; Muslims and Christians formed 7 %and 3 % respectively of the women who had died.

Residence-wise, about 68 % of the women were from rural areas.

Discussion

The MMR in our present study is 571 per 100,000 live births which is higher than the national average but is comparable to MMR of another tertiary institute[6]. Since most of the women came from distant locations, assistance was delayed, and many of them were already in poor health when they were admitted. The mortality rate is also due to the high volume of referred cases. Other studies from tertiary care institutions estimated a mortality rate of 371-4286/100,000 live births [7]. Delays in intervention and late referral of cases from the periphery are to be blamed for the greater death rate.

The majority of deaths in our study group occurred in females who were in the 20 to 25 years age group whereas most deaths were observed in the 30–40-year age group in other study groups [8]. The lower age group was due to the tradition of early marriages and unsupervised early pregnancies.

Obstetrical haemorrhage is the most common direct cause of MMR(46.66%) whereas anaemia in our study is the most common indirect cause. (13.33%)

Despite advancements in medical technology, avoidable causes of mortality like haemorrhage, hypertensive disorders of pregnancy and anaemia continue to be the most common obstetric causes of maternal mortality[9].

Obstetric haemorrhage continues to be the principal cause of maternal death on a national and local level. According to statistics from 2001 to 2003, more deaths from postpartum haemorrhage occurred in poorer states, suggesting that underlying medical issues, such as severe anaemia, that go untreated or are treated slowly may worsen PPH. Increased efforts are needed to prevent, identify, and treat hypertensive disorders of pregnancy, which account for a sizable portion of maternal deaths in rich states. Given the significant interstate disparities in maternal deaths, state-specific maternal health initiatives may be useful in lowering maternal mortality. [10]

Unsafe abortion accounted for 8.88% of maternal deaths which is comparable to global maternal deaths(12.5%) due to the same cause. [11]

Severe anaemia increases the risk of haemorrhage, compromises the ability to tolerate blood loss, and can result in circulatory decompensation, increased cardiac output, circulatory shock, and death. Maternal anaemia and mortality were shown to be linearly correlated, with each 10 g/L rise in maternal haemoglobin being associated with a 29% decrease in maternal mortality, according to observational studies. [12]

Maternal mortality is extremely high in India's teaching hospitals. The great majority of maternal deaths can be avoided. High maternal mortality indicates poor maternal and child (MCH) care. This tragedy has had a devastating impact on the family, particularly on the child. When a mother dies after childbirth, the child's chance of dying within the first six months is increased 17-fold.

MCH is crucial because routine Antenatal care (ANC) can help identify high risk cases. As most of the patients that died were transferred cases, it becomes clear that many of the deaths may have been avoided if they had been transferred sooner.

In our study, 22.22 % of the patients died within 6 hours of admission further highlighting the need for adequate and quick transport facilities. This is primarily because of delayed referral, and inadequate prenatal care. A study conducted by Berhan et al.supports our findings. [13]

From our study, it is seen that it is necessary even in urban areas to channel the working of emergency obstetric care.

Conclusion

Death is inevitable but most maternal deaths due to avoidable causes like obstetrical haemorrhage, anaemia, sepsis and hypertension can be prevented by regular health checkups. In conclusion, measures would be required to make motherhood safe, including improvements in maternal nutrition. Early identification and registration of all pregnant women in the first trimester of pregnancy, identification of high-risk pregnancies and prompt referral to a hospital for appropriate interventions and management. To prevent the conditions that lead to these deaths, obstetricians and public health planners will need to identify women who are at an increased risk of dying during pregnancy.

India has made significant progress in putting policies into place that have enhanced maternal health, however, these things require focus. The majority of maternal mortality occurs in the Empowered Action Groups (EAG) states, rural areas, and tribal communities, therefore first, we need policies that detect and monitor these subnational discrepancies.

Through educational campaigns, people should also be aware of the advantages of care and planned pregnancies.

References

1. Collier ARY, Molina RL. Maternal mortality in the united states: Updates on trends, causes, and solutions. No reviews. 2019;20(10):e561–74.
2. World Health Organization (WHO). Trends in maternal mortality from 1990 to 2015. Estimates developed by WHO, UNICEF, UNFPA and The World Bank. 2015;80. Available from: http://datatopics.worldbank.org/hnp/files/Trends in Maternal Mortality 1990 to 2015 full report.PDF
3. Hamal M, Hamal M, Hamal M, Dieleman M, Dieleman M, De Brouwere V, et al. Social determinants of maternal health: A scoping review of factors influencing maternal mortality and maternal health service use in India. Public Health Rev. 2020;41(1):1–24.
4. MoHFW. Chapter 3: Maternal and Adolescent Healthcare, Annual Report 2017-18. 2018;23.

5. Bhatia M, Dwivedi LK, Banerjee K, Bansal A, Ranjan M, Dixit P. Pro-poor policies and improvements in maternal health outcomes in India. BMC Pregnancy Childbirth. 2021;21(1):1–13.
6. Das R, Biswas S. Eclapmsia: The Major Cause of Maternal Mortality in Eastern India. Ethiop J Health Sci. 2015;25(2):111–6. 2001_86_92_MarApr.pdf.
7. Khumanthem PD, Chanam MS, Samjetshabam RD. Maternal mortality and its causes in a tertiary center. J Obstet Gynecol India. 2012;62(2):168–71.
8. Rathod AD, Chavan RP, Bhagat V, Pajai S, Padmawar A, Thool P. Analysis of near-miss and maternal mortality at tertiary referral centre of rural India. J Obstet Gynecol India. 2016;66:295–300.
9. Meh C, Sharma A, Ram U, Fadel S, Correa N, Snelgrove JW, et al. Trends in maternal mortality in India over two decades in nationally representative surveys. BJOG An Int J Obstet Gynaecol. 2022;129(4):550–61.
10. Åhman E, Shah IH. New estimates and trends regarding unsafe abortion mortality. Int J Gynecol Obstet. 2011;115(2):121–6.
11. Young MF. Maternal anaemia and risk of mortality: a call for action. Lancet Glob Heal [Internet]. 2018;6(5):e479–80. Available from: http://dx.doi.org/10.1016/S2214-109X(18)30185-2
12. Berhan Y, Berhan A. Reasons for persistently high maternal and perinatal mortalities in Ethiopia: Part II-Socio-economic and cultural factors. Ethiop J Health Sci. 2014;24:119–36.
13. Berhan Y, Berhan A. Reasons for persistently high maternal and perinatal mortalities in Ethiopia: Part II-Socio-economic and cultural factors. Ethiop J Health Sci. 2014;24:119–36.