



ORIGINAL RESEARCH PAPER

Obstetrics & Gynaecology

A RETROSPECTIVE STUDY ON MATERNAL MORTALITY IN A TERTIARY CARE SETUP: 2-YEAR REVIEW DURING COVID PANDEMIC

KEY WORDS: maternal mortality, COVID-19, risk factors, maternal deaths

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ABSTRACT

Introduction: Epidemiological data related to maternal mortality is valuable in each setup to design interventional programs to reduce the ratio favorably. This study was done to evaluate the maternal mortality rate in our hospital GGH GUNTUR from January 2020 to December 2021, to assess the epidemiological aspects and causes of maternal mortality, and to suggest recommendations for improvement.

Objectives:

1. To estimate the maternal mortality rate in GGH Guntur
2. To identify the causes associated with maternal mortality
3. To identify epidemiological risk factors for maternal mortality
4. To recommend ideas for reducing MMR to prevent maternal deaths.

Methods:

This is a 2-year retrospective study conducted in our hospital, GGH Guntur, Andhra Pradesh. All data presented were collected from hospital records and the causes were assessed, some of the epidemiological risk factors were identified, and maternal mortality rates were calculated. **Results:** A total of 165 maternal deaths occurred. Most maternal deaths occurred in the age group of 20–24 years, primi women (53.33%), women from rural areas (75.15%), and unbooked patients (95.15%). Direct causes accounted for 52.27% of maternal deaths, 28.48% of maternal deaths were due to indirect causes and 17.57% of maternal deaths were due to non-obstetric causes (89.65 % were due to covid-19)

Conclusion: Better reporting of maternal deaths and implementation of evidence-based, focused strategies, along with effective monitoring of maternal health, emphasizes the need for regulation of the private sector and encourages further public-private partnerships and policies, as well as a robust political will and enhanced management capacity for improving maternal health, particularly in an unprecedented health crisis such as Covid-19. As a considerable number of the recorded deaths are preventable, there is substantial room for advancement.

INTRODUCTION:

According to the Tenth Revision of the International Classification of Diseases (ICD-10),

maternal death is 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.

To define maternal death, it is critical to establish pregnancy status, timing, and cause of death; however, there is considerable variation in identifying symptoms, signs, diseases and reporting the cause of death. (1)

Maternal mortality is defined as the death of a woman from pregnancy-related causes during pregnancy or within 42 days of pregnancy, expressed as a ratio to 100,000 live births in the population being studied (World Health Organization, 2004).

Maternal Mortality Ratio (MMR): This is the proportion of maternal deaths per 1,00,000 live births, reported under the sample registration system (SRS). (2)

The MMR declined in India by about 70% from 398/100 000 live births (95% CI 378-417) in 1997 -98 to 99/100 000 (90-108) in 2020. (3)

Although these figures are encouraging, the death of a mother is terrible and has a significant negative impact not just on the newborn, but on the entire family, creating a massive emotional, psychological, and economic void.

Underreporting and misclassification of maternal fatalities is a worldwide issue.

Maternal mortality-related epidemiological data are essential in all contexts for designing interventional initiatives to minimize the ratio.

During a global health crisis, this study was conducted to examine maternal mortality at our institution, Government General Hospital GUNTUR, from January 2020 to December 2021, to assess the epidemiological aspects and causes of maternal mortality, and to make suggestions for improvement.

Terms used in this study are:

Booked women were defined as those who had at least three antenatal visits at the hospital center, while Un-booked women were those who had no prenatal care at all throughout the pregnancy, those who registered at the hospital but had fewer than two antenatal clinic visits, and patients referred as an emergency from other facilities. (4)

Direct Maternal Death- is death of a woman that results from obstetric complications of the pregnant state, which includes pregnancy, labor, and puerperium(1)

Indirect Maternal Death – is death of a woman caused by diseases or conditions that may exist before pregnancy, but is aggravated by the physiologic effects of pregnancy.(1).

Direct causes include Ectopic gestation, Abortion, Pre eclampsia.

Eclampsia, APH & PPH, Puerperal Sepsis

Indirect causes include Anemia, Cardiac disease, Diabetes, Thyroid disease, Jaundice etc.

Non-obstetric causes include Poisoning, Infectious diseases (eg TB, typhoid, Covid 19).

AIMS AND OBJECTIVES:

1. To identify the causes associated with maternal mortality
2. To identify epidemiological risk factors for maternal mortality
3. To recommend ideas for reducing MMR to prevent maternal deaths.

METHODOLOGY: Our hospital is a tertiary care facility located in urban Andhra Pradesh. It receives referrals from rural and urban maternity homes, primary health centres, and community health centres in Andhra Pradesh. This retrospective investigation was conducted inside the Obstetrics and Gynecology department of this institution.

After getting authorization from the hospital's Medical Superintendent, information pertaining to maternal mortality was acquired from the maternal mortality Register.

(The study did not include women who died from unintentional or incidental causes.)

The specifics of maternal deaths from January 2020 to December 2021 were compiled and analysed based on the following epidemiological variables.

- Locality wise distribution of maternal deaths : rural or urban
- Gravidity wise distribution of maternal deaths : primi or multi
- Maternal deaths according to receipt of antenatal care: booked or unbooked
- Causes of maternal deaths. : direct, indirect and non-obstetric

Descriptive data was tabulated as absolute figures and percentages.

Table 1: The epidemiological characteristics of maternal deaths

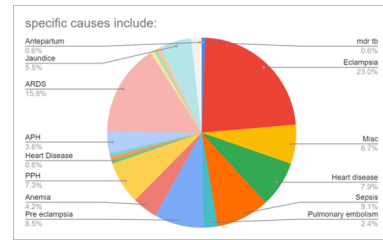
Patient characteristics	Number n=165	Percentage
AGE		
<20	10	6.06%
20-24	72	43.63%
25-30	68	41.21%
>30	15	9.09%
RESIDENCE		
urban	41	24.84%
rural	124	75.15%
PARITY		
primi	88	53.34%
multi	77	46.66%
ANTENATAL CARE		
booked	7	4.25%
unbooked	158	95.75%

Table 2 shows the type of cause leading to maternal deaths

TYPE OF CAUSE	N= 165 (100 %)
direct	88
indirect	48
non-obstetric	29

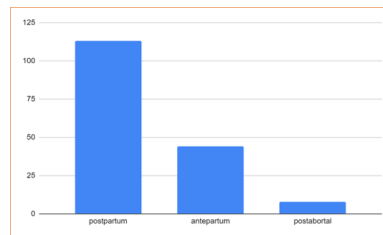
In the study period, 52.27 % of maternal deaths were due to direct causes, 48% indirect causes and 29% non-obstetric causes.

Figure 1: Distribution of specific causes of maternal deaths



Eclampsia is leading specific cause of maternal mortality contributing 23% of total maternal deaths and the specific causes of maternal deaths are as shown in above figure 1

Figure 2: Distribution of deaths in relation to pregnancy



Postpartum deaths contribute 113 (68.5%), antepartum and postabortal causes are 15 (26.7%), and 8 (4.8 %) respectively as depicted in figure 2.

Of which COVID-19 has caused 27 maternal deaths: postpartum 19, antepartum and postabortal deaths being 8 and 1 respectively.

DISCUSSION

Similarly, 53.34% of maternal deaths in primiparous patients may be due to an increase in primiparous pregnancies in India as a result of the unexpected baby boom fueled by the pandemic lockdown.

Women from rural areas were more likely to die (75.15%), as were unbooked patients (95.75%).

In our study, direct causes accounted for 52.27% of maternal deaths. The leading direct causes of maternal deaths were hemorrhage (10.9%), eclampsia (23.0%), and sepsis (9.1%). Our findings were consistent with those of Jain,^[5] Jadhav,^[6] Pal,^[7] Onakewhor,^[8] and eclampsia was the leading cause of maternal mortality in our study, which was also consistent with that of Das R.^[9]

COVID-19 has increased the overall case fatality rate (CFR) in pregnant and post-partum women (10) which has contributed to an increase in maternal deaths, and our study findings support this.

Even today, the classic triad of haemorrhage, sepsis, and eclampsia is responsible for a large number of maternal deaths. All of these are preventable causes of maternal mortality if treated in a timely manner.

Unfortunately, in many cases, patients were referred late, in critical condition, and sometimes without the presence of a healthcare worker. Most of these deaths are avoidable if patients receive appropriate treatment at the periphery and are promptly referred to higher-level facilities.

Regular antenatal and medical follow-up, as well as good perinatal care, can improve maternal outcomes in COVID positive mothers.^[11]

Basic emergency obstetrics care (BEmOC) training for medical officers and staff nurses working in rural areas may help reduce maternal mortality.

Maternal deaths can be avoided by improving health-care facilities, particularly in rural areas, and ensuring 24-hour access to basic drugs such as magnesium sulphate and tablet misoprostol, as the majority of maternal deaths in rural areas are still caused by eclampsia and postpartum haemorrhage.

High-risk pregnancies can be reduced in complications if they are detected early and referred to a tertiary centre as soon as possible.

By advocating for institutional deliveries and timely referral of high-risk cases, the National Rural Health Mission (NRHM) can play a significant role in reducing maternal mortality.

In addition, as obstetricians, we should screen all high-risk pregnant women for COVID. To allay patients' fears about the disease, we should make them aware of the potential obstetric and neonatal outcomes and more intensive monitoring during pregnancy.

Although we have not evaluated the impact of the aforementioned health programs on maternal mortality, future research in this area would be interesting.

CONCLUSION:

Better reporting of maternal fatalities, implementation of evidence-based, targeted policies, and effective monitoring of maternal health highlight the need for government attention to rural areas and fundamental maternal health requirements.

Public-private partnerships can be considered, and government regulations, along with a strong political will and increased managerial competence, can bridge the gaps in the supply of care to pregnant women, especially in the face of an unprecedented health disaster like Covid-19.

As a considerable number of the recorded deaths are preventable, there is substantial room for advancement.

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