

**Research Article**

## Study of risk factors in maternal mortality in Nehru Hospital, B.R.D Medical College, Gorakhpur

Authors

**Dr Shalini Singh<sup>1</sup>, Dr Shashi Shekhar<sup>2</sup>, Dr Archana Bundela<sup>3</sup>**

<sup>1</sup>Assistant Professor, Department of Community Medicine, B.R.D. Medical College, Gorakhpur, U.P, India

<sup>2</sup>Junior Resident, Department of Community Medicine, B.R.D. Medical College, Gorakhpur, U.P, India

<sup>3</sup>Assistant Professor, Department of Pathology, B.R.D. Medical College, Gorakhpur, U.P, India

**Abstract**

**Objectives:** To find out risk factors in maternal mortality over a period of one year in Nehru Hospital, B.R.D. Medical College, Gorakhpur.

**Study Design:** An observational descriptive study.

**Study Settings:** Obstetrics and Gynaecology Department, Nehru Hospital, B.R.D. Medical College, Gorakhpur.

**Study Period:** June 2008 to May 2009.

**Results:** A total of 60 maternal deaths were analysed during the present study period. Parity specific maternal mortality was highest in the grand multiparous women. Mothers with unawareness of danger signals as well as no ANC visits were associated with high maternal mortality.

**Conclusion:** Early recognition of the danger signs and risk factors with prompt and adequate management or referral should be emphasized.

**Keywords:** Maternal mortality, risk factors, parity, danger signal.

**Introduction**

According to W.H.O, 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 pregnancy from any cause related to or aggravated by the pregnancy or its management but not by accidental or incidental cause'.<sup>1</sup>

Pregnancy is not a disease and pregnancy related mortality is almost always preventable yet more than half a million women die each year due to pregnancy related complications.

The direct and indirect causes of maternal mortality are only the tip of iceberg. The

underlying causes in developing countries particularly in India are;

1. Extreme ages at child birth
2. Multiparity
3. Too close pregnancies
4. Large family size
5. Teenage pregnancies
6. Malnutrition
7. Poverty
8. Illiteracy
9. Ignorance and prejudices
10. Lack of maternity services
11. Delivery by untrained dais
12. Poor environmental sanitation

### 13. Poor communication

Multiple factors keep these pregnant women away from the available resources, like their familial taboos, cultural ethos, superstitions, attitude of health personnel towards delivery of health services and existence of barriers linked to health services organisations and to quality of care.

Realising this fact, this study was planned to access the risk factors in maternal mortality over a period of one year in Nehru Hospital, B.R.D. Medical College, Gorakhpur.

### Material and Methods

This was an observational descriptive type study of 60 cases of maternal mortality over a period of one year from June 2008 to May 2009.

All booked or unbooked patients presenting with life threatening complications related to pregnancy and child birth were included in the study. Detailed history was taken from conscious and well oriented patients and from the accompanying closest relative in case of unconscious patients. Data was collected on a proforma. The details were kept safe and the patients were followed. During followup, if a patient died, then she was included in the study. Women who survived or absconded were excluded from the study. The risk factors along with predisposing and precipitating factors of maternal death were assessed.

#### Working definitions of life threatening obstetric complications used

Complication	Essential features	Additional features
<b>1.Obstetric haemorrhage</b>		
a. Abortion-related haemorrhage	Gestation of fetus <24 weeks	At least one of the following: Blood loss of more than 500 ml Clinical sign of shock (pulse>100 /min and systolic blood pressure<100 mmHg)
b.Ruptured ectopic pregnancy	Pregnancy outside the uterine cavity with haemoperitonium,  Gestation of fetus $\geq$ 24 weeks	
c. Antepartum haemorrhage	Clinically observed vaginal bleeding  Genital tract bleeding within 24 hours of delivery Gestation of fetus $\geq$ 24 weeks	A. Placenta Previa B. Abruptio Placentae
d.Primary postpartum haemorrhage	Genital tract bleeding after 24 hours of delivery but within 42 days Gestation of fetus should be $\geq$ 24 weeks	At least one of the following: Perceived blood loss of more than 10 ml Clinical sign of shock  At least one of the following: Blood loss should be >500 ml Clinical sign of shock
e. Secondary postpartum haemorrhage	Generalized fits in a patient without previous history of epilepsy  Clinical sign of shock Temperature $\geq$ 37.5°C Odorous vaginal discharge	
<b>2.Eclampsia</b>		At least one of the following: Labour >12 hours Uterine tetany Abnormal pelvis Bandl's ring Uterine rupture Haematuria Caput or moulding
<b>3.Obstructed labour</b>	Rupture of uterus during labour with confirmation at laparotomy  Gestation less than 24 weeks Temperature $\geq$ 37.5°C	

**4.Uterine rupture**

At least one of the following:  
Abdominal pain/tenderness  
Injury of genital tract  
Odorous vaginal discharge  
Tender fornices  
Open cervix with product of conception

**5.Septic abortion**

At least one of the following:  
Odorous vaginal discharge.  
Tender subinvolted uterus

**6.Puerperal sepsis**

Temperature  $\geq 37.5^{\circ}\text{C}$  within 42 days of delivery

Modified Prasad B G Classification was adopted for determining socio-economic class.

Modified B.G.P classification to the year 2008	Socio economic class status
Rs. 3056 and above	I
Rs. 1528 - 3055	II
Rs. 917 - 1529	III
Rs. 458 – 916	IV
Below Rs. 458	V

The following signs and symptoms were taken as danger signs;

1. Bleeding per vagina
2. Blurring of vision
3. Convulsions
4. Loss of foetal movements
5. Severe headache

Females having awareness of two or more danger signals were considered in “Yes” category and females having awareness of less than two danger signals were considered in “No” category.

**Results**

During the study a total of 60 maternal deaths were analysed.

As evident from Table-I marriage at younger age (<18 years) contributed to 56.67% maternal deaths and marriage after 18 years of age contributed 43.33% deaths. Among all maternal deaths, majority 31.67% were grand multipara ( $\geq\text{P5}$ ) followed by primigravida (21.66%) mothers.

The most common socio economic status of died mothers being class V (per capita monthly income below Rs.458) followed by class IV (per capita monthly income 458 – 918).

Poor condition of antenatal visits was seen in died mothers. Majority 26 (43.33%) had no ANC

visits. Only 13.33% of died mothers were aware about danger signals or warning signs.

**Table – I** Age at marriage

Age at marriage	Frequency	Percentage
< 18 years	34	56.67
>18 years	26	43.33
<b>Total</b>	<b>60</b>	<b>100.00</b>

**Table – II** Parity Status

Parity	Frequency	Percentage
Primigravida	13	21.66
P1 / P2	8	13.33
P3	10	16.67
P4	10	16.67
$\geq\text{P5}$	19	31.67
<b>Total</b>	<b>60</b>	<b>100.00</b>

**Table – III** Socio Economic status

S.No.	Socio economic status ( per capita monthly income )	Frequency	Percentage
I	Rs. 3056 and above	0	0
II	Rs. 1529 – 3055	0	0
III	Rs. 917 – 1528	8	13.33
IV	Rs. 458 – 916	17	28.33
V	Rs. < 458	35	58.34
	<b>Total</b>	<b>60</b>	<b>100.00</b>

**Table – IV** ANC Visits

No. of ANC visits	Frequency	Percentage
Nil	26	43.33
1 – 2	24	40.00
$\geq 3$	10	16.67
<b>Total</b>	<b>60</b>	<b>100.00</b>

**Table – V** Awareness of danger signals

Awareness of danger signals	Frequency	Percentage
Yes	8	13.33
No	52	86.67
<b>Total</b>	<b>60</b>	<b>100.00</b>

## Discussion

Our study was a descriptive observational study of 60 maternal deaths over a period of one year at the Department of Obstetrics and Gynaecology, Nehru Hospital, B.R.D. Medical College, Gorakhpur.

On total, the maternal mortality was higher (56.67%) in women who were married before 18 years as compared to 43.33% in women married after 18 years. This is in conformity with the opinion of population council (1997) that early sex and pregnancy are unhealthful for girls in every way, lengthening the span of years over which they have children, increasing the risks of infections and raising the chances of having unwanted pregnancies and increasing the likelihood that they will have unsafe abortions.

In the present study maximum (31.67%) deaths were in grand multipara ( $\geq G5$ ) followed by 21.66% deaths of primigravida. Shamshad Begum et al also found maximum (69%) deaths in grand multipara ( $\geq G5$ ).<sup>2</sup> Swain S et al (1992) revealed that grand multigravida status in 34.13% was the main risk factor for referral.<sup>3</sup>

According to socio economic status majority (58.34%) of died mothers belong to socio economic class V. Almost similar observation was made by Verma Ashok<sup>4</sup>. 28.33% mothers belong to socio economic class IV and 13.33% mothers belong to socio economic class III. A study by Abuzahr C in Geneva concluded that there is a relation between maternal mortality and socio economic factors such as income per capita, gross domestic product and education level.<sup>5</sup>

Overall, only 16.67% females took at least 3 or more ANC visits during pregnancy which is very low in comparison to NFHS-III showing 51% coverage with three antenatal check-ups. Igberase GO et al (2006) observed most of the deaths (89.5%) in unbooked women for antenatal care. The percentage mortality for unbooked was 10 times that for booked patients. Unbooked status was a risk factor for maternal mortality as this was statistically significant ( $p < 0.0001$ ).<sup>6</sup>

Only 13.33% women of died mothers were found to be aware of the danger signals during pregnancy, delivery and puerperium. Mojoko F et al (2005) in Zimbabwe suggested that the pregnant women should be informed of the danger signs of the main complications likely to occur.<sup>7</sup>

## Conclusion & Recommendations

It was observed that there were many possible factors, either alone or in combination responsible for maternal mortality. The causative factors were largely preventable.

The risk factors in maternal mortality found in this study were:

1. Early marriage
2. Multiparity
3. Poor socio economic status
4. Unregistered status or no antenatal visits
5. Unawareness of danger signals

Child marriages seem contributory especially in rural areas. Community participation of educated group is needed to make the society realize the bad impact of early marriages on mother's health and human development.

Opportunities to launch vocations oriented education and family planning are quite useful approaches in the direction of socio economic progress which in turn lead to improvement in health status of mothers.

Training of local dais, village health guides and families to adopt safe delivery practices and to identify the earliest warning symptoms during pregnancy, delivery and puerperium must be done. Information, Education and Communication (IEC) by all possible means including utilization of folk media should be used to educate mothers and families about danger signals of pregnancy, delivery and puerperium as pregnant women are ill equipped to make appropriate choices especially when they are in danger.

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