

MATERNAL MORTALITY IN INDIA - FOGSI-WHO STUDY

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SUMMARY

The study covers 4369 maternal deaths taking place in 55 medical college hospitals, ten District hospitals and 3 community blocks. The purpose of the study is to identify complications in pregnancy and childbirth which result in maternal death. It was desired to identify factors which come in the way of seeking emergency obstetric care (EOC) in time. The study shows that anaemia is still the major killer in obstetric practice. The antenatal care coverage is very low. The deaths due to PET/Eclampsia are on the rise. Among socio-economic factors, lack of money was responsible in 18.3%, transport availability in 13.7% and family reluctance to shift to EOC in 25.4%. The maternal mortality is 572.3/100,000 births. The study would serve its purpose if it generates a spark in members of FOGSI which may result in saving many maternal lives. This article is condensed from the original report.

INTRODUCTION

Study of maternal deaths periodically is not only an academic exercise but provides considerable help and guidelines for planning strategies for improving

maternal health. The obstetric and gynecological societies in most developed countries have committees to evaluate every maternal death. In India, the system of periodic evaluation of maternal deaths is not existent but some institutions have developed a protocol to analyse maternal deaths. The last official study on maternal

mortality in India was conducted by Dr Rao on behalf of Indian Council of Medical Research (ICMR) in 1982-83.

The present study was initiated in 1992 with following objectives.

Identify obstetrical complications which cause maternal death.

Identify factors responsible for NOT seeking health care facilities or delay in seeking help.

Evaluate factors in PHC, district hospitals and teaching hospitals for providing substandard care.

Identify easily implementable interventions that may reduce maternal deaths.

MATERIAL AND METHODS

The study was initiated during the author's tenure as chairman of maternal mortality committee of FOGSI. The study was approved and supported by World Health Organization (WHO) and Ministry of Health and Family Welfare, Government of India. The study covers 55 medical colleges, 10 district hospitals and 3 community blocks. The protocol was discussed with participating centres. The data was collected every 3 months from the centres. The queries or further

clarifications were sought by correspondence. After due corrections, the data was recorded in computer for analysis.

RESULTS

The information is collected from 4369 maternal deaths in 763,477 deliveries all over the country during 1992-94. The maternal mortality is 572.3 per 100,000 births. Rao in a similar study in 1980-82 reported 753/100,000 deaths (Table I).

It shows nearly 25 per cent reduction in maternal deaths. This is a good improvement and credit must be given to improvement in infrastructure in health care facilities. Nevertheless the mortality is still unacceptably high and efforts must be concentrated for reduction in maternal mortality to 200 by the year 2000 AD. It must be realized that for every referral from rural area to the district hospital/teaching hospital and who dies, ten women deliver without complications. The maternal death is added to numerator but the normal deliveries at these peripheral places are not added to the denominator. This would give higher figure for maternal mortality. However,

TABLE I
MATERNAL MORTALITY IN INDIA

	K. Rao 1980-82	Present study 1992-94
Number of maternal deaths	1851	4369
Number of deliveries	245,767	763,477
Maternal mortality rate (per 100,000)	753	572

till efficient system is devised for monitoring maternal deaths and deliveries in rural areas, we shall have to depend on data from teaching and district hospitals.

Kerala state has the lowest maternal mortality rate (223) as compared to Bihar 1668. The maternal mortality in Bihar, Madhya Pradesh, Rajasthan and Uttar Pradesh (which are called BIMARU states) is 1120.7 which is more than double of the national average. If maternal deaths from these four states are excluded, maternal mortality for the rest of the country is 489.2. 26.6% of the women died undelivered, 12.6% died during labor and 60.8% died after childbirth. Though the data is collected from centres which are located in urban areas,

60.3% of the women who died belong to rural area. Emergency obstetric care (EOC) is not available in rural setting. They have to travel a long distance to the centre which provides EOC. Such centres may be 30-40 kilometers from the place of their residence. Thus lack of timely transport and communication and inevitable delay in decision making by family members result in higher mortality in women from rural areas.

The haemoglobin status of these women is shown in Table II. It shows that 21.6% of these women had haemoglobin value less than 5 grms%. The haemoglobin was less than 8 grms in 64.4% of the women. It shows that anaemia is the greatest killer of women in child bearing. Though oral iron is cheap and effective

TABLE II
HAEMOGLOBIN STATUS OF WOMEN

	Percentage
Hb (in gms)	
Upto 5 gms	21.6
6-8	42.8
9-10	26.6
11-12	5.4
13+	1.3
Not done	2.3
Mean age	7.4
Total number of women	1487

the compliance for oral iron is poor in most developing countries. We must think of alternate routes for iron therapy till compliance to oral iron improves. We have reported our results with parenteral iron dextran (Bhatt 1995).

Lack of antenatal and intranatal care is a very important cause for maternal death. Table III shows that 46.6 per cent of women had no antenatal care. Surprisingly more women seek help during child birth. Only 17.7 per cent of women had no trained birth attendant during childbirth. Unfortunately there is so much delay in seeking help, the patients are in shock when first seen by the consultant at the medical college hospital. Thus on record delivery is shown as conducted by the consultant but very little could be done by the

consultant to save the woman. It is sad but true that 19.7 per cent of women delivered at home and 0.8 per cent of women died in transit and were brought dead on arrival to the hospital.

The causes of maternal mortality are shown in Table IV. It shows that anaemia is a common denominator in most of the maternal deaths. The pre-eclampsictoxaemia (PET) and eclampsia is also an important cause of maternal deaths (25.5 per cent) followed by sepsis (20.6 per cent) and haemorrhage in 19.8 per cent. Similar study by Rao (1982) showed that PET/eclampsia accounted for 9.89 per cent maternal deaths. Thus in ten years, PET/eclampsia has shown three fold rise in maternal deaths. Tetanus continues to take a toll of maternal deaths in child birth.

TABLE III
PERSON PROVIDING CARE IN PREGNANCY
AND LABOUR (PERCENTAGE)

	During pregnancy	In labour
Persons		
None	46.6	17.7
Family member	8.9	3.4
Dai/TBA	8.4	13.6
LHV/ANM	7.8	2.4
General practitioner	14.8	10.2
Consultant	13.0	52.2
Others	0.5	0.5
Total number of women	1487	1178

TABLE IV
CAUSE OF MATERNAL DEATH

	Percentage
Causes	
Anaemia	64.4
PET/Eclampsia	25.5
Sepsis	20.6
Haemorrhage	19.8
Abortion related	11.1
Infective hepatitis	8.7
Heart disease	5.3
Malaria	2.9
Acute renal failure	2.5
Incidental cause	2.5
Total number of women	1487

There were 39 deaths (2.6 per cent) due to tetanus. It shows that every woman in child bearing age needs to be protected by tetanus toxoid injection because 50 per cent of pregnant women are still not covered by antenatal care. There were 37 deaths due to acute renal failure, 130 deaths (8.7 per cent) due to infective hepatitis and 43 deaths (2.9 per cent) due to malaria. Infective hepatitis and malaria are public health problems and improvement of obstetric services ALONE cannot prevent these deaths unless public health measures are taken. There were 67 (5.4 per cent) cases of rupture of the uterus. Most of them came very late when

there was extensive neurogenic and haemogenic shock.

We made an attempt to identify avoidable factors (Table V). The avoidable factors include failure of clinical care or substandard care. Substandard care includes shortage of manpower, shortcomings in EOC and facilities for blood and blood products, anaesthetic services, etc. The table shows that lack of ante natal care was responsible in 50.8 per cent of the cases. Patient/relative factor was responsible in 37.3 per cent of the cases. The doctor/nurse was responsible in 19.7 per cent of the cases.

The problems in care at the hospital level were also studied (Table VI). Delay

in services was responsible in 8.9 per cent, diagnosis or wrong assignment of responsibilities. Often the junior doctors were lack of life saving drugs in 3.3 and allowed to tackle difficult and high lack of blood and blood products in 13.9 risk cases and without supervision. The per cent of the cases. The doctors problems were more acute at night role was further analyzed. There was time or during weekends when there is either delay in diagnosis or wrong

TABLE V
AVOIDABLE FACTORS FOR MATERNAL DEATH

	Percentage*
Factors	
No trained attendant	50.8
Patient factor	37.3
Doctor/Nurse	19.7
Health facilities	33.5
Total number of women	1487

Percentages will not add to 100 as only major causes are taken

TABLE VI
HOSPITAL FACTORS RELATED TO MATERNAL DEATH

	Percentage *
Factors	
Delay in service	8.9
Lack of drugs	3.3
Lack of blood and blood products	13.9
Total number of women	1487

Percentages will not add to 100 as only major causes are taken

TABLE VII
SOCIO-ECONOMIC FACTORS

	Percentage
Money	18.3
Transport	13.7
Patient/relative reluctance	25.4
Ignorance	46.1
Others	13.0
Total number of women	1487

Percentages will not add to 100 as only major causes are taken

TABLE VIII
EDUCATIONAL STATUS OF FAMILY (Percentage)

Level of class upto what education attended	Patient	Husband	Father	Father-in-law	Mothers in law
Nil	50.0	33.2	0.8	44.7	53.1
1-7	17.1	20.9	0.3	7.3	3.8
8-11	7.9	15.2	0.1	3.8	1.3
12+	2.6	7.7	0.1	1.6	0.2
NA	-	1.7	98.3	1.7	1.7
Don't know	22.3	21.3	0.4	40.8	39.8
Total number of women	1487				

shortage of the staff. The establishment of the system of medical audit (or review of all maternal deaths) is very necessary. This type of confidential inquiry (as is done in UK and many

other countries) would help in reducing maternal mortality.

We also studied the socio-economic factors which contributed to maternal death (Table VII). Lack of timely transport

was responsible in 13.7 per cent of the cases. Lack of hard cash (money) was responsible in 18.3 per cent and reluctance on the part of patient/relative was responsible in 25.4 per cent of the cases. Ignorance was the common factor in most cases of delay in transferring serious cases to health care facility.

We could not collect accurate data on education of the family. However, the data shows that 50 per cent of women who died and 33.2 per cent of the husbands had no formal school education (Table VII).

ROLE OF FOGSI

FOGSI is national body with more than 12000 members all over India. The high maternal mortality is a challenge to our profession. The target is to reduce maternal mortality to 200 by the year 2000 AD. FOGSI must accept this challenge and plan what its members can contribute for lowering maternal mortality. I have a few suggestions :

- 1 Every FOGSI member must adopt a village to provide obstetric care. The member can train medical/para-medical staff in dealing with simple low-risk cases and learn to identify high risk cases which need to be transferred in time to place where EOC is available.
2. The study shows that maternal deaths occur due to delay in diagnosis or wrong diagnosis or lacunae in services

and training in medical colleges.

3. FOGSI can establish a system of 'Confidential Inquiry' in every maternal death on lines similar to the Royal College of Obst. Gynec.
4. FOGSI should have several meetings, workshop and CME programs to sensitize the medical and non-medical community in maternal care.

FOGSI members have the skills, zeal, technical know how and strong desire to serve the country. What is needed is a spark to kindle this lamp to initiate action. The study would serve its purpose if it acts as a 'pacemaker'.

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REFERENCES

- 1 Bhatt R. V : *J. of Obstet and Gynec of India.* 45;227;1995
- 2 Rao K. B : *Report of the Maternal Mortality in India. FOGSI-ICMR Sponsored Study* 1992