

A Study of Determinants of Maternal Mortality in Distt. Faridkot

Authors

Dr. Nishi Garg¹, Dr. Seema Grover²

¹MD, MICOG, FICMCH, Assistant Professor GGS Medical College & Hospital Faridkot

²Professor, GGS Medical College & Hospital Faridkot

ABSTRACT

Research Question: *What is the maternal mortality rate in Faridkot District and what are the determinants of maternal mortality?*

Aims & Objectives:

- *To study the incidence of maternal mortality in Distt. Faridkot.*
- *To find out the determinants of Maternal mortality.*
- *To plan strategies to reduce the number of maternal deaths.*

Methods: *The present study is a retrospective analysis of the maternal Death Review of district Health Office to find out the MMR & its determinants. This study was carried out in GGS Medical College & Hospital Faridkot. The data was collected from District Health Authorities from a time period of March 2010 to May 2013.*

Results: *There were total thirty eight maternal deaths which were reported in Maternal Audit in District Hospital during this period. Mean age of Patients was 24.5yrs. Two patients were of teenage pregnancy. There were six deaths (15.8 %) in antenatal period. Out of 38 maternal deaths, Twelve mothers (31.57 %) were from urban area & twenty six women (68.4 %) were from rural background. Seventeen patients (44.74 %) died within 6 hours of delivery in post partum period. 63 % deaths were because of obstetric Causes & 36.5 % were from indirect causes. Indirect Causes were medical Conditions like Lung infection, Cardiac disorders, Deep vein Thrombosis, Blood Dyscrasias & Epilepsy. In eighteen out of Thirtyeight deaths (47.37%) the mothers were anaemic. Haemorrhage and Toxemia of Pregnancy were the main Causes of maternal mortality.*

Recommendations: *The network system at root level should be strengthened. The medical Causes should be picked up early and treated in time. Institutional deliveries should be encouraged. The ambulance 108 has improved the early transport but still a lot is required to improve the system especially in rural areas to reduce the incidence of maternal mortality.*

INTRODUCTION

Maternal mortality rate is the number of maternal deaths per 100,000 live births due to causes related to pregnancy or within 42 days of termination of pregnancy.

A maternal death is the outcome of chain of events in a women's life . Every time a woman in developing countries becomes pregnant, her risk of dying is 200 times higher than the risk of a woman in the developed world.^[1] . MMR is a vital index of the effectiveness of the obstetric services prevailing in the country. In developing countries like India MMR is very high and rates are found to be lower in the urban areas which reflects easy access of urban people to medical services as compared to rural population Each year roughly 28 million women experience pregnancy and 26 million have live birth .Of these, an estimated 67,000maternal deaths and 1 million newborn deaths occur each year. ^[2]In addition, million more women &newborns suffer ill health.Thus Pregnancy related mortality & morbidity continues to have huge impact on the lives of Indian women & their newborns.MMR in India has shown an appreciable decline from 398 / 100,000 live births in year 1997-1998 to 301/ 100,000 live births in year 2001-2003 to 254 /100,000 live births in year 2004-2006 as per the latest RGI –SRS survey report released in April 2009. But to achieve Maternal Death Goal (MDG)goal of less than 100/ 100,000 live births, there is a need to give impetus to implementation of the technical strategies and interventions for maternal health .MMR vary greatly across the regions , due

to variations in underlying access to emergency Obstetric Care , antenatal care, anemia rates among women, education levels of women & other factors. Developing Countries bear & disproportionate share of maternal death, 99% to 1% in more developed nations.^[3]Maternal mortality in Afghanistan is very high i.e. one in six as Compared to one in 30, 000 in Sweden.^[4] Even MMR varies across different states within India. Uttar Pradesh and Rajasthan,for example have higher rates of fertility and maternal mortality while Kerala and Tamilnadu have rates comparable with middle income countries. Geographic vastness and socio-cultural diversity across India contribute to this variation . Female literacy and women lack of empowerment to take decisions to use reproductive health services also contribute towards MMR. Only one in 20 women with Complication of Pregnancy or Childbirth reaches a facility equipped with Emergency Obstetric CareServices.^[5]Most deaths Occur during or few hours after delivery. Haemorrhage , Hypertension, Obstructed labor are the common direct obstetric causes. ^[6]WHO stated that it is estimated that more than 80% of deaths could be prevented or avoided through actions that are proven to be effective and affordable even in resource poor Countries. ^[5]The Govt.of India has placed special emphasis on improving maternal, new born and child health (MNCH) through policies and programme guidelines. ^[7]One major policy initiative includes increasing institutionalization of deliveries facilitated through the Janani Suraksha Yojana (JSY)

program—a national conditional cash transfer scheme started in 2005 that provides eligible women with cash incentives for giving births in an institution.^[8,9,10] Another is MKS – cash incentive for all institutional deliveries. However, implementation on the ground has been extremely slow and challenging.^[11] Recently, the government issued national guidelines for states to carry out maternal death reviews at both community and facility levels.^[12] In an effort to analyze the reasons for maternal deaths for appropriate local intervention, the Government of India introduced Maternal Death Review guidelines in 2010,^[12] based on the experience of implementing such reviews in Kerala, Tamil Nadu, and West Bengal.^[13] The maternal death review (MDR) is a tool used in many countries to understand the underlying factors leading to maternal deaths, providing programs with information to improve services and reduce MMR.^[14,15]

AIMS & OBJECTIVES

- To study the incidence of maternal mortality in Distt. Faridkot.
- To find out the determinants of Maternal mortality.
- To plan strategies to reduce the number of maternal deaths.

MATERIALS & METHOD

It is a retrospective study, done in Faridkot Distt from March 2010 to May 2013. The MDR records during this period were collected from the district hospital and analyzed. The data of Facility Based

Maternal Death review (FBMDR) & Community Based Maternal Death Review (CBMDR) was seen. The incidence of maternal mortality was calculated and search was made for various causes.

OBSERVATIONS & ANALYSIS

The records of Maternal Death Review were taken from the district Hospital from March 2010 to May 2013. During this period Thirty Eight maternal deaths were reported and Maternal death review was done. Total Population of the Faridkot Distt in this period was 6,18,000. Total live births were 30776. Out of 38 patients twenty Six patients (68.42 %) were of FBMDR and Twelve Patients (31.57%) were of CBMDR. Two patients (5.26%) were in age group of <20 yrs, Twenty Two patients (67 %) were between 21-29 years of age and one patient (3.12 %) was of age more than 30 years. Twenty Six patients (68.42%) had Rural background & Twelve (31.57 %) were from Urban background. 44.8 % mothers who died were Primigravidae, 23.6 % were second gravidae, 18.4 % were 3rd gravidae & 7.9 % were grand multipara. 28.9 % mothers who died got married at the age of less than 19 years. Twenty six women (68.4%) were illiterate, whereas 2.69 % studied only upto 5th class. Out of thirty eight women who died twenty Four (63.16%) were from Low Socioeconomic Group. Table 1.

Table 1: The Demographic Details

Factors	No. of deaths	%age
AGE		
20-25yrs	22	57.89%
<20 yrs	02	5.26%
26-30 yrs	11	25.9 %
RESIDENCE		
RURAL	26	68.42 %
URBAN	12	31.57%
PARITY		
G1	17	44.79%
G2	09	18.42%
G5	03	7.9%
AGE AT MARRIAGE		
< 19 yrs	11	28.95%
20-22 yrs	21	55.27%
EDUCATION		
Illiterate	26	68.4%
Upto 5th class	09	2.69%
SOCIO ECONOMIC STATUS		
Low	24	63.16 %
Medium	12	31.5 %

Out of thirty maternal deaths, only 39.47 % women went for regular Antenatal Checkup 36.84 % women took irregular treatment & 21.05% did not avail any antenatal Care.. Hemoglobin estimation was done in 78.9 % of mothers but in 21.06 % women it was not done . 47.37% women were found anaemie. 7.9 % mothers had hemoglobin levels below 7 Gm%, 39.47 % had Hb. between 7to 9 Gm %. Only 13.16 % availed the services of transportaion by 108 ambulance. Out of 38 maternal Deaths only 47.37 % women underwent institutional deliveries. , 36.84 % women had home delivery by Dais..whereas six patients(15.79 %) died in antenatal period. Majority of mothers i.e 44.7% died with in six hours of Delivery. Twenty eight patients (7.69 %) died in hospital , Table 2.

Table 2: Antenatal Care

ANTENATAL CHECKUPS	Regular	15	39.47 %
	Irregular	14	36.84 %
	No	08	21.05%
HB. LEVELS GM%	<7	03	7.9 %
	7-9	15	39.47%
	9-11	12	31.58%
	Not done	08	21.06 %
MODE OF TRANSPORT	Pvt. Taxi	28	73.6%
	108	05	13.16 %
	None (Home)	03	7.9 %
PLACE OF DELIVERY	Home	14	36.84%
	Institution	18	47.37%
	Undel.	06	15.79 %
MODE OF DELIVERY	NVD	26	68.42%
	LSCS	06	15.79%
	Undelivered	06	15.79%
DELIVERY DONE BY	Dai	14	36.84%
	Doctor	18	47.37%
PLACE OF DEATH	Home	03	7.90%
	Hospital	28	73.69%
	On the way	07	18.42%

Table 3: Fetal Outcome

FETAL OUTCOME	Live	17	44.74%
	Still Birth	15	39.47%
	In utero	06	15.79%
FETAL WEIGHT	< 2.0 Kg05 (one twin)		13.16 %
	2- 2.5 Kg		26.3 %
	2.5- -3.0 Kg		44.7 %
	>3 kg		2.63 %

Three(7.9%) died at home and seven (18.42 %) died on the way to hospital . Regarding fetal outcome, there were seventeen live births (44.74%) and Fifteen babies (39.47 %) were still births & IUD's .

Table 3

Table 4: Causes

DIRECT	Toxemia	09	
	APH	01	23.68%
	PPH	09	2.63%
	Obstuct. Labor	01	23.68%
	Sepsis	04	2.63 %
			10.53%
INDIRECT			5.26 %
	Epilepsy	02	47.37%
	Anaemia	18	2.63%
	DVT	01	2.63%
	Embolism	01	10.53%
	Cardiac	04	13.16%
	Respiratory	05	2.63%
Blood Dyscrasia	01		

Table 4 :As per observations 84.2 % patients died in postpartum period & 15.7 % died in antenatal period. Those who died in antenatal period they had Medical causes like epilepsy, Cardiac failure, Acute Respiratory Syndrome , and one patient had blood dyscrasiai.e Idiopathic Thrombocytopenic Purpura. 63 % deaths were because of obstetric Causes & 36.5 % were from indirect causes. Indirect Causes were medical Causes like epilepsy , lung infection, Cardiac, deep vein thrombosis , Embolism & Blood Dyscrasia. Out of direct causes 23.68 % women died of Postpartum hemorrhage and one (2.63%) died of Ante partum haemorrhage. In rest of the cases Sepsis (10.53 %), Toxemia (23.68%) & Obstructed Labor (2.63 %) were responsible for maternal deaths .

18 patients (47.37%) who died were having anemia. Haemorrhage and toxemia were the main Causes of maternal mortality .

DISCUSSION

The total live births over a period of March 2010 to May 2013 were 30776 in Faridkot Distt. Total maternal deaths reported in this period were Thirty eight. So MMR came out to be 123.47 / 100,000 live births. 68.4 % patients had rural background & 78.4% deaths were in postpartum Period. Out of which 23.6 % deaths were only because of PPH, 23.6 % because of PIH & E clampsia & 10.5 % were following Sepsis. The various factors which contributed to maternal death in our study were Lack of Transport., Poor antenatal care, Ignorance about Pregnancy associated Complications, Lack of proper investigations ,Lack of Medical exam ,Improper management of Anemia & Underutilization of blood transfusion Facility. In order to reduce Maternal mortality, all pregnant mothers should be investigated properly , treated for all medical conditions promptly. Anemia if treated in time either by Iron supplementation or Blood Transfusion & proper care at the time of Delivery can prevent complications. High Risk cases should be identified in remote areas & their delivery to be ensured in an institution where all facilities are there .Filling of Partographs can give early alarms.

Table 5: Comparison

	Sujata P. etal Bhubaneshwar	Mandal RCetal Midnapore	Our Study
Eclampsia / Toxemia	15.38 %	56.4%	21.05%
SEPSIS	23.07 %	2.1%	10.53%
Haemorrhage	23.07 %	20.3%	23.68%
Embolism	7.69%		2.63%
Anaemia		2.1%	47.37 %
Cardiac	7.69%	10.4%	10.53%
Respiratory		1.3%	13.16%

Causes of Maternal Deaths are multiple, interrelated, complex & almost preventable. Majority of causes of Maternal deaths were same in hospitals throughout the country & in the community, though in different proportions. Our study did not identify any abortion-related deaths, which is most likely due to underreporting by the family. Even though abortion is legal in India, many studies have shown that it is still an important cause of maternal death, due to lack of access to safe abortion services. Our results were comparable with SOGP country wide study & Jameela Salma etalstudy. Maternal Mortality in rural areas of Punjab is still a challenge. There is no magic Bullet to reduce MMR, but can be done by Good Antenatal Care system, Availability of Emergency Obstetric Care round the clock at all the levels of the system. Training of LHV, SBA, Community Midwives, Quick Referral System with introduction of Flying Squads, Better transport system and Correction of Anemia in adolescent period can be helpful in prevention of Maternal deaths.

CONCLUSIONS

Reduction of mortality of women is an area of concern for the Governments across the globe. The International Conference on Population and Development in 1994 had recommended reduction in maternal mortality by at least 50 percent of the 1990 levels by the year 2000 and further one half by the year 2015. The Millennium Development Goals (MDG) of the United Nations has set the target of achieving 200 maternal deaths per lakh of live births by 2007 and 109 per lakh of live births by 2015.^[16] Progress in the reduction of maternal mortality has been slow. Over 1000 women still die from pregnancy-related causes every day around the world and the vast majority of these deaths occur in developing countries^[17] Low-income countries are heavily affected by the burden of maternal deaths and maternal mortality is still an important public health problem among middle-income countries. Strengthened health systems and effective maternal health care (particularly to those women experiencing acute pregnancy-related complications) are considered the key factors for reducing maternal mortality.^[18] The maternal death review, coupled with the facility gap assessment, is a useful tool to address the adequacy of emergency obstetric and neonatal care services to prevent further maternal deaths.

REFERENCES

1. Dash S. et al: Maternal Mortality – Magnitude of the Problem and its Prevention at V.S.S.M.C.H, Burla : Indian J. of perinatology and reproductive

- Biology, Vol 01 No.02 March 2011 Pages 8-11.
2. National Rural Health Mission :Frame Work for implementation2005-2012. New Delhi: Ministry of Health and Family Welfare, Govt. Of India.
 3. (Veilie JC, Maternal Mortality, In progress in Obstetric & gynecology edited by shidd. I Lintan. A and Cervenak FA. Volume 18: 125 -42 Elsevier 2008)
 4. (Ronsman C , Graham WJ, on behalf of the lancet Maternal Survival Series steering group . Maternal Survival1. Maternal Mortality : Who, When & Why 200 6, 368 : 1189 – 96)
 5. Mustafe R, Mustafa R, Hashmi H Maternal mortality in a Community based hospital . Medical forum 2008 , 19 (5) : 1225.)
 6. Maternal and infant mortality policy and interventions report of an international Workshop at the Agha Khan University, Pakistan Agha Khan University, Feb 1994.)
 7. (Ministry of health & family welfare, Government of India. National programme implementation plan. RCH phase 2 Program document (Internet) New Delhi, India.
 8. Ministry of Health and Family Welfare, Government of India. Janani Suraksha Yojna: guidelines for implementation [Internet]. New Delhi, India: Ministry of Health and Family Welfare; 2005.[cited 2012 Nov 17]. 29 p. Available from: http://www.mohfw.nic.in/NRHM/RCH/guidelines/JSY_guidelines_09_06.pdf
 9. Lim SS, Dandona L, Hoisington JA, James SL, Hogan MC, Gakidou E. India's Janani Suraksha Yojana, a conditional cash transfer programme to increase births in health facilities: an impact evaluation. *Lancet*. 2010;375(9730):2009–23. Cross Ref. Medline
 10. Paul VK. India: conditional cash transfers for in-facility deliveries. *Lancet*. 2010;375(9730):1943–1944. Cross Ref. Medline
 11. Ministry of health & family welfare, 2005 (Cited 2012 NNH) 432 P Available from <HTTP://WW.Mohfw.Nic.in/NRHM/RGT/Guidelines/NPIP-REV-///PDF>)3,4,6.
 12. Department of Health and Family Welfare, Government of Punjab. Maternal death review: guidelines for rolling out [Internet]. Punjab, India: Department of Health and Family Welfare; 2010 Jul. [cited 2012 Nov 15]. 56 p. Available from :<http://www.pbnrhm.org/docs/mdr.pdf>
 13. Padmanaban P, Raman PS, Mavalankar DV. Innovations and challenges in reducing maternal mortality in Tamil Nadu, India. *J Health Popul Nutr*. 2009;27(2):202–19.13. Cross Ref. Medlines
 14. Bradshaw D, Chopra M, Kerber K, Lawn JE, Bamford L, Moodley J, et al. Every

- death counts: use of mortality audit data for decision making to save the lives of mothers, babies, and children in South Africa. *Lancet*. 2008;371(9620):1294–304. CrossRef. Medline
15. Kongnyuy EJ, van den Broek N. Audit for maternal and newborn health services in resource-poor countries. *BJOG*. 2009;116(1):7–10. CrossRef
16. SPECIAL BULLETIN ON MATERNAL MORTALITY IN INDIA 2007-09 Sample Registration System Office of Registrar General, India Vital statistics Division , West Block1, Wing 1, 2nd Floor, R. K. Puram , New Delhi :June, 2011
17. WHO, UNICEF, UNFPA, The WB. Trends in Maternal Mortality: 1990–2008. Geneva: WHO, 2010.
18. Maine D. Detours and shortcuts on the road to maternal mortality reduction. *Lancet* 2007;370:1380–2.