

Maternal Mortality: An Ice Berg One Year Review at DHQ Hospital, Faisalabad

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Abstract

Objectives: To find out the major causes of maternal death and determine the maternal mortality ratio. **Study Design:** A Descriptive study **Setting:** This study was carried out at Gynae and Obst. Unit-II DHQ Hospital Faisalabad from Jan-2011 to Dec-2011 (I year study) **Material and methods:** All maternal death during pregnancy, labour and perpeurium were included. The data regarding age, parity, booking status, gestational age, risk factors, cause of death and distance from hospital was recorded on a proforma. The data was analyzed and was presented as frequencies and percentages. **Results:** The maternal mortality ratio was 412/100,000 live births during the period of one year. The most common cause of maternal death was hemorrhage 51.6% (16) followed by hypertensive disorders (22.5%). The other

causes were septicemia 3.2 % (1) thromboembolic disease 3.2% (1), cardiac disease 6.5% (2), anaemia 6.5% (2) and anaesthetic complications were seen in 9.7% (3) patients. **Conclusion:** Health care by skilled professionals before during and after child birth can save the lives of women and their babies. Antenatal care by skilled health worker, educating the community, appropriate referral system, provision of fast and reliable transport facilities, availability of emergency obstetric care (EMOC), regular emergency drills and reduction in rate of caesarean section to decrease the risk of placenta accreta and uterine rupture, and finally establishing comprehensive nationwide system to collect and analyze data of maternal death are the key steps towards decreasing maternal mortality. **Key Word:** Maternal Mortality Ratio (MMR), Eclampsia,

INTRODUCTION

It is a human rights failure when a woman dies during child birth. Her death changes the life of her family and future generations forever. This is a great loss for the community and nation as well. Every day 1000 mothers die and 358000 die each year due to pregnancy and child birth.

Although pregnancy is not a disease, pregnancy related deaths constitute the leading cause of loss of healthy lives among women of reproductive age in South East Asian Region. This region alone accounts for 40% of the global maternal deaths¹, the highest among the six WHO regions. Maternal mortality is an indicator not only of woman's health but also of access, integrity and effectiveness of health system.

Maternal death as defined by WHO is "death of a woman while pregnant or within 42 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".² WHO defined the maternal mortality rate as the number of maternal death per 100,000 women of reproductive age, and the maternal mortality ratio (MMR) as 'the number of maternal death per 100,000 live births'.³ MMR is the most commonly used measure of maternal mortality. MMR in developing countries is 240 per 100000 compared to 16 per 100000 in the developed world. WHO estimated 536,000 maternal deaths per year-equivalent to 1 every minute of every day and that the global maternal mortality rate is now 400 per 100,000 live births.⁴ 99% of maternal deaths occur in developing countries as compared to 1.1% in advanced world.⁵ The moderate maternal mortality ratio at 260 maternal deaths per 100,000 live births in Pakistan indicates that access to and quality of emergency obstetric and neonatal care remains a challenge.¹¹ It is

an alarming situation that Pakistan is one of the six countries where 50% of all maternal deaths occur. The national aggregation of MMR is just the tip of the iceberg as more than 70% maternal deaths are grossly under reported because no routine registration system is available and majority of the deaths occur outside the health care system without medical assignment of the cause of death.⁶ Research shows that more maternal deaths occur as a result of the “3 delays”; 1st-delay in deciding to seek medical care, 2nd-delay in reaching medical facility with adequate care, 3rd-delay in receiving quality emergency obstetric care.

The millennium developmental goal was to reduce the maternal mortality by 75% by 2012.⁷ Now the average decline in maternal mortality rate is 2.3% per year but the required decline to achieve millennium goal is 5.5%. We are still far behind this goal. Human resources for maternal health are limited with only 0.77 physicians per 1000 population.⁸ The prevalence of contraceptive methods was only 30% in 2006 – 2007. While three fifths of the women receive antenatal care from skilled medical personnel, only 28% have the recommended four or more antenatal visits.⁹

Women who receive no prenatal care are 3-4 times more likely to die of pregnancy related complications than woman who do.¹⁰ Those with high risk pregnancies are 5.3 times more likely to die if they don't receive antenatal care.¹¹ Globally more than 80% deaths are due to direct obstetric complications. The leading complications resulting in maternal deaths in Pakistan overlap with the main global causes which are hemorrhage, hypertensive disorders and infections. Other causes are obstructed labour and unsafe abortions. In developed countries thromboembolic disease is one of the most important common cause of death.¹² Amongst the indirect causes are cardiac diseases, psychiatric disorders and liver diseases. 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.¹³ Lastly in developed countries like UK maternal deaths are subject to confidential enquiry conducted. Such regular audits of

health care system has clearly led to interventions that has caused reduction in maternal mortality.¹⁴

OBJECTIVES

The objectives were to find out the major causes of the maternal death and determine the maternal mortality ratio.

MATERIAL AND METHODS:

The study was conducted from Jan-2011 to Dec-2011 in the obstetric and gynaecology department, DHQ hospital affiliated with Punjab Medical College, Faisalabad, Pakistan. Only those patients were included whose death certificates were issued by obstetrics and gynaecology department. Almost all the patients were emergency admissions. The data regarding age, parity, booking status, gestation age, distance from hospital was recorded on a proforma. The condition at arrival, risk factors, and cause of death were also analyzed. The record of each maternal death was reviewed in meetings of obstetric and gynaecology to find out the cause and possible preventive measures. The data was analyzed and was presented as frequencies and percentages.

RESULTS

There were total of 7576 births during the period of one year out of which 7529 were live births. There were total 31 maternal deaths during one year.

So the MMR was = $31/7529 \times 100,000$ live births
= $412/100,000$ live births

All the patients were unbooked except one. Most of the deaths (64.5%) occurred in age group 20-30 years. The youngest was 14 years in whom the cause of death was septic induced miscarriage. Regarding parity nine patients (29%) were primigravida and 20 (64.5%) patients were multipara while two (6.5%) were grand multipara. The most common cause of maternal death was hemorrhage, 51.6% (16) of which primary PPH continued to be the leading cause of maternal death accounting for 75% (12) patients. Hypertensive disorders contributed to death of 22.5% (07) mothers. Septicemia due to septic induced miscarriage resulted in loss of life of one patient. Two were eclampsia and five died from complications of severe pre-eclampsia mostly due to pulmonary edema. Two (6.5%) patients had cardiac disease which was diagnosed first time on their admission in labour ward. The contribution of

severe anaemia was 2%. While one patient died from thromboembolic disease. Two patients not included in the data expired on their way to ICU and two patients expired in ICU. Three patients died due to anesthetic complications (one due to spinal shock and the other did not recover from anaesthesia).

Table-1

Age group

Age (Year)	No. of case	Percentage
< 20	04	12.9%
21-30	17	54.8%
31-40	10	32.2
>40	1	3.2%

Table-2

Parity

Parity	No. of cases	Percentage
P1	09	29%
P2-P5	40	64.5%

Table-3

Causes of maternal mortality

Cause	No. of cases	Percentage
Hemorrhage	16	51.6%
Hypertensive disorders	07	22.5%
Anesthetic complications	03	9.7%
Cardiac disease	02	6.5%
Anaemia	02	6.5%
Septicemia	01	3.2%
Thromboembolic complications	01	3.2%

Figure-1

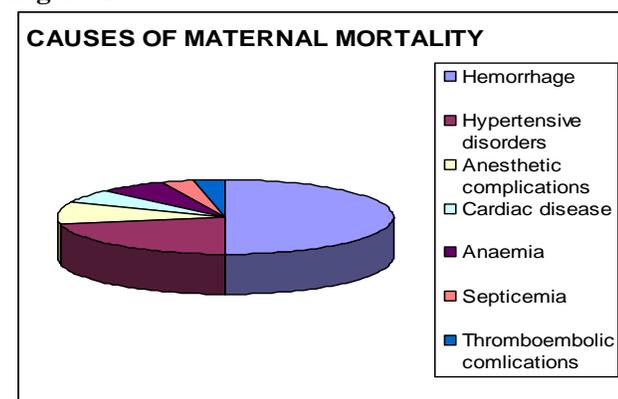


Table-4

Levels of delay

Delay in seeking medical advice (i.e delay at home)	09
Delay in reaching the appropriate hospital	11
Delay in receiving the appropriate obstetric care	07
Undecided	04

Table-5

Causes of hemorrhage: 16 cases

Cause	No. of cases	Percentage
Primary PPH	12	75%
Secondary PPH	1	6.3%
APH	2	12.5%
Incomplete miscarriage	1	6.3%

Table-6

Hypertensive disorders: 07 cases

Cause	No. of cases	Percentage
Eclampsia	2	28.6%
Severe pre-eclampsia	5	71.4%

DISCUSSION

Life time risk of a woman dying in pregnancy is 1:40 in developing countries whereas in the developed world the figure is 1:3600. In Pakistan, 30,000 women die each year due to pregnancy related causes. Fifteen percent of pregnant women are likely to experience some obstetrical and medical complications.¹⁵

The millennium goal is to reduce the maternal mortality ratio from 276 per 100,000 live births to 40 per 100,000 live births by 2015.¹⁶ In this study the MMR was 412 per 100,000 live births which although still far away from millennium goal, but is almost half (970 per 100,000 live births) of that reported in Allied hospital, Faisalabad in 2008.¹⁷ It was also less than that of 683 per 100,000 live births in Bahawalpur between 2006 and 2008.¹⁸ This decline of MMR over years may be due to increased awareness as more deliveries are now being conducted in hospitals by trained professionals. A study showed that frequency of utilization of antenatal care was 84.4% in urban areas.¹⁹ While in rural areas the situation is still alarming and needs lot of improvement as MMR is still higher in rural areas as compared to urban areas.²⁰ In this study almost all the patient were unbooked

except one who had two antenatal visits. Most of the patients (54.8%) were between age group of 21-30 years which reflects the high fertility rate in this age group.¹⁷ In another study done by Tasneem in 2008, most deaths occurred in the same age group.

Most deaths (65.4%) occurred in multipara. These figures were comparable to those observed in study conducted in Sukhar and Bahawalpur.^{21, 18}

The frequency of causes of maternal mortality was the same as observed in other studies and have not changed over the years. Haemorrhage was the major killer and was responsible for deaths of 16 (51.65%) of mothers which is almost the same as shown in studies done in Karachi and Rawalpindi.^{22, 23} This is in contrast to the results from other studies where eclampsia was the leading cause of death.^{24, 25} Regarding hemorrhage although PPH is the most common cause of mortality (accounting for 75% of deaths), APH due to placenta accreta turned out to be another important cause. Hypertensive disorders were the second most common cause (22.5%) which was similar to that observed by Mustafa R et al.²⁶ Most (71.4%) deaths in this category were due to complications mostly pulmonary edema rather than eclampsia (28.6%). All of these patients were referred from remote areas. It shows that failure of the system to appoint staff in suburbs is one of the contributory factors to maternal mortality.

Septicemia was third on the list (3.2%) which was far less than that reported by Bano N et al in 2009 (13%) and Shah N et al in 2011.²⁸ Regarding indirect causes like cardiac disease and anaemia each contributed to 6.5% of maternal deaths. As shown in this study, 1st and 2nd delays were responsible for majority of mortalities as in the study done by Shah N et al in 2009.²⁹

Family planning, safe motherhood and comprehensive and accessible emergency obstetric care are the only keys to reduce the maternal mortality ratio in Pakistan as observed in other countries in South Asian territories.

CONCLUSION

Maternal mortality is a public health crisis that requires to scrutinize the situation from various angles as quickly as possible and implement the changes to avoid preventable maternal deaths. The first step we need is to honor the life of women by investing the necessary resources to identify why they died and learn

from their deaths in order to prevent such incidences in future.

Secondly, we should keep safe motherhood at top priority on the national health and development agenda. Thirdly, ascertain that antenatal care by a skilled health worker is provided to every pregnant woman. Provision of health education and services for the whole community especially women, their families and decision makers are yet other crucial steps to improve the current situation.

Improvement of emergency care for life threatening obstetric complications is required. Moreover, already existing family planning services should be extended to remote areas to enable women to plan their pregnancies and prevent unwanted pregnancies and the sequelae of septic induced miscarriage.

Training of LHVs and Dai's (traditional birth attendants) in rural areas is crucial to impress upon them the importance of timely referral.

Regular emergency drills should be practiced in every unit for major hemorrhage, cardiac arrest, unexpected maternal collapse and eclamptic fits.

Rate of caesarean section should be curtailed to avoid the risk of placenta accreta related major obstetric hemorrhage.

The establishment of comprehensive nationwide system to collect and analyze data on maternal deaths, complications and performance measures is also needed to increase accountability, develop targeted solutions to reduce maternal mortality. In US this type of systematic approach has improved the outcome tremendously.

Finally, a political will is needed to build stronger health systems and address the issue of inadequate human resources in health. Adequate funding will be required for training more midwives and deploying them to the poorest or hard to reach areas.

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