Determinants of Mortality in Primigravida in Peoples Medical College Nawabshah.

Sabeena[1*], Mumtaz Begum Phull[2], Hazooran Lakhan[3], Samina Ghaffar[4], Shahneela Karim[5], Raishem Ali[6], Rashida Akbar Ghumro[7]

ABSTRACT:

Objective: To determine the determinants of maternal mortality in primigravida.

Methodology: This cross-sectional, descriptive study was conducted from June 2023 to Dec 2023 at the department of Gynecology and Obstetrics of Peoples University of Medical & Health Sciences for women, Nawabshah; a tertiary care center. We studied overall causes of death (direct and indirect) during pregnancy, delivery, and puerperium. Those patients who died after admission were included and analyzed on specially designed proforma. Information collected from hospital records/patient attendants. The reason for admission, status at arrival, cause of death, and potential variables answerable for death were recognized. Data including age, booking status, parity, gestational age, and relevant variables from the current pregnancy, along with the traveling distance from the clinic, was recorded on Performa, and analyses were done on SPSS adaptation 25.

Results: During study period 43 maternal deaths occurred in their first pregnancy. The live birth rate was 10020. MMR counted to 429 per lac live birth. Most frequent death occurs at 19 years of age, from the rural population (62%), the majority un-booked (72%), history of domestic violence (48%) was not uncommon. Among these primigravida; 60% having no formal education, 65% were referral cases presented with obstetrical complication and in labor (34.9%). Almost all deaths were due to direct causes (99%). The highest contribution was by hemorrhage 39.5% (PPH=27.9%+ APH 11.6%), followed by sepsis (27.9%), pre-eclampsia/ eclampsia (18.6%), pulmonary embolism (7%), while 4.7% deaths due to unsafe abortion in early pregnancy complications. We found only 2.3% of deaths due to indirect causes.

CONCLUSION: It is crucial to highlight that tackling maternal mortality requires a comprehensive strategy, which encompasses enhancing healthcare infrastructure, guaranteeing access to high-quality prenatal and obstetric care, advocating for education and awareness, and tackling social determinants of health. Recognizing and dealing with these factors can help decrease maternal mortality rates for all expectant mothers, including primigravidae.

Key words: Primigravida, Maternal Mortality Rate, antenatal care, Obstetric emergency.

Introduction:

Pakistan is a developing country, ranking fifth in terms of population size. Several factors, such as lack of education, a struggling economy, and low financial status, could contribute to maternal mortality. The maternal mortality ratio reflects a nation's overall health status. Health is crucial for everyone, especially for mothers. A healthy mother is more likely to give birth to a healthy baby.[1] According to WHO, Pakistan has the highest mortality rate in Asia[2], with 168 maternal deaths per 100,000 live births, and 1 in 89 women die from pregnancy, childbirth, or postpartum-related complications. It is concerning that women are still dying; from preventable causes during pregnancy and after childbirth; in this modern era of science and technology. High mortality rates indicate a lack of adequate healthcare services for women. Maternal deaths can occur due to direct or indirect reasons, both of which are considered in calculating maternal death rates (MMR). In developing countries, 70% of maternal deaths are caused by direct factors, with common causes including hemorrhage, sepsis, eclampsia, obstructed labor, and abortion-related complications. In many developing countries, pregnant women often give birth at home or in facilities with limited basic services. Even women with uncomplicated pregnancies can experience complications during pregnancy, labor, or postpartum. It is crucial to identify women at risk of complications before labor and timely referral to a district hospital for delivery is one of the strategies to reduce maternal and perinatal morbidity and mortality.

Maternal mortality in primigravida poses a significant global burden. Data from the World Health Organization (WHO) and the United Nations indicate that maternal mortality remains a pressing issue, disproportionately affecting primigravida women due to factors like limited access to quality maternal healthcare, socio-economic disparities, and inadequate prenatal education.[3] The risk during childbirth depends on the lack of history related to previous pregnancies in primigravida. Various studies also confirm higher mortality rates in primigravida compared to women with multiple children.[4] In many regions, primigravida women encounter elevated risks during pregnancy and childbirth, making them a particularly vulnerable group. Complications such as hemorrhage, hypertensive disorders, and sepsis can lead to adverse outcomes, underscoring the need for direct interventions to address these challenges.

Maternal mortality in primigravida presents a significant global burden, highlighting the importance of addressing this critical issue. This vulnerable demographic, going

1- MBBS, Postgraduate resident
Department of Obs and Gynae PUMHS.
2- MBBS, MCPS, (FCPS). Women Medical Officer, Department of Obs and Gynae .
3- MBBS, FCPS, Assistant Professor
Ghulam Muhammad Mahar Medical College Sukkur.
4- MBBS. Women Medical Officer PUMHS
5- MBBS, M.S, Senior Registrar.
6- Associate Professor, FCPS.
7- Associate Professor

*=corresponding author :
Email: sabishaikh947@gmail.com

through their first pregnancy, encounters unique challenges and increased risks during childbirth. Understanding and addressing the factors contributing to maternal mortality in primigravida is crucial for improving maternal health worldwide and ensuring safe pregnancies for all women, regardless of their gravidity. Most maternal deaths can be prevented through proper care during the antenatal, intrapartum, and postpartum periods. Timely referrals, adequate transportation with appropriate facilities, and support through safe motherhood practices are essential to reduce maternal mortality.

Methodology:

Department of Obstetrics and Gynecology conducted a descriptive cross-sectional study at the tertiary care center Peoples University of Medical & Health Sciences, Nawab Shah from June 2023 to December 2023. The department has a total annual delivery of 10,000 to 12000 approximately. All causes of maternal death (direct and indirect) in pregnancy, labour, and puerperium were noted. The cases which fulfill the criteria were reported on specially planned proforma. Their history, medical records, and clinical findings were explored and required data was obtained. The reason for admission, referral status, admission status, the reason for death, and potential elements answerable for death were distinguished. The other data including age, parity, booking status, gestational age, and pertinent highlights from the current pregnancy, alongside the distance from the clinic, was documented on Proforma and examined by SPSS 25.

Inclusion criteria:

All maternal deaths occurring in this facility during the antenatal period or within 6 weeks after its conclusion, irrespective of the location or stage of pregnancy.

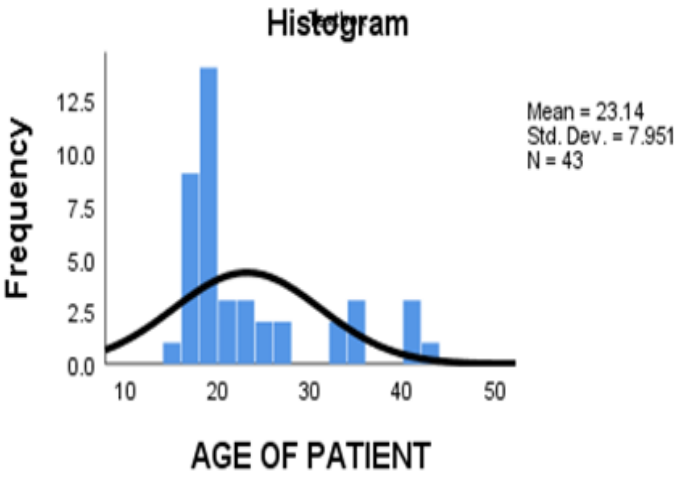
Exclusion criteria:

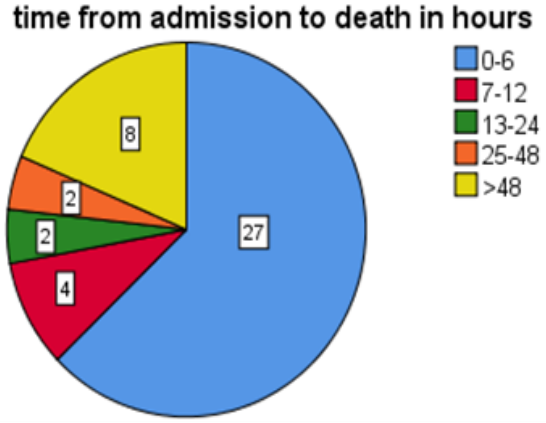
Those women who experienced maternal deaths due to incidental or accidental causes outside the hospital were excluded from the study.

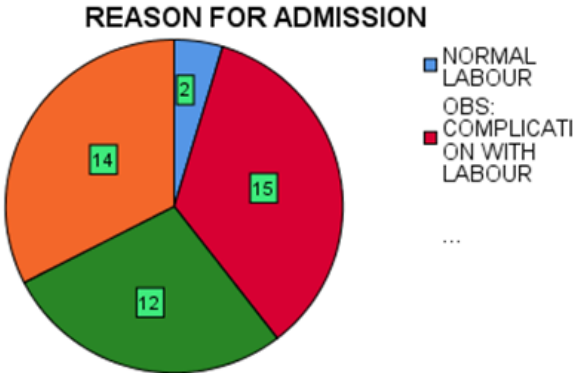
Data on variables such as parity, age, education, residency, and the time between admission and death were collected. In order to improve the statistical robustness of our findings, we chose to increase the sample size by combining data from the last six months with the previous six-month period, with the goal of boosting the confidence level of our analysis.

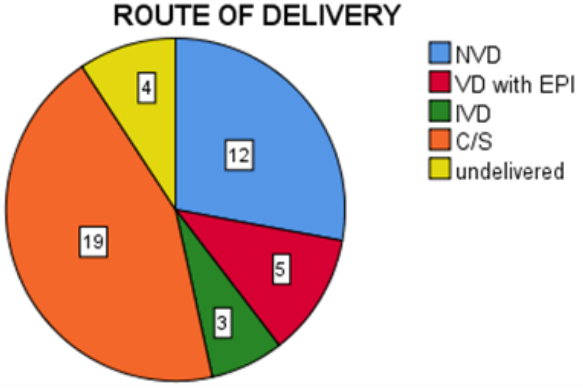
Result:

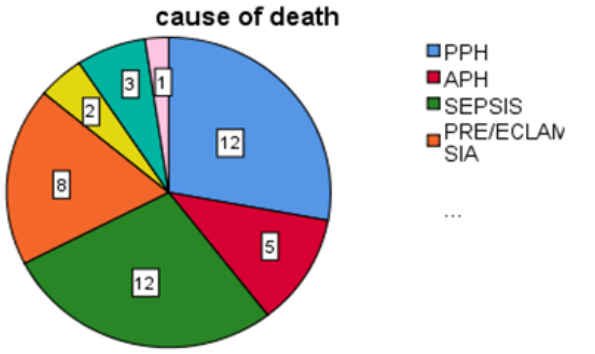
In a span of one year, 43 maternal deaths occurred during their initial pregnancy. The live birth rate was 10020. MME rose to 429 per lac live births. The majority of deaths occurred at 19 years of age, predominantly from the rural population (62%), most of whom were un-booked (72%). 48% had a history of domestic violence, 60% had inadequate education, and 65% were referral cases presenting with obstetrical complications during labor (34.9%). 44% had received care from unskilled individuals before admission. Nearly all deaths were due to direct causes (almost 100%). The highest contribution was from hemorrhage at 39.5% (PH=27.9% + AP 11.6%). Sepsis accounted for 27.9% of deaths, toxemia/clamps for 18.6%, pulmonary embolism for 7%, and 4.7% due to complications from unsafe abortion in early pregnancy. Only 2.3% of deaths were attributed to indirect causes.

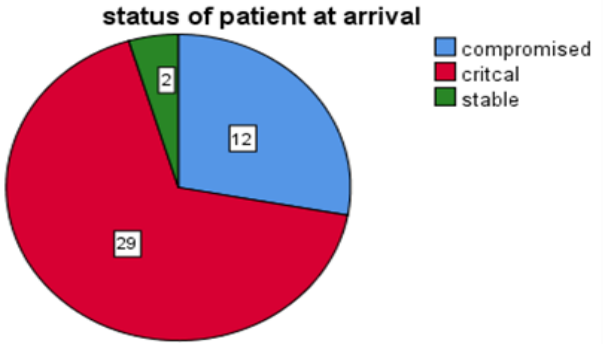












Discussion:

There were 43 deaths of primigravid patients (40% of the total mortality burden) among 12,050 deliveries and 10,020 live births in one year. The total mortalities in one year were 108, and the Maternal Mortality Rate (MMR) calculated was 1077/100,000, which is alarming. The high MMR observed in this review may be attributed to the fact that our facility is a tertiary care center and referral hospital, leading to non-registered cases being referred here in emergencies for further treatment. Most patients presented late in critical condition, as indicated by the admission-to-death interval observed. A high MMR was also reported in a study conducted in Peshawar (431/100,000 live births)[5] and other regions.[6,7] Similar findings have been noted in studies where MMR ranges from 113 to 1000.[8-12] This is likely due to the delay in seeking care for severe cases, with patients being transferred to hospitals from home or private clinics after initial treatment by unskilled providers. These women arrived in a deteriorating state, in almost irreversible shock, and succumbed despite the presence of skilled healthcare professionals and blood banking services. Two factors strongly associated with maternal mortality are education and the effectiveness of health systems, particularly during pregnancy and childbirth. Approximately 60% of the individuals were unable to complete their education, not even up to the level of matriculation. Other studies also demonstrate the same correlation.[13] Improving education within the community fosters independence and good decision-making, which helps reduce the initial delay. The study conducted in the North also found that teenage pregnancy in remigrated areas was a significant factor in mortality.[14] Direct maternal death, with haemorrhage being the most common cause, accounts for the majority of cases. This trend is consistent with findings from other studies. In this particular study, sepsis is responsible for 27% of maternal mortalities. The presence of multiple infections during pregnancy plays a significant role in the deaths of both mother and child. These results align with those of other studies. The use of clamps is identified as another common and leading cause of maternal death in our comparative analysis (18.6%), as supported by various other research studies.[15] Direct maternal death, with haemorrhage being the most common cause, accounts for the majority of cases. This trend is consistent with findings from other studies. During current study we identified that sepsis is responsible for 27% of maternal deaths. The presence of multiple infections during pregnancy plays a crucial role in fatalities affecting both mother and child. These results align with those of other studies.[16] Direct maternal death, with haemorrhage being the most common cause, accounts for the majority of cases. This trend is consistent with findings from other studies. In this particular study, sepsis is responsible for 27% of maternal deaths. The presence of multiple infections during pregnancy plays a crucial role in fatalities affecting both mother and child. These results align with those of other studies.[15-17] Likewise, the high mortality rate could be attributed to the lack of resources and the limited healthcare facilities required to manage the maternal complications of eclampsia. In developing countries, many women may not receive timely care, as most cases of eclampsia occur at home or during transportation. Additionally, the incidence of toxaemia and eclampsia is higher in developing countries due to inadequate prenatal care and the lack of access to proper hospital facilities. Unsafe abortions in early pregnancy accounted for 4.7% of maternal deaths in our study, primarily due to septic-induced miscarriages. This percentage is significantly lower than the one reported by Karim K et al[18] where it was responsible for 10-12% of maternal deaths, while in a study conducted in Sudan, it accounted for 3.9% of maternal deaths.[19] This confirms the reality that, even though access to family planning centres is made widely available, women do not use contraception but opt for abortion to end an unwanted and unplanned pregnancy, usually under risky circumstances.[20-22] Passing rates due to extreme pallor remain high, as mentioned in review and research conducted at other teaching hospitals in the country. This is primarily attributed to the widespread prevalence of iron deficiency in general population, especially among pregnant women. Similar findings have been observed not only nationally but also internationally.7,22,[23] This study revealed that anaemia was present in 83.7% of fatalities. Delay in seeking care can occur at three stages, known as the three-delay model: the first delay is when a woman or her family postpones the decision to seek care; the second is the delay in reaching that care; and the third is the delay in receiving care once reached at a healthcare provider.[24] Our study shows the history of trial in 44.2% of cases and as such untrained persons facilitating childbirth are a threat to mothers. Pakistan has different maternal mortality apportion in various arrangements due to inconsistent circulation of health services. Most of the deliveries are directed by the customary birth attendants, which puts the women's lives in jeopardy. Our research indicates that in 44.2% of cases, untrained individuals assisting with childbirth pose a significant risk to mothers. In Pakistan, maternal mortality rates vary due to inconsistent access to healthcare services. The majority of deliveries are overseen by traditional birth attendants, endangering women's lives, as highlighted in another study. It has been shown that 62.8% of women pass away within 6 hours of admission, while 9.3% die between 6 and 12 hours. Similar findings have been reported by Panderer in their study.[25]

Strengthening both basic and comprehensive emergency obstetrics care at the BHUs and RHCs community level

and at the primary referral unit could potentially save numerous mothers' lives. Developing countries often encounter obstacles in ensuring widespread healthcare access, including issues like limited healthcare facilities, a shortage of skilled healthcare professionals, inadequate transportation infrastructure, and insufficient antenatal care.

Conclusion: The maternal mortality rate at PUMHS hospital is unacceptably high due to the complex referral cases from across the city and the outskirts of Sindhi. It is important to focus on peripheral clinics by conducting regular training workshops for healthcare staff, including doctors, midwives, and general practitioners, and implementing awareness programs for patients. Emphasizing the importance of antenatal care is crucial for early identification of risk factors. Timely referral of complicated cases and collaboration with skilled professionals using a multidisciplinary approach, especially in cases of medical comorbidities, can be life-saving for mothers.

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