

Trends in Maternal Mortality in Federal Medical Centre, Owerri

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ABSTRACT

Background: Maternal mortality remains a big problem in the developing countries. However, it has not been adequately documented in Imo State, Nigeria.

Objective: To determine the trend and magnitude of maternal mortality ratio in Federal Medical Centre Owerri, Imo State, Nigeria.

Method: The case files of the 225 maternal deaths which occurred between January 1992 and December 2001 in the centre were identified from ward and theatre records, retrieved from the medical records department and analyzed.

Results: The mean maternal mortality ratio was 1985 /100,000 deliveries during the study period and did not change significantly over the years. The commonest causes of death were hemorrhage, infection and hypertensive disorders which accounted for 37%, 27% and 17% of cases respectively.

Conclusion: Maternal mortality was high and throughout the study period. The major causes are easily preventable by simple measures.

Key words: Maternal mortality, tertiary hospital, Owerri, Nigeria.

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INTRODUCTION

The death of a pregnant woman is a tragedy to the immediate family and society because the woman dies during a physiological process which guarantees the survival of the human race.¹ Maternal death is defined as the death of a woman while pregnant or within 42 days of termination of a pregnancy regardless of the site, duration or outcome of the pregnancy, from any cause related to or aggravated by the pregnancy or its management, but not from incidental or accidental causes.² Its causes are customarily classified into direct and indirect. Direct causes are those arising from obstetric complications, whereas indirect causes are those resulting from non obstetric diseases predating or developing in pregnancy which may have been aggravated by the pregnancy. Moreover, there are

coincidental or fortuitous causes and late maternal deaths. The former are deaths from unrelated causes that occur in pregnancy or the puerperium while the latter are deaths which occur between 42 days and one year of a pregnancy. Maternal mortality rates have been recorded in the United Kingdom since 1847 and are a yardstick for measuring the state of obstetric services in any country. The rate remained high until 1935 when a sustained fall started even before the advent of sophisticated equipment for monitoring the mother and child.³ Multiple factors have been suggested for this fall and include introduction of antibiotics, ergometrine and safe blood transfusion. Others are legalization of abortion, contraception, small family size, improving social conditions and better training of midwives.⁴ However in the developing countries the maternal mortality ratio has remained largely unaffected and consistently high. While ratios of 2,318/100,000⁵ are not unusual in the developing countries, in the developed countries the corresponding figure is 5/100,000,^{6,7} making a pregnant woman 400 times more likely to die in the developing countries than in the developed countries. It is estimated that a young woman in Ethiopia has a 1 in 10 chance of dying in pregnancy or at delivery.⁸ Of the 500-600,000 maternal deaths that occur each year about 99% occur in the developing countries.⁹ While the causes of maternal mortality are the same all over the world their ranking varies in the two zones. Direct causes like haemorrhage, sepsis, toxaeimias, anaemia, and obstructed labour are the most common in the developing countries,^{10, 11} while indirect causes like suicide, cardiac disease are the leading causes in the developed countries.^{2,12,13} Although the remedy to maternal mortality is simple, affordable, cheap and does not need any high technology, it is worrisome that the developing countries have made no progress in so many years. The safe motherhood initiative in Kenya in 1987¹⁴ which sought to reduce maternal mortality by 50% by the year 2000 failed to achieve its objective. Presently, effort by the Millennium Development Goals⁸ which seeks to reduce maternal mortality by 75% by the year 2015 is likely to fail. This dismal situation is the result of multiple factors like poor governance, poverty, ignorance, corruption, lack of education, inadequate contraception, high fertility rates and restrictive abortion laws.^{5, 15, 16} Delay in accessing treatment is also an important contributory factor and most cases can be prevented if this delay can be eliminated. This delay is of three types. Phase I delay is delay in making the decision to seek treatment. Phase II delay is delay in reaching an appropriate health facility while Phase III delay is due to inefficiencies in health facility. Maternal mortality represents just the tip of the iceberg, as for

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each mortality, there are at least twenty morbidities such as vesico-vaginal fistulae, recto-vaginal fistulae, pelvic sepsis, and obstetric neuropathy.

Owerri is a town in the South Eastern part of Nigeria and its general hospital which metamorphosed into the Federal Medical Centre was established over one hundred years ago. It is the oldest hospital in town and one in which most of the deliveries occur. Since its establishment there has been no audit of its maternity services. This ten-year study was therefore undertaken to determine the maternal mortality in the area, its major causes and trends over the years, and suggest measures to reduce it.

METHODS

The patients' records of the maternity unit of the Federal Medical Centre Owerri, between January 1, 1992 and December 31, 2001, were scrutinized for maternal deaths. Of the 239 maternal deaths identified, 225 (94.14%) case files were found and used for the study. They were analyzed for socio-demographic characteristics, booking status, cause of death, duration of hospital stay and other factors. The

data obtained were represented in tables and percentages.

RESULTS

During the study period, there were 12,039 deliveries and 239 maternal deaths giving an overall maternal mortality ratio of 1985 per 100,000 total deliveries (Table I). The lowest ratio was 1,574/100,000 deliveries in 1993, while the highest was 2,291/100,000 in the year 2000. Table II shows that most, 157 (70%) of the patients were unbooked and the greatest number of deaths, 83 (37%) was recorded in those with primary school education alone. Grand multiparous women accounted for most 60 (27%) of the deaths, while primigravidae accounted for 47 (21%) of the deaths. The most vulnerable age group was 26-35 years, which accounted for 122 (54%) of the deaths. The greatest period of danger was in the puerperium which accounted for 105 (47%) of cases and most deaths 131 (58%) occurred within two days of admission. Table III showed that the most common factors responsible for death were haemorrhage, infection and hypertensive disorders in pregnancy, which occurred in 82 (37%), 61 (27%) and 38 (17%) of the cases respectively. Abortion accounted for only 2 (0.9%) of cases.

Table I: Yearly maternal mortality and ratios

YEAR	TOTAL DELIVERIES	MATERNAL DEATHS	MATERNAL MORTALITY RATIO
1992	1106	23	2080
1993	1271	20	1574
1994	1163	21	1806
1995	1212	23	1898
1996	1096	22	2007
1997	1271	27	2124
1998	1210	26	2149
1999	1176	27	2211
2000	1309	30	2291
2001	1225	20	1622
TOTAL	12039	239	1985

Table II: Socio-Demographic Characteristics, Period of Death and Duration of Hospital Stay

Booking Status	Number	Percentage
Booked	68	30.2
Unbooked	157	69.8
Levels of Education of Patients		
No Education	18	8.0
Primary Education	83	36.9
Secondary Education	71	31.6
Tertiary Education	46	20.4
Not stated	7	3.1
Parity		
	Number of Deaths	Percentage
0	47	20.9
1	30	13.3
2	33	14.7
3	29	12.9
4	26	11.6
≤5	60	26.6
Maternal Age Distribution of Patients		
Age	Number	Percentage
<15	3	1.3
16-25	63	28.0
26-35	122	54.2
36-45	35	15.6
>45	2	0.9
Time of Death		
Before 28weeks	16	7.1
28 wks Onset of labor	66	29.3
Intrapartum	38	17.0
Post partum	105	46.6
Duration of Hospital stay before Death		
≤2 days	131	58.2
3-7 days	77	34.2
≥8 days	17	7.6

Table III: Causes of Death

Causes of Death	Number of Deaths	Percentage
Haemorrhage	82	36.4
Infection	61	27.1
Hypertensive disorders	38	16.9
Severe Anaemia	16	7.1
Hepatitis	8	3.6
Transfusion reaction	5	2.2
Embolism	4	1.8
Anaesthetic complications	4	1.8
Abortion	2	0.9
Others	5	2.2

DISCUSSION

The major findings in this study were a maternal mortality ratio of 1985/100,000 which did not show any consistent upward or downward trend throughout the period of the study. This occurred largely in unbooked multigravidae aged between 26 and 35 years, who had primary school education. The major causes of death were haemorrhage, infection and hypertensive disorders in pregnancy.

The maternal mortality ratio of 1985/100,000 was very high. Similar figures have been found in other places in Rwanda⁵ and Nigeria,^{11, 17} while lower figures have also been obtained from other centres.^{18, 10, 19} The reasons for the very high level include the fact that the facility is the only tertiary centre serving a very densely populated area and so serves as a referral centre for very bad cases. Over the ten-year period, no consistent trend emerged. This is unlike some studies where maternal mortality ratio paradoxically increased with time and decreasing number of deliveries.^{10, 20} The lowest rates were found in 1993 and 2001. While the lower rate in 2001 is attributable to the change in status of the hospital from a general hospital to a better funded and better staffed Federal Medical Centre, the lowest level recorded in 1993 could not be explained.

Most, 157(69.8%) of the patients who died were unbooked patients. This is a universal finding in the developing countries.^{10, 11, 19, 20} Consequently, one of the keys to reducing maternal mortality is to increase the number of pregnant women who book for antenatal care. Failure to book for antenatal care is tied to ignorance, poverty and illiteracy.^{15, 16} The finding that the maternal mortality rates of women who have attended university is similar to that of their counterparts in the developed countries²¹ underscores the importance of education in the war against maternal mortality.

In this study, grandmultiparous women accounted for majority, (26.6%) of the maternal deaths, while primigravidae were the next common group accounting for 20.9% of the deaths. This is not the finding in other studies where primigravidae accounted for the greatest number of cases.^{10, 11} At the tenth delivery, a woman is honoured in certain parts of the hospital's catchment area in a traditional ceremony called "Ewu Ukwu" literally meaning "a goat for a pelvis", in which a goat is slaughtered by a grateful husband. This may account for the high percentage of multiparous women who may have died, possibly trying to qualify for the honour. The commonest age group was 26-35 years and this is consistent with findings in Benin, Nigeria.¹⁰ This study showed a high percentage of deaths in those who had

secondary and tertiary education. This was even greater than in those who had no education who were expected to contribute most of the deaths. This finding is surprising given the fact that secondary and tertiary education have been found to have a protective effect on maternal mortality.^{15, 22, 23} It may be explained by postulating that though the women were educated, the education was not enough to liberate them from their traditional belief which places a high premium on vaginal delivery. Some women would rather die than have an abdominal delivery.²⁴ Also, a good number of women in the area married following the payment of a high bride price and many also were sponsored to school by less educated but financially well endowed husbands. They may have been prevented from seeking aid early by their less educated husbands in a male dominated society. Some may also have resorted to spiritual churches only coming to hospital at the very late stages, as was found in some other studies.^{24, 25}

As was the finding in many studies the postpartum period was the most dangerous period, with 105 (46.7%) of deaths occurring in that period while the intrapartum period was the least dangerous.^{10, 11, 18}

Most, 131, (58.2%) of patients died within the first forty eight hours in hospital. This is similar to the finding in Benin Nigeria, and is a reflection of the delay in presentation of the patients many of whom came in moribund.¹⁰ The three major causes of death were direct causes - haemorrhage, infection and hypertensive disorders, in decreasing order. The sequence of the first three causes is in keeping with findings from most developing countries.^{26, 27, 28} However, some other studies found that hypertensive disorders were more common than haemorrhage in their series.^{10, 11} This is different from the situation in developed countries like the United Kingdom where indirect causes are most important causes of death, with suicide being currently the commonest cause.^{12, 13} Abortion was responsible for only 2, (0.9%) of deaths. In other studies, it accounted for a much greater percentage being responsible for about 13% of deaths.²² This may be because such cases shun public hospitals for the sake of confidentiality.

CONCLUSION

Over the period of study, no significant gains were made in maternal mortality and the study showed that the main causes are easily preventable by early referral to tertiary centres and measures which do not require complex or sophisticated equipment. Poverty, ignorant ambulances and most importantly, lack of political will, lack of personnel, bad roads, lack of emergency remain stumbling blocks towards reduction of maternal mortality.

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