

Factors Contributing to Maternal Mortality in a Tertiary Health Institution in Akwa Ibom State, South-South Nigeria: A Ten-Year Review

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Abstract

Background and Objective: Maternal mortality remains a major public health issue in developing countries. This study aimed to determine the ratio, causes, trends and the major risk factors of maternal mortality in UUTH.

Method: A retrospective study was carried out in University of Uyo Teaching Hospital (UUTH), South-South Nigeria by analyzing the case files of all maternal deaths of ten years (2008 - 2017). Socio-demographic characteristics causes of maternal death and factors that may have contributed to death were recorded.

Results: The maternal mortality ratio (MMR) was 1062/100,000 live births. There were fluctuations in the MMR over the ten-year period with the highest peak in 2013 and the lowest in 2014. Major risk factors were primi-parity, maternal age ≤ 30 , Un-booked status, and low educational level. The leading cause of death was Pre-eclampsia/eclampsia 64 (31.5%), followed by obstructed labour 25 (10.8%), least being abortion complication 4 (2.0%). Major risk factors were primiparity, maternal age ≤ 30 , Un-booked status and low educational level. Traders/Artisans 101 (49.8%) were most affected by maternal death. Maternal occupation and duration of stay in the hospital were found to have statistical association with maternal death.

Conclusion: Attention should be given to maternal death in the rural areas from where most of the referrals get to this center. An improved transportation system, improved awareness creation on the risk factors of maternal mortality and provision of emergency facilities will play important roles to drastically reduce or prevent maternal mortality.

Keywords: Maternal Mortality; Tertiary Health Institution; Akwa Ibom State

Introduction

Maternal mortality is a pressing global public health challenge especially in developing countries like Nigeria. World Health Organization (WHO) has defined maternal mortality as the death of a woman in pregnancy or within 42 days of pregnancy termination irrespective of duration and site of pregnancy, from any cause related to or aggravated by pregnancy except accident or incidental death [1]. Globally, about 830 women are lost every day due to pregnancy-related complications [2]. A 2015 WHO report estimated about 303,000 global maternal deaths as a result of pregnancy and childbirth, 99% of which occurred in developing countries. Most of the deaths are preventable.

Causes of maternal mortality may be direct or indirect. They include; severe anemia, malaria, hepatitis, and human immunodeficiency virus (HIV), obstetric hemorrhage, obstetric sepsis, eclampsia, prolonged/obstructed labour, and abortion complications [2,3].

Maternal mortality remains a leading cause of death among women of reproductive age in developing countries [4]. The pattern of mothers' death is an indicator of a country's health care standard, the state of health of women and also the socio-economic standard of a society. A report from WHO showed maternal mortality ratio (MMR) of 14/100,000 live births for United States of America, 9/100,000 United Kingdom, 6/100,000 for Germany, 814/100,000 for Nigeria and 546/100,000 for Sub Saharan Africa [1].

Alkema, *et al.* [5], reported half of the global maternal mortal occurring in the Sub-Saharan Africa. Nigeria's maternal mortality is one of the highest in this region with a rate of 814 per 100,00 live births, next to Sierra Leone which is 1360 per 100,000 live births [1]. The burden of maternal mortality is about 15% of the annual total global deaths which represents 2 percent of the global population [1]. This implies that 58,000 out of 303,000 global maternal mortality due to pregnancy complications occurred in Nigeria.

Despite various interventions by International organizations, non-governmental organizations and the federal government, as well as the implementation of the safe motherhood interventions, there has not been marked improvement in the reduction rate of maternal mortality in Nigeria. The lifetime risk of dying from pregnancy related causes has shown no change in Nigeria and is presently at 4.62 percent [6].

Method

A retrospective study of all maternal deaths that occurred in University of Uyo Teaching Hospital (UUTH) over a 10-year period starting from January 1, 2008 to December 31, 2017 was carried out. Ethical approval for the study was obtained from Akwa Ibom State Ministry of Health. The data was analyzed using Statistical package for Social Sciences (SPSS version 20) and is represented by tables and charts. Chi-square was used to test for association between the socio-demographic variables and the maternal death.

Result

There were 225 maternal mortalities during the 10-year period under review. However, 203 (90.2%) of the case files were available and formed the basis of further analysis. In all the cases, no post-mortem examination took place as the relations of the deceased refused the procedure.

This study revealed that during the 10-year period, there were 18,265 live births and 203 maternal mortality (MM) giving an overall maternal mortality ratio (MMR) of 1,062/100,000 live births. The mean age of women was 27.8 ± 5.60; mean parity was 1.7 ± 1.4. For the yearly study population, there was no statistical significance difference (P = 0.75) in ages. Same also went for parity of the individual years (P = 0.98).

Cause of Death	Number of Maternal Mortality	Percentage of Death (%)
Pre-eclampsia/Eclampsia	64	31.5
Obstructed Labour	25	12.3
Obstetric Haemorrhage	22	10.8
HIV	21	10.3
Sepsis	16	7.9
Ruptured Uterus	12	5.9
Ruptured Ectopic	8	3.9
Anaemia	8	3.9
Malaria	6	3.0
Abortion Complication	4	2.0
Uncertain	17	8.4
Total	203	100.0

Table 1: Leading cause of MM in UUTH from 2008 to 2017.

Year	Maternal Mortality	No. of live births	MMR (/100,000 live births)
2008	27 (13.3)	1862 (10.2)	1396
2009	24 (11.8)	1808 (9.9)	1327
2010	12 (5.9)	1780 (9.7)	674
2011	17 (8.4)	2222 (12.2)	765
2012	37 (18.2)	2474 (13.5)	1253
2013	32 (15.3)	2164 (11.8)	1478
2014	10 (4.9)	1662 (9.1)	601
2015	12 (5.9)	1429 (7.8)	839
2016	15 (7.4)	1423 (7.8)	979
2017	16 (7.9)	1441 (7.9)	1110
Total	203	18265	1062

Table 2: Annual trend of MMR in UUTH, Uyo from 2008 to 2017.

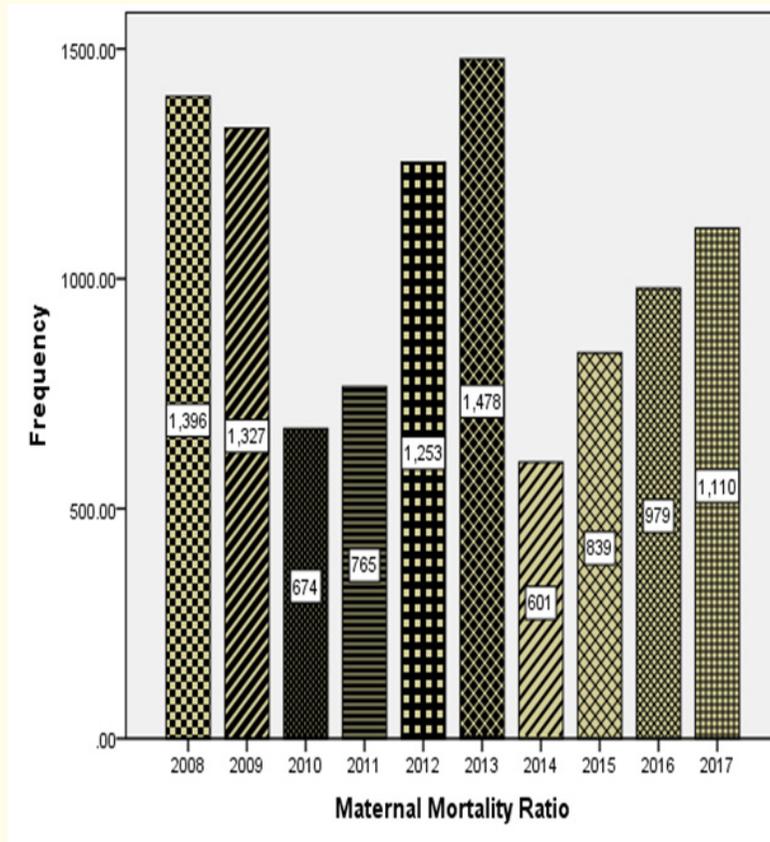


Figure 1

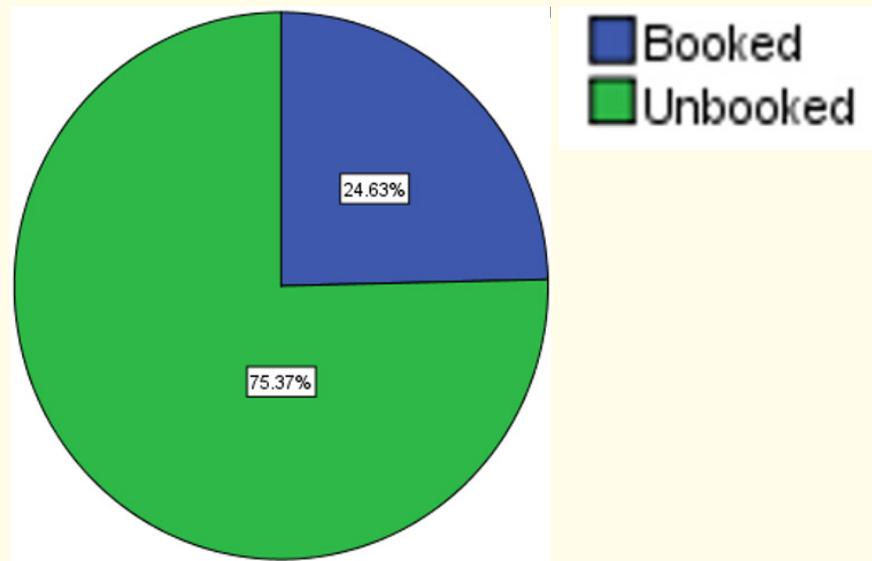


Figure 2: MM according to booking status in UUTH, Uyo.

Variables	No. of maternal mortality	Percentages
Age		
15 - 20	17	8.4
21 - 25	65	32.0
26 - 30	71	35.0
31 - 35	34	16.7
36 - 40	13	6.4
41 - 45	2	1.0
46 - 50		0.5
Marital Status		
Single	28	13.8
Married	175	86.2
Education		
Primary	47	23.2
Secondary	122	60.1
Tertiary	34	16.7
Occupation		
Housewives	36	17.7
Traders/Artisans	101	49.8
Civil servants	15	7.4
Students	20	9.9
Earners	10	4.9
Others	21	10.3
Parity		
P0	39	19.2
P1	60	29.6
P2	54	26.6
P3	28	13.8
P4	13	6.4
P5	8	3.9
P7	1	0.5

Table 3: Socio-demographic variables of women who suffered maternal mortality.

Discussion

The maternal mortality obtained in this study within the ten year period was 1062 per 100,000 live births. This is a drastic reduction from the 2577 per 100,000 live births reported by Abasiattai and Umoyoho from a six year study in the same institution [7]. The publication of their work might have informed some plans that improved maternal health in the institution.

Compared with figures obtained from other developed countries, the ratio obtained from this study is high. It is also higher than the ratios obtained from some of the developing countries such as Guinea 679 and Mali 587, [1]. Some findings from different centres in Nigeria are observed to be lower than the figure in this study. These variations may be in connection with institutional, environmental and socio demographic factors of the women which range from availability of emergency services, accessibility to care centres, the age, educational levels and booking status of the patients.

There were fluctuations in the MMR within the years of study with no marked and consistent decline recorded throughout the period (Table 2). The leading cause of maternal mortality in this study is pre-eclampsia/eclampsia 64 (31.5%) This is followed by obstructed labour and obstetrics hemorrhage. The least important cause is abortion complications (Table 1). The high number of maternal deaths due to pre-eclampsia/eclampsia in this study, may be due to late referrals to tertiary hospitals. Significant number of women who died as a result of obstructed labour may also be because of the young age at marriage, having immature pelvises with cephalo-pelvic disproportion as well as predisposition to dystotic labours.

Only few women with life threatening abortion complication may report to tertiary health institutions for medical intervention because of societal perception of abortion as an abomination. This may be the reason abortion complication caused least number of deaths. Un-booked 153 (75.37%) primigravida were found to have the highest rate of maternal death 60 (29.6%). This can be because of lack of knowledge obtainable from pre-natal health talks which they did not have as a result of their indifferent nature to early ante natal classes. The least number being among the grand multiparous women 9 (4.4%) (Table 3).

Age group 26 - 30 71 (35.0%) had the highest maternal death. This may be connected to the fact that a great number of women at this age bracket are found already married and are in active reproductive process. The highest level of education attained by the women in this study is secondary education 122 (60.1%). Women at this level of education may not be enlightened enough to appreciate the need for adequate prenatal care.

Most maternal deaths occurred among traders/artisans 101 (49.8%) most of whom were referred to UUTH from rural areas. This is likely due to low level of income which might not have allowed them to seek orthodox prenatal care.

Only occupation of the mothers has a significant association to maternal mortality throughout the period under review. Age, marital status, education and parity do not have a statistical association to maternal mortality within the ten year period [8-14].

Conclusion

Maternal mortality in University of Uyo Teaching Hospita (UUTH) is high. The most common causes of death were pre-eclampsia/eclampsia and obstructed labour. Un-booked women were more affected and this calls for attention to community level sensitization on the need for prenatal care. Education of women at school age before marriage should be encouraged as primi-parous women were majorly affected by maternal death in the center. Millennium Development Goals 5 and Sustainable Development Goals 3, as regards to women, cannot be attained if strategies are not put in place to reduce this present maternal mortality ratio.

Recommendation

- Free user-free health policy should be adapted in all tertiary health institutions in Nigeria to take care of mothers of reproductive age who have been found to suffer maternal death due to high cost of accessing health facilities.
- Adequate staff recruitment, provision of modern equipment and drugs like anticonvulsants needed to control hypertensive disorders should be priorities in referral hospitals.
- Sensitization of mothers on the importance of prenatal services should be intensified.
- There should be strong transport network provided to link the peripheral centers to referral hospitals in case of emergencies.
- Quality higher education of a girl child should be encouraged as this influences the health seeking behaviour of women at reproductive age.

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