

MATERNAL MORTALITY AND DELAY: SOCIO-DEMOGRAPHIC CHARACTERISTICS OF MATERNAL DEATHS WITH DELAY IN IRRUA, NIGERIA

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ABSTRACT

Background: Maternal mortality ratio of Nigeria is one of the highest globally. The delay in getting prompt and appropriate treatment in the event of a complication during pregnancy is one of the identified factors in maternal deaths. This study assessed the contribution of delay to maternal deaths and also determined the socio-demographic characteristics of patients with maternal deaths with associated delay.

Methods: This is a cross-sectional descriptive study of all maternal deaths in Irrua specialist Teaching Hospital, Nigeria between January 1999 and December 2003. Statistical analysis was done using 1 tailed Fisher's exact test. The level of significance was inferred at $p < 0.05$

Results: The mortality ratio in the study period is 1747/100,000 live births. Delay was associated with 77.8% of all maternal deaths. Type I delay was the major problem contributing 57.1%. Identified risk factors for delay in this study are; unbooked status, low socio-economic status and marital status.

Conclusion: The recent launch of the National Health Insurance Scheme in Nigeria may improve access to health care of patients with pregnancy complications. Better living standards with improved social infrastructures as well as retraining of health personnel are also suggested.

Keywords: Maternal Mortality; delay; parity; unbooked; unmarried.

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INTRODUCTION

Maternal death is a tragedy not only to the family but also to the nation. Since Thaddeus and Maine¹ emphasized the contribution of delays to maternal deaths in 1994, it has continued to be an important risk factor for maternal deaths. Although the major causes of maternal mortality are obstetric haemorrhage, hypertension in pregnancy, obstructed labour, infections and abortion related

deaths,² the associated delays in getting appropriate treatment significantly account for how often patients with these conditions die.³

Nigeria is the tenth most populous country in the world and also accounts for 1% of the world's population. However, it contributes 10% of the global burden of maternal deaths⁴. Decay in socio-economic infrastructures, poorly funded health care delivery system and the low literacy level all influence the health seeking behaviour of her populace. These have untoward effects on the decision making process to seek medical help in the event of a pregnancy complication.

Delay has been described as the inability to get adequate treatment in time in the event of an obstetric emergency.¹ This lack of care is related to three factors; type I: a delay in making decision to seek care when experiencing an obstetric complication, type II: a delay in reaching an appropriate obstetric facility once the decision has been made to go and type III: a delay in receiving adequate and appropriate care once the facility has been reached.

Delay has been identified as a major factor in maternal deaths. In Haiti, type I delay was the major type while type II delay accounted for 16.6%.³ However, in Nigeria, type III delay was reported as the main problem in Ile-Ife.

The decision-making process is complex. This is further hampered by the low literacy as well as the high poverty rates of most Nigerian families. Although distance from health facility, cost and quality of care influences the decision-making process, they do not give a full understanding of it³ as factors like severity of illness, gender and socioeconomic status also influence decision making.¹

Delays which occur with getting to a health facility after decision is made are still very common in most developing countries. These may be due to long

distance to the nearest facility, poor road network and unavailability of access and motorable roads. Unfortunately, when any of these is not the case, there may not even be money to pay for transportation.

More worrisome are delays which occur right within the health facility. Administrative procedures, lack of power supply, inappropriate treatment, unavailability of personnel or even the lack of compatible blood have reportedly caused delays which culminated in maternal deaths.^{1,6}

Although the association of delayed treatment with maternal deaths is not in dispute, the socio-demographic characteristics of patients with these delays have not been assessed. An intervention for delays, hence, may not be possible if these features are unknown.

OBJECTIVES

The objectives of this study are to assess the contribution of delay to the maternal deaths in Irrua Specialist Teaching Hospital and also to determine the socio-demographic characteristics of the patients with maternal deaths who had associated delayed treatment.

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METHODOLOGY

This was a descriptive cross-sectional study of all maternal deaths in Irrua Specialist Teaching Hospital between January 1999 and December 2003.

The case records of all maternal deaths during the study period were retrieved from the Hospital's records department. The information retrieved included the cause of death, associated delays, marital status, age, parity and booking status. Available information was inadequate for five of the maternal deaths.

Delay is as defined by Thaddeus and Maine (1994) and type III delay in this study also involved delayed treatment from referring health facilities before referral to our facility. Delay was quantified from the records in patients' case notes as documented from patients or their relatives and also from events which occurred after admission into our facility.

Statistical analysis was done with Epi Info 2002 Statistical Software using 1-tailed Fisher's exact test. The level of significance was inferred at $p < 0.05$

RESULTS

There were fifty four maternal deaths during the study period while the number of live births was 3,090. This gave a maternal mortality ratio of 1747/100,000 live births. The mortality ratio for booked and unbooked patients were 395/100,000 and 5,535/100,000 respectively. While pre-eclampsia/eclampsia was the major direct cause of maternal death, Lassa fever was the main indirect cause of maternal death.

Delay was associated with 77.8% of all maternal deaths, while in 22.2% of maternal deaths no delay was noted. The contribution of types I and III delay during the study period are 57.1% and 42.9% respectively. Type II delay was observed not to be a problem in Irrua Specialist teaching during the study period. Although delay was noted in 75.6% of patients with obstetric deaths, as shown in table I, it was also observed with 84.6% of patients whose deaths resulted from complications of early pregnancy. These resulted from post-abort sepsis, ruptured ectopic gestation and gestational trophoblastic disease. The type of delay in those with complications of early pregnancy is mainly of type I (100%).

The identified risk factors for delay in this study include an unbooked status (CI 95%; $P = 0.04$), low socio-economic status and marital status (CI 95%; $P=0.009$). Patients whose deaths was associated with type I delay were with age = 24 years (52.4%), nullipara (58.8%) or had an unmarried status (100%). The influence of age on type I delay is depicted in figure 1.

The characteristics of patients whose deaths were associated with type III delay is represented in table II. Unlike type I, type III delay was associated with maternal deaths involving grandmultipara (50%), women with age =35 years (44.4%) and those who were married.

Table I: Relationship of maternal death with delay

	Delay		No Delay		Total
	No	(%)	No	(%)	
Booked Patients	5	(50.0)	5	(50.0)	10
Unbooked patients					
Deaths from	26	(83.9)	5	(16.1)	31
Complications of early Pregnancy	11	(84.6)	2	(15.4)	13
Total	42		12		54

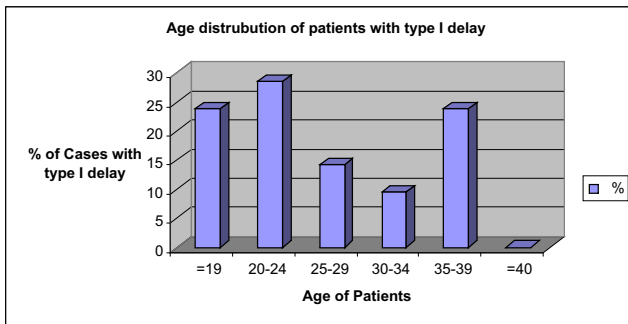


Figure 1: Influence of age on type I delay

Table II: Characteristics observed with type III delay

Age (yrs)			Parity		
	No	%		No	%
≤19	-	-	0	1	5 . 6
20-24	3	16.7	1	2	1 1 . 1
25-29	3	16.7	2	3	1 6 . 7
30-34	4	22.2	3	2	1 1 . 0
35-39	6	33.3	4	1	5 . 6
≥40	2	11.1	≥5	9	5 0 . 0

DISCUSSION

Keeping the promise of a reduction of maternal mortality ratio is essential to achieving the millennium development goals. Although the current Nigerian mortality ratio is 704 -1500/100,000 live births⁷, that of this study is 1747/ 100,000 live births. More credence to this sorry state is given by even higher mortality ratio reported from Kano^{4,8}. Pre-eclampsia/eclampsia is the leading direct cause of maternal deaths as reported in both Kano and Lagos^{8,9}. This is possibly owed to the continued use of Diazepam to manage these patients

even when evidence shows magnesium sulphate to be superior. This medication is presently unavailable in most health facilities in Nigeria

Since Irrua Specialist Teaching Hospital is located in one of the few endemic zones of Lassa fever in Nigeria it is not surprising that this is the major indirect cause of maternal death. This zoonotic acute viral infection is usually asymptomatic but causes severe multi-system disease in symptomatic patients. Mortality rates are higher in pregnant women especially in the third trimester, causing also intrauterine fetal death in most women. The non-specific symptoms of this viral illness make diagnosis difficult. Typifying this is a booked patient who had Lassa fever but in whom the diagnosis was not suspected early enough, hence, treatment was delayed. This is solely because despite the Nigerian Federal Government's designation of this hospital has a dedicated facility for the treatment of Lassa fever, no diagnostic tools have been provided and clinicians have always used their clinical judgments to suspect this condition and commence Rivabirin. This, unfortunately, was a type III delay in a booked patient.

Delay was an important association in this work accounting for 77.8% of deaths. This is similar to reports from a recent assessment of the status of emergency obstetric services in six Nigerian states. In both Kano and Lagos states type I delay occurred in 38% and 41% of maternal deaths respectively.⁴

In this study, women with age <24 years, nullipara and those with unmarried status are at risk of type I delay. Single and self-supporting women lack social support which places them on a path to pregnancy related death. This lack of social support is compounded by reduction in government subsidy on health care delivery. These have negative influence on the decision making process as there is a daily increase in the cost of living due to inflation. The role of men is often downplayed, yet, living in a patriarchal environment, they make most of the decisions even when they cannot pay the bills.

The decision making process is equally impaired by religious belief. The recent upsurge in the use of spiritual homes for maternity services is owed to the perception of pregnancy complications as spiritual attacks. Some other religious doctrines place the reproductive rights of women under strict male control.¹⁰

The lack of contribution of type II delay to maternal deaths during the study period may be due to the hospital-based retrospective nature of the study. It may

also be because most patients present early, initially, in peripheral health facilities or referred patients may not have actually made it to the hospital. However, it's been found to be contributory in the community survey of some states. Surprisingly, the highest value of 18.6% was found in Lagos state which is the commercial capital city of the country.⁴

Concerning type III delay, patient's early presentation is marred by administrative procedures, delayed treatment, wrong diagnosis and lack of sterile instruments. Also, there could be lack of qualified personnel and diagnostic tools¹. As reported in Ile-Ife, 58.9% of patients from referring orthodox health facility were received in poor clinical states¹¹. Also 70% of type III delay in this study occurred in referring centres. Therefore, the desire to seek care is eclipsed in the lack of confidence in the health system.

CONCLUSION

Delayed treatment resulting in maternal deaths is still a problem in Nigeria. Efforts at curtailing it will include an improvement in the living standard of the Nigerian family as well as restructuring of existing social infrastructures. The recent launch of the National Health Insurance Scheme (NHIS), if well managed, hopefully may improve access to health care for patients with obstetrics complications.

Incentives to health personnel to encourage rural dwelling will also make more workers available in such communities in order to increase the number of deliveries attended to by trained personnel. Retraining of health personnel in both knowledge and skills cannot be overemphasized.

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