



Reducing Maternal Mortality: Awareness of Danger Signs in Pregnancy

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Authors' contributions

This work was carried out in collaboration between both authors. Authors RNO and NCO designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Author RNO managed the analyses of the study. Author NCO managed the literature searches. Both authors read and approved the final manuscript.

Article Information

DOI: 10.9734/AJMAH/2017/35022

Editor(s):

(1) Janvier Gasana, Department of Environmental & Occupational Health, EO Epidemiology, and EO Medicine, Robert Stempel College of Public Health & Social Work, Florida International University, USA.

Reviewers:

(1) S. Ngwenya Frcog, Mpilo Central Hospital, Zimbabwe.

(2) Susan Elizabeth Wurzer Gustafson, Elmira College, USA.

Complete Peer review History: <http://www.sciencedomain.org/review-history/20283>

Original Research Article

Received 24th June 2017
Accepted 23rd July 2017
Published 29th July 2017

ABSTRACT

Background: Maternal mortality remains a public health challenge and the Nigerian scenario of very high maternal deaths has remained one of the worst in the world. Delay in seeking care is recognized as an important determinant of the high maternal mortality rates. The clinical features and management of avoidable pregnancy complications that occur in developing countries need to be known. In addition, most pregnancy related complications cannot be predicted; therefore, all pregnant women need adequate information about the danger signs and actions required if a complication should arise.

Objectives: To evaluate the level of awareness of danger signs in pregnancy amongst pregnant women in Port Harcourt.

Methods: A community based survey of 414 pregnant women attending an ultra sound scan centre in Port Harcourt metropolis. Data analysis was by Statistical Package for Social Sciences (SPSS) Version 22.0 and is presented as simple percentages and charts.

Results: Labour lasting longer than 12 hours was not regarded as a danger sign by 44.2% of the women surveyed, just as 34.8% did not know that convulsion was a danger sign. Approximately

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33% were unaware that retained placenta was a risk factor for maternal death. Thirty one percent were unaware that a very low blood level was a danger sign in pregnancy and 25.4% did not know that bleeding was a danger sign in pregnancy.

If any of the danger signs were present, 2.9% opted to do nothing, while 8.8% said they would go to a church.

Conclusion: The level of awareness of danger signs in pregnancy amongst pregnant women in Port Harcourt is low. A call for public enlightenment and campaigns on the danger signs in pregnancy is herein advocated.

Keywords: Danger signs; maternal mortality; reducing; type 1 delay; Nigeria.

Key Message: Pregnant women are largely unaware of the signs in pregnancy that portray danger and complications likely to cause maternal death. The awareness of these danger signs in pregnancy will reduce the delay in seeking help and will contribute to the reduction of maternal mortality.

1. INTRODUCTION

Maternal mortality remains a problem especially in developing countries. Ninety-nine percent of all maternal deaths in 2015 occurred in developing regions with sub-Saharan Africa and Asia accounting for 57% and 30% respectively [1]. The risk of a woman dying as a result of pregnancy or childbirth during her lifetime is about one in six in the poorest part of the world compared to one in 30,000 in northern Europe [2]. In spite of existing efforts, evidence shows that maternal mortality is still a problem and the Nigerian scenario is still one of the worst in the world [3,4]. The Nigerian National Demographic Health Survey (NDHS 2013) revealed that maternal mortality ratios in various parts of the country ranged from 300 to 1,200 per 100,000 deliveries [5]. Even higher values were revealed by the formative interventional research assessment of the Women's Health and Action Research Centre (WHARC) - World Health Organisation (WHO) Maternal Newborn Child Health (MNCH) Study with figures as high as 3,380 deaths per 100,000 deliveries [6]. This is one of the highest maternal mortality rates in the world. Nigeria makes up about 2% of the world population but accounts for 14% of the world's maternal deaths [7]. If maternal mortality ratios were the same in developing countries as in developed countries, 360,000 lives could be saved each year i.e. 1,000 lives a day [8].

Delay in seeking care is recognized as an important determinant of the high maternal mortality ratios [9-12]. Type I delay occurs when a pregnant woman with an obstetric complication fails to seek health care on time. Type II delay is when there is difficulty with transportation to reach the appropriate health facility, while Type III delay is when there is delay in administering

treatment to the pregnant woman upon arrival at the health care facility. Okonofua et al. analysed the contributions of the various types of delay to maternal mortality in South West Nigeria and showed that Type I delay was a contributing factor in 40% of the deaths [12].

The leading causes of maternal mortality remain sepsis, eclampsia, obstetric haemorrhage and obstructed labour [13]. These leading causes of maternal deaths all have danger signs i.e. clinical features of obstetric complications that the pregnant woman will complain about or which the health care provider will elicit on history taking and physical examination. These danger signs include headache, convulsion, high fever, severe abdominal pains, heavy bleeding and labour lasting longer than 12 hours [13]. Headaches and convulsions may be signs of eclampsia, high fever and severe abdominal pains may be signs of sepsis, heavy bleeding may be a sign of haemorrhage while labour lasting longer than 12 hours portrays obstructed labour. Awareness of the danger signs in pregnancy is the first step to appropriately reducing Type 1 delay and thus reducing maternal deaths.

The World Health Organization reiterates that awareness of danger signs by pregnant women allow for prompt decision making and thus help in preventing Type 1 delay that is responsible for about 40% of maternal deaths [14,15]. Awareness reinforces desirable attitudes and behaviour. The "Three Phases of Delay Model" highlights the importance of knowledge and attitude in the prevention of maternal death by describing the sequence of events from late recognition of danger signs to maternal death [11]. Worldwide, but most especially in Africa, low level of awareness of danger signs contributes to a failure to obtain

adequate care in time and hence, maternal death [16-18].

Most pregnancy related complications cannot be predicted; therefore, all pregnant women need adequate information about the danger signs and actions required if a complication should arise. Lack of awareness about the danger signs in pregnancy significantly contributes to the delay in recognizing the presence of a problem and thus delay in seeking help. Creating awareness about danger signs in pregnancy can reduce Type I delays irrespective of the socioeconomic status and literacy levels.

This study therefore assessed the level of awareness of danger signs in pregnancy amongst pregnant women in Port Harcourt, Nigeria. Quantitative methods were utilised to show the proportion of pregnant women who are unaware of signs associated with pregnancy that portray impending danger and risk of death. The evidence generated from this work should inform changes in women's sexual and reproductive health services on the need for concerted efforts to enlighten and educate pregnant women and women generally on danger signs in pregnancy.

2. METHODS

A community-based descriptive cross sectional survey was conducted of pregnant women attending an ultra sound scan centre in Port Harcourt metropolis. On the average, ninety pregnant patients are scanned daily at the centre. All clients that attended for obstetric scan who gave consent to the study were surveyed with the interviewer-based semi structured questionnaire. Prior to administration of the questionnaire, they were informed that evidence generated from the study could inform policies made and change practice leading to the reduction of maternal mortality. They were also informed that they would incur no risk if they opt out of the study. No incentives were provided. Ethical approval for the study was given by the University of Port Harcourt Teaching Hospital Ethical Committee.

The data collected using pre-tested semi structured questionnaires administered by pre-trained interviewers include age, parity, level of education, place of last delivery, outcome of last delivery, antenatal booking status, place of current antenatal care and knowledge of awareness of the danger signs in pregnancy as elucidated by the WHO.

Data analysis was by SPSS Version 22.0 and results are presented as simple percentages and charts.

3. RESULTS

Four hundred and sixty pregnant women accessed the centre for obstetric scans. Four hundred and fourteen women gave consent and hence 414 questionnaires were analyzed. Age range of the women studied was 20 – 43 years with a mean of 28.5years. Two percent had no formal education, 5.8% of the women had only primary education, 48.6% had secondary education while 43.5% of the women had tertiary education and above.

37.7% of the women were nulliparous, primiparae were 24.6% while grand multiparae made up 4.3% of the respondents. (Fig. 1).

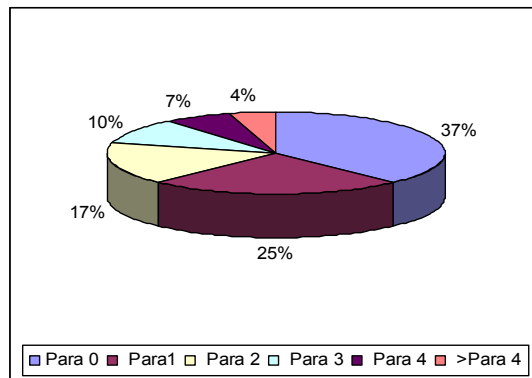


Fig. 1. Parity of respondents

Ninety-one percent of the respondents said they were currently receiving antenatal care; 31.2% in private clinics, 34.8% in Government hospitals, 5.1% in Health centres while 7.2% were with a midwife. Two percent said they were receiving antenatal care at the church. The remaining 20% had multiple antenatal bookings at the church, government hospital and private clinic.

Regarding awareness of danger signs in pregnancy as shown in Fig. 2 and Table 2, 42.8% strongly agreed that fainting in pregnancy was a danger sign, 3.6% strongly disagreed while 34.8% did not know. Fifty-two percent strongly agreed that very low blood level was a danger sign while 3.6% strongly disagreed and 30.4% did not know. Twenty-five percent did not know that bleeding per vaginam was a danger sign in pregnancy just as 34.8% did not know that convulsion was a danger sign. Labour

lasting longer than 12 hours was not regarded as a danger sign by 44.2%, just as 32.6% did not know that retained placenta is a danger sign in pregnancy.

If any of the danger signs were present, 2.9% opted to do nothing, 17.3% said they would go to a health centre while 14.5% opted for a private clinic. Fifty-six percent said they would go to a government hospital while 8.8% said they would go to a church (Table 1).

Table 1. Action that would be taken if danger signs were present

Action	Number	%
Nothing	12	2.9
Go to Health Centre	72	17.3
Go to Private Clinic	60	14.5
Go to Government Hospital	234	56.5
Go to Church	36	8.8

4. DISCUSSION

The level of awareness of danger signs in pregnancy amongst pregnant women in Port Harcourt is very low. A large proportion of the

respondents did not know the danger signs in pregnancy. Late arrival in Hospital by women experiencing pregnancy complications is an important background factor leading to maternal mortality in Nigeria [19]. Forty-four percent did not know that swollen face and hands was a danger sign, 43.5% did not know that hand or foot presentation was a danger sign, 33% did not know that retained placenta was a danger sign, 45.6% did not know that labour lasting more than 12 hours was a danger sign. One quarter of these women did not know that bleeding in pregnancy was a danger sign just as 35% also did not know that convulsion was a danger sign in pregnancy. Eclampsia is the leading cause of maternal mortality in Nigeria [8,20,21] and presents as convulsions. Yet 35% of women with secondary education and above, enlightened enough to do ultrasound scan in pregnancy and attending antenatal care currently in the index pregnancy did not know that convulsion in pregnancy is a danger sign. This lack of awareness of convulsions as a danger sign in pregnancy appears to be nationwide because patients are known to present in hospital after multiple fits at home [22,23]. Similar studies in Ethiopia also found low awareness of danger signs in pregnancy amongst women surveyed [24,25,26].

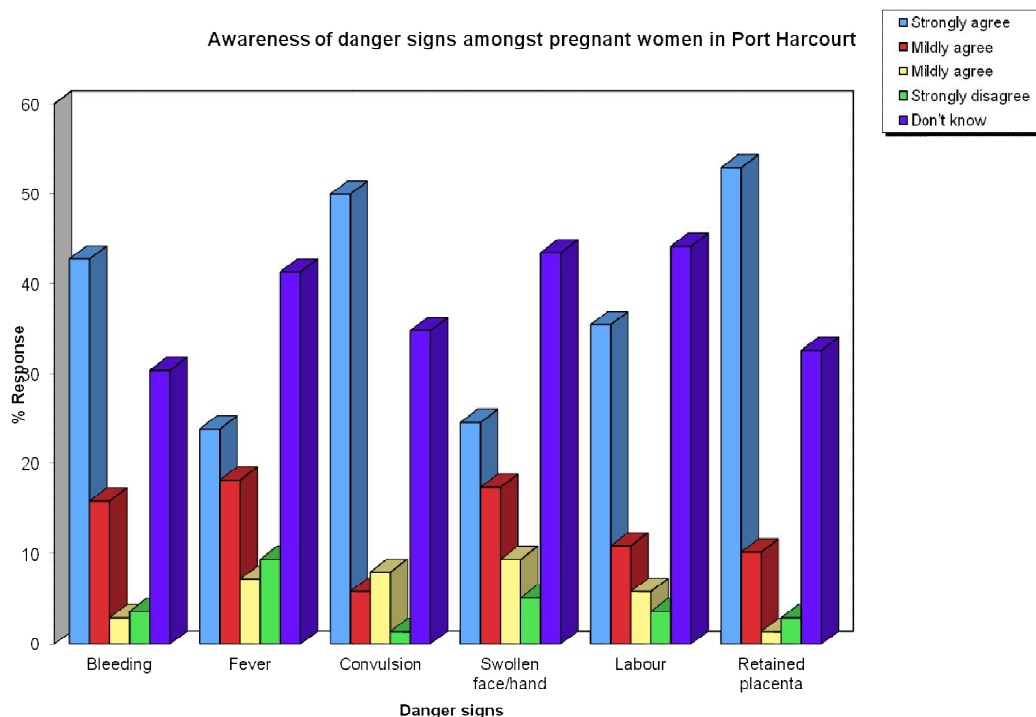


Fig. 2. Awareness of danger signs amongst pregnant women

Table 2. Awareness of danger signs amongst pregnant women

Danger sign	Strongly agree		Mildly agree		Mildly disagree		Strongly disagree		Don't know	
	Responses	%	Responses	%	Responses	%	responses	%	responses	%
Fainting	177	42.8	66	15.9	12	2.9	15	3.6	144	34.8
Very low blood levels	216	52.3	51	12.3	6	1.4	15	3.6	126	30.4
Dizziness	81	19.6	66	15.9	45	10.9	33	8	189	45.6
Bleeding	264	63.8	15	3.6	15	3.6	15	3.6	105	25.4
Fever	79	23.9	75	18.2	30	7.2	39	9.4	171	41.3
Headache	87	21	63	15.2	36	8.7	36	8.7	192	46.4
Convulsion	207	50	24	5.8	33	8.0	6	1.4	144	34.8
Swollen face/hands	102	24.6	72	17.4	39	9.4	21	5.1	180	43.5
Labour >12 hours	147	35.5	45	10.9	15	5.8	15	3.6	183	44.2
Pregnancy > 9 months	159	38.4	42	10.2	18	3.6	9	2.2	186	45.6
Hand/foot presentation	192	46.4	18	4.3	6	4.3	6	1.4	180	43.6
Retained placenta	219	52.9	42	10.2		1.4	12	2.9	135	32.6

Awareness of danger signs has been shown to significantly reduce the delay associated with seeking and receiving appropriate maternal care in pregnancy (14). It is unrelated to formal education. 92.1% of the respondents had secondary education and above, yet only 56% opted to go to a tertiary centre if they had danger signs present in pregnancy, 14.5% opted to go to a church while 2.9% opted to do nothing. Healthcare managers have the responsibility to deploy resources for implementing emergency obstetric care but the women must first present to the facility. Although 17.3% still said they would go to a health centre in the event of danger signs, as much as 14.5% opted to go to church. We know that no manner of emergency obstetric care is available in a church. This reveals a gap in healthcare delivery. The recent formative research assessment for the prevention of maternal and perinatal mortality and morbidity of the status of emergency obstetric service in Nigeria supported by the WHO is a welcomed development. The improvement in emergency obstetric services is a crucial intervention needed to reduce the currently abysmal maternal mortality figures in Nigeria. However, if the women are not aware of the danger signs, the initiative to take the decision to seek healthcare is undermined and they are thus unable to present to the midwives/obstetricians. How do we save the women if type I delay continues to contribute 40% of the associated causes of maternal mortality? Education and awareness are pivotal in terms of maternal decision-making, and potentially influencing outcomes. We can reduce maternal mortality to less than 144 per 100,000 by 2030 if the very women we are supposed to save present early to the health facilities. Early presentation is further enhanced when women know the danger signs in pregnancy and act accordingly. Women must be taught the danger signs in pregnancy and the appropriate and necessary action to take. It has been shown that professional associations and women organizations have major roles to play in providing reproductive health education and counselling to communities [23]. This can be done through the women organizations especially the National Council of Women Societies with branches in every local Government area in Nigeria. Sensitization interventions can be carried out to enlighten the populace, men inclusive.

This study reveals that the level of awareness of danger signs in pregnancy is poor. Women

attending ultrasound scan centre may be called the elites. Over 91.2% claim they were receiving antenatal care. We know from the recent national demographic and health survey that about 60% of Nigerians receive antenatal care at least on one occasion. The findings from this study calls to question the form of health education and enlightenment that take care during formal antenatal clinics sessions. It may be that not much time is available to the health workers to give health information during the clinic visit. Thus, enlightenment should be done even outside the health facilities and to the rural women as well. The content of school curriculum should be modified to include the danger signs in pregnancy. The plight on our women from maternal deaths must stop. Women should be taught the danger signs in pregnancy and the appropriate and necessary action to take. Sensitization interventions should be carried out to enlighten the populace, men inclusive. The strength of the study lies in the fact that it was conducted in the community and not in health facilities. A limitation of the study is that it assessed only pregnant women who went to the ultrasound scan centres.

5. CONCLUSION

Pregnant women are largely unaware of the signs in pregnancy that portray danger and complications likely to cause maternal death. The awareness of these danger signs in pregnancy will reduce the delay in seeking help and will contribute to the reduction of maternal mortality. A call for public enlightenment and campaigns on the danger signs in pregnancy is herein advocated.

CONSENT

Informed consent was obtained from all respondents.

ETHICAL APPROVAL

As per international standard or university standard, written approval of Ethics committee has been collected and preserved by the authors.

ACKNOWLEDGEMENTS

The authors thank Dr Sam Anya, Dr Preye Fiebai and Dr Sylvanus Kesene for their assistance during this work.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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The peer review history for this paper can be accessed here:
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