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PERCEPTION OF THE DETERMINANTS OF MATERNAL MORTALITY IN CALABAR SOUTH LOCAL GOVERNMENT AREA OF CROSS RIVER STATE, NIGERIA

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ABSTRACT: *Objective: To identify perceived determinants of maternal mortality in Calabar South Local Government Area of Cross River State. Study design: A cross-sectional study design was used to identify perceived determinants of maternal mortality in Calabar South Local Government Area of Cross River State. About 360 respondents were selected using multi-stage sampling technique and a structured questionnaire was used to generate data from the respondents. Data collected were analysed using SPSS version 16.0 and chi-square was used to test for association between variables at 0.01 level of significance. Results: The results showed that maternal death were known to occur at home (24.7%), health facilities (24.4%), Traditional Birth Attendant homes (12.5%), churches (0.3%) and 7.5% in prayer houses. About 45% of maternal deaths were believed to occur outside the health facilities. Bleeding (39.2%), prolonged obstructed labour (17.2%), eclampsia (4.2%), abortions (3.3%), infections (1.7%), anaemia (1.9%) and malaria (0.8%) were perceived causes of maternal deaths. Delays in taking actions when danger signs occurred (24.7%), delivery of high risks pregnant women outside the health facility (28.2%), non-utilisation of Antenatal services (19.7%) and non-chalant attitude of health workers towards pregnant women (19.6%) were reported to perpetuate maternal deaths. This study also showed that educational status (P<0.01), socio-economic status (P<0.01) of pregnant women and socio-cultural practices influence maternal outcomes. Conclusion: Improving obstetric services in health facilities would facilitate optimal use of ANC and delivery services among pregnant women.*

KEYWORDS: Pregnant women, Determinants, maternal deaths, Calabar South LGA

INTRODUCTION

Globally, there have been increasing concerns about the persistent high maternal mortality rates, especially in developing countries. Since the late 1980s, improving maternal health and reducing maternal mortality have been key preoccupations of several international summits and conferences including the Millennium submit in 2000 (United Nations, 2008). According to World Health organization (2007), about 536,000 women die of pregnancy related causes

every year and approximately 10 million women suffer complications related to pregnancy or child birth.

In Nigeria, current estimate indicates that Maternal Mortality rate (MMR) is 560 per 100,000 live births (UNICEF, 2009). This is to say, Nigeria accounts for about 13 percent of the global maternal death rates with an estimated 36,000 women dying in pregnancy or at child birth each year. According to a recent review by Ndep (2014), MMR in Nigeria has experienced a 27% decline from 820 per 100,000 live births in 2005 to 630 per 100,000 live births in 2010. The significant reduction in MMR has been attributed to the free health care services provided at government-owned health facilities to pregnant women and under-five children. Nevertheless, the achievements of MDG 5 targets are yet to yield desired results.

Maternal mortality in poor-resource settings have been attributed to "three delays"- delay in deciding to seek care, delay in reaching care in time and delay in receiving adequate treatment (UNFPA, 2003). Poverty, demographic pressures and insufficient investment in public health care, etc, inflates levels of maternal mortality. Moreover, low educational status among women and discriminatory cultural practices has been found to be barriers to reducing high maternal mortality rates (World Bank, 2007). Udoma et al (2003a) in their study found out that most women do not have formal Antenatal care (ANC) and they are attended to during delivery by evangelistic spiritualists who own spiritual churches. Hence, identifying womens' perception of the causes of maternal death is pivotal in mitigating MMR in Nigeria.

Objectives of the Study

The general objective of this study is to identify perceived determinants of maternal mortality in Calabar South Local Government Area of Cross River State, Nigeria.

The specific objectives of this study were to;

1. identify perceived causes of maternal deaths in Calabar South Local Government Area
2. identify harmful practices influencing maternal mortality in the study area
3. ascertain whether parity is a risk factor in maternal deaths during pregnancy or child birth in the study area
4. identify socio-economic factors influencing maternal outcome in the study area.

METHODOLOGY

Study setting

The study setting is Calabar South Local Government Area of Cross River State with headquarters at Anantigha. The Local Government Area has a projected population of 222,151 people (NPC, 2006). It is bounded in the North by Calabar Municipality, the South by the Cross River, the East by the Great Qua River and the West by the Calabar River. Calabar South has one General hospital, 27 Primary health centers spread across the 12 political wards and

numerous private health facilities. The Local Government Area is a semi-urban settlement with a mixture of many ethinc groups but predominantly made up of the Efiks, Efuts, Quas, Ibibios and Yakkurs. Most occupants are civil servants, businessmen, traders, farmers and fishermen. Basic infrastructure such as roads, markets, schools are available across the area. It is a predominant Christian settlement with few Muslims and traditionalists.

Study design

A descriptive cross-sectional study design was used to identify the perceived determinants of maternal mortality in the study area.

Study population

The study population comprised of women 15 years and above residing in Calabar South Local Government Area.

Sample size determination

Hassan (1991) formula was used for determination of sample size and is given mathematically as follows;

$$n = \frac{Z^2 pq}{d^2}$$

Where:

n = desired sample size

z = confidence interval at 95% (1.96)

p = estimated proportion of women having skilled birth attendants during pregnancy, labour and delivery = 35% = (0.35) (UNICEF, 2009)

q = (1-p) estimated proportion of women having no access to skilled birth attendants during pregnancy, labour and delivery (1-0.35 =0.65)

d = precision or absolute sample error (0.05)

$$n = \frac{(1.96)^2 \times 0.35 \times 0.65}{0.05^2} = 360$$

The desired sample size for the study was 360.

Sampling procedure

Multi-stage sampling technique was employed to select wards, streets, households and respondents and the procedure is described as follows;

Stage 1: Selection of wards

Out of 12 wards, six wards were randomly selected using the lottery method

Stage 2: Selection of streets

About 10 streets were randomly selected from the six wards without replacement (i.e. 10 x 6 = 60 streets)

Stage 3: Selection of Households

In each selected street, every 5th household with a female respondent of 15 years and above was selected using systematic random sampling technique. This procedure continued until 36 households were duly selected (36 x 10 = 360 households)

Stage 4: Selection of respondents

In each selected household, 360 respondents who meet the inclusion criteria were purposively selected and employed in the study.

Instrument and method for data collection

A structured questionnaire was used to collect data from the respondents. Section A elicited information on socio-demographic characteristics while Section B on reproductive behaviours of the respondents. Section C sought opinions on the role of parity in maternal deaths while section D asked questions on socio-economic and socio-cultural correlates which likely influence maternal mortality. The questionnaire was pre-tested among female inhabitants of Anantigha community, aged 15 years and above. After pre-testing, the sequencing of the questions was restructured and other necessary adjustments were made.

Method of data analysis

Each completed questionnaire was checked manually on hard copy to ensure that there was no missing information. Data entry and analysis were done using SPSS version 16.0. Chi-square was used to test for association between variables at 0.01 level of significance. Results were expressed as percentages and presented in tables and charts

Ethical considerations

Approval was obtained from the ethics committee of Calabar South Local Government council before embarking on the research. Informed consent was duly sought from every respondent and participation in this study was strictly voluntary. Generalizations made from the research findings were restricted to the scope of the study. Information generated in this study was treated with utmost confidentiality.

RESULTS

Based on their socio-demographic characteristics, most respondents were aged 35-44 years 153(42.5%), followed by those aged 25-34 years 106(29.4%), 45-54 years 51(14.2%), 15-24 years 32(8.9%), 55-64 years 17(4.7%) and aged 65 years and above 1(0.3%). A larger proportion of the respondents were civil servants 163(45.3%), while others were traders 70(19.4%) and farmers 31(8.6%). About 59(16.4%) were engaged in other businesses while 37(10.3%) were unemployed. In terms of religious affiliations, Christians 334(92.7%) were the predominant participants. A few Muslims 20(5.6%), traditionalists 4(1.1%) and atheists 2(0.6%) also participated in the study. Most respondents had tertiary education 160(44.4%) while 133(36.9%) had secondary education, 65(18.1%) primary education and 2(0.6%) had no formal education (Table 1).

Table 1: Socio-demographic characteristics of the respondents (n=360)

VARIABLES	NUMBER OF RESPONDENTS	PERCENTAGE (%)
Age (in years)		
15-24	32	8.9
25-34	106	29.4
35-44	153	42.5
45-54	51	14.2
55-64	17	4.7
65+	1	0.3
Total	**360**	**100**
Occupation		
Business	59	16.4
Civil service	163	45.3
Farming	31	8.6
Trading	70	19.4
Unemployed	37	10.3
Total	**360**	**100**
Religion		
Atheism	2	0.6
Christianity	334	92.7
Islam	20	5.6
Traditional Religion	4	1.1
Total	**360**	**100**
Education		
No formal education	2	0.6
Primary	65	18.1
Secondary	133	36.9
Tertiary	160	44.4
Total	**360**	**100**

About 272(75.6%) were married, 49(13.6%) single, 22(6.1%) divorced and 17(4.7%) widowed. Fourty-nine (13.6%) of the 311 ever married (widowed and divorced inclusive) respondents were married before 15 years, 220(61.1%) married within the ages of 16-30 years while 42(11.7%) were married above 30 years. Most respondents 341(94.7%) admitted that they have been pregnant before while 19(5.5%) said they have never been pregnant. Out of 341 who reported to have experienced pregnancy, 265(73.6%) were pregnant within the age bracket of 16-30 years, 43(11.9%) were pregnant before 15 years while 33(9.2%) above 30 years (Table 2).

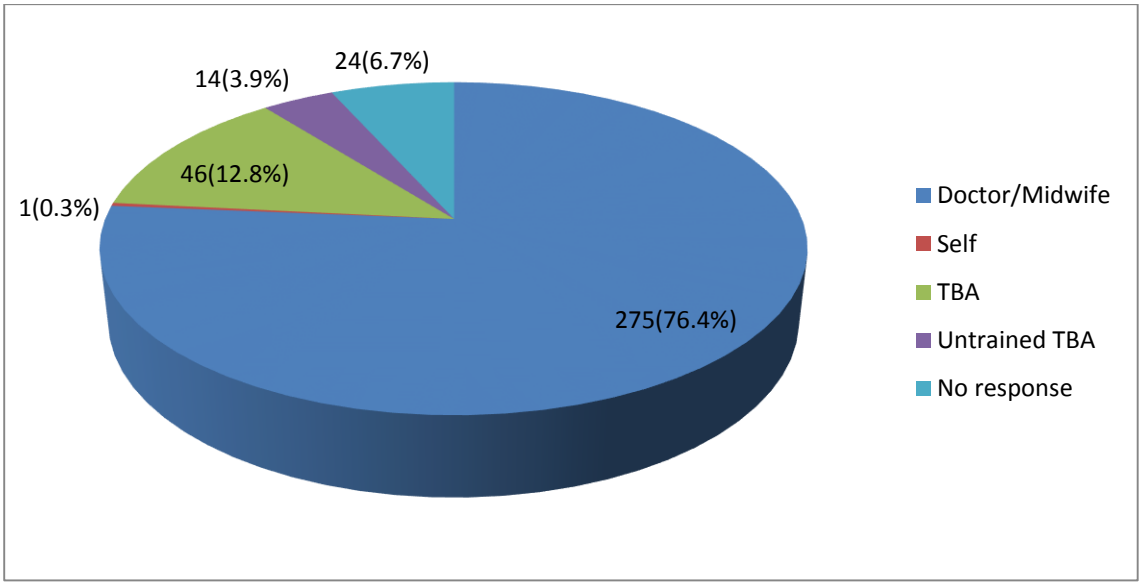
Table 2: Reproductive behaviours of the respondents (n=360)

VARIABLES	NUMBER OF RESPONDENTS	PERCENTAGE (%)
Marital status		
Married	272	75.6
Single	49	13.6
Divorced	22	6.1
Widowed	17	4.7
Total	360	100
Age at marriage (in years)		
Less than 15	49	13.6
16-30	220	61.1
Above 30 years	42	11.7
No response	49	13.6
Total	**360**	**100**
Age at first pregnancy		
Less than 15	43	11.9
16-30	265	73.6
Above 30	33	9.2
No response	19	5.3
Total	**360**	**100**

A higher proportion of the respondents 312(86.7%) who had ever been pregnant before had utilized ANC while 29(8.1%) had never utilized ANC. In terms of facilities where ANC were accessed, 274(76.1%) patronized health centers/hospitals, 31(8.6%) Traditional Birth Attendants (TBAs) and 7(1.9%) prayer houses. Based on services provided during ANC, 262(23%) received health education, 218(19.1%) obstetric care, 202(17.7%) family planning, 236(20.7%) laboratory services and 222(19.5%) were treated for various ailments during pregnancy.

During critical moments of labour and delivery, about 275(76.4%) respondents reported that they were attended to by Doctors and Midwives, 46(12.8%) by trained Traditional Birth Attendants, 14(3.9%) by untrained TBAs and 1(0.3%) delivered by themselves (Figure 1).

Figure 1: Distribution of respondents by Attendants during Antenatal care and delivery (n=360)



Respondents were of the opinion that delay in taking actions when signs of danger occurred was known to contribute 271(24.7%) of maternal deaths, delivery of high risk groups outside health facilities accounted for 263(28.2%) of maternal death, non-utilisation of ANC services was noted to be responsible for 238(19.7%) while non-chalant attitude of health staff contributed 189(19.6%) of maternal deaths.

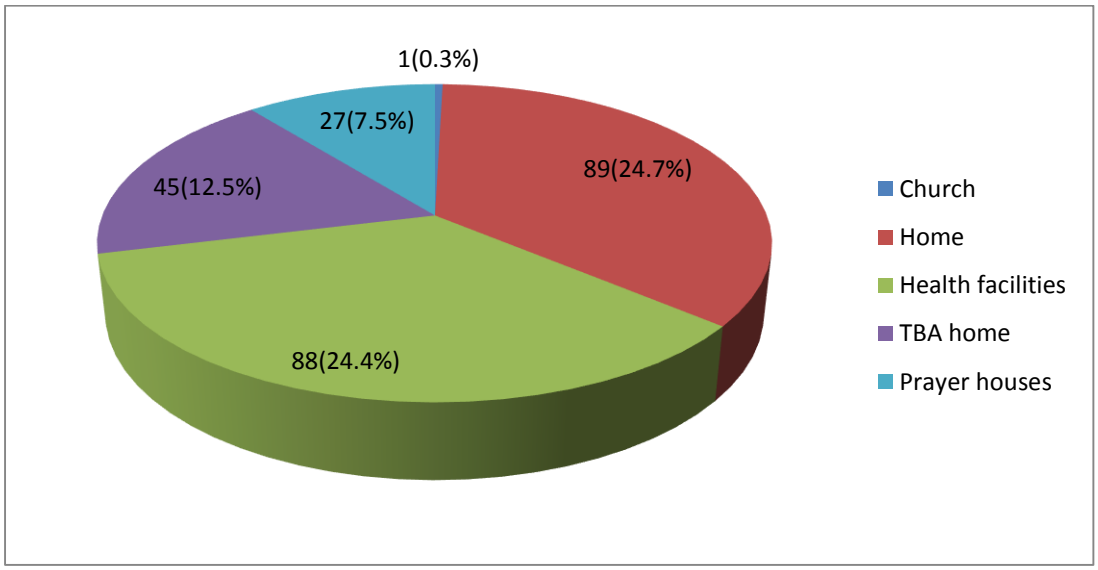
Nearly half of the respondents 149(41.4%) admitted the practice of food taboos whereas 210(58.3%) stated otherwise. Food restrictions were observed to be practiced by 82(22.8%) of the respondents who deprived their children of proteins, 30(8.3%) do not give carbohydrates to children and 37(10.3%) do not give fatty foods. On the other hand, 64(17.8%) do not consume proteins during pregnancy, 42(11.7%) do not take carbohydrates while 439(11.9%) do not consume fatty foods during pregnancy. Almost half of the respondents 154(42.8%) were low income earners, 102(28.3%) middle income earners and 104(28.9%) high income earners. A greater proportion of the respondents 307(85.3%) acknowledge the role of a womans' financial status on access to health care when faced with pregnancy-related problems whereas 53(14.7%) felt that women's, financial status does not influence their health seeking behaviour.

Table 3: Practices of food taboos among respondents (n=360)

VARIABLES	NUMBER OF RESPONDENTS	PERCENTAGE (%)
Food taboos/restrictions		
Yes	149	41.4
No	210	58.3
No response	1	0.3
Total	360	100
Food not usually given to children		
Carbohydrates (yam, rice, garri etc)	30	8.3
Fat/Oils (palm oil, groundnut oil, butter, etc)	37	10.3
Proteins (fish, egg, meat, etc)	82	22.8
Total	149	41.4
Foods not usually taken by pregnant women		
Carbohydrates	42	11.7
Fats/oils	43	11.9
Proteins	64	17.8
Total	149	41.4

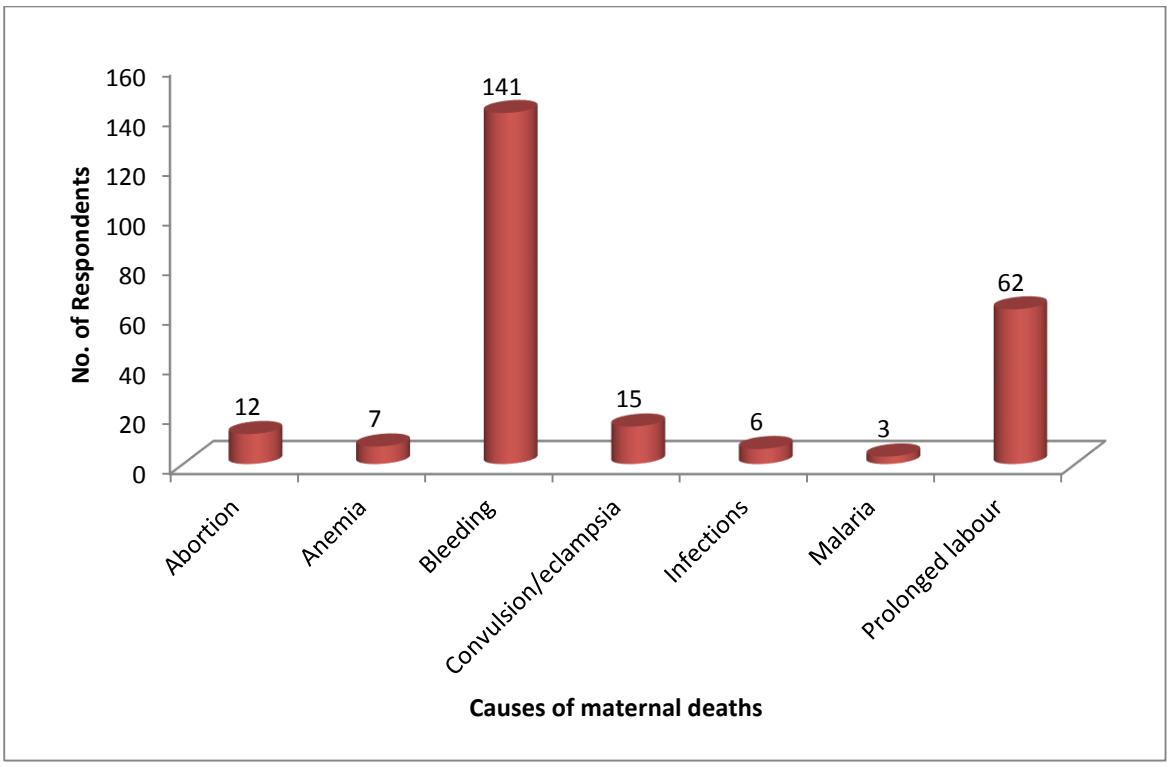
About 89(24.7%) of the respondents felt that most maternal death occurred at home, 88(24.4%) occurred in health facilities, 45(12.5%) in TBA homes, 1(0.3%) in churches while 27(7.5%) were known to occur in prayer houses (Figure 2). A strong positive association was established between maternal income and utilization of ANC (Chi-square =6.95, df=2, p=0.03094). This relationship was statistically significant with women of higher income showing strong propensity for utilizing free ANC probably because they were able to afford high transport fares to and from the health facility without recourse to their spouses.

Figure 2: Respondents' view on places where known cases of maternal deaths occurred (n=250)



In terms of causes of maternal deaths, respondents were of the opinion that bleeding 141(39.2%), prolonged obstructed labour 62(17.2%), infections 6(1.7%), abortions 12(3.3%), anemia 7(1.9%), eclampsia 15(4.2%) and malaria 3(0.8%) contributed substantially to maternal deaths (Figure 3). Maternal deaths were observed to be frequent in women above 30 years 144(40%), 134(37.2%) in women below 15 years while 77(21.4%) in women between 16-30 years.

Figure 3: Respondents' perceived causes of maternal deaths (n=250)



Women with more than four children were known to have contributed to about 272(75.6%) of maternal mortalities, 39(10.8%) of deaths were likely to occur in those with 3-4 children and 49(13.6%) were of the opinion that those with less than two children were least likely to experience maternal deaths (Figure 4).

Figure 4: Respondents' view on parity as a risk factor in maternal mortality (n=360)

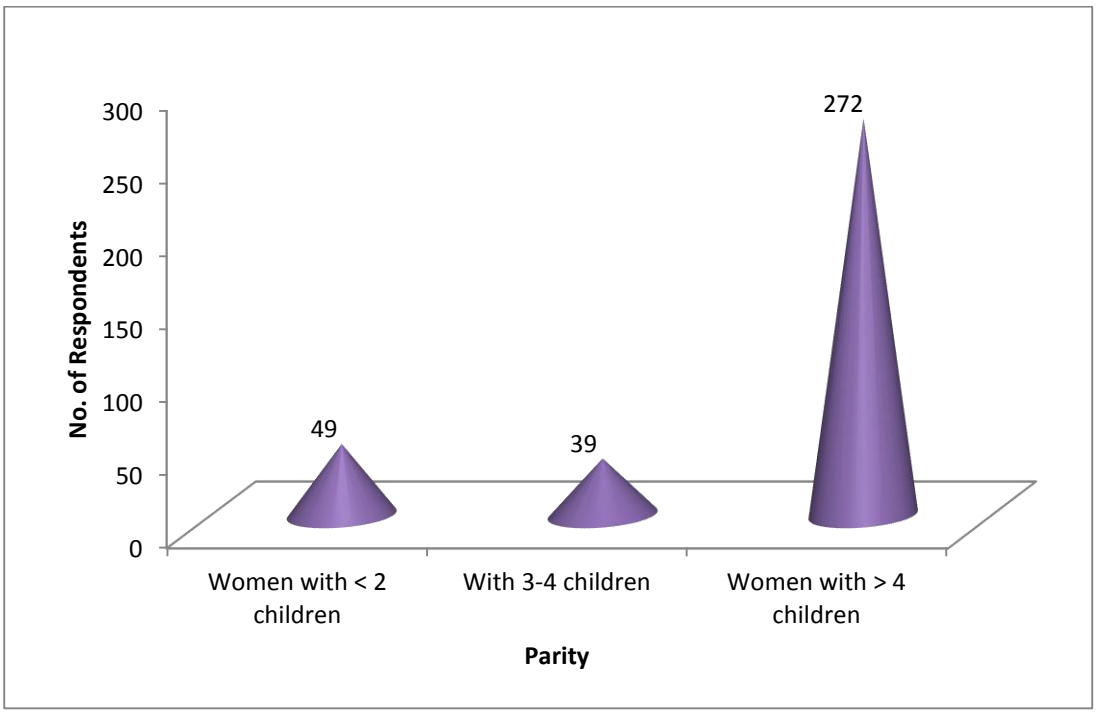


Table 4 showed that the association between place of delivery and level of education was found to be statistically significant (X^2 =38.80, df=2, P=0.0000) meaning that the higher the level of education of respondents, the higher the chances of choosing to be delivered in a health facility. Also, the association between respondents' level of education and ANC utilization was statistically significant (X^2 =21.00, df=2, P=0.0000275) indicating that the higher the level of education of the respondents, the higher the chances of utilizing ANC.

Table 4a: Test of association between level of education and place of delivery using Chi-square (X^2)

	Place of delivery		
Educational status	Within facility	Outside facility	Total
Primary	34	28	62
Secondary	107	17	124
Tertiary	133	15	148
Total	274	60	334

(X^2 =38.80, df=2, P=0.0000, P<0.01

Table 4b: Test of association between level of education and utilization of ANC using Chi-square (X^2)

	Level of education			
ANC ustilisation	Primary	Secondary	Tertiary	Total
Yes	50	116	144	310
No	14	116	4	29
Total	64	127	148	339

X^2 =21.00, df=2, P=0.0000275, P<0.01

DISCUSSION

This study sought to identify perceived determinants of maternal mortality in Calabar South Local Government Area of Cross River State, Nigeria. Results obtained showed that a greater proportion of the respondents (86.7%) who have been pregnant before reported to have utilized ANC mostly at health centers/hospitals (76.1%), TBAs (8.6%) and prayer houses (1.9%). Antenatal care services received by the respondents were majorly health education (23%), obstetric care (19.1%), family planning (17.7%), laboratory services (20.7%) and treatment for various illnesses during pregnancy (19.5%). The high ANC attendance could be as a result of free ANC services provided by the state government and higher educational status of women. The association between womens' level of education and antenatal care utilization was statistically significant (P<0.01). This clearly showed that the higher the level of education of the respondents, the higher the chances of utilizing antenatal care. During critical moments of labour and delivery, about 76.4% of the respondents admitted that they were attended to by Doctors and Midwives, 12.8% by trained TBAs, 3.9% by untrained TBAs and 0.3% delivered by themselves. This clearly suggests that 23.6% of women in the study area delivered outside the health care facility. The association between place of delivery and level of education of the respondents was found to be statistically significant (P<0.01). This finding corroborates Ujah et al (2005) who observed that all the women with higher education in their study on maternal deaths had little or no obstetric complications as they took ANC seriously and reported early for delivery as labour set in, while those with little or no education were admitted to the obstetric until late with complications and subsequent loss of lives.

Delay in taking actions when signs of danger occurred was acknowledged to contribute to 24.7% of maternal deaths. This finding agrees with UNFPA (2003) who noted that the first delay (Type 1) is often contributed by the mother, family or community not recognizing life threatening conditions which usually result in obstetric complications. Igberase and Ebeigbe (2007) also noted that 9.1% women who died during labour/delivery were managed by TBAs and at least one private clinic before referring to a higher level of care. Agan et al (2010) found out that 48.5% of maternal deaths resulted from type 3 delays. Ogunsanya et al (2004) observed that 70% of type 3 delays occurred in peripheral health facilities before referrals.

More than half of the respondents (69.4%) acknowledged that maternal mortality is a major public health problem in the study area out of which 24.7% of these deaths occur at home,

24.4% in health facilities, 12.5% in TBA homes, 0.3% in churches and 7.5% in prayer houses. This result indicates that about 45% of maternal deaths were known to have occurred outside the health care facilities. This is consistent with findings of John et al (2002) where a greater proportion of maternal deaths still occur in homes of TBAs and spiritual churches. Choices of place of delivery significantly influence maternal outcomes.

In this study, respondents pointed out bleeding as the leading cause of maternal deaths in the study area, contributing about 39.2% of all known maternal deaths. This report corroborates with other studies where bleeding accounted for most maternal deaths (Agan et al., 2010; Ujah et al., 2005). Lack of basic access to obstetric care may largely contribute to bleeding during pregnancy or delivery. Women with low literacy level are more exposed to the risk of dying from pregnancy-related complications than their counterparts. Maternal deaths were observed to be frequent in women above 30 years of age in 40% of cases, 37.2% in women below 15 years and 21.4% between 16-29 years. This finding is similar to that of Ujah et al (2005) who observed that majority (26.6%) of deaths occurred between the ages of 35 and 39 years.

Food restrictions were observed to be practiced by 22.8% of respondents who deprived children of proteins, 8.3% do not give their children carbohydrates and 10.3% do not give fatty foods. About 17.8% on the other hand reported that they do not consume protein during pregnancy, 11.7% do not consume carbohydrates while 11.9% do no consume fatty foods during pregnancy. Practices of food taboos and restrictions could lead to malnutrition and stunting especially in the girl child, producing poor pelvic bone formation and pelvic contraction with a resultant cephalopelvic disproportion and obstructed labour. This could be responsible for the high prevalence of obstructed labour (17.2%) in this study.

Maternal income was also identified by 85.3% respondents to have a direct relationship with ANC utilization. The relationship between income and utilization of ANC is statistically significant ($P<0.01$) with women of higher income showing stronger propensity to utilizing ANC as they were able to pay high transport fares to and from the health facilities unlike their counterparts who have difficulty in accessing ANC services due to financial constraints.

CONCLUSION

Maternal mortality is a major public health problem in Nigeria. Obstetric complications such as bleeding, obstructed labour, eclampsia, infections, abortion and anaemia were perceived causes of maternal deaths. Harmful practices such as delays in taking actions when signs of danger occurred, delivery of high risk group of women outside health facilities, in spiritual houses and TBA homes were known to perpetuate maternal mortality. Also, non-utilisation of ANC services and non-chalant attitude of some health staff towards pregnant women also impact negatively on maternal outcomes. Poor maternal income, poor road network, high unemployment rate and low level of education, all stifle maternal disposable income and influence maternal outcomes. Socio-cultural and religious beliefs were also known to contribute to maternal mortality in the study area. Improvement in obstetric care should be a

priority in all health care outlets to mitigate the rate of maternal mortality in Nigeria and other developing countries.

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