Utilization of Antenatal and Obstetric Care Services in Kano North Senatorial District, Kano State

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Abstract: *This study examined the temporal patterns of Antenatal care, causes of maternal complications among the pregnant women in Kano north and maternal mortality rate. A retrospective study using hospital records on Antenatal care attendance, live hospital delivery, major obstetric complications,age at death and maternal mortality ratio were retrieved.The study covered three general hospitals and two basic health care in Kano North senatorial district,the data used is from January 2010 to December 2015 (6 years periods). The data collected was analyzed for the patterns of antenatal care attendance, hospital live delivery, age at death, obstetric complications and maternal mortality ratio. There were 114,342 antenatal attendance, 42,178 live deliveries and 361 maternal deaths with average maternal mortality ratio of 856 per 100,000 live births. The major obstetric complications causing maternal death is eclampsia recorded about 49.7% among women who delivered, both antenatal care attendance and hospital deliveries were observed to have irregular pattern.*

Keywords: Antenatal, Maternal Mortality, Obstetric Care, Eclampsia

1. Introduction

Antenatal care service refers to the regular medical and nursing care recommended for women during pregnancy. Antenatal care services is a type of preventive care with the goal of providing regular check-ups that allow doctors or midwives to treat and prevent potential health problems through the course of the pregnancy while promoting healthy lifestyles that benefit both mother and child (Ahmed and Mosley 2002). It also offers a woman advice and information about appropriate place of delivery, depending on the woman's condition and status, opportunity to inform women about the danger signs and symptoms which require prompt attention from a health care provider. Furthermore, ANC may assist in abating the severity of pregnancy related complications through monitoring and prompt treatment of conditions aggravated during pregnancy, such as pregnancy induced hypertension, malaria, and anemia which put at risk both the life of the mother and unborn baby. Becker*et al*(2003), stated that antenatal care services is medical attention given to the expectant mother and her developing baby. It also involves the mothers caring for herself by following her health care provider's advice, practicing good nutrition, getting plenty of rest, exercising sensibly, and avoiding things that could harm her or her baby.

Worldwide, 292,982 women lost their lives in 2013 due to pregnancy related complications Kassebaum*et al*, (2014). Of all maternal deaths, about 87% of maternal deaths occur in Sub-Saharan Africa and south Asia showing that developing countries share an equal burden of maternal deaths (Crowe *et al* 2012). Globally it was estimated that close to 10 million women suffer complications associated with pregnancy or childbirth with about 536,000 of the women losing their lives from pregnancy-related cases annually (WHO 2012). The situation of maternal death in Nigeria is among the worst in Africa and has not improved substantially and in some areas of the country, the situation has worsened over the years (NDHS, 2008). The maternal mortality ratio ranges between 800-1500/100,000 live birth with marked variations between geo-political zones. In south west 165 compared with 1,549 in the North-east and between urban and rural areas (NDHS, 2008). It is also estimated that about 55,000 of maternal deaths take place annually in Nigeria as a result of complications of pregnancy and childbirth (WHO, 2005). Nigeria is second to India in term of absolute number of maternal deaths and regrettably, despite abundant resources, contributes 10-14% of the global maternal deaths. The reduction of maternal mortality rate represents a major challenge to Nigeria. Mid-way to the target date for achieving the MDG's, the maternal mortality rate was expected to be 440/100,000 live births (NDHS, 2008). The reality however shows that in the rural areas, it was 828 deaths per 100,000 live birth and 531 deaths per 100,000 live births in urban areas. Disparity was wide on zonal basis. When this compared to a target of less than 75 deaths per 100,000 live births by 2015, this shows clearly that the country is off the track (NDHS, 2008).

Previously several steps or measures and conferences have been held by the international community's at national, regional, continental and global level to address the problems on maternal death due to pregnancy among others are the Safe motherhood initiative launched in Nairobi, Kenya in 1987, the United Nations conference on population and development in Cairo, 1994, the Beijing conference for women in 1995 and the United Nations Millennium Development Goals (MDG's) in 2000 were all held in an attempt to tackle maternal mortality issue in the world and attention were diverted to reproductive health and rights as well gender equity and equality. An action plan for concerted action to reduce maternal mortality, promote maternal health and empowerment of women with knowledge that will help them, their family and communities in general were discussed in Maputo declaration 2008 in Mozambique. Comprehensive rights to women including right to improved autonomy in their reproductive health decisions and to end female genital mutilations.

Maternal health has emerged as the most important issue that determines global and national wellbeing. This is because every individual, family and community is at some point intimately involved in pregnancy and the success of childbirth (WHO, 2003).Improving maternal and infant health continue to be a major challenge such that a women living in Sub-Saharan Africa has 1 in 31 chance of dying during pregnancy or childbirth, as compared to 1 in 4,300 in high income country (Zere *et al*, 2011). In developing countries, less than 50% of deliveries occur in health care facilities therefore skilled birth assistanceis not utilized in such deliveries. Access to and use of health services is low in Africa, and this is reflected in the poor maternal health indicators (Kayongo *et al*, 2006). It still has the highest proportion of under-five death, with 1 in 91 children dying before their fifth birth day (UNDP, 2009)

Despite the wide range of maternal health services available, maternal mortality in Nigeria continues to rise in some regions. This is not unconnected with weak management and implementation of health policies and services compounded with socio-economic and cultural factors. In reducing the maternal mortality in Nigeria, the federal government has introduced some strategies like free antenatal care for all pregnant women, skilled care delivery during child birth, post partum family planning counseling and services, training of community medicine to bridge the gap in the rural areas, advocate effective referral system right from the primary to tertiary level health care and the introduction of pre-health insurance scheme for all pregnant women launched by the federal government on February, 2011 in Abuja.

Approximately two-thirds of all Nigerian women and three-quarter of rural Nigerian women deliver outside of health care facilities and without medically skilled attendant present. Data from Nigerian Demographic and Health Survey (NDHS 2008) indicated that among pregnant Nigerian women, only 64% receives antenatal care from a qualified healthcare provider.

A study conducted by Zeiner (2010),Simkhada*et al*(2008), UBOS (2006) and Karl (2005) found that majority of the mothers who attend antenatal care did not receive adequate number of visits and initiated the visits later than recommended by the world health organization and women of higher parity tend to use antenatal care less and utilization was significantly influenced by maternal age, where mothers age between 25-29 years were less likely to utilize ANC services than women who were 35 years.

Dairo (2010), conducted a study in Ibadan, Nigeria revealed that women who are Muslims or other religions were more likely to attend ANC clinic than women who are Christians. The study also showed that women who were 25 years and older utilized ANC more than women who were below 25 years which agrees with study made in Bangladesh.

A study done in rural local government area in Ogun state, Nigeria by Ebuechi (2012), identified that women preferred TBA's for various reasons which include cheap, easily, accessible, culturally acceptable services and more compassionate care than orthodox health care workers.

As earlier presented of the previous works on factors influencing antenatal care service utilization in Nigeria, none of these researchers discussed the ANC utilization using retrospective data from hospital record in perspective of effective utilization of ANC in the country.

This study was therefore set to compare the temporal patterns of antenatal care with maternal deaths and maternal mortality rate, and to examine the trends and causes of obstetric complications from year 2010 to 2015 in Kano north senatorial district.

2. Methodology

2.1 Study design

This is a retrospective study conducted using hospital records between January, 2010 to December, 2015 on ANC attendance, hospital delivery, maternal death and major obstetric complications were retrieved.

2.2 Study area

The study area is Kano north senatorial district which comprises 12 local government areas. The area has a total population of 3,143,899 according to 2006 National Population Census. Hausa language andIslam are the major ethnicity and religion of the people in the area. Polygamy system of family is also very common among the people in the area, so are large family and majority of women prefer home delivery and the love for children and ability to have them is an important component of social life in Hausa society making majority of men of marrying more than one wife. Therefore the status of or value of women is more or less influence by the ability of the wife to bear children and the situation is same as men.

2.3 Data collection

A six year retrospective data from three general hospitals and two basic health care in the area was selected based on the purpose sampling. The tree general hospitals and two basic health care were purposely selected, hence, where women were admitted for deliveries and where antenatal care services were provided. The case files records of all live deliveries, antenatal care attendance, maternal death, and major obstetric complications for all women from January 2010 to December 2015 were reviewed.

2.4 Ethical consideration

Written application was formally sent to the chairman ethical committee on research through the Executive Secretary Kano State Hospital Management Board, Ministry of Health Kano State,and The Executive Secretary Primary Health Care Management Board, Kano State seeking for the permission to enable the researcher to have an access to information on hospital records where the needs and the purposes were clearly stated. The research was set to abide by all the ethical issues therein according to the board.

2.5 Data analysis

Data was analyzed using Microsoft excel and presented in the form of tables, frequencies, percentages and graphs. Maternal Mortality Ratio was computed by dividing maternal death by the total number of live deliveries multiplied by 100,000 and to determine the pattern of maternal mortality ratio for all the years from 2010-2015, a complete ratio was computed for each year and finally the average was taken;MMR= Number Death / Live Birth x 100,000.

3. Results and Discussion

The purpose of the study was to compare temporal patterns of antenatal care with maternal deaths, maternal mortality rate and examine the trends and causes of obstetric complication from2010-2015 in Kano North. In pursuance of this, processed information was subjected to interpretation to achieve the objective of the study.

3.1 Comparison of antenatal care and obstetric care services in Kano North

Table 1 has indicated that there was generation of high antenatal care attendance in general hospital compare with basic health care. The highest attendance of 20068 (17.7%) was found in 2011, while the lowest attendance of 16882 (14.9%) was recorded in 2014. For general hospitals, there was a sharp rise in 2015. For basic health care, there was rise in 2010 but declined from 2011 to 2012 and fluctuating increase and decrease in 2013 and 2014 and finally a raise 265 (20.8%) in 2015. The pattern of hospital delivery for general hospital is higher compared to basic health care. There was rise in hospital delivery in general hospital from 2010 to 2014, but there was a declined in the deliveries in 2015. In basic health care,there was 206 hospital deliveries in 2010 and a decline from 2011 and 2012, and a rise in 2013 with 292 hospital deliveries (23.2%) and decreased from 2014-2015. There was a mixed of up and down of the number of hospital deliveries with no cut difference. Reasons for such could be due to economic factors, distance to health care facilities which includes women to deliver at home where relatives can be by their side.

Table 1: Antenatal care services in Kano north 2010-2015

Year	Antenatal Care Attendance				Hospital Delivery				Maternal Deaths			
	GH	(%)	BHC	(%)	GH	(%)	BHC	(%)	GH	(%)	BHC	(%)
2010	18779	(16.6)	227	(17.7)	6164	(15.1)	206	(16.3)	89	(25.7)	2	(13.3)
2011	20068	(17.7)	209	(16.5)	6784	(16.6)	193	(15.3)	51	(14.7)	2	(13.3)
2012	19947	(17.6)	164	(12.9)	6864	(16.7)	165	(13.1)	55	(15.9)	1	(6.7)
2013	17817	(15.8)	208	(16.4)	7027	(17.2)	292	(23.2)	43	(12.4)	6	(40.0)
2014	16882	(14.9)	197	(15.5)	7442	(18.1)	273	(21.6)	44	(12.7)	3	(20.0)
2015	19597	(17.4)	265	(20.8)	6636	(16.2)	132	(10.5)	64	(18.5)	1	(6.7)
Total	113072	(100.0)	1270	(100.0)	40917	(100.0)	1261	(100.0)	346	(100.0)	15	(100.0)

Source: Computed from hospital data collected, 2017

3.2 Maternal death by age group

There were a total of 361 women who died during the study period in both general hospital and basic health care in Kano North, the number of death occur more in general hospital with 346 and 15 basic health care. The highest number of 89 (25.7%) of maternal deaths in general hospital was in 2010 and the least cases of 43 (12.4%) was recorded in 2013, while in the basic health care the highest maternal deaths of 6 (40.0%) was recorded in 2013 with least of 1 maternal death each in 2012 and 2015.

Table 2: Maternal death by age group

Age group	General Hospital	(%)	Basic Health Care	(%)	Total	(%)
< 15	42	(12.1)	1	(6.7)	43	(11.9)
15-19	59	(17.1)	7	(46.6)	66	(18.3)
20-24	76	(22.0)	1	(6.7)	77	(21.3)
25-29	87	(25.1)	2	(13.3)	89	(24.7)
30-34	48	(13.9)	1	(6.7)	49	(13.6)
35-39	17	(4.9)	1	(6.7)	18	(5.0)
40-44	11	(3.2)	1	(6.7)	12	(3.0)
45-49	6	(1.7)	1	(6.7)	7	(1.9)
Total	346	(100.0)	15	(100.0)	361	(100.0)

Source: Computed from hospital data collected, 2017

Table 2 above has indicated that the highest proportion of maternal deaths of 87 (25.1%) occurred in the age group of 25-29 in general hospital and the highest proportion in the basic health care was 7 deaths within age group of 15-19. Therefore the greatest risk of maternal death was among the younger women.

3.3 Annual trends of Maternal Mortality Ratio's

To get the clear picture of the situation, we have to examine the maternal mortality ratio per 100,000 live births. A total of 40917 live births in general hospital and 1261 live births for basic health care participated in the antenatal care as indicated in table 1. However, the maternal mortality ratio varied greatly from 1429 per 100,000 live births in 2010 to 960 per 100,000 deliveries in 2015. The trend in maternal mortality ratio is not consistent. The highest value of 1429 per 100,000 live births was recorded in 2010 and the lowest MMR of 609 per 100,000 live births in 2014.

Table 3: Annual trends of maternal mortality ratios

Year	Hospital Delivery	Maternal Death	MMR/ 100,000
2010	6370	91	1429
2011	6977	53	760
2012	7029	56	797
2013	7319	49	669
2014	7715	47	609
2015	6768	65	960
Total	42178	361	856

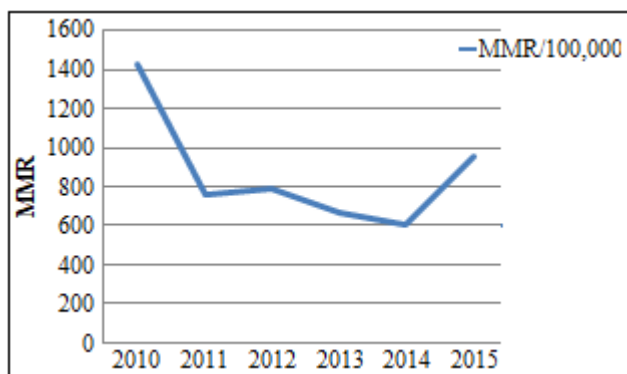Source: Computed from hospital data collected, 2017

Figure 1: Annual trend of maternal mortality ratio in Kano north

Source: Computed from hospital data collected, 2017

Table 3 and figure 1 show a trends in the maternal mortality ratio in Kano north from 2010-2015. There was a decrease in maternal mortality ratio in 2011 and sharp rise in 2012, there was also decline in the trend from 2012-2014, and the ratios then rise to 960/100,000 live births. The average maternal mortality ratio during the period of study was 856/100,000 live births. A decline in 2014 is an indication of the state obstetric care services in the area, and it may be due to the increasing awareness and sensitization of the general public on the importance of antenatal care and hospital delivery for the pregnant women and also due to government commitments in the maternal child health in term of budgeting and making sure that the funds allocated to health sector was used appropriately.Theparticipation of other stakeholders and other non-governmental organization has also change the situation for a better.

3.4 Annual trends of reported cases of obstetric complications

It was found in the study that eclampsia ranked as the leading causes of maternal morbidity of all reported cases of maternal deaths in the government hospitals in Kano north senatorial district as indicated in table 4 above. The result obtained from this study has showed that 49.7% of women who delivered or reported to the maternity units of government health care centrein the area were eclamptic. This is higher than a figure obtained by Adamu (2003) on maternal mortality in Nigeria a case study of Kano state in which he reported that 6.4% of maternal morbidity was caused by eclampsia. The finding of this study is also consistent with finding of Yar'rzever (2014) in which eclampsia was found to be the leading cause of maternal death in Kano state with 24.3%. The above finding is also in

consonance with that of Olopade (2006) where 71.4% of the death due toeclampsia was in nulliparous women. Eclampsia occurs more in first pregnancies which usually occurs in young women within age 15-24 years.

4 Annual trends of reported cases of obstetric complications

Year	ECLM	RP	APH	PPH	ANM	No. of Complications
2010	627	222	288	91	47	1275
2011	632	211	158	160	35	1196
2012	744	233	142	199	39	1357
2013	643	242	81	179	20	1165
2014	511	274	66	171	74	1096
2015	338	293	187	80	43	941
Total	3495	1475	922	880	258	7030

Source: Computed from hospital data collected, 2017

Retained placenta is the second cause of maternal morbidity in Kano north with 1475 cases about (21%) with highest occurrence in 2015 and the least was in 2011. Ante Partum Hemorrhage (APH) was ranked the third major complications identified under this study. There were a total of 922 reported cases of APH with lowest occurrence consisting of 66 cases in 2014 and the highest consist of 288 cases. The pick years are 2010 and 2015.

Post Partum Hemorrhage (PPH) which refers to bleeding through birth and delivery is generally to be one of the leading causes of maternal mortality in developing countries (WHO, 2015). It ranked fourth, accounting for 12.5% of major causes of maternal mortality. This confirms the study of Fawole (2010) who reported that post partum hemorrhage (PPH) is the most common death cause of maternal mortality globally.

Anemia ranked fifth among the most important causes of maternal mortality. There were 258 reported cases of anemia, and 3.7% of women who delivered in the study area were anemic, but according to the study conducted by Adamu (2003) anemia was ranked first among the most common causes of maternal mortality with 11.8% of the women who delivered at government hospital.

From the findings, it has detected that there was no consistent pattern of antenatal care attendance and hospital deliveries for both in general hospitals and basic health care. This study also confirms the finding of Yar'zever (2014) where highest antenatal attendance was recorded in urban centers. It has indicated that more improved figures were found in the general hospital located in the urban settings than in rural areas. The rationale behind for such variations might be associated with the facts that pregnant women in the urban areas tend to benefit from increase knowledge and access to maternal health services compared with their rural counterparts, also health facilities are more accessible in urban areas and the various health promotion programs that used urban focused mass media work to the advantage of urban residents. Moreover, rural pregnant women are more influenced by traditional practices that are inconformity to modern health care. Other reasons affecting the full participation of rural pregnant women in antenatal care services and utilization include inaccessibility to

transportation in time, distance to health care facilities, illiteracy and poverty.

The study also detect that the average maternal mortality ratio of 856 per 100,000 live births found in this study is lower than the average of 1000 per 100,000 live births estimated for Africa. The finding of this study is inconsistent with findings of Yar'zever (2014) where the average maternal mortality ratio found to be 1625 per 100,000 live births in Kano. The trend in the maternal mortality ratio Kano north is decreasing from 1429 per 100,000 live births in 2010 to 960 per 100,000 live births in 2015.

The major obstetric complications causing/leading to maternal deaths in the study area was found to be eclampsia with 49.7% which occurs more in first pregnancies which usually occurs in young women within age 15-24 years. The highest proportion of maternal deaths of 87 (25.1%) occurred in the age group of 25-29. Death was also decreasing with increasing parity from years of age group.

4. Conclusion

To conclude, Utilization of antenatal and obstetric care services in Kano North constitute a major public health challenge. The result shows significance variation in the ANC attendance and hospital deliveries among child bearing mothers. The analysis identified five major causes of maternal death in the area which includes eclampsia, retained placenta, ante partum hemorrhage, post partum hemorrhage and anemia. The analysis also identified 7030 obstetric complications leading to 361 maternal deaths out of 42,178 hospital deliveries and the result also indicate the average maternal mortality ratio of 856 per 100,000 live births and highest maternal deaths of 87 was recorded within the age group of 25-29 years.

5. Recommendations

It is however recommended that
- Efforts should be made to sustain or increase antenatal and maternal care services in the study area and other parts of Kano state
- More skilled health care personnel especially those in emergency and obstetric care services should be employed.
- More study are require to solve the cause of disparity between antenatal care and number of delivery by skilled attendants. The need to follow the utilization of ANC service which seems to be reducing at the moment is also obvious.
- Functional and reliable data pool on maternal health services should be adhered.

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