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TRENDS IN MATERNAL HEALTH CARE UTILIZATION IN LOKOJA LOCAL GOVERNMENT AREA, KOGI STATE, NIGERIA

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ABSTRACT
This study aimed at assessing maternal health care utilization in Lokoja, Kogi State, Nigeria. The data used for this study and their sources include; Data on antenatal care; number of monthly antenatal visits. Data on delivery care; number of monthly births. Data on postnatal care; number of women receiving care after delivery on monthly basis. The age of maternal women, education, religion, ethnicity, household size, occupation, income and occupation; this was collected through In-depth interviews from childbearing women and partly hospital records. The result revealed that in 2012, the reported antenatal care was 13,744. In 2013, 13,528 antenatal visits were reported. The number of reported visits of antenatal care increased substantially to 14,346 in 2014 and then dropped drastically to 8,952 visits in 2018, which perhaps represents the lowest reported antenatal care of maternal women in Lokoja. It increased slightly thereafter. Antenatal care increased to 9,974 in 2019. The trend in antenatal care from 2012 to 2019 revealed 14.4% increase, which represents a negligible rise in antenatal care for the period under consideration. Analysis of the time period under review revealed that the lowest number of postnatal visits was recorded in 2014, while the highest was recorded in 2019. The On-Way Analysis of Variance (ANOVA) result shows there is a significant variation in maternal healthcare utilization ($F = 1.330$, $p>0.05$). This is consequent upon the probability value of 0.000 being lower than 5% significance level. The result further shows that the numbers of antenatal, delivery and postnatal care vary significantly in the study area. The study recommends that the number of people utilizing maternal health services in public hospitals is large and rising; the government must continue to encourage maternal women to utilize government health facilities to ensure that women have access to adequate maternal care services in the area.

Keywords: *Maternal, Healthcare, Utilization women, and childbearing*

1. INTRODUCTION
Maternal health care is referred to as the health care services provided to women in childbearing, usually between age 15-45 (Mesfin, 2003). Maternal health care is a life saving device provided for nursing mothers. It is provided to reduce the number of deaths among women of childbearing age, emanating from the high maternal mortality rate in developing countries, this health care was made one of the Millennium Development Goals (MDGs) in order to reduce the high death rate common among mothers of childbearing age specifically, pregnant women and nursing mothers. The performance of this maternal health care service has since been measured looking at the utilization of antenatal care, delivery of health services by the service providers, observing the rate of birth assisted services given by medical personnel and the level of post-natal service accessible.

According to United Nation Children Fund (2015) a woman's chance of dying from pregnancy and childbirth in Nigeria is 1 in 13. Although many of these deaths are preventable, the coverage and quality of health care services in Nigeria continue to fail women and children. Presently, less than 20% of health facilities offer emergency obstetric care and only 35% of deliveries are attended by skilled birth attendants. Fagbamigbe & Idemudia (2015) disclosed that of the mothers, who did not use ANC, rural dwellers were the majority and 57.3% had no formal education.

The introduction of the health services resulted in rapid decline in maternal deaths in many parts of the developing countries. However, while the high death rates drastically declined with the introduction of the health care services in many developing countries, the maternal mortality rate in Nigeria is still high. This rate was as high as 800 per 100, 000 in 2010. Nigeria accounted for about 14% of the global maternal deaths (Onasoga, Osaji, Akande & Egbunwe, 2014). Recently, the maternal mortality rate was revealed to be 243 per 100,000 (NBS, 2015). This figure of course is one of the highest maternal mortality rates reported in the world.

This maternal mortality rate in Nigeria varies from one area, states and indeed regions to another. Over the years, States from the north often accounted for the highest rates. Among these States is Kogi. Maternal mortality is perhaps high because of the poor disposition of women at childbearing age to maternal health care. Several factors have been identified as the factors responsible for the high death rates among women. The works of Onasoga et al (2009), Glyn, Sushmita, Ketaki, Shada, Shanti & Houwling (2015), Idowu (2014) & Mekonnem & Mokennem (2002) have identified a number of factors as the main determinants of the mother choice to health care services. David (2004) identified income as the main hindrance to mother choices. Some of these factors may be hindering the government's efforts at reducing or possibly eradicating maternal mortality. This study therefore intends to identify the determinants of maternal health care utilization in Lokoja, Kogi State.

Lokoja is geographically located on Latitudes $7{\cdot}8^0$ N and longitudes 6.740E and about 55 meters elevation above the sea level (Atomode, & Majekodunmi, 2016). Lokoja has two major distinctive features that make it stand out among other cities in Nigeria, situated on the western bank of the Niger River close to its confluence with the Benue River at an altitude of 45-125 m above the sea level and sandwiched between a water body and a high Plateau ridge, River Niger and Mount Patti (Figure 1). Also, the temperature of Lokoja is modified by the presence of River Niger which covers an extensive proportion of Lokoja Local Government Area. (Atomode, & Majekodunmi, 2016). The area is covered by grass and scattered trees.

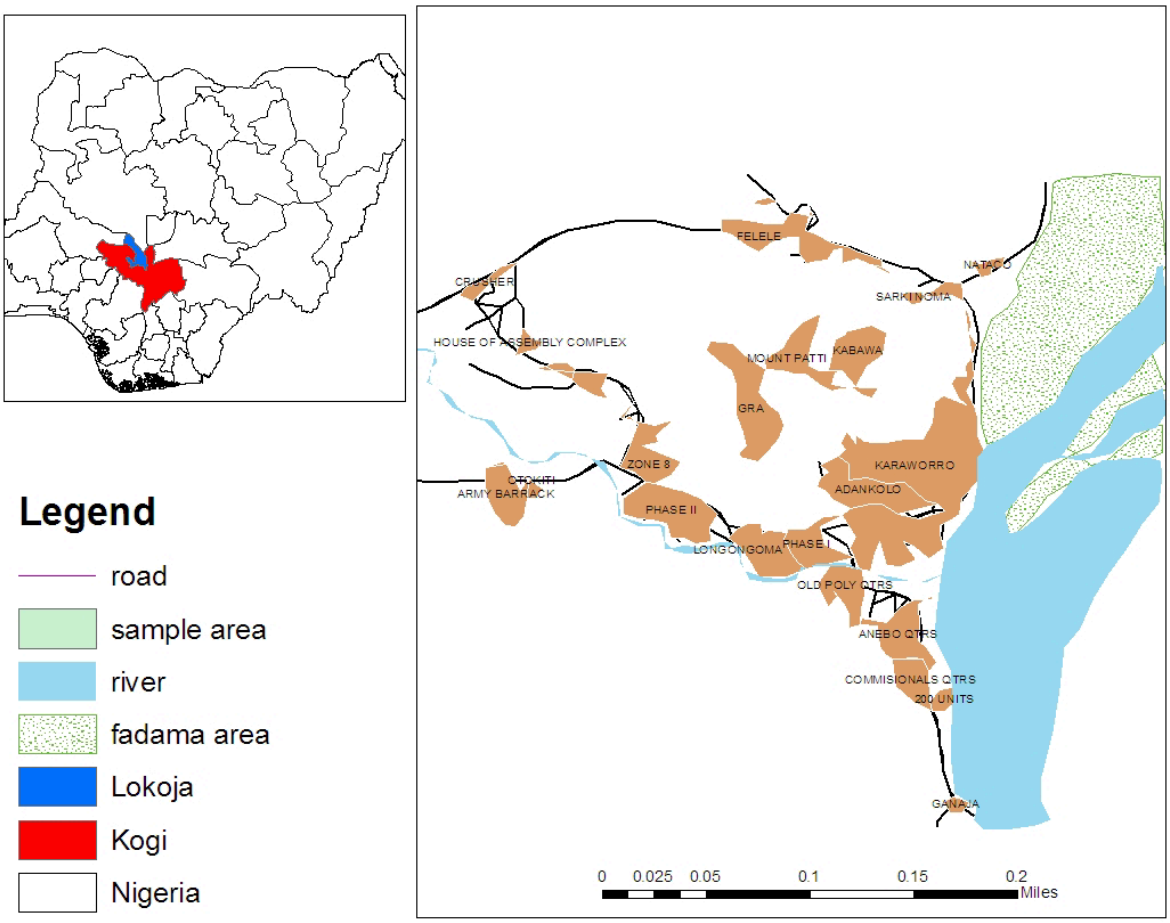

Figure 1: Lokoja: Study area

2. MATERIALS AND METHODS

The data used for this study are secondary data which was collected from the hospital, particularly Federal Medical Centre exception of socio-economic and demographic data which is primary data. Other secondary sources constituted the literature sourced from libraries, published and unpublished literatures, open access journals and articles from the internet.

Survey method was employed to collect the required secondary data. This is so because only data on women within a specific period was used to generalize for the entire reproductive women population. Specifically, the sample frame for this study was all women in the reproductive age group, who are attending antenatal, delivery and postnatal care in Federal Medical Centre, Lokoja Local Government, Kogi state Specialist Hospital and Kogi State Ministry of Health. The period of 10 years of data is selected because of the large number of women involved in reproduction in the study area. According to NPC (2010) about 50% of the total population is female, and a substantial proportion of this is within the childbearing age.

The study used both the descriptive and inferential statistics to analyze the data collected from registered hospital records. Tables, simple percentages were used to present the results. Analysis of variance (ANOVA) was employed to test the variation in the utilization of antenatal, delivery

and postnatal care among reproductive aged women, while content analysis was used to analyse the interviews on the influence of socio-economic factors on maternal healthcare utilization.

3. RESULTS AND DISCUSSION

3.1 Trends in antenatal care

The trend in the antenatal care of women in Lokoja from 2012 to 2019 is depicted in Table 1. The result showed insignificant variability in the number of antenatal care within the period under review. The result revealed that in 2012, the reported antenatal care was 13,744. In 2013, 13,528 antenatal visits were reported. The number of reported visits of antenatal care increased substantially to 14,346 in 2014 and then dropped drastically to 8,952 visits in 2018, which perhaps represents the lowest reported antenatal care of maternal women in Lokoja. It increased slightly thereafter. As depicted in the Table, antenatal care increased to 9,974 in 2019. The trend in antenatal care from 2012 to 2019 revealed 14.4% increase, which represents a negligible rise in antenatal care for the period under consideration. As could be seen, the table shows a downward trend in the number of antenatal care among maternal women for the period under review. This decreasing trend may be attributed among numerous factors to economic hardship which prevent pregnant women from registering in a health facility for adequate care during pregnancy. The figure also reveals that the highest number of antenatal visits was recorded in 2014 when a total of 14346 pregnant women sought antenatal care, while the lowest antenatal care of 8,952 women was recorded in 2018.

Table 1: Anténatal care from 2012-2019

Month	2012 (%)	2013 (%)	2014 (%)	2015 (%)	2016 (%)	2017 (%)	2018 (%)	2019 (%)
January	1146 (8.3%)	1721 (12.3%)	1497 (10.4%)	Strike	1253 (9.1%)	1047 (7.9%)	1188 (13.2%)	849 (8.5%)
February	1440 (10.4%)	1576 (11.6%)	1501 (10.5%)	630 (4.5%)	1270 (9.2%)	1156 (8.7%)	1111 (12.4%)	819 (8.2%)
March	-	1774 (13.1%)	1425 (9.9%)	1264 (9.0%)	1508 (10.9%)	1401 (10.6%)	1445 (16.1%)	955 (9.6%)
April	998 (7.3%)	1750 (12.9%)	1844 (12.9%)	1607 (11.5%)	1480 (10.7%)	1212 (9.1%)	620 (6.9%)	366 (3.7%)
May	1418 (10.3%)	1624 (12.0%)	885 (6.2%)	1578 (11.3%)	1312 (9.5%)	1169 (8.8%)	Strike	902 (9.0%)
June	1289 (9.4%)	1618 (11.9%)	1424 (9.9%)	1488 (10.6%)	1055 (7.7%)	1071 (8.1%)	817 (9.1%)	852 (8.5%)
July	1515 (11.0%)	326 (2.4%)	1047 (7.2%)	1432 (10.2%)	1054 (7.7%)	1227 (9.3%)	714 (7.9%)	1007 (10.0%)
August	1560 (11.3%)	310 (2.3%)	1125 (7.8%)	1315 (9.4%)	1054 (7.7%)	1360 (10.3%)	815 (9.1%)	916 (9.2%)
September	749 (5.4%)	370 (2.7%)	1476 (10.2%)	1262 (9.0%)	992 (7.2%)	814 (6.1%)	732 (8.2%)	856 (8.6%)
October	1334 (9.7%)	659 (4.9%)	1545 (10.8%)	1182 (8.4%)	1012 (7.3%)	957 (7.2%)	753 (8.4%)	870 (8.7%)
November	1328 (9.7%)	547 (4.1%)	577 (4.0%)	1051 (7.5%)	990 (7.2%)	1008 (7.6%)	773 (8.6%)	870 (8.7%)
December	967 (7.0%)	1253 (9.3%)	Strike	1190 (7.9%)	793 (5.8%)	823 (6.2%)	584 (6.5%)	712 (7.1%)
Total	13,744 (100.0)	13,528 (100.0)	14,346 (100.0)	13,999 (100.0)	13773 (100.0)	13,245 (100.0)	8,952 (100.0)	9,974 (100.0)

Source: Federal Medical Centre, Lokoja, Kogi State, 2021

3.2 Intermittent Preventive Treatment (IPT) of Malaria in Pregnant Women

The trend in malaria confirmed pregnancy in Lokoja from 2014 to 2018 is depicted in Table 2. The result showed a variable pattern in the number of malaria confirmed pregnancies in the area. The result revealed that in 2014, the reported malaria confirmed pregnancies was 19.1%. This number decreased by 6.4% in 2015 to 179 malaria confirmed pregnancies. The number of malaria confirmed pregnancies in the area, however, increased to 14.2% in 2016. Also, in 2017, the number of malaria confirmed pregnancies in the area dropped to 11.6%; and rose greatly again to 22.9% in 2018 and slightly declined to 19.5% in 2019. This study agrees with the work of Audu Ohida, Babable & Ajakaiye (2020). That malaria cases increase among pregnant women in south western Nigeria.

A 6-year reported case of pregnant women who received malaria Intermittent Preventive Treatment (IPT1) in a health facility was collected and the analysis is shown in Tables 2 and 3. The information in Table 2. shows that for the 6 years (2014–2019), a total of 15,380 pregnant women received malaria Intermittent Preventive Treatment (IPT1) in the period under review, with the lowest and highest treatment of malaria in pregnant women of 10.6% and 16.2% in 2014 and 2019 respectively; and a mean antenatal care of 87.6%. However, the proportion of women who received malaria IPT1was 15.9% in 2015. The number increased steadily thereafter from

17.8% and 21.6% in 2016 and 2017 respectively and then dropped slightly in 2019. This distribution could reflect the effects of intermittent preventive treatment in pregnancy (IPTp) policies, which are designed to mitigate severe malaria impacts in pregnant women (van Eijk *et al*., 2019). Mild parasitemia might be prevalent due to partial immunity developed from previous exposure, as endemic populations often develop some level of immune tolerance to malaria (Doolan *et al*., 2009).

Table 2: Pregnant Women who Received Malaria IPT1

S/N	Year/Period	Frequency	Percentage
1	2014	1629	10.6
2	2015	2439	15.9
3	2016	2738	17.8
4	2017	3329	21.6
5	2018	2747	17.9
6	2019	2498	16.2
	Total	15380	100.0

Source: Federal Medical Centre, Lokoja, Kogi State, 2021

The number of pregnant women who received malaria Intermittent Preventive Treatment (IPT2) in a health facility within the 6 years period was inventoried. The information in Table 3 shows that 12.3% of the pregnant women received malaria Intermittent Preventive Treatment (IPT2). The number dropped from 11.2% in 2015 and later rose steadily from 17.4% in 2016 to 21.2 in 2018. It then dropped slightly to 18.6% in 2019. The result further revealed that the lowest (11.3%) year of IPT2 was recorded in 2015 and the highest was in 2018. This rate falls below some previous studies that were done in Nigeria (Ogbu *et al*, 2015) who reported 38.8% reported cases.

Table 3: Pregnant Women who Received Malaria IPT2

S/N	Year/Period	Frequency	Percentage
1	2014	1039	12.3
2	2015	949	11.2
3	2016	1469	17.4
4	2017	1610	19.3
5	2018	1804	21.2
6	2019	1565	18.6
	Total	8436	100.00

Source: Federal Medical Centre, Lokoja, Kogi State, 2021

3.3 Number of Deliveries by Women

The number of deliveries by skilled attendants in each year is depicted in Table 4. The result apparently showed that a total of 10,093 deliveries were received by skilled medical personnel with 2019 having the highest number of births with 24.3% of the total births; this is closely followed by 2016 with 23.1%, next was 2017 which recorded the births with 19.0% of the total births, while in 2018, 16.6% deliveries were performed by skilled birth attendants. As could be inferred from the table, a total of 10,093 highest deliveries by skilled birth attendants were recorded in 2019 and the lowest (895) were observed in 2014 and 2015 respectively. This is in agreement with the work of Bolaji & Clem (2018) who recorded women in their third and second trimesters.

Table 4: Deliveries by Skilled birth attendants

S/N	Year/Period	Frequency	Percentage
1	2014	895	8.9
2	2015	999	9.9
3	2016	2154	21.3
4	2017	1920	19.0
5	2018	1672	16.6
6	2019	2453	24.3
	Total	10,093	100.0

Source: Federal Medical Centre, Lokoja, Kogi State, 2021

3.4 Postnatal Care

The trend in post-natal visits of women of childbearing in Lokoja from 2014 to 2018 is depicted in Table 5. The result showed an upward trend in the number of post-natal visits in the area. The result revealed that in 2014, the reported post-natal visits were 446. This number slightly decreased by 1.1% in 2015 to 390 postnatal visits. The number of post-natal visits in the area however increased tremendously and in 2016, it increased by a negligible 0.1% 437 visits. However, in 2017, the number of post-natal visits in the area declined to 409; it nevertheless rose to 1414 postnatal visits in 2018 and greatly increased to 5158 by 40.2% in 2019. The result obtained showed that from 2014 to 2019, the number of post-natal visits in the study area increased by 16.7% indicating a fair increase in the number of post-natal visits. Further analysis of the time period under review revealed that the lowest number of postnatal visits was recorded in 2014, while the highest was recorded in 2019. Malaria accounted for 11% of maternal deaths and 30% of infant mortality (UNICEF, 2023). Although specific numbers vary, estimates suggest that tens of thousands of infants die annually in Nigeria due to complications arising from maternal malaria (World Health Organization, 2023; UNICEF, 2023).

Table 5: Postnatal Visit to Hospital

S/N	Year/Period	Frequency	Percentage
1	2014	446	8.6
2	2015	390	7.5
3	2016	437	8.4
4	2017	409	7.9
5	2018	1414	27.4
6	2019	2086	40.2
	Total	5185	100.0

Source: Federal Medical Centre, Lokoja, Kogi State, 2021

3.5 Health Facility Attendance in Secondary and Primary Health Facilities by Women

The number of attendance in secondary healthcare facilities is depicted in Table 6. The result apparently showed that a total of 281, 323 health facilities attendance were recorded in the period under review with 2019 having the highest number of health facility attendance with 24.7% of the total facility attendance. This is closely followed by 2018 with 20.3%, while 2016 recorded the third largest secondary health facility attendance with 15.4% of the total maternal visits. The result in Table 8 further showed that 2014 had 14.10% of maternal visits occurring in secondary

healthcare facilities; while maternal care in secondary health facilities in 2015 and 2017 was 12.3% and 12.3% of the total attendance respectively.

Table 6: Health Facility Attendance

S/N	Year/Period	Secondary Health Facility	Percentage
1	2014	42162	14.10
2	2015	34680	12.3
3	2016	43445	15.4
4	2017	34578	12.3
5	2018	57104	20.3
6	2019	69354	24.7
	Total	281,323	100.0

Source: Federal Medical Centre, Lokoja, Kogi State, 2021

The 6-year analysis on maternal health care utilization in primary health facilities is depicted in Table 9. The information in Table 7 shows that 11.0% of the maternal women visited primary health facilities in 2012. The number rose from 2015 and 2016 to 16.9% and 16.5% respectively and later declined to 13.8% in 2017, and then increased steadily from 2018 and 2019 to 15.7% and 26.1% respectively. The result further revealed that the lowest (11.0%) maternal care in primary health facilities was recorded in 2014 and the highest (26.1%) was observed in 2018.

Table 7: Primary Health Facility

S/N	Year/Period	Primary Health Facility	Percentage
1	2014	61412	11.0
2	2015	94299	16.9
3	2016	91951	16.5
4	2017	76689	13.8
5	2018	87251	15.7
6	2019	145682	26.1
	Total	557284	100.0

Source: Federal Medical Centre, Lokoja, Kogi State, 2021

The number of outpatient attendance in secondary and primary health facilities is presented in Tables 8 and 9. The number of outpatient attendance in secondary health facilities in each year is depicted in Table 10. The result obviously showed that a total of 123490 outpatient attendance in secondary health facility was recorded, with 2019 having the highest number of outpatient attendance with 26.2% of the total attendance; this is closely followed by 2018 with 22.2%, next was 2016 which recorded the outpatient attendance with 14.8% of the total outpatient attendance in secondary health facility, while in 2015 and 2017, 12.3% and 12.10% outpatient attendance were recorded respectively. As could be inferred from the table, the trend shows an upward pattern with a total of 32331 highest outpatient attendance recorded in 2019 and the lowest (14296) outpatient attendance in secondary health facilities observed in 2014. The high malaria incidence among pregnant women in Lokoja, aligns with previous studies indicating that pregnancy heightens susceptibility to malaria, especially in endemic regions. Pregnant women experience changes in immune function that make them more vulnerable to Plasmodium falciparum, the parasite most commonly associated with malaria in Nigeria (Desai *et al*., 2020). Malaria in pregnancy can lead to adverse outcomes such as maternal anemia, low birth weight, and increased neonatal mortality (WHO, 2023).

Table 8: Outpatient Attendance in Secondary Health Facility

S/N	Year/Period	Secondary Health Facility	Percentage
1	2014	14296	11.6
2	2015	15129	12.3
3	2016	18251	14.8
4	2017	16032	12.10
5	2018	27451	22.2
6	2019	32331	26.2
	Total	123490	100.0

Source: Federal Medical Centre, Lokoja, Kogi State, 2021

The trend in outpatient attendance in primary health facilities is depicted in Table 9. The result clearly showed that a total of 321209 outpatient attendance in primary health facility was recorded, with 2016 having the highest number of outpatient attendance with 24.7% of the total attendance; this is closely followed by 2015 with 23.8%, next was 2017 which recorded the outpatient attendance with 15.7% of the total outpatient attendance in primary health facility, while in 2019 and 2014, 14.2% and 12.7% outpatient attendance were recorded in primary health facilities respectively. As could be seen from the table, the trend shows a variable pattern with the highest (76453) outpatient attendance in primary health facilities recorded in 2015 and the lowest (28202) outpatient attendance noted in 2014.

Table 9: Outpatient Attendance in Primary Health Facility

S/N	Year/Period	Primary Health Facility	Percentage
1	2014	40837	12.7
2	2015	76453	23.8
3	2016	79385	24.7
4	2017	50572	15.7
5	2018	28202	8.8
6	2019	45757	14.2
	Total	321209	100.0

Source: Federal Medical Centre, Lokoja, Kogi State, 2021

Variation in Maternal healthcare

The On-Way Analysis of Variance (ANOVA) is performed to find out if there is any significant variation in maternal healthcare utilization (Table 10). The result shows there is a significant variation in maternal healthcare utilization ($F = 1.330$, $p>0.05$). This is consequent upon the probability value of 0.000 being lower than 5% significance level. The result further shows that the numbers of antenatal, delivery and postnatal care vary significantly in the study area.

Table 10: ANOVA Result of Variation in Maternal healthcare Utilization

Source of variation	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	1498798.215	4	385679.554	1.330*	0.000
Within Groups	15610504.000	60	270165.067		
Total	17109302.215	64			

*Significant at 5% alpha level

Source: Researcher's, Field Analysis, 2021.

4. CONCLUSION

The study has shown that there are wide variations in the pattern of maternal health care utilization in the study area. The trend in antenatal care from 2012 to 2019 revealed 14.4% increase. Pregnant women receive malaria Intermittent Prevention and Treatment. This finding is indicative of the fact that maternal women are aware of the dangers of malaria to the mother and the unborn baby. The study established the fact that delivery by skilled medical personnel increased by 24.3% within the period under review. The rate of post-natal visits in the study area increased by 16.7 percent indicating a fair increase in the number of post-natal visits from 2014 to 2019. This finding suggests maternal women visit the hospital after delivery or stay to receive adequate care before going back to their homes. The study clearly shows that a good number of women seeking maternal care visit both secondary and primary health care facilities; but with more women using primary health center's for antenatal and delivery. The use of registered monthly deliveries in the analysis of births suggests some seasonal effects in the sex ratio of male and female children born. The highest month of delivery for both male and female births was October in all the periods under review. The study observed that more females were born in October, while months of births of male children showed variable patterns. Mother-in-laws, grandmothers and mothers were caregivers to women who deliver at home which is very risky.

5. RECOMMENDATIONS

Based on these findings, the study recommends that the number of people utilizing maternal health services in public hospitals is large and rising; the government must continue to encourage maternal women to utilize government health facilities to ensure that women have access to adequate maternal care services in the area. The study found that a good number of women utilized primary health facilities for antenatal and delivery care. Government must as a matter of urgency strengthen the primary health centers to make them more functional, resourceful and efficient. The provision of standard medical equipment and qualified medical personnel is key to ensuring that the critical services of maternity are not compromised. Routine focused health education that would improve the health of the mother and child should be provided to maternal women at home and at the facility and women should be encouraged to use this knowledge to improve their general reproductive health. Mother-in-laws, grandmothers and mothers assisting childbearing women should be educated to take their family members to a nearby health facility before, during and after delivery.

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