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Differentials in Utilizations of Antenatal Care Services among Currently Married Women in Urban Southwest and Northwest of Nigeria

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Abstract

The study examines differentials in utilization of antenatal care services among currently married women in urban Southwest and Northwest of Nigeria. Attempt was made to investigate differentials in utilization of antenatal care services among currently married women in both regions. In-depth interviews currently married women in urban Southwest and Northwest. Secondary data were extracted from 2008 Nigeria Demographic and Health Survey (NDHS) dataset. Out of the 33,385 currently married interviewed, the study employed sample of 14,811 comprising 8,202 for Northwest and 6,789 for Southwest. The analyses were done in three stages of univariate, bivariate and multivariate levels. The result showed evidence of higher age of respondents, higher education among currently married in southwest than northwest. The number of children ever born (CEB) among currently married in both regions were four and five respectively. For both regions antenatal care utilization increased with wealth index. The result of the multivariable analysis regarding utilization of antenatal care services, the logistic analysis shows factors such as education, religion and wealth index as the variables influencing utilization of antenatal care service in Northwest while age of respondents, occupation and CEB determined utilization of antenatal care services in Southwest than Northwest. The study concluded that currently married women in Southwest and Northwest showed differentials in utilization of antenatal care services. Currently married women in Southwest exhibiting higher utilization of antenatal care services and lower utilization in Northwest. Religion, education, wealth index, women autonomy, children ever born, distance to health and cost of antenatal care were the most important variables explaining the differentials in utilization of

antenatal care services among currently married women in urban Southwest and Northwest in Nigeria.

1.1: Background Of The Study

Antenatal care is an indicator of access, utilization of care during pregnancy and is an important determinant of high maternal mortality rate and one of the basic components of maternal care on which the life of mothers and babies depend. Antenatal care was first introduced early in the 20th century in Europe and North America and is now almost universal in the developed and developing world. Antenatal care can be defined in various ways. World Health Organization (1996) defines antenatal care as a dichotomous variable, having had one or more visits to a trained person during the pregnancy. Antenatal care is the health care that a pregnant woman and her fetus receive from conception to the onset of labour (Fraser and Cooper, 2003). According to De Kock and Vander Walt (2004), the comprehensive aim of antenatal care is to prepare the pregnant woman and her family for pregnancy, labour and puerperium (the period of up to about six weeks after childbirth, during which the uterus returns to its normal size) , including lactation and subsequent care of the newborn baby. The major components of antenatal care includes recording medical history, assessment of individual needs, advice and guidance on pregnancy and delivery, screening tests, education on self-care during pregnancy, identification of conditions detrimental to health during pregnancy, first-line management and referral if necessary and routine follow up provided to all pregnant women at primary care level from screening to intensive life support during pregnancy and up to delivery.

Promotion of maternal and child health has been one of the most important components Policy on Population for development, unity, progress and self-reliance of the government of Nigeria, Population Policy 1988 reiterates the government commitment to reduce the infant mortality rate to 50 per 1000 live births by the year1990 and 30 per 100 live birth by the year 2000. Even though another policy on Population policy was adopted in 2004 to replace 1988 National Population Policy the policy was to reduce infant mortality rate 35 per 1000 live births by 2015 and reduce maternal mortality ratio to 125 per 100,000 live births by 2010 and to 75 per 2015.

Women play a major role in the rearing of children and the management of family affairs and their loss from maternity-related causes is a significant social and personal tragedy. There are an estimated 281,500 maternal deaths worldwide each year, over 99% of which occur in the developing world and most are avoidable (Hogan et al 2008). Improving antenatal care service is a

global challenge for the health in low and middle countries. The goal set by United Nation Millemium Development Goal (MDGs) to reduce maternal mortality rate to three quarters during the period between 1990 -2015 (UN, MDG Report 2008). The tool of maternal death in poorer women is large and lack of accessibility to health facility, illiterate and cultural belief and social characteristics of women prevent to seek health care (World Bank, 2005).

Complications during pregnancy and childbirth such as haemorrhage, sepsis, spontaneous abortion, pre-eclampsia and eclampsia, and prolonged/ obstructed labour are the leading causes of death and disability among women of reproductive age in developing countries (WHO 2005). Millions of women lack access to adequate care during pregnancy. Antenatal care (ANC) is an important determinant of safe delivery that can offer opportunities to encourage women to deliver with a skilled attendant in a health facility (Mrisho et al 2009) ultimately helping to reduce maternal mortality (Nuraini& Parker 2005).

According of the World Health Organization (WHO, 2008), a skilled health worker is "an accredited health professional—such as a midwife, doctor, or nurse—who has been educated and trained to proficiency in the skills needed to manage normal (uncomplicated) pregnancies, childbirth and the immediate post-partum period, and in the identification, management, and referral of complications in women and newborns" (WHO, 2008). WHO further states that traditional birth attendants (TBA), trained or untrained, are excluded from the category of skilled health workers. In this context, the term TBA refers to traditional, independent (of the health system), non-formally trained and community-based providers of care during pregnancy, childbirth, and the postnatal period during pregnancy, childbirth, and the postnatal period.

1.2: Statement Of Problem

During pregnancy it is very important to have antenatal care provider, the most important of antenatal care is to provide health outcome for the mother and the child. Antenatal care is important to monitor the pregnancy and reduce Morbidity risks for the mother and child during pregnancy and delivery. In developing countries the World Health Organization (WHO, 2003) recommends the first visit for antenatal care should be within 6 months of pregnancy. For women to have good maternal health there must be availability and most especially accessibility for these women to patronize the modern health facilities. Nigeria Health Review (2006), report that one of

the major causes of maternal deaths is inadequate motherhood services such as antenatal care. Despite the introduction of modern health facilities most women still prefer the traditional birth attendants (TBA) or give birth at home or mission house .As a result several women and children are subjected to death that could easily have been avoided because most of these birth attendants are untrained midwives who often do not refer complication if any arises or noticed to appropriate quarters.

The high rate of maternal mortality experience indicated that globally approximately 536,000 girls and women die from pregnancy-related causes – one girl or woman dies where nearly half of these taking place in Sub-Saharan Africa. Women living in Sub Saharan Africa have a higher risk of dying while giving birth than women in any other region of the world.In 2000, the United Nations estimated that the number of women who died during pregnancy or shortly after birth at 529,000 (almost one maternal death per minute), of which less than 1% occurred in industrialized countries. According to the United Nations (2000), the three countries with the highest maternal death rates are India (136,000), Nigeria (37,000) and Afghanistan (20,000). The highest maternal mortality rates are in Sierra Leone and Afghanistan, with 2,000 and 1,900 maternal deaths for every 100,000 live births, respectively. The lowest rates are in Australia and Iceland, at four and 10, respectively.

Despite the effort and large amount of money spent on health programmes in Nigeria, government formulate population policy to reduce maternal health in 1998 and 2008 still, antenatal care utilization is still very low in Nigeria when compared to other African countries. Although, many literature exist on determinants of antenatal care service utilization in Nigeria but much has not been done on antenatal care service utilization differences among the geo-political zone in the country. The work of Emmanuel, et al. quoted above appears to be the most recent work which study determinants of antenatal care service utilization in Nigeria. Even with that, they did not relate it to differences in geo-political zones of the country. It is the aim of this study to fill in the identified gaps.

1. 3: Research Objectives

The general objective of the study is to investigate differentials in utilization of antenatal care services among currently married women in Southwest and Northwest of Nigeria.

The specific objectives of the study are to:

- examine the extent of antenatal care visits.
- examine the influence of selected socio-demographic (age, wealth index, CEB) on antenatal care services utilization.
- examine the influence of women's autonomy on antenatal care services utilization in the two regions

Literature Review

2.1: Antenatal Care Services Utilization In Nigeria, Africa And Around The Globe

Abdel, et al (2010) carried out a study among women on use of antenatal care service in Sudan. Their objective was to investigate coverage of antenatal care and identify factors associated with inadequacy of antenatal care in Kassala, eastern Sudan. During their survey 980 women were requested to participate, of which 80 women were no-responders. Out of 900 women who responded were investigated for antenatal care coverage in Kassala, 811(90%) women had at least one visit. However, only 11% of the investigated women had greater than four antenatal visits, while 10.0% had not attended at all. Five hundred and thirty two (59.0%) of these 900 women were pregnant and 195 women in the second and third trimester, respectively. Out of 811 women who attended at least one visit, 483 (59.6%), 303 (37.4%) and 25 (3.1%) women attended antenatal care in the first, second and third trimester, respectively. Out of 811, 94 (11.6%), 326(40.2%), 392 (48.3%) women attended in the hospital, health centers and private consultant clinics, respectively. Women (89) who had no antenatal care claimed that; it is of no value 12 (13.5%), expensive 34 (38.2%), far or not available 11 (12.4%), their pregnancy was quite normal 32 (35.6%). Age and parity were significantly higher in women who did not attended antenatal care. Likewise, women who did not use antenatal care services were those who had less education and those of rural residency.

In another study conducted by John Ekabua, et al (2011) propose a framework for making antenatal care an effective strategy in reducing the high maternal mortality ratio in Nigeria. They found that in all the five teaching hospitals, antenatal care practice was based on the traditional European models developed in the early 1900s. Small group discussions revealed high level of awareness (80%) of tenets of focused antenatal care, among resident doctors. Birth preparedness/complication readiness as a goal-directed intervention was usually not discussed in up to 92% of antenatal clinic sessions observed, especially if the pregnant woman was considered healthy or "low risk." Awareness of birth preparedness/complication readiness, as a goal-directed

intervention during antenatal care was low (21.5%) among parturient surveyed in Cross River State, Nigeria.

In a study in Ethiopia Tewodros, et al. (2002) estimates the utilization of antenatal care (ANC) services among teenagers (13-19 years) during delivery. The study show that (60%) of the subjects were in the age group between 18 and 19 years. The vast majority (90%) was from the rural settings and most (87%) were in marital union. Almost three out of four (72.4%) of those who had given birth has no any form of formal education. Over a quarter (27.3%) of most recent childbirths had at least one ANC service, of this, 21% had started their first antenatal visit in the first trimester of pregnancy. The majority 80.4%) of the women who attended ANC delivered at home without being assisted. The major deriving factors for the utilization of ANC service were education level of women and their male partners, better wealth index and urban residence.

2.2: Factors Affecting Antenatal Care Utilization

In a cross-sectional survey conducted among women on their attendance at antenatal clinic and the reasons for not attending the antenatal clinics, Dairo al et. (2010) assesses the factors that determine the utilization of antenatal care service in Ibadan, south-west Nigeria. The results show that Majority (76.8%) of the respondents attended ANC clinic. Women in urban areas were more than two times likely to attend antenatal clinic than women in rural areas. Women who were Muslims or other religions were more than two times likely to attend ANC clinic than women who were Christians. Also, Women who were 25 years and older were more than two times more likely to utilize antenatal than women who were 25 years or younger.

Bahilu et al, (2009) studies the factors affecting antenatal care utilization in southwestern Ethiopia. The studies involved cross sectional survey among 627 women who delivered in the 12 months before the date of survey were interviewed, with a response rate of 96.3%. Five hundred forty eight (87.4%) of the respondents were from rural areas, 598 (95.4%) Yem by ethnicity, 494 (78.8 %) Christians and 575 (91.7 %) married. Nearly half, 298(47.5%) have attended primary education while 266 (42.2%) were illiterates and the remaining 63 (10.0%) have attained a secondary and above level of education. Occupation wise, the overwhelming majority, 592(94.4%) were housewives Of the 627 studied women, 357(56.9%) reported that ANC check-up is essential to the health of both the mother and the child, while 41(6.5%) did not know the benefit of ANC. Two hundred eighty six (48.8 %)

women reported that their sources of information about ANC services were health institutions and 126 (21.5%) said TBA. One hundred seventy nine (28.5%) received ANC at least once but the majority 448 (71.5%) reported that they did not attend ANC for their last pregnancy. Out of those who utilized ANC services, 88(49.2%) of them made their first visit in their second trimester of pregnancy and 52(29.1 %) had four or more visits during their last pregnancy. Ninety seven (54.0%), received antenatal care from the Health Post, while 72 (40.2%) and 8(4.5%) from health centre and clinics, respectively

In another study, Bbaale E (2011), focused on Factors influencing the utilization of antenatal care content in Uganda. Data for the study was taken from a nationally representative Uganda Demographic and Health Survey (UDHS) 2006.The result showed that on average, only 16% of women used the full content of antenatal care. Only 12% of women had a urine sample taken, 28% a blood sample taken, and 53% their blood pressure measured. Almost two-thirds of women (63%) took iron supplements, 77% had their weight measured, and 27% were given drugs for intestinal parasites. The utilization of the content of care was significantly associated with education of the mother and her partner, wealth status, location disparities, timing and frequency of antenatal visits, nature of facility visited, access to media, family planning, and utilization of professional care.

Simkhada et al. (2008) identify and analyses the main factors affecting the utilization of antenatal care in developing countries. Their study review Twenty-eight papers and identified the following factors affecting antenatal care uptake: maternal education, husband's education, marital status, availability, cost, household income, women's employment, media exposure and having a history of obstetric complications. Cultural beliefs and ideas about pregnancy also had an influence on antenatal care use. Parity had a statistically significant negative effect on adequate attendance. Whilst women of higher parity tend to use antenatal care less, there is interaction with women's age and religion. Only one study examined the effect of the quality of antenatal services on utilization. None identified an association between the utilization of such services and satisfaction with them.

In a related study, Onasage et al. (2012) factors influencing utilization of antenatal care service among pregnant women in Ife Central local Government Area, Osun State, Nigeria. The findings revealed that majority of the respondents 58 (56.9 %) attend ANC regularly; 56(57.1%) booked for antenatal care in the first trimester; and attend on appointment days after booking.The study also showed that majority of the respondents opined that affordability of antenatal services, schedule of ANC, lack of knowledge about the existing services in ANC and Husband's acceptance of the services rendered as the major factors influencing its utilization.The

findings also revealed that there was significant association between knowledge, distance, marital status, religion and level of education of respondents under study and their utilization of ANC services with $p<0.05$ .On the other hand no significant association was found between parity and occupation of respondents under study and their utilization of ANC services with $P>0.05$.

2.3: Determinants Of Antenatal Care Utilization

Fatmi Z.(2002) determines the factors affecting utilization of antenatal care by women of a rural area in sindhparkistan .The survey, which is cross-sectional, was conducted in Union Council Jhangarasindh, parkistan. The result shows that most of the women were in the 20-39 years age group, 36.4% (81) in 20-29 years and 41.9% (93) in 30-39 years. Only 5.4% (12) of the women had any formal education and 29% (64) and 17.2% (38) of the husbands had primary (up to fifth grade) and secondary level education (sixth or more grades) respectively. Seventy-seven percent (171) women were 'Sindhi', 19% (42) were 'Balochi' and 4% (9) were 'Saraiki' speaking. About 90% (199) of women were doing household work. Only 28.4% (63) husbands were employed in white-collar jobs. About 44% (98) were single family households and the rest were living as joint families. Almost 67% (148) of the household reported unit income of less than or equal to Pakistani rupees 2000 (i.e., 49 US $ using 1997 conversion rate of I US $ = 41 rupees). Sixty eight percent (150) of the household had electricity; 54% (87) had television, 91% (202) were keeping animals (cattle including transport animals). About 97% (214) of the residents were owners of their houses, and 81% (179) of the houses were of clay (Katcha); 42% (94) were using open space for toilets; 22% (49) had previous obstetric history of still births and abortions. Only 29% (65) women had antenatal care during the last (most recent) pregnancy, of which 73% (47) went to a government health care provider and about 57% (37) went for antenatal care four times during her last pregnancy. Forty-eight percent (31) went to government rural health center Jhangara and another 25% (16) availed government facilities at Sehwan or Dadu.

Liue, et al.(2006) identify factor associated with any use of antenatal care gestation age at entry to ANC, number of visits, and overall ANC utilization in the three province of long an, Ben tre, and Quangngai. The study used cross section survey in 1998-1999. Data from 1335 eligible women were available for analysis. The result shows that external environment, predisposing characteristics and need, which existed before contact with ANC providers, were most related to using any ANC and gestation age at entry to ANC. However, ANC services provided to women and personal health care during pregnancy, which could have resulted from initials contact with ANC providers, were most

related to continuation of ANC visit and overall ANC utilization, significant variability in the use of ANC existed between provinces and between subsets of women in each province.

Ravishanka (2010) evaluates the determinants of antenatal care utilization of scheduled caste women in Thiruvarur district, Tamilnadu. The study was conducted among women in the age group 15-49. Result from the study reveals that majority of the SC women made at least one visit for the antenatal care service during their pregnancy episode (94.4 percent). Only ten percent of SC women received full ANC during their pregnancy period. As compared with illiterate women, women with higher education were about 16 times more likely to receive full ANC. The proportion of women who receive full ANC increased steadily and was positively associated with the wealth indexes, when compared to the poorest, the receiving pattern of full ANC on richest women 26 times higher.

In a cross-sectional survey of 7005 pregnant women carried out in the sampled areas of 28 districts in 14 States, Nomita, et.al (2006) analyze the possible factors contributing to women obtaining antenatal care services and to determine whether these services influence their decision regarding the place of delivery in rural areas of India. The result show that early reporting of pregnancy in rural areas is rare, a detailed analysis was carried out on 5344 pregnant women with a gestation of more than 4 months. Of these, 73.9% had at least one antenatal contact with a auxiliary nurse midwife (ANM) or had visited a Government Health Facility for antenatal services or problems. There was a statistically significant reduction in the proportion of women obtaining antenatal care services with increasing age, parity, and number of living children. No association was observed with outcome of previous pregnancy and presence of health facility in the village. Awareness of care during pregnancy and knowledge of pregnancy related complications were associated with increased utilization of antenatal care services. However, knowledge of serious complications was found to be lacking even in women who availed of the care. In both the groups – those who availed of antenatal care services and those who did not – about 14% had not decided about the place of delivery. 51.7% of the women with antenatal care preferred institutional delivery as compared to 27.6% of those who had not availed antenatal care services.

In another study conduct by Onasoga, et al (2012) aimed at determining the factors influencing utilization of antenatal care service among pregnant women in Ife Central Local Government, Osun State Nigeria. Data were collected using a questionnaire, both descriptive and inference statistics were used to analysis the data generated. The findings revealed that majority of

the respondents 48 (47.1%) first heard of ANC in the hospital. Most of the respondents 85(83.3%) knew the services rendered at antenatal clinic and had adequate knowledge of the importance of antenatal care. The findings also revealed that majority of the respondents 58 (56.9 %) attend ANC regularly; 56(57.1%) booked for antenatal care in the first trimester; and attend on appointment days after booking. The study also showed that majority of the respondents opined that affordability of antenatal services, schedule of ANC, lack of knowledge about the existing services in ANC and Husband's acceptance of the services rendered as the major factors influencing its utilization. The findings also revealed that there was significant association between knowledge, distance, marital status, religion and level of education of respondents under study and their utilization of ANC services with $p<0.05$ .On the other hand no significant association was found between parity and occupation of respondents under study and their utilization of ANC services with $P>0.05$.

Emmanuel, et al. (2012) investigates determinants of antenatal care services utilization in Nigeria. The study use data from Demography and Health Survey for 2003 and 2008. The result shows that women education beyond primary education level increases significantly the likelihood that a pregnant woman would complete at least four antenatal visits before delivery. The result also shows that household wealth status has significant positive effect on the number of visits before delivery. There are significant differences in the number of antenatal visit determined by geopolitical zones and the place of antenatal also determines significantly the number of visits.

2.5: Barries To Utilization Of Antenatal Care Services

According to a report by safe motherhood (1998), the significant barriers that prevent women from utilizing maternal health service include physical, financial and socio-cultural as explained below:

i. Decision making dynamic**:** Sometimes the decision for women to seek medical care are made by their husband, family member or community member except for a few of those who are educated and can make up the decision by themselves.

ii. Low self-esteem: lack of knowledge and awareness result into mower's of self esteem especially in area where the women's status is recognized as inferior to that of men. The low self esteem leads to the beliefs that women suffering lot therefore discouraging them seeking healthcare or others taking them for care when problems arise.

iii. High cost: millions of women cannot afford to use postnatal service even when fees are low or services are delivered for free. This is due to additional, often hidden cost that patients must cover, such as transport, drug and even food and lodging for themselves and their families.

iv. Lack of awareness: women and communities often do not know how to recognize, prevent or treat pregnancy complication or when and where to seek medical care. This has a profound impact on the utilization of antenatal care services.

v. Distance and lack of transport: all most 80 percent of rural women live more than five kilometers from the nearest hospital and many no ways to get to health facilities expect by walking.

vi. Socio-cultural factors: health service often does not respect women's cultural preference, for example, for privacy, birth position or treatment by women providers. In addition, women's power to decide when to seek care is restricted in many parts of the world.

In another study, Adamu, et al. (2002) identified the socio cultural and economic factors that act as barriers to women's use of antenatal care services and hospital delivery in a rural community in Kano State, Northern Nigeria. The study was based on an interview of 107 pregnant women conducted by a trained midwife in the native language of the area. Findings indicate that the majority of women (88%) in the study area did not attend for antenatal care, and 96.3% had delivered or plan to deliver at home without a skilled attendant. Major barriers identified were economic, cultural and those related to the women's perception of their condition.

In similar study, Aniebue, et al. (2010) examines Women's perception as a barrier to focused antenatal care in Nigeria: the issue of fewer antenatal visits. The study which is cross sectional was conducted in Enugu, Nigeria. The result shows that the socio-demographic characteristics of the parturient. Most (77.8%) were multifarious and between 26–35 years of age (62.6%). Artisans and petty traders were 27.6%, students 21.8% and housewives 15.4%. The rest were civil servants and medical personnel. Trading was the commonest occupation amongst their spouses (41.1%). Eighty-three of the 409 (20.3%) respondents desired a reduction in the number of antenatal visits to four.

Toan K Tran et al. (2010) aims to compare the pattern and the adequacy of ANC used in rural and urban Vietnam following two cohorts of pregnant women. The study involved cross sectional survey a comparative study with two cohorts comprising totally 2132 pregnant women were followed in two

health and demographic surveillance sites, one rural and one urban in Hanoi province, Vietnam. The result shows that the average number of visits was much lower in the rural setting (4.4) than in the urban (7.7). In the rural area, 77.2% of women had at least three visits and 69.1% attended ANC during the first trimester. The corresponding percentages for the urban women were 97.2% and 97.2%. Only 20.3% of the rural women compared to 81.1% of the urban women received all core ANC services. As a result, the adequate use of ANC was 5.2 times in the urban than in the rural setting (78.3% compared to 15.2%). Nearly all women received ultrasound examination during pregnancy with a mean value of 6.0 scans per woman in the urban area and 3.5 in the rural. Most rural women used ANC at commune health centers and private clinics while urban women mainly visited public hospitals. Expenditure related to ANC utilization for the urban women was 7.1 times that for the urban women.

2.6: HYPOTHESES

(i) There is a relationship between selected socio-demographic factors (age, education, religion) and utilization of antenatal care services

(ii) There is a relationship between women autonomy and utilization of antenatal care services

(iii) There is a relationship between extent of visits and utilization of antenatal care services.

Methodology

3.1: Study Area

Two geo-political zones will consistitute the study area, the Southwest and Northwest. The study has been restricted to the two geo-political zones in order to have in-depth knowledge of the factor responsible for differentials in antenatal care service utilization. The 2003 Nigeria Demographic and Health Survey (NDHS) reported show that antenatal care utilization was low in Northwest while the Southwest was highest. The Southwest comprises six states namely, Lagos, Ogun, Oyo, Osun, Ondo and Ekiti. According to the 2006 census, the population of this geo-political zone is put at 27.7 million which was just 20 percent of entire population.

3.2 Sample Design

The Nigeria Demographic and Health Survey (NDHS) data set of 2008 will be used in this study. The survey is cross-sectional. It was designed to provide information on population and health indicators at the national, zonal and state levels. The sampling frame of the 2006 Population and Housing Census has been used for the survey. The target populations for this study are currently married women with at least one live birth.

3.3 Data Collection Instrument

Questionnaire were used to obtain information in the 2008 Nigeria Demographic Health Survey (NDHS) which is the latest in a series on national level population and health surveys carried out in Nigeria. The questionnaires were of three types: the Household Questionnaire; the Women's Questionnaires and; the Men's Questionnaire.

3.4 Data Analysis

STATA version 11.0 would be used for data analysis.

3.5 Expected contribution to knowledge

The study is expected to provide insight for achieving improved antenatal care service utilization in Nigeria. The finding will assist the Nigerian government in designing maternal health programmes in the northern part of the country.

4.0 **Bivariate Analysis**

This chapter presents the result of bivariate relation between respondents selected background characteristics, intervening variables and outcome variables (Number of visit and Place of delivery). The relationship between selected background characteristics, intervening variables and outcome variable were examined across northwest and southwest of respondents in order to explore differentials in utilization of antenatal care services. The analysis was done using cross tabulation as well as chi-square.

Relationship between intervening variables and age of currently married women by northwest and southwest.

An overview of the relationship between intervening variables and age of currently married women using some selected indicators was presented in the table below. The result shown that there is no significant relationship between women autonomy and age of married women in northwest ($p>0.100$) compared to southwest shown a significant relationship between women autonomy and age of married women ($p<0.000$). By comparisons 26.3% of respondent age 15-19 in northwest and 13.7% in southwest reported than others informed them on utilization of antenatal care service. Also,

22.8% of northwest and southwest 57.4% of 20-24 age reported that someone else informed them on antenatal care utilization.

Percentage distribution of intervening variable and age of currently married women by northwest and southwest.

Variable	Region						
	Northwest(n=8,022)						
	Age of currently married women						
Women autonomy	**15-19**	**20-24**	**25-29**	**30-34**	**35-39**	**40-44**	**45-49**
Respondent alone	9.3(20)	16(35)	14.9(33)	15.7(34)	17.4(38)	14.3(31)	12.6(28)
Respondent & husband	11(125)	17.1(195)	19.1(217)	17.4(198)	12.6(142)	12(136)	10.8(122)
Husband/partner alone	13(778)	19(1078)	19(1127)	15.9(893)	12.7(735)	10.3(597)	10.1(583)
Someone else	15.6(3)	22.8(4)	26.3(5)	0(0)	0(0)	17.6(3)	17.6(3)
Other	20.9(2)	0(00	0(0)	11.7(0.8)	0(0)	13.5(0.9)	44(3)
	P-value=0.100						
Distance to health							
No	9(365)	22(887)	23.3(938)	19(768)	13.1(529)	8.6(348)	5(201)
Yes	8.5(65)	23.1(177)	23.3(179)	18.4(141)	15.6(119)	5.8(44)	5.4(42)
	p-value=0.236						
Cost of ANC							
No	9(417)	22(1026)	23(1084)	18.8(873)	14(627)	8.1(374)	5.1(233)
Yes	7.8(14)	22.5(38)	18.8(32)	21.2(36)	12.7(21)	10.9(18)	6(10)
	p-value=0.648						
Variable	Region						

	Southwest(n=6,789)						
	Age of currently married women						
Women autonomy	**15-19**	**20-24**	**25-29**	**30-34**	**35-39**	**40-44**	**45-49**
Respondent alone	3.2(32)	11.6(113)	19.1(187)	18(177)	17.(170)	15.8(155)	15.1(148)
Respondent & husband	1.1(21)	8.2(167)	22.3(452)	22.5(457)	20.3(411)	13.7(277)	12(24)
Husband/partner alone	2.7(36)	13.6(182)	27.4(367)	21.3(284)	16.4(220)	10.4(139)	8.4(112)
Someone else	0(0)	57.4(5)	19.9(2)	0(0)	22.8(2)	0(0)	0(0)
Other	13.7(.7)	50(2.7)	0(0)	0(0)	0(0)	0(0)	36.6(2)
	P-value=0.000						
Distance to health							
No	4.2(25)	18.2(109)	28.4(171)	23.3(134)	16.2(97)	7.9(48)	2.8(17)
Yes	4(10)	16.7(42)	27.1(67)	20.9(52)	17.6(44)	11.3(28)	2.4(6)
	p-value=0.839						
Cost of ANC							
No	3.8(29)	17.6(133)	27.9(210)	22.7(171)	16.6(125)	8.6(64)	2.8(21)
Yes	6.4(6)	19(19)	28.5(28)	15.8(16)	16.3(16)	11.5(11)	2.5(2)
	p-value=0.813						

Relationship between intervening variable and level of education by northwest and southwest.

The table below provide an overview of the educational level of respondents and intervening variable using some selected indicators. By comparison in northwest ($p<0.00$) and southwest ($p<0.010$) there is relationship between education level and women autonomy in both regions. Majority (66.5%) of respondents in northwest with no education reported that they decided alone on utilization antenatal care while the percentage of respondents that reported that they decided alone

on utilization of antenatal care decrease proportionately with level of education {(16.9%), secondary (11.3%) and higher 5.3%} compared to southwest almost half 43.2% of respondents with secondary education reported that they decided alone on utilization of antenatal care while 30.1% with primary education level,13.7% with higher education level and 13.1% with no education reported that they decided alone on utilization of antenatal care.

Percentage distribution of intervening variables and level of education by northwest and southwest.

Variable	Region			
	Northwest(n=8,022)			
	Educational level			
Women autonomy	**No education**	**Primary**	**Secondary**	**Higher**
Respondent alone	66.5(146)	16.9(37)	11.3(25)	5.3(12)
Respondent & husband	61.8(773)	15.4(174)	13(147)	3.6(41)
Husband/partner	82.2(4762)	11(637)	5.6(323)	1.2(70)
Someone else	89.6(14)	10.4(2)	0(0)	0(0)
Others	88.3(6)	0(0)	11.7(1)	0(0)
	p-value=0.000			
Distance to health				
No	81(3269)	13.2(534)	5.2(208)	0.6(24)
Yes	89.9(688)	8.7(66)	1.6(12)	0(0)
	p-value=0.003			
Cost of ANC				
No	82.5(3820)	12.5(578)	4.6(213)	0.5(22)
Yes	81.5(138)	13.5(23)	4.1(7)	1(2)

p-value=0.883

Variable	Region			
	Southwest(n=6,789)			
	Educational level			
Women autonomy	**No education**	**Primary**	**Secondary**	**Higher**
Respondent alone	13.1(128)	30.1(295)	43.2(423)	13.7(134)
Respondent & husband	14.9(301)	23.7(481)	43.5(481)	17.9(364)
Husband/partner alone	22.6(303)	28.7(384)	38.5(515)	10.2(137)
Someone else	19.9(2)	22.8(3)	34.6(4)	22.8(3)
Others	0(0)	0(0)	100(6)	0(0)
	p-value=0.010			
Distance to health				
No	26.6(160)	31.3(188)	38.7(233)	3.4(20)
Yes	35.6(89)	30.1(85)	28.7(72)	1.7(4)
	p-value=0.121			
Cost of ANC				
No	28.8(217)	31(233)	36.9(278)	3.2(24)
Yes	29.3(249)	32.1(273)	35.8(305)	2.9(24)
	p-value=0.267			

Relationship between intervening variables and religion by northwest and southwest.

The table below present intervening variables by religion. This analysis is necessary to be able to know if women religions really influence women autonomy in any way. Result from the table below showed a significant relationship between women autonomy and religion in northwest (p<0.000) and southwest (p<0.034) of Nigeria among currently married women. Finding in northwest revealed that 80% of Muslim respondents reported that they decided alone on utilization of antenatal care while only 16.6% of Christian and 3.5% of other religion respondents reported that they decided alone on utilization of antenatal care compared to southwest majority of respondents Christian 61.2% and almost half 37.4% Muslim respondents reported that they decided alone on utilization of antenatal care while 0.9% of other religion decided alone.

Percentage distribution of intervening variables and religion by northwest and southwest.

Variable	Region					
	Northwest(n=8,022)			Southwest n=(6,789)		
	Religion			Religion		
Women autonomy	**Christian**	**Islam**	**Others**	**Christian**	**Islam**	**Others**
Respondent alone	16.6(36)	80(176)	3.5(8)	61.2(604)	37.4(366)	0.9(9)
Respondent & husband	18.7(209)	80(905)	1.3(14)	65.9(1330)	33.3(672)	0.9(18)
Husband/partner	2.7(157)	95(5509)	2.3(78)	54.6(728)	44.2(589)	1.3(17)
Someone else	0(0)	100(16)	0(0)	34.6(3)	65.4(6)	0(0)
Others	0(0)	100(6)	0(0)	100(5)	0(0)	0(0)
	p-value=0.000			p-value=0.034		
Distance to health						
No	3.6(125)	96(3834)	1.3(54)	59.7(359)	38.5(231)	1.8(11)
Yes	6.6(50)	91(695)	2.5(12	66.8(167)	30.4(76)	2.8(7)
	p-value=0.667			P-value=0.189		
Cost of ANC						

No	3.6(161)	95(4377)	1.4(64)	62.4(468)	35.9(270)	1.7(13)
Yes	8.9(14)	90(152)	1.1(2)	57.8(57)	37.3(37)	4.9(5)
	p-value=0.111			p-value=0.194		

Relationship between respondents' intervening variables and occupation by northwest and southwest.

The table below provides an overview of the relationship between intervening variables and respondents' occupation using some selected indicators. There is significant relationship between women autonomy and respondents occupation in both regions, northwest ($p<0.002$) and southwest ($p<0.029$).

Percentage distribution of intervening variables and respondents occupation by northwest and southwest.

Variable	Region					
	Northwest(n=8,022)					
	Respondents occupation					
Women autonomy	**Not work**	**Clerical**	**Sales**	**Service**	**skilled**	**Do not know**
Respondent alone	48(105)	0.7(1)	23.9(52)	14(31)	1.7(4)	11.8(26)
Respondent & husband	52.7(598)	0.3(4)	30.6(347)	4.9(56)	0.8(9)	10.8(122)
Husband/partner	43.7(2532)	(2)	34(2006)	4(244)	2.4(93)	15.8(913)
Someone else	61.5(10)	0(0)	20.1(5)	0(0)	0(0)	10.4(2)
Others	18(1)	0(0)	52.4(4)	0(0)	0(0)	29.7(2)
	p-value=0.002					
Distance to health						
No	43.8(1748)	0.1(1)	34(1391)	3(139)	2.1(71)	17(685)

Yes	43(329)	0(0)	37.3(286)	5.7(44)	0.9(7)	13.2(101)
	p-value=0.839					
Cost of ANC						
No	43.3(2005)	0.5(1)	35(1623)	3(161)	1.6(75)	16.6(769)
Yes	42.9(72)	0(0)	32.2(54)	13(22)	1.9(3)	10.1(17)
	p-value=0.000					

Variable	Region					
	Southwest n=(6,789)					
	Respondents occupation					
Women autonomy	Not work	Clerical	Sales	Services	Skilled	Do not know
Respondent alone	14.4(141)	1.6(15.83)	54.6(536)	9.2(91)	7.6(74)	12.6(124)
Respondent & husband	19.5(395)	2.6(52)	49.7(1008)	12.4(25)	6(121)	10.2(206)
Husband/partner	23.6(316)	1.5(20)	44.4(595)	13.4(18)	6.8(90)	10.3(138)
Someone else	57.4(5)	0(0)	19.9(2)	22.7(3)	0(0)	0(0)
Others	86.3(5)	0(0)	13.7(1)	0(0)	0(0)	0(0)
	p-value0.029					
Distance to health						
No	17.3(104)	0.7(4)	45.9(276)	16.9(10)	9.4(57)	9.8(59)
Yes	16.7(42)	0.6(2)	42(105)	31.3(78)	1.8(5)	7.7(19)
	p-value=0.016					
Cost of ANC						
No	16.9(127)	0.7(5)	44.7(336)	20(155)	7.9(55)	9.8(74)

Yes	19(19)	0(0)	45.7(45)	24.7(25)	6.1(6)	4.5(4)
	p-value=0.703					

Relationship between intervening variables and children ever born by northwest and southwest.

The table below shows a significant relationship between women autonomy and children ever born in both regions; northwest (p<0.057) and southwest(p<0.004). The proportion of respondents in northwest who reported that respondents alone decided on utilization of antenatal care service increased relatively with children; 2.6% had 1-2 children and 3.5% had 3-4 children while 2.9 % had more than five children and 3.8% had no child as at the time of survey compared to southwest where almost half 34.4% of respondent reported that respondents alone decided on utilization of antenatal care services had 3-4 children, 32.6% had 1-2 children and 28.6% had more than 5 children and 4.4% had no child. Likewise, majority 17.2% of respondents in northwest reported that respondents and husband decided on utilization of antenatal care services had 1-2 children, 15.4% had 3-4 children and 2.9% had more than five children while 13.1 had no child compared to southwest where there is substantial variation between respondents who reported that respondents and husband decided on utilization of antenatal care service across children ever born; 36.7% had 3-4 children, 29.5% had 1-2 children, 28.1% had more than 5 children and 5.7% hadno child as at the time of survey

Percentage distribution of intervening variables and children ever born by northwest and southwest.

Variable	Region			
	Northwest(n=8,022)			
	Children ever born			
Women autonomy	**0**	**1-2 children**	**3-4 children**	**5+ children**
Respondent alone	3.8(30)	2.6(45)	3.5(56)	2.9(89)
Respondent & husband	13.1(101)	17.2(292)	15.4(246)	16.1(495)
Respondents/partner	82.9(641)	79.6(1356)	80.7(1288)	80.8(2486)

Someone else	0(0)	0.5(8)	0.3(5)	0(0)
Others	2(1)	4(2)	0(0)	6(4)
	p-value=0.0578			
Distance to health				
No	0(0)	27.8(1124)	27.7(1077)	45.5(184)
Yes	0(0)	29.3(225)	25.2(193)	45.5(347)
	p-value=0.469			
Cost of ANC				
No	0(0)	28.1(1301)	26.5(1227)	45.4(2103)
Yes	0(0)	27.8(47)	25.4(43)	46.2(79)
	p-value=0.922			

Variable	Region			
	Southwest n=(6,789)			
	Children ever born			
Women autonomy	**0**	**1-2 children**	**3-4 children**	**5+ children**
Respondent alone	4.4(43)	32.6(320)	34.4(338)	28.6(280)
Respondent & husband	5.7(115)	29.5(599)	36.7(744)	28.1(570)
Respondent/partner	7(94)	37.6(504)	32.3(432)	23.1(309)
Someone else	22.8(2)	54.5(5)	0(0)	22.8(2)
Other	0(0)	63.7(3)	0(0)	36.3(2)
	p-value=0.004			
Distance to health				

No	0(0)	37.2(224)	35.9(216)	26.9(162)
Yes	0(0)	35.2(88)	28(70)	36.7(92)
	p-value-0.044			
Cost of ANC				
No	0(0)	37.1(279)	33.9(255)	29(218)
Yes	0(0)	32.9(33)	31.6(31)	35.6(35)
	p-value=0.6060			

Percentage distribution of intervening variable and wealth index by northwest and southwest.

Variable	Region					
	Northwest(n=8,022)			Southwest n=(6,789)		
	Wealth index					
Women autonomy	**Poor**	**Middle**	**Rich**	**Poor**	**Middle**	**Rich**
Respondent	50(110)	19(43)	31(60)	14.1(138)	14.7(144)	71.2(699)
Respondent & husband	57(654)	19(221)	23.1(260)	13.2(268)	11.5(233)	75.3(1528)
Respondent/partner	69(4027)	16(930)	15.1(834)	17.8(238)	13.4(179)	68.9(922)
Someone else	68(11)	10.9(2)	20.9(4)	32(3)	22.8(2)	45.2(4)
Others	75.4(5)	24.6(2)	0(0)	0(0)	0(0)	100(5)
	p-value=0.000			p-value=0.285		
Distance to health						
No	67(2716)	19(770)	13.9(550)	22.6(136)	17.1(103)	60.3(363)
Yes	89(684)	8.6(65)	2.3(17.3)	49.9(125)	19.5(49)	30.6(76)
	p-value=0.000			p-value=0.000		

Cost of ANC						
No	71(3267)	17(813)	12(554)	31.1(234)	17.3(130)	51.6(389)
Yes	79(133)	13(22)	8(14)	27.3(27)	22.1(22)	50.6(50)
	p-value=0.261			p-value=0.712		

Relationship between respondents' husband educational level and intervening variables by northwest and southwest.

This section presents the result of respondents intervening variable across partner socio-demographic characteristic in the two regions; northwest and southwest. Partner characteristics may have implication on utilization of antenatal care service among currently married women.

The table shows therefore the relationship between women autonomy and partner educational level. Based on the findings, there is a relationship between women autonomy and partner educational level in the both regions

Percentage distribution of intervening variable and husband educational level by northwest and southwest.

Variable	Region				
	Northwest(n=8,022)				
	Husband educational level				
Women autonomy	**No education**	**Primary**	**Secondary**	**Higher**	**Do not know**
Respondents alone	52.3(115)	12.6(28)	18.1(40)	11.7(26)	5.2(11)
Respondents &husband	57.5(653)	12.5(141)	15.5(176)	11.4(130)	3.1(35)
Respondents/partner	66(3824)	14.3(830)	10.4(604)	7(406)	2.2(126)
Someone else	47.9(8)	41.8(7)	10.4(2)	0(0)	0(0)
Others	62.3(4)	0(0)	26(2)	11.7(1)	0(0)

	p-value=0.002				
Distance to health					
No	63(2541)	16.1(649)	12.3(495)	6(242)	2.7(107)
Yes	78.8(604)	12.4(96)	6.3(48)	0.5(12)	1(8)
	p-value=0.000				
Cost of ANC					
No	65.2(3020)	15.5(718)	11.5(534)	5.3(246)	2.4(113)
Yes	73.5(124)	15.6(26)	5.4(9)	4.3(7)	1.2(2)
	p-value=0.245				

Variable	Region				
	Southwest n=(6,789)				
	Husband educational level				
Women autonomy	**No education**	**Primary**	**Secondary**	**Higher**	**Do not know**
Respondent alone	12.6(124)	24.8(243)	44.7(438)	16.9(165)	1.1(11)
Respondent & husband	11(223)	23.1(468)	42.1(854)	22.6(458)	1.3(26)
Respondent/partner	17.8(238)	22.9(306)	43.5(582)	15.4(206)	0.4(6)
Someone else	19.9(2)	0(0)	46.1(4)	34(3)	0(0)
Others	0(0)	0(0)	63.7(3)	36.3(2)	0(0)
	p-value=0.023				
Distance to health					
No	21(122)	24.8(144)	42.8(247)	9.8(57)	1.5(9)
Yes	32.3(77)	20.8(50)	38.2(91)	6.7(16)	2.1(5)

	p-value=0.074				
Cost of ANC					
No	23.4(171)	22.2(162)	43.1(314)	9.5(69)	1.7(13)
Yes	31.7(28)	35.4(31)	27.3(24)	4.3(4)	1.2(1)
	p-value=0.058				

Relationship between number of visits and soci- demographic factors by northwest and southwest.

An overview of the relationship between number of visits and age of currently married women was presented in the table below. The result shows a significant relationship between age of currently married women and numbers of visits in northwest (p<0.049) and southwest (p<0.000).

Percentage distribution of number of antenatal visits and respondents' soci-demographic characterizes by northwest and southwest.

Variable	**Region**			
	Northwest(n=8,022)		Southwest(n=6,789)	
	Number of visits		Number of visits	
Age	**<4**	**>4+**	**<4**	**>4+**
15-19	83.2(377)	16.8(76)	30.8(26)	69.2(57)
20-24	78(870)	22(245)	15.9(63)	84.1(333)
25-29	76.4(890)	23.6(275)	7.3(60)	92.7(766)
30-34	75.6(712)	24.4(230)	8.1(57)	91.9(644)
35-39	78.7(541)	21.3(146)	11(52)	89(417)
40-44	77(310)	23(93)	9.3(21)	90.7(203)
45-49	83.9(212)	16.1(41)	16.9(12)	83.1(61)

	p-value=0.049		**P-value=0.000**	
Education				
No education	85.8(3441)	14.2(568)	30.1(117)	69.9(273)
Primary	60.3(376)	39.7(247)	11.7(87)	88.3(658)
Secondary	27.4(86)	72.6(227)	5.8(74)	94.2(1199)
Higher	10.5(8)	89.5(64)	3.2(12)	96.8(352)
	P-value=0.000		**P-value=0.000**	
Religion				
Christian	47.3(115)	52.7(128)	10.6(178)	89.4(1496)
Islam	79.4(3710)	20.6(961)	9.8(104)	90.2(963)
Others	84.1(57)	15.9(11)	36.3(8)	63.7(15)
	P-value=0.000		**P-value=0.193**	
Occupation				
Not working	79.1(1737)	20.9(458)	8.2(49)	91.8(551)
Clerical	19.9(1)	80.1(4)	4.(2)	96(47)
Sales	78.5(1342)	21.5(368)	8.7(115)	91.3(1207)
Service	75.5(152)	24.5(49)	30.1(84)	69.9(194)
Skilled	78.5(65)	21.5(18)	7.2(16)	92.6(205)
Do not know	74.6(614)	25.4(209)	8.4(26)	91.6(278)
	p-value0.243		**p-value=0.000**	
Children ever born				
1-2 children	78.3(1144)	21.7(317)	9.6(116.3)	90.4(1099)
3-4 children	76.4(990)	23.6(306)	8.3(80)	91.7(887)

5 + children	78.8(1,777)	21.2(482)	15.9(94)	84.1(495)
	P=0.065		**p-value=0.000**	
Wealth index				
Poor	90.1(3067)	9.9(336)	30.5(121)	69.5(275)
Middle	65(561)	35(301)	16.3(55)	83.7(282)
Rich	37.6(283)	62.4(468)	5.6(114)	94.4(1924)
	P-value=0.000		**p-value=0.000**	

Relationship between number of visits and spousal characteristics by northwest and southwest.

This section present relationship between number of visits and spousal characteristics. This is important because it will help to understand the contribution of spousal to determine currently married women utilization of antenatal care in northwest and southwest in Nigeria.

The finding from the table below show significant relationship between number of antenatal visits and husband education in both regions, northwest (p<0.000) and southwest (p<0.000). majority of northwest who reported had less than four antenatal visit had no education while 74.1% had primary education, 51.2% had secondary education, 36.2% had higher education an 69.9% do not know than southwest with respondent husband education;33.9% had no education, 9.1% had primary education, 6.9% had secondary education, 3 had higher education and 18.3% do not know. Conversely, percentage of southwest who claimed had more than four antenatal care visits increase with level of husband education; 66.1% had no education, 90.9% had primary education, 93.1% had secondary education, 97% had higher education and 81.7% do not know than northwest respondents with husband education level; 11.1% had no education, 25.9% had primary education, 48.8% had secondary education, 63.85 had higher education and 30.1% do not know.

Percentage distribution of number of antenatal visits and respondents soci-demographic characteristics by northwest and southwest.

	Region			
	Northwest(n=8,022)		Southwest(n=6,789)	
Variable	Number of visits		Number of visits	
Husband education	**<4**	**>4+**	**<4**	**>4+**
No education	88.9(2,832)	11.1(352)	33.9(112)	66.1(219)
primary	74.1(561)	25.9(196)	9.1(53)	90.9(533)
Secondary	51.2(2,300)	48.8(285)	6.9(87)	93.1(1173)
Higher	36.2(130)	63.8(228)	3(15)	97(48)
Do not know	69.9(86)	30.1(38)	18.3(5)	81.7(20)
	P-value=0.000		**p-value=0.000**	
Husband occupation				
prof,, t	52.9(164)	47.1(146)	4.8(19)	95.2(379)
Clerical	44.5(20)	55.5(25)	6.2(4)	93.8(61)
Sales	68(770)	32(362)	5(23)	95(438)
Agric-employee	88.6(2181)	11.4(282)	23.3(134)	76.7(441)
Services	70(280)	30(120)	8.3(42)	91.7(469)
Skilled	74.8(419)	25.2(141)	6.4(40)	93.6(576)
Unskilled	64(17)	36(9)	11.1(5)	88.9(40)
Do not know	80.4(59)	20(14)	13.6(4)	86.4(24)
	P-value=0.000		**p-value=0.000**	

Relationship between number of visits and intervening variables by northwest and southwest.

An overview of the relationship between number of antenatal visits and intervening variable by northwest and southwest using selected indicators was presented in the table below. The result revealed a significant relationship between women autonomy and number of antenatal visits among currently married women in northwest (p<0.000) but no significant relationship between women autonomy and number of antenatal visits among southwest respondents

Percentage distribution of number of antenatal visits and women autonomy by northwest and southwest.

	Region			
	Northwest(n=8,022)		Southwest(n=6,789)	
Variable	Number of visits		Number of visits	
Women autonomy	**<4**	**>4+**	**<4**	**>4+**
Respondent alone	68.8(90)	31.4(41)	11.6(66)	88.4(504)
Respondent and husband	70.9(531)	29.1(2180	8.4(98)	91.6(1071)
Husband/partner alone	80.2(3211)	19.8(793)	11.3(100)	88.7(787)
Someone else	76.2(5)	23.8(2)	0(0)	100(7)
Others	100(1)	0	0(0)	100(3)
	P=0.000		p-value=0.148	
Distance to health				
No	81.4(3103)	18.6(708)	27.1(148)	72.9(399)
Yes	89.6(677)	10.4(79)	31.7(70.3)	68.3(151.7)
	P=0.000		P= 0.379	
Cost of antenatal care				
No	82.5(3629)	17.5(771)	27.9(188.1)	27.2(487.3)

Yes	90.5(150)	9.5(16)	32.6(30.5)	67.4(6)
	P=0.040		P = 0.5245	

Relationship between place of delivery and socio-demographic factors of currently married women by northwest and southwest.

The finding from table below shows no significant relationship between age of currently married women and place of delivery in both region.(northwest p> 0.185) (southwest p>0.011). the percent of northwest respondents who deliver at home increase across age group; 15-19 (90.6%), 20-24(90.4%), 24-29(89.7), 30-34(91.5%), 35-39(91.5%), 40-44(90.4%), 45-49(92.2%) than southwest respondents age group 15-19(38.2%), 20-24(37.4%), 25-29(28%), 30-34(25.6%), 35-39(29%), 40-44(32.2%) and 45-49(27.6%). Likewise, the proportion of northwest respondents who deliver in the public hospitals vary across age group; 15-19(8.6%), 20-24(9.6%), 25-29(9.2%), 30-34(7.2%), 35-39(7.4%), 40-44(8.9%) and 45-49(7.7%) compared to southwest respondents age group, 15-19(38.2%), 20-24(30.5%), 25-29(35.3%),30-34(38.9%), 35-39(33.8%), 40-44(31.5%) and 45-49(27.6%). Also, the percentage of northwest respondents who reported delivers in the private hospitals decrease across the age group; 15-19(0.9%), 20-24(0.7%), 25-29(1.1%), 30-34(1.3%), 35-39(0.1%), 40-44(0.7%) compared to southwest where proportion of respondents who reported deliver in the private hospital increase across age group; 15-19(22.6%), 20-24(32.1%), 25-29(36.7%), 30-34(35.5%), 35-39(37.2%), 40-44(36.3%) and 45-49(21.6%).

Percentage distribution of place of delivery and respondents soci-demographic characterizes by northwest and southwest.

	Region					
Variable	**Northwest(n=8,022)**			**Southwest(n=6,789)**		
Age	**Home**	**Public**	**Private**	**Home**	**Public Hos.**	**Private**
15-19	90.6(433)	8.6(41)	0.9(5)	38.2(35)	39.2(36)	22.6(21)
20-24	90.4(1072)	9.6(105)	0.7(9)	37.4(164)	30.5(134)	32.1(140)
25-29	89.7(1131)	9.2(116)	1.1(14)	28(140)	35.3(320)	36.7(332)

30-34	91.5(925)	7.2(73)	1.3(14)	25.6(199)	38.9(302)	35.5(276)
35-39	91.5(667)	7.4(54)	0.1(7)	29(152)	33.8(177)	37.2(195)
40-44	90.4(399)	8.9(39)	0.7(3)	32.2(82)	31.5(80)	36.3(93)
40-49	92.2(246)	7.7(21)	0(0)	27.6(23)	50.8(43)	21.6(18)
	P-value=0.185				**P = 0.011**	
Education						
No education	95(4013)	4.5(190)	0.2(8)	57.5(253)	25.6(113)	16.9(75)
Primary	88.9(610)	10.3(71)	0.9(6)	33.4(286)	36.3(311)	30.3(259)
Secondary	57.9(224)	35.4(137)	6.7(26)	24.7(343)	35.8(496)	39.5(548)
Higher	29.4(25)	58.6(51)	12(11)	6.7(26)	44(172)	49.3(193)
	P-value=0.000				**P = 0.0000**	
Religion						
Christian	65.4(183)	27.3(76)	7.3(20)	30.3(564)	34.2(637)	35.5(662)
Islam	92(4588)	7.4(369)	0.6(30)	27.4(323)	38.1(448)	34.5(407)
Others	97.1(66)	2.9(2)	0(0)	67.4(18)	27.4(7)	5.2(1)
	P-value=0.000				**P = 0.0900**	
Occupation						
not working	89(2117)	9.5(225)	1.5(36)	24(157)	36.4(237)	39.6(258)
Clerical	15.6(1)	84.4(5)	0(0)	10.2(5)	36.3(19)	53.5(28)
Sales	93(1698)	6.4(116)	0.7(12)	28.3(411)	37.9(550)	33.8(490)
Service	89(186)	10.4(22)	0.6(1)	52.4(183)	25(87)	22.6(79)
Skilled	92.4(78)	7.1(6)	0(0)	29.4(69)	24.3(57)	46.3(108)
Do not k	91.2(793)	8.6(75)	0.2(1)	25(85)	42(142)	33(112)

	p-value=0.000				**P = 0.0000**	
CEB						
1-2 children	87.5(1359)	11.2(174)	1.3(20)	25.8(337)	36(471)	38.2(500)
3-4 children	91.7(1289)	7.6(107)	0.7(10)	28.3(306)	36.1(390)	35.6(385)
5+ children	92.3(2225)	6.9(167)	0(0)	38.6(265)	33.7(231)	27.7(190)
	p-value=0.016				**P = 0.000**	
Wealth index						
Poor	97.4(3444)	2.4(90)	0.1(4)	56(267)	26.7(127)	17.3(82)
Middle	90.8(850)	8.2(76)	1.1(10)	38.5(156)	38.8(157)	22.6(91)
Rich	64.5(580)	31.4(282)	4.1(37)	22.1(486)	36.8(808)	41(901)
	P-value=0.000				**P = 0.0000**	

Relationship between place of delivery and spousal characteristics by northwest and southwest..

With respect to partners education of currently married women in both regions. The table below revealed a significant relationship between partners education and place of delivery of currently married women in both regions. Northwest (p<0.000) and southwest (p<0.000). The proportion of northwest married women that deliver at home decrease across partners education; 96.5% of respondent partners have no education, 91.5% have primary education, 81.9% have secondary education, 60.7% have higher education and87.2% do not know than proportion of southwest currently married women that deliver at home. 54% have no education, 30% have primary education, 26% have secondary, 16% have higher education and 46% do not know at the time of survey. Likewise, the larger percentage of northwest respondents that deliver in public hospital varies across partner education; 33.1% have higher education, 16.9% have secondary education while 7.6% have primary, 3.4% have no education and 11.8% do not know compared to southwest the proportion of respondents that deliver in private hospital 27.4% have no education, 39% have primary education, 36% have secondary education, 43% have higher and 10.2% no know.

Percentage distribution of place of delivery and partner characterizes by northwest and southwest.

	Region					
Variable	**Northwest(n=8,022)**			**Southwest(n=6,789)**		
Husb.education	**Home**	**Public**	**Private**	**Home**	**Public Hos.**	**Private**
No education	96.5(3188)	3.4(112)	0.1(5)	54(20)	27.4(100)	18.7(69)
primary	91.5(755)	7.6(63)	1(8)	30(204)	39(253)	31(212)
Secondary	81.9(546)	16.9(113)	1.2(8)	26(370)	36(475)	38(539)
Higher	60.7(262)	33.1(143)	6.1(26)	15(82)	43(231)	42(228)
Do not know	87.2(119)	11.8(16)	1(1)	46(15)	10.2(3)	43.8(14)
	P-value=0.000				**P = 0.0000**	
Husb.occupation						
prof,, tech.manag	76.4(265)	21.2(74)	2.4(8)	16(70)	44(184)	40(169)
clerical	68.4(36)	29.3(16)	2.2(1)	20(13)	39.1(27)	41.3(28)
Sales	86.5(1085)	12.1(152)	1.4(18)	21(105)	31(148)	48(235)
agric-employee	96.3(2444)	3.2(80)	0.6(14)	45(315)	34(225)	21(149)
Services	88.5(391)	10.9(48)	0.6(3)	27(156)	36(198)	37(210)
skilled	88.8(549)	10.6(65)	0.6(4)	28(195)	36.9(250)	5.1(241)
Unskilled	81.7(23)	18.3(5)	0(0)	24(11)	39(18)	37(17)
do not k	95.2(76)	7.5(6)	0(0)	25.2(9)	37.5(13)	37.4(13)
	P-value=0.000				**P = 0.0000**	

Conclusion and recommendation

Using data from the 2008NDHS and in-depth interview; the study examines differentials in utilization of antenatal care services among currently married women in northwest and southwest of Nigeria. Finding from this cross-sectional study revealed differentials in utilization of antenatal care services in the two regions (northwest and southwest) can be explained within the context of variation in age of respondents, education, wealth, religion and ceb, women autonomy, cost, distance, spousal education and occupation.

Regarding number of antenatal visits, the result of logistic regression analysis shows factors influencing northwest and southwest number of antenatal visits. Among these variables, influencing factors such as education, religion and wealth influence number of visits in northwest, age of respondents, occupation and ceb determined number of antenatal visits in southwest than northwest. Other variables were spousal education, spousal occupation, cost of antenatal and distance to health.

With respect to place of delivery, the result of logistic regression shows factors influence both regions place of delivery. Among these variables determined factors such as age, religion, occupation, education, ceb, wealth, spousal education and spousal occupation.

Base on the finding of the study that currently married women in southwest utilized antenatal care service than currently married women in northwest of Nigeria. The study concludes that awareness of currently married women in northwest on the important of antenatal care utilization toward the safe delivery and maternal health is still low which mean Nigeria government still need to designing maternal programmes in the northern part of the country to improved antenatal care services utilization.

Areas for Further Research

The study focused on the differentials in utilization of antenatal care services among currently married women in northwest and southwest of Nigeria. The study identified the need for further study on antenatal care content and overall adequacy to institute sets of important antenatal care content items not only in northwest and southwest but also in six political zones of Nigeria.

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