

**DETERMINANTS OF ANTENATAL HEALTH CARE UTILIZATION
AMONG WOMEN IN NIGERIA.**

Abimbola Grace, KEHINDE

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**DEPARTMENT OF DEMOGRAPHY AND SOCIAL STATISTICS
FACULTY OF SOCIAL SCIENCES
FEDERAL UNIVERSITY OYE-EKITI, NIGERIA**

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.CHAPTER ONE

INTRODUCTION

1.0 BACKGROUND TO THE STUDY

World health organization estimates that more than half a million women lose their lives in the process of reproduction worldwide every year and most of these mortalities are avoidable if mothers have access to antenatal care services {Zelalem 2000}. Improved maternal and neonatal outcomes have been associated with utilization of antenatal care services (MHCS) (Navaneetham & Dharmalingam, 2000; Mekonnen & Mekonnen, 2002; Babalola & Fatusi, 2009).

Globally more than 70% of maternal deaths are due to five major complications (which are direct obstetric complications): hemorrhage (25%), infections (15%), and complications of unsafe abortions (13%), hypertension (12%), and obstructed labor (8%) (Ochako, Christopher, 2003). These complications occur at any time during pregnancy and child birth, often without warning and often requiring immediate access to emergency obstetric care for their management. The World Bank estimates that 74% of maternal deaths could be averted if all women had access to interventions that address complications of pregnancy and childbirth, especially emergency obstetric care (Ochako, Christopher 2003).

Complications of pregnancy and childbirth are a leading cause of maternal morbidities and mortalities for women of reproductive age (15 – 49 years) in developing countries. The WHO estimates that over 500,000 women and girls die from complications of pregnancy and childbirth each year, worldwide, with approximately 99% of these deaths occurring in developing countries. With a maternal mortality ratio of 545 deaths per 100,000 live births (WHO,2008).

In sub-Saharan Africa 95% of maternal deaths occur annually and Asia. Africa has the highest burden of maternal mortality in the world and Sub-Sahara Africa is largely responsible for the maternal death figure for that region, contributing approximately 98% of the maternal deaths for the region (Seifu and meressa 2017). Antenatal care utilization was low (Mekonnen & Mekonnen, 2002; Mpembeni, 2007), including Nigeria (Galadanci, 2007; Babalola & Fatusi, 2009); 51% of women who had live birth, visited antenatal clinics at least four times during their pregnancy, 10% of women reported two or three antenatal visits during their last pregnancy, 34% of women did not receive any antenatal care. The results show that only 18% of women had their first antenatal visit in the first trimester of the pregnancy. (NDHS,2013). Sub Saharan Africa has the highest maternal mortality ratio in the world and account for more than half of maternal death worldwide. As the result disparities between developed and developing countries in terms of utilization of antenatal, delivery, and post natal services are unfairly large, in developed countries, it is estimated that about 97% of the pregnant women receive antenatal care and 99% use skilled obstetric service at delivery, whereas in developing countries, only 65% and 53% of women use antenatal care and skilled obstetric care services respectively (Zelalem, 2014).

In Nigeria, antenatal care utilization is lower than the African; Nigeria is lagging behind in antenatal care utilization. Coincidentally the Sub Saharan Africa region disproportionately bears the burden of maternal death and ill health compared with the developing countries. The statistics gotten from the World Health Organization (WHO) in 2014, established that only 61% of pregnant women in Nigeria ever made at least one contact with a skilled health care provider and only 57% made the at least four visits (World Health Organization, 2002). In Nigeria, despite the free antenatal care in most states mostly socio demographics factors affecting antenatal care utilization. There has been a global rise in antenatal care utilization to about 70%

between 1990 and 2013 and substantial progress achieved in most region of the world, but increase in antenatal care utilization has been slow in sub Saharan Africa (Lincetto, Gomez, 2010). In south east Nigeria, there are variations in the utilization of maternal health services. Antenatal care attendance (99.7%) and facility delivery (97%) is high, but post-natal care service utilization is low. (Emelumadu, Ukegbu and Oyeonoro 2010). Maternal and reproductive health services in health systems constitute a large range of curative and preventative health services of particular importance to the health of women of reproductive age. It also refers to population – based services such as behavior change and health communication. It includes a range of services provided to women of reproductive age prior to conception, during pregnancy and after delivery. (Lule, Ramana, Rosen, 2012). Furthermore, it exposes pregnant women to counseling and education about their own health and the care of their children. The positive outcome shown to exist between levels of care obtained during pregnancy and the use of safe delivery care and the antenatal care also stands to contribute indirectly to maternal mortality reduction. Pregnancy-related complications are a leading cause of death amongst women in reproductive age in developing countries. According to the United Nations (2005) more than half a million women in developing countries died each year during pregnancy or childbirth and twenty times that number suffer from injury or disability. This study will investigate if the lack of education, residence, or income has influence on antenatal care utilization of women.

1.1 STATEMENT OF PROBLEM

Millions of women in developing countries experience life threatening and other serious health problems related to conception or child delivery. Problems of pregnancy and birth delivery cause more deaths and disabilities than any other reproductive health problems (EC/UNFPA, 2000). The situation is worse in developing countries like Nigeria due to inadequate access to modern health care services and lack of proper utilization. This research seeks to fill the vacuum by examining whether socio demographic factors with special reference

to age, education, employment, residence, religion have any significant influence on antenatal care utilization among reproductive women in Nigeria. The distances of the health care and rural locations have been generally reported to be strongly and negatively associated with the use of antenatal care (Babalola and Fatusi 2009). The lack of skilled health attendance has been one of the reason women leave the primary health center in search of modern tertiary health institution. Attitude of health workers to pregnant women is nothing to write about which makes women, take the decision of traditional health facilities in their neighborhood. (Dorothy, Emelumadu 2015). Lack of access to antenatal care services for pregnancy and delivery are among the main reason for high maternal and neonatal mortality rates worldwide (Alam, 2015). The present study intends to examine the relationship between socio demographics influence on antenatal care utilization among women of reproductive age in Nigeria.

1.2 RESEARCH QUESTIONS

1. What is the prevalence of antenatal care utilization among women of reproductive age in Nigeria?
2. What is the association between socio demographic factors and antenatal care utilization?
2. What is the relationship between socio demographic factors on antenatal care utilization?

1.3 GENERAL OBJECTIVES

The general objective of this study is to examine the relationship between socio-demographics and antenatal care utilization among women of reproductive age in Nigeria.

SPECIFIC OBJECTIVES

1. To examine the prevalence of antenatal care utilization among women of reproductive age in Nigeria.

2. To examine the association between socio demographic factors and antenatal care utilization.
3. To access the relationship between socio demographic factors on antenatal care utilization.

1.4 JUSTIFICATION OF THE STUDY

Globally, skilled antenatal care and birth attendance has been advocated as the most crucial intervention to reduce maternal mortalities (Dorothy, 2015). It is therefore necessary to find out whether these socio demographics have any correlation with antenatal care utilization ideals toward healthier and more innovative demographic behavior among reproductive women.

This study examines the relationship between socio demographic influences on antenatal care utilization among reproductive women in Nigeria. Especially concerning the utilization of antenatal care in Nigeria as it probes the extent of influence of antenatal care utilization on reproductive women. Nigeria has only achieved an average of 10% in reducing the maternal mortality.

Findings from this study will contribute to the extent of socio demographics and antenatal care utilization among reproductive women in Nigeria. The knowledge of women about antenatal care utilization in relation to socio demographics will immensely be beneficial to health policy making at the regional and national levels as it could lead to the planning of intervention programs and behavioral changes.

1.5 DEFINITION OF IMPORTANT TERMS

Antenatal care: (According to WHO), antenatal care can be defined as the care provided by skilled healthcare professionals to pregnant women and adolescent girls in order to ensure

the best health conditions for both to mother and baby during pregnancy. It is the concept that defines the medical attention of care received by pregnant women during pregnancy but before the delivery of a live birth.

Health: (According to WHO) Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.

Maternal health: This is defined as the status of mother's health during pregnancy and after birth.

Pregnancy: The period from conception to birth, after the egg is fertilized by the sperm and the implanted in the lining of the uterus, it develops into the placenta and embryo, and later into a foetus. Pregnancy usually lasts 40 weeks, beginning from the first day of the woman's last menstrual period, and is divided into three trimesters, each lasting for three months.

Foetus: An unborn vertebrate in the later stages of development, showing the main recognizable features of mature animal.

Education- the act or process of imparting or acquiring general knowledge, developing the powers of reasoning and judgment, and generally of preparing oneself or others intellectually for mature life

Residence- is an establishment where it was originally or currently being used as a host as their main place of dwelling or home

Occupation- refers to job, a person's role in society, often a regular activity performed for payment

Religion-the belief in and worship of a superhuman controlling power, especially a personal God or gods

Region-an area or division especially part of a country or the world having definable characteristics but not always fixed boundaries.

Age- the length of time a person has lived or a thing has existed.

CHAPTER TWO

LITERATURE REVIEW

2.0 INTRODUCTION

Women of reproductive age has been defined according to WHO as those between 15-49 years, and these constitute more than one fifth of the world's population and are repeatedly exposed to the risk of pregnancy and child bearing (WHO 2001). Maternal health refers to the health of the mother during pregnancy, childbirth and the postpartum period. Antenatal care services utilization is important for early detection of mothers who are at high of illness and mortality during pregnancy. It is therefore easy for the services to be underused. In the developing countries, these problems are even more prevalent due to the current socio-demographic conditions and inaccessibility of health facilities (Fatusi 2001). The utilization of antenatal care service is an essential strategy in reducing the risks associated with pregnancy and child bearing in this age group. The essential antenatal care services during pregnancy include antenatal care, skilled care at delivery and postpartum care and these are necessary to promote good health. Antenatal care is the care received during pregnancy from skilled health personnel such as the goal oriented model recommended by the WHO which include 4-5 visits for pregnant women who are not having medical problems. Antenatal care utilization (65%) in the developing countries is low when compared to that of the developed countries which is 97%. Skilled

attendance at delivery is 53% in developing countries while it is 99% in the developed countries and postpartum care utilization is 30% compared to 90% in developed countries. In Nigeria antenatal care utilization is reported to be 63% (NDHS 2008), the wide disparity in antenatal care indicators might explain the wide difference in maternal mortality ratio between the developed and developing countries.

The major objective of antenatal care is to ensure optimal health outcomes for the mother and her baby. Antenatal care from a trained provider is important in monitoring pregnancy and also to reduce morbidity risks for the mother and child during pregnancy and delivery. Antenatal care provided by a skilled health worker enables:

- (i) early detection of complications and prompt treatment (e.g., detection and treatment of sexually transmitted infections),
- (ii) prevention of diseases through immunisation and micronutrient supplementation,
- (iii) Birth preparedness and complication readiness, and health promotion and disease prevention through health messages and counselling for pregnant women.

2.1 NUMBER AND TIMING OF ANTENATAL CARE VISITS

The antenatal care policy in Nigeria follows the WHO approach to promoting safe pregnancies, recommending at least four ANC visits for women without complications. This approach, called **focused antenatal care**, emphasises quality of care during each visit instead of focusing on the number of visits. The recommended schedule of visits is as follows: the first visit should occur by the end of 16 weeks of pregnancy, the second visit should be between 24 and 28 weeks of pregnancy, the third visit should occur at 32 weeks, and the fourth visit should occur at 36 weeks (NDHS, 2013). However, women with

complications, special needs, or conditions beyond the scope of basic care may require additional visits. Early detection of problems during pregnancy leads to more timely treatment and referrals in the case of complications. This is particularly important in Nigeria, a large country where physical barriers are a challenge to accessing care within the health system (2013, NDHS).

2.2 ANTENATAL CARE IN NIGERIA

Pregnancy constitutes one of the most sensitive periods of a woman's life, both physically and mentally (Katz, Gibbs, Karlan, *et al.* 2008). Antenatal care has a history of more than 100 years; it is currently among the most important services provided by the healthcare system and its use is gaining increasing popularity (Alexander, and Kotelchuck, 2001.). The purpose of antenatal care is to deliver a healthy newborn without jeopardizing the mother's health. The United Nations estimates that 529 000 women die each year from complications during pregnancy and childbirth [Abouzahr & Wardlaw, 2004]. In Nigeria, it is estimated that approximately 59,000 of maternal deaths take place annually as a result of pregnancy, delivery and post-delivery complications (WHO, UNICEF, UNFPA, 2004) despite the available antenatal health care services. Nigerian Health Review (2006), reports that one of the major causes of maternal deaths is inadequate motherhood services such as antenatal care. Approximately two-thirds of all Nigerian women and three-quarters of rural Nigerian women deliver outside the modern health facilities and without medically-skilled attendants present.

There are potential benefits to be had from some of the elements of antenatal care, and these benefits may be most significant in developing countries where morbidity and

mortality levels among reproductive-age women are high. The antenatal period clearly presents opportunities for reaching pregnant women with a number of interventions that may be vital to their health and well-being and that of their infants. For example, if the antenatal period is used to inform women and families about danger signs and symptoms and about the risks of labor and delivery, it may provide the route for ensuring that pregnant women do, in practice, deliver with the assistance of a skilled health care provider.

More so, antenatal period provides an opportunity to supply information on birth spacing, which is recognized as an important factor in improving infant survival. Better understanding of fetal growth and development and its relationship to the mother's health has resulted in increased attention to the potential of antenatal care as an intervention to improve both maternal and newborn health. Tetanus immunization during pregnancy can be life-saving for both mother and infant. The prevention and treatment of malaria among pregnant women, management of anemia during pregnancy and treatment of STIs can significantly improve fetal outcomes and improve maternal health. Adverse outcomes such as low birth weight can be reduced through a combination of interventions to improve women's nutritional status and prevent infections (malaria, STIs) during pregnancy. More recently, the potential of the antenatal period as an entry point for HIV prevention and care, in particular for the prevention of HIV transmission from mother to child, has led to renewed interest in access to and use of antenatal care services. (Carroli, WHO 2001, Villar J, Bergs, 1997).

2.2.1 Antenatal Care in Africa

In developing countries, two out of three women receive some antenatal care, but in South Asia the rate is barely half (UNICEF/WHO 2002). Data from demographic and health (DHS), Multiplier indicator surveys and other national surveys in the late 1990s and 2001 gave

some report on antenatal care study about 180 countries on average weighted by number of births. The data shows that efforts to extend the reach of antenatal care have been largely successful. Only in few countries do level of antenatal care use fall below 50% of pregnant women, while this do not tell us anything about the quality of care offer, it is clear that women are able and willing to present for antenatal care, thus providing opportunity to give them information and services that can help them improve their health and that of their infants.

2.3 Factors Influencing Antenatal Care Service Utilization

Antenatal care (ANC) is an important determinant of safe delivery and may have a positive impact on the utilization of antenatal care services [Chakraborty, Islam MA, Chorodhuny, R.I, *et al*, 2002]. During antenatal care visits, essential services such as tetanus toxoid immunization, iron and folic acid tablets, and nutrition education are also provided [Magadi , Madise, Rodrigues, 1999]. One of the most important functions of ANC is to offer health information and services that can significantly improve the health of women and their infants [WHO & UNICEF, 2003]. The maternal mortality ratio (MMR) has registered a decline rate from 212 per 1000,000 births in the period (2007-2009) to 178 in (2010-2012) [information bureau 2014.]. It has declined further to 167 per 100,000 live births in the period 2011-2013. This means an estimated 44,000 maternal deaths (death of a woman during pregnancy or within 42 days of termination of pregnancy) occur in the country every year. The MDG set target to reduce MMR by 75 per cent between 1990 and 2015. Based on the United Nation's Inter-Agency Expert Group's MMR estimates the publication.

Antenatal care is one of the components of maternal health care services; it is a systemic supervision of women during pregnancy to monitor the progress of foetal growth and to ascertain the well-being of the mother and the foetus [Ministry of Health and Family Welfare,

Government of India, Maternal Health Division, 2010.]. A proper antenatal check-up provides necessary care to the mother and helps identify any complications of pregnancy such as anaemia, hypertension etc., and slow/inadequate growth of the foetus. A number of studies have shown that lack of antenatal care services has been identified as one of the risk factors for maternal mortality [Anandalakshmy, Talwar, Buckshee, *et al*, 1993]. Moreover, many studies have demonstrated the association between lack of antenatal care and perinatal mortality, low birth weight, premature delivery, pre-eclampsia, and anaemia [Coria-Soto, Bobadilla , Notzon, *et al* 1996]. Every pregnant woman should get a regular check-up as an integral part of maternity care and the care that is given to an expectant mother from the time that conception is confirmed until the beginning of labour [Viccars Anne, Fraser & Cooper, Myles, 2003]. It offers pregnant women for the timely management of complications through referral to an appropriate facility for further treatment and an opportunity to get different services which alerts the woman to the risks associated with pregnancy, provides opportunity to prepare a birth plan and identify the facility for delivery and for discussion her options for safe delivery [Kwast, Liff, 1993].

Trends in Maternal Mortality (1990 to 2013), India's target of MMR is 140 per 100,000 live births by 2105, taking a baseline of 560 per 100,000 live birth in 1990 [WHO, 2013].

According to the study the utilization of antenatal care service, shows that majority of the women identified non Affordability of antenatal services, Schedule of ANC, Lack of knowledge about the existing services of ANC and Husband's acceptance of the services rendered as the major factors influencing its utilization.

Noting the importance of antenatal care and its utilization, this study was carried out to determine the socio demographic influence on antenatal care utilization among reproductive women in Nigeria. The findings revealed that majority of the women (47.1%) first heard of ANC in the hospital. Most of the women (83.3%) knew the services rendered at antenatal clinic and had adequate knowledge of the importance of antenatal care. The study also reveal that majority

of women (56.9 %) attend ANC regularly; (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 women 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 women and their utilization of ANC services. Among safe motherhood advocates, antenatal care has been downplayed in recent years as an intervention for reducing maternal mortality. This has arisen in large part as a result of improved understanding of the casual pathways that lead to maternal deaths, notably absence of effective management for obstetric complications. There is ample evidence that cares during the antenatal period represents opportunity to deliver interventions that will improve maternal health, prenatal health and more than likely perinatal survival.

2.3.1 Factors Influencing antenatal Care Utilization in Nigeria

The United Nations estimates that 529,000 women die each year from complications during pregnancy and childbirth [Abouzahr & Wardlaw, 2004]. In Nigeria, it is estimated that approximately 59,000 of maternal deaths take place annually as a result of pregnancy, delivery and post-delivery complications [WHO, UNICEF, UNFPA, 2007] despite the available antenatal health care services. A Nigerian woman is 500 times more likely to die in childbirth than her European counterpart. Mortality ratio is about 800- 1,500/100,000 live births with marked variation between geo-political zones- 165 in south west compared with 1,549 in the North- east and between urban and rural areas [NPC, 2008].

Each year, about 6 million women become pregnant; 5 million of these pregnancies result in child birth [WHO, UNICEF, UNFPA, 2007]. Antenatal care refers to the care that is given to

an expectant mother from the time that conception is confirmed until the beginning of labour [Viccars, 2003]. Adequate utilization of antenatal health care services is associated with improved maternal and neonatal health outcomes. Antenatal care is expected to have impact on the development of the foetus and the infant as well as mother and this can only be achieved through early booking and regular attendance of antenatal clinic.

The trend of maternal mortality in developing countries has been increasing and various international organizations have reported that an important factor related to maternal and infant mortality has been linked to lack of antenatal care [Villar, 2001]. According to Federal Ministry of Health 2005, some of the dangers of pregnancy and childbirth can be avoided if the pregnant woman attends antenatal regularly. In order to decrease these mortality rates, regular antenatal care has to be instituted or reinforced which can only be achieved through identifying factors causing poor utilization of antenatal care services.

According to WHO [2001] only 60% of women receive antenatal care in Nigeria, and not all of them attend the antenatal clinic regularly [Villar, 2001]. A study reported that with maternal risk held constant, low birth weight, and infant mortality were 1.5-5 times higher with late and less frequent antenatal care than with early and frequent care [Quick, Greenwick & Reghman, 1991]. A study carried out on reproductive health issues showed that in 69% of the recorded births, the mothers made 4 or more antenatal visits, while 20% made fewer than 4 visits and 6.3% did not attend at all which is contrary to WHO recommendation of 12 visits [Villar, 2001].

This measures the population's use of modern antenatal health care services available to them. This includes the utilization of hospital resources, personal care home resources, and physician resources. Consequently, several definitions have been proposed, Utilization is defined as the outcome of the interaction between health professionals and patients. (Donabedian, 1973). Utilization is a multidimensional process (Donabedian, 1973, Starfield 1998), With regards to

decision-making power regarding a women's health, proxy or indirect measures have been used to operationalize the factors that determine the antenatal care utilization among women, such as lack of education and poor knowledge of maternal health care has contributes to the delays in seeking care during pregnancy and childbirth. Poverty is also one of the major health determinants; poor mothers are at high risk of developing pregnancy related complications, because they can't pay for the required services (UNFPA, 2006 Ibor *et al.*, 2011).

Socio demographic factors which determined the expectant of women sought in antenatal care services, education, age, income, occupation and parity. Women with secondary level of education and above were likely to visit the health centers 3.7 out of 4 times compared to women with primary or no formal education at all. Women of ages 31 above attend less health centers compared to women of 30years below. Expectant of women who receives little income attends health care centers less than people who earn more and able to afford the antenatal care services fees. (Nzioki, Onyango, Ombaka, 2015).

The term maternal health includes the health of women during pregnancy, childbirths and the postpartum period. It encompasses the health care dimension of family planning, perceptions, prenatal and postnatal care in order to reduce maternal morbidity and mortality.(kumar and Singh, 2015). Antenatal care services is important as it offers pregnant women an opportunity to get different services which alerts the risks associated with pregnancy and her options for safe delivery, The health care system in Nigeria has a blend of private and public health care providers (krishma and Singh 2013). In Nigeria health care services are divided into public sectors and private sectors, the public sectors are under the federal hospitals, state specialists and general hospital and local government areas (primary health centers and health post). (Uchendu, Ilesanmi, 2013). Demographic health surveys 2008, majority of women and men have no health insurance coverage (98% and 97%, respectively) which means they pay for the services they receives, health care services consumers are therefore bound to make choice of where to receive

health care services. Maternal mortality and morbidity are critical priority problems that demand recognition and acceptance by the policy makers and health administrators. When women are pregnant their health status are more complicated. It is not gainsaying that inappropriate incorrect treatment or even lack of appropriate and timely interventions are reasons for most maternal deaths in Nigeria. (AZUH, Dominic 2006).

2.4 BARRIERS TO SERVICE OF ANTENATAL CARE UTILIZATION

Several studies that investigated the common barriers to utilization of antenatal care services have shown barriers such as lack of finance (Kalmuss & Fernnenly, 1990), knowledge (Soltani *et al*, 1999), cultural influences (Sibanda , 2001), lack of transportation (Kaufmann, 2002), lack of access to health services (Chakraborty, 2002) among others. (Chakraborty 2002) examined factors associated with the utilization of antenatal care services during the postnatal period in Bangladesh and found out that mother's age at marriage and the husband's occupation positively affect health care utilization and the number of pregnancies and desired pregnancies were significantly associated with the utilization of postnatal health care. Some of the result were however inconclusive on maternal education, antenatal visit and access to health facilities. (hove , 1990).

However, in the United Kingdom, (Gulliford 2001) recapitulated the finding of a scooping exercise on the access of health care and noted that there was little evidence for the effect of user charges on access to primary health care services. This means socio-demographic and cost barriers may be responsible for hindering the access to health care services. However, this does not tally the study by (Griffiths and Stephenson, 2001) on utilization of maternal health care services in the rural and urban area in Maharashtra, India. Their study revealed controversial results, which showed that socio-demographic status was not barrier to service use if the women

perceived the benefits of the service to outweigh the costs. However, there is an assumption in this study that the women can ultimately afford the services. This study did not consider the women who have no very few resources.

According to (Fatmi and Avan in 2002) studied the factors affecting utilization of antenatal care services. He further argued that transportation consumes a major part of personal budgetary cost. A similar report was made by (Gulliford , 2001) who found that distance from a service is inversely associated with its utilization.

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

- i. **Distance and lack of transport:** Nearly 80 percent of rural women live more than five kilometers from the nearest hospital, and many have no way to get to health facilities except by walking
- ii. **High cost /income level:** Millions of women cannot afford to use postnatal services even when fees are low or services are delivered for free. This is due to additional, often hidden cost that patient must cover, such as transport, drugs, and even food and lodging for themselves and their families.
- iii. **Poor information/ awareness level:** Women and communities often do not recognize, prevent or treat pregnancy complication, or when and where to seek medical care. This has a profound impact on the utilization of antenatal services.

- iv. **Socio-cultural factor:** Health services often do 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 part of the world.

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

- vi. **Decision making dynamics:** sometime the decisions for women to seek medical care are made by their husbands, family members and community members except for a few of those who are educated and make the decision by themselves.

2.4.1 Barriers to Utilization of Antenatal Care Service in Nigeria

High maternal morbidity and mortality rate is a huge public health problem in the developing countries of the world, including Nigeria. The maternal mortality rate in Nigeria is 630 deaths per thousand live births and Nigeria ranks 10th position in the world record of health indicators of maternal mortality which is far behind our neighboring developing country, Ghana and Benin with 350 deaths per 1000 live birth each; with marked variation in maternal mortality ratio between the six geo-political zones and between urban and rural areas (CIA World Fact book, 2012).

With an estimated 52,000 annual deaths, Nigeria accounts for about 10% of all maternal deaths, globally, and has the second highest mortality rate in the world, after India. It is also reported that, for every woman that dies from pregnancy-related causes, 20 to 30 more will develop short-

and long-term damage to their reproductive organs resulting in disabilities such as obstetric fistula, pelvic inflammatory disease, a ruptured uterus, e t c (World Health Organization (WHO), 2007; Shiffman and Okonofua, 2007).

Despite the existence of national programs for improving maternal and child health in Nigeria, maternal mortality and morbidity continue to be high and studies suggested that the majority of maternal deaths can be prevented or reduced if women had access to, or visited maternal health services during pregnancy, childbirth and the first month after delivery (Dayaratna, 2000; WHO, 2004; Federal Ministry of Health, 2005).

However, many women in developing countries do not have access to antenatal healthcare services and it is reported that the use of such services remain low in Sub-Saharan Africa including Nigeria (Babalola and Fatusi, 2009); where only 58% of women have attended at least one antenatal clinic during pregnancy, 39% of births are attended to by a skilled professional, 35% of deliveries take place in a health facility and 43.7% receive postnatal care (NDHS, 2003; WHO *et al.*, 2012).

World Health Organization (WHO) contends that the immediate cause of maternal deaths is the absence, inadequacy or underutilization of the healthcare system (WHO, 2004, 2007). Antenatal health care services are underutilized particularly among those who are in the greatest need despite the fact that they are available in most of the hospitals in Nigeria, though each hospital operates according to its own rules, regulations, policy and conditions of service depending on the available resources. Mothers are expected to seek antenatal health care before, during and after delivery in the hospital, but it was observed that a low number of women came to the hospital to fully utilize these services in the study setting despite the beneficial impact.

The least factors affecting the utilization of maternal health care services, respectively are: Attitude of the health provider, availability of facilities or equipment, lack of knowledge

concerning the existing services, language barrier, cultural acceptance, schedules of maternal health clinic ,accessibilities to maternal health care service, Previous experience of the services rendered, Previous history of complication during pregnancy, labour or post-delivery, Affordability of antenatal care services, Husband's acceptance of the services rendered. Other important factors are age and level of education of mothers.

This is not surprising, since many women in Nigeria do not see preconception care as necessary. According to WHO (2012), there is growing evidence that extending the maternal, new-born and child health to include prenatal care which is a woman's health before she becomes pregnant can increase the well-being of women and improve subsequent pregnancy and child health outcomes.

Postnatal care is regarded as one of the most important antenatal healthcare services which is crucial for monitoring and treating complications in the first six weeks after delivery. Postnatal services are primarily comprised of physical examination, immunization, health education and family planning services (Safe Motherhood, 2002; NPC, 2004; United Nations, 2002). According to Safe Motherhood (2002), the majority of women in developing countries receive almost no postpartum care after delivery; only about 5% of women receive postnatal care in the Sub-Saharan Africa.

The study revealed that previous history of a complication during pregnancy, delivery or post- delivery influences utilization of antenatal health care services. This is in line with the finding of (Kebebe, 2012) that women with perceived risk and previous experience of pregnancy related complications are highly likely to attend African National Congress (ANC). The attitude of the health care provider and previous experience of the mothers about the care received, also influence utilization of antenatal health services. This is not surprising since negative attitudes by health care providers elicit negative outcome in the utilization of antenatal care services and on the other hand, positive behaviours of health care providers to women will bring about positive

outcome. Various studies have shown that there is a relationship between attitude of health care providers and mother's choice of where to receive antenatal, delivery and postnatal care (D'Ambruoso, 2005; Natukunda, 2007; Onasoga, Opiah, Osaji and Iwolisi, 2012).

The attitude of health care providers towards women is a major influence on women's decision whether to use or not to use a particular type of antenatal health care service.

The husband's acceptance of the antenatal healthcare services is also one of the main factor identified and according to (WHO (2004), women's decision making power is extremely limited in many parts of Africa, particularly in matters of reproduction and sexuality. According to (Ladipo (2008) and WHO (2010) affordability and accessibility are also important determinant of utilization of health services in developing countries. The level of education is a significant predictor to utilization of antenatal health care services. This is in line with (Wong 2004) that the higher the educational level and experience, the more likely the utilization of health care. In other words, educated women are more likely to use maternal health care services than women with no formal education (Addai, 2000; Mekonnen and Asnaketch, 2002). Age of the mother also has a significant negative association on utilization of maternal health care services. Studies have shown that younger mothers are more likely to deliver in health facilities than their older counterparts. This corroborates the finding (Kebebe (2012) that women in a larger household are less likely to deliver at health facilities. However, no significant association was found between occupation and marital status of respondents and their utilization of antenatal care service.

2.4.2 ELEMENT OF HEALTH CARE SERVICE

According to a report by safe motherhood (1998), the element of maternal health care services includes antenatal care, delivery care and postpartum care. Antenatal care includes all

care given to pregnant women. The WHO recommends that pregnant women should have four antenatal visits.

- 1. Health promotion/ awareness of antenatal care utilization:** advice on nutrition and health care, as well as counseling to alert women to signs of danger and give them a plan health for the birth.
- 2. Assessment:** history taking, physical examination, and screening test such as HIV, STDs, chronic and hereditary diseases.
- 3. Prevention:** early detection and management of complications and where needed, prevention of malaria, hookworm and tetanus; and
- 4. Treatment:** management of sexually transmitted disease, anemia, or other conditions.

Maternal health comprises the health of women during pregnancy, childbirth, and the postpartum period. Health problems during pregnancy may have serious consequences, not only for the woman but also for her child, her family, and her community. Although motherhood is often a positive and fulfilling experience, for too many women birth is associated with suffering, ill-health, and even death [WHO 2011]. Maternal health and health care are important determinants of neonatal survival and child health outcomes. Therefore, improvements of maternal and child health are important global public health goals. In the Millennium Development Goals (MDGs) formulated in 2000, members of the United Nations are committed to reduce the under-five mortality rate (U5MR) by two thirds and the maternal mortality ratio (MMR) by three fourths during the period 1990–2015[UN 2008]. Access to appropriate maternal healthcare services is a

fundamental right, 75 % of maternal deaths occur during childbirth and the postpartum period, and the vast majority of these deaths are avoidable. Provision of skilled care for all women before, during, and after childbirth is a key strategy for saving women's lives and ensuring the best chance of delivering a healthy infant [WHO 2004]. Health-care and delivery care are considered basic components in any maternal healthcare program [Zanconato G, Msolomba R, *et al* 2006].

2.5 THEORETICAL FRAMEWORK

ANDERSEN'S BEHAVIORAL MODEL

According to the model, such utilization is dependent on the interaction between individual traits, population characteristics, and the surrounding environment. Andersen proposes that the relevant factors can be grouped into three main categories: an individual's predisposition to use medical services; enabling or impeding circumstances (such as infrastructure); and the need for health care. Predisposing characteristics are related to demographic elements and social structure, including age, gender, residence, occupation, education, ethnicity, and attitudes toward health. Enabling elements consist of community factors that affect the availability and accessibility of health care, and personal factors such as knowing how to take advantage of what is offered. Finally, characteristics associated with need include types of illness, perceived health status, and expected outcome of treatment. In the context of the present study, "need" refers to an informant's perceived need of maternal health care. Most theoretical models view health care-seeking behavior as a result of rational individual choice. The health care use in this theory is antenatal care utilization. As such, they have been criticized for giving inadequate attention to the social context within which actions are taken by individuals (Zadoroznyj, 1999).

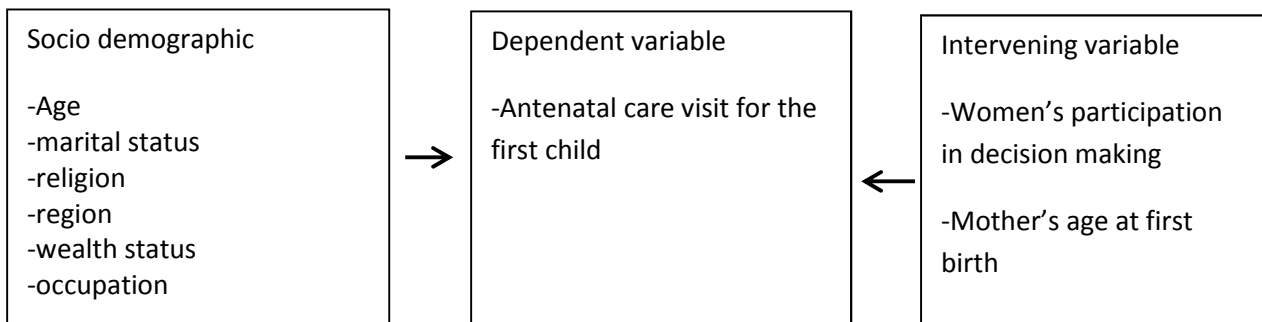
It is noteworthy that our study seeks to identify the factors that determine the antenatal care utilization among reproductive women in Nigeria.

2.5.1 HYPOTHESIS

1. H_0 : There is no significant relationship between socio demographic factors and antenatal care utilization.

H_1 : There is significant relationship between socio demographic factors and antenatal care utilization.

2.6 CONCEPTUAL FRAMEWORK



SOURCE: AUTHOR'S CONSTRUCT 2018

CHAPTER THREE

METHODOLOGY

3.0 INTRODUCTION

This chapter presents the description of the study area and the sources of data. Also presented in this chapter are details of data collection procedures, sampling design technique, sample size, variables definition, data analysis procedures as well as the study limitations.

3.1 STUDY DESIGN

This study is an expose cross-sectional study through the analysis of secondary datasets of the 2013 NDHS in Nigeria. The 2013 Nigeria Demographic and Health Survey (NDHS) is the fifth DHS in Nigeria, following those implemented in 1990, 1999, 2003, and 2008. A nationally representative sample of 40,320 households from 904 primary sampling units (PSUs) was selected. The survey was designed to produce reliable estimates for key indicators at the national level as well as for urban and rural areas, each of the country's six geographical zones, and each of the 36 states and the Federal Capital Territory (FCT). A women survey was conducted at households. In these households, all women aged 15-49 who were usual members of the selected households or spent the night before the survey in the selected households were eligible for individual interviews. The survey collected information on their basic demographic status and their knowledge of and attitudes towards antenatal care. Administratively, Nigeria is divided into states. In turn, each state is subdivided into local government areas (LGAs) and each LGA into smaller (secondary and tertiary) localities. Nigeria has 36 states and a Federal Capital Territory (FCT). These states are subdivided into 774 LGAs. Furthermore, the states are regrouped by geographical location to form six zones, In addition to these administrative units and geographical zones, during the last population census in 2006; each locality was subdivided into convenient areas called census enumeration areas (EAs). The average number of households per EA in the corresponding locality frame was assigned to each EA. The EAs in Nigeria are small in size, with an average of 211 inhabitants (equivalent to 48 households). Since these EAs were too small to be DHS clusters, the 2013 NDHS included several EAs per DHS cluster (with a preferred minimum cluster size of 80 households).

3.2 DESCRIPTION OF THE STUDY AREA

Nigeria came into existence as a nation-state in 1914 through the amalgamation of the northern and southern protectorate. Prior to the time, there were various separate cultural, ethnic

and linguistic groups such as the Oyo, Benin, Nupe, Jakun, Kanem-Bornu, and Hausa-Fulani empires. There were also relatively but strong-and indeed resistant-ethnic groups (e.g. Igbo, Ibibio and Tiv). The British established a crown colony type of government after the amalgamation. The affairs of the colonial administration were conducted by the British until 1942, when a few Nigerians became involved in the administration of the country. In the early 1950s, Nigeria achieved partial self-government with a legislature in which the majority of the members were elected into an executive council of which most were Nigerians. Nigeria became fully independent in October, 1960 as a federation of three regions (northern, western and eastern) under a constitution that provided for a parliamentary system of governance. The Lagos area became the federal capital territory. On October 1st, 1963, Nigeria became a republic with different administrative structures, social groups and distinct cultural traits. There are about 374 identifiable ethnic groups, with the Igbo, Hausa and Yoruba as major groups.

Presently, Nigeria is made up of 36 states and a federal capital territory (FCT), grouped into six geopolitical zones: North-central, north-east, north- west, south-east, south-south, and southwest. There are also 774 constitutionally recognized local government areas (LGAs) in the country. Nigeria is in the West African sub-region lying between latitudes 4 degrees 16' and 13 degrees 53' north and longitudes 2 degrees 40' and 14 degrees 41' east. It is bordered by Niger in the north, Chad in the northwest, Cameroun in the east, and Benin in the west.

The Nigeria has a tropical climate with distinct wet and dry seasons associated with the movements of the two dominant winds-the rain-bearing south westerly winds and the cold, dry and dusty harmattan wind felt in the north during December and January. The wet season occurs from April to September. The temperature in Nigeria oscillates between 25 degrees and 40 degrees Celsius and the rainfall ranges from 2,650 millimeters in the southeast to less than 600 millimeters in some parts of the north, mainly on the fringes of the Sahara desert.

Agriculture was the mainstay of Nigeria's economy before the discovery of oil in January 1953. Until that point, the country had depended almost entirely on agricultural production for food and agro-industrial raw materials for foreign exchange earnings through the commodity trade. At the time of independence in 1960, agriculture provided gainful employment and a satisfactory livelihood to more than 90 per cent of the population. Over the years, the dominant role of agriculture in the economy, especially in terms of the country's foreign exchange earnings, gave way to petroleum exports. Today the country's economic strength is derived largely from its oil and gas reserves. Previous growth rates were estimated at 2.7 per cent in 1999, 2.8 per cent in 2000, 3.8 per cent in 2001, and 6.0 per cent in 2006 (Central Bank of Nigeria, 2013).

This study will be utilizing 2013 Women dataset of Nigeria Demographic and Health Survey (NDHS). The Demographic and Health Survey are an internationally series of nationally representative surveys conducted in middle and lower income countries. The NDHS is the fifth comprehensive survey conducted in Nigeria as part of the Demographic and Health Surveys (DHS) program.

3.3 SAMPLE SIZE

The Nigeria Demographic Health Survey (NDHS) interviewed women of the reproductive age 15-49 years. This study used women who were currently married age 15-49 years and those who were living with partner(s). The data for the analysis were extracted from the Women dataset (NGWR6AFL) in the 2013 NDHS survey.

The sample size for this project work is 38,886 representing females of ages 15-49 years in the country.

3.4 DATA PROCESSING AND ANALYSIS

STATA 13.0 application package was used to process the data. Univariate, bivariate and multivariate analyses were undertaken. Uni-variate analysis is performed to show the percentage distribution of the socio-demographic characteristic of the respondents. Followed by bivariate analysis of some selected background characteristics and the dependent variable using chi-square statistical test. Furthermore, logistic regression is used in the multivariate analysis to identify the strength of association and examine the effect of socio-demographic determinant on antenatal care utilization in the study area. The tools for data manipulation were employed on the STATA application package to achieve this task. To ensure reliable data, sample weights and STATA survey command (SVY) were applied to adjust for stratified sample design and the effect of over-sampling or under-sampling of some regions or areas.

3.5 MEASUREMENT OF VARIABLES

The general binary logistic regression model used for the multivariate analysis is:

$$\text{Log} \left(\frac{p}{1-p} \right) = \alpha_0 + \alpha_1 X_1 + \alpha_2 X_2 + \dots + \alpha_n X_n$$

Where p = probability of exposure to antenatal care utilization

x1-xn = predictor variables

$\alpha_0, \alpha_1 - \alpha_n$ = regression coefficients

- **Dependent /Outcome Variable:** the outcome variable for this study is antenatal care visit for the first child.

Socio-demographics Characteristics

- **Education** is the act or process of imparting or acquiring general knowledge, developing the powers of reasoning and judgment, and generally of preparing oneself or others

intellectually for mature life. It is categorical variable and thus used as stated in 2013 NDHS dataset as no formal education, primary, secondary and higher.

- **Residence** is an establishment where it was originally or currently being used as a host as their main place of dwelling or home. It is also a categorical variable of two levels. It is stated as urban and rural in NDHS 2013 dataset and thus used same way.
- **Religion** is the belief in and worship of a superhuman controlling power, especially a personal God or gods. It is a categorical variable in NDHS 2013 dataset and stated thus; catholic, other Christians, traditionalist, others but will be used as: Christians, Islam, traditionalist and others
- **Occupation** refers to job, a person's role in society, often a regular activity performed for payment. It is categorized in 2013 NDHS dataset as not working, professional/technical/managerial, clerical, sales, agricultural-self-employed, agriculture-employee, household and domestic, services, skilled manual, unskilled manual but will be used thus; not working, professional/technical/managerial, clerical, agriculture, household and others
- **Age** is the length of time a person has lived or a thing has existed. It is a numeric variable and will be used as used in the NDHS 2013 dataset as 15-19, 20-24, 25-29, 30-34, 35-39, 40-44 and 45-49
- **Region** refers to an area or division, especially part of a country or the world having definable characteristics but not always fixed boundaries. It is stated as a categorical variable in NDHS 2013 dataset as North Central, North East, North West, South East, South South and South West.
- **Wealth status** refers to an indicator that is consistent with expenditure and income measures. It is a categorical variable with levels poorest, poorer,

- **Intervening variable:** women's participation in decision making, mother's age at first birth.

NAME OF VARIABLE	VARIABLE MEASUREMENT AND CODES	DATA RECORDED AND MANIPULATION
Dependent Variable: Antenatal care visit for the first child	M14_1 (Categorical)	No Yes
INDEPENDENT VARIABLE: Socio economic factors: • Age	V013 (categorical) 15-19, 20-24, 25-29, 30-34, 35-39, 40-44, and 45-49.	The same categories
• Wealth index	V190 (categorical) Poorest, Poorer, Middle, richer, richest.	Poor Middle Rich
• Place of	V025 (Categorical)	The same

residence	Urban Rural	categories
<ul style="list-style-type: none"> Occupation 	V717 (categorical) Not working, sales, professional/technical/managerial, agricultural, household and domestic service, manual, clerical	Not employed Employed
Demographic factors: <ul style="list-style-type: none"> Religion 	V130 (Categorical) Catholic, Other Christian, Islam, Tradition, Others	Muslim, Christian and Traditional
<ul style="list-style-type: none"> Ethnicity 	V131 (categorical) Fulani, Hausa, Ibibio, Igala, Igbo, Ijaw/izon, Kanuri/beriberi, Tiv, Yoruba, Others.	Three main ethnic group: Yoruba, Hausa, Igbo and other Minority ethnic groups
INTERVENING VARIABLE <ul style="list-style-type: none"> Decision on antenatal Care 	V743a (categorical) Wife alone Both Husband alone Others	The same category

<ul style="list-style-type: none"> • Age at Childbearing 	V212 (Categorical) Early Childbearing Middle Childbearing Late Childbearing	The same category
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CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND INTERPRETATION

4.0 INTRODUCTION

This chapter deals with presentation, analysis and interpretation of the data collected from secondary sources Nigeria Demographic and Health Survey (NDHS, 2013) to show the socio-demographic influence of antenatal care utilization among reproductive women in Nigeria. For the purpose of analysis, this study makes use of descriptive analysis and inferential analysis.

The descriptive analysis describes the relevant aspects of the phenomena under consideration and provides detailed information about these variables such as; socio-demographic characteristics and antenatal care utilization. However, in supportive of descriptive statistics, inferential analysis, Pearson Chi-square test was used to ascertain relationship while logistic regression analysis was used in testing the study hypothesis.

4.1 Distribution of Respondents by Socio-Demographic Characteristics by Weighted Percentage.

Background Characteristics	Frequency	Percent (%)
Age		
15-19	7,818	20.1
20-24	6,741	17.3
25-29	7,129	18.3
30-34	5,450	14.0
35-39	4,713	12.1
40-44	3,615	9.3
45-49	3,421	8.8
Total	38,886	100.0
Place of Resident		
Urban	16,386	42.1
Rural	22,500	57.9

Total	38,886	100.0
Level of Education		
No formal education	14,709	37.8
Primary	6,723	17.3
Secondary	13,908	35.8
Higher	3,547	9.1
Total	38,886	100.0
Ethnicity		
Yoruba	5,472	14.1
Hausa	13,251	34.1
Igbo	5,624	14.5
Others	14,538.93	37.4
Total	38,886	100.0
Region		
North-Central	5,555	14.3
North-East	5,761	14.8
North-West	11,868	30.5
South-East	4,467	11.5
South-South	4,935	12.7
South-West	6,301	16.2
Total	38,886	100.0
Religion		
Christian	18,202	47.0
Islam	20,123	52.0
Traditional	369	1.0
Total	38,694	100.0
Wealth Index		
Poor	14,537	37.4
Middle	7,476	19.2
Rich	16,873	43.4
Total	38,886	100.0
Occupation		
Not employed	14,238	36.8
Employed	24,474	63.2
Total	38,712	100.0
Decision on Health Care		
Wife Alone	1,719	6.2
Joint Decision	9,061	32.6
Husband Alone	16,909	60.9
Others	78	0.3
Total	27,768	100.0
Age at Birth		
Early Childbearing	16,369	59.4
Middle Childbearing	11,115	40.3
Late childbearing	79	0.3
Total	27,562	100.0
Antenatal care visit		
No	6,652	33.9
Yes	12,967	66.1
Total	19,619	100.0

4.1 Distribution of Respondents by Socio-Demographic Characteristics by Weighted Percentage.

Results in Table 4.1 above showed women age 15-19 years had the higher percentage by 20.1%, this follows 25-29 by 18.3%, age 20-24 years by 17.3%, also age 30-34 years had 14%, and the least were age group 35-39 years had 12.1%, follow by 40-44 years by 9.3% and age 45-49 years by 8.8%. Women reported to lived more in rural area by 57.9% than those living in urban area by 42.1%. Also, women reported to have no formal education by 37.8%, these were followed by women with secondary by 35.8%, primary education 17.3% and the least were those with higher education by 9.1%. Women reported in the survey, Hausa reported by 34%, Igbo by 14.5%, Yoruba by 14.1% and other ethnics by 37.4%. Furthermore, North-Central reported by 14.3%, North-East by 14.8%, North-West by 30.5%, South-East by 11.5%, South-South by 12.7% and South-West reported by 16.2%. More than half of women reported were Muslim reported by 52% and those reported to be practicing Christianity and traditional religion were 47% and 1% respectively.

In addition women reported to be rich and in the middle wealth status reported by 43.4% and 19.2% than those that were reported to be poor by 37.4%. Women reported more to be employed by 63.2% than those that were not employed by 36.8%. According to the respondents' decision on health care, wife alone reported by 6.2%, joint decision by 32.6%, husband alone by 60.9% and others decision reported by 0.3%. Women age at given birth was reported to be early childbearing by 59.4%, middle childbearing by 40.3% and those reported to be late childbearing by 0.3%. Finally, for the antenatal care visit, those women that visited antenatal care reported by 66.1% while not visited antenatal care reported by 33.9%.

4.2.: Distribution of Respondents by Socio-Demographic Characteristics and Antenatal care utilization

Background Characteristics	Antenatal care visit		Significant Test
	No	Yes	
Age			
15-19	8.8	5.3	$\chi^2 = 155.01$ Pr = 0.0000
20-24	21.0	19.0	
25-29	25.2	26.9	
30-34	18.4	21.9	
35-39	13.9	16.1	
40-44	8.6	7.9	
45-49	3.9	2.9	
Place of Resident			
Urban	11.3	47.9	$\chi^2 = 2622.47$ Pr = 0.0000
Rural	88.7	52.1	
Level of Education			
No education	81.2	30.8	$\chi^2 = 4775.98$ Pr = 0.0000
Primary	11.8	23.0	
Secondary	6.8	36.9	
Higher	0.3	9.3	
Ethnicity			
Yoruba	0.9	18.2	$\chi^2 = 821.46$ Pr = 0.0000
Hausa	68.2	28.9	
Igbo	1.5	15.5	
Others	29.5	37.4	
Region			
North-Central	10.9	15.9	$\chi^2 = 3389.41$ Pr = 0.0000
North-East	20.2	15.1	
North-West	59.3	24.9	
South-East	1.2	12.1	
South-South	6.0	10.9	
South-West	2.5	20.9	
Religion			
Christian	15.78	48.7	$\chi^2 = 2073.21$ Pr = 0.0000
Islam	82.6	50.6	
Traditional	1.6	0.7	
Wealth Index			
Poor	78.4	28.4	$\chi^2 = 4871.28$ Pr = 0.0000
Middle	14.3	21.8	
Rich	7.3	49.8	
Occupation			

Not employed	39.2	24.8	$\chi^2=443.08$ Pr = 0.0000
Employed	60.8	75.2	
Decision on antenatal Care			
Wife Alone	2.0	7.1	$\chi^2=1196.04$ Pr = 0.0000
Both	17.7	37.9	
Husband Alone	80.1	54.8	
Others	0.2	0.2	
Age at Birth			
Early Childbearing	70.5	.5146	$\chi^2=986.52$ Pr = 0.0000
Middle Childbearing	25.0	.4819	
Late childbearing	4.5	.0035	

4.2.: Distribution of Respondents by Socio-Demographic Characteristics and Health Care Utilization.

There is significant association between socio-demographic characteristics and antenatal care utilization ($P < 0.05$). There is strong significant association between age of women and antenatal care utilization ($\chi^2 = 155.01$, $P = 0.0000$) whereby women age 25-29 years utilize antenatal care by 25.2%, 30-34 years by 18.4%, 20-24 years by 21%, 35-39 years by 16.1%, 40-44 years by 7.9%, 15-19 years by 8.8% and age 45-49 years by 2.9% compare to those that did not utilize antenatal care. Also, there is strong significant association between place of resident of women and antenatal care utilization ($\chi^2 = 2622.47$, $P = 0.0000$) and women in urban area showed to utilize antenatal care more by 47.9% than those in rural area by 52.1% compare to those that did not utilize antenatal care. There is strong significant association between women level of education and antenatal care utilization ($\chi^2 = 4775.98$, $P = 0.0000$), women with secondary education reported to utilize antenatal care by 6.8%, those with no formal education reported by 81.2%, those with primary education by 11.8% and lastly were those with higher education by 0.3% compare to those that did not utilize antenatal care.

More so, result showed that there is strong significant association between ethnicity and antenatal care utilization ($\chi^2 = 821.46$, $P = 0.0000$), Hausa that utilize antenatal care reported by 68.2%, Yoruba by 0.9%, Igbo by 1.5% and other joint ethnic groups reported to utilize antenatal

care 29.5% compare to those that did not utilize antenatal care. There is strong significant association between region and antenatal care utilization ($\chi^2=3389.41$, $P=0.0000$) Northern region (North-West were 59.3%, North-East were 20.2%, North-Central were 10.9%) utilize antenatal care more than those in the Southern region (South-West were 2.5%, South-South were 1.6%, South-East were 1.2%) compare to those that did not utilize antenatal care.

There is strong significant association between religion and antenatal care utilization ($\chi^2=2073.21$, $P = 0.0000$), women who were Christian utilize antenatal care reported by 15.78%, Muslim women by 82.6% and least were those practicing traditional religion reported by 1.6% compare to those that did not utilize antenatal care. There is strong significant association between wealth index and antenatal care ($\chi^2=4871.28$, $P = 0.0000$), women that were rich utilize antenatal care reported by 7.3%, those are poor by 78.4% and women within the middle wealth index by 14.3% compare to those that did not utilize antenatal care. There is no strong significant association between occupation and antenatal care utilization ($\chi^2=443.08$, $P = 0.0000$), employed women utilized antenatal care by 60.8% and those that were not employed reported by 39.2% compare to those that did not utilize antenatal care .

There is strong significant association between decision on antenatal care and antenatal care utilization ($\chi^2=1196.04$, $P = 0.0000$), husband alone made decision on women antenatal care utilization by 80.1%, both made joint decision on women antenatal care by 17.7%, wife alone made decision alone on their antenatal care utilization by 2.0% and those that reported that others made decision on their antenatal care were 0.2% compare to those that did not utilize antenatal care. There is strong significant association between age at given birth and antenatal care utilization ($\chi^2=986.52$, $P = 0.0000$), women reported to give birth by middle child age by 25.0%, early childbearing by 70.5% and those that give birth at late childbearing age were 4.5% compare to those that did not utilize antenatal care.

.Table 4.3: Odds Ratio Based on Binary Logistic Regression Analysis of Socio-Demographic Characteristics and Antenatal Care Utilization.

Characteristics	Model 1		Model 2	
	Odd Ratio	(95% conf.interval)	Odd Ratio	(95%conf.interval)
Decision on Health Care				
Wife Alone (RC)			1.00	
Both			0.98	0.73-1.32
Husband Alone			1.04	0.76-1.40
Others			0.78	0.26-2.39
Age at Birth				
Early Childbearing (RC)			1.00	
Middle Childbearing			1.14**	1.01-1.28
Late childbearing			1.91	0.58-6.30
Age				
15-19 (RC)	1.00		1.00	
20-24	0.98	0.82-1.17	0.97	0.79-1.18
25-29	0.97	0.81-1.17	0.93	0.76-1.13
30-34	0.99	0.82-1.19	0.95	0.78-1.16
35-39	1.03	0.84-1.26	0.98	0.79-1.22
40-44	0.95	0.75-1.19	0.88	0.69-1.13
45-49	1.01	0.77-1.31)	0.93	0.70-1.24
Place of Resident				
Urban	1.00		1.00	
Rural	0.65***	0.51-0.83	0.65**	0.51-0.84
Level of Education				
No education (RC)	1.00		1.00	
Primary	2.56***	(2.20-2.99	2.64***	2.25-3.09
Secondary	4.16***	3.45-5.01	4.06***	3.33-4.94
Higher	13.36***	7.75-23.02	15.36***	8.39-28.12
Ethnicity				
Yoruba (RC)	1.00		1.00	
Hausa	0.29***	0.16-0.53	0.27***	0.15-0.50
Igbo	0.94	0.50-1.78	0.95	0.50-1.79
Others	0.36***	0.21-0.62	0.33***	0.19-0.58
Region				
North-Central (RC)	1.00		1.00	
North-East	1.26	0.90-1.75	1.23	0.87-1.72

North-West	0.72	0.50-1.05	0.70	0.48-1.02
South-East	1.17	0.70-1.97	1.11	0.66-1.86
South-South	0.42***	0.29-0.59	0.38***	0.26-0.53
South-West	1.43	0.78-2.61	1.35	0.73-2.52
Religion				
Christian (RC)	1.00		1.00	
Islam	0.99	0.75-1.33	0.97	(0.72-1.31
Traditional	0.44***	0.28-0.69	0.45**	0.28-0.70
Wealth Index				
Poor (RC)	1.00		1.00	
Middle	2.47***	2.09-2.91	2.50***	2.11-2.97
Rich	4.68***	3.71-5.92	4.69***	3.67-5.99
Occupation				
Not employed (RC)	1.00		1.00	1.00
Employed	1.47***	1.30-1.66	1.49***	1.32-1.70

RC means the reference categories *P<0.05 **p<0.01 *p<0.001**

4.3: Odds Ratio Based on Binary Logistic Regression Analysis of Socio-Demographic Characteristics and Antenatal Care Utilization.

Table 4.3 above showed the result of logistic regression of the effect of socio-demographic factors on antenatal care utilization. Result from Model 1, reveals that rural women were 65 percent significantly less likely to utilize antenatal care than women who lived in urban RC (OR=0.65, P<0.001). Taking no formal education as the reference category, Women with secondary education were four times more likely to utilize antenatal health care than women with no formal education (RC). Women with higher education were 13 times more likely to utilize antenatal health care than women with no formal education (RC). Women with primary education were two and half times more likely than women with no formal education. Hausa women were significantly 29 percent less likely and others ethnic group were 36% significantly to utilize antenatal health care compare to Yoruba women (RC). Women in north-east were 1.32

times more likely to utilize health care than women in north-central (RC). Women in South-South were significantly 42% less likely to utilize health care than women in north-central (RC).

The traditional women were significantly 44 percent less likely to utilize antenatal health compare to Christian women RC (OR=0.44, P<0.001). Women in the middle wealth status were 2.47 times more likely to utilize antenatal care to women in the poor wealth index (RC). Women that were rich were 4.68 times more likely to utilize antenatal care to women in the poor wealth index (RC). Employed women were 47 percent more likely to utilize antenatal care than women who are not employed (RC).

Result from Model 2, reveals that Women that give birth at the middle childbearing ages were 14% more likely to utilize antenatal care to those who give birth at the early childbearing age (RC). Also women in rural area were significantly 65 percent less likely to utilize antenatal care to women in the urban area (RC).

The result showed that women with primary education were 2.56 times more likely to utilize antenatal care than women with no formal education (RC). Women with secondary education were significantly 4.16 times more likely to utilize health care than women with no formal education (RC). Women with higher education were significantly 13.36 times more likely to utilize health care than women with no formal education (RC).

Hausa women were significantly 27 percent less likely to utilize antenatal care compare to Yoruba women (RC). Women in South-South were significantly 42% less likely to utilize antenatal care to women in North-Central (RC).

Women in the middle wealth status were 2.50 times more likely to utilize antenatal care to women in the poor wealth index (RC). Women that were rich were 4.69 times more likely to

utilize antenatal care to women in the poor wealth index (RC). Employed women were 49 percent more likely to utilize antenatal care than women who were not employed (RC).

4.4 HYPOTHESIS TESTING

H₀: There is no significant relationship between socio demographic characteristics and antenatal care utilization.

H₁: There is significant relationship between socio demographic characteristics and antenatal care utilization.

Decision

From the binary logistic regression, the relationship between socio demographic characteristics and antenatal care utilization is statistically significant in ($P < 0.05$), from this, we can conclude that there is a significant relationship between socio-demographic characteristics (age of women, place of resident, level of education, ethnicity, region, religion, wealth index, occupation) and antenatal care utilization. Likewise there is a significant relationship between intervening variable (age at birth of women, decision on antenatal care utilization) on antenatal care utilization. Therefore we fail to accept the null hypothesis.

4.5 DISCUSSION OF FINDINGS

The decision rule had showed that there was statistical significant relationship between socio-demographic characteristics (age of women, place of resident, level of education, ethnicity, region, religion, wealth index, occupation) and antenatal care utilization at p value less than 0.05 level of significant.

The level of education is a significant predictor to utilization of antenatal care services. This is in line with (Wong 2004) that the higher the educational level and experience, the more likely the utilization of antenatal care. In other words, educated women are more likely to use antenatal care services than women with no formal education (Addai, 2000; Mekonnen and Asnaketch, 2002).

Age of the mother also has a significant negative association on utilization of maternal health care services. Studies have shown that younger mothers are more likely to deliver in health facilities than their older counterparts (Kebebe, 2012).

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECCOMENDATIONS

5.0 INTRODUCTION

This chapter is devoted to the presentation of the summary of findings, conclusion and recommendations drawn from the analysis of the research study. The overall objective of this study is to explore the influence of socio demographic characteristics and antenatal care utilization among women in Nigeria. The study was based on the sample size of 38,886 women of reproductive ages in the study area.

5.1 SUMMARY OF THE FINDINGS

With respect to socio-demographic characteristics of women who utilizes antenatal care to those who did not utilize health care center. Women age 15-19 years had the higher percentages by (20.1%), this follows 25-29 by (18.3%), age 20-24years by (17.3%), also age 30-34years had (14.0%), the least age group 35-39 years had (12.1%), follow by 40-44 years by (9.3%) and age 45-49 years by 8.8%. Women reported to lived more in rural area (57.9%) than those living in urban area (42.1%). Also, women reported to have no formal education by (37.8%), these were followed by women with secondary by (35.8%), primary education (17.3%) and the least were those with higher education by (9.1%). Women reported in the survey were mostly Hausa (34.1%), Igbo (14.5%), Yoruba (14.1%) and other ethnics (37.4%). Furthermore,

more than-half of women reported were from the northern region by (59.6%) than those reported from the southern region by (40.4%). Closely half of women reported were Muslim by (52.0%) and those reported to be practicing Christianity and traditional religion were (47.2%) and (1%) respectively.

In addition women reported to be rich and in the middle wealth status reported by (43.4%) and (19.2%) than those that were reported to be poor by (37.4%). Women reported more to be employed by (63.2%) than those that were not employed by (36.8%) Women reported they visit antenatal by 33.9% and those reported no were 66.1%. More so, women reported that mostly that husband alone made decision on health care by 60.9%, both made joint decision by 32.6%, wife alone by 6.2%, and others made decision on health care by 0.3%. Women age at given birth was reported to be early childbearing by 59.4%, middle childbearing by 40.3% and those reported to be late childbearing by 0.3%.

Furthermore, there is a significant association between the following socio- demographic characteristics (age of women, place of resident, level of education, ethnicity, region, religion, wealth index, occupation, age at birth of women, decision on antenatal care utilization) and antenatal care utilization p-value less-than 0.05.

In the multivariate analysis result showed the relationship of socio-demographic characteristics on antenatal care utilization. From model 1, Result from Model 1, women age 20-24 years were 0.98 times less likely to utilized antenatal care than women in age 15-19 years (RC). Women ages 25-29 years were 0.97 times less likely to utilize antenatal care than women in age 15-19 years (RC). Women ages 30-34 years were 0.99 times less likely to utilize antenatal care than women in age 15-19 years (RC). Women ages 35-39 years were 1.03 times more likely to utilize antenatal care than women in age 15-19 years (RC). Women ages 40-44 years were 0.95 times less likely to utilize antenatal care than women in age 15-19 years (RC). Women ages

45-49 years were 1.01 times more likely to utilize antenatal care than women in age 15-19 years (RC). Also women in rural area were 35 percent less likely to utilize health care to women in the urban area (RC).

More so, it was reported that women with primary education were 77 percent more likely to utilize health care than women with no formal education (RC). Women with secondary education were 76 percent more likely to utilize health care than women with no formal education (RC). Women with higher education were 74 percent more likely to utilize health care than women with no formal education (RC). Hausa women were 26 percent less likely to utilize antenatal care to Yoruba women (RC). Women in north-east were 1.32 times more likely to utilize antenatal care than women in north-central (RC). Women in north-west were 1.80 times more likely to utilize antenatal care than women in north-central (RC). Women in south-east were 0.71 times less likely to utilize antenatal care to women in north-central (RC). Women in south-south were 0.72 times less likely to utilize antenatal care to women in north-central (RC). The Muslim women were 20 percent less likely to utilize antenatal care to Christian women (RC). The traditional women were 59 percent less likely to utilize antenatal care to Christian women (RC). Women in the middle wealth status were 1.72 times more likely to utilize antenatal care to women in the poor wealth index (RC). Women that are rich were 1.90 times more likely to utilize health care to women in the poor wealth index (RC). Employed women were 52 percent more likely to utilize antenatal care than women who are not employed (RC).

5.2 CONCLUSION

Without any doubt that there is significant influences of socio-demographic characteristics of women age 15-49 years on antenatal care utilization, p-value less than 0.05, (Eyerusalem-Dagne, 2010). Thus this study conclude that base on the facts from the result that some factors such age of women, place of resident, level of education, ethnicity, region, religion,

wealth index, occupation, age at birth of women, decision on antenatal care utilization influenced antenatal care utilization where p-value less than five percent level of significant.

5.3 RECOMMENDATION

The findings suggest that there should be more attention on antenatal care utilization of women considering these socio-demographic factors associated with antenatal care utilization such as age of women, place of resident, level of education, ethnicity, region, religion, wealth index, occupation, age at birth of women, decision on health care utilization. The increase in antenatal care utilization among women will reduce maternal death during and after birth and also improve the health status of children and mothers.

Based on the findings from the study, I would recommend that:

1. Different partners in partnership with the Government to address the issue of unemployment among women, to improve their economic status, hence for them to be able to take care of themselves as well as their children.
2. To conduct a qualitative study in the community especially rural settings in or them to have an in depth discussion with regard to antenatal care utilization and in order to compliment the findings from this study.
3. Government should address the issue of health care by investing in proper education and women empowerment
4. Health care providers should provide information, education; communication programs and improvements in counseling that are needed to have knowledge on antenatal care utilization.

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