

**DETERMINANTS OF PREGNANCY OUTCOMES AMONG
WOMEN IN NIGERIAN RURAL AREAS**

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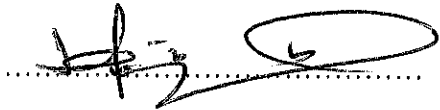
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CERTIFICATON

This is to certify that UDEZE, Joshua Chinwendu of the Department of Demography and Social Statistics, Faculty of Social Sciences carried out a research on the topic "Determinants of Pregnancy Outcomes among women in Nigerian Rural Areas" in partial fulfillment of the award of Bachelor of Science (B.Sc.) in Demography and Social Statistics, Federal University Oye-Ekiti, Nigeria under my supervision:

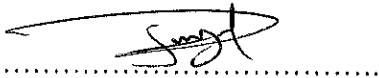


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DEDICATION

I dedicate this work to God Almighty who gave me the strength to persevere till its eventual accomplishment.

ACKNOWLEDGEMENT

I glorify God Almighty for His infinite mercies, divine and extravagant protection, enablement, and guidance towards the completion of this work.

I express special gratitude to Dr. Olugbemiga Adeyemi and Miss Christiana Alex-Ojei who supervised this project.

I am sincerely grateful to my parents and siblings, for their prayers and support in the course of this academic pursuit.

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ABSTRACT

Pregnancy outcome is a strong indicator of maternal vulnerability. ICPD (1994) stated that every childbirth and delivery should be healthy. The study examined the determinants of pregnancy outcome among rural women in Nigeria. Pregnancy outcomes considered include live birth (low weight babies) and terminated pregnancy (miscarriage/stillbirth). The quantitative cross-sectional study analyzed the 2013 national demographic and health survey (NDHS) data and surveyed 77,486 rural women to access the determinants of pregnancy outcomes. A qualitative descriptive study (in-depth interview) was also employed with three women interviewed to complement the quantitative study. The study shows that while maternal healthcare facilities are available in the study area, they are poorly utilized. Some socio-demographic factors that reveal association with pregnancy outcomes are maternal age, maternal parity, maternal education, religion, occupation, place of delivery, birth interval, and malaria prevention/cure during pregnancy ($P < 0.05$). The binary logistic regression result indicated that among other factors that influence pregnancy outcomes, delivery assistance ($P < 0.05$), maternal age ($P < 0.01$), and economic status ($P < 0.05$) strongly predict pregnancy outcome after controlling for covariates. The qualitative result reveals that maternal nutritional intake and some cultural practices during pregnancy also influence pregnancy outcomes. The study results provide reasons to reject the null hypothesis. The study suggests that rural women should be enlightened to deprecate obnoxious cultural practices which directly or indirectly hamper pregnancy outcomes, and embrace healthy practices that grounds favorable pregnancy outcomes.

Keywords: Nigeria, pregnancy, low birth weight, terminated pregnancy, maternal nutrition, cultural practices.

CHAPTER ONE

INTRODUCTION

1.0 Background to the Study

Globally 287,000 women die from complications in pregnancy and childbirth annually. This contributes as a main source of morbidity and mortality among women of conceptive ages in low-income nations. A high percentage of these deaths (56%) are recorded in sub-Saharan Africa. Many of these low-income nations are bogged down by high rates of maternal mortality and high fertility, both of which are positive significant in the examination of high infant mortality and gender inequality. The World Bank has expended about US\$ 2 billion within the last five years for regenerative wellbeing and for expanding the quantity of health facilities available to poor women. These facilities provide access to lifesaving antenatal and postnatal care, safe births, and family planning services. As of February 2014, the World Bank likewise has submitted US\$ 429.42 million out of the US\$600 million in results-based financing for wellbeing promised at the 2010 Millennium Development Goals (MDGs) Summit to quicken progress toward MDGs 4 and 5 for maternal and child wellbeing (World Bank, 2015).

Agencies like the World Health Organization (WHO), United Nations Children's Emergency Fund (UNICEF), United Nations Population Fund (UNFPA) and the World Bank have identified that the population female deaths from pregnancy and labour-related complications has multiplied within 1990 and 2015. This is further exacerbated by the absence of skilled birth-delivery attendants, lack of access to good antenatal care, and maternal postnatal support, all of which affect pregnancy outcomes, maternal and neonatal health (UNICEF, 2012). A significant number of pregnancies also result in preventable still births or are followed by neonatal deaths. Key mediations, for example, syphilis treatment in pregnancy, fetal heart rate observing and work

observation can possibly spare around 1.5 million lives. Stillbirths unfortunately remain a disregarded issue, undetectable in approaches and programs, underfinanced and in critical need of consideration. It is also absent from the Millennium Development Goals and in the Sustainable Development Goals, (WHO, 2012).

In 2015, for each 1000 aggregate births worldwide, 18.4 were stillborn. This occurred mostly in low and middle income nations. Stemming the tide of this unfortunate issue has been slow and bridging the gap of what occurs on the African continent and what is available in the industrialized world may take a long time. Indeed, even in high-income nations rates fluctuate from 1.3 to 8 for each 1000 births, a variety that shows further progress and improvements are still needed. In 2010, an aggregate of 135 million infants were born, of which an expected 3.1 million died within the first 28 days of their lives (UNICEF, 2012). The situation is even more shocking when one observes that more than 1 million pregnancies end as stillbirths. Regardless of this, a broad difference exists between the developing and the developed countries, with 99% of the evaluated neonatal deaths in 2010 from developing nations (WHO et al., 2010). An explanation for this gulf lies in the absence of an efficient secret investigation into every case, as is done in developed nations (Lawn, Causens, and Zupan, 2006).

According to UNICEF (2015), the three fundamental drives of infant mortality are immediate preterm complications (36% of neonatal deaths around the world), severe infection (23%), and intrapartum-related complications (23%). More than 1800 newborns die every day because of complications of childbirth, in addition to numerous more stillbirths. The time between a potentially calamitous occasion during labour and death can be short, making the first minute a crucial time for the 10% of infants who do not breathe immediately during childbirth (UNICEF, 2015). Despite that children born before 28-week gestation are liable to require serious medical

attention, these cases sum up to just 5% of total preterm births globally. More than 80% of premature children are born as moderate to late preterm births and most of these do not need intensive care in order to survive.

Absence of access to social insurance is a noteworthy contributor to poor pregnancy results and maternal mortality. The World Bank estimates that 42% of pregnant Nigerian women get no antenatal care while 61 percent of deliveries are undertaken with no skilled attendant present (World Bank, 2016). This figure suggests that a woman's possibility of death from pregnancy and childbirth in Nigeria is 1 in 13. It is obvious that the health system in Nigeria has failed the women and children, particularly as a significant number of these deaths are preventable. Presently, less than 20 per cent of health facilities offer emergency obstetric care and only 35 per cent of deliveries are attended by skilled birth attendants (UNICEF, 2015).

The utilization of maternal health services and pregnancy outcome is not uniform across the six geopolitical zones of Nigeria. The Northeastern and western parts of the nation have the most reduced rates because of contrasts in the accessibility and dissemination of health resources (Health Reform Foundation of Nigeria, 2007). The distribution of health facilities and availability of skilled health workers have implications on the use of maternal health services and pregnancy outcomes. Further, in spite of the reasonable conveyance of health facilities, some states in the Northern locale of Nigeria have lower utilization of maternal health administrations than different parts of the nation. For instance, in Sokoto State, less than half of pregnant women had gone to four antenatal center sessions and more than 60% of all deliveries happened at home and were attended by incompetent persons (National Population Commission & ICF Macro, 2013). The national average of 40/1,000 live births is far below what was accounted for in different studies. For example, a study in Jigawa State, North Western Nigeria, has found a maternal mortality

proportion of 46/1,000 live births. This suggests a probability of under reporting and high extent of home deliveries because vital events in Nigeria were reported to be incomplete (W.H.O., 2013; Guerrier et al., 2013; Mselle et al., 2013; Owais et al., 2013).

1.1 Statement of Research Problem

Although governmental and non-governmental organizations have made concerted effort at enhancing the health condition and pregnancy outcome of rural women, maternal and newborn death from pregnancy complications is still high. Evidences abound that socio-cultural and economic factors are among the contributing factors to the endemic maternal and infant mortality among rural women in Nigeria. Rural inhabitants have low economic statuses which have further worsened their level of poverty. In term of economic activities, rural dwellers are mostly found in the low-paying informal sector, particularly, in the areas of non-farming activities such as fishing, and others (Ajiboye and Adebayo, 2012). The setting as described plays an associative role with the low support or powerlessness to use the accessible present-day regenerative health facilities. In addition to the poor economic status, the culture of the people is another strong factor found to influence pregnancy result among rural women (Nwokocha, 2008.)

In spite of social change, modernization, and quickened progression in medical technology, most rural inhabitants still firmly hold to some outdated cultural practice as it relates with pregnancy. Also, maternal situation in rural societies is exasperated by patriarchy which gives men power and control over women in virtually all areas of family life (Nwokocha, 2008). The marginalization of women from some sympathetic family matters, for example, family planning, family size and access and utilization of maternal health facilities, is generally appended to cultural belief and qualities outlined and managed by men so as to keep up their control and subjugation of women (Isiugo and Abanihe, 2007). In summary, the belief in a number of the traditional system

and cultural practices reliably represent the low support of present day antenatal care and generally influences people groups' practice and attitude towards the utilization of advanced medication. Rural women still patronize traditional birth attendants. Evidences and researches consistently show that maternal conditions in Nigeria are inclined to crises as a consequence of different socio-cultural and economic factors. For instance, male-control, low status of women, poverty, cultural beliefs and practices, and high fertility joined to influence pregnancy outcome in many societies in the continent, especially in rural communities of Nigeria (Ajiboye and Adebayo, 2012).

As indicated by a 2013 NDHS report, 46% of mothers younger than age 20 did not get antenatal consideration. More so, urban women will probably get antenatal care from a health specialist than their rural counterparts (86% and 47% respectively). The study reveals a considerable significance of female education to health and pregnancy outcome. 97% of women with more than a secondary education got antenatal consideration from a skilled provider, as against 36% of mothers with no education. It is for absence of education and its result – lack of awareness among different factors – that frequently make women passively accept the conditions of life that are meted to them in the name of culture and tradition. Njikam (2009) presumed that the low level of education together with the way that more than 60% of the populace are rural-based in Nigeria that cultural norms and practices still apply a solid impact on regenerative human services particularly in connection to pregnancy, delivery and pregnancy outcome. Poverty is frequently distinguished as a noteworthy hindrance to human development. It is additionally an intense brake on quickened progress toward the Millennium Development Goals. Poverty is additionally a noteworthy reason for maternal mortality, as it keeps numerous women from getting legitimate and satisfactory therapeutic consideration because of their inability to bear the cost of good antenatal care. Most rural dwellers are ignorant people and have virtually no information

about the accessibility and pertinence of antenatal care services and its subsequent impacts on their pregnancy outcome. World health organization (WHO) prescribes no less than four antenatal visits before delivery. A couple of the pregnant rural women who know about antenatal care services underestimate it, some go for antenatal care visits not exactly suggested sums.

Most rural communities in Nigeria are lacking of sufficient government consideration regarding health frameworks, health experts and finance. Pregnancy outcomes in rural areas of Nigeria are exceptionally poor with its orderly maternal and child mortality. Obstructed labour, deficient or complete absence of emergency obstetric services, insufficient or absolute absence of antenatal and postnatal services, among others are factors that precipitate poor pregnancy outcomes among rural areas in Nigeria (Seyfriedet al, 2011).

1.2 Research Questions

The main research question is: What are the factors that influence pregnancy outcomes among rural women in Nigeria? The specific research questions are:

1. What is the proportion of women with positive pregnancy outcomes?
2. What is the relationship between the socio-demographic characteristics of rural women and pregnancy outcomes?
3. What is the influence of healthcare services on pregnancy outcome among women in rural areas?

1.3 Research Objectives

The general objective of the study is to examine the factors that influence pregnancy outcomes among rural women in Nigeria. Its specific objectives are:

1. to investigate the proportion of women with positive pregnancy outcomes;

2. to examine the relationship between the socio-demographic characteristics of women and pregnancy outcomes; and,
3. To examine the influence of access to healthcare on pregnancy outcomes among women in rural areas.

1.4 Justification of the Study

In spite of several advancements recorded in the field of medicine and surgery, the state of maternal health and pregnancy outcome is not attractive particularly in rural areas in developing countries like Nigeria. The study identified the factors that determine pregnancy outcomes among rural women in Nigeria. Ignorance and negligence perpetrate cruel health results on pregnant mothers in rural communities and that of their babies which frequently bring about premature birth, stillbirth, low-weight babies, miscarriage, abortion, and sometimes maternal death. This study educates rural women on the health benefit of honing safe parenthood for their own particular health and that of their infants. The study will achieve social change through identifying productive intervention that may enhance the entrance and utilization of maternal health benefits that at last achieve positive pregnancy outcome. The guidelines could be utilized as a part of medicinal service offices to sensitize pregnant women how to practice safe motherhood for positive pregnancy results. Health policymakers and implementers are liable to profit from the study by having understanding into the factors that meddle with maternal health care in rural areas and how it sways on pregnancy results. Such information from heterogeneous setting can possibly direct public health stakeholders on the best way to enhance the access and use of services that will have positive social change to decrease the high maternal and neonatal death rates. The study will enhance maternal conditions and positive pregnancy outcomes.

1.5 Definition of Terms

Live birth (full term or preterm): In human reproduction, a live birth happens when a fetus, whatever its gestational age, exits the maternal body and subsequently show any sign of life, such as voluntary movement, heartbeat, or pulsation of the umbilical cord, for however brief a time and regardless of whether the umbilical cord or placenta are intact (WHO,1950).

Maternal Death: The death of any woman while pregnant or within 42 days of termination of pregnancy, from any cause related to or aggravated by pregnancy or its management, irrespective of the duration and site of the pregnancy, but not from accidental or incidental causes (WHO et al., 2010).

Parity: Number of life births a woman had as at the time of survey (UNICEF, 2012).

Stillbirth: a baby born dead at 28 weeks of gestation or more, with a birth weight of ≥ 1000 g, or a body length of ≥ 35 cm (WHO, 2012).

Miscarriage: A miscarriage is the loss of a baby before 24 weeks of pregnancy. If the loss is experienced in the first 12 weeks of pregnancy, it is called an early miscarriage. If the loss happens between 12 weeks and 24 weeks, it is called a late miscarriage.

Low birth weight: a **birth weight** of a live born infant of less than 2,500 g (5 pounds 8 ounces) regardless of gestational age (UNICEF, 2012).

Preterm birth: Prematurity refers to babies born before 37 weeks of gestation, and is among the causes of LBW among newborns, rendering these newborns at higher risk of complications and death (UNICEF, 2015).

Trimester: a period of three months, especially one of the three-month periods into which human pregnancy is divided for medical purposes.

Fetopelvic disproportion (FPD): refers to the inability of the fetal head to pass through the maternal pelvis; it occurs in 1% to 3% of all primigravidas. The size differential can be related to pelvic capacity or fetal factors.

Multiparous: producing many offspring at one birth.

Multigravida: a woman who has had at least one previous pregnancy.

Primigravida: a woman who is pregnant for the first time.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

Pregnancy outcome is the final result of fertilization event. Pregnancy outcomes considered in this study include live birth (low weight babies) and terminated pregnancy (miscarriage/stillbirth). This chapter discusses the factors affecting pregnancy outcomes. It further reviews existing literature on relevant disciplines as well as provide the conceptual framework and statement of hypothesis.

2.2 Factors Affecting Pregnancy Outcomes

2.2.1 Maternal Age

Extreme maternal ages (differently defined, however for the most part including women less than age 15 and over age 35 years at delivery) is associated with a high danger of adverse pregnancy results when compared with young (post-adolescent) women (WHO et al., 2010). Extreme maternal age is perceived as a potential risk component for poor pregnancy result. Maternal age below 15 years or above 35 years is associated with larger amount of low birth weight, prematurity, perinatal and neonatal mortality and even maternal deaths particularly in developing countries where human services benefits particularly in rural settings are poor and level of poverty high. An Ilorin study found that anaemia, toxemia of pregnancy and low birth weight were rampant among young mothers than other categories of women. In addition, hypertension was rampant among grown-ups than youths. Older maternal age, higher pre-pregnancy BMI (Body Mass Index), expanded weight gain during pregnancy, and pre-delivery anaemia were all autonomous risk factors for caesarean section (Adedoyin and Adetoro, 2008).

The rise of women's liberation encouraged better educational opportunities and more extensive career choice for women, who now marry later than their forebears. These societal patterns, consolidated with the accessibility of effective birth control and sophisticated treatments for infertility, have brought about a growing populace of women who first attempt pregnancy after the age of 35. While some older mothers enjoy a healthy pregnancy and birth, they also run the risk of continuous negative health conditions. The older the maternal age, the more probable they are to have conditions such as diabetes, and hypertension. These conditions can influence how well pregnancy and birth goes, and in addition maternal wellbeing. Unfortunately, both miscarriage and ectopic pregnancy are more realized in aged women. The rate of miscarriage increases with age such that by the age of 45, a pregnant woman has around a one-in-two risk of miscarrying.

In Nigeria, teenage marriage is generally practiced across religious and ethnic groups. Despite the fact that the rate of women who are under 20 years is not known in Nigeria, the median age (for females) at first marriage was put at 17.8 years (National Population Commission and ICF Macro, 2009) with MMR of 630 for every 100,00 live births in 2010 (WHO, 2013a). Studies in the northern and southern parts of Nigeria have shown that women between the ages of 15-19 years represented about a quarter of maternal deaths (Adetoro, Okwerekwu, and Ogunbode, 1988; Harrison, 1989; Agboghorama and Emuveyan, 1997; Olatunji and Abudu, 1996). Further, the utilization of antenatal and conveyance administrations was most minimal among adolescents contrasted with older pregnant women (Babalola and Fatusi, 2009) because of constrained inclusion in basic decision making and absence of freedom of movement as was accounted for in Nigeria (Adamu and Salihu, 2002), Nepal (Acharya et al., 2010) and Tanzania (Magoma et al., 2010). Older women who are > 35 years are at a higher risk of maternal death. This is a result of

the high rates of complications connected with pregnancies in this age category. Studies have demonstrated that the obstetric performance of women 35 years or more are poor compared with ladies under 35 years (Evjen-Olsen et al., 2008; Fawole, 1996; Golan, Sandbank, and Rubin, 1980; Ojengbede, 1989; Ory and Van Poppel, 2013; Rochat, 1991).

2.2.2 Maternal Parity

High parity also portends danger to pregnancy results. Research and evidences have found that parity has been utilized as a danger marker with nulliparous and grand multiparous women classified at higher risk of pregnancy inconveniences. Nulliparous women are at a greater risk of pregnancy-induced hypertension and fetopelvic disproportion prompting operative delivery, while the grand multiparous risk hemorrhage, malpresentation, anaemia, uterine rupture and complications associated with chronic therapeutic issues such as diabetes and hypertension (Fawole et al., 2012, Kullima et al., 2009). The risk of maternal mortality increases with expanding parity. However, varieties exist within and between nations in Africa, South East Asia and the Americas. For instance, in Africa, Niger Republic has the most parity rate of 7, trailed by Somalia and Zambia 6.3; Mali 6.2; Uganda 6.1; and Nigeria at 5.5. Although, the Nigerian national fertility rate is put at 5.5 (WHO, 2015a), it is common to find women in the rural agrarian communities who have 8 or more children irrespective of religion, culture or ethnicity (National Population Commission and ICF Macro, 2009).

High parity (>4) and short interval between deliveries raises the risks of maternal deaths. Numerous cultures in the developing nations have misconceptions that childbirth gets to be less demanding with each progressive delivery. For instance, studies on in Lagos University Teaching Hospital Nigeria have demonstrated that, the danger of death after the fourth child is around two times higher than a woman who had less than four children and about five times higher in women

on their fifth or more pregnancies (Agboghorama and Emuveyan, 2007; Olatunji and Abudu, 2009). The risk of maternal mortality increases with expanding parity. Studies have demonstrated that complications that could prompt death amid pregnancy and delivery are usually seen with primigravida and grand multipara due low utilization of proper maternal healthcare services. In this way, high equality (>4) and close birth spacing between deliveries raises the risk of maternal mortality (Fawole et al., 2012, Kullima et al., 2009; Ozumba and Nwogu, 2008). Studies have demonstrated that the risk of death after the fourth birth is around two times higher than a woman who had less than four children and around five times higher in women on their fifth or more pregnancies (Agboghorama and Emuveyan, 1997; Olatunji and Abudu, 1996).

2.2.3 Antenatal Care

A significant goal of antenatal care is to guarantee ideal health results for a mother and her child. Antenatal care from a trained provider is vital to screen the pregnancy and decrease morbidity risks for the mother and fetus amid pregnancy and delivery. Antenatal care given by a skilled health worker ensures (1) early discovery of complexities and prompt treatment (e.g., detection and treatment of sexually transmitted diseases), (2) prevention of diseases through immunization and micronutrient supplementation, (3) birth preparedness and complication readiness, and (4) health promotion and infection avoidance through health messages and advising for pregnant women (National Population Commission (NPC) [Nigeria] and ICF International, 2014).

ANC is one of the "four columns" of safe parenthood. The other three are family planning, clean/safe delivery, and essential obstetric care. The package guarantees that women have the capacity to go securely through pregnancy and labour and have healthy newborn children. ANC services indirectly save the lives of mothers and babies by advancing and setting up good health before labor and the early post-natal period. Studies have shown that women with at least

secondary/high school level of education have higher rates of the ANC visits, readily accept family planning programs, and are more likely to deliver in the hospital compared to illiterate women (Ahmed et al., 2010; Desai et al., 2013; Fatso et al., 2009; Fawole et al., 2012). For instance, the high incidence of post-partum haemorrhage, prolonged obstetric labour, unsafe abortion and eclampsia as major direct obstetric causes of maternal mortality in rural parts of Nigeria, could be due to the inequitable geographical spread of maternal health facilities (Fawole et al., 2012; Ityavyar, 1984; Okwerekwu, 2010).

2.2.4 Inter pregnancy interval

The interval between pregnancies is an essential and modifiable risk factor for adverse birth results. The occurrences of preterm birth, little for gestational age birth, and low birth weight have each been over and over again appeared to take after a solid relationship to the time interval between pregnancies. The most noteworthy danger happens between pregnancy intervals under six months; minimal danger for intervals of 18 to 23 months and an expanding chance from that point. Avoidance of short intervals can be accomplished through utilization of contraception; but avoidance of long inter-pregnancy intervals is more problematic since a desired pregnancy may be precluded by sub-fertility, availability of an accomplice, financial issues, or sickness. The "maternal depletion" suggests that mothers with short inter-pregnancy intervals inadequately recoup from the physiological hassles of a past pregnancy and subsequent lactation. A mechanism proposed for the impacts of long inter-pregnancy interval is that the advantages of a past birth as far as physiological adjustment are bit by bit lost, just as the mother returns toward an equal state to primigravidas; this is known as the "physiological regression hypothesis. Together, these hypotheses imply the presence of an ideal interval that manages enough time for recuperation from a past birth but is not so long that the advantages of adjustment are lost. A retrospective

longitudinal analysis of inter-pregnancy intervals in 96 married couples who had never utilized any type of contraception found that the mean between pregnancy intervals in the 1218 pregnancies assessed was 8.5 ± 4.9 months, and was significantly shorter after an abortion or stillbirth than after a delivery. Inter-pregnancy interval was significantly longer in women above 40 years of age than in women under age 30. Length of breast-feeding would be relied upon to influence these outcomes, as ovulation is improbable in the first six months postpartum in women who breast-feed exclusively.

2.2.5 Health risk factors

Malaria infection and anaemia amidst pregnancy is a critical general health issue with considerable risks for the pregnant women, her fetus, and the newborn child. Malaria-related maternal ailment and low birth weight is generally the aftereffect of plasmodium falciparum infection and happens overwhelmingly in Africa (W.H.O, 2015). The symptoms and complication of malaria in pregnancy differ as per according to malaria transmission intensity in the given geographical area, and the individual's level of procured insusceptibility. In settings of moderate to high endemicity, intestinal sickness may bring about up to 30% of preventable low birth weight in babies and record for 3% to 5% of neonatal mortality (Okwa, 2012). In settings of low endemicity, malaria is associated with an expanded risk of spontaneous abortion and stillbirth. Malaria infection amid pregnancy was observed to be connected with iron deficiency in pregnancy in Kano, Nigeria (Gajida and Iliyasu, 2010)

2.2.6 Maternal Education

Literacy extends a woman's perception on political issues, as well as on her social wellbeing in terms of capacity to seek information and communicate effectively with health specialists. Education grows her mind set of thinking which enhance on her autonomy as far as capacity to

take free independent choices, engage in productive employment, insist on her fundamental human and reproductive rights and embrace practices that optimises her utilization of maternal health services. Taking into account pooled data from 2005 to 2010, the world adult literacy level stands at 84% with WHO regional block of South East Asia, Eastern Mediterranean and Africa having not exactly the worldwide average with literacy rates of 70%, 69%, and 63% individually (WHO, 2013a). Within the African subcontinent, the West African nations (Mali, Niger, Senegal, and Sierra Leone) have lower literacy rates with some having half of their populace as literates.

Nigeria's present female literacy level is 61% (WHO, 2013a). While education relates to the income and societal position of people, nonetheless, evidence show it is emphatically related with reproductive health behavior and utilization of maternal health services even after controlling for these factors (Ahmed et al., 2010; Desai et al., 2013; Ezugwu et al., 2014; Fatso al., Ezeh and Oronje, 2008; Fatso et al., 2009; Fawole et al., 2012, Onah et al., 2006. Further, expanding levels of educational attainment enhances her independence as well as delays the probability of early child bearing and may likewise influence the number of children she can bear as has been seen in Nigeria (Babalola, 2009; Fawole et al., 2012), and different parts of the world (UNICEF, 2012; WHO et al., 2010). This diminishes the life time risk of a woman dying from pregnancy and its related difficulties. Studies have demonstrated that women with at least secondary level of education have higher rates of the ANC visits, promptly acknowledge family planning programs, and will probably deliver in the health facility contrasted with illiterate women (Ahmed et al., 2010; Desai et al., 2013; Fatso et al., 2009; Fawole et al., 2012).

2.2.7 Economic Status

Income obstructs access to the utilization of modern health care facility, notwithstanding when publicly provided (Knight et al., 2013). The expenses for use of health care facility is aggravated

in numerous parts of the developing nations, where prospective patients, particularly women, are culturally anticipated to be accompanied by relatives to hospitals prompting an expansion in transportation fees. This situation is illustrated by the free family planning services provided in many parts of the developing nations yet having high unmet need of about 33% of all women engaged in consensual sexual relationship and low prevalence of family planning acceptors (UNICEF, 2012; WHO, 2013).

Cost is one of the reasons for underutilization of health services. For instance, the evacuation of subsidies in health care through privatization and commercialization approaches has prompted a reduction in the utilization of maternal healthcare services in Nigeria and partially represents the high maternal deaths (Obiechina and Ekenedo, 2013). In any case, when contrasted with other factors, the financial related expense of getting care is frequently not a noteworthy determinant of the choice to seek care. Even when publicly provided, women with high self-esteem on income scale have a tendency to spend more patronising health specialists in private practice (Fatso et al.; 2009). Studies in South Eastern Nigeria (Osuour, Fatusi, and Chiwuzie, 2008) and North Western Nigeria (Idris, Gwarzo, and Shebu, 2008) informed that women from high income families sought the skills of specialists even in outside nations. Women with high economic dependence reported cost as an impediment to the utilization of appropriate maternal healthcare services and have a tendency to disparage less expertise and cheap midwives, for example, the TBAs. Consequently, income is a noteworthy determinant for the access and utilization of health services regardless of whether it is offered by private or public sectors because of charges for care rendered or compulsory co-payment separately (Obiechina and Ekenedo, 2013; United Health Foundation, 2011). This will be an impediment to access and utilization of maternal healthcare services especially for the lower income class and adds to poor pregnancy outcomes.

2.2.8 Access to Healthcare Facilities

Health facilities are not equally distributed in many parts of the developing nations with the rural communities having less numbers in contrast to inhabitants of towns and urban communities (WHO, 2010; UNICEF, 2012). However, urban slum population have less and dysfunctional health facilities contrasted with the parts of the urban communities inhabited by people of high socio-economic section of the population (UNICEF, 2012). Due to the shortage of modern health facility in Nigeria, over 62% of deliveries take place at home while only 37% take place in hospitals (UNICEF, 2012). An example is South-Western Nigerian where there are more healthcare units (open and private), yet not as much as half of all country population have admittance to useful health facility (Health Reform Foundation of Nigeria, 2007). The uneven spread of health facilities in the rural communities may be because of absence of an updated and complete data on the area, staffing and equipment available and accessible in health facilities bringing about poor prioritization and improper interventions (WHO, 2013).

The absence of value in the distribution of maternal health services could influence access and utilization of services bringing about poor pregnancy outcomes. For example, the high frequency of post-partum hemorrhage, delayed obstetric labour, unsafe abortion and eclampsia as major direct obstetric reasons for maternal mortality in rural parts of Nigeria, could be because of the biased geographical spread of maternal health services (Fawole et al., 2012; Okwerekwu, 2010). In areas where modern health facility is in shortage or lacking completely, traditional birth attendance tends to fill the gap which is often accompanied with negative pregnancy outcomes. While the role of traditional birth attendants in caring for pregnancy and conducting deliveries is acknowledged, it is also noticed that they generally have no training to deal with pregnancy complications (WHO, 2008).

2.3 Review of Other Literature

Nwokocha's (2008) study of factors that influence pregnancy outcomes among the Ibani of Rivers State. The study exhibited that dominant part of the respondents had primary education while a not very many few went beyond primary education but had incomplete secondary school education. The study also distinguished illiteracy and socio-cultural cues as the major encouraging factors that aggravate ignorance toward safe motherhood and poor health practices among Ibani women.

From evidences, the rate of ante-natal care utilization in rural areas is generally low contrast with its urban partner (Babalola et al., 2009). Hospital statistics demonstrate that some women still die from complication of pregnancy and child bearing, a greater proportion which could be managed and prevented. However, a hefty portion of the women who got ANC did not attend antenatal care clinic until the second or third trimester by which time it might be past the point where it is possible to advantage maximally from a portion of the services delivered at the clinic (Iyaniwura and Yussuf, 2009). Also in a study of 107 women in rural Kano, Northern Nigeria, 88% did not attend ANC and 96.3% had delivered or planned to deliver at home (Iyaniwura and Yussuf, 2009).

A strategy to expand the rate of births delivered in health facilities is a climbing stone to reducing deaths emerging from complications of pregnancy. The expectation is that if complication emerges amid delivery, a skilled health specialist can deal with the complication or refer the mother to the next level of medical care. As indicated by a 2013 NDHS report, 36% of births in Nigeria are delivered in a health facility, 23% of deliveries occur in public sector facilities, and 13% occur in private sector facilities while 36% of births are delivered at home. In another

study, 23% of deliveries happen out in the public sector facilities, and 13% happen in private sector facilities, and 63% of births are delivered at home (Oshonwo, Nwakwuo, and Ekiyor, 2014). In a study by Kawungezi et al (2015), aimed at examining the influence of attendance and utilization of Antenatal Care (ANC) Services on maternal health found that a noteworthy number of respondents went to TBAs. In the study, religious, civil servants, multiparous and educated mothers went to ANC at health facilities and delivered at health facilities. The study consequently proposes that if women are economically empowered, educated and more emphasis made at different places of worship, this could enhance ANC participation and usage at health facilities and positively effect on pregnancy results, maternal and child health. Moreso, in another study conducted by Adamu, (2011), which aimed to examine the usage of maternal healthcare services in Nigeria found that age, birth order, education, employment, family wealth index, place of residence, and religion are among the factors that influence use of maternal healthcare services in Nigeria. Educational level and place of residence were found to strongly predict maternal health care services utilization in both the northern and southern regions in Nigeria. Past studies have reliably found a solid and 'dose-dependent' effect between education and utilization of maternal health care services (Gabrysh and Campbell, 2009).

Luka (2011), aimed at examining the determinants of pregnancy outcomes among antenatal care attendants in Kaduna State, observed that higher poor pregnancy results. For example, maternal and neonatal/perinatal mortality have been seen among mothers who deliver at extreme ages (< 15 and >35 years) as they are more likely to have complication during pregnancy and delivery that affects them and their babies compared to women of ages between 18 and 35 years. The study identified HIV (7.5%), malaria infection (5.6%), low socio economic status (5%), poor nutrition (3.1%), maternal medical condition (7.5%), lack of ANC (8.1%), social habit (2%), and

strenuous exercise (2%) as the precipitating factors of poor pregnancy outcomes. For the individuals who do not go to ANC there will be no chance to get of knowing whether they have any condition that could prompt poor pregnancy results. In the study, 63% of women had satisfactory information of factors affecting pregnancy results. These women are the respondents who utilize maternal healthcare services. 7.5% of the respondents said the individuals who are HIV positive could transmit the infection to their infant particularly on the off chance that they did not go to antenatal care and are not on antiretroviral treatment. Therefore, use of antenatal care services can enlighten pregnant women on their HIV status and propose preventive measures from mother to child transmission. The significance of going to ANC is to recognize mothers with some dangers elements like hypertension, anaemia in pregnancy, and different risks signs amid pregnancy for brief treatment to turn away these poor outcome women, (National Population Commission (NPC) [Nigeria] and ICF International, 2014).

The usage of maternal healthcare services varies cross the regions of Nigeria. Generally, women in the southern region are more likely to use services compared to those in the north. There are differentials and commonalities in the predictors of maternal healthcare utilization in the regions. Education, family wealth index and place of residence are strong predictors of service utilization in all the regions. Notwithstanding, some factors are critical indicators in one district however not in the other. These incorporate employments in the northern area; and mothers' age and religion in the south (Hauwa, 2011). A woman's education is a standout amongst the most essential indicator of poor pregnancy outcomes (Umar et al., 2016). The higher a woman's level of education, the more probable it is that she will marry later, utilize contraception, use healthcare services, recognize danger signs in the newborn and play a greater role in reproductive health decision-making (Luka, 2010). In his study, Luka (2010) reported that Majority (45%) of the

respondents had one and only ANC visit, just 17% had four or more visit. There were two early neonatal deaths (within 24 hrs.) and three stillbirth deliveries among respondents who had less than four ANC visits.

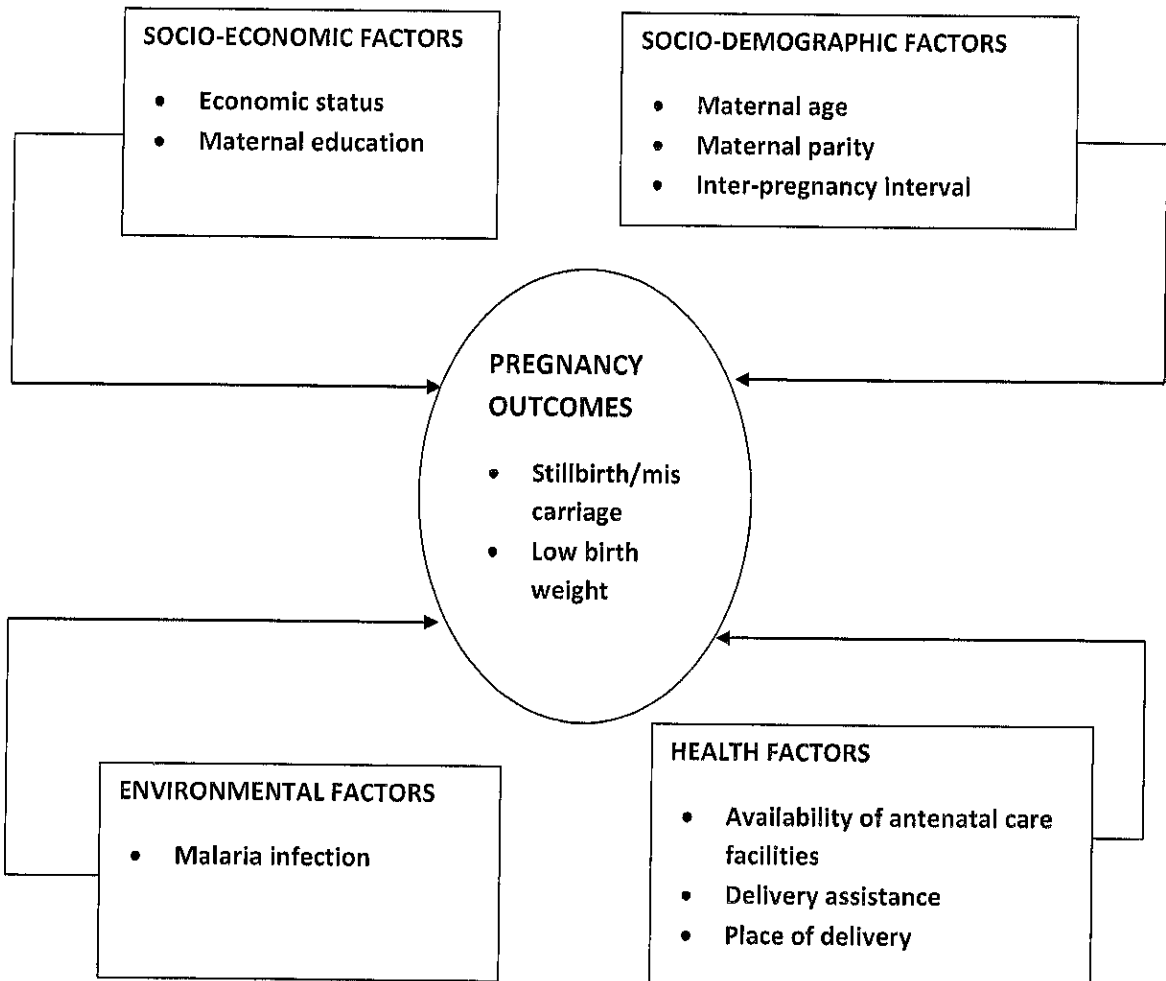
The dominant part of rural women had delivered from health facilities, an impressively high extent delivered at home and traditional birth attendants (TBA) with reasons that included: fear of hospital mode of delivery, encouraged by mother, husband's decision, and no pregnancy problems. Nesbeit, Frederick, Connell, at al., (2007) in their study on the impacts of access to obstetric care in rural areas on birth outcomes with the goal to explore the degree to which local availability of obstetrics is related to perinatal outcomes. The study reported that women from communities with relatively few obstetrical providers in proportion to number of births were less likely to deliver in their local community hospital than women in rural communities with greater numbers of physicians practicing obstetrics in proportion to number of births. Women from these high-outflow groups had a more prominent extent of complicated deliveries, higher rates of premature deliveries and higher expenses of neonatal care than women from groups where most patients delivered in the local hospital (Nesbeit, Frederick, Connell, at al., 2007). The study exhibited a solid relationship between the extent of deliveries that happen outside of the group and the extent of complications associated with childbirth. Women living in high-outflow communities were 34% more inclined to experience birth-related complications or co-morbidity than women from medium-outflow communities, and 67 percent more probable than ladies from low-outflow communities.

Hazra and Bratati (2006), in their study on socio-demographic determinants of pregnancy wastage with the goal to see if socio-demographic determinants are risk factors for pregnancy wastage, they characterized pregnancy wastage to incorporate early preclinical loss of

contraception, spontaneous first trimester abortion, perinatal mortality, the last assortment involving stillbirth and early neonatal deaths. The study observed women beyond reproductive ages (i.e. >44 years) of low socio-economic status and living in an urban community, and it demonstrated that pregnancies among illiterate mothers (79.6%) were seen to outnumber those among educated moms (20.4%). Out of the tested pregnancies (24.5%) happened while the women were working and the rest, (75.4%), while they were not working. The study further demonstrated that pregnancies spaced too close are of danger to the mother and also the newborn child. Like the result in another study, half of the respondents spaced their pregnancy at less than two years interval in a bid to satisfy their husband's quest for large family size, which may not be unconnected with the effect of decision making in the family (Ajiboye and Adebayo, 2012). Their study reported that all diverse sorts of pregnancy results happened all the more oftentimes when between pregnancies intervals were under two years. Among the factors within the socio-economic status, lack of education and occupation were statistically significant ($p < 0.001$). Illiterate mothers and unemployed mothers are more likely to encounter pregnancy wastage. However, Kumar and Singhi, (2008) did not discover parental education to have any impact on the risk of stillbirth. Unemployment during pregnancy has regularly been seen to bring about adverse outcomes, including pregnancy loss. In a comparable study on the socio-cultural factors influencing pregnancy outcome among the Ogu speaking people of Badagry demonstrated that there is significant relationship between pregnancy results and socio-cultural factors extending from economic status of pregnant women and their spouse, number of children they have, age at marriage, level of education, income and responses cultural practices during pregnancy, among others (Ajiboye, Adebayo, 2012 and Umar, 2016).

Senturia (2006) reported that specific work factors are straightforwardly associated with miscarriage and/or perinatal death. In another comparable study, chamberlain (2007) demonstrated an expanded stillbirth rate among women who worked during pregnancy when compared with that in non-working women. Socio-demographic factors, the greater part of which is preventable, are subsequently seen to assume an imperative part in bringing about pregnancy wastage (Beratiti et al, 2006). In a related study by Adrej (2007), socio-demographic determinants of pregnancy outcomes and infant growth in transitional Russia were observed. The study uncovered significant social variation in pregnancy outcomes. Clear inclinations of birth weight and spontaneous preterm birth rate by maternal educational level were uncovered. Maternal education was the most critical social component impacting birth weight, Pondera index, and preterm birth weight (Adrej, 2005). Like the result in another study, just 6% of the women who got nutrition education had stillbirths. 24% of the infants of the control bunch had low birth weights (<2.5kg) while 12% of the individuals who got nutrition education had high birth weights (>4.0kg), the number (64%) of children with normal birth weight was significantly ($p<0.05$) related to the time of maternal registration at the ante-natal clinic. Akeredolu, Osisanya, et al. (2012) considered the effect of hospital-based nutrition education on pregnancy outcomes of women in Lagos state. The study categorized respondents into intervention and control groups in which women in the intervention group got healthful education while women in the control group got none. The study observed that more (94%) women in the intervention group had live births contrasted with those in the control group. There was a high (22%) rate of still birth (negative result) among the control group while just 6% was seen in the intervention group. A comparable finding was accounted for by Liuet al. (2009) It was likewise reported that maternal age of 40 or older will probably be under the care of a specialist obstetrician at the hospital than a midwife in the society (Adrej, 2005).

2.4 Conceptual Framework



Source: author, 2016

Figure 1.0: conceptual framework showing the inter-relationship between pregnancy outcomes and their determinants

Figure 1.0 shows that the socio-economic characteristics of pregnant women like maternal education and economic status goes a long way to influence the knowledge, attitude and practice of pregnant women toward their pregnancy. Women with higher economic status are more likely to indulge in safe health practices which greatly influence pregnancy outcomes positively. High income places women at a vantage by increasing their purchasing power of quality and nutritious food. Evidence has consistently shown that maternal malnutrition is the leading cause for very low

maternal body mass index, low birth weight and stunted growth in children. Poverty inhibits affordability of nutritious food during pregnancy which directly has considerable impact on the fetus by leading to fetal underdevelopment and impairment. Also, maternal education during pregnancy sensitizes and enlightens women on the benefits of safe health practices and safe motherhood. Studies show that educated women are more likely to attend antenatal care and, use modern healthcare facilities, patronize skilled birth attendants, and deliver in hospitals. Maternal education during pregnancy sensitizes women on the right food preferences which will improve the quality and health condition of their fetus. Illiterate and poor women are more likely to experience complications during pregnancy and adverse pregnancy outcomes like stillbirth and miscarriage. The socio-demographic characteristics of pregnant women like maternal age, maternal parity, and inter-pregnancy interval have considerable effects on pregnancy outcomes. Extreme maternal ages of less than 15 and above 35 are more likely to experience complications like low birth weight, and stillbirth. Inter-pregnancy interval of less than 2 years and greater than 5 years impact negatively on pregnancy outcomes.

Availability of healthcare facilities like antenatal care clinics, access to skilled birth attendant, and access to healthcare facilities for child delivery facilitates easy and safe delivery. Antenatal care serves as a medium through which pregnancy is monitored and managed for likely complications. Obstetrical services also facilitate easy and safe delivery in cases of distance from hospitals and maternity clinics. Availability and accessibility to health facilities have direct impact on pregnancy outcomes. Unavailability of health facilities will impact negatively and in turn result in negative outcomes for the mother and the newborn.

Environmental factors like malaria infection during pregnancy have considerable direct impacts on the pregnancy outcomes. Areas infested with mosquitoes suffer malaria infection which

is often the case in rural communities. Studies have shown that malaria infection during pregnancy impact negatively on maternal and fetal health; and are a direct cause of maternal mortality, fetal impairment, and stillbirth.

2.5 Statement of Hypothesis

Hypothesis 1: H_0 : there is no relationship between the socio-demographic characteristics of rural women and their pregnancy outcome.

Hypothesis 2: H_0 : Access to healthcare facilities do not influence the pregnancy outcomes among rural women

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Background to the Study Area

Nigeria is situated in the West African district imparting common boundaries with Niger republic toward the north, Cameroon and Chad republics toward the east, Benin republic toward the west, and Atlantic Ocean toward the south. It has an aggregate land mass of roughly 923,768 square kilometers. Nigeria has a diverse climate with the North Central and North East having uplands of 600 and 1,300 meters respectively; whereas the lowlands of 20 meters are along the coastal areas of the south-south and south-west zones of the nation. The country has a tropical atmosphere with rainy (April to August) and dry seasons (September to March).

Nigeria is the most populous nation in Africa representing one-fifth of the mainland continent. It has complete population of 143 million with a national growth rate estimated at 3.2 percent per annum taking into account the evaluations from the 2006 national census with a population density of 153 people per square kilometer. The states with the highest population density in every zone are as per the following: North West zone (Kano state), South East (Anambra, Imo, and Abia states) and South South zone (Akwa Ibom state). 66% of Nigeria's populations are rural dwellers. Women of child bearing age (WCBA) was estimated to be 31.4 million with an expected yearly number of pregnancies and surviving infants of 8.3 million and 7.3 million respectively. The present population growth rate and female fertility remains at 2.8% and 5.6% respectively (National Population Commission and ICF Macro, 2014).

The nation operates as a federation with federal, state and local governments headed by democratically elected executives and legislative assemblies at all levels. There are 774 local government areas (LGAs), spread crosswise over 36 states and a federal capital region. The nation

has 374 ethnic groups (National Population Commission NPC [Nigeria] and ICF International, 2014). The 36 states constitute six geopolitical zones: South-south zone with predominant tribes being Kalabiri Ijaw, Ikoi, Itsekiri, and Ibibio; South West zone with Yoruba as the dominant tribe; North Central zone with major tribal groups being Nupe, Ebira, Idoma, Tivs, Igala, Gwari, and Angas; North East is to a great extent made up of Kanuri, Fulani, Marghi, Babur, Mumuye, and Jukun; South East with Igbo as the dominant tribe; and North West zone that are generally Hausa and Fulani tribal groups. Islam and Christianity are the prevailing religions having followership of around 99% of Nigerians with Islam dominatingly in the Northern and Christianity in the Southern geopolitical zones individually.

Oil and gas is the dominant sector of the Nigerian economy, representing 99% of the aggregate export revenues, and around 80% of the Government revenues. Moreover, from 2008 till date, the Oil and gas division represented 80% of the GDP, with an estimated economic growth rate of 6% (National Population Commission NPC [Nigeria] and ICF International, 2014).

3.1 Target Population

With a restriction to women resident in rural areas, the study population consisted of rural women of reproductive ages (ages 15-49) who have ever experienced a pregnancy. The study explored the pregnancy and delivery experiences of rural women.

3.2 Study Design and Sample Size

A mixed method approach (i.e. qualitative approach and the quantitative approach) was chosen for this study. For the quantitative session, a population-based retrospective, cross-sectional design was utilized using secondary data from the 2013 Nigerian DHS to examine the determinants of pregnancy outcomes among rural women in Nigeria. The sample size for women recode for this study was 77,486.

For the qualitative session, a descriptive design (in-depth interview) was employed to collect research-relevant qualitative data from prospective respondents. Three respondents-women of child bearing ages (ages 15-49 inclusive) were interviewed intensively. The samples were selected from rural areas which include one representative from each of the three local government areas which are Oye, Ayegbaju and Ilupeju local government areas respectively in Ekiti state, Nigeria. The aim was to encounter directly with the respondents and obtain in-depth understanding of the factors that determine pregnancy outcomes among women in rural areas. The sampling procedure to be employed in this study will be defined by the process of data collection and interpretation. Here, the researcher wants to be informed as to which categories are more or less important in defining the criteria for the sample. This type of sampling is based on theoretical sampling- a concept developed by Glasser and Strauss (1967). That is, the decision of who to include in the sampling is made in the process of data collection and interpretation. This criterion helps the researcher to know good information about the study objects. In this strategy, the researcher selects individual or group based on their expected level of new insight for the development of the theory. According to Glasser and Strauss (1967), the researcher stops exploring further when theoretical saturation occurs. Theoretical saturation means that no additional data are being found whereby the researcher can develop properties of the category.

3.3 Sources of Data

The data analyzed in this study were derived from a secondary source using the 2013 NDHS data, a cross-sectional survey that cuts across the length and breadth of the Federal Republic of Nigeria designed to provide information on population and health indicators at the national and state levels. Women's recode dataset was utilized for secondary data. For the qualitative session, an in-depth interview was conducted on the targeted population to collect research relevant information. The

researcher identified three women of reproductive ages from rural areas who have ever experienced a pregnancy.

3.4 Data Processing and Analysis

Statistical software for data analysis – STATA version12 – was employed to analyze the quantitative data obtained from the 2013 NDHS Dataset. Different analytic techniques were employed in the study.

Techniques of Data Analysis

Univariate analysis was employed using frequency distribution to show the proportion of women who use antenatal care services and skilled birth attendance

Bivariate analysis- chi square was employed using chi-square distribution and cross tabulation to ascertain the relationship between the socio-demographic characteristics of rural women and their pregnancy outcomes

Multivariate analysis- the binary logistic regression was also employed to ascertain the effects of access to healthcare facilities on pregnancy outcomes.

For the interview session, the qualitative study utilized content analysis to examine words and phrases within a wide range of text. By examining the presence or repetition of words and phrases in the specific text, the researcher could make derivations about the philosophical assumptions of the respondents. That is, the significance the respondents attribute to a specific action. Words, phrases and events that seemed to be similar were categorized. The categories were then compared and combined to assist in seeing relationships and a bigger picture.

3.5 Ethical Considerations

During the interviews, participants' informed consent was sought and gained. The purpose of the study and the advantages and dangers were disclosed to the study participants. They were informed of the flexibility to end the study anytime they so want. Each woman was furnished with adequate and reasonable information in regards to her cooperation in the study before signing the consent form. The quality of the research was guaranteed by adhering to the highest possible standards of research through accountability and the ability to execute the research process. Confidentiality and anonymity were guaranteed by securing the participants' participants' identity, privacy, self-worth and dignity by not indicating the subjects' names on the research instrument. Also, ethical permission for the secondary data (NDHS Dataset) was obtained from the ICF macro.

CHAPTER FOUR

PRESENTATION OF DATA, DATA ANALYSIS AND DISCUSSION

4.0 Presentation and Analysis of Data

UNIVARIATE ANALYSIS

Table 1: Socio-demographic characteristics of respondents

Characteristics	frequency	percentage
Age		
15-19	1,251	1.62
20-24	5,582	7.23
25-29	12,263	15.87
30-34	13,469	17.44
35-39	15,821	20.48
40-44	14,073	18.22
45-49	14,792	19.15
Total	77,251	100.00
Highest educational level		
No education	47,504	61.49
Primary	17,137	22.18
Secondary	10,923	14.14
Higher	1,687	2.18
Total	77,251	100.00
Religion		
Christian	27,177	35.18
Islam	48,955	63.37
Traditionalist	1,119	1.45
Total	77,251	100.00
Region		
North Central	11,107	14.38
North East	18,299	23.69
North West	29,485	38.17
South East	3,701	4.79
South South	10,012	12.96
South West	4,647	6.02
Total	77,486	100.00
Ethnicity		
Yoruba	3,642	4.72
Hausa/Fulani	36,205	46.94
Igbo	4,209	5.46
Others	33,074	42.88
Total	77,130	100.00
Economic status		

Poor	48,565	62.87
Middle	16,456	21.30
Rich	12,230	15.83
Total	77,251	100.00
Respondent's occupation		
Not working	19,002	24.60
Working	58,249	75.40
Total	77,251	100.00

Source: NDHS, 2013

Table 1 shows that most women studied were between the ages of 35-39 (20.48%). Just 1.6% were aged 15-19 and 37.4% were aged 40 or older. The majority (61.4%) had no education while 22% had primary education and 16.3% had secondary and higher education (14% and 2% respectively). Majority of the respondents (63.4%) were Islam while 35.2% were Christians and just 1.5% were traditionalists. By region, majorities (38.2%) were North West, followed by North East (23.7%) and North Central (14.4%). South East came the least (4.79%). Majority (49.9%) were Hausa/Fulani while 5.5% were Igbo. Only 4.7% were Yoruba and the rest (42.9%) belong to other ethnic groups. By economic status, more than half of the respondents (62.9%) were poor, 15.8% were in the rich group and 21.3% were in the middle income group. By occupation, majority of the respondent were working while 24.6% were not working.

Table 2: Risk factors of pregnancy outcomes

Characteristics	frequency	percentage
Number of antenatal visits		
During pregnancy		
No antenatal visits	5,623	45.30
<4 antenatal visits	1,665	13.41
4 antenatal visits	996	8.02
>4 antenatal visits	4,128	33.26
Total	12,412	100.00
Place of delivery		
Respondent's home	13,583	68.52
Other home	1,552	7.83
Government facilities	3,455	17.43
Private medical sector	1,233	6.22

Total	19,823	100.00
Delivery assistance		
Skilled birth attendant	4,151	21.05
Unskilled person	7,248	36.76
Traditional birth attendant	5,281	26.78
No one	3,037	15.40
Total	19,717	100.00
Number of tetanus injection before birth		
Received no injection	6,327	50.43
Received injection	6,220	49.57
Total	12,547	100.00
Malaria prevention/cure during pregnancy		
Took malaria drug during pregnancy	3,783	34.25
Took no drug	7,261	65.75
Total	11,044	100.00
Birth interval		
<2years	18,843	31.44
2-5years	37,227	62.12
>5years	3,862	6.44
Total	59,932	100.00
Maternal parity		
0-4	22,343	28.92
5-9	43,453	56.25
10+	11,455	14.83
Total	77,251	100.00

Source: NDHS, 2013

Table 3 shows the risk factors for adverse pregnancy outcomes. Majority of the respondents (45.3%) didn't go for antenatal care when they were pregnant, 13.4% had less than four antenatal visits while just 8% went up to 4 antenatal visits, and 33.3% had greater than four visits. Also, majority (68.5%) of respondents delivered in their homes, about 17.4% delivered in government facilities, 6.2% delivered in private facilities, while 7.8% delivered in other homes other than theirs. With respect to delivery assistance, majority of the respondents (36.8%) patronized unskilled person while 26.8% were assisted by a traditional birth attendant, (21.5%) were assisted by a skilled birth attendant, 15.4% were assisted by no one. Half of the respondents (50%) received no tetanus injection before birth, 10.7% received one injection, and 0.8% received five and above injections, while 0.4% doesn't know if they received injection or the amount received.

More than half (65.8%) of the respondents took no malaria drug during pregnancy while 34.3% took malaria drug. By birth interval, majority of the respondents (62.1%) of the respondents had birth interval between two to five years. 31.4% had birth interval less than two years, while just 6.4% had birth interval greater than 5years. Majority of the respondents (56.3%) had five to nine children, 28.9% had less than five children, while 14.8% had ten and above children.

Research question 1: What is the proportion of women with positive pregnancy outcomes?

Table 3: Pregnancy outcomes of respondents

Category	frequency	percentage
Birth weight		
<2.5kg	122	0.67
2.5-5kg	1,324	7.26
>5kg	49	0.27
Not weighed at birth	16,749	91.81
Total	18,244	100.00
Ever had a terminated pregnancy		
No	67,057	86.80
Yes	10,194	13.20
Total	77,251	100.00

Source: NDHS, 2013

Table4 shows responses on pregnancy outcome of the respondents. Majority of the respondents (91.8%) said that their last birth wasn't weighed. 0.7% had birth weight less than 2500 grams, 7.3% had birth weight between 2500grams-5000grams. Just 0.3% had birth weight greater than 5000grams. 86.8% of the respondents never had a terminated pregnancy while just 13.2% had a terminated pregnancy.

BIVARIATE ANALYSIS-chi-square analysis

Research question 2: What is the relationship between the socio-demographic characteristics of rural women and pregnancy outcomes?

Table4: Bivariate result on ever had a terminated pregnancy and socio-demographic characteristics, and risk factors

Category	Ever had a terminated pregnancy			X ²	p-value
	No	Yes	Total		
Age				511.4131	0.000
15-19	1,193(1.78)	58(0.57)	1,251 (1.62)		
20-24	5,184(7.73)	398(3.90)	1,251(1.62)		
25-29	10,995(16.40)	1,268(12.44)	12,263(15.87)		
30-34	11,729(17.49)	1,740(17.07)	13,469(17.44)		
35-39	13,499(20.13)	2,322(22.78)	15,821(20.48)		
40-44	11,780(17.57)	2,293(22.49)	14,073(18.22)		
45-49	12,677(18.90)	2,115(20.75)	14,792(19.15)		
Total	67,057(100)	10,194(100)	77,251(100)		
Highest educational level				259.3129	0.000
No education	41,956(62.57)	5,548(54.42)	47,504(61.49)		
Primary	14,498(21.62)	2,639(25.89)	17,137(22.18)		
Secondary	9,225(13.76)	1,698(16.66)	10,923(14.14)		
Higher	1,378(2.05)	309(3.03)	1,687(2.18)		
Total	67,057(100)	10,194(100)	77,251(100)		
Religion				170.1208	0.000
Christianity	23,035(34.35)	4,142(40.63)	27,177(35.18)		
Islam	42,992(64.11)	5,963(58.50)	48,955(63.37)		
Traditionalist	1,030(1.54)	89(0.87)	1,119(1.45)		
Total	67,057(100)	10,194(100)	77,251(100)		
Region				461.6687	0.000
North Central	9,885(14.74)	1,222(11.99)	11,107(14.38)		
North East	15,081(22.49)	3,218(31.57)	18,299(23.69)		
North West	26,161(39.01)	3,324(32.61)	29,485(38.17)		
South East	3,148(4.69)	553(5.42)	3,701(4.79)		
South-South	8,739(13.03)	1,273(12.49)	10,012(12.96)		
South West	4,043(6.03)	604(5.93)	4,647(6.02)		
Total	67,057(100)	10,194(100)	77,251(100)		
Ethnicity				96.9057	0.000
Hausa/Fulani	31,827(47.54)	4,378(43.01)	36,205(46.94)		
Igbo	3,590(5.36)	619(6.08)	4,209 (5.46)		
Yoruba	3,221(4.81)	421(4.14)	3,642 (4.72)		
Other	28,313(42.29)	4,761(46.77)	33,074(42.88)		
Total	66,951(100)	10,179(100)	77,130(100)		

Economic status				1.3517	0.509
Poor	42,177(62.90)	6,388(62.66)	48,565(62.87)		
Middle	14,303(21.33)	2,153(21.12)	16,456(21.30)		
Rich	10,577(15.77)	1,653(16.22)	12,230(15.83)		
Total	67,057(100)	10,194(100)	77,251(100)		
Occupation				91.4882	0.000
Not working	16,882(25.18)	2,120(20.80)	19,002(24.60)		
Working	50,175(74.82)	8,074(79.20)	58,249(75.40)		
Total	67,057(100)	10,194(100)	77,251(100)		
Total children ever born				83.6175	0.000
0-4	19,889(29.57)	2,575(25.17)	22,464(28.99)		
5-9	37,484(55.73)	6,068(59.32)	43,552(56.21)		
10+	9,883(14.69)	1,587(15.51)	11,470(14.80)		
Total	67,256(100)	10,230(100)	77,486 (100)		
Place of delivery				31.8052	0.000
Respondent's home	12,289(68.97)	1,294(64.54)	13,583(68.52)		
Other home	1,401(7.86)	151(7.53)	1,552 (7.83)		
Government facilities	3,037(17.04)	418(20.85)	3,455(17.43)		
private medical sector	1,091(6.12)	142(7.08)	1,233(6.22)		
Total	17,818(100)	2,005(100)	19,823(100)		
Total children ever born				8.8517	0.012
0-4	16,287(31.41)	2,556(31.63)	18,843(31.44)		
5-9	32,280(62.26)	4,947(61.21)	37,227(62.12)		
10+	3,283(6.33)	579(7.16)	3,862(6.44)		
Total	51,850(100)	8,082(100)	59,932(100)		
Birth interval					
<2years	16,287(31.41)	2,556(31.63)	18,843(31.44)		
2-5years	32,280(62.26)	4,947(61.21)	37,227(62.12)		
>5years	3,283(6.33)	579(7.16)	3,862(6.44)		
Total	51,850(100)	8,082(100)	59,932(100)		
Malaria prevention/cure				27.3553	0.000
Took malaria drug	3,318(33.46)	465(41.26)	3,783 (34.25)		
Took no drug	6,599(66.54)	662(58.74)	7,261 (65.75)		
Total	9,917(100)	1,127(100)	11,044(100)		
Told about pregnancy complication				0.0147	0.903
No	2,272(37.43)	332(37.64)	2,604(37.46)		
Yes	3,798(62.57)	550(62.36)	4,348(62.54)		
Total	6,070(100)	882(100)	6,952(100)		

Source: NDHS (2013)

The Bivariate analysis showed varied levels of significance. The association between ever had a terminated and age was found to be statistically significant ($X^2=511.4131$, $P=0.000$). Most women who had had a terminated pregnancy were in the age group 35-39. The association between ever had a terminated pregnancy and highest educational level was found to be statistically significant ($X^2=259.3129$, $P=0.000$). Most women had a terminated pregnancy had no formal education. The association between ever had a terminated pregnancy and religion was found to be statistically significant ($X^2=170.1208$, $P=0.000$). Most women who had a terminated pregnancy were Muslims. The association between ever had a terminated pregnancy and region was found to be statistically significant ($X^2=461.6687$, $P=0.000$). Most women who had a terminated pregnancy are from North West region. The association between ever had a terminated pregnancy and ethnicity was found to be statistically significant ($X^2=96.9057$, $P=0.000$). Most women who had a terminated pregnancy were Hausa/Fulani. There was no association between ever and a terminated pregnancy and economic status ($X^2=1.3517$, $P=0.509$). Most women who had a terminated pregnancy were poor. The association between ever had a terminated pregnancy and respondents' occupation was found to be statistically significant ($X^2=91.4882$, $P=0.000$). Most women who had a terminated pregnancy were working. The association between ever had a terminated pregnancy and total children ever born was found to be statistically significant ($X^2=83.6175$, $P=0.000$). Most women who had a terminated pregnancy had five and above children.

The association between ever had a terminated pregnancy and place of delivery was found to be statistically significant ($X^2=31.8052$, $P=0.000$). Majority of the respondents who had a terminated pregnancy delivered in their homes. The association between ever had a terminated pregnancy and total children ever born was found to be statistically significant ($X^2=8.8517$, $P=0.01$). The levels of terminated pregnancy are higher among women with five and above

children. Most women had a terminated pregnancy spaced their pregnancy 2-5years. Levels of terminated pregnancy are more prevalent among women who took no malaria drug during pregnancy for malaria prevention or cure. There was no association between ever had a terminated pregnancy and ever told about pregnancy complication ($X^2=0.0147$, $P>0.05$). Most women who had a terminated pregnancy were told about pregnancy complication. The results show association between ever had a terminated pregnancy ($p<0.01$), except told about pregnancy complication which show no association ($X^2=0.0147$, $P=0.903$).

Table 5: Bivariate result on birth weight and socio-demographic characteristics, and risk factors

Category	Birth weight				Total	X ²	p-value
	<2.5 kg	2.5-5kg	>5kg	Not weighed			
Age						101.3209	0.000
15-19	6(4.92)	38 (2.87)	1(2.04)	1,089(6.50)	1,134 (6.22)		
20-24	25(20.49)	217(16.39)	12(24.49)	3,583(21.39)	3,837(21.03)		
25-29	24(19.67)	393(29.68)	18(36.73)	4,573(27.30)	5,015 (27.49)		
30-34	27(22.13)	335(25.30)	7(14.29)	3,303(19.72)	3,675(20.14)		
35-39	31(25.41)	245(18.50)	10(20.41)	2,415(14.42)	2,691(14.75)		
40-44	8(6.56)	70(5.29)	1(2.04)	1,271(7.59)	1,350 (7.40)		
45-49	1(0.82)	26(1.96)	0(0.00)	515(3.07)	542(2.97)		
Total	122(100)	1,324(100)	49(100)	16,749(100)	18,244(100)		
Economic status						3.1e+03	0.000
Poor	33(27.05)	167(12.61)	6(12.24)	11,763(70.23)	11,969(65.61)		
Middle	34(27.87)	350(26.44)	16(32.65)	3,310(19.76)	3,710(20.34)		
Rich	55(45.08)	807(60.95)	27(55.10)	1,676(10.01)	2,565(14.06)		
Total	122(100)	1,324(100)	49(100)	16,749(100)	18,244(100)		
Occupation						68.8553	0.000
Not working	24(19.67)	307(23.19)	14 (28.57)	5,607(33.48)	5,952(32.62)		
Working	98(80.33)	1,017(76.1)	35(71.43)	11,142(66.52)	12,292(67.38)		
Total	122(100)	1,324(100)	49(100)	16,749(100)	18,244 (100)		
Educational level						4.7e+03	0.000
Primary	19(15.57)	121(9.14)	2(4.08)	11,124(66.42)	11,266(61.75)		
Secondary	64(52.46)	696(52.57)	29 (59.18)	2,302(13.74)	3,091(16.94)		
Higher	15(12.30)	222(16.77)	5(10.20)	113(0.67)	355(1.95)		
Total	122(100)	1,324(100)	49(100)	16,749(100)	18,244(100)		
Total children ever born						202.0348	0.000

0-4	79(64.75)	952(71.90)	38(77.55)	9,021(53.86)	10,090(55.31)		
5-9	42 (34.43)	362 (27.34)	11(22.45)	6,735(40.21)	7,150(39.19)		
10+	1(0.82)	10 (0.76)	0(0.00)	993(100.0)	1,004 (5.50)		
Total	122(100)	1,324(100)	49(100)	16,749(100)	18,244(100)		
Economic status						3.1e+03	0.000
Poor	33(27.05)	167(12.61)	6(12.24)	11,763(70.23)	11,969(65.61)		
Middle	34 (27.87)	350 (26.44)	16(32.65)	3,310(19.76)	3,710 (20.34)		
Rich	55(45.08)	807(60.95)	27(55.10)	1,676(10.01)	2,565 (14.06)		
Total	122(100)	1,324 (100)	49(100)	18,244(100)	16749(100)		
Birth interval						52.8726	0.000
<2years	24(25.81)	205(21.62)	9(24.32)	3,237(23.29)	3,475 (23.20)		
2-5years	55(59.14)	615(64.87)	24(64.86)	9,628(69.26)	10,322(68.91)		
>5years	14(15.05)	128(13.50)	4(10.81)	1,036(7.45)	1,182(7.89)		
Total	93(100)	948(100)	37(100)	13,901(100)	14,979(100)		

Source: NDHS, 2013

The association between birth weight and age was found to be statistically significant ($X^2=101.320$, $P=0.000$). Most women who had low birth weight (<2.5 grams) were in the age group 35-39, women who had normal birth weight (2.5kg-5kg) were in age group 25-29, while most women who had birth overweight birth (>5kg) were in age group 25-29. The association between birth weight and economic status was found to be statistically significant ($X^2=3.1e+03$, $P=0.000$). Most women had birth weight <2.5kg were rich. Similarly, most women who had normal birth weight (2.5-5kg) are rich. Also, most women who had birth weight >5kg are rich. The association between birth weight and occupation ($X^2=68.8553$, $P=0.000$) was found to be statistically significant. Most women who had birth weight <2.5grams are working. Most women who had birth weight (2.5-5kg) are also working. Most women who had birth weight >5kg are also working. The association between birth weight and education was found to be statistically significant ($X^2=4.7e+03$, $P=0.000$). The association between total children ever born and birth weight was found to be statistically significant ($X^2=202, 7435$, $P=0.000$). The association between birth weight and birth interval was found to be statistically significant ($X^2=54.6894$, $P=0.000$).

Table 8 shows a significant relationship between age and birth weight ($X^2=101.320$, $P=0.000$). Women in age group 35-39 were more likely to have had birth weights <2.5kg than

women in other age groups. Women in age group 25-29 were more likely to have had normal birth weight between 2.5kg-5kg. Similarly, women in age group 25-29 were more likely to have had birth weight >5kg. Women within the rich category were more likely to have had low birth weight (<2.5kg) than women in other income strata. Similarly, women in same income category are more likely to have had birth weight 2.5-5kg than other women, so also is birth weight >5kg. Economic status shows a significant relationship with birth weight ($X^2=3.1e+03$, $p=0.00$). Women with birth interval 2-5years were more likely to have had birth weight <2.5kg than other women. Birth interval shows a significant relationship with birth weight ($X^2=52.8726$, $p=0.000$).

MULTIVARIATE ANALYSIS

Research question 3: What is the influence of healthcare services on pregnancy outcome among women in rural areas?

Table 6: Logistic regression analysis on influence access to healthcare facilities and ever had a terminated pregnancy

Ever had a terminated

Pregnancy	Odds Ratio	P>z	[95% Conf.	Interval]
Number of antenatal visits				
No antenatal visits	1.00(RC)			
<4 antenatal visit(s)	1.035122	0.742	.8427763	1.271367
4 antenatal visits	.840467	0.177	.6532063	1.081411
Delivery assistance				
Skilled birth attendance	1.00(RC)			
Unskilled person	.7711228	0.070	.5821789	1.021388
Traditional birth attendant	.551914	0.002*	.3805326	.8004807
No one	.6649285	0.035*	.4553978	.9708654
Number of tetanus injection before birth				
Received no injection	1.00 (RC)			
Received injection	.8648804	0.219	.6862856	1.089951
Malaria prevention/cure during pregnancy				
Took no malaria drug	1.00 (RC)			
Took malaria drug	.9288838	0.392	.7845953	1.099707
Place of delivery				
Respondent's home	1.00 (RC)			

Other home	.8415578	0.398	.5642258	1.255206
Government facilities	.8204895	0.180	.6142315	1.096009
Private medical facilities	.6956787	0.054	.4778649	1.012773
Economic status				
Poor	1.00(RC)			
Middle	.8246654	0.067	.67088	1.013703
Rich	.8336346	0.123	.6617287	1.050199
Respondent's occupation				
Not working	1.00(RC)			
Working	.893258	0.247	.7377741	1.08151
Told about pregnancy complication				
No	1.00(RC)			
Yes	1.000056	0.999	.8399046	1.190745
Maternal age				
15-19	1.00(RC)			
20-24	1.423928	0.151	.8786449	2.307612
25-29	2.496559	0.000**	1.572411	3.963852
30-34	2.859839	0.000**	1.789293	4.570899
35-39	3.349348	0.000**	2.077741	5.399195
40-44	3.398619	0.000**	2.045049	5.648083
45-49	3.450658	0.000**	1.905121	6.250017

Source: NDHS, 2013

Significant level ($p < 0.01\%$) **, significant level ($p < 0.05\%$)*, reference category (RC), odd ratio (OR)

From the table above, taking no antenatal visit as the reference category, women with less than four antenatal visits (OR=1.035122, P=0.742) are more likely to have had a terminated pregnancy than women with no antenatal visits. On the other hand, women with up four antenatal visits (OR=.840467, P=0.177) are less likely to have a terminated pregnancy than women no antenatal visits.

Delivery assistance statistically predict instance of terminated pregnancy. Taking delivery from a skilled birth attendant as the reference category, women who received delivery assistance from an unskilled person (OR=.7711228, P=0.070) are less likely to have had a terminated pregnancy than women who received delivery assistance from a skilled birth attendant. Similarly, women who received delivery assistance from a traditional birth attendant (OR=.551914, p=0.002) and assistance from no one (OR=.6649285, P=0.035), are both significantly more likely to have

experienced a terminated pregnancy than women who received delivery assistance from a skilled birth attendant.

The number of tetanus injection received before child birth does not significantly predict the incidence of terminated pregnancy. Taking received no injection as the reference category, women who received tetanus injection before birth (OR=.8648804, P=0.219) are less likely to have had a terminated pregnancy than women who received no injection.

Malaria prevention/cure during pregnancy does not significantly predict the incidence the terminated pregnancy among rural women. Women who took malaria drug during pregnancy (OR=.9288838, P=0.392) are less likely to have had a terminated pregnancy than women who took no malaria drug during pregnancy.

Place of delivery significantly predict the incidence of terminated pregnancy. Taking delivery in respondent's home as the reference category, women who delivered in other home (OR=.8415578, P=0.398), government facilities (OR=.8204895, p=0.180) and private medical facilities (OR=.6956787, P=0.058) respectively, are all less likely to have had a terminated pregnancy than women who women who delivered in their homes.

Economic status of respondents does not significantly predict the incidence of terminated pregnancy among rural women. Taking poor women as the reference category, middle (OR=.8246654, P=0.067) and rich women (OR=.8336346, P=0.123) are both less likely to have had a terminated pregnancy than poor women.

Respondents' occupation also is not a significant predictor of the incidence of terminated pregnancy. Taking women not working as the reference category, women who are employed and working (OR=.893258, P=0.247) are less likely to have had a terminated pregnancy than women

who are working. Also, women who were told about pregnancy complication (OR=1.000056, P=0.999) are more likely to have experienced to have had a terminated pregnancy than women who are not aware not aware of pregnancy.

Maternal age also is a significant predictor of the incidence of terminated pregnancy outcome. Taking maternal ages of 15-19 as the reference category, women in ages 20-24 (OR=1.423928, P=0.151) are more likely to have had a terminated pregnancy than women in ages 15-19. Women in age groups 25-29 (OR=2.496559, p=0.000) and 30-34(OR=2.859839, P=0.000) are both significantly and two times more likely to have had a terminated pregnancy than women in ages 15-19, while women in ages 35-39 (OR=3.349348, P=0.000), 40-44 (OR=3.398619, P=0.000) and ages 45-49 (OR=3.450658, P=0.000) are significantly and three times more likely to have had a terminated pregnancy than women in aged 15-19

Table 7: binary logistic regression analysis on influence of access to healthcare facilities on birth weight

Birth weight	Odds Ratio	P>z	[95% Conf.	Interval]
Number of antenatal visits				
No antenatal visit	1.00(RC)			
<4 visit(s)	1.900622	0.378	.4556538	7.92787
4 visits	2.860335	0.195	.5840324	14.00867
>4 visits	3.305422	0.077	.878287	12.43992
Number of tetanus injection before birth				
Received no injection	1.00(RC)			
Received injection	.8375619	0.735	.2996491	2.341105
Malaria prevention/cure				
Took no malaria drug	1(RC)			
Took malaria drug	.8525977	0.569	.4924015	1.476281
Economic status				
Poor	1.00(RC)			
Middle	2.42387	0.025*	1.120251	5.244492
Rich	2.40996	0.023*	1.129915	5.140126
Occupation				
Not working	1.00(RC)			
Working	.912055	0.801	.4464074	1.86342

Educational level				
No education	1.00(RC)			
Primary	1.26873	0.593	.5299704	3.037293
Secondary	1.332838	0.507	.5709756	3.111265
Higher	1.286669	0.650	.4325357	3.827467
Maternal age				
15-19	1.00(RC)			
20-24	1.603751	0.476	.4371269	5.883918
25-29	1.378571	0.619	.389069	4.884627
30-34	1.793287	0.388	.4756592	6.760889
35-39	.8915237	0.864	.2389482	3.326305
40-44	2.127006	0.380	.3945359	11.46703
45-49	1.956499	0.582	.1793124	21.34758

Source: NDHS, 2013

Table 10 shows that the number of antenatal care visits before birth is not a strong predictor of birth weight. Women who had <4 visits (OR=3.305422, P=0.378) were more likely to have normal birth weight compared to women with no antenatal visit, while women with four and >4 visits were twice and three times more likely to have normal birth weight compared to those with no visit, with odd ratios and p-values (OR=2.860335, P=0.195; OR=3.305422, P=0.077) respectively.

Number of tetanus injections received before birth and malaria prevention during pregnancy are not strong predictors of birth weight and show no association with birth weight. Economic status is a strong predictor of birth weight. Middle and rich income women are both twice more likely to have normal birth than poor women with log odds and p-values (OR=2.42387, P=0.025; OR=2.40996, P=0.023) respectively. Women with primary, secondary, and higher education are more likely to have normal birth weight than women with no education, with odd ratios and p-values (OR=1.26873, P=0.593; OR=1.332838, P=0.507; OR=1.286669, P=0.650) respectively.

Maternal age is not a strong predictor of birth weight. Taking age groups 15-19 as the reference category, women in all age groups except women who belong to age groups 35-39 are more likely to have normal birth weight compared to women in age group 15-19.

QUALITATIVE ANALYSIS

Table 8: Respondents' according to factors affecting pregnancy outcome among rural women

Characteristics	frequency
Place of delivery (hospital)	
Yes	2
No	1
Antenatal care visitations	
Yes	2
No	1
Delivery assistance (skilled birth attendance)	
Yes	2
No	1
Cultural cues	
Yes	
No	
Malaria prevention	
Yes	2
No	1
Improved nutrition	
Yes	2
No	1
Income	
Yes	2
No	1
Culture and pregnancy outcome	
Yes	2
No	1

Source: Author's Field Survey, 2016

In the course of this session, three respondents were interviewed, identified with respondent1, respondent2, and respondent3 respectively.

Respondent1 is a Muslim, aged 41years old. She has had five previous pregnancies with three surviving children and birth spacing less than 2years between her last two pregnancies. She is a petty trader while her husband does menial jobs. She lives in Oye-Ekiti local government area, Ekiti state and was interviewed in her shop

Respondent2 is a Christian, ages 35 years old. She has had two previous successful pregnancies and birth spacing of five years between the two pregnancies. She is a trader while her husband is a civil servant. She is an HND holder. She lives in Ayegbaju Ekiti, Ekiti state and was interviewed in her house

Respondent3 is also a Christian, aged 45 years old. She has had four previous and successful pregnancies with birth spacing of two years between her pregnancies. She is an HND holder and a secondary school student while her husband, a trader. She lives in Ilupeju, Ekiti state. The significance of the above distributions is that the respondents are experienced married couples and this goes a long way to help in providing basic information needed for the success of this research.

With respect to the influence of socio-demographic characteristics of rural women on their pregnancy outcome, two respondents acknowledged that their income/economic status is a determinant factor in the number of children they have while one said that it is not a major factor in determining the number of children she have. One of the respondents, a Muslim have five children spaced her pregnancy less than two years interval while the other two respondents, both Christians have just two children and spaced their pregnancy greater than two years birth interval. The above finding has been corroborated by some of the respondent interviewed on the issue when she said:

I am a Muslim. I am a trader and my husband does menial jobs. I strongly disagree with that notion. Childbearing has nothing to do with one's income or economic status. For instance, I have had five pregnancies already and I intend to have one more. This does not have anything to do with my income. It is simply the number of children I want to have. If we have to base child bearing on income or economic status, no one will be prepared to have children at all" (res1, age 41)

Another respondent said:

I am a Christian; I have had just two successful pregnancies with interval of 5years between them. My first born was a female while my second child was a male. My husband is a civil servant and we live comfortably. About two years ago, we were in a conundrum of economic difficulty. Because of this, I and my husband had to postpone pregnancy till later. I must say it helped us a lot because we hardly survived when my husband lost his job (res2, age 35)

When asked about their last pregnancies, the first respondent said she once experienced a miscarriage. She additionally said that she never attended antenatal care visitation during that pregnancy. On the other hand, the other two respondents said they never experienced complication because they adhered strictly to medical precaution and went for antenatal care visitation when due. The above finding has been corroborated by some of the respondent interviewed on the issue when she said:

I can't recall exactly but I think the first pregnancy was 9months exactly while the second pregnancy was 9months and 2weeks. But I'm not so sure. Throughout my pregnancy period, I never had any complication and I delivered peacefully. The weight of my baby was normal at 3.6kg. My baby didn't go low on oxygen like some babies' experience. In fact, I've never experienced even a miscarriage before (res3, age 45)

The other respondent who didn't go for antenatal care visitation said:

I remember having a miscarriage once. During this period, my mother in-law said she would give me adequate and experienced care. She never allowed me to go to the hospital let alone attending antenatal care visitation. In the fifth month, I had a miscarriage. It was a very painful and sad experience I will never forget (res1, age41)

With respect to the influence of access to healthcare facilities on pregnancy outcome

When asked if they attended antenatal care visitation and how often they attended, respondent1 said she never attended antenatal care visitation during her last pregnancy while the other two

respondents said they attended antenatal care visits when they were pregnant. The above finding has been corroborated by some of the respondent interviewed on the issue when she said:

"I and my family use the general hospital and we go for medical checkup at periodic intervals. When I was pregnant, I went for antenatal care visitation as recommended. Every appointment given to me I always attended. I went for antenatal care for more than ten times because I started immediately I noticed I was pregnant. I started at an early stage of my pregnancy. In fact, I was given appointment after every two or three weeks. When I was about to give birth, I was given appointment every one week. When they noticed the baby was not moving well, I was given appointment frequently, sometimes every four days. I was even given a mosquito net during this session for malaria prevention (res2, age35)

When asked about place of delivery, respondent1 said she patronized a traditional birth attendant in the community. She further explained that of her five previous pregnancies, only four was live born. One ended in miscarriage while the other died some days after delivery. The other respondents said they delivered peacefully in the hospital. The above finding has been corroborated by one of the respondent interviewed on the issue when she said:

I gave birth in the hospital and the doctor and nurses were with me. Immediately I got pregnancy I registered and started attending ANC visits. Even during the period of strike, I was attended to. When the movement of the baby wasn't understood, I was redirected for an x-ray scan. They assessed the report and I received prompt medical attention. When my carbohydrate level was high, I was told to reduce my carbohydrate intake so that the size and weight of the baby wouldn't be much during delivery. Even after delivery, I still went for checkup at periodic intervals. My baby was also immunized during this session (res3, age45)

On the question of culture and pregnancy outcome, respondent1 do not agree that there are cultural practices that can have negative effect on pregnancy outcomes, while two respondents confirmed that some cultural practices have the tendency of affecting pregnancy negatively if they are not carried out as prescribed by the ancestors. This position was supported by one of the respondent when she narrated her family tradition regarding cultural practices during pregnancy. She said:

During periods of "oro" festival, women are not allowed to come out at night irrespective the severity of her labour. This in often cases than not has impacted adversely on pregnancy and cost pregnant women their lives. In such cases, pregnant women are restrained from delivering in health facilities and this exacerbates negative pregnancy result. (res2, age 35)

Respondent3 also shared narrated her experience during her stay in a community in northern Nigeria. She said:

One of the harmful practices a pregnant woman in labour may be subjected to is "Gishiri cut" or "Yankan-Gishiri". This is a traditional surgical cut performed on any aspect of the vaginal wall using razor blade or knife. It is usually performed by a traditional birth attendant or a local herbalist especially during the first delivery as a 'remedy' to obstructed labour. The side effects include much bleeding, pain and spread of infections like HIV and painful intercourse later (res3, age 45).

When asked about their perception regarding women who don't use modern healthcare facilities, respondents2 said that she utilizes modern healthcare facilities and it has always worked for her. Respondent1 on the other hand said that she holds firmly to traditional birth attendance because it is relatively cheaper and time saving relative to modern facilities. She additionally added that she has had complications at some point. The above finding has been corroborated by one of the respondent interviewed on the issue when she said:

It depends on one's understanding, exposure and belief system. Some people believe in traditionalists while some believe in modern facilities. Our belief is quite different. Mine is from church to the hospital and it works a lot for me (res2, age35).

Test of Hypotheses:

In this section, the two hypotheses earlier proposed for the study were tested, using chi-square and binary logistic regression statistical method of analysis.

Hypothesis 1: H_0 : there is no relationship between the socio-demographic characteristics of rural women and their pregnancy outcome.

Using the Bivariate chi-square analysis, the socio-demographic characteristics (maternal age, economic status, occupation, religion, region, maternal parity all show significant association with the pregnancy outcome being considered (i.e., ever had had a terminated pregnancy) except the economic status which does not show association. On the other hand, all the variables considered show significant association with birth weight. We therefore reject the null hypothesis that there is significant association with the socio-demographic characteristics and pregnancy outcomes

Hypothesis 2: H_0 : Access to healthcare facilities do not influence pregnancy outcomes among rural women

Using the multivariate binary logistic regression, among the health facilities considered include number of antenatal visits, birth attendance, number of tetanus injection received before birth, malaria prevention/cure during pregnancy, and told about pregnancy complication), maternal age, delivery attendance and place of delivery have significance influence on the pregnancy outcome considered (terminated pregnancy). These give enough statistical reason to reject the null hypothesis.

DISCUSSION

Utilization of maternal healthcare facilities in the study area is unacceptably low and critically in need of immediate consideration and this relentlessly inflicts poor pregnancy outcomes among rural women in Nigeria. There are maternal healthcare facilities in the study area but are poorly utilized. For instance, majority of deliveries were conducted in the respondents' homes, majority had no antenatal visit, and a corresponding high proportion didn't prevent malaria nor took tetanus

injection during pregnancy. Among the factors that influence pregnancy outcomes in Nigeria, number of antenatal visits, type of delivery assistance total children ever born, place of delivery, malaria prevention/cure, economic status, birth interval, educational level all show significant association with pregnancy outcome. This is in line with studies conducted by Njikam (1994), Luka (2006), Umar (2016) and Ugal (2012). Information or knowledge about pregnancy complication does not show association with pregnancy complication (ever had a terminated pregnancy). In contrast, Luka (2006) found that women's education and increased awareness reduce risk of pregnancy outcome. Economic status show association with birth weight but not with ever had a terminated pregnancy. Among the socio-demographic characteristics, women of ages 35 to 44 were more likely to have witnessed a terminated pregnancy than women in other age groups, similar to findings conducted by Luka (2006). Women with no education also had a terminated pregnancy than women with a formal education. Similar finding was reported by Luka (2006), which concluded that the importance of early and adequate visits to antenatal care is not clearly understood by women which may be due to the wrong perception they have about antenatal care as a consequence of low level of education. Islamic women were also more likely to have witnessed a terminated pregnancy than Christians and traditionalists, this could be because majority of Muslims are predominant in the north, as shown in a study by Umar (2016). Also, poor women and women who are working had a terminated pregnancy than unemployed and rich women. Maternal ages of 35-39, richer, and employed women who are working had more low birth weight. Maternal parity of less than four children (primigravidas inclusive) had more low birth weight. This could be more prevalent among mothers giving birth for the first time and are more likely to belong to ages <20. Multigravidas who spaced their birth 2 to 5 years had more low birth weight. Women who delivered in their homes had more terminated pregnancies than women

who delivered in health facilities because they are more likely to have patronized unskilled persons or traditional birth attendants.

UNICEF (2015) proposed an ideal birth weight of 2.5kg to 5kg. A very few proportion (0.7 percent) had low birth weight (<2.5kg) while just 7.3 percent of the surveyed women had normal birth weight (2.5kg to 5kg). On the other hand, a very large proportion of the surveyed women had a terminated pregnancy. The socio-demographic characteristics of the surveyed women showed significant association with birth outcome (ever had a terminated pregnancy) except economic status which showed no association, which is in contrast to a study conducted in southern Nigeria by Oshonwoh et al (2014), which showed a significant association between pregnancy outcome and economic status. Women with no formal education had more terminated pregnancies. Possible explanation could be their high levels of illiteracy and poverty and a corresponding vulnerability to risk factors of poor pregnancy outcomes. Education has been identified in studies as an exposure factor; education increases knowledge and awareness of the risk factors of pregnancy outcomes and how to avoid them. Women with no formal education constitute greater proportion (61 percent) of the respondents and they are more likely to have had limited access to healthcare facilities. A woman's education is one of the most important predictor of poor pregnancy outcomes. The higher a woman's level of education, the more likely it is that she will marry later, use contraception, utilize health services, recognize danger signs in the newborn and play a greater role in reproductive health decision-making. Furthermore, female education has an impact on survival both as a direct determinant of behavior and indirectly as it affects cultural attitudes and gender issues.

Islamic women had more levels of terminated pregnancies than Christians and traditionalists. These findings are consistent with findings from a study conducted by Luka (2009).

The North East followed by the North Western regions was more likely to have had a terminated pregnancy than the other regions. This is in line with studies conducted by Umar (2016), and Ugal et al., (2012). Their studies show significant association between religion and region toward utilization of maternal healthcare services. Utilization of maternal healthcare facilities is unacceptably low in the north and majority of the northerners constitute Muslims. This explains why Islamic women had higher levels of terminated pregnancies, just like Umar (2016) concluded. Women who are working had more terminated pregnancies than women who are not working. Stress could have led to terminated pregnancies for women who are working, just like Luka (2006) concluded in a study conducted to examine the determinants of pregnancy outcomes among antenatal care attendees in Birnin Gwari local government area of Kaduna state. Women who had five or more children to nine children had higher levels of terminated pregnancies than women who had less than five children and ten and above children.

Socio-demographic factors, most of which could be averted, still exert negative pregnancy outcome among rural women in Nigeria. Such adverse outcomes could be reduced to the barest minimum by avoiding closely spaced pregnancies and giving birth at extreme maternal ages (<18years and >35years), just like Adrej (2003) posited in Russia.

In examining the influence of access to healthcare facilities on pregnancy outcome, 86.8% of the respondents never had a terminated pregnancy while a corresponding large proportion had normal birth weight than low birth weight. The multivariate analysis show that women who had access to health care facilities (skilled birth attendants, tetanus injection before birth, malaria prevention/cure, delivery in health facilities) were more likely to have had positive pregnancy outcomes: Access to healthcare facilities statistically predicts a positive pregnancy outcome. Low maternal ages are a risk factor for low birth weight. Teenagers (15-19 years of age precisely) have

more chances of having low weight babies. The incidence of terminated pregnancy keeps increasing with increased maternal ages. As a woman gets older, the chance of experiencing terminated pregnancy keeps increasing. High maternal age is a risk factor for miscarriage and stillbirths. This is in line with studies conducted by Luka et al. (2016), Umar (2016), Ugal et al. (2012) and Adamu (2011).

In the qualitative study, the three women who were interviewed identified the factors that affect their pregnancy outcomes. Among the factors identified, majority of the women who spaced their pregnancy for interval greater than two years had positive pregnancy outcomes than the woman who spaced her pregnancy less than two-years interval. This is consistent with findings from a study conducted in rivers state by Nwokocha and Ajibiye et al, (2012), which show that closely space pregnancy has higher risk of maternal and infant mortality. Similarly, high maternal parity proves to be an indispensable precipitator for poor pregnancy outcomes. The study also shows an inverse relationship between economic status and maternal parity. Such inverse relationship also exist between educational level and maternal parity so does the pregnancy outcome.

Women who utilized healthcare facilities had positive pregnancy outcome than women who patronized traditional health practitioners. Respondents who adhere to antenatal visits reported having positive pregnancy outcomes while the respondent that never went for antenatal care visitation reported having complication during their pregnancy until they resumed antenatal care visitation. Improved maternal nutrition also shows to improve pregnancy outcome, women who attended antenatal care visits were told to reduce carbohydrate intake so as to avoid overweight delivery. Huma (2013) observed that individuals who have knowledge on the importance of adequate and balanced diet are considered to reflect the knowledge on their health

behaviors. Paramjit, Ravnit and Sacheva (2006) posited that adequate nutrient intake in pregnancy is needed to promote maternal and fetal tissue growth for optimum pregnancy outcome and that inadequate dietary intake may result in poor pregnancy outcomes.

Respondents concluded that some cultural practice are harmful to pregnant women. Since there is positive correlation between education of females and non-practice of these practices, increased enrollment of females into schools will help reduce the prevalence of these practices among our community. There should be more collaboration between health workers, religious and traditional leaders to enlighten the masses on health implications of these practices. Government should intensify campaign in media and through the use posters, dramas etc. to sensitize people on dangers of this practices. Finally, these practices do not have any benefit on the women who practice them and in contrast have hazardous effects, and hence our society should abandon them for the better.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The aim of this study was to examine the determinants of pregnancy outcomes among rural women in Nigeria, and to assess the significance of the determinants. In order to achieve this purpose, the socio-demographic characteristics of the respondents were examined. This was complemented with an assessment of the influence of access to healthcare facilities. The study also considered the influence of these outcome variables on pregnancy outcomes measured as ever had a terminated pregnancy and birth weights. This section presents the summary of the findings, conclusion and recommendation.

5.2 Summary of Findings

5.2.1 objective1 was to examine the proportion of women with positive pregnancy outcomes

The study observed that the utilization of maternal healthcare services among rural women in Nigeria is unacceptably low and this was manifested in poor pregnancy outcomes. Not a very large proportion had poor pregnancy outcomes. 0.7% had low birth weight considering that 92% didn't weigh their birth. On the other hand, 87% never had a terminated pregnancy.

5.2.2 objective2 was to examine the relationship between pregnancy outcomes and socio-demographic characteristics of rural women

The study shows association between socio-demographic factors and pregnancy outcomes. Literacy level among rural women in Nigeria is low and aggravates their poverty levels and persistent impoverishment of the rural population. Among the socio-demographic factors

considered, only economic status does not show association with pregnancy outcome. The risk factors considered all showed association with pregnancy outcome. Surprisingly enough, knowledge about pregnancy complications does not necessarily prevent poor pregnancy outcomes. Illiteracy is the leading cause for low utilization of healthcare facilities among rural dwellers. Occupation play a major role on levels of terminated pregnancy as women who were working had more terminated pregnancies than their unemployed counterparts. Some physical activities in the rural areas require physical strength and entail stress and contribute to increased levels of terminated pregnancies. The study also shows that risk of terminated pregnancy increases as maternal age increases.

Objective3 was to examine the influence of access to healthcare facilities on pregnancy outcomes

The study shows significant influence of access to healthcare facilities on pregnancy outcomes. The determinants considered; number of antenatal care visits before birth, delivery assistance, number of tetanus injection during pregnancy, malaria prevention/cure during pregnancy, and place of delivery all influence pregnancy outcomes except the economic status and knowledge about pregnancy complication. The qualitative study shows that poor nutritional intake and harmful cultural practices still exist in rural areas which exert adverse pregnancy outcomes among rural women. This has been as a result of low levels of exposure and literacy among the rural population.

5.3 Conclusion

The predominant factors that adversely affect pregnancy outcomes were identified to be high maternal age, low educational status, stressful occupation, maternal parity, closely spaced pregnancy, and little or no patronage of healthcare facilities. The qualitative research identified

additional factors that affect pregnancy outcomes among rural women as maternal nutrition and cultural cues. The study concludes that there is association between pregnancy outcomes, socio-demographic factors and access to healthcare facilities.

5.4 Recommendations

From the findings of the study, the researcher proposes the following recommendations:

1. Policy makers should promote educational programs to ensure the girl child, and women is enrolled and retained in school to at least complete secondary schooling education, which could increase age at marriage and a consequent reduction in maternal parity
2. Promotion of flexible working conditions so as to reduce the incidence of miscarriages.
3. Empowerment of rural women in other to free them from entanglements of poverty, and make the self-dependent
4. Improvement on the health sector through establishment and assurance of effective maternal healthcare facilities in rural communities, like emergency obstetrical services in order to reduce or eradicate the incidence of home deliveries
5. Rural women should be enlightened to deprecate obnoxious cultural practices which directly or indirectly hamper pregnancy outcomes, and embrace healthy practices that grounds favorable pregnancy outcomes.

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