PATTERN AND CORRELATES OF MODERN CONTRACEPTIVE USE AMONG HIGH FERTILITY WOMEN OF REPRODUCTIVE AGE IN NIGERIA

BY

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CERTIFICATION

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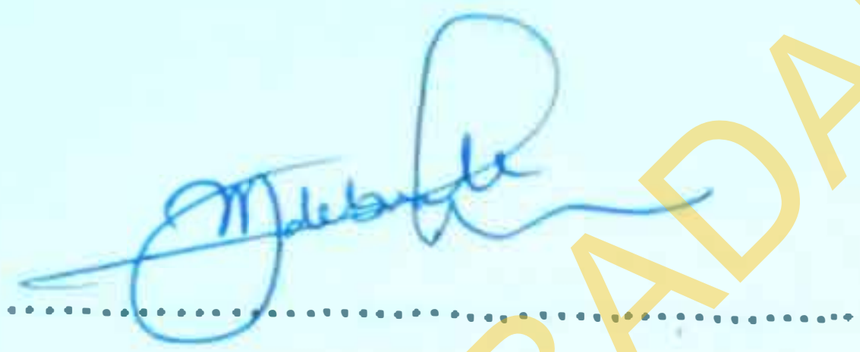

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DEDICATION

This work is dedicated to Almighty God and my Lord Jesus Christ, the Saviour of my soul, my Deliverer and King of glory.

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TABLE OF CONTENT

CHAPTER FOUR: RESULTS

CHAPTER FIVE: DISCUSSION, CONCLUSION AND RECOMMENDATIONS

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS AND ACRONYMS

AIDS	Acquired Immunodeficiency Syndrome
C.I	Confidence Interval
EAs	Enumeration Areas
ESMPIN	Expanded Social Marketing Project in Nigeria
FCT	Federal Capital Territory
FP	Family Planning
FPM	Family Planning Media
HF	High Fertility
HIV	Human Immunodeficiency Virus
ICPD	International Conference on Population and Development
IRHIN	Improved Reproductive Health in Nigeria Project
IUD	Intra Uterine Device
LAM	Lactational Amenorrhoea Method
LGAs	Local Government Areas
MC	Modern Contraceptives
MDG	Millennium Development Goals
NERDC	National Education and Research Development Council
NGOs	Nongovernmental Organizations
NHDS	Nigeria Demographic and Health Survey
NHREC	National Health Research Ethics Committee
UNICEF	United Nations Children's Fund
PRB	Population Reference Bureau
PPFN	Planned Parenthood Federation of Nigeria
PSU	Primary Sampling Unit
RHC	Reproductive Health Commodity
SFH	Society for Family Health
STI	Sexually Transmitted Infections
TFR	Total Fertility Rate
UN	United Nations
UNAIDS	Joint United Nations Programme on HIV/AIDS
UNDP	United Nations Development Programme
UNFPA	United Nations Population Fund
USA	United States of America
USAID	United States Agency for International Development
WHO	World Health Organization

DEFINITION OF TERMS

Contraception: Is defined as a conscious action in order to prevent an unwanted pregnancy and equally, to enable human to take independent decision of having progeny.

Contraceptive prevalence: Refers to the percentage of wotnen who are currently using, or whose sexual partner is currently using, at least one method of contraception, regardless of the method used.

Demographic transition: refers to the transition from high birth and death rates to low birth and death rates as a country develops from a pre-industrial to an industrialized economic system.

High fertility women: In the context of this study, refers to women who already have four or more living children. The reason is that, women having four children should begin to prevent further childbearing having reached the stipulated number of children a couple should have as recommended by the Nigeria Population Policy, 1988.

Family planning: Planning intended to determine the number and spacing of one's children through birth control, that is to say, planning of when to have children, and the use of birth control and other techniques to implement such plans.

Life time risk of maternal death: The probability that a woman dies from causes related to pregnancy or childbirth. The measure combines the probability of becoming pregnant and the risk of death from each pregnancy (as measured by the 2010 maternal mortality ratio).

Long-acting reversible contraceptives: Refers to contraceptive methods that can prevent childbearing for a period of time if taken irrespective of number of sexual intercourse a woman is involved during the interval. Examples are; intrauterine devices (IUDs) and implants, such as Jadelle or Implanon.

Maternal mortality ratio: Refers to the number of maternal deaths per 100,000 live births.

Modern contraceptives method: Modern methods of family planning include clinic and supply methods such as the pill, intrauterine device (IUD), injection, condom, Vasectomy and sterilization. "Other Modern Methods" include diaphragm, foam/jelly, implants, female condom, lactational amenorrhea method (LAM).

Natural contraceptives method: Refers to standard days method, that is, use of calendar or rhythm of a woman's menstrual cycle to time sexual intercourse with the aim of preventing conception

Permanent contraceptives methods: These are irreversible contraceptive methods such that if used will stop childbearing, these are, tubal ligation (female sterilization) and vasectomy (male sterilization).

Reproductive Health: Refers to a state of complete physical, mental and social well-being, and not merely the absence of disease or infirmity, in all matters relating to the reproductive processes, functions and system at all stages of life.

Total fertility rate: Refers to the average number of children a woman would have assuming that current age-specific fertility rates remain constant throughout her childbearing years.

Traditional contraceptives method: This includes: Periodic abstinence (also called the rhythm method), withdrawal, long-term abstinence and prolonged breastfeeding.

Unmet need for family planning: Women are said to have an unmet need for family planning if they are married, fecund, of reproductive age (generally ages 15-49) and say they prefer to stop having children (limit their births) or want to wait two or more years to have another child (space their births), but are not using contraception

Unsafe abortion: Any procedure to terminate an unintended pregnancy done either by people lacking the necessary skills or in an environment that does not conform to minimal medical standards, or both.

Unwanted pregnancy: This refers to as pregnancy that was not planned for or desired by the couple at the time of conception.

ABSTRACT

Nigeria with total fertility rate of 5.5 is among High Fertility (HF) countries world-wide. High fertility women are susceptible to pregnancy related risks including increased maternal morbidity and mortality. The prevalence of use of Modern Contraceptives (MC) among high fertility women in Nigeria is very low and studies on it have not been well documented. This study was therefore conducted to determine the pattern and correlates of MC use among HF women in Nigeria.

The study was based on 2008 Nigeria Demographic and Health Survey. Data on 3654 women of childbearing age (15-49 years) was extracted with data collection guide. The data were weighted before use because cluster sampling method was adopted during its collection. The dependent variable was current use of any MC (No method=0, Traditional method=1, MC method=2) and the independent variables were demographic and socio-economic factors. High fertility women in the context of this study means women who already have ≥4 living children. The expectation is that such women should begin to prevent further childbearing having reached the stipulated number of children a couple should have as recommended by the Nigeria Population Policy, 1988. Women who were pregnant, menopausal, not having sex in the past one month before the survey were excluded from the data sample. Data were analysed using descriptive statistics, Chi-square test and multinomial logistic regression model at p=0.05.

Age of the women was 39.2±6.2 years, prevalence of MC used was 17.2% and higher in urban (28.5%) than rural (11.5%) area. Injectables (7.2%) and IUD (3.5%) constituted the highest prevalence of MC use. The proportion of women who used any MC was least among women without formal education (4.1%) and women living in the North Eastern Nigeria (3.9%). The MC use was higher among the Christians (28.7%) than Muslims (7.6%) religious groups. The proportion of women who use MC increased consistently from 3.0% among those in poorest to 37.3% of those in the richest wealth quintile. Women who were exposed to Family Planning Media (FPM) messages (radio/television/newspaper) had significantly higher MC prevalence (26.9%) than women who were not exposed (9.4%). The identified predictors of MC are: age, religion, ethnicity, wealth quintile, partner's educational level, working status, and FPM. Women living in North East were significantly less likely (OR=0.338, C.I=0.167-0.686) to use MC than their counterparts in the South West. The likelihood of MC use was significantly higher among Igbo (OR=3.73, C.I=1.62-8.56) and Yoruba (OR=5.92, C.I=2.70-12.95) than Hausa. Also, being in the highest wealth quintile promotes the use of MC (OR=2.01; CI=1.02-3.99) than women in the poorest wealth quintile.

The use of modern contraceptives method is low among high fertility women of reproductive age in Nigeria. Information that will promote the use of modern contraceptive should be spread across the regions and target poor women in Nigeria.

Keywords: Modern contraceptives use, High fertility women, Fertility reduction, Nigeria.

Word count: 461

CHAPTER ONE

INTRODUCTION

1.1 Background

Nigeria is the world's seventh and Africa's most populous country, with country's 2006 Population and Housing Census estimated figure at 140,431,790 and growth rate at 3.2% per annum (NPC and ICF International, 2014; PRB, 2014). It is one of the six developing countries that account for about half of the annual population growth in the world (United Nations, 2004a). Despite consistent high rates of population growth in developing countries, the rates have appreciably decline in the past two decades, from an average annual rate of 1.8% in 1990–1995 to 1.3% in 2010–2015 (United Nations, 2013a).

Persistent High Fertility (HF) remains a public health problem in sub-Saharan Africa and has not received its desired attention in some of the countries in the region. In response to the 1994 International Conference on Population and Development (ICPD), continued campaigns were put in place by International Organizations such as United Nations Development Programme (UNDP), United Nations (UN), World Health Organization (WHO), etc that high fertility countries should device mechanisms to reduce their current fertility figure in order to achieve lower population growth rates that are compatible with the attainment of social and economic goals (United Nations, 2004b). Accordingly, fertility reduction strategies in order to curtail the high population growth rate worldwide have been embarked upon by the governments of several countries. Worldwide, the proportion of Governments who had policies to reduce fertility had risen from 6 out of 10 in 1996 to about 9 out of 10 in 2011 (United Nations, 2013a). Consequently, world fertility has fell from 4.4 children per woman in 1970-1975 to 2.5 children per woman in 2005-2010. However, total fertility rate in sub-Saharan African region remains high (United Nations, 2013b). The fertility level in Africa has declined from 5.7 children per woman in 1990-1995 to 4.7 children per woman in 2010-2015 (United Nations, 2013b), while sub-Saharan Africa has a fertility rate of 5.1 children per woman (PRB, 2014).

The world's population is undergoing demographic transition and up to 76 countries have fertility below the replacement level (2.1 children per woman), but developing countries like Nigeria is still experiencing high levels of fertility. In over four decades for example, Nigeria

fertility rate reduced with only 1.1, as it fell from 6.6 children per woman in 1970-1975 to 6.0 children per woman in 2005-2010 (United Nations, 2013b) and to 5.5 in 2013 (NPC and ICF International, 2014); and with this figure, Nigeria has been categorized as one of the high fertility countries.

High fertility has implication on the lives of individuals, family, and a nation. Particularly, it affects women who bear the burden of pregnancy, childbearing and childrearing (PRB 2012; Roudi-Fahimi and Ashford, 2008; WHO, 2009a). High fertility women are vulnerable to pregnancy related risks including increased maternal morbidity and mortality (Roudi-Fahimi and Ashford, 2008; WHO, 2009a). For instance, in 2013, the number of women dying due to complications during pregnancy and childbirth was 289,000 (WHO, 2014) and the risk of dying was higher among women in developing than developed countries. In 2010, women in developing countries were about 15 times (31 times in sub-Saharan Africa) more likely to die from pregnancy and childbirth-related causes than those in developed countries (United Nations, 2013a). Nigeria with maternal mortality ratio estimated at 576 and life time risk of maternal death of 1 in 30 women constituted about 14% (40,000) of all the global maternal deaths (NPC and ICF International, 2014; United Nations, 2014a). Also, 32% of all deaths among women of reproductive age are pregnancy related (NPC and ICF International, 2014). Evidence from 2014 World Health Statistics report and World Population data sheet show that, low contraceptive utilization results in high rates of total fertility, maternal mortality and infant mortality (WHO, 2014; PRB, 2014). Ensuring women's ability to control their own fertility was considered as one of the cornerstones of population and development-related programmes at the 1994 ICPD in Cairo, Egypt (Greene et al., 2012). Of the resolution adopted by United Nations General Assembly in 1999, FP was included as part of gender perspective to be adopted in all processes of policy formulation and implementation and in the delivery of services (United Nations General Assembly, 1999). The ten-year review of the ICPD reiterated among others, the need to improve access to the quality of FP services as an integral component of reproductive health care (UNFPA, 2005).

Contraceptive use and unmet need for family planning (FP) are vital to deeper understanding in fertility changes and to improving reproductive health worldwide (United Nations, 2014b). Also, improved maternal health and sustainable population growth worldwide could be achieved through access to and appropriate use of safe and effective methods of fertility control, which helps in avoiding unintended pregnancy (WHO, 2008). Contraception is the

most cost-effective intervention for preventing unwanted pregnancy and health risk associated with pregnancy (Greene et al., 2012). It reduces the need for unsafe abortion, reinforces people's rights to determine the number and spacing of their children. Moreover, FP enables women who wish to limit the size of their families to do so (WHO, 2013). These public health problems are reduced by means of correct and constant use of modern contraceptives (MC), especially the long acting or permanent methods if a woman does not want pregnancy any more (Family Health International, 2007). In most developing countries, the number of children desired is declining and motivation for healthy spacing of births has steadily increased (Westoff, 2010; Darroch, 2013). Though more than 90% of Governments are supporting FP programme, only few countries have met even a minimal benchmark of a 50% reduction in the unmet need for FP (United Nations, 2014c).

The level of acceptance of contraceptive methods still varies within societies and also among different social and religious groups. For instance, the developing regions are more likely to use long acting/permanent methods such as female sterilization and the IUD. Female sterilization is most commonly used in Latin America and the Caribbean (PRB, 2013). In Nigeria, the use of modern method, such as injectables, IUD and pill is much higher among married women (NPC and ICF International, 2009). Previous reports have revealed that many rural women are less likely to use modern contraceptive methods as compared to their counterparts in the urban arrear. Factors such as woman's level of education, family economic status and number of living children are linked to her likelihood of using modern contraceptive method (Guttmacher Institute, 2008). For instance, women in the wealthiest quintile are more likely to use modern contraceptives than the poorest (NPC and ICF International, 2014). There are also disparities in regional use of modern contraceptives in Nigeria. For example, South West has the highest level of contraceptive prevalence followed by South East, South South and North Central (NPC and ICF International, 2014).

In Nigeria, the reasons for not intending to use contraception in the future among currently married women of reproductive age who are not using contraception were: opposition to use of contraception which could be from the respondent or other people such as husband/partner or religious prohibition (39.4%); fertility-related reasons including wants as many children as possible (28.6%) and method-related such as fear of side effects (15.5%) (NPC and ICF International, 2014). In spite of this unimpressed contraceptive state, the prevalence of contraceptive use has risen over the past years. In Nigeria, contraceptive prevalence has risen

from 6.0% in 1990 to 14.6% in 2008, while modern contraceptives rose up to 9.7% in the same period. Meanwhile, total demand for FP among currently married women in Nigeria is 34.8% of which unmet needs is 20.2% (NPC and ICF International, 2009). This paper therefore seeks to ascertain the pattern and correlates of Modern Contraceptives use among high fertility women in Nigeria with emphasis on long acting method, in order to unravel the socio-economic factors associated with contraceptive use among high fertility women in Nigeria. This will guide the FP programmers when designing strategies to boost contraceptive use in Nigeria.

The policies made by the government of Nigeria to curtail the rate of population growth that it is experiencing have made little impact in reducing fertility despite population and family life education programmes that were embarked upon by Nigerian government and organizations such as Planned Parenthood Federation of Nigeria (PPFN); the National Education and Research Development Council (NERDC); the Federal Ministry of Health and Social Services and the Federal Ministry of Information and Culture.

1.2 Problem Statement

Nigeria is the Africa most populous country, its current population is estimated at 177.5 million with rate of natural increase of 2.5 and by mid 2050 its population is projected to be 396.5 million (PRB, 2014). Because of the existing pattern of the population growth rate, the Federal Government of Nigeria in, 2004 reviewed 1988 National Population Policy with the aim among others, to reduce the total fertility rate by at least 0.6 children every five years and national population growth rate to 2% or lower by 2015. Nevertheless, the Nigeria TFR of 5.5 remains high when compared to its targets and this has implications for maternal and child health. Nigeria constituted about 14% of global maternal deaths with current maternal mortality ratio estimated at 576 maternal deaths per 100,000 and infant mortality rate of 69 deaths per 1,000 live births (PRB, 2014; NPC and ICF International, 2014). These poor demographic parameters have been linked with high fertility in the past (Roudi-Fahimi and Ashford, 2008; WHO, 2009a).

A research conducted in eight Nigerian states has shown that, 28% of the women ever had unwanted pregnancy of which 51% reported that they had ever sought abortion (Sedgh et al., 2006). In 2008, Centre for Reproductive Rights reported that about 34,000 maternal deaths in Nigeria are attributable to abortion alone (Bankole et al., 2006). However, adequate and

effective use of contraceptive can reduce the risk of unintended pregnancies by more than 66%, unsafe abortion by 73%, prevent 70% of maternal deaths, and avert 44% of newborn deaths (UNFPA, 2014).

Although, Nigeria in 2004, introduced a National Population Policy that targeted among others, to: increase the modern contraceptive prevalence rate by at least 2% point per year, there has not been remarkable improvement in contraceptive utilization. As well, Society for Family Health (SFH) started a six-year project, from 2005-2011 known as Improved Reproductive Health in Nigeria (IRHIN) Project with the purpose to improve the understanding of, access to, and correct use of contraceptives to reduce unintended or mis-timed pregnancies. In 2011, SFH initiated Expanded Social Marketing Project in Nigeria (ESMPIN) with similar aims (PRB, 2014). But with all these efforts, the total demand for family planning (FP) among currently married women in Nigeria remains low (34·8%) with high unmet need (20.2%) (NPC and ICF International, 2009). However, report by Otti et al. (2007) noted that, limited FP patronage in the UNFPA assisted states in Nigeria was due to pro-natalist culture, socio-economic factors and confidentiality issues.

According to the Fourth World Conference on Women, held in Beijing in 1995, complications related to pregnancy and childbirth are among the leading causes of mortality of women of reproductive age in many parts of the developing world (United Nations, 1996 and 2004a). It was also noted at the conference that, unsafe abortions threaten the lives of a large number of women, representing a grave public health problem as it is primarily the poorest and youngest who take the highest risk. Moreover, policies regarding abortion continue to be much more restrictive in developing countries than in developed countries (United Nations, 2013a). For instance, in Nigeria, abortion is illegal, except for the purpose of saving life of a woman or in regards to mental and physical health restoration (Bankole et al., 2006). Nonetheless, one in five pregnancies each year is unplanned and slightly more than half of it ends up in abortion, while three-quarter of a million Nigerian women have an induced abortion each year (Guttmacher Institute, 2006).

1.3 Rationale of the study

Studies have shown that there is a direct relationship between family planning (FP) and maternal and child mortality and morbidity. Family planning promotion has potential benefits

of reducing poverty and maternal and child mortality (Cleland et al, 2006). The use of contraception helps women to avoid unwanted pregnancies and unsafe abortion. Family planning also allows spacing of pregnancies and reduces high fertility (Greene et al., 2012).

A number of reports have associated unwanted pregnancy, high fertility rates with high maternal mortality rate in Nigeria (Etuk and Ekanem, 2003). For instance, high fertility and teenage pregnancy rates affect child survival and the health status of mothers (National Population Commission 2011). As such, the lifetime chance of dying due to pregnancy-related causes is greater for women with high fertility than those with lower fertility because they are pregnant more often and therefore face the risk of death (Roudi-Fahimi and Ashford, 2008). As well, fertility is one of the most important factors determining the rate of population growth in Nigeria (National Population Commission, 2011).

Nigeria's fertility rate barely reduces in spite of its efforts to reduce the high fertility rate in the country (Federal Republic of Nigeria, 2004; United Nations, 2013b). Despite the fact that, contraceptive is the most cost-effective intervention for preventing unwanted pregnancy and health risk associated with pregnancy, religious and cultural factors undermine utilization of services to family planning in Nigeria (Greene et al., 2012; UNFPA, 2009). Therefore, more research is needed in order to unravel possible reasons for this persistent high fertility and low contraceptive use.

Quite a number of studies in Nigeria such as Adebowale *et al.*, (2013) have shown that factors, particularly age, region, residence, religion education, ethnicity, FP media exposure are significant predictors of current use of any contraceptive method among women of reproductive age.

Previous studies have suggested that high fertility rate in Nigeria is in part due to the large desired family size, as such there are negative attitudes to contraceptive use and family planning (Osuafor, 2011; UNFPA, 1996). An important factor which has been less studied in the literature is the pattern of modern contraceptive use among high fertility women. Therefore, more research is required to determine the pattern and correlates of modern contraceptives use among high fertility women in Nigeria with emphasis on long acting method because this has not been adequately explored in Nigeria. The result of the findings from this study will be useful to family planning programmers, policy makers and other

stakeholders in addressing the problem by developing an appropriate policies and strategies that could enhance the use of modern contraceptives among Nigeria women. Consequently, this measure has tendency to reduce fertility in the long run, improves maternal health and enhances sustainable population growth.

1.4 Research Questions:

i. What is the pattern of modern contraceptive use among high fertility women in Nigeria?
ii. What is the effect of family planning media exposure on contraceptive use among high fertility women in Nigeria?
iii. What are the demographic and socio-economic factors associated with use of modern contraceptive method among high fertility women in Nigeria?
iv. Is there any difference in the level of fertility of high fertility women who are currently using modern contraceptive and those who are not using?

1.5 Objectives

1.5.1 General objective

The general objective of the study is to assess the inter-relationship between demographic, socio-economic factors and modern contraceptive use among high fertility women of reproductive age in Nigeria.

1.5.2 Specific objectives

The specific objectives are to:

i. Determine the prevalence of use of modern contraceptive and long acting/permanent method among high fertility women in Nigeria.
ii. Examine regional differences in the use of long acting contraceptive method among high fertility women in Nigeria.
iii. Examine the level of fertility measured by children ever born among high fertility women in Nigeria.
iv. Identify socio-demographic factors that are predictors of use of modern contraceptive and long acting/permanent method among high fertility women in Nigeria.

1.6 Research Hypothesis:

i. There is low prevalence of modern contraceptive use among high fertility women in Nigeria.

ii. There is no significant difference in the use of long acting contraceptive method by regions in Nigeria.

CHAPTER TWO

LITERATURE REVIEW

2.1 Contraception and Fertility

Contraception is the use of various devices, drugs, agents, sexual practices, or surgical procedures to prevent conception or impregnation (pregnancy). Contraception helps women plan if and when they want to have a baby (Karra and Lee, 2012). Contemporary studies show that, out of a list of eight reasons for having sex, having a baby is the least frequent motivator for most people (Hill, 1997). This seems to have been true for all people at all times. Since the dawn of history, women and men have always wanted to be able to decide on when and whether to have a child or not. Contraceptives have been used in one form or another for thousands of years throughout human history and even prehistory. In fact, family planning has always been widely practiced, even in societies dominated by social, political, or religious codes that require people to "be fruitful and multiply" from the era of Pericles in ancient Athens to that of Pope Benedict XVI, today (Blundell, 1995; Himes, 1963; Pomeroy, 1975; Wills, 2000).

The methods used before the 20th century were not always as safe or effective as those available today. Centuries ago, Chinese women drank lead and mercury to control fertility, which often resulted in sterility or death (Skuy, 1995). During the middle Ages in Europe, magicians advised women to wear the testicles of a weasel on their thighs or hang its amputated foot from around their necks (Lieberman, 1973). Other amulets of the time were wreaths of herbs, desiccated cat livers or shards of bones from cats (but only the pure black ones), flax lint tied in a cloth and soaked in menstrual blood, or the anus of a hare. It was also believed that a woman could avoid pregnancy by walking three times around the spot where a pregnant wolf had urinated. In more recent New Brunswick, Canada, women drank a potion of dried beaver testicles brewed in a strong alcohol solution. And, as recently as the 1990s, teens in Australia have used candy bar wrappers as condoms (Skuy, 1995). Perhaps more surprising than such often bizarre and totally ineffective methods is that modern science has revealed many other ancient methods, especially certain herbal treatments, to be actually somewhat effective, though not always safe or practical (Riddle, 1992).

Contraceptive use is vital to promoting women's health and protecting their rights and the prevalence of contraceptive use among currently married women is the principal proximate

determinant of fertility (Envuladu et al., 2012; Bongaarts, 2007). Family planning allows individuals and couples to anticipate and attain their desired number of children and the spacing and timing of their births (WHO, 2013). It stressed that, a woman's ability to space and limit her pregnancies has a direct impact on her health and well-being as well as on the outcome of each pregnancy (WHO, 2012). There have been increasing overall levels of contraceptive use in many developing countries. Regardless of this significant increase in contraceptive use over the years, there still remain large gaps between the desire of women to delay or avoid having children and their actual use of contraception (WHO, 2014). For example, about one in four women aged 15-49 years who were married or in a union had an unmet need for family planning (FP) in WHO African Region in 2011 (WHO, 2014). Worldwide in 2010, unmet need for FP decreased from about 15·4% in 1990, to 12·3% and constituting around 146 million women aged 15-49 years who were married or in a union and about 769 million married women of reproductive age in developing countries have total demand for FP of which 131 million have unmet need, while about 191 million have unmet need for modern methods (Alkema et al, 2013).

Reproductive preferences as found by Bongaarts are the next link in the chain of causal factors that determine fertility (Bongaarts, 2010). Fertility declines occurred in all but one Asian/N. African country and in a majority of Latin American countries. Also, contraceptive prevalence is lower in sub-Saharan than in the Asia/N. Africa or Latin America, which is as expected from the observed fertility differences (Bongaarts, 2007). The level of contraceptive use is the dominant proximate determinant of fertility (Bongaarts, 2007). As found in several countries worldwide, the total fertility rate is always higher where the rate of contraceptive use is low (PRB, 2013). For example, high fertility rate in northern Nigeria, with 6.3% in North East and 6.7% in North West match with their low contraceptive utilization with women living in North East and North West reported a prevalence rate of only 3.2% and 4.3% respectively, which is much lower than the rate for the nation (NPC and ICF International, 2014). According to Alkema et al. (2013), trends in contraceptive prevalence and unmet need for FP, and the projected growth in the number of potential contraceptive users indicate that increased investment is necessary to meet demand for contraceptive methods and improve reproductive health worldwide. Cleland et al. (2006) noted that if unmet need is reduced, there would also be improvements in health of millions of women exposed to the risks of becoming pregnant, in infant and child health and survival

Several studies have indicated that prevalence of contraceptive use in Nigeria is very low (NPC and ICF International, 2014; PRB, 2013; Adebowale and Palamuleni, 2014). In Nigeria, long-acting and permanent methods of contraception which is safe and cost-effective for women who desire to delay or limit births, contribute only about 10% of modern contraceptive use and most Nigerians are ignorant about these methods (Babalola and John, 2012). However, factors such as education, wealth, exposure to family planning information, etc have been found to influence contraceptive utilization. For instance, wealth may have effects on desired family size and contraceptive use effectiveness (Adebowale and Palamuleni, 2014; Fapohunda and Poukouta, 1999). Also, women who are educated are more informed of contraceptive methods and they are able to participate in the decision-making process of family issues (Lloyd, 2009; Mandelbaum, 1974).

2.2 Contraceptive Methods

There are different contraceptive methods and this has been classified as modern or traditional methods. The modern methods are: female sterilization, male sterilization, the pill, intra-uterine device (IUD), injectables, implants, male condom, female condom, diaphragm, foam/jelly, lactational amenorrhoea method (LAM) and emergency contraception, and the traditional methods include: rhythm (periodic or prolonged abstinence) and withdrawal methods.

In accordance with the objectives of Programme of Action of the International Conference on Population and Development among others, are to improve the quality of family planning advice, information, education, communication, counselling and services; to increase the participation and sharing of responsibility of men in the actual practice of family planning; to prevent unwanted pregnancies and reduce the incidence of high-risk pregnancies (United Nations, 2004a). It has been shown that, knowledge and approval of contraceptive methods were significantly associated with family size preferences (James and Isiugo-Abanihe, 2010). Study findings such as Lule et al. (2007) indicated that in Nigeria, it is important to improve contraceptive knowledge and access to methods if unintended pregnancy and unsafe abortion are to be reduced. The paper stress that in Nigeria, there is great need for expanded and improved provision of contraceptive information and services to help women delay the first birth, achieve healthy spacing of their births, and avoid unwanted births; to also increase women's and men's understanding of the advantages of family planning and combat myths about modern contraception.

According to 2013 Nigeria Demographic and Health Survey, there is widespread knowledge of any contraceptive method among women of childbearing age in Nigeria with 85.2% of all women and 94.6% of all men knowing at least one method of contraception. Majority of all women (83.8%) and men (93.7%) know of modern methods than traditional methods, while sexually active unmarried women (97.8%) know more of any modern methods than currently married women (84.6%). Regarding the individual methods, the pill is the most commonly known method among the women (70.9%) and is substantially obtained mostly from private sector (72.1%). Injectables are also commonly known among women (68.3%) and public sector supplies the majority of injectables (58.3%), while private sector supplied 39.9%. Similarly, male condoms are one of the widely known methods (67.1%) and are generally sourced from private sector (74%). Among the least known modern methods are male sterilization (15.5%), female condoms (28.6%) and implants (24.7%). Most of those that used implants got their supplies from public sector (65.4%). On the other hand, only 44.5% of the women know of withdrawal and 41.2% of rhythm methods. Generally, currently married women are less likely (84.6%) than sexually active unmarried women (97.9%) to know of a contraceptive method. Similar study findings among women in three communities in northern Nigeria show that 64.6% of respondents have heard of at least one method of contraception (Avidime et al., 2010). Among modern methods, the pill was popular (54.1%), closely followed by female sterilization (47.5%) and injectables (47.4%). Several studies are also in consonance with the findings of this extensive knowledge of the various contraceptive methods in Nigeria (Asekun-Olarinmoye et al., 2013; Anyanwu et al., 2013; Envuladu et al., 2012; Tayo et al. 2011). A study conducted by Bankole et al. (2006) has shown that among nonusers of contraceptive in Nigeria, 38% did not know about FP, 19% believed that they would not get pregnant, 17% feared the side effects of contraceptives and 6% lacked access to FP and had partners or other family members who objected to contraceptive use.

Although there is widespread of contraceptive knowledge among women in Nigeria, various factors impede its utilization. For instance, the eminent practice of masculine and patrilineal traditions in Nigeria affects females' fertility attitudes greatly (James and Isiugo-Abanihe, 2010). As such, men's reproductive motivations significantly influence the reproductive behavior of their wives. Other attitudes portrayed towards use of contraceptive methods in Nigeria include myths about modern contraceptive methods, opposition to use of

contraception by women themselves, husband/partner or religious prohibition; and superstition (Otti et al., 2007; Lule et al., 2007; Asekun-Olarinmoye et al., 2013).

2.3 Barriers to use of contraceptives by women

Gender preference is an impediment issue in contraceptive utilization and subsequent fertility reduction: study findings illustrate that, son preference has a strong influence on the use of contraceptive and that preference of a particular sex might be an obstacle in contraceptive acceptance. It has been found for exatnple that, sex preference has a significant effect on the use of contraceptive methods. Many couples will not use family planning (FP) methods until they have male children irrespective of the number of female children they already have (UNFPA, 1996), besides, the barrier to women's ability to adhere to their fertility decisions may be attributed to cultural preference for sons over daughters (Roy, et al., 2008). To this end, there is strong relationship between desire to have more male children and family size. Poverty is one of the challenging issues in contraceptive utilization; some researchers suggested that, economic assets and insurance in old age drive people to have large families with preference for male children which may delay the usage of contraception by couples who do not have male children (Duze and Mohammed, 2006). Meanwhile, in wealthy and non-traditional societies, preferences are believed to be empirically unimportant (Lundberg, 2005). Quite a lot of studies have shown that education is one of the predictors of use of contraceptive. According to Adebowale and Palamuleni (2014), wives that were more educated than their husbands were more likely to use modern contraceptive method and can refuse sex respectively than wives whose their husbands were more educated than them. But school enrolment and literacy rate at all levels in Nigeria is very low, for instance, net enrolment ratio in primary education is 60 and 55 for male and female respectively (United Nations, 2012), while that of tertiaty gross enrolment ratio is 9 and 12 respectively (NPC and ICF International, 2009). Similarly, literacy rate of adult fifteen years and above is 72 and 50 for male and female respectively (United Nations, 2012). Political will is also paramount to use of contraceptive as Cleland et al. (2006) noted that there is political unwillingness to incorporate FP into the development arena. This view has been supported in the work of Monjok et al. (2010), as the paper indicated that, in Nigeria, the political will and commitment for FP and safe motherhood is grossly lacking. Moreover, contraception remains a highly politicised and controversial matter even with its benefits (Horton, 2006; Shiffman

and Quissell, 2012). Other barriers are superstition, culture, side effects, ignorance and misinformation (Asekun-Olarinmoye et al., 2013)

2.4 Contraceptive use worldwide

Globally, evidences have revealed that, contraceptive use with emphasis given to modern measures such as long acting and permanent methods of contraceptives have been effective and useful in lowering fertility and reducing incidences of unwanted pregnancies, unsafe abortion and high population growth (Cleland et al., 2006; Family Health International, 2007). For instance, women who want to limit their family size and time their childbearing will use contraceptive to do so. As well, reductions in the number of abortions are achieved through improved contraceptive use (Deschner and Cohen, 2003).

There has been increasing overall levels of contraceptive use globally and in all regions. Despite this development, contraceptive prevalence remains low especially in Africa and unmet need still remain high (PRB, 2013). As per United Nations (2004c), many births are still unwanted or mistimed, and modern family planning (FP) methods remain unavailable to large numbers of couples. In addition, in most developing countries such as Senegal and Ethiopia, women generally have more children than they desire, in that women have an average of two more children than their ideal number. While in Burkina Faso and other West African countries, women still desire large families (PRB, 2013). A study of Demographic and Health Survey data from more than 40 countries has shown that, contraceptive prevalence among adolescents increased faster than among older women, but greater proportions of adolescents than of older women discontinued using a contraceptive method within a year or experienced contraceptive failure (Blanc et al., 2009). Most of the increases that occurred between 1990 and 2010 were attributable to increases in the use of modern methods, while for most countries one or two methods account for at least half of total use (Biddlecom and Kantorova, 2012). Globally, contraceptive prevalence increased from 54·8% in 1990, to about 63 in 2010, (Alkema et al., 2013). In 2011, around one in every eight women aged 15–49 years who were married or in a union had an unmet need for FP worldwide (WHO, 2014). Meanwhile, four out of every five women with an unmet need for modern methods live in developing regions (United Nations, 2013b). Of the 213 million pregnancies that occurred worldwide in 2012, about 85 million were unintended and 50% of all the unintended pregnancies ended in abortion, 38% in unplanned births, and 13% in miscarriage, while the proportion of unintended pregnancies ending in abortion was higher in

developed regions (54%) than in developing regions (49%) (Sedgh et al., 2014). According to Darroch and Singh (2013), the number of women wanting to avoid pregnancy and consequent need for effective contraception in developing countries increased from 716 million (54%) in 2003, to 867 million (57%) in 2012. While, women with unmet need for modern methods decreased from 16% (210 million) in 2003, to 15% (222 million) in 2012.

According to 2013 PRB Family Planning worldwide report, 63% of all married women worldwide within the reproductive age are using methods of contraception. Prevalence of contraceptive use varies by regions. In more developed countries, 72% of women used methods of contraception and 62% in less developed countries, while 34% in least developed countries. Among all the regions, Africa has least prevalence of contraceptive use, and the prevalence is even lower in sub-Saharan Africa. Northern America constituted the highest (78%) prevalence worldwide, followed by Latin America and the Caribbean (75%) and Europe (70.0%), (United Nations, 2013c; PRB, 2013). Furthermore, contraceptive prevalence of any method in the remaining regions of Europe, Latin America and the Caribbean, Asia and Oceania was from 63% or more. Modern contraceptive use has risen steadily over time in most developing countries, as is the case in Colombia and Bangladesh. However, use of FP has remained stable or even declined in others, such as Jordan and Nepal (PRB, 2013). There are substantial variations in modern contraceptive use across the world. Most women in more developed countries use modern contraception (63%), followed by women in less developed ones (56%), while less than one third of married women (29%) in least developed countries use a modern method. The use of modern method worldwide was 57%. Additionally, modern method use in Africa was 27% and even less in sub-Saharan Africa (21%). In contrast, contraceptive prevalence of modern methods was over 56% in Europe, Latin America and the Caribbean, Asia and Oceania (PRB, 2013).

Nine out of every ten contraceptive users in the world rely on modern methods of contraception while the most commonly used methods worldwide are female sterilization (18%), the intrauterine device (IUD) (13%), followed by pill (8%) and male condom (8%), (PRB, 2013). The specific methods used varied markedly between developed and developing regions. In 2011 for instance, the developing regions are more likely to use long acting/permanent methods such as female sterilization (20.6%) and the IUD (14.7%), and these methods made up the majority of contraceptive use. But the developed regions are more likely to use male condom (18.4%) and the pill (17.7%) and these methods were also the

most commonly used methods (United Nations, 2013c). The female sterilization is most commonly used in Latin America and the Caribbean (23%) and its prevalence level is highest in Dominican Republic (44.1%). In India, Colombia, Costa Rica, El Salvador, and Puerto Rico, the levels range between 30.0% and 38.5% (PRB, 2013). Similarly, IUD is the second most commonly used contraceptive method in the world. The IUD is most widely used in Asia (17%) and its prevalence is over 40% in countries such as China, the Democratic People's Republic of Korea and Uzbekistan. But levels of IUD use range between 30% and 40% in Israel, Kazakhstan, Kyrgyzstan, Egypt, Turkmenistan and Viet Nam. Furthermore, the use of the contraceptive pill has the widest geographic distribution of any method and the countries with the highest prevalence of pill use (over 40%) include Algeria, Czech Republic, France, Morocco, the Netherlands, Portugal, Réunion and Zimbabwe (United Nations, 2013c). Other modern contraceptive methods are also prevalent in some regions. Injectables for example, were the most commonly used contraceptive methods in Southern Africa (28.3%), South-Eastern Asia (18.8%), Eastern Africa (15.8%) and Sub-Saharan Africa (9.3%). Traditional methods, despite having lower effectiveness in preventing pregnancy than modern methods, were more commonly used in the developed (9.0%) than developing regions (5.6%). The traditional methods used in both regions were mainly rhythm and withdrawal (United Nations, 2013c).

2.5 Contraceptive use in Africa

Africa has the highest total fertility rate in the world and is even higher in West Africa (5.4 children per woman), though some countries in the region are experiencing dynamic fertility transitions such as South Africa and North Africa, who has fertility rates of 2.4 and 3.4 children per woman respectively. In Africa, evidences have revealed higher incidences of unwanted pregnancies, maternal and infant mortality in regions with high fertility rates and low contraceptive usage than regions with lower fertility and high contraceptive utilization (PRB, 2014; Singh et al., 2010). In 2013 for instance, Democratic Republic of Congo and Nigeria have total fertility rates of 6.6 and 5.6 children per woman respectively, with modern contraceptive prevalence rates of 9.8% and 9% respectively. However, maternal mortality in Democratic Republic of Congo and Nigeria were 730 and 560 maternal deaths per 100,000 live births respectively while infant mortality were 109 and 69 infant deaths per 1,000 live births (PRB, 2014; NPC and ICF International, 2014). Whereas in Tunisia and South Africa where total fertility rates are low (2.2 and 2.3 children per woman respectively) and modern

contraceptive use are higher (50% and 60% respectively), they have fewer maternal deaths (46 and 140 maternal deaths per 100,000 live births respectively) and smaller number of infant deaths (16 and 42 infant deaths per 1,000 live births) (PRB, 2014; WHO, 2014). Also, the highest unintended pregnancy rates were in Eastern and Middle Africa where fertility rates were comparatively high and contraceptive prevalence rate were low (Singh et al., 2010).

In Africa, contraceptive prevalence is relatively low while unmet need for FP is high (PRB, 2013). Family planning worldwide report shows that, contraceptive prevalence rate in Africa is 33% with unmet need of 23%, while in sub-Saharan Africa the rate is 26% with unmet need of 25% (PRB, 2013). There are considerable disparities in trends of contraceptive use and unmet need across all the regions. The contraceptive prevalence rate in Africa has increased significantly from 17.4 to 30.9% and unmet need has decreased from 26.4% to 23.2% (Alkema et al., 2013). According to Alkema et al, (2013), contraceptive prevalence rate in Eastern Africa has tripled between 1990 and 2010 from 12.0% to 32.6% but unmet need has slightly decreased from 30.4% of the women to about 26%, while in Western Africa, the contraceptive prevalence rate has increased just from 7.6% in 1990 to 15.1% in 2010 and unmet need has rather increased a bit from 24.9% to 24.4%. Similarly, contraceptive prevalence rate between 1990 and 2010 has experienced change of 8.0 to 16.0 in Middle Africa, Southern Africa and Northern Africa.

The 2013 PRB Family Planning worldwide report has shown that, there is difference in contraceptive utilization across the regions with Southern Africa being the highest (59%) and Middle Africa constituting the least (17%), (PRB, 2013). Almost all women that used contraceptives in Southern Africa use modern contraception (59%), while in Middle Africa, less than one in 14 of married women used a modern method (7%). Similarly, the prevalence in other African regions were, 53% in Northern Africa, 18% in West Africa, 33% in Eastern Africa. Prevalence of contraceptives varies between 3.5% in South Sudan and 75% in Mauritius. Among Southern and Northern Africa, contraceptive prevalence is over 41% except in Sudan (7.6%). Also, contraceptive prevalence of all methods was 30% or more in majority of the countries in Eastern African, namely, Uganda, Tanzania, Zambia, Zimbabwe, Malawi, Mauritius, Rwanda, Madagascar and Kenya. In contrast, among the Western African countries, only Cape Verde and Ghana have a level of contraceptive prevalence of 61.3% and 34.7% respectively, while the rest of the countries in West Africa have a level of

contraceptive prevalence below 18.2%. Similarly, in Middle Africa, Congo, Gabon and Sao Tome and Principe have a level of contraceptive of 44.7%, 31.1% and 38.4% respectively, while the remaining countries in Middle Africa have contraceptive prevalence rate of less than 24% (PRB, 2013).

Eight out of every ten contraceptive users in Africa or sub-Saharan Africa rely on modern methods of contraception. In the entire region of Africa, injectables and pill are the most common method of contraception, both methods each used by (9%) of women aged 15-49 who are married or in a union. Both injectables and pill are most prevalent in Southern Africa (27% and 11% respectively). The prevalence level of injectables is most commonly used in South Africa (28.4%), Rwanda (26.3%), Malawi (25.8%), Kenya (21.6%) and Ethiopia (20.8%). While the pill is highest in Morocco (48.4%), Algeria (45.9%) and Zimbabwe (41.3%) (PRB, 2013).In Africa, the IUD is ranked third among women of reproductive age who are married or in a union. The IUD is most commonly used in Northern Africa (18%) and its prevalence is highest in Egypt (36.1%), followed by Tunisia (27.8%). Female Sterilization is also popular in Southern Africa, where 13% of women of reproductive age who are married or in a union are currently using them (PRB, 2013; United Nations, 2013c). Women in South Africa are more likely to use long acting/permanent (sterilization and IUDs), Injectables and pill than women in other African regions (PRB, 2013).

2.6 Contraceptive use in Nigeria

There have been significant improvements in levels of contraceptive use over the years in Nigeria, but several studies including NDHS have shown that, utilization of contraceptives in Nigeria remains low despite the widespread of contraception knowledge and awareness. For instance, according to 2013 NDHS, 83.8% of all women and 93.7% of men know of modern methods, but current contraceptive prevalence rate among married women was 15.1%. As a result, there have been incidences of high fertility, unwanted pregnancy, unsafe abortion and high maternal and child mortality and morbidity rates respectively (NPC and ICF International, 2009; Sedgh et al., 2006; Bankole et al., 2006). Unwanted pregnancy is common in Nigeria and many women who have experienced unintended pregnancy were not using any contraceptive when they conceive. According to Bankole et al. (2006), six in ten women who have ended an unwanted pregnancy by abortion were not using any method of family planning (FP) when they conceived. Thus unwanted pregnancy has been identified as the root cause of induced abortion (Bankole et al. 2006).

In Nigeria, the contraceptive prevalence among women of reproductive age who were currently married or in a union rose from about 6% in 1990, to 12.6% in 2003, to 14.6% in 2008 (NPC and ICF International, 2014). Meanwhile, modern methods rose from an estimated median prevalence of 0.2% in 1970 to about 3.8% in 1990 (United Nations, 2013d), then increased to 8.2% in 2003, to 9.7% in 2008 and then 9.8% in 2013, with only 0.1% change in prevalence between 2008 and 2013 (NPC and ICF International, 2014). Nigeria has experienced more change in modern contraceptive use between 1990 and 2013 (6.3%) than the period of 1970 to 1990 (3.6%). This difference might be attributed partly, to efforts put in place since the 1994 International Conference on Population and Development that urge countries to develop and implement policies and strategies so as to reduce population growth rates that are compatible with the attainment of social and economic goals. The overall contraceptive use among all women was 16.0%. Among sexually active unmarried women, the proportion using any methods was much higher (68.1%). Generally, the change in contraceptive use over the past four decades is attributed to rather modern methods than the traditional methods. As such, the modern methods experienced a change of 9.6% since 1970 when modern methods was only 0.2%, but traditional method underwent a change of only 1.7% within the same period.

About six out of every ten contraceptive users in Nigeria rely on modern methods of contraception. Nigeria Demographic and Health Survey, 2013 shows that, the use of modern contraceptives among married women in 2013 was much higher in the South West region than in any other part of the country (24.9%) when compared with 16.4% in the South South, 12.4% in the North Central, 11.0% in the South East, 3.6% in the North West and 2.7% in the North East regions. By comparison, modern contraceptive use was considerably more prevalent among sexually active women who were not married (54.9%) than currently married women (9.8%). Modern contraceptive use varies significantly by place of residence, (Guttmacher Institute, 2008). Urban married women are about thrice as likely (16.9%) as rural married women (5.7%) to use modern contraceptives. The variation in contraceptive use by place of residence noted was said to underscore Nigeria's economic and social disparities. Also, woman's level of education, the number of children she has and the economic status of her family are also linked to her likelihood of using modern contraceptive method (Guttmacher Institute, 2008). In line with this, only 1.7% of women who have never been to school currently use a modern method, compared with 22.4% of those with more than

secondary education. Higher proportion of married women (13%) having three to four number of living children, used modem contraceptives when compared with only 1.2% of women without children. Women in the wealthiest quintile are twenty six times (23.4%) as likely as the poorest (0.9%) to use modem contraceptives (NPC and ICF International, 2014). Among the six zones, South West has the highest level of contraceptive prevalence (38.0%) followed by South East (29.3%), South South (28.1%) and North Central (15.6%). While of the thirty six states including Abuja, prevalence of contraceptive use is highest in Lagos (48.3%), followed by states such as Kwara (40.2%) Osun (38.3%), Oyo (37.4%), Anambra (35.0%), Rivers and Ekiti (34.5%) (NPC and ICF International, 2014).

In Nigeria as indicated by 2013 NDHS, male condom is the most commonly used method of contraception of all women (4.5%). Among sexually unmarried women, male condom was the most commonly used methods (39.5%, followed by pill (8.0%), Rhythm (5.9%), withdrawal (5.3%) and injectables (2.5%). The prevalence level of male condom is highest among sexually active unmarried women of ages 20-24 years (48.9%), followed by those in ages 15-19 years (40.7%), 30-34 years (40.7%) and ages 35-39 years (31.9%). Whereas Injectables is the most commonly used method of contraception among currently married women of reproductive age (3.2%). The prevalence level of Injectables is highest among currently married women of ages 35-39 and 40-44 years (5.3%), followed by those in ages 25-29 years (3.9%). The prevalence of Injectablesis is over 4% among currently married women living in Urban areas, North Central, South South, South West, currently married women with at least primary education and those who are in higher or highest wealth level. The other popular contraceptive methods among currently married women were withdrawal (2.5%), Rhythm (2.2%), male condom (2.1%) and pill (1.8%) (NPC and ICF International, 2014).

According to 2013 NDHS, female sterilisation prevalence rate is 0.3%. This method is rarely practiced or acceptable in Nigeria but is commonly used globally, particularly in regions such as developed countries and in some developing countries in Asia and South America (Adesiyun, 2007). Oral hormonal pill use is around 1.9%. A significant problem in Nigeria is a general lack of adequate information about the pill. The myth that prolonged use of the pill leads to permanent sterility has limited its use in Nigeria and may explain why most young females in Nigeria, especially students, prefer to use abortion instead of contraception for unwanted pregnancy (Otoide et al, 2001). Only 0.8% of the women utilised intrauterine

device (NPC and ICF International, 2014). The most common reason for discontinuation of IUD use was a desire for pregnancy (Mutihir et al., 2006). While implants were one of the least used methods (0.3%) and less popular. Lactational amenorrhea method (LAM) prevalence rate is 0.3%. It is also one of the least used methods. As well, male sterilisation, female condom, diaphragm, foam/jelly, and other modern methods constituted only 0.5% usage among all women and 0.3% among currently married women. Male sterilisation is rare among Nigerian men. There were only two cases of voluntary vasectomy performed over a 30-year period at University College Hospital in Ibadan (Akinwuntan and Shittu, 2008).

In general, unmet need for FP is 16.1% among currently married women in Nigeria. The unmet need for spacing is higher among younger women, while unmet need for limiting childbearing is higher among older women (NPC and ICF International, 2014). Unmet need is higher among rural dweller (16.8%) than urban counterparts (14.9%). Also, women living in North Central zone have the highest unmet need (23.5%) and the North West the lowest (12.0%). Unmet need is lower among women with higher education (11.7%) than among those with a primary education (19.3%) or no education (14.9%). Among women in the lowest wealth quintiles, 14.3% has an unmet need, while 13% of their counterparts in the highest quintile have an unmet need (NPC and ICF International, 2014).

2.7 Population and family planning (FP) related policy in Nigeria

National Policy on Population for Development, Unity, Progress and Self-Reliance: It was adopted by Federal Government of Nigeria in 1988. The goals of the 1988 policy were to improve standards of living and quality of life; promote health and welfare, especially that of mothers and children; achieve lower population growth rates that are compatible with the attainment of social and economic goals; and achieve a more even distribution of population between urban and rural areas (Federal Republic of Nigeria, 1988). According to the policy, FP services shall be made available to all persons voluntarily wishing to use them. Some of the targets is to reduce the number of children a woman is likely to have during her lifetime to 4 per woman by year 2000 and reduce the rate of population growth to 2.5% by 1995 and 2.0% by the year 2000 (Goliber et al., 2009). The policy was reviewed to National Policy on Population for Sustainable Development in 2004. The policy recognises that population factors, social and economic development, and environmental issues are irrevocably interconnected and are critical to the achievement of sustainable development in Nigeria. The reviewed policy contained therein FP related targets such as achieve a reduction of the

national population growth rate to 2% or lower by the year 2015; achieve a reduction in total fertility rate of at least 0.6 children every five years; increase the modern contraceptive prevalence rate by at least 2% point per year, etc.

National Reproductive Health Policy and Strategy, 2001–2006 (Federal Ministry of Health): The policy aims at addressing reproductive health issues such as to address the low level of awareness and use of contraceptive and natural family planning services. Particularly, to increase the contraceptive prevalence rate from the present 8.6% to 20% (Tien et al., 2009).

National Reproductive Health Commodity (RHCS) Security Strategic Plan, 2003–2007: This includes contraceptives and condoms for prevention of sexually transmitted infections (STI) and HIV/AIDS. The strategic plan also comprises supply of all modern methods of contraception, including condoms that are used in the prevention of HIV/AIDS and other STIs. The plan was developed in collaboration with civil society, the government, individuals, nongovernmental organizations (NGOs), and the private sector (Tien et al., 2009).

2.8 The contribution of family planning in achieving the millennium development goals

The millennium development goals (MDGs) were derived from United Nations Millennium Declaration, in 2000 to combat poverty, hunger, disease, illiteracy, environmental degradation, and discrimination against women WHO, 2003). According to Moreland and Talbird (2006) a strategy to increase contraceptive use can play a valuable complementary role and help countries to move closer to achieving their MDGs by freeing up resources to meet these goals while at the same time saving lives. Below is the overview of the contribution of family planning towards MDGs.

1 *Eradicate Extreme Poverty and Hunger:* Family planning generates wealth and reduces hunger. The per capita Gross National Product is correlated with the prevalence of modern contraceptive (Barnett and Stein, 1998). Increased access to family planning and reproductive health services supports women's social and economic well-being by enabling them to choose the number and spacing of their children (Population Action International, 2010). It also reduces the aggregate demand for increasing scarce food products (Cates, 2010).

ii. Achieve Universal Primary Education: Family planning prolongs education since it prevents unintended pregnancy which is a major obstacle to school attendance. Less than half of all African girls complete primary school (Lloyd and Mensch, 2008). In 16 Sub-Saharan African countries alone, fulfilling the demand for family planning would save the education sector over $1 billion and would allow more money to be allocated to each student (Moreland and Talbird, 2006).

iii. Promote Gender Equality and Empower Women: Unplanned pregnancies interrupt work and career plans. In Brazil and Indonesia, use of long-acting or permanent contraceptive methods was associated with a greater likelihood of working for pay (Barnett and Stein, 1998).

iv. Reduce Child Mortality: Birth spacing through family planning reduces child mortality. A study at Johns Hopkins University found that children born three to five years apart are 2.5 times more likely to survive than children born two years apart (Setty-Venugopal and Upadhyay, 2002). About 640,000 newborn deaths would be prevented if we could meet unmet contraceptive needs (Singh et al., 2009).

v. Improves maternal health: Family planning allows for adequate spacing between births for mothers, resulting in improved maternal health outcomes. Addressing the need for family planning worldwide would prevent 53 million unintended pregnancies each year, protecting the health of women and their children (Singh et al., 2009).

vi. Combat HIV/AIDS: Family planning is essential to preventing the spread of HIV/AIDS. In sub-Saharan Africa, sexual intercourse and mother-to-child transmission are the most common methods of transmission (UNAIDS, 2009). Improving access to male and female condoms can reduce the number of infections acquired through sexual intercourse (Wilcher et al., 2008).

vii. Ensure Environmental Sustainability: Family planning and reproductive health are critical components of strategies that promote environmental sustainability. With rapid population growth, there would be increased need for resources such as water for drinking, forests for fuel, and arable land for food (Population Action International, 2005). Use of family planning will reduce the population growth rate thus reducing the burden on environment.

viii. Develop a Global Partnership for Development: Family planning promotes global partnerships. The move towards strengthening health services has been found on the linkages between family planning and health services.

2.9 Theoretical Framework:

Studies which analyse utilization of modern contraceptives and specific methods such as long acting among high fertility women are rare in Nigeria. The Nigerian government and other organisation's involvement in the provision of family planning (FP) services such as injectables and IUD have boosted contraceptive utilization (Tien et al., 2009). The availability for contraceptive method has great impact on its utilizatton. This view is consistent with Greene et al. report (2012), that contraceptive use depends on available options, ease of use and information. Similarly, a study indicated that, the population in Cambodian relies heavily on the daily pill and injectables partly because the methods are most widely available and affordable. The benefits and shortcomings of contraceptive methods, cultural and religious belief and social acceptability of fertility control affect contraceptive uptake (Hukin, 2012; Encyclopaedia Britannica, 2014). Also, service quality in order to make an informed, voluntary choice of a contraceptive method through information given to users such as understanding of the relative effectiveness of the method; correct use of the method; how it works; common side-effects; health risks and benefits of the method influence use of contraceptives (WHO, 2009b). As well, provisions of low cost, safe and effective contraception; discouraging son preference are part of the measures to lower fertility (United Nations, 2013e). Family planning behaviours are sensitive to incentives in that, motivational programs could change couples' family size preferences. Some studies have shown that incentives promote attendance at contraceptive education sessions, adoption and continuation of contraceptive methods, and to limit family size (Heil et al., 2012).

A basic structure of framework containing three stages for decision-making on contraceptive introduction presents an opportunity for policy choice and research needs on whether, when, and how to introduce fertility regulation technologies in the context of the service environment and user demand. The first stage is an assessment of user and service delivery needs, programme policies, and potential programme constraints aimed at identification of which method or methods. The stage addresses the question of the need for additional technology (Spicehandler and Simmons, 1994). Second stage involves design and implementation of research to look at both the issues affecting services and users. The introductory trial, service delivery and user perspective research should provide a composite picture of the potential role of new technology in a given service setting. Primary aim of the stage would be to examine user experiences and concerns among the population under study

in the introductory trial, or attending the centres participating in an intervention focused on an underutilized method (Spicehandler and Simmons, 1994). Third stage considers the implication and utilization of research results for decision-making policy and planning. The broad based participation of key stakeholders to advocates for the user community, service providers, researchers and policy-makers is a vital issue at this stage.

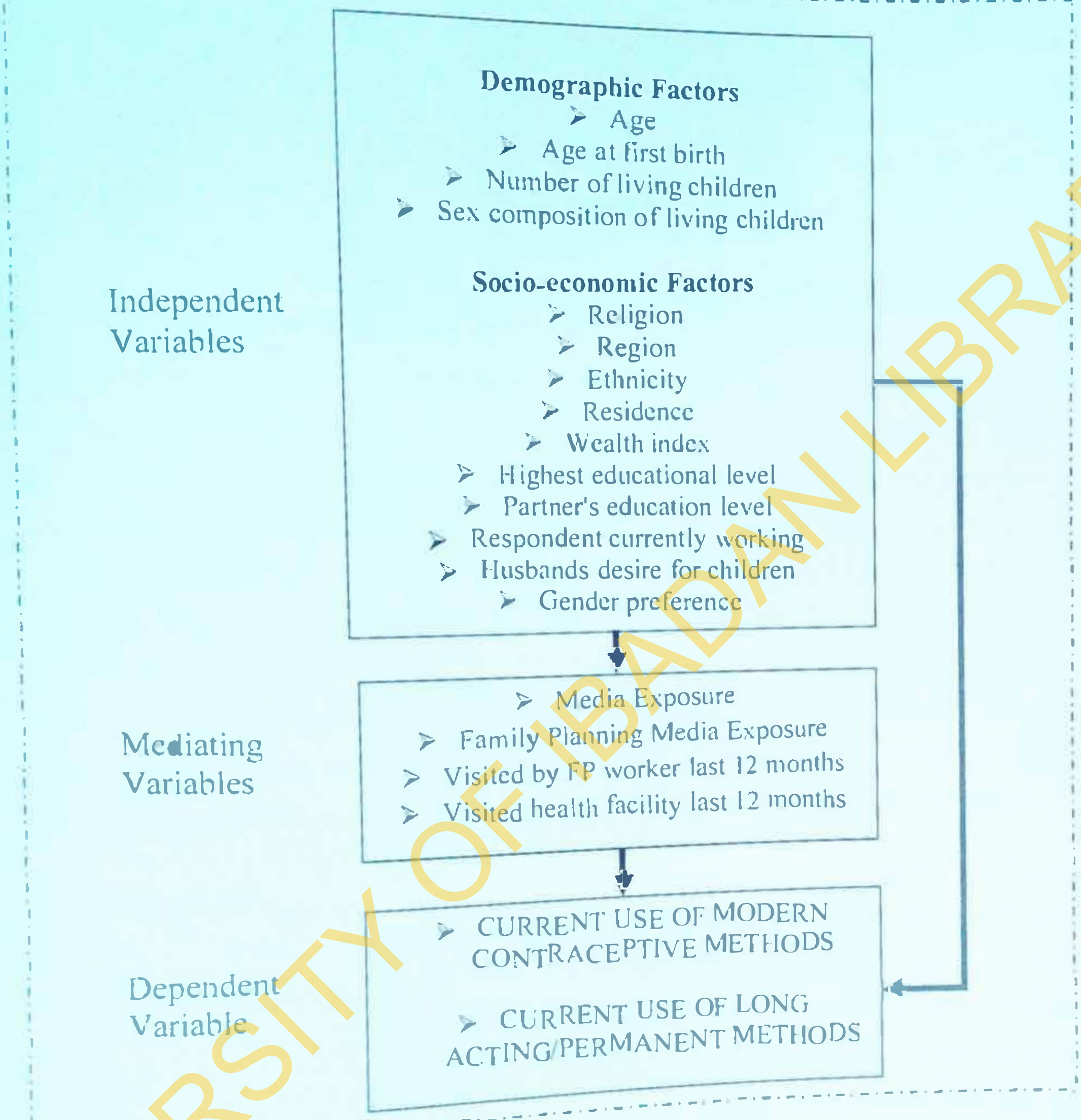
According to Bongaarts (1978), quantitative framework allows the dissection of a fertility level into its proximate determining components, the intermediate fertility variables and that, marriage, contraception, lactation, and induced abortion-are the primary proximate causes of fertility differences among populations. As such, contraceptive practice is the intermediate fertility variable primarily responsible for the wide range in the levels of fertility within marriage (Bongaarts, 1978). Contraceptive use includes attitudes toward childbearing behavior, subjective norms and perceived behavioral control towards contraceptives. The individual's perception about the availability, effectiveness, and potential negative side-effects of specific contraceptive methods is probably to influence their decision to use a contraceptive method through one or more of these three paths (Emens, 2008). Beliefs concerning the availability of contraceptive methods are likely to affect contraceptive behavior since they reflect both subjective norms and perceived behavioral control regarding contraceptives in that availability of contraceptive methods could make individuals assume that they are socially acceptable thereby influence contraceptive utilization (Easterlin, and Crimmins, 1985). Similarly, the perception that contraceptives are accessible may lead the person to believe that she will be able to successfully carry out her desire to limit her fertility. This could lead to positive influence on the individual's intentions toward contraceptive use, and subsequent behaviour by adopting a particular method. Studies have shown that, access to FP is likely to lead to more optimal birth spacing, thereby improves overall maternal health by lowering maternal depletion syndrome and the risks of premature delivery and complications (Conde-Agudelo et al., 2007). According to 2011 United Nations report on World Fertility Policies, access to reproductive health services such as information and access to a wide range of safe, effective, affordable, and acceptable methods of FP: and integrating FP and safe motherhood programmes into primary health care systems were adopted in order to reduce fertility by some Governments of developing countries. As well, perceptions of effectiveness of contraceptive methods could affect contraceptive behavior since they influence attitudes toward the behavior and through perceived behavioral control

(Emens, 2008). Therefore individual perception on contraceptives could either encourage or hamper the intention to use an effective method of contraceptives and subsequent behaviour.

2.10 Conceptual Framework

In our analysis we consider the demographic and socioeconomic factors associated with modern contraceptive use among high fertility women. These factors include age, types of place of residence, region, age at first birth, husbands desire for children, number of living children, sex composition of living children, religion, ethnicity, wealth index, educational attainment, husband's education, respondent currently working, media exposure, family planning (FP) media exposure, visited by FP worker in the last 12 months, visited health facility in the last 12 months, gender preference. Family planning exposure and knowledge was considered as intermediate factors that act as means which influence contraceptive use among the women. There can be disparity in contraceptive use because of these factors. For example, age can be associated with the use of contraceptive methods based on age group, since different age groups have different fecundity level, contraception knowledge and needs. Moreover, women with higher education level may be better informed than women with lower education, and therefore likely to use contraceptive methods (Carr, 2000). Also, exposure to FP media is likely to influence the use of more effective contraceptive methods like modern method. As well, religious beliefs may either discourage or encourage women and partners from using contraceptive measures (Olaitan, 2011; Dixon-Muller, 1999). Above all, access to FP services may aid linkage between the independent and dependent variables. For instance, visit by FP worker or visit to health facility can provide optimal adherence to a better contraceptive methods such as modern methods.

Figure 2.1: Conceptual framework of relationship between Demographic, Socio-economic and other factors and contraceptive use



CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter focuses on the description of the study area, target population, study design, sampling method, data collection method and analysis. Other part of this section includes limitation of the study and ethical considerations.

3.2 Brief description of the study area

Nigeria became a republic with different administrative structures, social groups, and distinct cultural traits on October 1, 1963. Nigeria has about 374 identifiable ethnic groups, with the Igbo, Hausa, and Yoruba as major groups (NPC and ICF International, 2009). Currently, Nigeria is made up of 36 states and a Federal Capital Territory (FCT), grouped into six geopolitical zones: North Central, North East, North West, South East, South South, and South West. As well, there are 774 constitutionally recognized Local Government Areas (LGAs) in the country (NPC and ICF International, 2009). The 2006 Population and Housing Census figure for Nigeria's population is 140,431,790, with a national growth rate estimated at 3.2 percent per annum. With this population, Nigeria is the most populous nation in Africa. Currently, the projected population figure for Nigeria is approximately 177.5 (PRB, 2014).

The adverse effect on national development due to prevailing pattern of the population growth rate has prompted the Federal Government of Nigeria to approve the National Policy on Population for Development on February 4, 1988. The policy was reviewed in 2004, yielding to National Policy on Population for Sustainable Development. This policy review was consequent upon issues that come up in the cause of time such as HIV/AIDS, poverty, gender inequality, among others. According to the policy, population factors, social and economic development, and environmental issues are irrevocably interconnected and are vital to the achievement of sustainable development in Nigeria. The policy specified a number of targets in order to guide it towards its programme planning and implementation. The targets among others, was to reduce the national population growth rate to 2% or lower by 2015. Reduce the total fertility rate by at least 0.6 children every five years by encouraging child spacing through the use of family planning (FP). Increase the contraceptive prevalence rate for modern methods by at least two percentage points per year through the use of FP.

The birth rate as at 2013 was 39 births per 1000 population, total fertility rate of 5.5, life expectancy for female population in Nigeria is 53 and modern contraceptive prevalence rate was 9.8% among currently married women (PRB, 2014; NPC and ICF International, 2014). The Nigeria population typifies a pyramidal shape with a broad base. The broad-based age structure of Nigeria's population indicates that Nigeria has a high percentage of young population, higher number of dependants and rapid population growth. The ratio of dependents (people younger than 15 or older than 64) to the working-age population (those ages 15-64) is 88 in 2010 and 89 in 2013 (World Bank, 2014). Nigeria Demographic and Health Survey 2013 report shows that, Infant and under-five mortality rates in the past five years were 69 and 128 deaths per 1,000 live births, respectively. The report further show that, one in every 15 Nigerian children die before reaching age 1, and one in every eight do not survive to their fifth birthday. Similarly, maternal mortality ratio was 576 maternal deaths per 100,000 live births for the seven-year period preceding the survey, while twelve percent of women and men are likely to die between exact ages 15 and 50. According to UNICEF (2014), every single day, Nigeria loses about 2,300 under-five year olds and 145 women of childbearing age. This makes the country the second largest contributor to the under-five and maternal mortality rate in the world.

There are government policies and programme implementation conducted through relevant agencies such as Ministry of Health that are aimed at improving access and utilization of FP services and the overall reproductive health services. Organizations such as Planned Parenthood Federation of Nigeria, Society for Family Health also work towards similar goal. The Federal Government of Nigeria through the Federal Ministry of Health, in its efforts to meet the unmet need for FP distributed free contraceptives to states and to FP and child spacing programmes in April 2011 (Federal Ministry of Health, 2013). This is to curb the cost barriers so that even the very poor can have unlimited access to contraceptives, that at the long run there will be increased contraceptive prevalence rate. Among others, Society for Family Health initiated programmes such as Improved Reproductive Health in Nigeria Project, Initiated Expanded Social Marketing Project in Nigeria with the aim to heighten contraceptive utilization. But the current contraceptive state implied that little is achieved. Although, there are evidences that indicated cultural and religious issues as contributing factors.

3.3 Study Design

Secondary data were used and the data were extracted from the Measure DHS database after permission for its use was granted. Although, detailed information on the methodologies involved during data collection are in the report of the study as available on the web-platform of the data originator. However, relevant information are provided below.

The study was a cross-sectional design and utilized 2008 Nigeria Demographic and Health Survey dataset collected by National Population Commission (Nigeria) and ORC Macro Calverton, Maryland, USA (NPC and ICF International, 2009). The survey was designed to allow reliable estimation of most variables for a variety of health and demographic analyses at the various domains of interest. The population covered was women age 15-49 years. For subgroup analysis, the survey also provides estimates with acceptable precision for important population characteristics such as fertility, contraceptive prevalence and other selected health indicators.

Nigeria is divided into states. Each state is subdivided into Local Government Areas (LGAs), and each LGA is divided into localities. Additionally, during the last 2006 Population Census, each locality was subdivided into convenient areas called census enumeration areas (EAs). Nigeria has 36 states, plus FCT-Abuja. At the time of the survey implementation, the list of EAs did not have census information for households and the population because the census frame was under segmentation revision. For that reason, the available cartographic material demarcated for each EA was used in the EA location and its identification.

The primary sampling unit (PSU), a cluster for the survey was defined on the basis of EAs from the 2006 EAs census frame. A minimum requirement of 80 households for the cluster size was used in the design. If the selected EA is small during the listing process, then a supplemental household listing was conducted in the neighbouring EA. About 36,800 households were selected, and all women age 15-49 were interviewed. The selected households were distributed in 888 clusters in Nigeria, 286 clusters in the urban areas, and 602 clusters in the rural areas. The sample was selected using a stratified two-stage cluster design consisting of 888 clusters, 286 in the urban and 602 in the rural areas.

3.4 Data source and variables identification:

The data were accessed on the web platform of Measure DHS (http://www.measuredhs.com/). Detailed information on the sampling procedures, pre-test,

recruitment of study participants and validation of the study instruments are available on the organisation website and the report of the survey. In the original sample, 36,800 women aged 15-49 were interviewed.

3.4.1 Dependent variables

This study focused on a key dependent variable which is "current use of any modern contraceptives". In the original questionnaire that was used for the 2008 Nigeria Demographic and Health Survey, a question was asked on the type of contraceptives the individual woman used or was using during sexual intercourse in the last four weeks prior the survey. The options include a range of contraceptive methods such as female sterilisation, male sterilisation, pill, intra-uterine device (IUD), injectables, implants, male condom, female condom, diaphragm, foam/jelly, lactational amenorrhoea method (LAM), emergency contraception, rhythm (periodic abstinence), withdrawal and folk methods. The modern contraceptives were pulled together to create the dependent variable. Women that were using at least one of the modern contraceptive were coded as 2, those using any other methods coded as 1 and 0 if non use. Thus the categories are non use = 0, 1 = using any Traditional/folkloric method and 2 = using any modern method. The second dependent variable was similar to the first but the use of modern method was further categorized to long term/permanent method and any other modern method.

3.4.2 The independent variable

Demographic variables

These are: age, age at first birth, number of living children and sex composition of living children.

Socio-economic factors

These are: religion, region, types of place of residence, ethnicity, wealth index, educational attainment, husband's education, respondent currently working, media exposure, family planning (FP) media exposure, visited by FP worker last 12 months, visited health facility last 12 months husbands desire for children, gender preference.

3.5 Exclusion criteria and extracted sample size

The study focused on high fertility women of childbearing age. High fertility women in the context of this study means women who already have ≥4 living children. The expectation is

that such women should begin to prevent further childbearing having reached the stipulated number of children a couple should have as indicated by the Nigeria Population Policy, 1988 that was reviewed in 2004. Women who were pregnant, menopausal, not having sex in the past four weeks before the survey were excluded from the data sample. These women were excluded in the study in order to avoid bias, for the reason that, contraceptive use for the purpose of pregnancy prevention in women who are already pregnant is of no effect. Also, women who are menopausal are unlikely to be pregnant. Similarly, women who did not have sex in the past four weeks are not at risk of becoming pregnant within the same period, since it is not possible to conceive without exposure to coitus. In addition, women who did not provide information on their current use of contraceptive status were also excluded from the study. Using these criteria reduced the number of women in the sample from 33,385 to 3654.

3.6 Weighting of variables

The data was weighted by creating a variable from the sampling weight. $Weight\ sample = \frac{sampling\ weight}{1{,}000{,}000}$. The weighting became important since cluster sampling was adopted in sample selection in order to ensure representativeness and proper distribution of the sample in the study population.

3.7 Data analyses

Data analyses were performed using descriptive statistics, Chi-square and logistic regression models with Statistical Package for Social Sciences (SPSS), version 20. Cross-tabulation of the dependent variables with selected background characteristics was performed to assess the prevalence of the outcome variables among subgroup of women involved in the study. Chi-square analyses was used to examine the degree of association between the dependent and independent variables with significant level set at ($\alpha = 5\%$). The selection of the variables into the logistic regression models was based on the findings at bivariate levels. The logistic regression model is a type of generalized linear model that extends the linear regression model by linking the range of real numbers to the 0-1 range. Start by considering the existence of an unobserved continuous variable, Z, which can be thought of as the "propensity towards" the event (current use of contraceptives) with larger values of Z corresponding to greater probabilities of using contraceptive. In the logistic regression model, the relationship between Z and the probability of the event of interest (current use of any

modern contraceptives) is described by this link function. The model also assumes that Z is linearly related to the predictors.

$$z_i = \beta_0 + \beta_1 x_{i1} + \beta_2 x_{i2} + \cdots + \beta_p x_{ip} \qquad (1)$$

where xij is the jth predictor for the ith case, βj is the jth coefficient, p is the number of predictors. Since Z is unobserved, the predictors are therefore related to the probability of interest by substituting for Z in general logistic expression to have:

$$\pi_i = \frac{1}{1+e^{-(\beta_0+\beta_1 x_{i1}+\beta_2 x_{i2}+\cdots+\beta_p x_{ip})}} \qquad (2)$$

The regression coefficients βi's in equation (1) are estimated through an iterative maximum likelihood method. The exponential of βi's is the odds ratio of contraceptive use.

Multinomial was used to identify the predictors of modern contraceptive use. Multinomial Logistic Regression is the appropriate model because we classified subjects based on values of a set of predictor variables. The method is similar to binary logistic regression, but is more general because the dependent variable is not restricted to two categories. Using multinomial logistic regression, we created profiles of people who are most likely to use modern contraceptives or not using. Therefore, current use of modern contraceptive method was classified into three categories (No method, Traditional/Folkloric methods and Modern method). The multinomial model uses maximum likelihood estimation to weigh up the probability of categorical membership of each type of contraceptive method used.

The dependent variable has 3 categories, this requires the calculation of 3-1=2 equations, one for each category relative to the reference category (not using any contraceptive method) to describe the relationship between current use of modern contraceptives and the demographic and socio-economic variables. We chose the first category (non users) as the reference, then,

$$\frac{P(\omega_i=j)}{P(\omega_i=1)} = e^{(\alpha_j+\beta_{j1}x_{i1}+\beta_{j2}x_{i2}+\cdots+\beta_{jp}x_{ip}} \qquad (3)$$

for j = 2,3

Consequently, for each case, there will be 2 predicted log-odds, one for each category relative to the reference category. When there are more than 2 groups, computing probabilities is a little more challenging than it was in logistic regression. For j = 2,3

$$P(\omega_i = j) = \frac{exp(H_{ji})}{1+exp(H_{2i})+exp(H_{3i})} \qquad (4)$$

For the reference category,

$$P(\dot{\omega}_i = 1) = \frac{exp(H_{j1})}{1+exp(H_{2i})+exp(H_{3i})} \quad (5)$$

Also, current use of modern contraceptive method was classified into four categories (No method, Traditional/Folkloric methods and Other Modern method and Long acting/Permanent method). Therefore,

for j = 2,3, 4 $$\frac{P(\dot{\omega}_i=j)}{P(\dot{\omega}_i=1)} = e^{(\alpha_j+\beta_{j1}x_{i1}+\beta_{j2}x_{i2}+\beta_{j3}x_{i3}+\cdots+\beta_{jp}x_{ip}} \quad (6)$$

Consequently, for each case, there will be 2 predicted log-odds, one for each category relative to the reference category. For j = 2,3,4

For the reference category, $$P(\dot{\omega}_i = j) = \frac{exp(H_{j1})}{1+exp(H_{21})+exp(H_{31})+exp(H_{41}} \quad (7)$$

$$P(\dot{\omega}_i = 1) = \frac{exp(H_{11})}{1+exp(H_{21})+exp(H_{41})} \quad (8)$$

3.8 Limitations of the study

The data used were predisposed to response bias in that the study was based on data obtained through cross-sectional examination of the respondents. This study is limited to high fertility women hence, any information on women of ages less than twenty could not be obtained since at the time of the survey the studied women were expected to have at least 4 surviving children.

3.9 Ethical considerations

The ethical approval was obtained from the National Health Research Ethics Committee (NHREC) and informed consent was sought from the respondent by the data originators before the conduct of the survey. Also, the permission to use the data was sought and granted before the commencement of data analysis.

CHAPTER FOUR

RESULTS

4.1.1 Demographic characteristics of high fertility women

Table 4.1.1 shows the demographic characteristics of high fertility women of reproductive age. The mean age of the women was 39.2±6.2 years with higher proportion found among those aged 40-44 (27.9%) and 35-39 (26.8%) years. About 37% reported to have had their first birth in ages of at least 20 years and males constituted higher composition of the living children (42.1%). The percentage of women consistently decreased with increasing number of living children. It reduces from 33.0% among women who had four living children to 10.3% among those with at least eight children.

Table 4.1.1: Demographic characteristics of high fertility women

Demographic Characteristics	Frequency	Percent
Total	3654	100.0
Age group		
25-34	789	21.6
35-39	978	26.8
40-44	1020	27.9
45-49	867	23.7
Age at first birth		
9-14	490	13.4
15-17	1162	31.8
18-19	637	17.4
20+	1365	37.4
Number of living children		
4	1204	33.0
5	944	25.8
6	680	18.6
7	449	12.3
8+	377	10.3
Sex composition of living children		
The same	765	20.9
More female	1350	37.0
More males	1538	42.1

4.1.2 Socio-economic characteristics of high fertility women

The data as shown in Table 4.1.2 revealed that majority of the women (52.7%) belong to Islamic religious group and 45.2% were Christians while only 1.5% were traditional worshippers. Women living in North West (30.0%) and South East (8.9%) regions constituted the highest and least proportion of the eligible women for the study respectively, and about 67% of the women live in rural areas. In terms of the distribution by ethnic group, majority 43.4% of the women reported that they don't belong to the three major ethnic groups in Nigeria while 27.1% were Hausa, 17.2% and 12.4% were Yoruba and Igbo respectively. Also, in the studied women, approximately the same proportion belongs to poorest (21.0%) and richest (21.8%) wealth quintile respectively.

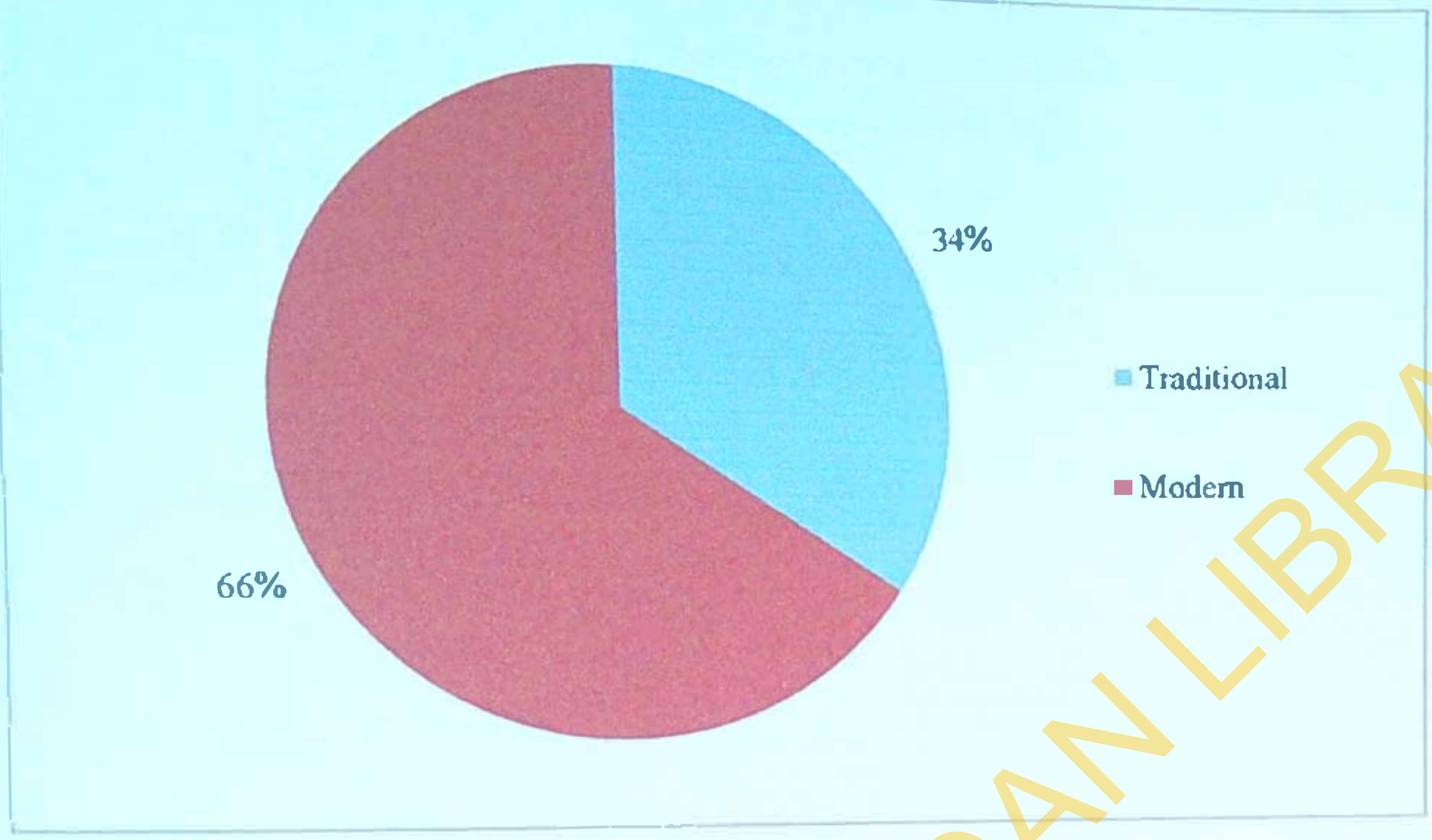
The percentage of the women reduces with increasing level of education and similar pattern was observed for the composition of husbands according to their level of education. Majority (75.6%) of the respondents reported that they were working. 44.3% had family planning media exposure while 36.3% had high exposure to media prior the survey. The desire for children was highest (32.7%) where women and partners wanted the same number of children and 30.5% had gender preference.

Religion	3654	100.0
Christian		
Islam	1653	45.2
Traditional	1925	52.7
Others	55	1.5
Region	21	0.6
North Central		
North East	538	14.7
North West	510	14.0
South East	1096	30.0
South South	326	8.9
South West	462	12.6
Residence	722	19.8
Urban		
Rural	1213	33.2
Ethnicity	2441	66.8
Hausa		
Igbo	989	27.1
Yoruba	452	12.4
Others	628	17.2
Wealth index	1585	43.4
Poorest		
Poorer	766	21.0
Middle	718	19.6
Richer	688	18.8
Richest	684	18.7
Highest educational level	798	21.8
No education		
Primary	1745	47.8
Secondary	871	23.8
Higher	775	21.2
Partner's education level	263	7.2
No education		
Primary	1476	40.4
Secondary	895	24.5
Higher	821	22.5
Respondent currently working	462	12.6
No		
Yes	890	24.4
Family Planning Media Exposure	2764	75.6
None		
At least one of radio television newspaper	2034	55.7
Media Exposure	1620	44.3
No exposure		
Low exposure	980	26.8
High exposure	1347	36.9
Visited by family planning worker last 12 months	1327	36.3
No		
Yes	3454	94.5
Visited health facility last 12 months	199	5.5
No		
Yes	2936	80.3
Husbands desire for children	718	19.7
Both want same		
Husband wants more	1196	32.7
Husband wants fewer	1089	29.8
DK	144	3.9
Gender preference	1225	33.5
No preference		
Gender preference	2539	69.5
	1115	30.5

4.1.3 Contraceptives use among high fertility women

The data as shown in figure 4.1 depict that, of those who are currently using any contraceptive method, majority were using modern (66%), while 34% were using traditional/folkloric methods.

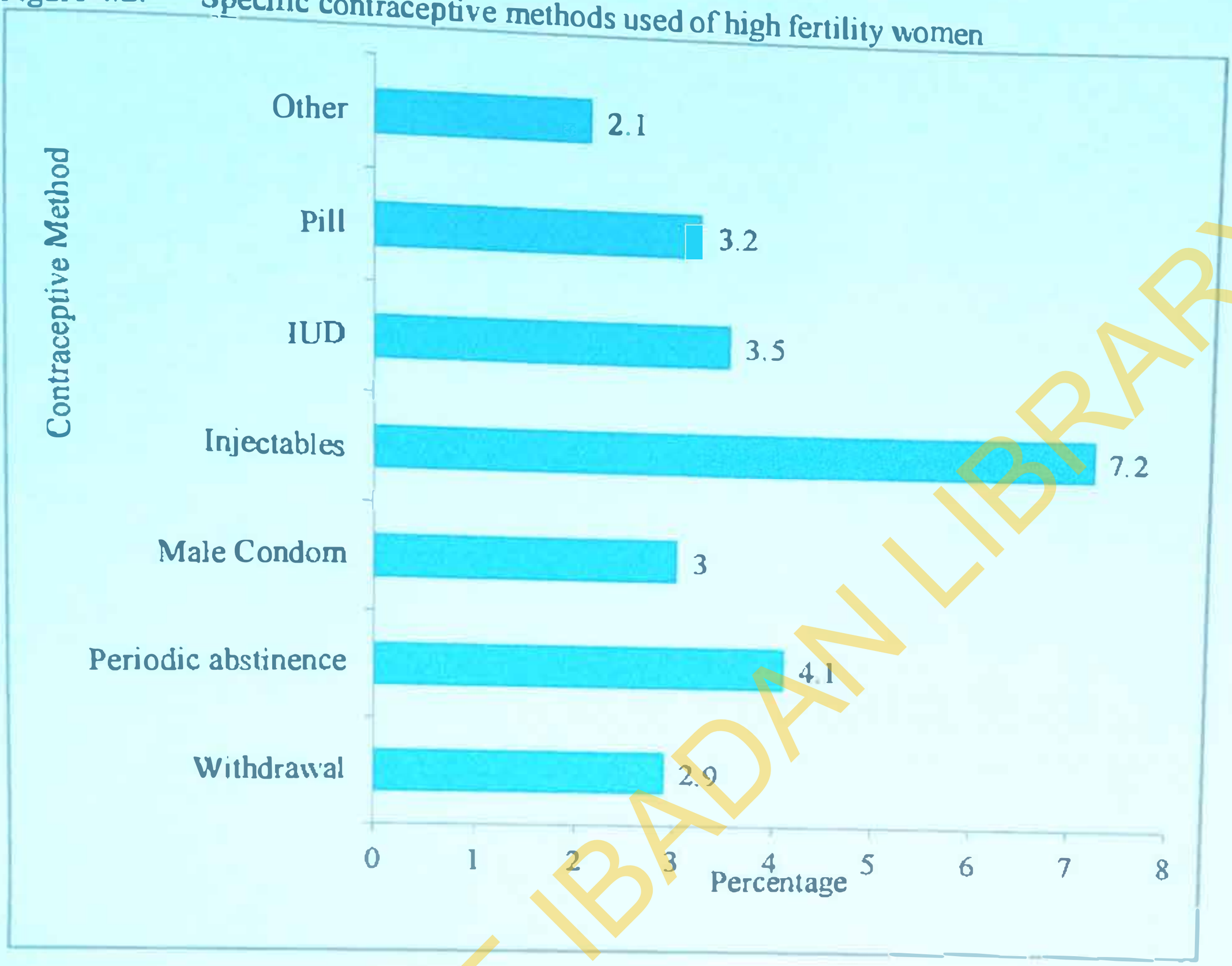
Figure 4.1: Contraceptives use among high fertility women



4.1.4 Specific contraceptive methods used of high fertility women

As shown in figure 4.2 the data revealed that the method most currently used by the women was injectables (7.2%) while lower percentage was reported for IUD (3.5%), pill (3.2%) and male condom (3.0%). Among traditional methods, periodic abstinence (4.1%) was the most commonly used. Most of the women were using modern contraceptives with prevalence of 17.2%.

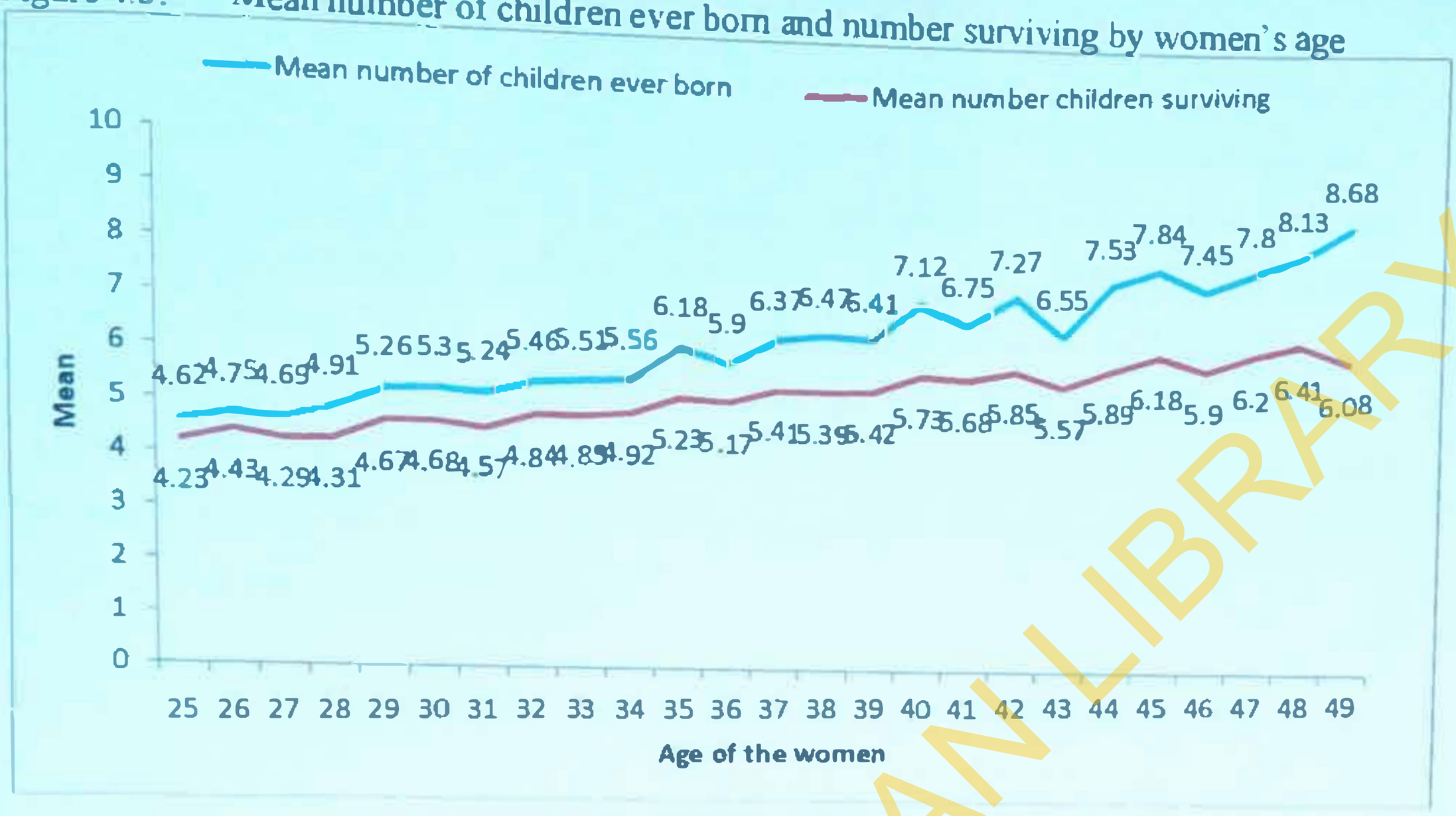
Figure 4.2: Specific contraceptive methods used of high fertility women



4.1.5 Mean number of children ever born and number surviving by women's age

The data as shown in figure 4.3 revealed that the mean number of children ever born and the mean number of living children by the women increase with increasing age. For instance, the women of age 49 had the highest mean number of children ever born (8.68), while their counterparts of age 25 constituted the least mean number of children ever born (4.62) and the mean number of living children (4.23).

Figure 4.3: Mean number of children ever born and number surviving by women's age



4.2.1 Use of any Modern Contraceptives by Demographic characteristics

The data as shown in Table 4.2.1 show the association between contraceptive use and demographic characteristics. There was a significant difference in age group with respect to any modern contraceptive measures by the women. For instance, the proportion of women (20.6%) in age group 35-39 who used any modern contraceptives was higher than women (11.5%) in age group 45-49 ($p<0.0001$). The proportion of women who used any modern contraceptives increases consistently with increasing age at first birth from 9.4% among those aged 9-14 to 23.3% of those aged of at least 20 years ($p<0.0001$). The data is also evidenced that the proportion of women who used modern contraceptive methods falls consistently with increasing number of living children.

Table 4.2.1: Use of any Modern Contraceptives by Demographic characteristics

Demographic Characteristics	Contraceptive use by method			Total No of women	χ^2-value (p-value)	Mean NCEB±σ	Mean NLC±σ
	None	Traditional/ Folkloric	Modern				
Total	73.9(2701)	8.9(324)	17.2(629)	3654		6.7±2.3	5.5±1.5
Age group							
25-34	73.0(575)	7.9(63)	19.2(151)	789	90.525	5.2±1.3	4.6±0.9
35-39	66.9(654)	12.6(123)	20.6(201)	978	(<0.001)	6.3±1.8	5.3±1.3
40-44	72.2(736)	10.5(107)	17.4(177)	1020		7.1±2.3	5.7±1.6
45-49	84.8(735)	3.7(32)	11.5(100)	867		8.0±2.6	6.2±1.8
Age at first birth							
9-14	87.1(427)	3.5(17)	9.4(46)	490	148.470	7.8±2.5	6.0±1.7
15-17	80.9(940)	7.1(83)	12.0(139)	1162	(<0.001)	7.2±2.4	5.8±1.7
18-19	72.2(460)	7.8(50)	19.9(127)	637		6.6±2.1	5.5±1.5
20+	64.1(875)	12.7(172)	23.3(318)	1365		5.8±1.8	5.1±1.2
Number of living children							
4	68.9(829)	11.2(135)	19.9(240)	1204	94.012	n.a	n.a
5	68.9(650)	10.1(95)	21.1(199)	944	(<0.001)	n.a	n.a
6	77.2(525)	6.9(47)	15.9(108)	680		n.a	n.a
7	79.5(357)	7.8(35)	12.7(57)	449		n.a	n.a
8+	90.2(340)	3.2(12)	6.6(25)	377		n.a	n.a
Sex composition of living children							
The same	72.7(556)	10.5(80)	16.9(129)	765	4.593	6.1±2.3	4.9±1.4
More female	75.1(1014)	8.5(115)	16.4(221)	1350	(<0.001)	6.8±2.3	5.6±1.5
More male	73.5(1131)	8.4(128)	18.1(279)	1538		6.9±2.3	5.7±1.6

n.a; not applicable

4.2.2 Use of any Modern Contraceptives by Socio-economic characteristics

As shown in Table 4.2.2, the data revealed that all the socio-economic variables analysed show significant association with contraceptive use in this study except sex composition of living children.

In terms of religious denominations, the use of modern contraceptives was higher among Christian women (28.7%) than their counterparts who belong to Islam (7.6%), Traditional (3.6%) or other religious groups (14.3%), ($p<0.0001$). There exists regional variations in the six geopolitical zones also, with South West (38.6%) and North East (3.9%) corresponding to the highest and least proportion of women that used any modern contraceptive methods respectively ($p<0.0001$). A higher proportion of urban dwellers reported use of modern contraceptives (28.5%) than their rural (11.5%) counterparts ($p<0.0001$). Modern contraceptive use was significantly higher among Yoruba (39.8%) and Igbo (27.9%) than Hausa (2.6%) women. Proportion of women who reported use of modern contraceptives increased consistently from 3.0% among those in poorest to 37.3% of those in the richest wealth quintile. Similarly, percentage of women who reported use of modern contraceptives increased consistently with increasing educational levels. For instance, the proportion of women who used any modern contraceptive method was least among women without formal education (4.1%) and whose partners had no formal education (3.5%), while it was highest among women with higher education (34.6%) and whose partners have higher education (30.7%), ($p<0.0001$). The use of modern contraceptives among women that were currently working (20.4%) was higher than their counterparts (7.4%) who were not currently working ($p<0.0001$).

Among women that were exposed to family planning (FP) media (at least one of radio, television or newspaper) (26.9%), the use of modern contraceptives was significantly higher than those who were not exposed (9.4%), ($p<0.0001$). Similarly, women who had high exposure to media had significantly higher modern contraceptives use (31.7%) than those who were not exposed (5.8%), ($p<0.0001$). Also, higher proportion of women who were visited by FP worker in the last twelve months (37.7%) used any modern contraceptives when compared with women who were not visited (16.0%), ($p<0.0001$). Likewise, the use of any modern contraceptives among women that visited health facility in the last twelve months (32.2%), was significantly higher than women (13.6%) that had not visited any health facility ($p<0.0001$). Women whose husbands want fewer children (28.5%) or having the same desire for children as their husbands (27.8%) had higher percentage use of modern

contraceptives than their counterparts whose husbands want more (12.1%) or did not know their husbands desire (10.0%) for children ($p<0.0001$). Having preference for particular sex promotes the use of any modern contraceptive (20.3%) when compared with those without preference for gender (15.9%), ($p<0.0001$).

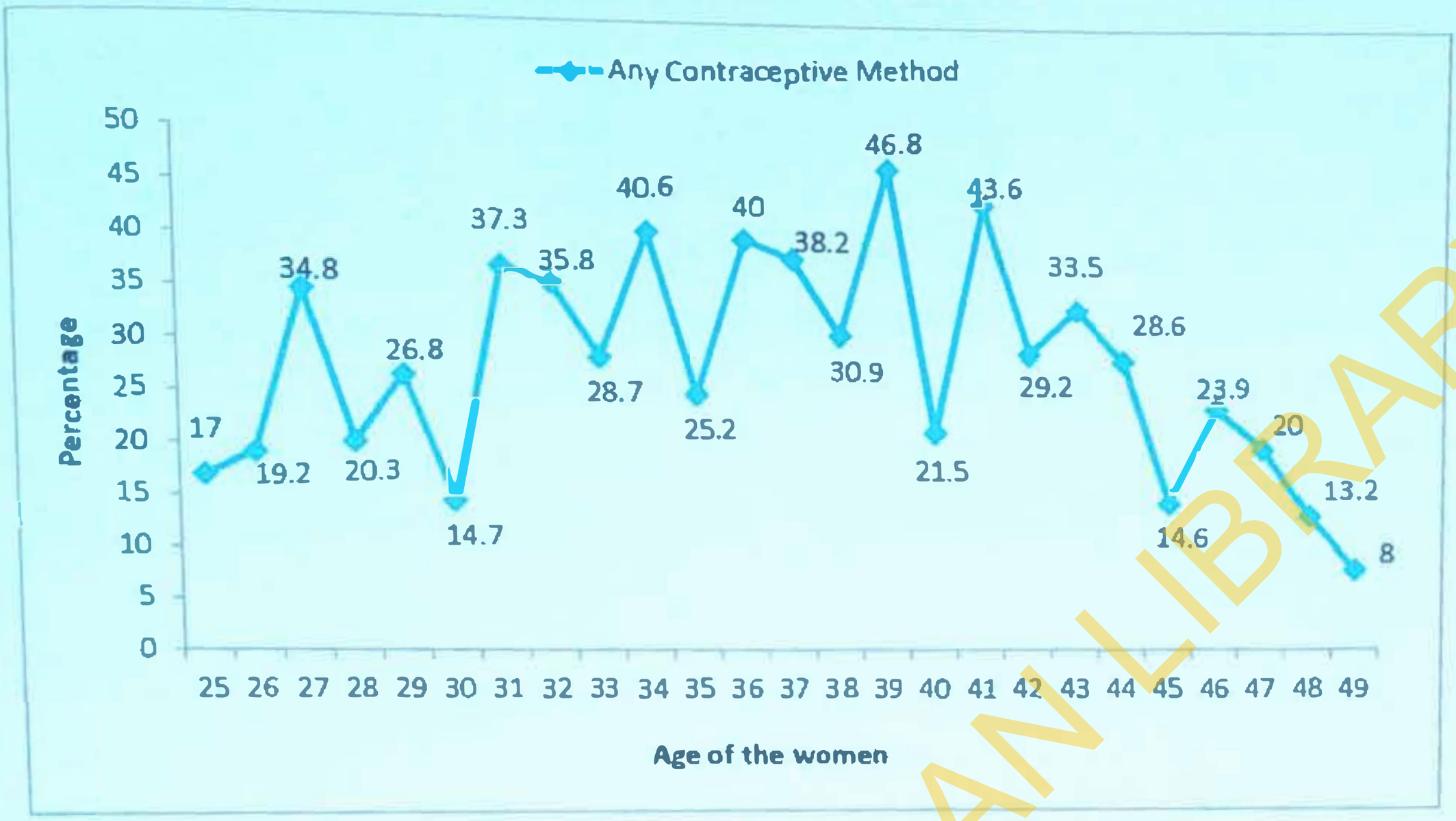
...) Modern Contraceptives by Socio-economic characteristics

Background Characteristics	Contraceptive use by method			Total women	χ^2-value (p-value)	Mean NCEB±σ	Mean NLC±σ
	None	Traditional /Folkloric	Modern				
Total	73.9(2701)	8.9(324)	17.2(629)	3654		6.7±2.3	5.5±1.5
Religion							
Christian	56.7(937)	14.5(240)	28.7(476)	1653	468.981	6.0±1.9	5.3±1.4
Islam	88.3(1700)	4.0(77)	7.6(148)	1925	(<0.001)	7.2±2.5	5.6±1.6
Traditional	87.3(48)	9.1(5)	3.6(2)	55		6.9±1.9	5.8±1.5
Others	76.2(16)	9.5(2)	14.3(3)	21		7.1±2.3	5.5±1.6
Region							
North Central	74.5(401)	5.0(27)	20.4(110)	538	888.354	6.3±1.9	5.4±1.4
North East	95.3(487)	0.8(3)	3.9(20)	510	(<0.001)	7.7±2.4	5.7±1.6
North West	94.8(1039)	0.7(8)	4.5(49)	1096		7.6±2.5	5.8±1.7
South East	53.7(175)	24.8(81)	21.5(70)	326		6.4±1.8	5.6±1.4
South South	60.8(281)	17.3(80)	21.9(101)	462		6.4±2.1	5.6±1.6
South West	44.2(319)	17.2(124)	38.6(279)	722		5.2±1.4	4.8±1.0
Residence							
Urban	57.0(692)	14.4(175)	28.5(346)	1213	268.154	6.1±2.1	5.3±1.5
Rural	82.3(2009)	6.1(149)	11.5(283)	2441	(<0.001)	6.9±2.3	5.6±1.6
Ethnicity							
Hausa	96.9(958)	0.5(5)	2.6(26)	989	770.079	7.7±2.5	5.8±1.7
Igbo	49.3(223)	22.8(103)	27.9(126)	452	(<0.001)	6.1±1.7	5.4±1.3
Yoruba	43.2(271)	17.0(107)	39.8(250)	628		5.2±1.3	4.8±1.0
Others	78.8(1249)	6.9(109)	14.3(227)	1585		6.8±2.2	5.6±1.6
Wealth index							
Poorest	95.8(735)	0.9(6)	3.0(25)	766	688.422	7.4±2.4	5.6±1.5
Poorer	87.6(628)	4.2(31)	8.2(59)	718	(<0.001)	7.2±2.4	5.5±1.5
Middle	81.5(560)	6.7(47)	11.8(81)	688		6.9±2.4	5.7±1.7
Richer	61.2(419)	14.6(99)	24.2(166)	684		6.4±2.1	5.6±1.6
Richest	45.1(360)	17.6(140)	37.3(298)	798		5.6±1.7	5.1±1.3
Highest educational level							
No education	93.8(1636)	2.0(37)	4.1(72)	1745	777.140	7.5±2.5	5.8±1.6
Primary	65.1(567)	9.3(81)	25.6(223)	871	(<0.001)	6.5±2.1	5.5±1.5
Secondary	49.3(382)	19.6(152)	31.1(241)	775		5.6±1.5	5.0±1.2
Higher	44.1(116)	21.3(56)	34.6(91)	263		5.2±1.4	4.9±1.2
Partner's education level							
No education	95.5(1409)	1.1(16)	3.5(51)	1476	613.058	7.6±2.5	5.7±1.6
Primary	63.5(568)	13.2(118)	23.4(209)	895	(<0.001)	6.5±2.1	5.6±1.6
Secondary	57.2(470)	15.1(124)	27.6(227)	821		5.8±1.8	5.1±1.4
Higher	55.0(254)	14.3(65)	30.7(142)	462		5.8±1.8	5.2±1.5
Respondent currently working							
No	89.3(795)	3.3(29)	7.4(66)	890	144.837	7.2±2.5	5.7±1.7
Yes	69.0(1906)	10.6(295)	20.4(563)	2764	(<0.001)	6.5±2.2	5.5±1.5
Family Planning Media Exposure							
No	86.5(1759)	4.0(83)	9.4(192)	2034	378.126	7.1±2.4	5.7±1.6
Yes	58.2(942)	14.9(242)	26.9(436)	1620	(<0.001)	6.1±2.1	5.3±1.4
Media Exposure							
No exposure	91.7(900)	2.4(23)	5.8(57)	980	506.098	7.3±2.4	5.7±1.7
Low exposure	81.5(1098)	7.2(97)	11.3(152)	1347	(<0.001)	7.0±2.4	5.6±1.5
High exposure	53.0(704)	15.3(202)	31.7(421)	1327		5.9±1.9	5.2±1.4
Visited by Family Planning worker last 12 month							
No	75.2(2596)	8.8(305)	16.0(553)	3454	64.307	6.7±2.3	5.5±1.5
Yes	52.8(105)	9.5(19)	37.7(75)	199	(<0.001)	6.3±2.2	5.4±1.5
Visited health facility last 12 month							
No	78.5(2306)	7.9(232)	13.6(398)	2936	175.056	6.8±2.3	5.5±1.5
Yes	55.0(395)	12.8(92)	32.2(231)	718	(<0.001)	6.3±2.2	5.3±1.5
Husbands desire for children							
Both the same	57.4(686)	14.8(177)	27.8(333)	1196	321.802	6.2±2.1	5.4±1.5
Husband WM	82.2(895)	5.7(62)	12.1(132)	1089	(<0.001)	7.0±2.3	5.6±1.6
Husband WF	53.5(77)	18.1(26)	28.5(41)	144		5.9±1.7	5.2±1.2
DK	85.1(1043)	4.8(59)	10.0(123)	1225		7.0±2.4	5.6±1.6
Any Gender preferenes							
No	76.6(1945)	7.5(191)	15.9(403)	2539	33.780	6.8±2.4	5.5±1.6
Yes	67.8(756)	11.9(133)	20.3(226)	1115	(<0.0001)	6.4±2.1	5.4±1.5

4.2.3 Use of any contraceptives of high fertility women by their age

The data as shown in figure 4.4 depict that, the use of any modern contraceptive method among women of ages 39 (46.8%), 41 (43.6%), 34 (40.6%) and 36 (40%) was significantly higher than their counterparts of ages 49 (8%), 48 (13.2%), 45 (14.6%), 30 (14.7%) and 25 (17.0%).

Figure 4.4: **Use of any contraceptives of high fertility women by their age**



4.2.4 Demographic characteristics according to use of long acting/permanent contraceptives

As shown in Table 4.2.3, the proportion of women who used long acting method in age group 45-49 was the higher (4.7%) when compared to those in age group 25-34 that had the least prevalence of 1.3% ($p<0.0001$). The proportion of women in respect to long acting usage was higher among those of ages 20 or more at their first birth (5.5%) while the least prevalence was among those aged 15-17 years (1.7%), ($p<0.0001$). The percentage of women who used long acting contraceptives is higher among those with four (4.7%) or five (4.7%) and least among those with at least eight living children (1.6%), ($p<0.0001$).

Table 4.2.3: Demographic characteristics according to use of long acting/permanent contraceptives

Demographic Characteristics	Contraceptive use by method		Total Number of women	χ^2-value	p-value
	Other modern	Long acting/ Permanent			
Total	(13.5)496	(3.7) 133	3654		
Age group					
25-34	18.0(141)	1.3(10)	789	129.570	<0.001
35-39	16.5(161)	4.1(40)	978		
40-44	13.2(135)	4.1(42)	1020		
45-49	6.8(59)	4.7(41)	867		
Age at first birth					
9-14	7.6(37)	1.8(9)	490	152.757	<0.001
15-17	10.2(119)	1.7(20)	1162		
18-19	15.3(97)	4.6(29)	637		
20+	17.8(243)	5.5(75)	1365		
Number of living children					
4	15.3(183)	4.7(57)	1204	99.517	<0.001
5	16.4(155)	4.7(44)	944		
6	13.8(94)	2.1(14)	680		
7	10.0(45)	2.7(12)	449		
8+	5.0(19)	1.6(19)	377		
Sex composition of living children					
The same	12.3(94)	4.6(35)	765	7.837	0.250
More female	13.2(178)	3.2(43)	1350		
More male	14.5(224)	3.6(55)	1538		

4.2.5 Socio-economic characteristics according to use of long acting/permanent contraceptives

Table 4.2.4 shows the differential in use of long acting/permanent method by socio-economic characteristics. The data show that the use of long acting/permanent method among urban dwellers was higher (7.7%) than their rural counterparts (1.6%), ($p<0.0001$). Women living in South West (10·9%) and North East (0.2%) correspond to the highest and least proportion of use of long acting contraceptive method respectively ($p<0.0001$). According to religion, the long acting contraceptives used among Christian women was 5.9% and Muslims was 1.9% only, ($p<0.0001$). Also, the prevalence was significantly higher among Yoruba (11.0%) and Igbo (6.0%) than Hausa (0.6%) women. The percentage of women who use long acting contraceptives increased consistently from 0.0% among those in poorest to 10.3% of those in the richest wealth quintile. Similar pattern for wealth quintile was noted for educational levels of both the women and their partners. The proportion of women who used long acting contraceptives was least among women without formal education (0.7%) and whose partners had no formal education (0.6%), while it was highest among women with higher education (12.5%) and whose partners have higher education (8.7%), ($p<0.0001$).

The proportion of women who were currently working that used long acting contraceptive measures was higher (4.5%) than their counterparts who were not currently working (1.0%), ($p<0.0001$). The percentage of women who were exposed to family planning (FP) media at least one of radio, television or newspaper (6.6%) that use long acting contraceptives was significantly higher than those who were not exposed (1.3%), ($p<0.0001$). Similarly, women who had high exposure to media that used long acting contraceptives was higher (8.2%) when compared to those who were without exposure (0.4%), ($p<0.0001$). Again, higher proportion of women who were visited by FP worker in the last twelve months (4.5%) used long acting contraceptives than women who were not visited (3.6%), ($p<0.0001$). Also, the use of long acting contraceptives among the women that visited health facility last twelve months (6.4%), was significantly higher than women (3.0%) that had not visited any health facility ($p<0.0001$). Women whose husbands want fewer children (10.4%) or having the same desire for children as their husbands (6.3%) had higher percentage use of long acting methods than their counterparts whose husbands want more (2.3%) or do not know their husbands desire (1.4%) for children ($p<0.0001$). Preference for a particular gender barely

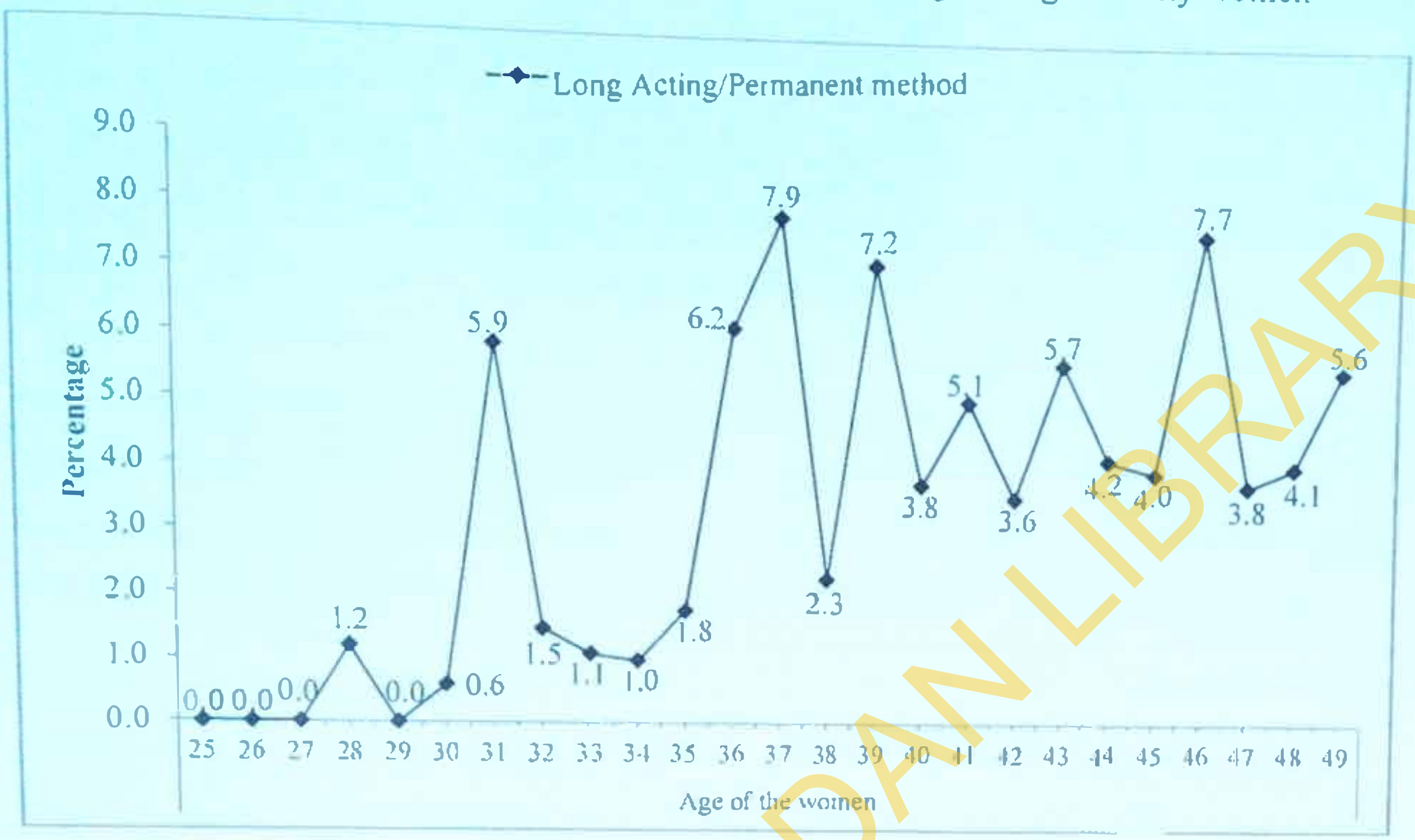
promotes the use of long acting contraceptive measures (3.9%) when compared with those without preference for particular sex (3.5%), ($p<0.0001$).

Socio-economic Characteristics	Contraceptive use by method: Other modern	Contraceptive use by method: Long acting/ Permanent	Total Number of women	χ^2-value	p-value
Total	(13.5)496	(3.7) 133	3654		
Religion					
Christian	22.9(379)	5.9(97)	1653	470.443	<0.001
Islam	5.8(112)	1.9(36)	1925		
Traditional	3.6(2)	0.0(0)	55		
Others	14.3(3)	0.0(0)	21		
Region					
North Central	16.9(91)	3.7(20)	538	923.332	<0.001
North East	3.7(19)	0.2(1)	510		
North West	3.6(39)	0.9(10)	1096		
South East	16.9(55)	4.6(15)	326		
South South	20.3(93)	1.7(8)	462		
South West	27.7(200)	10.9(79)	722		
Residence					
Urban	20.8(252)	7.7(94)	1213	286.826	<0.001
Rural	9(244)	1.6(39)	2441		
Ethnicity					
Hausa	2.1(20)	0.6(6)	989	787.215	<0.001
Igbo	21.9(99)	6.0(27)	452		
Yoruba	28.7(181)	11.0(69)	628		
Others	12.4(196)	2.0(31)	1585		
Wealth index					
Poorest	3.0(25)	0.0(0)	766	710.178	<0.001
Poorer	7.7(55)	0.6(4)	718		
Middle	9.9(68)	1.9(13)	688		
Richer	19.3(133)	4.8(33)	684		
Richest	27.0(216)	10.3(82)	798		
Highest educational level					
No education	3.5(61)	0.7(13)	1745	806.392	<0.001
Primary	21.4(186)	4.2(37)	871		
Secondary	24.7(192)	6.4(50)	775		
Higher	22.1(58)	12.5(33)	263		
Partner's education level					
No education	2.8(42)	0.6(9)	1476	623.819	<0.001
Primary	18.3(165)	4.9(44)	895		
Secondary	22.9(188)	4.8(39)	821		
Higher	22.1(102)	8.7(40)	462		
Respondent currently working					
No	6.4(57)	1.0(9)	890	146.108	<0.001
Yes	15.9(439)	4.5(124)	2764		
Family Planning Media Exposure					
No	8.2(166)	1.3(26)	2034	385.467	<0.001
Yes	20.3(329)	6.6(107)	1620		
Media Exposure					
No exposure	5.3(53)	0.4(4)	980	526.368	<0.001
Low exposure	9.8(133)	1.4(19)	1347		
High exposure	23.5(312)	8.2(109)	1327		
Visited by Family Planning worker last 12 months					
No	12.4(430)	3.6(123)	3454	72.828	<0.001
yes	33.2(66)	4.5(9)	199		
Visited health facility last 12 months					
No	10.6(311)	3.0(87)	2936	175545	<0.001
Yes	25.8(185)	6.4(46)	718		
Husbands desire for children					
Both the same	21.6(257)	6.3(76)	1196	336.609	<0.001
Husband wants more	9.7(107)	2.3(25)	1089		
Husband wants fewer	18.1(26)	10.4(15)	144		
DK	8.7(106)	1.4(17)	1225		
Any Gender Preference					
No preference	12.4(314)	3.5(89)	2539	34.425	<0.001
Gender preference	16.3(182)	3.9(44)	1115		

4.2.6 Use of long acting/permanent contraceptives by age of high fertility women

The data as revealed in figure 4.5 show that, women of ages 25 (0.0%), 26 (0.0%), 27 (0.0%) and 29 (0.0%) did not use long acting/permanent method at all. But their counterparts of ages 37 (7.9%), 46 (7.7%) and 39 (7.2%) had the higher prevalence of use of long acting/permanent method. While those of ages 30, 34 and 33 only had long acting/permanent prevalence of 0.6%, 1.0% and 1.1% respectively.

Figure 4.5: Use of long acting/permanent contraceptives by age of high fertility women



4.3.1 Multinomial logistic regression of modern contraceptive use by background characteristics

In the unadjusted model, all the background characteristics except sex composition of living children, show significant association with modern contraceptives use. For instance, rural women were 0.282 (CI=0.236-0.338, p<0.0001) less likely to use any modern contraception than their urban counterparts. As per age at first birth, the women who married in age groups 18-19 and 20 or more years were 2.557 (CI=1.780-3.675, p<0.0001) and 3.376 (CI=2.426-4.698, p<0.0001) respectively, more likely to use contraceptive when compared to the youngest age group (15-24 years). Compared with women without gender preference, women with preference for particular gender were more likely (OR=1.446: CI=1.204-1.737, p<0.0001) to adopt a modern method of contraception than those without gender preference.

The result as shown in the adjusted model revealed that women of ages 40-44 and 45-49 years were 0.653 (CI=0.480-0.915, p=0.013) and 0.419 (CI=0.289-0.609, p<0.0001) respectively less likely to use any modern contraceptive than their counterparts within the age range of 25-34 years. Women living in North East, South East and South South geopolitical zones were 0.338 (CI= 0.167-0.686, p=0.002), 0.395 (CI= 0.229-0.681, p=0.001) and 0.617 (CI= 0.397-0.959, p=0.032) respectively, less likely to use modern contraceptives than their counterparts in the South West. The likelihood of modern contraceptive use was significantly higher among women with five (OR=1.528: CI=1.139-2.050, p=0.005), six (OR=1.554: CI=1.118-2.160, p=0.009) and seven children (OR=1.571: CI=1.035-2.386, p=0.034) respectively than those with four living children. Women belonging to Islamic religion were 0.490 (CI=0.362-0.664, p<0.0001) significantly less likely than their Christian counterparts to use any modern contraceptives.

Furthermore, the likelihood of use of any modern contraceptives was significantly higher among Yoruba (OR=5.923: CI=2.703-12.951, p<0.0001), Igbo (OR=3.730: CI=1.618-8.562, p=0.001) and other non specified tribes (OR=2.518: CI=1.401-4.523, p=0.002) than their Hausa counterparts. Similarly, being in the richer (OR=2.106: CI=1.225-3.621, p=0.007) and richest (OR=2.014: CI=1.022-3.990, p=0.001) wealth quintiles respectively promote the use of modern contraceptives than women in the poorest wealth quintile. Also, Women's education had a significant effect in promoting a positive relationship with modern contraceptive use. Women with primary education was more likely to use any modern contraceptives (OR=1.693: CI=1.180-2.429, p=0.004) than were those without education. As

well, wives whose husbands had primary (OR=1.924: CI=1.281-2.891, p=0.002) or secondary (OR=1.557: CI=1.015-2.390, p=0.043) or higher (OR=2.139: CI=1.328-3.444, p=0.002) education respectively, were more likely to use modern contraceptives than those whose husbands had no education. Women who had been exposed to family planning (FP) messages were significantly more likely (OR=1.391: CI=1.071-1.805, p=0.013) to use any modern contraceptives than those who had not been exposed. Additionally, those who had been visited by a FP worker in the last 12 months were more likely (OR=1.566: CI=1.069-2.294, p=0.021) to use a modern method than those who had not been visited. Meanwhile, women who had visited health care facility in the last 12 months were significantly more likely (OR=2.028: CI=1.589-2.588, p<0.0001) to use modern contraceptives than those who had not visited. Pertaining to work status of the women, those with source of income were more likely (OR=1.530: CI=1.105-2.118, p=0.010) to use modern contraceptives than women with no jobs. Women whose husbands want more children (OR=0.738: CI=0.558-0.975, p=0.032) and those that did not know the stand of their husband desire for children (OR=0.448: CI=0.342-0.587, p<0.0001) were significantly less likely to use modern contraceptives compared to those who had the same desire for children as their husbands.

Table 4.3.1: Multinomial logistic regression of modern contraceptive use by background characteristics

Background Characteristics	Unadjusted				Adjusted			
	β	Exp(β)	95.0% C.I. for Exp(β)		β	Exp(β)	95.0% C.I. for Exp(β)	
			Lower	Upper			Lower	Upper
Age group								
25-34	R.C	1.000	R.C	R.C	R.C	1.000	R.C	R.C
35-39	0.158	1.171	0.922	1.486	-0.086	0.918	0.678	1.242
40-44	-0.093	0.911	0.714	1.161	-0.411	0.663***	0.480	0.915
45-49	-0.665	0.514*	0.391	0.678	-0.869	0.419*	0.289	0.609
Region								
North Central	-1.156	0.315*	0.242	0.410	-0.133	0.876	0.585	1.311
North East	-3.078	0.046*	0.029	0.074	-1.085	0.338**	0.167	0.686
North West	-2.925	0.054*	0.039	0.075	-0.286	0.751	0.428	1.320
South East	-0.775	0.461*	0.334	0.634	-0.929	0.395**	0.229	0.681
South South	-0.885	0.413*	0.312	0.545	-0.482	0.617***	0.397	0.959
South West	R.C	1.000	R.C	R.C	R.C	1.000	R.C	R.C
Residence								
Urban	R.C	1.000	R.C	R.C	R.C	1.000	R.C	R.C
Rural	-1.265	0.282*	0.236	0.338	-0.228	0.796	0.611	1.037
Age at first birth								
9-14	R.C	1.000	R.C	R.C	R.C	1.000	R.C	R.C
15-17	0.317	1.373	0.965	1.954	0.158	1.171	0.776	1.766
18-19	0.939	2.557*	1.780	3.675	0.349	1.418	0.921	2.181
20+	1.217	3.376*	2.426	4.698	0.336	1.399	0.930	2.103
Number of living children								
4	R.C	1.000	R.C	R.C	R.C	1.000	R.C	R.C
5	0.053	1.054	0.851	1.306	0.424	1.528**	1.139	2.050
6	-0.342	0.710**	0.552	0.914	0.441	1.554**	1.118	2.160
7	-0.599	0.550*	0.401	0.753	0.452	1.571***	1.035	2.386
8+	-1.364	0.256*	0.166	0.393	0.079	1.082	0.635	1.846
Sex composition of living children								
The same	R.C	1.000	R.C	R.C	R.C	1.000	R.C	R.C
More female	0.059	1.060	0.834	1.349	0.095	1.099	0.799	1.513
More males	0.120	1.128	0.927	1.372	0.160	1.174	0.925	1.489
Religion								
Christian	R.C	1.000	R.C	R.C	R.C	1.000	R.C	R.C
Islam	-1.766	0.171*	.140	0.209	-0.713	0.490*	.362	0.664
Traditional	-2.355	0.095**	0.025	0.359	-1.144	0.319	0.079	1.292
Others	-0.891	0.410	0.125	1.347	0.543	1.721	0.377	7.854
Ethnicity								
Hausa	R.C	1.000	R.C	R.C	R.C	1.000	R.C	R.C
Igbo	1.279	3.592*	2.803	4.915	1.316	3.730**	1.618	8.562
Yoruba	1.714	5.551*	4.554	7.373	1.779	5.923*	2.703	12.951
Others	1.006	2.721*	2.452	3.318	0.923	2.518**	1.401	4.523
Wealth index								
Poorest	R.C	1.000	R.C	R.C	R.C	1.000	R.C	R.C
Poorer	1.015	2.760*	1.709	4.456	0.289	1.335	0.785	2.271
Middle	0.935	2.548*	1.578	4.122	0.195	1.215	0.716	2.062
Richer	1.495	4.459*	2.705	7.066	0.745	2.106**	1.225	3.621
Richest	1.709	5.521*	3.381	9.205	0.700	2.014**	1.022	3.969

Table 4.3.1 (*Continued*): Multinomial logistic regression of modern contraceptive use by background characteristics

Background Characteristics	Unadjusted				Adjusted			
	β	Exp(β)	95.0% C.I. for Exp(β)		β	Exp(β)	95.0% C.I. for Exp(β)	
			Lower	Upper			Lower	Upper
Highest educational level								
None	R.C	1.000	R.C	R.C	R.C	1.000	R.C	R.C
Primary	0.933	2.542*	1.109	5.631	0.526	1.693**	1.180	2.429
Secondary	1.086	2.963*	1.318	6.264	0.356	1.428	0.955	2.136
Higher	1.192	3.295*	2.674	7.093	0.193	1.212	0.714	2.059
Partner's education level								
None	R.C	1.000	R.C	R.C	R.C	1.000	R.C	R.C
Primary	1.023	2.781*	1.715	6.013	0.654	1.924**	1.281	2.891
Secondary	1.123	3.073*	2.138	7.153	0.443	1.557***	1.015	2.390
Higher	1.239	3.451*	2.462	7.478	0.760	2.139**	1.328	3.444
Media exposure								
No exposure	R.C	1.000	R.C	R.C	R.C	1.000	R.C	R.C
Low exposure	0.786	2.196*	1.598	3.017	0.039	1.039	0.714	1.512
High exposure	1.762	5.825*	3.130	9.127	0.110	1.116	0.739	1.684
Family planning media Exposure								
No	R.C	1.000	R.C	R.C	R.C	1.000	R.C	R.C
Yes	1.443	4.235*	3.513	5.107	0.330	1.391***	1.071	1.805
Visited by family planning worker last 12 months								
No	R.C	1.000	R.C	R.C	R.C	1.000	R.C	R.C
Yes	1.212	3.359*	2.464	4.577	0.449	1.566***	1.069	2.294
Visited health facility last 12 months								
No	R.C	1.000	R.C	R.C	R.C	1.000	R.C	R.C
Yes	1.222	3.395*	2.796	4.122	0.707	2.028*	1.589	2.588
Respondent currently working								
No	R.C	1.000	R.C	R.C	R.C	1.000	R.C	R.C
Yes	1.275	3.577*	2.734	4.679	0.425	1.530***	1.105	2.118
Husbands desire for children								
Same	R.C	1.000	R.C	R.C	R.C	1.000	R.C	R.C
Husb wants more	-1.197	0.302*	0.241	0.379	-0.304	0.738***	0.558	0.975
Husb wants fewer	0.094	1.098	0.736	1.640	-0.037	0.963	0.599	1.549
DK	-1.418	0.242*	0.193	0.304	-0.803	0.448*	0.342	0.587
Gender preference								
No	R.C	1.000	R.C	R.C	R.C	1.000	R.C	R.C
Yes	0.369	1.446*	1.204	1.737	-0.029	0.972	0.773	1.220

*Significant at 0.1%; **Significant at 1%; ***Significant at 5%; RC: Reference Category

4.3.2 Multinomial logistic regression of long acting/permanent contraceptive use by background characteristics

In the unadjusted model, only sex composition of living children, gender preference and being visited by family planning worker in the last 12 months did not show significant association with long acting/permanent contraceptives use. Women who have had their first birth, within age groups 18-19 and 20 or more years were 3.025 (CI=1.417-6.461, p=0.004) and 4.047 (CI=2.006-8.163, p<0.0001) respectively, more likely to use long acting/permanent contraceptives when compared to the younger women (15-24 years). The strength of use of long acting/permanent contraceptives increases with increasing educational level of the women and their partners, with women and those whose partner's have higher education were 2.584 (CI=1.381-3.943, p<0.0001) and 4.620 (CI=3.782-5.317, p<0.0001) respectively more likely than were those without education. Also, women who had high or low exposure to media were 6.391 (CI=3.407-13.582, p<0.0001) and 3.601 (CI=1.278-10.146, p<0.015) respectively more likely to use long acting/permanent contraceptives when compared to those who had no media exposure.

In the adjusted model, women of all age groups 35-39, 40-44 and 45-49 years were 3.281 (CI=1.520-7.078, p=0.002), 2.752(CI=1.256-6.027, p=0.011) and 3.067 (CI=1.364-6.894, p=0.007) respectively, more likely to use long acting/permanent contraceptives compared to women aged 25-34 years. Also, women living in North East and South South were 0.093 (CI= 0.010 - 0.834, p=0.034) and 0.207 (CI= 0.079-0.541, p=0.001) respectively, less likely to use long actmg/permanent method than their counterparts in the South West. The visit to health care facility promotes use of long acting or permanent contraceptives. Women who had visited healthcare facility in the last 12 months were significantly more likely (OR=1.917: CI=1.232-2.981, p=0.004) to use modern contraceptives than those who had not visited. The odds of using long acting/permanent contraceptives is significantly lower among women who did not know the opinion of their husbands' desire for children (OR=0.313: CI=0.174-0.562, p<0.0001) when compared to those who had the same desire for children as their husbands.

Table 4.3.2: Multinomial logistic regression of long acting/permanent contraceptive use by background characteristics

Background Characteristics	Unadjusted				Adjusted			
	β	Exp(β)	95.0% C.I. for Exp(β		β	Exp(β)	95.0% C.I. for Exp(β	
			Lower	Upper			Lower	Upper
Age group								
25-34 (RC)	RC	1.00	RC	RC	RC	1.00	RC	RC
35-39	1.292	3.641*	1.783	7.435	1.188	3.281**	1.520	7.078
40-44	1.238	3.450**	1.697	7.013	1.012	2.752***	1.256	6.027
45-49	1.206	3.340**	1.639	6.803	1.121	3.067**	1.364	6.894
Region								
North Central	-1.622	0.197*	0.118	0.331	-0.364	0.695	0.349	1.383
North East	-4.880	0.008*	0.001	0.060	-2.375	0.093***	0.010	0.834
North West	-3.247	0.039*	0.020	0.076	-0.599	0.549	0.189	1.593
South East	-1.041	0.353*	0.198	0.629	-0.841	0.431	0.172	1.081
South South	-2.202	0.111*	0.052	0.236	-1.575	0.207**	0.079	0.541
South West (RC)	RC	1.00	RC	RC	RC	1.00	RC	RC
Residence								
Urban (RC)	RC	1.00	RC	RC	RC	1.00	RC	RC
Rural	-1.949	0.142*	0.097	0.209	-0.440	0.644	0.392	1.057
Age at first birth								
9-14 (RC)	RC	1.00	RC	RC	RC	1.00	RC	RC
15-17	-0.007	0.993	0.448	2.205	-0.144	0.866	0.363	2.063
18-19	1.107	3.025**	1.417	6.461	0.189	1.208	0.515	2.830
20+	1.398	4.047*	2.006	8.163	-0.111	0.895	0.396	2.026
Number of living children								
4 (RC)	RC	1.00	RC	RC	RC	1.00	RC	RC
5	-0.009	0.991	0.660	1.488	0.453	1.573	0.915	2.705
6	-0.945	0.389**	0.214	0.705	-0.247	0.782	0.393	1.556
7	-0.723	0.485***	0.256	0.919	0.0361	1.435	0.646	3.186
8+	-1.352	0.259**	0.111	0.605	-0.113	0.893	0.322	2.478
Sex composition of living children								
The same (RC)	RC	1.00	RC	RC	RC	1.00	RC	RC
More female	0.395	1.485	0.937	2.351	0.541	1.717	0.955	3.088
More males	0.150	1.162	0.772	1.748	0.280	1.323	0.839	2.085
Religion								
Christian (RC)	RC	1.00	RC	RC	RC	1.00	RC	RC
Islam	-1.595	0.203*	0.137	.300	-0.473	0.623	0.367	1.057
Ethnicity								
Hausa (RC)	RC	1.00	RC	RC	RC	1.00	RC	RC
Igbo	1.031	2.806*	1.253	6.016	0.719	2.052	0.486	8.672
Yoruba	1.418	4.128*	2.018	8.429	1.197	3.310	0.885	12.374
Others	0.656	1.927**	1.248	3.260	0.587	1.799	0.521	6.214
Wealth index								
Poorest (RC)	RC	1.00	RC	RC	RC	1.00	RC	RC
Poorer	1.456	4.289	0.694	0.782	1.370	3.935	0.541	7.926
Middle	1.569	4.803***	1.802	2.358	1.480	4.392	0.721	8.524
Richer	1.728	5.629**	2.983	8.475	1.622	5.064	0.964	10.326
Richest	1.847	6.342*	3.093	9.076	1.782	5.942	0.987	11.347

Table 4.3.2 (*Continued*): Multinomial logistic regression of long acting/permanent contraceptive use by background characteristics

Background Characteristics	Unadjusted				Adjusted			
	β	Exp(β)	95.0% C.I. for Exp(β		β	Exp(β)	95.0% C.I. for Exp(β)	
			Lower	Upper			Lower	Upper
Highest educational level								
No education (RC)	RC	1.00	RC	RC	RC	1.00	RC	RC
Primary	0.425	1.530*	1.169	2.303	0.267	1.306	0.610	2.794
Secondary	0.537	1.711*	1.294	2.872	0.221	1.247	0.553	2.812
Higher	0.949	2.584*	1.381	3.943	0.043	1.547	0.588	4.067
Partner's education level								
No education (RC)	RC	1.00	RC	RC	RC	1.00	RC	RC
Primary	0.903	2.468*	1.701	3.246	0.816	2.260	0.965	5.295
Secondary	1.146	3.147*	2.370	4.159	0.353	1.423	0.578	3.503
Higher	1.530	4.620*	3.782	5.317	0.824	2.280	0.875	5.939
Media Exposure								
No exposure (RC)	RC	1.00	RC	RC	RC	1.00	RC	RC
Low exposure	1.281	3.601***	1.278	10.146	0.016	1.016	0.335	3.078
High exposure	1.855	6.391*	3.407	13.582	0.504	1.656	0.544	5.044
Family Planning Media Exposure								
No (RC)	RC	1.00	RC	RC	RC	1.00	RC	RC
Yes	2.053	7.787*	5.025	12.069	0.468	1.597	0.938	2.719
Visited by FP worker last 12 months								
No (RC)	RC	1.00	RC	RC	RC	1.00	RC	RC
Yes	0.635	1.887	0.946	3.764	-0.293	.746	0.339	1.642
Visited health facility last 12 months								
No (RC)	RC	1.00	RC	RC	RC	RC	RC	RC
Yes	1.127	3.088*	2.125	4.485	0.651	1.917**	1.232	2.981
Respondent currently working								
No (RC)	RC	1.00	RC	RC	RC	1.00		RC
Yes	1.805	6.078*	3.020	12.232	0.734	2.084	0.977	4.443
Husbands desire for children								
Both want same (RC)	RC	1.00	RC	RC	RC	1.00	RC	RC
Husband wants more	-1.359	.257*	0.162	0.407	-0.472	0.624	0.369	1.054
Husband wants fewer	0.562	1.754	0.959	3.209	0.359	1.432	0.709	2.891
DK	-1.931	0.145*	0.085	0.249	-1.162	0.313*	0.174	0.562
Gender preference								
No preference (RC)	RC	1.00	RC	RC	RC	1.00	RC	RC
Gender preference	0.243	1.275	0.879	1.848	-0.020	0.980	0.637	1.506

**Significant at 0.1%; **Significant at 1%; ***Significant at 5%; RC: Reference Category*

CHAPTER FIVE

DISCUSSION, CONCLUSION AND RECOMMENDATIONS

5.1 DISCUSSION

Persistent high fertility remains a problem in Nigeria, its total fertility rate is one of the highest worldwide despite its large population size (WHO, 2014; United Nations, 2013b). Unfortunately, the use of modern contraceptive is strikingly low in Nigeria (NPC and ICF International, 2009; Tien et al., 2009; Adebowale and Palamuleni, 2014). Policies have been formulated in the past to check the rising growth rate but the implementation is bad. Women in Nigeria still bear above four children which were stipulated in the first Nigeria population policy (NPC and ICF International, 2009). Although, human right policy permits couples to bear children at will but the consequences of high frequency of birth are enormous. Large family size is inimical to child, maternal and family health and can compromise socio-economic advancement of the familial generation (USAID, 2013; UNICEF 2010, Keister 2003). This study therefore, examined the pattern and correlates of use of modern contraceptives among high fertility women of reproductive age in Nigeria.

The data show that the mean age of the women was 39.2±6.2 years and most of them were rural dwellers. Moreover, about half of the women were uneducated and roughly one third of them came from North West region. Nearly all the women were not visited by family planning (FP) worker in the last 12 months, majority of the women had not visited any healthcare facility and more than half had FP media exposure.

The mean age of 39.2 years found in this study is expected since the women under study are expected to have had at least four living children regardless of the number of children they must have given birth to. The mean age is higher and in agreement with 2008 demographic health survey which reported the mean age of women of childbearing age to be 28.7±9.5 years irrespective of their birth status or parity (NPC and ICF International, 2009). Also, higher proportion of rural and not educated women composition in this study is as a result of the specific (having at least 4 children) nature of women under study. Previous studies have found women in the rural areas and poorly educated women to have higher number of living children than their counterparts living in the urban and better educated (Adebowale and Palamuleni, 2014)

The findings reveal that the prevalence of modern contraceptive use among the women is low. The rate for current use of modern contraceptive was 17.2%, out of which long acting/permanent method was found to be 3.7%, while the contraceptive use prevalence for any method was 26.1%. The prevalence of any contraceptive method and modern method found in this study are higher than the figures for women of reproductive age in Nigeria (NPC and ICF International, 2009). This is expected since women who already have high fertility are expected to do something to prevent further childbearing unlike the 2008 data which encompass women with fewer number of children and those that have not begun childbearing.

Beside sex composition for living children, all the demographic and socio-economic variables analysed were significantly associated with modern contraceptive use. Injectables were the most used contraceptive method by the women, which was consistent with previous findings (Ameh and Sule, 2007). It is the most-preferred method of choice, mainly because of privacy reasons and easy accessibility at public-sector facilities (Tien et al., 2009). Similarly, intrauterine device, pill, and male condom were also commonly used among the women.

The study indicated that a significant difference existed between rural and urban residents in the use of modern contraceptives with urban dwellers more likely to use modern contraceptives than the rural women. The findings are in accordance with previous studies (Adebowale et al., 2011; Carr et al., 2006). Generally, urban women are more likely to be better educated, employed, or to have choice, earn higher income than their rural counterparts, have more access to FP programmes and contraceptive services than rural women where unmet need for FP has been shown to be high (Carr et al., 2006; CDC, 2010). The results have also shown that women of Yoruba and Igbo ethnic groups were significantly more likely to utilise modern contraceptive method than their Hausa counterparts. The study indicated that educational level of women had an incremental effect on modern contraceptive use. Fewer women without formal education used modern contraceptives than did their counterparts who had completed higher school or less. As well, educational attainment of partners of the women is positively related to modern contraceptive use. Prior researches have noted that as the educational level increases, there is more likelihood to plan family size through deliberate use of birth control methods, since educated women are more informed of contraceptive methods and they are able to participate in the decision-making process of family issues (Lloyd, 2009; Mandelbaum, 1974). Moreover, contraceptive use is proven to

affect the timing for fertility among career women such as late marriage in that time spent studying facilitate more use of contraception among educated women than illiterates (Adebowale, 2011). Similarly, use of modern contraceptive was found to be lower among poorer women than the richer women. Previous research has noted that, wealth may be important because of its correlation with education and wealth may also have effects on desired family size and contraceptive use effectiveness (Adebowale and Palamuleni, 2014; Fapohunda and Poukouta, 1999).

Women's working status also had a significant effect on contraceptive use. Higher odds of modern contraceptives use were found among women who were currently working or earning more income than their counterparts who were not working. This finding is consistent with the finding that, working women tend to choose more long term effective modern methods since they were more likely to have the ability to make a fertility choice and employment opportunities (Jayaraman, 1995). The findings on media exposure and FP media exposure were noteworthy. Women with exposure to FP and those with higher exposure to media messages were more likely to use modern contraceptives than their counterparts who were not exposed or without higher media exposure, respectively. As well, higher odds existed among women who were visited by FP worker and those who visited health facility in the last twelve months respectively than their counterparts who were not visited nor visit health facility. This finding supports the conventional belief that exposure to media messages such as FP might encourage changes in reproductive health behaviour such as marital interaction and preference for fewer children (Oyediran, 2005). It was interestingly noted that, the odds of current use of modern contraceptives was higher among women whose husbands want fewer children or having the same desire for children as their husbands than their counterparts whose husbands want more or did not know their husbands opinion on desired number of children. Number of living children also has a major effect on modern contraceptives use among the women. Those who had more than four children were more likely to use modern contraceptives. On the other hand, nearly all the variables considered portray the same pattern in use of long acting/permanent methods of contraceptives among the women with exception of age and region. Women of age group 44-49 have higher odds of use of long acting/permanent methods. The reason is that, older women may prefer to opt for either long term or permanent measures of contraception because they may have obtained their desired number of children and no longer want to bear any more children. As found in this study,

modern contraceptive use was higher in the South East than North West. Differences in cultural and regional setting may have been the reason why long acting/permanent was mostly used in South East than South South that has higher use of modern method on general note. The demographic distribution of Nigeria by region shows that South East and North West inhabitants are predominantly Christians and Muslims (National Population Census report, 2006). Studies have revealed consistently that, Christians use contraceptive than Muslim women (Adebowale and Palamuleni, 2014; Envuladu et al., 2012; Shah et al., 2006; Ahiadeke, 2001).

The study also shows that, the mean number of children ever born and the number of living children were 6.7±2.3 and 5.5±1.5 respectively. The mean ages of both number of children ever born and number of living children to women under study was higher than those for all the women as reported by 2008 demographic health survey. This is predictable, since all the women under study have at least four children, while 2008 data includes women with fewer numbers of children and those that have not begun childbearing.

5.2 CONCLUSION

The general pattern observed imply that prevalence of modern contraceptive use was very low among all the classes of women examined, while their level of fertility was found to be high. Moreover, Injectables were found to be the most preferred contraceptive method by the women. It was found that higher education, being in Christian religious group, belonging to the higher wealth quintile, desire for fewer children by husbands and exposure to family planning information either through media or home visit by family planning worker or women visit to health facility boost the use of modern contraceptive. Also, women who are less likely to use modern contraceptives were those from North East, North West, rural dwellers, unemployed and women who were younger at their first birth. Similar pattern was also observed for long acting/permanent method among the women. For instance, women living in North West and North East are less likely to use long acting/permanent method than their counterparts in other regions.

It has been established that various demographic and socio-economic factors affect use of modern contraceptives among the women. The explanatory variables examined were found to be predictors of the usage of modern contraceptives, with the exception of sex composition of living children, residence, age at first birth, gender preference and media exposure.

5.3 RECOMMENDATIONS

(1) Higher education as found in this study is associated with modern contraceptive use. Therefore, government and other organisation should strive to support and encourage female education in Nigeria.

(2) Exposure to family planning information either through media or home visit by family planning worker or women visit to health facility increase the use of modern contraceptive. Innovative methods of dissemination of information on the use of contraceptive should be provided particularly among high fertility women in Nigeria.

(3) More concerted effort is required to boost the use of long-acting and permanent methods of contraception, particularly among high parity women in Nigeria.

(4) The identified predictors of modern contraceptive use found in this study should be taken into consideration while designing strategies to increase contraceptive use in Nigeria.

(5) The level of fertility found among high fertility women in Nigeria is high. Therefore, government should map out the strategy of reaching young women who are just beginning childbearing on the need to use modern contraceptive either to space or limit childbearing. This will reduce the number of children they bear at the end of their childbearing years.

REFERENCEF

Adebowale, A.S. and Palamuleni, M.E. 2014. Modern Contraceptive Use, Sex Refusal and Spousal Difference in Level of Education among Married Women in Nigeria: Are They Interrelated? *International Journal of Humanities and Social Science* 4.6.

Adebowale, S.A., Adeoye, I.A. and Palamuleni, M.E. 2013. Contraceptive use among Nigerian women with no fertility intention: Interaction amid Potential Causative. *African Population Studies* 27.2: 127-139.

Adebowale, S.A., Fagbamigbe, F.A. and Bamgboye, E.A. 2011. Contraceptive Use: Implication for Completed Fertility, Parity Progression and Maternal Nutritional Status in Nigeria. *African Journal of Reproductive Health*, 154: 60-67.

Adesiyun, A.G. 2007. Female sterilization by tubal ligation: A re-appraisal of factors influencing decision making in a tropical setting. *Arch Gyn. Obstet.* 275.4: 241–244.

Ahiadeke, C. 2001. Incidence of induced abortion in southern Ghana. *International Family Planning Perspectives* 27: 96-101.

Akinwuntan, A.L. and Shittu, O.B. 2008. Voluntary vasectomy in a Nigerian: A rarity. *African Journal of Medicine & Medical Sciences* 37: 289-290.

Alkema, L., Kantorova, V., Menozzi, C. and Biddlecom, A. 2013. National, Regional, and Global Rates and Trends in Contraceptive Prevalence and Unmet Need for Family Planning between 1990 and 2015: A Systematic and Comprehensive Analysis. *The Lancet* 381, Issue 9878: 1642–1652.

Ameh, N. and Sule, S.T. 2007. Contraceptive choices among women in Zaria, Nigeria, Niger. *J. Clin. Pract.* 10.3: 205-7.

Anyanwu, J.I., Ezegbe, B.N., Eskay, M. 2013. Family Planning in Nigeria: a Myth or Reality? Implications for Education. *Journal of Education and Practice* 4.15.

Asekun-Olarinmoye, E.O., Adebimpe, W.O., Bamidele J.O., Odu, O.O., Asekun-Olarinmoye I.O., and Ojofeitimi, E.O. 2013. Barriers to use of modern contraceptives among women in an inner city area of Osogbo metropolis, Osun state, Nigeria. *International Journal of Women's Health* 5: 647–655.

Avidime, S., Aku-Akai, L., Mohammed, A.Z., Adaji, S., Shittu, O. and Ejembi, C. 2010. Fertility Intentions, Contraceptive Awareness and Contraceptive Use among Women in Three Communities in Northern Nigeria. *African Journal of Reproductive Health* (Special Issue) 14.3: 65.

Babalola, S., and John, N. 2012. Factors underlying the use of long-acting and permanent family planning methods in Nigeria: A qualitative study. The Respond Project Study Series: Contributions to Global Knowledge—Report No. 5. New York: EngenderHealth/The Respond Project.

Bankole, A., Oye-Adeniran, B.A., Singh, S., Adewole, I.F., Wulf, D., Sedgh, G., Hussain R. 2006. Unwanted Pregnancy and Induced Abortion in Nigeria: Causes and Consequences. Guttmacher Institute.

Barnett B, Stein J. 1998. Women's voices, women's lives: the impact of family planning. Research Triangle Park (NC): Family Health International.

Biddlecom, A. and Kantorova, V. 2012. Global Trends in Contraceptive Method Mix and Implications for Meeting the Demand for Family Planning. United Nations Population Division/DESA, New York, NY 10044.

Blanc, Ann K., Tsui, Amy O., Croft, Trevor N. and Trevitt, Jamie L. 2009. Patterns and Trends in Adolescents Contraceptive Use and Discontinuation in Developing Countries and Comparisons with Adult Women. International Perspective on Sexual and Reproductive Health, *Guttmacher International* 35.2.

Blundell, S. 1995. Women in Ancient Greece. Cambridge, MA: Harvard University Press.

Bongaarts, J. 1978. A framework for analyzing the proximate determinants of fertility: Population and Development Review 4.1: 105–132.

Bongaarts, J. 2007. Fertility Transition in the Developing World: Progress or Stagnation? Paper prepared for session on "Fertility declines: Rapid, slow, stalled" at the PAA meetings in New York. Available from http://paa2007.princeton.edu/papers/71273.

Bongaarts, J. 2010. Poverty Gender and Youth: The Causes of Educational Differences in Fertility in sub-Saharan Africa. Population Council, Working Paper No. 20.

Carr, D. 2000. Is Education the best Contraceptive. Policy Brief. Washington, DC: Population Reference Bureau, MEASURE Communication.

Carr, D.L., Pan, W.K.Y. and Bilsborrow, R.E. 2006. Declining Fertility on the Frontier: The Ecuadorian Amazon. *Population and Environment* 28.1: 17-39.

Cates W. 2010. Family Planning: the essential link to achieving all eight Millennium Development Goals. *Contraception* 81.6: 460-61.

CDC 2010. Family Planning Methods and Practice: Africa Center for Disease Control and Prevention, Atlanta Georgia, USA.

Cleland, J., Bernstein, S., Ezeh, A., Faundes, A., Glasier A., Innis J. 2006. Family Planning: the Unfinished Agenda. *Lancet Infectious Diseases* 368: 1810-1827.

Conde-Agudelo, A., Rosas-Bermudez, A. and Kafury-Goeta, A.C. 2007. Effects of Birth Spacing on Maternal Health: A Systematic Review. *American Journal of Obstetrics and Gynecology* 196.4: 297-308.

Darroch J.E. 2013. Trends in Contraceptive Use: *Contraception* 87: 259–63.

Darroch, J.E. and Singh, S. 2013. Trends in contraceptive need and use in developing countries in 2003, 2008, and 2012: an Analysis of National Surveys: Guttmacher Institute, New York, NY USA. *The Lancet* 381 Issue 9879: 1756-1762.

Deschner, A. and Cohen, S.A. 2003. Contraceptive Use Is Key to Reducing Abortion Worldwide. The Guttmacher Report on Public Policy 6.4

Dixon-Muller, R. 1999. Gender inequalities and reproductive health: Changing priorities in an era of social transformation and globalisation. Belgium, International Union for the Scientific Study of Population (Policy and Research Paper No.16).

Duze, M. C. and Mohammed, I. Z. 2006. Male Knowledge, Attitudes, and Family Planning Practices in Northern Nigeria. *African Journal of Reproductive Health* 10.3.

Easterlin, R.A. and Crimmins E. 1985. Theoretical Framework. The Fertility Revolution. Chicago, University of Chicago Press.

Emens, A. 2008. Perceived Fertility Regulation Costs and Contraceptive Use in Nepal. Michigan: University of Michigan. Institute for social research. Population studies center.

Encyclopaedia Britannica. 2014. Birth control: Ethics and the influence of religious systems. Available from http://www.britannica.com.

Envuladu, E.A, Agbo, H.A, Mohammed, A, Chia, L, Kigbu, J.H, Zoakah, A.I. 2012. Utilization of modern contraceptives among female traders in Jos South LGA of Plateau state, Nigeria. *International Journal of Medicine and Biomedical Research*, 1.3: 224-231.

Etuk, S.J. and Ekanem, A.D. 2003. Knowledge, attitude and practice of family planning amongst women with unplanned pregnancy in Calabar, Nigeria. *Nigerian Journal of Physiological sciences* 18: 65-71.

Family Health International. 2007. Long-Acting and Permanent Methods: Addressing Unmet Need for Family Planning in Africa. NC, USA: Family Health International.

Fapohunda, B.M. and Poukouta, P.V. 1999. Trends and Differentials in Desired Family Size in Kenya. *African Population Studies/Etude de la Population Africaine* 12.1.

Federal Ministry of Health, Nigeria. 2013. National Reproductive Health Working Group meeting report. Abuja, Nigeria: Federal Ministry of Health.

Federal Republic of Nigeria. 1988. National Policy on Population for Development, Unity, Progress, and Self-Reliance. Lagos: Federal Government of Nigeria.

Federal Republic of Nigeria. 2004. National Policy on Population for Sustainable Development. Abuja: Federal Republic of Nigeria.

Goliber, T., Rachel, S., and John, R. 2009. Analyzing Family Planning Needs in Nigeria: Lessons for Repositioning Family Planning in Sub-Saharan Africa. Washington, DC: Futures Group, Health Policy Initiative, Task Order 1.

Greene, M., Joshi, S. and Robles, O. 2012. The State of World Population 2012: By Choice, Not By Chance: Family Planning, Human Rights and Development. New York (NY): United Nations Population Fund (UNFPA).

Guttmacher Institute. 2006. Facts on Unwanted Pregnancy and Induced Abortion in Nigeria. Available from www.Guttmacher.org.

Guttmacher Institute. 2008. Reducing Unsafe Abortion in Nigeria. New York: The Guttmacher Institute. 2008 Series, No. 3.

Heil, S.H., Gaalema, D.E., and Herrmann, E.S. 2012. Incentives to promote family planning. NIH Public Access *Journal of Preventive Medicine*.

Hill, C.A. 1997. The Distinctiveness of Sexual Motives in Relation to Sexual Desire and Desirable Partner Attributes. *The Journal of Sex Research* 34.2: 139–53.

Himes, N.E. 1963. Medical History of Contraception. New York: Gamut Press, Inc.

Horton, R. 2006. Reviving reproductive health. *The Lancet* 368.9547: 1549.

Hukin, E.F. 2012. Contraception in Cambodia: Explaining Unmet Need. A thesis submitted to the Department of Social Policy at the London School of Economics for the degree of Doctor of Philosophy, London. London School of Economics and Political Science.

Hussain, S., Sharif, M., Safdar, S., Mubeen, C. AND Rasheed, S. 2007. Factors Affecting the Family Size and Sex Preference among Christian Families in Urban Areas of Faisalabad (Pakistan). *Journal of Agriculture & Social Sciences 3.1.*

James, G. and Isiugo-Abanihe, U.C. 2010. Adolescents' Reproductive Motivations and Family Size Preferences in North-Western Nigeria. *Asian Journal of Medical Sciences* 2.5: 218-226.

Jayaraman, T.K. 1995. Demographic and socioeconomic determinants of contraceptive use among urban women in the Melanesian countries in the South Pacific: A case study of Port Vila Town in Vanuatu. Asian Development Bank Occasional, pp 1-29.

Karra, M. and Lee, M. 2012. The Effects of an Economic Crisis on Contraceptive Use. Population Reference Bureau. Washington. DC 20009 USA.

Keister, L.A. 2003. Religion and Wealth: The Role of Religious Affiliation and Participation in Early Adult Asset Accumulation. *Social Forces* 182: 173-205.

Lieberman, J.J. 1973. A Short History of Birth Control. The American Biology Teacher, 35.6: 315-9.

Lloyd, C.B. and Mensch, B.S. 2008. Marriage and child birth as factors in dropping out from school: an analysis of DHS data from sub-Saharan Africa. Pop Stud 2008; 61: 1.

Lloyd, Cynthia B. 2009. New Lessons: The Power of Educating Adolescent Girls-A Girls Count Report on Educating Adolescent Girls. New York: The Population Council.

Lule, E., Singh, S., and Chowdhury, S.A. 2007. Fertility Regulation Behaviors and Their Costs: Contraception and Unintended Pregnancies in Africa and Eastern Europe & Central Asia. Health Population and Nutrition Discussion Paper., Washington DC: World Bank.

Lundberg, S. 2005. "Sons, Daughters, and Parental Behavior", Oxford Review of Economic Policy, 21.3: 340–356.

Mandelbaum. 1974. Human Fertility in India, Oxford University Press, Bombay.

Monjok, E, Smesny, A., Ekabua, J. and Essien, E.J. 2010. Contraceptive practices in Nigeria: Literature review and recommendation for future policy decisions. *Open Access Journal of Contraception* 1: 9–22.

Moreland, S. and Talbird, S. 2006. Achieving the Millennium Development Goals: The Contribution of Fulfilling the Unmet Need for Family Planning. Washington, DC: USAID.

Mutihir, J.T., Ujah, I.A.O., Uduagbamen, P.F.K., Iranloye, T. 2006. Indications for Removal of Intrauterine Contraceptive Devices in Jos, North Central Nigeria. *Nigerian Journal of Clinical Practice*. 9.2: 105-108.

National Population Census report. 2006. National Population Commission, Nigeria.

National Population Commission. 2011. 2010-2011 Nigeria Baseline Survey for the Urban Reproductive Health Initiative. Nigerian Urban Reproductive Health Initiative, National Population Commission.

National Population Commission (NPC) [Nigeria] and ICF International. 2009. Nigeria Demographic and Health Survey 2008. Abuja, Nigeria, and Rockville, Maryland, USA: NPC and ICF International.

National Population Commission (NPC) [Nigeria] and ICF International. 2014. Nigeria Demographic and Health Survey 2013. Abuja, Nigeria, and Rockville, Maryland, USA: NPC and ICF International.

Olaitan, O.L. 2011. Factors influencing the choice of family planning among couples in Southwest Nigeria. *International Journal of Medicine and Medical Sciences* 3.7: 227-232.

Osuafor, G. N. 2011. Fertility in Nigeria and Guinea: a comparative study of trends and determinants. Masters of Philosophy Thesis. Dept. of Statistics, University of the Western Cape.

Otoide, V.O., Oronsaye, F., Okonofua, F.E. 2001. Why Nigerian adolescents seek abortion rather than contraception: Evidence from focus-group discussions. *International Family Planning Perspective* 27.2: 77–81.

Otti, P.N., Adetunji, A., Ibeh, C.C., Gana, A., Best, E.G., Khalid, S., Uche, A.A., Araoye, M.O., Aladeselu, N., Igbokwe, N.I., Busari, O., Makanjuola, O., Williams, O. O. 2007. Thematic Evaluation of The UNFPA Supported Fifth Country Programme for Nigeria (2003-2007): Synthesized Report.

Oyediran, K.A. 2005. Fertility Desires of Yoruba Couples Of South-Western Nigeria. *Journal of Biosocial Science*. 00: 1–20, Cambridge University Press.

Pomeroy, Sarah B. 1975. Goddesses, Whores, Wives, and Slaves: Women in Classical Antiquity. New York: Schocken Books.

Population Action International. 2005. People in the Balance: Population and Natural Resources at the Turn of the Millennium, A 2005 Update. Washington, DC: PAI.

Population Action International. 2010. The Key to Achieving the Millennium Development Goals: Universal Access to Family Planning and Reproductive Health. Washington, DC: PAI.

PRB. 2012. World Population Datasheet by Population Reference Bureau.

PRB. 2013. Family planning worldwide 2013 Data Sheet. Population Reference Bureau.

PRB. 2014. World population Data Sheet. Population Reference Bureau. Available from http://www.prb.org/pdf14/2014-world-population-data-sheet_eng.pdf

Riddle, J.M. 1992. Contraception and Abortion: From the Ancient World to the Renaissance. Cambridge, MA: Harvard University Press.

Roudi-Fahimi ,Farzaneh and Ashford, Lori. 2008. Sexual and Reproductive Health in the Middle East and North Africa (A Guide for Reporters). Washington, DC: Population Reference Bureau. Available www.prb.org/reports/2008/mediaguide.aspx.

Roy, T.K., Sinha, R.K., Koenig, M., Mohanty, S.K. and Patel, S.K. 2008. Consistency and Predictive Ability of Fertility Preference Indicators: Longitudinal Evidence from Rural India. *International Family Planning Perspectives* 34.3.

Sedgh, G., Bankole, A., Oye-Adeniran B., Adewole, I.F., Singh, S. and Hussain, R. 2006. Unwanted Pregnancy and Associated Factors Among Nigerian Women. *International Family Planning Perspectives* 32.4.

Sedgh, G., Singh, S. and Hussain, R. 2014. Intended and Unintended Pregnancies Worldwide In 2012 and Recent Trends. Studies in Family Planning 2014 45.3: 301-314.

Setty-Venugopal, V., and Upadhyay. U.D. 2002. Birth Spacing: Three to Five Saves Lives. Population Reports, Series L, No. 13. Baltimore: Johns Hopkins Bloomberg School of Public Health, Population Information Program.

Shah, N.J., Pradhan, P., Reddy, A.S, Joseph, B. 2006. Contraceptive practices in newly married women in sub-urban Bangalore. *Health and Population Perspectives* 29: 21-28.

Shiffman, J., and Quissell, K. 2012. Family planning: a political issue. *The Lancet* 380.9837: 181-185.

Singh, S., Darroch, J.E., Ashford, L.S., Vlassoff M. 2009. Adding it up: the costs and benefits of investing in family planning and maternal and newborn health. New York: Guttmacher Institute.

Singh, S., Sedgh, G. and Hussain, R. 2010. Unintended pregnancy: worldwide levels, trends and outcomes, *Studies in Family Planning* 41.4: 241–250.

Skuy, P. 1995. Tales of Contraception. Toronto, Canada: Janssen-Ortho Inc.

Spicehandler, J. and Simmons, R. 1994. Contraceptive Introduction Reconsidered: A Review and Conceptual Framework. World Health Organization, Geneva.

Tayo, A., Akinola, O., Babatunde, A., Adewunmi, A., Osinusi, D. and Shittu, L. 2011. Contraceptive knowledge and usage amongst female secondary school students in Lagos, Southwest Nigeria. *Journal of Public Health and Epidemiology*, 3.1: 34-37.

Tien, M., Ness, S., Amanyeiwe, U., Adinma, E., Ebenebe, U., and Nweje, A. 2009. Nigeria: Reproductive Health Commodity Security Situation Analysis. Arlington, Va.: USAID/Deliver Project, Task Order 1.

UNAIDS (Joint United Nations Programme on HIV/AIDS). 2009. AIDS Epidemic Update. Geneva, Switzerland: UNAIDS.

UNFPA. 1996. Socio-Cultural Factors Affecting Attitude and Behaviour Regarding Population and Family Life Issues in Nigeria. UNFPA, Nigeria.

UNFPA. 2005. ICPD at Ten – The World Reaffirms Cairo: Official Outcomes of the ICPD at Ten Review. New York: UNFPA.

UNFPA. 2009. Evaluation report: Contraceptives and Safe Motherhood Kits Supply, CIDA Trust Fund Project 2005-2009. UNFPA, Nigeria.

UNFPA. 2014. Contraception: Reducing Risks by Offering Contraceptive Services. Available from http://www.unfpa.org/public/cache/offonce/home/mothers/pid/4382;jsessionid=7951E980FB960A7F4F73FD2BE499D08E.jahia02.htm

UNICEF. 2010. An Analysis of the Situation of Children in Viet Nam.

UNICEF. 2014. Maternal and Child Health. Available from http://www.unicef.org/nigeria/children_1926.htm.

United Nations. 1995. Report of the Fourth World Conference on Women Beijing, 4-15 September 1995. New York: United Nations. Available from http://beijing20.unwomen.org.

United Nations. 1996. Programme of Action Adopted at the International Conference on Population and Development, Cairo. New York: United Nations.

United Nations General Assembly. 1999. Resolution Adopted by the General Assembly: Key actions for the further implementation of the Programme of Action of the International Conference on Population and Development. Twenty-first special session Agenda item 8 (A/S-21/5 and Add.1), New York.

United Nations. 2004a. Review and Appraisal of the Progress Made in Achieving the Goals and Objectives of the Programme of Action of the International Conference on Population and Development. Sales No.: E.04.XIII.8. Available from http: www.un.org esa/population/publications/reviewappraisal/English.

United Nations. 2004b. Levels and Trends of Contraceptive Use as Assessed in 2002. Sales No. E.04.XIII.9.

United Nations. 2004c. Report of the Secretary-General on the review and appraisal of the progress made in achieving the goals and objectives of the Programme of Action of the International Conference on Population and Development. Population Newsletter Number 77. Available from http://www.un.org/en/development/desa/population/publications/pdf/newsletter/News 77.

United Nations. 2011. World Fertility Policies 2011. New York: Population Division, Department for Economic and Social Affairs. Sales No.: E.11.XIII.5.

United Nations. 2012. Statistics and indicators on women and men. Department of Economic and Social Affairs. United Nations Statistics Division. Available from http://unstats.un.org/unsd/demographic/products/dyb/default.htm.

United Nations. 2013a. Changes in Government Views and Policies on Population since the 1994 International Conference on Population and Development. Population Facts. Department of Economic and Social Affairs Population Division. No. 2013/1.

United Nations. 2013b. World Fertility Patterns 2013. United Nations Department of Economic and Social Affairs/ Population Division: available from http://www.un.org/esa/population/publications/reviewappraisal/English.pdf.

United Nation. 2013c. World Contraceptive Patterns 2013. United Nations Department of Economic and Social Affairs/Population Division. Available from http//www.un.org/en/development/desa/population/publications.

United Nations. 2013d. Model-based Estimates and Projections of Family Planning Indicators: 2013 Revision. Department of Economic and Social Affairs, Population Division. New York: United Nations.

United Nations. 2013e. World population policies 2013. New York: Population Division, Department for Economic and Social Affairs. United Nations.

United Nations. 2014a. The Millennium Development Goals Report 2014. United Nations Department of Economic and Social Affairs/Population Division. Available from http://www.undp.org/content/dam/undp/library/MDG/english/UNDP%20MDG%20Report%202014%20EN%20Final.

United Nations. 2014b. Family Planning. United Nations Department of Economic and Social Affairs/Population Division Available from http://www.un.org/en/development/desa/population/theme/family-planning/index.shtml.

United Nations. 2014c. Realizing population and development commitments. United Nations Department of Economic and Social Affairs/Population Division. Available from http://www.un.org/en/development/desa/news/population/icpd-20.html.

USAID. 2013. Views on Family Planning and Long-Acting and Permanent Methods: Insights from Nigeria. Project Brief, No. 10.

Westoff, C.F. 2010. Desired number of children: 2000–2008. DHS Comparative Reports. Available from http://www.measuredhs.com/pubs/pdf/CR25/CR25.

Wilcher, R., Petruney, T., Reynolds, H.W., Gates, W. 2008. "From Effectiveness to Impact: Contraception as an HIV prevention intervention." Sexually Transmitted Infections. 84: ii54-ii60.

Wills, Garry. 2000. Papal Sin — Structures of Deceit. New York: Doubleday.

WHO. 2003.. 'En-gendering' the Millennium Development Goals (MDGs) on Health. . Geneva: World Health Organisation.

WHO. 2008. Making pregnancy safer: Amual Report 2007. Geneva: World Health Organization.

WHO. 2009a. Women and health: today's evidence, tomorrow's agenda. Geneva, World Health Organization. Available from (http://www.who.int/gender/women_health_report/en/index.html.

WHO. 2009b. Medical Eligibility Criteria for Contraceptive Use. 4th ed: A WHO Family Planning Cornerstone. WHO Library Cataloguing-in-Publication Data.

WHO. 2010. Update on family planning in Sub-Saharan Africa. In repositioning family planning: Guideline for advocacy action.

WHO. 2012. Family Planning. Available from: http://www.who.int/topics/family_planning/en/.

WHO. 2013. Family Planning. WHO media Centre. Fact sheet N°351. Available from: http://www.who.int/topics/family_planning/en/.

WHO 2014. World Health Statistics 2014. World Health Organization. Available from http://apps.who.int/iris/bitstream/10665/112738/1/9789240692671_eng.

World Bank. 2014. Age Dependency Ratio (% of working-age population). Available from http://data.worldbank.org/indicator/SP.POP.DPND.