**FACULTY OF NATURAL SCIENCES**

# Reproductive health situation among youth in the Democratic Republic of Congo

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# Abstract

***Background:*** In the Democratic Republic of Congo, 22.2% of the total population is in the age group of 15 to 24 years. In this country, this population group faces a large number of reproductive health problems. Even though the concerned health officials have implemented several health care programs, the youth particularly girls still have many problems particularly lack of sexual health information, poor health care, inability to avoid early and unprotected sexual relationships, early marriage, early pregnancies, early childbearing, etc.

***Objectives:*** The aim of this study is to examine reproductive health issues among young women and to understand how they utilise the health care systems in their respective socio-economic and demographic characteristic.

***Data and Methods*:** Descriptive and multivariate analyses were used. Cross tabulation, Chi-square, Phi coefficient and Cramer's V were applied to test for association between independents and outcome variables. At multivariate level of analysis, binary logistic regression was performed. All analyses were performed using the Statistical Package for Social Sciences (SPSS) version 23.0.

***Results:*** The study found that young women who faced early sexual intercourse (OR=73.5) and those who experienced it at 16-17 (OR= 42.3) are more at risk of early marriage than those who initiated at the age 18-24. Meanwhile, young women with no education (OR=14.1), primary and secondary education (OR=10.7 and OR=8.6 respectively) have a higher risk of early union than their higher educated counterparts. Furthermore, respondents who married in their early adolescence (OR=38.3) and middle (OR=20.0) adolescence are more at risk of early childbearing than those who married in their emerging adulthood. Moreover, young women from Maniema, Equateur and Bas Congo provinces are 95%, 62% and 58% (respectively) less likely to have had at least four ANC visits than those from Kinshasa.

***Conclusion:*** There is an urgent need for formal sex education before first sexual initiation to give better options than early marriage to adolescent girls. Also, the

disparities in the antenatal care services utilization between provinces should be addressed. The concerned authorities should balance the distribution of health facilities and qualified personal among provinces.

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## Declaration

I hereby declare that ***Reproductive health situation among youth in the Democratic Republic of Congo*** is my own work, that it has not been submitted for any degree or examination in any other university, and that all the sources I have used or quoted have been indicated and acknowledged by complete references.

Jacques ELENGEMOKE MPILAMBO

**November 2015**

**Signed:** _____

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I wish to recognise a number of people, without whom this thesis would not have been possible. First and foremost, I would like to thank my parents Lebêe and Titi for their love, sacrifice and inspiration, may their soul rest in peace.

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My special thanks go to my wife Nicole Kazadi, my daughters and sons for providing much needed love, encouragement and morale support. I would like to thank my brothers and sisters as well as my in- laws. You have each been absolutely instrumental to this process.

I am sincerely indebted to all my friends and colleagues who encouraged me to study further.

May God bless you all.

## Dedication

I dedicate this work to my daughters Eliette Titi, Orselth Tshala, Ketsia Mbombo and sons Carlo Lebêe and Jacobath Mpilambo for their permanent love, support and patience.
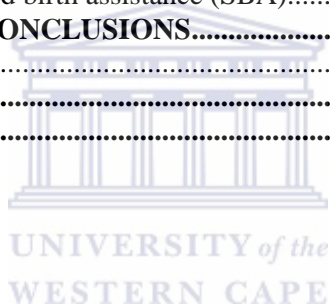
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# Abbreviations

AIDS        Acquired Immunodeficiency Syndrome

ANC         Antenatal Care

CEDAW   Convention on the Elimination of All Forms of Discrimination against Women

CIA         Central Intelligence Agency

CRC         Convention on the Rights of the Child

CS           Centre de Santé

DHS         Demographic and Health Survey

DRC         Democratic Republic of Congo

GDP         Gross Domestic Product

GRH         General Referral Hospital

HIV         Human Immunodeficiency Virus

HZ           Health Zone

IAC         Inter-African Committee

ICPD        International Conference on Population and Development

INS          Institut National de Statistique

 IPPF        International Parenthood Planning Foundation

ICRW       International Centre for Research on Women

IYF          International Youth Foundation

MDGs       Millennium Development Goals

MHCS      Maternal Health Care Services

MI           Moustiquaire Impregnée

MISC2     Multiple Indicators Cluster Survey 2

MISC4      Multiple Indicators Cluster Survey 4

MMR        Maternal Mortality Ratio

MEPSP     Ministère de l'Enseignement Primaire, Secondaire et Professionnel

MS           Ministère de la Santé

MPF        Ministère de la  Planification Familiale

PNAM        Programme National d'Approvisionement en Medicament

PNDS        Plan National de Développement Sanitaire

PNLS        Programme National de Lutte contre le Sida

PNMLS       Progamme National Multisectoriel de Lutte contre le Sida

PNSA        Progamme National de Santé des Adolescents

PNSR        Progamme National de Santé de Reproduction

PRB         Population Reference Bureau

PRSP        Poverty Reduction Strategy Paper

SBA         Skills Birth Attendance

TFR         Total Fertility Rate

UIS         UNESCO Institute for Statistics

UN          United Nations

UNDP        United Nations Development Programme

UNFPA       United Nations Fund for Population Activities

UNHCR       United Nations High Commissioner for Refugees

UNICEF      United Nations International Children's Emergency Fund

WHO         World Health Organization

# Chapter I

## 1. THE CONTEXT AND BACKGROUND OF THE STUDY

### 1.1 Introduction

The world is experiencing the largest generation of young people in history, roughly half of the world's population is under the age of 25 (WHO, 2005; UNFPA, 2006); those who are aged 10-24 constitute about a quarter of the world's population (UNFPA, 2014). The majority of young people (88 per cent) live in developing countries (PRB, 2013). About 22 per cent of those living in developing countries live in Africa (PRB, 2013). Young people are increasingly acknowledged as assets and key partners to step up economic development and reduce poverty and inequality (Bankole & Malarcher, 2010; Guerra & Bradshaw, 2008; Pittman, 2011; UNFPA, 2014). However, young people, especially adolescent girls and young women living in the developing World, suffer disproportionately from negative sexual and reproductive health outcomes, which challenge their ability to contribute to their communities' and countries' development (Minkler & Wallerstein, 2011; Sawyer *et al.*, 2012; UNFPA, 2007a; UNFPA, 2014).

As part of the largest youth generation in the history of the world, today's adolescents need information, services, and support to prevent early marriage, unplanned pregnancies, unsafe abortions, HIV/AIDS and sexually transmitted infections STIs (Boonstra, 2007; Bearinger *et al*., 2007; Singh *et al*., 2009). In contrast, they are challenged by substantial social and economic barriers in accessing sexual and reproductive health information and services (Bearinger *et al*., 2007; Bankole & Malarcher, 2010; Fatusi & Hindin, 2010), which is evidenced by persistently high levels of adolescent pregnancies, unmet needs for contraception, maternal mortality and HIV incidence. Around 16 million young women aged 15 to 19 give birth every year, nearly more than one out of ten among these pregnancies(11.1 per cent) are to children under the age of 15 and

nine out of ten (90 per cent) adolescent pregnancies in the developing world are to girls who are already married (WHO, 2012). Up to 75 per cent of the 16 million annual adolescent pregnancies are intended and planned (WHO, 2008b). Furthermore, young women aged 15 to 19 are twice as likely to die during pregnancy or childbirth compared to those over age 20 (WHO/UNFPA, 2006). Worldwide nearly 4.5 million adolescents undergo abortions each year; 40 per cent occur under unsafe conditions (WHO/UNFPA, 2006). In 2012, an estimated 780,000 youth aged 15-24 were newly infected with HIV, with 97 per cent of the new infections occurring in low and middle income countries (UNICEF/UNAIDS, 2012). Moreover, young women aged 15 to 24 are 50 per cent more likely to acquire HIV than their male peers (UNAIDS; 2012). This alarming situation, appears particularly dramatic in sub-Saharan Africa where are clustered the countries with the highest child marriage and adolescent fertility rates in the world (UNFPA, 2012; World Bank Data, 2012). Investigation has suggested that there is a great benefit in investing in young people by creating pathways for accelerated development (UNFPA-SA, 2013).

With reference to the structure of the population, the DRC is a youthful country. This young population represents 49.9 million young people below the age of 25 years and 33.7 million aged under 15 years, embodying 68.1 per cent and 46.0 per cent of the total DRC's population, respectively (PRB, 2015). With 73.3 million Congolese, young people aged between 15 and 24 years constitute one fifth (22.2%), while those aged 60 years and older represent three per cent (PRB, 2015). Youths in DRC constitute a focal part of the population, which place them at the heart of the future of the Country. As observed by Bankole and Malarcher, "Investing in young people is of great importance not only because of the size of the adolescent population but also because of the roles this group will play in shaping the future of their societies"(Bankole & Malarcher, 2010). The development of the DRC depends largely on its youth's health. However, in the DRC, like in other Sub-Saharan African countries, young people face a large number of reproductive health problems. Despite several health care programs implemented by the concerned health officials, young people still have many

problems, particularly a lack of sexual health information, poor health care, inability to avoid early and unprotected sexual relationships, early marriage and childbearing, unsafe abortion and Sexually Transmitted Infections (STIs) including HIV and AIDS.

DRC, though the 2006 sexual violence law that criminalises child marriages in the country, makes the legal age of marriage 15 for women and 18 for men (DRC, Code de la famille, 1987). However, the practice of early marriage persists. Available statistics showed that nearly 74 per cent of young women aged 15-19 married before reaching their eighteenth birthday (DRC-MICS4, 2010). Among women aged 20-24, nine per cent are married by age 15 and 39 per cent by age 18 (PRB, 2013). Additionally, the contraceptive prevalence rate, modern method among married females was only four per cent and five per cent for adolescents aged 15-19 and youths aged 20-24 respectively during the period 2005-2011 (PRB, 2013). According to WHO (2013), the contraceptive prevalence was less than 20 per cent (18 per cent ) during the period 2005–2012  whereas unmet needs for family  planning was 24 per cent  during the same period .

A survey conducted in 2014 by Demographic Health Survey (DHS, 2014) revealed that 1.2 per cent (1.6% for men and 0.6% for women) of the DRC's population aged 15-49 years  tested HIV positive while one per cent (1.3 % for female and 0,6 % for men) young people aged between 20 to 24 years were HIV positive. The same source showed that 0.5 per cent (0.7 % for female and 0.2% for male) of young people aged between 15 and 19 years tested HIV positive. In light of the above prevalence among young people in DRC, HIV/AIDS remains a growing public concern and women are one of the most vulnerable groups. The lack of comprehensive correct knowledge of HIV/AIDS and use of condoms has shown that there is a danger of the spread of the disease within the DRC's population (PRB, 2013).

Indeed, despite the illegality of abortion in DRC and all the dangers associated with it, especially when performed in inadequate conditions, the rate of illegal abortions remains high among adolescents (PNSR, 2008). Induced abortions and

their consequences therefore pose a real public health problem in the Democratic Republic of Congo.

The Democratic Republic of Congo has one of the highest total fertility rates (TFR) in the world with 6.6 births per woman in 2014 (DHS, 2014). The adolescent fertility rate remains unacceptably high (138 births per 1,000 women in 2014) (DHS, 2014) which affects not only young women and their children's health but also their long-term education and employment prospects. With regards to pregnancy related school dropouts, it has become a matter of concern in DRC. Mostly, school girls who become pregnant either resort to illegal unsafe abortions or they face official school expulsion (CEDAW, 2013). Moreover, once girls have a baby, the chances of continuing education are negligible, despite the provisions made for them under the legislation regarding reintegration into the formal education system after the birth of their child. This places them at a further disadvantage (CEDAW, 2013).

The above situation shows that poor sexual and reproductive health among adolescents is still a relevant topic in the DRC. This study will therefore focus on youth fertility behaviour issues in the DRC as well as their utilisation of the health care system.

## 1.2 The Democratic Republic of Congo: Facts, context and statistics

### 1.2.1 Geographical situation

The Democratic Republic of Congo (DRC) is located in the African Great Lakes region of Central Africa, and lies on the Equator. It covers an area of 2,345,095 of square kilometers and shares a 9,165 km border with nine neighbouring countries namely: the Central African Republic and South Sudan to the north; Uganda, Rwanda, Burundi and the United Republic of Tanzania in the east; Zambia and Angola to the south; the Republic of the Congo, the Angolan enclave of Cabinda, and the Atlantic Ocean to the west. By its size, the Democratic Republic of Congo (DRC) is the second largest country in Africa after Algeria. With a population density of about 30 inhabitants per km$^2$ (PRB, 2013), the population is concentrated on the set off into the Savannah, near the Congo River and the lakes,

the northern and central part of the country. The equatorial forest that covers much of the country is almost uninhabited (PNSR, 2008).

## 1.2.2 Demographics

An official census has not been carried out in a long time in DRC, making it therefore difficult to give with precision the number and structure of the country's population. In the scientific census of 1984, the DRC had a population which stood at 29 million against 13.5 million in 1958. In 2015 the mid-population was estimated at 73.3 million by the Population Reference Bureau (PRB, 2015), 79.4 million by the Central Intelligence Agency (CIA, 2015) and 85.0 million by the "Institut National de la Statistique" (INS, 2015). With regards to recording the" civil state", DRC's rate is among the lowest on the continent, 25 per cent of children below five years registered with the civil state in 2013 with disparity between urban (30%) and rural (22%) areas (DHS, 2014).

In light of the population growth rate in the DRC, it was estimated in 2013 to be 3.4 per cent by the INS, but at 2.9 per cent by PRB and 2.7 per cent by the United Nations (INS, 2015; PRB, 2013; UN, 2012). It should be noted that despite these differences, all the currently available estimates indicate that the population of the DRC is expected to reach 100 million before or around 2030. The DRC capital, Kinshasa, is characterized by a strong increase in its population estimated at 1.5 million in 1975; it increased to more than 11 million in 2015 and continues to grow rapidly. The majority of the population (65% to 67%) lives in rural areas (UN, 2012; PRB, 2013). Numerical superiority of women is seen more in urban than in rural areas. (Ministry of Planning - MICS2, 2001). Women represent 51 per cent of the total population against 49 per cent of men(INS, 2015). On average, a Congolese home has six members and women of childbearing age represent 21 per cent of the total population, while there are 45 births per 10 000 persons and 16 deaths per 10 000 persons (PRB,2013) .

The fertility level remains high even though it has undergone changes. Indeed, the Total Fertility Rate (TFR) improved slightly but remains above the average of Sub-Saharan Africa. It went from 7.1 children per woman (MICS 2, 2001) to 6.6

in 2014 according to PRB (2015). This is related to poor access to family planning and contraception, as well as sociocultural factors. Since 1998 (two decades ago), the DRC has faced a dramatic humanitarian situation due to a long period of socio-political crises and armed conflicts which have resulted in the deaths of more than five million people from war, and associated famine and disease (IRC, 2007 as cited by Cox, 2012).

### 1.2.3 Socio cultural context

The Democratic Republic of Congo is a multi-ethnic country shaped by over 260 ethnic groups, of which the majority is Bantu (80%). Other Congolese populations are Sudanese, Nilotic and pygmies. Several studies had shown that the culture of the Democratic Republic of Congo reflects the diversity of its hundreds of ethnic groups and their differing ways of life throughout the country. Moreover, evidence suggests that ethnic background has implications for some aspects of adolescent and young people's reproductive health. Approximately 242 languages are spoken in the country, but only four have the status of national languages: Kikongo (Kituba), Lingala, Tshiluba and Swahili. French is the official language of the Democratic Republic of Congo. It is meant to be an ethnically neutral language, to ease communication among the many different ethnic groups of the Congo. According to the CIA (2013), Christianity is the majority religion in the Democratic Republic of Congo, and is followed by about 80 per cent of the population, Indigenous beliefs account for about 1.8 to 10 per cent, and Islam for 1.5 to 10 per cent (CIA, 2013). Based on available data, the country is ranked 141st position according to the gender-specific indicator of human development according to the World Report on Human Development 2007.

### 1.2.4 Education

The DRC's education system operates on a four-level principle: pre-primary, primary, secondary and tertiary. The first level is the pre-primary cycle, called the 'Maternel.' It is optional and is closely followed by primary education known as 'cycle primaire'. Primary education in the DRC is not free and compulsory, even though the Congolese constitution says it should be (Article 43 of the 2005

Congolese Constitution). The reality is that households still bear a significant portion of the costs of primary education due to school expenses and 26.8 per cent of children aged 6 to11 years were not enrolled in school in 2012 (MEPSP, 2013). Moreover, the education system has suffered from decades of conflict although recent years have shown an improvement. Statistics show that in 2011, 105 per cent (113% of boys and 98% of girls) were enrolled in primary school while 43 per cent (54% of boys and 32% of girls) in age were enrolled in secondary school and 8 per cent (11% of male and 5% of female) in age were enrolled in tertiary education for the same period (UNESCO-UIS, 2013). With regards to literacy, the adult literacy rate was estimated to be 61.2 per cent (76.9% male and 46.1% female ) while the youth literacy rate was estimated to be 65.8 per cent (78.9% male and 53.3% female) in 2007 (UNESCO-UIS, 2013 ).

Despite the above given situation, the educational system of the DRC is marked by its resilience. In spite of its decades' long history of brutal violence and political transition, the educational system has emerged relatively intact. The Percentage of children who have never attended school (28.5) (MEPSP, 2013) is lower in Congo, than the average for the Sub-Saharan African region. This is true regardless of the fact that Congolese households fund approximately 80 to 90 per cent of educational spending (UNHCR, 2012).

### 1.2.5 Socio-Economic profile

The Democratic Republic of Congo is widely considered to be the richest country in the world regarding natural resources; its untapped deposits of raw minerals are estimated to be worth in excess of US$ 24 trillion (Morgan, 2009). Unsurprisingly, the DRC's economy is primarily based on the mining sector.

Despite such vast mineral wealth, the economy of the Democratic Republic of Congo has declined drastically since the mid-1980s. The country's woes mean that, despite its potential, its citizens are among the poorest people on earth, the Congolese being consistently assigned the lowest, or near lowest, nominal GDP per capita in the world. According to World Health Statistics 2013, 59.2 per cent of the population in the Democratic Republic of Congo lived on less than $1 (PPP int. $) a day in the period 2005–2008 (World Health Statistics, 2013). In addition,

the DRC had the world's lowest Human Development Index (0.338) in 2013 (UNDP, 2014). Central Intelligence Agency (2014) suggested that, the GDP / H is estimated at around 416 USD for the whole country in 2014, but it is highly variable from one province to another.

In term of youth employment, evidence suggests that young people's skills do not meet employers' demands, and young people find few opportunities to earn a decent wage (IYF, 2013). PRB (2013) estimated that the Labour Force Participation of youth aged 15 to 24 at 49 per cent and 42 per cent for females and males respectively in 2010 ( PRB, 2013), whereas MICS4 (2010) hold  42 per cent of children aged between 5 to14 have been involved in child labour in the same period. According to the Ministry of Planning, youth unemployment in the formal economy is at 32.2 per cent, nearly double the national average of 17.8 per cent (DRC Ministry of Planning, 2011b). Nevertheless, the factual magnitude of underemployment and unemployment among the youth is unknown, the 2012 African Economic Outlook stated that more than 70 per cent of youth between ages 15 and 24 do not have jobs, and those in urban and peri-urban areas were the hardest hit (African Development Bank, 2012).

## 1.2.6 Administration

Administratively, the DRC is a unitary state highly decentralized. It is divided into ten provinces and one city-province, namely, Kinshasa the capital city. The provinces are Bandundu, Bas-Congo, Equateur, Kasai-Occidental, Kasai-Oriental, Katanga, Maniema, Nord-Kivu, Orientale and Sud-Kivu. The provinces are subdivided into districts which are divided into territories. Overall, DRC is made up of 25 administrative districts, 21 cities, 145 towns and 77 administrative territories. The Constitution of the Third Republic (February 2006), provides the shift from 11 to 26 provinces and ended the existence of the step "district".
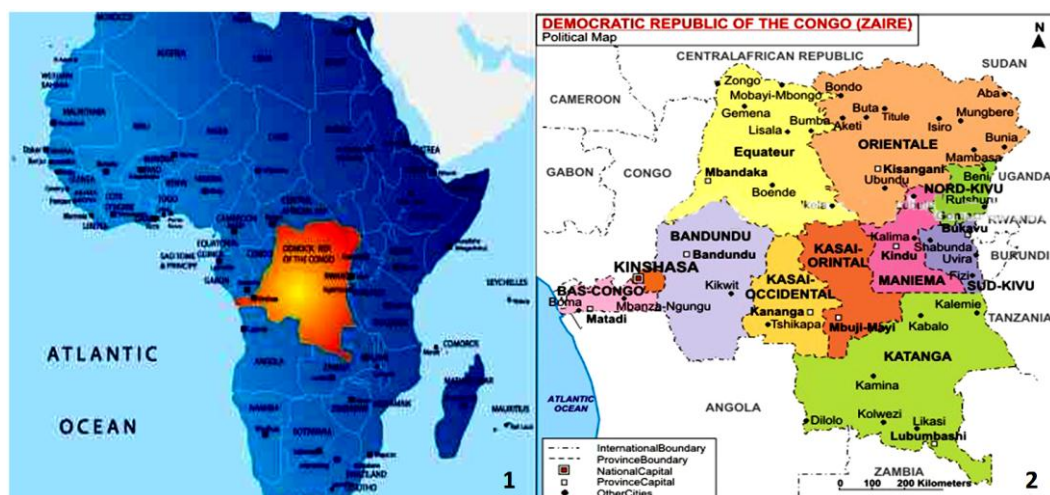
Figure 1.1 Africa. *Source: http://www.mining.com/drcs-corrupt-mining-industry-highlighted-on-website.*

Figure 1.2 Democratic Republic of Congo. *Source: http://focusafrica.gov.in/Country_at_glance_DRC.html.*

## 1.3  Health Situation of the DRC

This section contains health conditions and indicators, reproductive health in general, and youth sexual and reproductive health.

### 1.3.1 Health conditions and indicators

In the DRC, like in most developing countries, the health sector faces several challenges including inadequate health services or its concentration in urban areas, inadequate distribution of health workers at the expense of rural areas, the lack of reproductive health training for health workers, the obsolescence and deterioration of infrastructure and equipment, a supply deficiency of products including contraceptives, etc. Efforts to date in DRC, to improve the quality of care and health services, have had only very limited results on the health of the population in general, and particularly on reproductive health.

DRC's Health System is inspired by the Alma Ata Declaration of 1978 based on the strategy of Primary Health Care, and the Bamako Initiative of 1987 having devoted the involvement of communities in the management system health and cost-sharing.  In this system, the operating unit is the Health Zone (HZ) (PNAM, 2009). The country is divided into 515 health zones (HZ) among which 424 are operational with each having an available General Referral Hospital (GRH) or

equivalent structure. Each HZ is divided into areas of health (MPF, 2014). Throughout the country, out of 8504 only 8.266 are each covered by a Health Centre (CS). Nearly 7,500 have a maternity ward and less than half have activities for Family Planning (MPF, 2014).

The available data (PRB, 2015) showed that life expectancy at birth was estimated at 50 years (48 for men and 52 for women ) in 2014; the overall mortality is 16 deaths per thousand(PRB, 2015.), the maternal mortality ratio (MMR) remains high at 846 deaths per 100,000 live births (DHS, 2014), reflecting mainly complications of pregnancy and childbirth. The infant mortality rate is estimated at 108 deaths per thousand (PRB, 2015), the under-five mortality rate at 104 per 1,000 (DHS, 2014). The epidemiological picture is dominated by malaria, the leading cause of hospitalization and death, diarrheal diseases and HIV infection / AIDS, which is the leading cause of death in the age group 15-49 years. The prevalence of malaria is higher, affecting about one child in three (41% in 2001 against 31 per cent in 2007 and about 27 percent in 2010) (MICS, 2001; DRC-DHS, 2007; MICS4, 2010). Other sources indicated that half the households have at least one 'Moustiquaire Impregnée' MI (51%), nearly one third (38%) of children under five years old sleeping under MI and two fifths (43%) of pregnant women slept under MI in 2010 (MICS4, 2010).

With regards to fertility among women, the "Total Fertility Rate (TFR) s" improved slightly but remains above the average for "Sub-Saharan Africa. It went from 7.1 children per woman (MICS 2, 2001) to 6.6 in 2013 according to (DHS, 2014).

The National Programme for the Fight against HIV/AIDS (PNMLS) stated that the HIV epidemic is widespread in the DRC. It is feminised (the sex ratio was 1.25 in 2008), affecting more and more the youngest segment of the population. In 2010, the number of people living with HIV is estimated at 978,458 including 565,155 (57.8%) women and 168,384 (17.2%) children aged 0-14 years. The epidemic reached equally the urban areas (3.7%) and rural areas (3.6%)(MS, 2011; PNMLS, 2011). The same source revealed that HIV prevalence is estimated

at 2.6 per cent in the general population in 2011(MS, 2011; PNMLS, 2011). HIV seroprevalence among pregnant women was 3.5 per cent (95% CI 3.3 to 3.8) in general and 2.9 per cent in Kinshasa during the same period (PNMLS, 2011). HIV prevalence remained stable between 2003 and 2011 with a higher prevalence among 25 to 49 year olds (4.2%) regardless of the place of residence and lower between 15 and 19 year olds (PNMLS, 2011).

### 1.3.2 Reproductive Health

The government of DRC joined hands with the rest of world in signing a platform of action (POA) of the International Conference on Population and Sustainable Development (ICPD) held in Cairo, Egypt in 1994 as adopted by WHO and other UN agencies (MS).This signing signalled a most important paradigm shift from a demographic driven focus on family planning to a health driven focus on Sexual Health and Reproductive Health.

In 1998, DR Congo adopted the National Policy on Reproductive Health (RH) revised in 2008 following the challenges and changes occurring in the field and taking into account the international and national legal instruments, particularly the objectives of the millennium development Goals (MDGs). In 2001, the Ministry of Health set up within the National Programme of Reproductive Health (Progamme national de Santé de Reproduction)" PNSR" in symbol, in order to carry out the DRC's Reproductive Health National Policy. The general purpose of the PNSR is to reduce the risk of deaths related to complications from Reproductive Health problems (pregnancy, illegal abortion, IST and VIH/AIDS) for persons of childbearing age, young people and adolescents, children and persons in the third age.

Moreover, regardless of the coverage ANC evaluated at 88% and women were attended by skilled personnel during childbirth at 80% (DHS, 2014) maternal mortality remains high, 846 per 100 000 live births in 2013 (DHS, 2014). It is shown that despite the progress made in connection with the decline in the maternal mortality ratio, there is still a way to go to achieve the objective of the Millennium Development Goals which aims at reducing maternal mortality by

three quarters, or achieve a maternal mortality ratio equal to 322 maternal deaths per 100,000 live births.

### 1.3.3 Sexual and reproductive health of youth

Young people represent almost a third (33%) of the DRC's population, with a high concentration in urban areas (52.1%). Indeed, young people are often subject to little attention by society, their needs are not always taken in consideration in various sectoral policies and the health care system itself.

In 2003, to bring a corrective by ensuring and protecting the health of adolescents and youth, the Government of the Democratic Republic of Congo, based on the situational health analysis in the country regarding adolescent health, developed the National Policy for Adolescent Health (PNSA, 2003). Moreover, the problems related to young people's reproductive health are numberous. Early sexual relationships, often unprotected, induce a high prevalence of teenage pregnancies in this segment of the population involving the use of induced abortion. With the average age at first intercourse being 16.8; more than a fifth of young women aged 15-19 (27 per cent) are already mothers or pregnant (DHS, 2014), at the age of 15 years 5.4 per cent of Congolese young women have already begun childbearing (DRC-DHS, 2007).

### 1.4 Theoretical framework

### 1.4.1 Rationale

In DRC, health reproductive problems are widespread among young people. Health care services play a crucial role in promoting health for adolescents and young adults. In this light, an in-depth investigation is needed to promote their lifestyle behaviours and the use of the health care systems. Additionally, there is a need to examine different factors that enable this target population in both their sexual behaviour and the use of medical care treatment.

### 1.4.2 Significance of the study

The in-depth understanding of factors that influence youth reproductive health sustains the work of policy makers, researchers, and programme providers.

Designing suitable health care programmes promotes and improves health reproductive seeking behaviour among young people and enhances their utilisation of the reproductive health services thereby reducing the reproductive health problems that adolescents face in their environment.

### 1.4.3 Aims of the study

The overall aim of this study was to examine reproductive health issues among young women in the Democratic Republic of Congo and to have a better understanding of the utilisation of the health care systems in their respective socio-cultural, economic and demographic situations.

### 1.4.4 Research problem

This study answered the following questions:

1. What are the reproductive health issues among young women?
2. What are the factors affecting fertility issues among adolescent and young adult women?

3. What are possible factors that either inhibit and /or promote the utilisation of reproductive health services by young women?

### 1.4.5 Specific Objectives

The objectives of this research were to:

1. Examine the reproductive health issues among young women in DRC.

2. Examine the possible factors that influence youth women's fertility issues in DRC.

3. Identify factors that significantly affect the utilisation of reproductive health services by young women in DRC.

**1.4.6 Delimitation of the study**

Household is used as the unit of observation in the present study whereas the analysis is conducted on individual young women aged between 15 and 24 across the eleven (twenty six) provinces of Democratic Republic of Congo. Nevertheless, this research did not include all the reproductive health challenges faced by young women but reasonably stuck to the methodology used in the DRC-DHS (2014) that comprises reproductive health issues which occurred twelve months preceding the survey. Similarly, only factors related to the fertility and maternal health care services that were in place five years prior to the survey were considered.

**1.4.7 Definitions / Interpretation of the key terms**

For the purpose of this study, the subsequent key concepts are defined and applied within the context in which they have been explained.

- **Adolescents**

The terms "*youth*," "*adolescents*," and "*young people*" are all used to describe people in the stage of life that marks the transition from childhood to adulthood.

Adolescence is the age between 10 and 19 and youth are those aged between 15 to 24 years, whilst the term young people is used to cover adolescents and youths, thus it encompasses the 10 to 24 age group (WHO; UNFPA; UNICEF cited in UNFPA, 2009).

- **Early marriage**

Also known as Child marriage, is defined as "Any marriage carried out below the age of 18 years, before the girl is physically, physiologically, and psychologically ready to shoulder the responsibilities of marriage and childbearing" (UNICEF, 2001; IAC, 2003).

- **Early pregnancy**

Early pregnancy is defined as those that occur under the age of 20 years. (**Teenage pregnancy** is pregnancy in human females under the age of 20 at the time that the pregnancy ends). (WHO, 2011a).

- **Unwanted pregnancies**

Unwanted pregnancies are defined as those that occur at an inopportune time, as a result of unfavourable circumstances, or among women who do not want to have children (Langer, 2002).

- **Childbearing**

Childbearing is defined as women who have had a child or is pregnant with their first child (WHO, 2011a)

- **Fertility**

In demography, fertility indicates the product or output of reproduction. The actual level of reproduction of a population is based on the number of live births that occur. Fertility is normally measured in terms of women of childbearing age, defined as 15-49 years, although births to women outside this age range can, and do, occur.

- **Health system**

The health system represents organised linkages between community, services and health institutions in order to improve the population's health. In 2006, the World Health Organization adopted the following definition: A health system includes all actors, institutions and resources that undertake health actions – where a health action is one where the primary intent is to improve health.

- **Reproductive health care**

The Programme of Action also defines terms related to reproductive health. Paragraph 7.2 defines reproductive health care as the constellation of methods, techniques and services that contribute to reproductive health and well-being by preventing and solving reproductive health problems. It also includes sexual health, the purpose of which is the enhancement of life and personal relations, and not merely counselling and care related to reproduction and sexually transmitted diseases (UNFPA, 2004).

- **Reproductive health services**

The term "*reproductive health services*," although not explicitly defined, is repeatedly mentioned throughout the Programme of Action. The chapter that calls

for national action describes the major components that "should be integrated into basic national programmes for population and reproductive health":

The basic reproductive health services component includes - information and routine services for prenatal, normal and safe delivery and post-natal care; abortion (as specified in paragraph 8.25); information, education and communication about reproductive health, including sexually transmitted diseases, human sexuality and responsible parenthood, and against harmful practices; adequate counseling; diagnosis and treatment for sexually transmitted diseases and other reproductive tract infections, as feasible; prevention of infertility and appropriate treatment, where feasible; and referrals, education and counselling services for sexually transmitted diseases, including HIV/AIDS, and for pregnancy and delivery complications, etc.

- **Sexual and Reproductive Health care services**

Include prevention, diagnosis and treatment as related to STI and contraceptive services and counselling, pre and postnatal care, delivery care, treatment of STIs, safe abortion and post abortion care, and access to information and to education to the above mentioned issues (UN, 1995).

- **Health Utilisation**

The ability to consume services and incorporates economics, geographic location, abundance of health services, physical and social resources (Rebman, 2005 cited in Akinyi, 2009) or usage of the youth friendly reproductive health services.

- **Socio-economic status**

According to the Dictionary of Culture Literacy, socioeconomic status is an individual's or group's position within a hierarchical social structure. Socioeconomic status depends on a combination of variables, including occupation, education, income, wealth, and place of residence. Sociologists often use socioeconomic status as a means of predicting behaviour.

- **Demographic factors**

The Law Dictionary defined demographic factors as characteristics assigned to age, sex, education, income, marital status, job, religion, birth rate, death rate,

family size, and marriage age. It applies to every member of the population (Black's Law Dictionary).

### 1.4.8 Chapter outline

This thesis is divided into 8 chapters:

Chapter 1: Introduces background information on the topic, the aims, rationale and significance of the study.

Chapter 2: Reviews available literature pertaining to the topic and highlights the knowledge gap and the relevance of this study.

Chapter 3: Describes the study design - this study adopted a quantitative paradigm and also presents the procedures for data collection, and data analysis.

Chapter 4: Provides the univariate Analysis.

Chapter 5: Depicts the reproductive issues and bivariate analysis results.

Chapter 6: Presents Multivariate (binary logistic regression) analysis results of the study variables determined to be statistically significant to reproductive health issues (the dependent variables).

Chapter 7: Presents discussions.

Chapter 8: Portrays conclusions, recommendations and implications for possible research, policy, program and practices reviews.

### 1.5 Conclusion

The aim of this chapter was to present the context of the study, highlighting the key economic, demographic aspects, socio-cultural and health conditions in the Democratic Republic of Congo and to establish their relationships with sexual and reproductive health problems of the youth. It appears that, despite the existence of numerous modern opportunities for DR Congolese women of the present generation, the precarious conditions of life, cultural constraints and barriers that prevent young people from freely accessing information and services for reproductive health are factors to be considered in the explanation of adolescent

sexual behaviour, substantiated by the precocity of their fertility, multiple pregnancies and low level of contraceptive and health care services use.

The following chapter presents the theoretical approaches which were used to analyse the phenomena.

# Chapter II

## 2. LITERATURE REVIEW

### 2.1 Introduction

This chapter sheds light on some of the relevant and available literature closely related to the topic of this research. It is necessary and sufficient to ground the conceptual and theoretical framework that was used to describe, analyse and interpret the data. In this regard, the researcher centered on the concepts of youth reproductive health issues and factors to promote their application in the context of reproductive health care services.

This is to probe the idea of operationalising definitions for concepts at work such as youth fertility issues and reproductive health care services utilisation.

Youth, particularly adolescence, is a life phase in which the opportunities for health are great and future patterns of adult health are established (Sawyer *et al.*, 2012). Despite this and the progress which has been made since the 1994 International Conference on Population and Development, young people remain extremely hampered by the threats to their sexual and reproductive health (Cooper *et al.*, 2004). Attention to almost every dimension of their reproductive health, particularly reproductive issues, will help to get a better understanding of their reproductive health needs and ways in which health and information services can be structured to respond to these needs in a socio-economic and demographic context.

### 2.2 Behavioural approach

This section, in fact, presents the behavioural approach which is an intellectual process implemented by some authors, for understanding the early and high fertility problem and use of maternal health care services.

This approach is more of an analysis scheme for adolescent and young people's fertility and its corollaries. It offers, in fact, to distinguish between two types of variables such as independent variables or explanatory and proximate variables (also called immediate or intermediate variables) which necessarily exert any influence on fertility and health services utilisation (Davis & Blake, 1956 cited in Wakam, 2006). Independent variables are demographic, socio-cultural, socio-economic, political, and environmental, etc. The proximate characteristics identified in this approach are sexual intercourse that marks the beginning of exposure to risk of pregnancy; the marriage that socially marks the commencement of exposure to risk of pregnancy; the use of contraception that prevents pregnancy, and health care system utilisation to reduce maternal mortality.

The behavioural approach therefore highlights factors, interacting with others, which contribute to the occurrence of early motherhood and high fertility, and low utilisation of contraceptive and health care services amongst the youth. The next section presents the categories of factors that act in the context of this research.

## 2.3 Empirical studies of explanatory factors

Empirical factors in the study consist of fertility and fertility control as well as maternal health care services utilisation.

### 2.3.1 Fertility and fertility control

Given the persistence and impact that these factors have on society, especially in Africa, adolescent and young people's fertility is attracting broad attention. It is important to further explore the phenomenon, which is prevalent but which has not been explored enough in a context such as DRC. Therefore, while there are numerous reproductive health issues that face young people in DRC, we focus on those that are related to early and high fertility and their consequences.

**Factors affecting fertility and fertility control**

The study of the factors influencing youth's fertility has always been of particular interest since it is the determining factor of the long-term evolution of a population, and depends to a certain extent on individual behaviour. Several studies have highlighted that a number of factors may be involved, at different levels, to explain the youth's reproductive behaviour (Beyeza-Kashesya *et al.*, 2010; Bongaarts & Potter, 1983; Bongaarts *et al.*,1984; Dixon-Mueller, 2008; DRC-DHS , 2014; Kara & Maharaj, 2015; Malarcher, 2010; Romaniuk, 2011). These consist of both the general environment in which the youth live (law, technology norms, health care system, etc.), the characteristics of the young (demographic, socioeconomic and cultural, family planning, and enabling), and behavioural. Numerous investigators have attempted to show empirically how some of these factors impact young people's fertility. In the context of this study, only individual and behavioural characteristics were considered.

**Individual factors**

Findings from studies revealed that socio-economic and cultural, demographic, family planning as well as enabling factors are determinants of fertility and fertility control (Beyeza-Kashesya *et al.*, 2010; Bove & Valeggia, 2009; Dixon-Mueller, 2008; Kara & Maharaj, 2015; Ziyane & Ehler, 2007).

**Socio-economic factors**

Socio economic factors consist of women's and husband's education, women's employment status, husband's occupation, family wealth index and mass media exposure.

**Women education**

Education gives girls options; in addition to promoting a sense of personal responsibility and imparting a basic body of knowledge, it lets girls imagine and plan their own futures (Martin, 1995). Education opens up individuals to other manners of thinking, reasoning, models and values, it is a key factor shaping their beliefs about the timing of motherhood and influences their behaviour and

ultimately can transform their socio-demographic behaviour. The level of adolescents and young peoples' education is therefore a factor of change in their perception of the traditional role of women (Koyama *et al.*, 2009; Poumbou, 2008).

Investigations have indicated that the education of women is an explanatory factor of reproductive behaviour (Ayiga & Rampagane, 2013; DRC-DHS, 2014; Goldman, 2011; Kamal *et al*., 2015; Kara & Maharaj, 2015; Khan *et al.*, 2012; Lloyd & Mensch, 2006; Martin, 1995; Nasrin & Rahman, 2012; Romaniuk, 2011; Stephenson *et al*., 2014; UNFPA, 2007b; UNFPA, 2014; WHO, 2011a). Age of sexual debut, age of first marriage and birth, as well as contraceptive use are strongly related to the educational level of the woman. Adolescents who are in school are less likely to have sex (Goldman, 2011; Koyama *et al.*, 2009; Lloyd, 2006; Martin, 1995; Sedlock, 2000; Stephenson *et al*., 2014; UNFPA, 2007a), to marry early or become pregnant as adolescents (Kamal *et al*., 2015; Kara & Maharaj, 2015; Martin, 1995; Nasrin & Rahman, 2012; UNFPA, 2014). While more highly educated women are more likely to use modern methods than less educated women (Fuchs & Lutz, 2011; Lloyd, 2006; Khan *et al*., 2012; Malarcher, 2010; UNFPA, 2007b; UNFPA, 2014). In DRC, DHS (2014) found that women without formal education initiated sexual intercourse more than three years earlier than women with more than secondary education (16.6 years versus 20.1 years). The same source indicated that 19% of women with more than secondary education were using a modern method, compared to four % of women with no education (DHS, 2014). Findings from Malawi, South Africa and Uganda pointed out that education is a most determinant of age at first marriage (Ayiga & Rampagane, 2013; Palamuleni, 2011).

Similarly, education has been considered as a major protective factor for early pregnancy, the more years of schooling, the fewer early pregnancies (Grant & Hallman, 2008; Lloyd & Mensch, 2006; WHO, 2011a). In a study from 17 Sub Saharan African countries, Loaiza (2011) found that girls with the highest level of education had an adolescent birth rate of 47, whereas girls with no education had a rate that was more than four times higher, at 192. Shapiro (1996) acknowledged

that the single most important factor" in Kinshasa's (DRC) fertility decline is "the tremendous increase in educational attainment of the female population." In the same vein, a survey in DRC indicated that women with more than secondary education have an average of 2.9 children, compared to 7.4 among women with no education (DRC-DHS, 2014). Even as, the ideal family size decreased as a woman's level of education increased; from 7.2 children for women with no education compared to 4.3 children for women with more than secondary education (DRC-DHS, 2014).

Contrary, other findings from Sub Saharan Africa brought to light that the proportion of adolescents who have already entered into motherhood increases with the level of education in Burundi; while in Ghana and Gabon, the effect of education on adolescent fertility is not continuous (Poumbou, 2008; UNFPA, 2005). This suggests that adolescent fertility does not always decrease with the improvement of education.

**Husband's education**

With reference to husband's education, scholars emphasised that men who are more educated are more likely to use contraception, which is key, given that in many families men are the sole decision-makers with regard to fertility (Chudasama *et al*., 2008; Duze &Mohammed, 2006; Kamal *et al*., 2015; Khan *et al*., 2012; Kulaba 2011). In a study of socio-economic and demographic determinants of fertility amongst young women in northern Uganda, Kulaba (2011) revealed that husband's education had a significant association with the fertility of a woman. In contrast, investigating contraceptive practices in newly married women in sub urban Bangalore, Shah *et al.* (2006) reported no association between husbands` education and use of oral contraceptive.

**Women's employment status**

Concerning female employment, this factor plays an essential role in shaping the variation in fertility levels within and between countries (Beguy, 2009; Boushey, 2008; Kamal *et al*., 2015; Khan *et al*., 2012; Rindfuss & Brewster, 1996; Romaniuk, 2011; Schockaert, 2005; Shapiro & Oleko Tambashe, 1994). Scholars

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have established diversified outcomes in the relationship between employment status of the mother and fertility, attributable to a disproportion in women's employment on one hand (Budig, 2003; Cruces & Galiani 2007; Ejaz, 2007; Porter & King, 2009; Romaniuk, 2011; Shapiro & Oleko Tambashe, 1994). On the other hand, the participation of women in the economic market is presumed to compete with their family obligations since mothers are often the only ones who are responsible for household duties.

Researchers found that women's employment was strongly associated with contraceptive use (Beguy, 2009; Khan *et al*., 2012; Shapiro & Oleko Tambashe, 1994). In a study on the impact of female employment on fertility in Dakar (Senegal) and Lomé (Togo), Beguy (2009) found that in Lomé, women who are involved in some economic activity lengthen the interval between pregnancies; even if they are living in union. Contrary, in Dakar, where female employment is less widespread than in Lomé, it appears that women have to carefully perform their family roles, namely bearing and taking care of children even if they are involved in economic activities (Beguy, 2009). In sub-Saharan Africa, it has been suggested that no relationship should exist between labour force status and fertility because of limited paid employment outside the home, extended family networking, cheap domestic labour, as well as traditional social norms regarding gender roles and division of the household duties between men and women.

**Husband's Occupation**

Husband's occupation has been identified as being determinant of women fertility (Khan *et al*., 2012; Kulaba, 2011). Studies suggested that in a sociocultural context like that of sub Saharan African societies where the ideal of husband's predominance in the couple remains strong and well integrated, husband's income plays a fundamental economic role even if women are involved in workforce participation. In a study of socio-economic and demographic determinants of fertility amongst young women in Uganda, Kulaba (2011) brought to light that husband's occupation, had a significant association with the fertility of a woman. Other studies indicated that the effect of the husband's occupation in determining

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household decision making regarding fertility was reduced by the introduction of the wife's relative contributions to total education and total wage income.

**Family wealth index**

Scholars have stressed that material living conditions influence sexual and reproductive behaviour. Adolescents and young people's attitudes towards sexuality, marriage, early motherhood, use of contraception and multiple pregnancies are largely shaped by the parent or husband's financial capability to meet their basic needs (Kamal *et al.*, 2015; Kara & Maharaj, 2015; Kibale *et al.*, 2004; Nour, 2006; Stephenson *et al.*, 2014; UNFPA, 2012; WHO, 2012). Moreover, Malarcher (2010) hold that poor access to contraception can be considered as a direct result of poverty. A study of early age at first sex among adolescents in four African countries showed that higher household economic index was associated with lower odds of early sex among females in Burkina Faso (Stephenson *et al.*, 2014). Investigations revealed that poverty plays a fundamental role in maintaining child marriage. (Kamal *et al.*, 2015; Nour, 2006; UNICEF, 2001; UNICEF, 2005; UNFPA, 2012; UNFPA, 2014). In reality, the traditional practice of early marriage is most prevalent in poor, rural communities, and it often perpetuates the cycle of poverty. Indeed, early childbearing is dangerous; the girls from low-wealth households are most likely to become pregnant during adolescence (Kara & Maharaj, 2015; WHO, 2012). An investigation in DRC brought to light that adolescent fertility was nearly three times higher among young women living in the poorest households (42%) than among those living in the wealthiest households (15%).( DRC-DHS, 2014). In a study in DRC, Kibale *et al*. (2004) emphasised that adolescents in poor and middle households had twice or more the risk of pregnancy than their counterparts in wealthier households.

**Exposure to media**

This factor has been recognised as important in predicting adolescents and young people's reproductive behaviour (Barber & Axinn, 2004; Cheng; 2011 Gupta *et al.,* 2003). Growing evidence revealed that young people need correct information

concerning their reproductive behaviour (Barber & Axinn, 2004; Cheng, 2011; Kulkarni, 2003; Gupta *et al.*, 2003). With reference to contraception for instance, fear of the long-term consequences is pervasive and is often shared by the adults in a girl's life (Presler-Marshall & Jones, 2012). Many girls are concerned, for example, that hormonal contraceptives will permanently impact their fertility. In order for girls to choose to use contraception, accurate information, framed in culturally sensitive ways to ensure that it is genuinely heard and understood, is required (Presler-Marshall & Jones, 2012). Studies displayed that exposure to mass media (especially television and radio) was positively related with the use of contraception (Bankole *et al.*, 1996; Cheng, 2011). Women with high levels of exposure were more likely to use contraceptive methods (Barber & Axinn, 2004; Cheng, 2011; Gupta *et al.*, 2003; Kulkarni, 2003).

**Socio Cultural Determinants of Reproductive Behaviour**

As far as culture is concerned, the effect of the broader cultural milieu and social institutions on young women's reproductive behaviour cannot be overstated (Goicolea, 2009; Hindin & Fatusi, 2009; Kamal *et al.*, 2015; Najafi *et al.*, 2011; Rossier, 2007; Shah, 2011; Varga, 2003). A number of researchers found that in sub-Saharan Africa and South Asia, motherhood is often simply seen as what girls are "for"; their social value is firmly rooted in their capacity for reproduction (Hindin & Fatusi, 2009; Najafi, 2011; Rossier, 2007). "Women's main role is to give children to their husband's family "(Rossier, 2007 cited in Presler-Marshall & Jones, 2012).  Child marriage and rapid conception are therefore encouraged. Socio cultural factors considered in the study are religion and ethnicity.

**Religion**

Researchers have indicated that the young people's religious beliefs can influence their reproductive behaviour (Ayiga & Rampagane, 2013; Ayuba *et al.*, 2012; Izubara & Ezeh, 2010; Kamal *et al*., 2015; Nattabi *et al*., 2011; Romaniuk , 2011; Stephenson *et al*., 2014; Ziyane & Ehlers, 2007). Various religious beliefs (Judaism, Christianity, and Islam) claimed that the population growth and human species' multiplication respond to God's project. Indeed, Catholic authorities have

not only condemned legalisation allowing abortion for any reason whatsoever, but any contraceptive practice (Center for Reproductive Rights, 2010; Nattabi *et al.*, 2011). Islamic societies in turn encourage early marriage (Izubara & Ezeh, 2010), the short duration of abstinence after birth and the subordinate status of women which are amongst the factors that promote early and high fertility (Tapinos, 1996).

Findings from Swaziland and Nigeria emphasised the indirect impact of religion on girls' sexual and contraceptive behaviour (Ayuba *et al.*, 2012; Izubara & Ezeh, 2010; Ziyane & Ehlers, 2007).

A study in Uganda showed that religion has a direct impact on contraceptive use. Women who attended church-funded clinics were found to be less likely to use modern contraceptive methods than those who attended other types of clinic (Nattabi *et al.*, 2011). In opposition, a research to determine whether the choice of oral contraception correlates with various socio-demographic and reproductive characteristics in Surat city, India suggested that no association was found between use of oral contraceptives and factors like religion (Chudasama *et al.*, 2008).
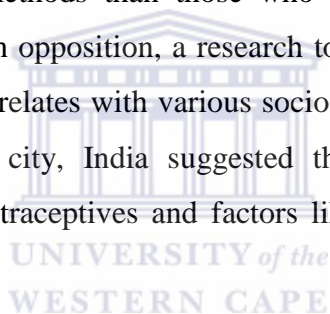
**Ethnicity**

To the extent that ethnicity is involved, many authors consider ethnicity as a crucial factor of social identification (Ayiga & Rampagane, 2013; Caldwell & Caldwell, 1987; Presler-Marshall & Jones, 2012; Rwengé & Kamdem, 2002; Lorimer 1954 cited in Romaniuk, 2011; Stephenson *et al.*, 2014). In Africa, scholars revealed a cultural heterogeneity in sexuality, marriage or procreation which helps to categorise ethnic groups into two classes (Romaniuk, 1967; Rwengé & Kamdem, 2002). One is an ethnic group for who sexuality and procreation before marriage are tolerated (Mongo and Tetela in DRC and Tanala in Madagascar) and, in the other, these practices are strictly prohibited (Luba DRC, Bamiléké in Cameroon and Akan in Ivory Coast). In ethnic groups where sex and premarital childbearing are tolerated or even encouraged, virginity does not matter. Contrary, in the case of ethnic groups where premarital sex and

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reproduction is strictly prohibited, the young woman is required to preserve her virginity until marriage.

In a study of age at first marriage in South Africa and Uganda, Ayiga and Rampagane (2013) found that ethnicity may influence age at marriage through age at sexual debut. Growing evidence suggested that in South Asia and sub-Saharan Africa, pregnancy is "socially accepted, founds identity, is a source of status, and reaffirms entry into adulthood" (Beyeza-Kashesya *et al*., 2010; Kamal & Islam, 2010; Goicolea, 2009 as cited by Presler-Marshall & Jones, 2012). Furthermore, traditions such as son preference and polygamy also shape young women's contraception preferences and encourage early fertility (Ziyane & Ehlers, 2007). Investigating determinants and correlates of fertility in DRC, Romaniuk (2011) found that kinship, polygyny, and lactation are amongst 'tradition' related factors that impact fertility. Contrary, writing of Kinshasa, Shapiro (2010) argued that "ethnicity, once the major factor associated with differential fertility, has become largely irrelevant to fertility."

Ethnicity through norms, ideas and daily practices has an influence on variables such as education, media exposure, etc. which in turn influence the age of entry into sexual activity and attitudes towards sex. Thus, because of ethnicity, adolescents and young people will have internalised the values and specific standards which will result in specific attitudes towards sexuality and fertility (Presler-Marshall & Jones, 2012).

**Demographic factors**
Demographics factors concern age of the woman, marital status, husband's age, number of living children, ideal number of children, number of unions and number of other wives.

**Age of the woman**
Age has been identified as being the fundamental variable in the analysis of demographic phenomena (DRC-DHS, 2014; Kara & Maharaj, 2015; Khan *et al.*, 2012; Muller *et al*., 2008; Stephenson *et al*., 2014) such as fertility and fertility

control. However, evidence suggests that the demographic profile of many developing countries is singularised by an age structure that is either remarkably young, or has a rapidly growing fraction of the population which comprises adolescents and youths (Malarcher, 2010). Add this to a widening window of sexual opportunity as puberty begins earlier and marriage happens later, and the role of adolescent sexual health starts to take centre stage (Malarcher, 2010).

Researches demonstrated that age is a crucial factor which impact sexuality behaviour amongst youth (Muller *et al.*, 2008; Stephenson *et al.*, 2014; Tenkorang & Tyndale, 2008).

Moreover, a number of studies have revealed the influence of women's age on fertility and fertility control (Dixon-Mueller, 2008; Malarcher, 2010; Palamuleni, 2011; Robey *et al.*(1992) cited in Palamuleni, 2013). Scholar found that the "desire" for motherhood is particularly driven by age (Dixon-Mueller, 2008). A study of childbearing among young females in South Africa indicated that adolescents (aged 15–19 years) are significantly less likely to experience early childbearing compared to young adults aged 20–24 years (Kara & Maharaj, 2015). The fertility preferences of 18 and 19 years old young women have little in common with those of 14 year old girls. In order,  Robey *et al.*(1992 cited in Palamuleni, 2013) observed that contraceptive use were lowest among young women, reached a peak among women in their thirties and declined among older women. This was indicative of a high desire for child bearing among young women, and a high growing interest of spacing births among women in their thirties.

**Age of the husband**
With regard to husband's age, increasing evidence has shown that the age gap between women and husband impacts adolescents and young women's fertility (Barbieri & Hertrich 2005; Das *et al.*, 2011; Izubara & Ezeh, 2010; UNICEF, 2001, cited in Mathur *et al.*, 2003; WHO, 2007). Izubara & Ezeh (2010) stressed that generally, young wives are married to men who are substantially older than them. Across sub-Saharan Africa, for instance, husbands are, on average, ten

years older than their young brides (UNICEF, 2001, cited in Mathur *et al.*, 2003). Moreover, a number of studies hold the view that in South Asia and Africa, men play the dominant role in fertility decisions (Farid, 2011; Ibisomi, 2014; Izugbara & Ezeh, 2010; WHO, 2007). This age gap also, however, boosts the power that men have over their wives. Barbieri and Hertrich (2005) found that in sub-Saharan Africa, across 18 countries, the youngest wives and those with the largest partner age differences always have a lower level of contraceptive use.

**Number of living children**

To the extent that number of living children is implicated, several authors have already highlighted number of living children as a predictor of reproductive behaviour (Chudasama *et al.*, 2008; Khan *et al*., 2012; Maharaj & Cleland, 2004; Palamuleni, 2013). In a study of socio-economic and demographic factors affecting contraceptive use in Malawi, Palamuleni (2013) revealed that women with no living children were 12.20 times less likely to use contraceptives than women with 5 or more living children whereas women with 1 to 2 living children and women with 3 to 4 living children were 2.47 and 1.53 times less likely to use contraceptives than women in the reference category. In contrast, findings from India indicated that number of children do not affect the use of oral contraceptive (Rasania *et al.*, 2004).

**Ideal number of children**

Considering preferable number of children, scholars found that this variable is a predictor of fertility. Results from DRC-DHS (2014) indicated that Congolese men want, on average, seven children, while Congolese women would like six children. Moreover, amongst women age 15-49, the ideal family size decreases as a woman's level of education increases. This means that women with no education want 7.2 children, compared to 4.3 children for women with more than a secondary education. This can easily explain the predominance of the large family size in the country.

**Number of unions**

Concerning women number of unions, this factor plays an essential role in shaping the variation in fertility levels within and between countries. Investigating the proximate determinants of fertility in Sub-Saharan Africa, Bongaarts *et al*.(1984) acknowledged that number of unions is associated with lower sexual activity which in turn tend to be associated of lower fertility. These authors argued that remarriage means that women are not in unions at any point in time relative to the incidence of marriage dissolution and could therefore experience lost to childbearing associated with an unmarried state.

**Number of other wives**

Concerning number of other wives, investigations have shown that Polygyny is still common in several sub-Saharan African countries (Fenske, 2011; DRC-DHS, 2014; Palamuleni, 2013; Presler-Marshall & Jones, 2012). In some regions of Nigeria, Uganda and Sierra Leone for example, nearly one-third of all married women are in polygamous marriages (Fenske, 2011). Likewise, in DRC polygamy is most common in Kasaï Oriental and Kasaï Occidental (31% each), while nationally almost one-fifth of women (22%) are in a similar situation (DRC-DHS, 2014).

Scholars have suggested that polygamy has a diversity of effects on adolescents and young people's fertility (Beyeza-Kashesya *et al.*, 2010; Bove & Valeggia, 2009; Chant, 2012; Ziyane & Ehler, 2007). In polygamous families, the number of wives and children a man has is often key to his social status, providing an additional incentive for men to marry young women who are just beginning their most fertile years (Bove & Valeggia, 2009; Presler-Marshall & Jones, 2012; Ziyane & Ehler, 2007). Resulting wives are most commonly adolescents who are allowed no objections to the marriage and have little voice within it (Presler-Marshall & Jones, 2012). However, assuming that the production of sons is of vital importance vis-à-vis status between co-wives and eventual control over husbands' wealth, polygamy incentivises adolescent pregnancy, even for girls

(Beyeza-Kashesya *et al.*, 2010; Ziyane & Ehlers, 2007). In line, studies indicated that women in a polygamous marriage are less likely to use contraceptives than women who live in monogamous marriages (Audu *et al.*, 2008 cited in Palamuleni, 2013). Moreover, these women are likely to adhere to traditional values and customs that encourage large families (Palamuleni, 2013). Contrary, in a study of the proximate determinants of fertility in Sub-Saharan Africa, Bongaarts *et al.* (1984) emphasised that polygynously married women have lower fertility than monogamously married women, and lower frequency of intercourse is probably one important determinant.

**Family planning factors**

Researchers have considered that after cultural factors, a lack of knowledge is a second critical barrier to adolescents' contraceptive uptake (Bankole & Malarcher, 2010; Biddlecom *et al.*, 2007). These variables concern knowledge of the ovulatory cycle, and knowledge of contraception.

**Knowledge of ovulatory cycle**

Insofar as knowledge of the ovulatory cycle is involved, authors pointed out that many adolescents have little understanding of reproduction. They frequently do not figure out how their bodies work, how pregnancy occurs, and how to prevent pregnancy (Beta Development Consulting Firm, 2012 cited in Presler-Marshall & Jones, 2012; Rondini & Krugu, 2009). Evidence has shown that misapprehension is a result of adolescents' lack of information about reproductive health and sexuality (Kalyanwala *et al.*, 2010; Remez *et al*., 2008). A study in the Amhara region of Ethiopia, validated that, while nearly all adolescents knew that unprotected sex may well lead to HIV infection, less than 45% knew that pregnancy might also result (Beta Development Consulting Firm, 2012 cited in Presler-Marshall & Jones, 2012). Similarly, in India, scholars found that one fourth of girls did not comprehend that pregnancy could occur mid-cycle, and many girls did not know that a missed period may possibly signal pregnancy (Kalyanwala *et al.*, 2010).

Indeed, in a context of low contraceptive use mainly due to cultural barriers in DRC as in most sub-Saharan African countries, the control of the menstrual cycle of women, including the unmarried but sexually active adolescents, can be effective in reducing the risk of early motherhood. Mastering the cycle can, in fact, help the adolescent to negotiate the most suitable time for her to have sex and to abstain during the ovulation period.

**Knowledge of contraception**

As regards knowledge of contraception, various researchers had shown the impact of this variable on fertility and fertility control (Bankole & Malarcher 2010; Biddlecom *et al.*, 2007; Ayuba *et al*., 2012; Malarcher, 2010; Okogbenin & Okpere, 2004; WHO, 2011a). While most adolescents are aware of modern methods of family planning, they are often misinformed about how they work. Consequently, even when adolescents use contraception they are prone to using it incorrectly and inconsistently which results in higher failure rates.

A study in four sub-Saharan countries found that less than one-third of teenagers had a level of knowledge that was detailed enough to prevent pregnancy (Biddlecom *et al.*, 2007). Additionally, given the impact of misinformation, adolescents in Sub Saharan Africa tend to rely on "rumours" and myths spread through peer networks (Rondini & Krugu, 2009; Biddlecom *et al*., 2007; Bankole & Malarcher, 2010) which could explain the low use of contraception. Studies in Nigeria and South Africa revealed youths were concerned that hormonal contraceptive us permanently reduce women's fertility, and were even capable of causing sterility or death (Campbell *et al.*, 2006; Najafi *et al*., 2011; Nalwadda *et al.*, 2010; Wood & Jewkes, 2006)**.**

The above description is reflected in the rates of unplanned and mis-timed pregnancy which, while lower than the rates of planned pregnancy, are unnecessarily high.

**Enabling factors**

Enabling factors are often highlighted by the youth's area of residence. Province and type of place of residence were considered in the present study.

**Province**

With reference to province, it is demonstrated that this variable is linked with fertility. Studies of determinants of age at first marriage in Malawi, South Africa and Uganda emphasised that province significantly influence age at first marriage (Ayiga & Rampagane, 2013; Palamuleni, 2011). In an investigation in DRC, DHS (2014) pointed out that women's fertility varied by province, ranging from a minimum of 4.2 in Kinshasa to a maximum of 8.2 in Kasaï Occidental. Moreover, teenage childbearing varies by province; 13% of young women in Kinshasa have begun childbearing, compared to 41% in Orientale. Even as, modern method use was highest in Kinshasa (19%) and lowest in Équateur, Katanga, and Kasaï Oriental (four % each).

**Type of place of residence**

Considering the place of residence, a number of scholars have identified that this factor is associated with fertility (Akoto *et al*., 2005; DRC-DHS, 2014; Kamal *et al*., 2015; Kara & Maharaj, 2015; Khan *et al.*, 2012; Kibale *et al*., 2004; Romaniuk, 2011; UNFPA, 2005); given that it is an important element of social identification and, it affects economic opportunities. Increasing evidence suggests that living in the city or in the countryside does not give the same access to infrastructure (health, education, economic, etc.) and the superstructure (media, television, radio, entertainment, sports, etc.). These differences between urban and rural areas impact girls and young women's status, their economic socialisation and entering sexual and maternal life. Romaniuk (2011) emphasised that, regardless, urbanisation remains incontestably a strong agent of fertility change, although there is some confusion over what that change actually connotes, in the context of tropical Africa. The author holds that in assessing fertility, all urban centres are not the same. The smaller regional cities have very different socio-demographic dynamics from the vast metropolises like Kinshasa (DRC). The

former are embedded in their ethnic and rural surroundings and can derive social and economic benefit from their setting; dwellers in large urban conglomerates lack such support (Romaniuk, 2011).

In a study of determinants of contraception use among female adolescents in Bangladesh, Khan *et al*. (2012) emphasised that urban respondents were more likely to be ever uses of contraceptives than those who are residing in rural areas. Furthermore, findings from sub Saharan Africa underlined that a rural environment is favourable for early sexual debut, early marriage and early motherhood (Akoto *et al*., 2005; Kara & Maharaj, 2015; Kibale *et al*., 2004; UNFPA, 2005). Investigation demonstrated that Congolese women's fertility varied from 5.4 children per women in urban areas to 7.3 in rural areas (DRC-DHS, 2014). As well, use of modern methods by married women was higher in urban areas (15%) than in rural areas (five %). Contrary, in the comparative study of UNFPA (2005) amongst sub African countries, it appears that in some countries such as Burundi, the proportion of adolescents who already started childbearing was higher in urban than in rural areas (24% and 5% respectively).

**Behavioural factors (or proximate determinants)**

Behaviour is essentially structured by a number of factors relating to the youth's status while, youth's status itself results from socio-demographic, socio-economic and cultural characteristics. Behavioural factors have been considered as factors that directly affect the risk of bearing and depend basically on certain behaviours of the individual who performs the risk.

These factors concern age at first sexual intercourse, age at first cohabitation, use of contraceptive and age at first birth.

**Age at first sexual intercourse**

Today's adolescence is different from adolescence in the past (Arnett, 2010). Evidence suggests that there is an increased sexuality among teenagers the world over (Boonstra, 2011; Goldman, 2011). With reference to the African context, sociocultural changes which are on-going in most societies lead to significant

changes in the younger generations. Nowadays, marriage is no longer the sole pathway of sexual activity; adolescents initiate their sexuality before they project into any union. Numerous studies have shown that early sexual activity is most often unprotected, and induces a high prevalence of early and unwanted pregnancies or early motherhood (Iklaki *et al.*, 2012; Kibale *et al.*, 2004; Okogbenin & Okpere, 2004; UNFPA, 2005). A comparative study in Central Africa revealed that sexual activity among adolescents is associated with a high contribution to the TFR (UNFPA, 2005).

Early sexual activity therefore, is an exposure factor to the risk of early motherhood and the sooner this initiation the longer would be the exposure time. Understandably, a girl who started her sexual activity early will be most at risk of early pregnancy than those who have some delay (WHO, 2011a).

**Age at first cohabitation (marriage)**

Marriage, which evidences the transition to adulthood, (Ikamari, 2005; Palamuleni, 2011) remains a crucial and exceptional event in the individual's life cycle, as well as the foundation of the family in societies where marriage is the only legal bond for the procreation of offspring (Kamal *et al.*, 2014). Mibang and Behera (2006) define marriage as a union of man and woman to establish the basic unit of a society: family. The basic purpose of marriage is for procreation of children for continuation of society and also for fulfillment of biological needs and to develop social ties among members of society (Mibang & Behera, 2006). Consequently, age at first marriage (union) remains the most important factor related to fertility and fertility control.

However, early marriage, known also as child marriage, defined as marriage under age 18 (UNICEF, 2001), is a practice that robs children of their childhood, imperils their health, and destroys their hopes (Brown, 2012). Marriage at early age effectively brings a girl's childhood and adolescence to a premature and unnatural end by imposing adult roles and responsibilities before she is physically, psychologically and emotionally prepared (Karei *et al*., 2010). It has been seen

over the years and proven in many scholarly articles that a healthy, happy marriage between a couple will lead to positive physical health outcomes.

In DRC, though the 2006 sexual violence law criminalises child marriages in the country, the legal age of marriage is 15 for women and 18 for men (DRC, Code de la famille, 1987). Consequently, still the practice of early marriage persists. Available statistics showed that nearly 74 per cent of young women aged 15-19 married before reaching their eighteenth birthday (DRC-MICS4, 2010). Among women aged 20-24, nine per cent are married by age 15 and 39 per cent by age 18 (PRB, 2013).

Early marriage has been found to be a cause of numerous negative reproductive health outcomes (Godha *et al*., 2013; ICRW, 2012; Loaiza &Wong, 2012; Khan & Mishra, 2008; Raj *et al*., 2009; Smith *et al*., 2009; UNFPA, 2012; WHO, 2011b). Findings from Sub-Saharan Africa revealed that contraceptive use is low overall among adolescents who are married or in a union (Godha *et al*., 2013; Khan& Mishra, 2008; UNFPA, 2012). Contrary, in a study to determine whether the choice of oral contraception correlates with various socio-demographic and reproductive characteristics in Surat city (India), Chudasama *et al.*, 2008 emphasised that no association was found between use of oral contraceptives and women's marriage age.

Early pregnancy has been presented as the most evident risk of early marriage in the area of sexual and reproductive health. Equally, child marriage is identified as one of the key drivers of teenage pregnancies, especially in South Asia and sub-Saharan Africa (UNFPA, 2012; WHO, 2011a). Girls who tie the knot early habitually have their pregnancy and experience of childbirth at a young age due to their higher frequency of sexual activity. A source documented west and central Africa accounted for the largest percentage of reported under-15 births. Niger, which has the world's highest adolescent birth rate, also has the highest rate of child marriage (UNFPA, 2012). Scholars have shown that early marriage is associated to early childbearing, a repeat childbirth in less than 24 months,

multiple unwanted pregnancies, a higher risk of induced abortion and higher fertility, a lack of contraceptive use (ICRW, 2012; Choe *et al*., 2001; Raj *et al*., 2009) and female sterilization (Raj *et al*., 2009).

In contrast to the above consequences, young girls who marry later and delay pregnancy beyond their adolescence have a better chance of staying healthier, bettering their education and building a better life for themselves and their families (WHO, 2012).

**Contraceptive practice**

Pertaining to contraceptive practice, a number of scholars demonstrated that knowledge and contraceptive use are important factors for fertility control, in particular for adolescent girls and young people. Indeed, sexual activity exposes them to the risk of early and unwanted pregnancy, early childbearing, and multiple births, especially in a context of low use of contraceptive methods. Conversely in modern societies, the risk is largely resorbed by the level of use and effectiveness of contraception as noted (Kuate-Defo, 1998).

Several researchers acknowledged that in many developing countries the rates of use of contraception by adolescents are often low and lead to early pregnancy (Ayuba *et al*., 2012; Madunagu & Akpan, 2007; Okogbenin & Okpere, 2004; WHO, 2011a). Findings from Nigeria had shown that only three per cent to five per cent of married couples use a modern contraceptive method and two per cent to six per cent of the sexually active adolescents practice any form of contraception (Ayuba *et al.*, 2012). Study indicated that there was a significant difference between the knowledge of methods and contraceptive use (BA *et al*. 1999 cited in Poumbou, 2008).

With regard to DRC context, statistics revealed that contraceptive use is still low among young women. WHO (2013) stated that contraceptive prevalence was less than 20 per cent (18 per cent ) during the period 2005–2012 whereas unmet needs for family planning was 24 per cent during the same period. In line, PRB (2013) indicated that the contraceptive prevalence rate, using the modern method

amongst married females was only four per cent and five per cent for adolescents aged 15-19 and youths aged 20-24 respectively during the period 2005-2011. As results, the DRC has one of the highest total fertility rates (TFR) in the world with 6.6 births per woman in 2014 (PRB, 2015). The adolescent fertility rate remains unacceptably high (138 births per 1,000 women in 2014) (DHS, 2014) which affects not only young women and their children's health but also their long-term education and employment prospects (PRB, 2015).

**Age at first birth**

Numerous scholars have shown that early childbearing is a powerful predictor of high fertility. WHO (2012) stated that approximately 18 million girls under the age of 20 give birth each year, regardless of fertility rates are falling on a global level. The same source added that two million of these girls are under the age of 15(WHO, 2012). Indeed, numerically speaking most teenage births take place in south Asia, the countries with the highest adolescent fertility rates are clustered in sub-Saharan Africa.

Evidence suggests that in developing countries, teenage pregnancy is rarely the accidental result of sexual experimentation. For many girls in sub-Saharan Africa and south Asia in particular, child-bearing is something that they have little personal control over (Presler-Marshall & Jones, 2012; WHO, 2008a). Often forced into marriage and encouraged to become pregnant as quickly as possible, too many girls are never given the chance to imagine a future that is not centred around early motherhood (Presler-Marshall & Jones, 2012).

Source documented that early childbearing is associated with a number of negative outcomes. Findings from developing countries revealed that early childbearing is associated with higher risk of maternal and neonate deaths as well as higher overall fertility rate (Casterline & Lazarus, 2010; Kara & Maharaj, 2015; Matendo *et al.*, 2011; WHO, 2011b). In a study on the reduction of perinatal mortality in rural DRC, Matendo *et al.* (2011) found that half of Congo's 35 million women give birth by age 19 and have an average of 6.2 children during their fertile years. They start too soon and continue too long.

Reducing the number of early pregnancies and promoting adequate birth spacing contribute to lower total fertility rates. Lower total fertility rates, in turn, are associated with better health status of children (WHO, 2011a).

### 2.3.2 Maternal health care services utilization

Investing in sexual and reproductive health services in developing countries promises enormous benefits to women, families and societies (Bell *et al*., 2007; Krug *et al*., 2002; Marmot *et al*., 2001; Singh *et al*., 2009; Singh & Darroch, 2012). It also contributes to economic growth, societal and gender equity, and democratic governance (Inglehart & Welzel, 2005; Patel, 2009, Singh *et al*., 2009; Say & Raine, 2007; UNICEF, 2011). Given the high levels of early childbearing in developing countries, pregnancy and childbirth are the leading causes of death among women aged 15-19 (Bearinger *et al*., 2007; UNICEF, 2011; WHO, 2009). Use of skilled antenatal and delivery care improves maternal outcomes through the prevention; management and treatment of obstetric complications, and infant immunization prevent many childhood diseases (Campbell & Graham, 2006; Kerber *et al*., 2007; Reynolds *et al.*, 2006). Moreover, a focus on young women's utilisation of maternal health care services is central to the achievement of many public health agendas, including the Millennium Development Goals targeting the reduction of child and maternal mortality and HIV/AIDS (Filippi *et al.*, 2006; Ochako *et al.*, 2011; Sawyer *et al.*, 2012). Therefore, investigating the use of maternal reproductive health services would help identify long-term interventions that will be most effective in increasing adolescents' use of maternal and child health services (Reynolds *et al*., 2006; Say & Raine, 2007).

### Factors affecting maternal health care services utilisation

Worldwide, to understand why women utilise, or more importantly do not utilise, maternal health care services, has been the focus of numerous studies (Chakraborty *et al*., 2003; Elo, 1992; Gabrysch *et al*., 2011; Kamal, 2009; Magadi *et al*., 2007; Mekonnen *et al*., 2012; Sanneving *et al*., 2013; Shimamoto & Gipson, 2015; Simkhada *et al*., 2008; Singh *et al.*, 2012). This paragraph refers to the

individual factors that influence the use of maternal health care services among young women in the DRC.

Generally, a number of scholars have documented the utilisation of maternal health services (MHCS) as being related to demographic, cultural, and socio-economic factors such as age of women, parity, birth order, employment, income, education, religion, ethnicity, place of residence and size of household (Alam *et al.*, 2015; Beeckman *et al.*, 2010;  Kamal, 2013; Liu *et al.*, 2014; Mekonnen *et al.*, 2015; Rai *et al.*,2012; Sanneving *et al.*, 2013; Shimamoto & Gipson, 2015; Utomo *et al.*, 2011; Wang & Hong, 2015).

Following the conceptual framework of the research, the factors presented below have been identified in literature to influence the use of maternal health care services. These factors concerns individual and behavioural characteristics.

**Individual factors**

Evidence from researches demonstrated that demographic, socio-economic and cultural, and enabling factors are predictors of utilisation of maternal health care services (Alam *et al*., 2015; Kalule-Sabiti *et al.*, 2014; Liu *et al.*, 2014; Mahapatro, 2012; Mekonnen *et al*., 2015).

**Socio economic and cultural factors**

As far as this section is concerned, socio economic and cultural factors refer to education, employment status, family wealth index, exposure to media, religion and ethnicity.

**Education**

Findings from several studies on maternal health care services utilisation conducted in Africa (Magadi, *et al*., 2007; Mekonnen *et al*., 2015; Rai *et al.*, 2012; Shimamoto & Gipson, 2015) and in other developing countries (Bhattacherjee, *et al*., 2013; Beeckman *et al*., 2010; Liu *et al*, 2014; Sanneving *et al.,* 2013; Singh *et al.*, 2012;  Wang& Hong, 2015) have revealed that maternal education is strongly and positively associated with the use of maternal health care services (Fotso *et al*., 2009; Kamal, 2009; Munsur *et al*., 2010). It is evident that women who have some education are more likely to utilise maternal health

services than women who have no education (Beeckman *et al*., 2010; Bhattacherjee *et al.,* 2013; Kalule-Sabiti *et al.,* 2014; Mekonnen *et al*., 2015; Sanneving *et al*., 2013; Shimamoto & Gipson, 2015). Nonetheless, Gage and Calixte (2006) cited in Adamu 2011 suspect that there are strong independent effects of education on maternal health care services utilisation. These investigators reason that other additional factors, for example childhood place of residence, husband's educational level, socioeconomic environment, etc., interact to dilute this strong association. However, studies found that husband's education is positively associated with women's use of maternal health care services (Bhattacherjee *et al*., 2013, Dagne, 2010; Kalule-Sabiti *et al.*, 2014; Rai *et al.*, 2012).

**Employment**

Considering women's employment, this factor is crucial in influencing access to maternal health care services. Scholars have found diversified outcomes in the relationship between employment status of the mother and maternal health care services use, due to the disparity in women's employment (Chakraborty *et al*., 2003; Kamal, 2009; Shimamoto & Gipson, 2015; Sobotka *et. al.*, 2011).

A number of researchers uncovered a positive relationship between maternal health care services utilisation and women's formal employment (Chakraborty *et al*., 2003; Shimamoto & Gipson, 2015). Conversely, others discovered that unemployed women are more likely to make use of maternal health care services than those who are working (Kamal, 2009; Shimamoto & Gipson, 2015; Sobotka *et. al*., 2011). In a study of relationship of women's status and empowerment with skilled birth attendant use in Senegal and Tanzania, Shimamoto & Gipson ( 2015) suggested that employment for payment was significantly associated with SBA use, but in the opposite directions in the two settings; positively in Tanzania and negatively in Senegal. Growing evidence presumed that employment is as an enabling factor for women's empowerment, earning women should have the financial capability to afford services.

**Family wealth index (FWI)**

With regard to FWI, available evidence indicated that the income status of women has a positive association with the utilisation of health care services (Bhattacherjee *et al.*, 2013; Beeckman *et al.*, 2010; Dagne, 2010; Kalule-Sabiti *et al.*, 2014; Long *et al.*, 2010;  Liu *et al.*, 2014; Mekonnen *et al.*, 2015; Milne *et al.*, 2015; Ochako *et al.*, 2011; Rai *et al.*, 2012; Sanneving *et al.*, 2013; Shimamoto & Gipson, 2015; Wang& Hong, 2015). Studies showed a statistically significant association between household wealth and adolescent women utilisation of antenatal and safe delivery care (Dagne, 2010; Rai *et al.*, 2012; Simkhada *et al.*, 2008; Wang& Hong, 2015). Women from poor households or those with limited financial resources are less likely to use MHCS (Bhattacherjee *et al.*, 2013; Gabrysh & Campbell, 2009; Mekonnen *et al.*, 2015; Milne *et al.*, 2015). Moreover, Elo (1992) found women's use of MHCS to increase with husbands 'status profession. In contrast, Mahapatro (2012) found that the husband's occupational status does not have a correlation with health care utilisation. Other scholars have demonstrated that women utilisation of health services rise with their economic status and autonomy level (Fotso *et al.*, 2009; Ochako *et al.*, 2011).

**Mass media exposure**

Studies illustrated that exposure to mass media (especially television and radio) was positively related to MHCS utilisation. Women with high levels of exposure were more likely to receive ANC (Mekonnen *et al.*, 2015; Navaneetham & Dharmalingam, 2002; Pallikadavath *et al.*, 2004; Rai *et al.*, 2012; Wang& Hong, 2015). Findings from Cambodia emphasised that regular access to mass media (reading a newspaper, or watching television, or listening to radio at least once a week) increases the odds of antenatal care by 40% (Wang & Hong, 2015).

**Religion**

Findings from numerous researchers have underlined a negative relationship between religion and the use of some maternal health care services (Bhattacherjee *et al.*, 2013; Dagne, 2010; Kalule-Sabiti *et al.*, 2014). A study in Ethiopia revealed

a relatively lower utilisation of ANC among women who followed traditional beliefs compared to those who followed Orthodox/Catholic faiths (Dagne, 2010). In turn, Bhattacherjee *et al.*(2013) found Hindu women being much more likely to utilise institutional delivery and postnatal care in India compared to the others. In opposition, some investigations conducted in India and Ghana found no significant relationship between religion and maternal health care services (Navaneetham & Dharmalingam, 2002; Overbosch *et al.*, 2004).

**Ethnicity**

Concerning ethnicity, a study of utilisation of ANC in Kenya indicated that the timing of the first visit varied between ethnic groups (Magadi *et al.*, 2000). Similarly, Kurdish women were less likely to use ANC services in Turkey (Celik & Hotchkiss, 2000). Additionally, Liu *et al.* (2014) tried to measure the inequality in maternal health services utilisation in rural Western China; they found that ethnicity was one of the main factors contributing to unequal MHCS use.

**Demographic factors**

These demographic factors include age, birth order and family size.

**Age**

Considering a woman's age, divergent findings arise from the literature, depending on the services provided. A number of studies hold the view that older women are more likely to seek maternal health care services than younger women (Chakraborty *et al.*, 2003; Mekonnen & Mekonnen, 2003; Shimamoto & Gipson, 2015; Vingilis *et al.*, 2007; Wang& Hong, 2015). This possibly might be driven by the fact older women are more aware about healthcare services and their utilisation which may increase their likelihood of health care service utilisation. As well, older women possibly have higher household decision-making power than younger women, particularly adolescents (Reynolds *et al*., 2006). On the other hand, younger adolescents are usually more dependent on their parents for accessing health care (Vingilis, *et al.*, 2007) which may impede their utilisation of health services. Contrary, some researchers for instance Okutu (2011) have found higher utilisation for younger women than older ones. A study in Uganda

indicated that younger (aged less than 20years) are more likely to seek pregnancy-related care services from skilled attendants when compared to mothers aged 34 and above (Okutu, 2011).

Nevertheless, other investigations showed a lack of association between maternal age and health service utilisation (Heidi *et al.*, 2006; Magadi *et al.*, 2007).

**Birth order**

Birth order has been indicated to be closely related to the utilisation of maternal health care services (Beeckman *et al.*, 2010; Dagne, 2010; Kalule-Sabiti *et al.*, 2014; Mekonnen *et al.*, 2015; Ntambue *et al.*, 2012; Shimamoto & Gipson, 2015; Wang& Hong, 2015). Increasing evidence from developing countries suggests that women are more likely to seek medical attention for first-order births than succeeding ones due to uncertainty and higher risk of complications related to first pregnancies (Mekonnen *et al.*, 2015; Ntambue *et al.*, 2012; Shimamoto & Gipson, 2015; Wang& Hong, 2015). Besides, since giving birth to a larger number of children implies constraint on time and involves costs, birth order has been uncovered to be negatively related to maternal health care services utilisation (Dagne, 2010; Mahapatro, 2012). In a study conducted in DRC, Ntambue *et al.* (2012) found that primiparous and grand multiparous women were twice more likely not to use ANC during their pregnancy than women that had had two or three deliveries before.

**Family size and structure**

In the light of the size and structure of the family, (Magadi *et al.*, 2000; Matsumura & Gubhaju, 2001) have indicated that these factors were predictors of maternal health care services use. Furthermore, Matsumura and Gubhaju (2001) emphasised that women from nuclear families were considerably less likely to use maternal health care services than women from extended joint families.

**Enabling characteristics**

Enabling characteristics consider province and place of residence.

**Province**

To the extent that province is considered, this determinant has been recognised in predicting women's maternal healthcare utilisation. Studies in developing countries have reported regional disparities in health-seeking behaviour concerning maternal health care utilisation (Mekonnen *et al*., 2015; Rai *et al.*, 2012; Sanneving *et al*., 2013; Utomo *et al*., 2011).

**Type of place of residence**

Urban versus rural status has been found to contribute to the use of maternal health care services, with a higher proportion of users in urban areas (Alam *et al.*, 2015; Dagne, 2010; Gabrysch et al., 2011; Kalule-Sabiti *et al*., 2014; Mekonnen *et al*., 2015; Sanneving et *al.*, 2013; Say & Raine, 2007; Shimamoto & Gipson, 2015; Wang& Hong, 2015). Considering that there are generally more services available in urban areas, people there have easier access than in rural areas. A study in Ethiopia revealed that women living in rural areas had 69% less of delivering by assistance from health professionals when compared to urban women (Dagne, 2010), and a similar situation was observed in Uganda (Kalule-Sabiti *et al*. 2014).

Since health facilities are mostly situated long distances from the patients, particularly in rural areas; lack of accessibility (transportation and/or consideration of the cost of transportation) may serve as alleviating factors to seeking healthcare (Alam *et al*., 2015; Mekonnen *et al.*, 2015; Sanneving *et al*., 2013). Additionally, the quality of services available has been suggested as a significant predictor of maternal health care services utilisation (Milne *et al*., 2015). The low quality of services and expectation of poor behaviour from health staff may be mitigating factors. Investigations conducted in West African countries and Bangladesh revealed that rural women give birth at home in the absence of skilled care (Dhakal *et al.*, 2011; Ronsmans *et al.*, 2003). In line with this, Mathole *et al.* (2004) cited in Simkhada *et al.* (2008) found that poor quality

of care and negative attitudes of service providers were barriers to utilization of healthcare services in Zimbabwe. They highlighted that poor relationships between patients and healthcare providers, and rude and unfriendly attitudes of nurses, were the major reasons women preferred not to be referred to some hospitals.

**Behavioural characteristics**

Behavioural characteristics relate to personal health practices and health behaviour characteristics.

**Personal health practices**

These are practices that affect people's health, and also offer an indication of how they think about their health (Andersen & Davidson, 2007). Substance use, alcohol consumption and smoking have been considered as measurements of health compromising behaviour. Though inconsistent results are found (Luseno *et al.*, 2010; Vingilis *et al.*, 2007), commonly the expectation is that being involved in health compromising practices is associated with a higher chance of accessing health services.

**Reproductive health behaviour**

Reproductive health behaviour consists of age at first cohabitation and age at first birth.

**Age at first cohabitation**

Considering the age at first cohabitation (marriage), studies had revealed a relationship between this factor and the use of maternal health care services (Field & Ambrus, 2008; Pallikadavath *et al*., 2004; Ciceklioglu *et al.*, 2005; Shimamoto & Gipson, 2015; UNFPA, 2006). UNFPA (2006) argued that good prenatal care can decrease the risk of childbirth complications, but due to lack of freedom and information, young girls who marry at an early age have no access to health services, which exacerbates the risks of maternal complications and mortality. In the same vein, Field and Ambrus (2008) stated that delayed marriage is associated

with an increase in use of preventive health services; later marriage is associated with a significant improvement in utilisation of prenatal care services.

**Age at first birth**

Insofar as age at first birth is concerned, scholars indicated that maternal health care services utilisation is strongly associated with the age of women at pregnancy (Matthews *et al*., 2001; Pallikadavath *et al*., 2004; Ciceklioglu *et al*, 2005).

# Chapter III

## 3. DATA AND METHODS

### 3.1 Introduction

This chapter discusses the methodology of the study. The chapter presents a detailed description of the research design, questionnaires and data used, operational definition, variables description, data analysis procedures, conceptual frame work and study limitations.

### 3.2 Research design

This study aimed to determine factors that predict reproductive health issues together with the utilisation of maternal health care services in DRC. The second DRC-DHS held in 2013-2014 organised data collection to assess levels of fertility, contraceptive prevalence and reproductive health issues amongst young women. For this purpose, the researcher used a cross-sectional design. However, operational data was collected from individual households by way of a general household survey.

### 3.3 Questionnaires

Three types of questionnaires used by DRC - DHS 2013-2014 include the household, men and women's questionnaires. The content of these questionnaires are developed by the MEASURE DHS programme. Adaptation to specific needs for the youth's reproductive health in the DRC was done to ensure the investigation. All questionnaires were translated into the four national languages: Kikongo, Lingala, Swahili and Tshiluba. This study essentially made use of data from the individual women's questionnaire. An individual women's questionnaire

was used to record information about eligible women aged 15-49, residents or visitors. It covered the main areas of significance included in the following sections: socio-economic, cultural and demographic characteristics of respondents, and youth reproductive health.

## 3.4 Data Used

### 3.4.1 Source of data

The present research used the secondary data gained from DRC-DHS (2014) that was managed by ICF International. This survey was carried out on the field from late November 2013 to early February 2014. It was executed under phase six of the Global Programme of DHS. The DRC-DHS (2014) was initiated by the Government of the DRC in order to make use of the tools enabling i) assessment of mid-term development programs and projects, in particular, the National Health Development Plan (PNDS, 2011-2015) of the Ministry of Public Health and the Document of the Strategy for Growth and Reduction poverty (PRSP 2, 2011-2015); ii) the update of the main demographic and basic health indicators.

### 3.4.2 Target population

Data used in this thesis is a subsample of 3663 young women aged 15-24 drawn from 18 827 women aged 15-49 at the time of the survey. Young women aged fifteen to twenty four, currently married; living with a partner, divorced, separated or widowed constituted the target population. Particularly, maternal health care services considered only those who have had at least one live birth in the five years preceding the survey.

### 3.4.3 Sampling

The DRC-DHS (2014) expectation is to produce representative results at all geographical levels including the urban and rural areas, at provincial and national level. This would enable one to obtain a full picture of the country for policy purposes. Furthermore, for most indicators of DRC-DHS (2014), the results are representative of each of the twenty-six new provinces; each new province is a field of study. To perform this, the country was divided into twenty-six areas of

study and, in each of these areas, three strata were created (the stratum of statutory towns, stratum of cities and stratum of rural areas). The sample selection was done stratum by stratum. The sampling design used in the survey was stratified, clustered and selected in two stages for strata of statutory towns and cities, and in three stages for the stratum of rural areas. In order to ensure sample representativeness, random sampling techniques were used. In the first stage the draw was done with probability proportional to the population size of sampling units, while in the second and third stage, a systematic sampling with equal probability was conducted.

The final sampling unit used is the cluster (neighbourhood or village) and a total of 540 clusters were drawn. An enumeration of households in each of these units provided a comprehensive list of households from which was drawn a sample of households. The cluster corresponds to the neighbourhood or village where the size does not exceed 500 households. A total of 18 360 households (5 474 urban in 161 clusters and 12 886 rural in 379 clusters) were selected. All women aged 15-49 usually living in the selected households, or who were present the night before the survey was conducted, were eligible to be interviewed.

### 3.4.4 Sample Coverage

During the DRC-DHS II, a sample of 536 out of 540 clusters was visited. Four clusters were not covered because of insecurity and safety (two in Katanga, one in the Eastern Province and one in North Kivu). In total, 18 224 households were selected and among them, 18 190 households were identified during the investigation. Of these 18 190 households, 18 171 were successfully surveyed, representing a 99.9% response rate. Response rates are almost identical in both rural and urban areas. In the 18 171 households surveyed, 19 097 women aged 15-49 years were eligible for the individual survey, and 18 827 of them were successfully interviewed, representing a response rate of 99%.

## 3.5 Operational definition

Operational definition concerned reproductive health, maternal health care services, adolescents and young people, reproductive health issues, as well as socio economic and cultural, demographic, family planning, enabling and behavioural factors.

### 3.5.1 Reproductive health

*Reproductive Health* encompasses a range of health concerns, emerging from the 1994 International Conference on Population and Development (ICPD) in Cairo Egypt. In this, reproductive health is defined as *'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 system and to its functions and processes'* (U N, 1994).

**Maternal health care services**

*Antenatal care* expresses the number of antenatal care visits received from a skilled provider.

*Skilled birth assistance* refers to the Percentage of women who received assistance during last delivery from a trained health professional.

**Adolescents and young people**

*Adolescence* is the age between 10 and 19 and *youth* are those aged between 15 to 24 years.

*Young people* is used to cover adolescents and youths, thus it encompasses the 10 to 24 age group.

Adolescence stage is also categorised according to age-sets. These include early adolescence (10 to 14), middle adolescence (15 to 17) and late adolescence (18 to 19). Moreover, young adults are youth aged 20 to24, while emerging adulthood includes late adolescence and young adulthood (18-24).

**Important health issues**

*Early sexual activity* is defined as "Any sexual intercourse occurred below the age of 16 years".

*Early cohabitation* is defined as "Any cohabitation or marriage carried out below the age of 18 years".

*Early fertility* is defined as "Those that occur under the age of 20 years".

*High fertility* is defined as "Number of children ever born births greater than two".

**3.5.2 Socio economic and cultural factors**

*Women's education level* measures the educational attainment of the women.

*Literacy* determines the literacy level of the women.

*Husband's education level* measures the educational attainment of the husband.

*Women's employment status* measures the proportion of women who are currently working.

*Husband/partner's occupation* expresses the percentage of husband by the type of occupation.

*Family Wealth Index (FWI)* measures the standard of living of the family the woman belongs to.

*Mass media exposure* determines how often the respondents read the newspaper, listen to the radio, and watch television.

*Religion* represents the women's distribution of percentage by religious affiliation.

*Ethnicity* indicates the ethnic group of the respondent.

**3.5.3 Demographic factors**

*Women's age* expresses the respondents' ages according to their date of birth (day, month and year) at the time of data collection.

*Marital status* determines women's marital status.

*Birth Order* is a measure of the order of childbirth a woman is experiencing.

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*Number of living children* expresses women's number of children who are alive.

*Number of ever born children* expresses the women's total number of ever born children.

*Ideal number of children* expresses the women's total ideal number of children.

*Number of unions* determines women's experienced number of unions (cohabitations).

*Number of other wives* determines the number of husband's other spouses.

*Age of the Husband* measures women's husband age.

*Family size* measures the numbers of persons by family.

### 3.5.4 Family planning factors

*Knowledge of ovulatory cycle* assesses women's knowledge of ovulatory cycle.

*Knowledge of contraceptive methods* expresses the respondents' knowledge of any contraceptive method.

*Ever used any method to delay pregnancy* determines whether the woman ever used anything or tried to delay or avoid getting pregnant.

*Family planning worker visit* determines whether the woman was visited by a family planning worker in the last 12 months.

*Hear family planning from media* determines how often the respondents hear family planning through the media.

### 3.5.5 Enabling factors

Enabling's variables consist of health insurance, province and place of residence.

*Health insurance* expresses the proportion of women who are currently covered by health insurance.

*Province* determine the women's geographical situation.

*Place of residence* presents the location of a woman's residence.

### 3.5.6 Behavioural factors

*Smoking status* determines whether the woman smokes or not.

### Health behaviour

*Age at first sexual intercourse* is the age of the mother at the time of the first sexual intercourse.

*Age at first cohabitation* expresses the age at which occurred the first marriage or union with partner.

*Age at first birth* reflects the age of the mother at the time of the first birth.

*Contraceptive use* measures the current use of contraceptive methods.

### 3.6 Description of variables

This section considers the description of bivariate and binary logistic regression variables.

### 3.6.1 Variables for bivariate analysis

These variables for bivariate analysis consist of dependent and independent factors

### Dependent variables

As much as dependents variables are concerned, fertility and maternal health care services utilisation issues are included.

### Variables related to fertility and fertility control issues

These variables explain reproductive health issues for instance early age at first sexual intercourse, early age at first cohabitation and early age at first birth, low use of contraceptives and the high number of ever born children.

*Age at first sexual intercourse* recoded in three categories 1= <16 years, 2=16 -17 years, and 3= 18-24 years.

*Age at first cohabitation* classified into three categories 1= <15 years, 2=15-17 years, and 3= 18-24 years.

*Age at first birth* organised in three groups 1= <15 years, 2=15-19 years, and 3=20-24 years.

*Contraceptive use* recoded in three categories 1= 'No Method', 2= 'Folkloric and Traditional method', and 3='Modern method'.

*Number of ever born children* defined in three categories coded as 0= None, 1= 1 to 2, and 2= 3 to7

**Variables related to Maternal Health Care Services utilisation**

*Antenatal care* is coded as 0 = 'none', 1= 1 to 3 visits, and 2='received at least 4' visits.

*Skilled birth assistance* is recoded in two levels viz. women delivered by 0= 'untrained provider and none', and 1='trained provider'.

**Independent variables**

With regard to bivariate analysis, the independent variables refer to individual and behavioural characteristics. The individual characteristics include *socioeconomic and cultural* variables (women's education level, literacy, husband's education level, women's employment status, husband's occupation, Family Wealth Index, mass media exposure, religion, and ethnicity), *demographic* variables such as age, marital status, birth order, number of living children, ideal number of children, number of unions and other wives, and husband's age, *Reproductive health/family planning variables* such as knowledge and awareness factors (knowledge of contraceptive methods, knowledge of ovulatory cycle, and ever used anything to delay pregnancy, hear family planning through the media and family planning worker visits), and *enabling* variables comprise for instance health insurance, provinces and place of residence. In turn, *behavioural* variables contain personal health practice variables such as smoking and reproductive health behaviour for instance age at first cohabitation.

**Individual variables**

These individual variables include socioeconomic and cultural, demographics, family planning, and enabling factors.

**Socio economic and cultural variables**

Insofar as socio economic and cultural variables are involved, the research examines women's educational level and literacy, husband's educational level, women's employment status, husband's occupation, family wealth index, exposure to media, religion, and ethnicity.

*Women's education level* is recorded in four levels: 0= 'no education', 1= 'primary', 2= 'secondary' and 3= 'tertiary'.

*Literacy* was recoded into two categories 0= 'Illiterate', 1='Literate'.

*Husband's education level* is recoded in four levels: 0='no education', 1='primary', 2='secondary' and 3= 'tertiary'.

*Women's employment status* is coded 1=Yes, and 2=No.

*Husband/partner's occupation* is categorised into 0= 'Not working', 1= 'Professional/technical/ managerial' & 'Clerical', 2= 'Sales', 3= 'Agricultural–self-employed', 4='Agricultural–employee' and 'Army', 5= 'Household and domestic', 6= 'Services', 7= 'Skilled manual' and 'Unskilled manual', 98= 'Others' and 'Don't know'.

*Family Wealth Index (FWI)* is divided into five categories:1= 'poorest',2= 'poorer',3= 'middle', 4='richer', and 5= 'richest'.
*Mass media exposure* was recoded into two categories 0='No', 1='Yes'.

*Religion* was recoded as follows 1='Catholic', 2='Protestant', 3='Kimbanguiste', 4='Other Christians', 5='Muslim' and 6='Animist/No religion and other'.

*Ethnicity* comprises 1='Bakongo Nord & Sud', 2='Bas-Kasai' and 'Kwilu-Kwango', 3='uvette central', 4='Ubangi', 'Timbiri', 'pygmy' & 'Other', 5='Uele

Lac Albert', 'Basele-K', 'Man'et 'Kivu', 'Kasai', 'Katanga', 'Tanganika' and 'Lunda', and 6='Foreign/Non-Congolese'.

**Demographic variables**

These variables contain women's current age, marital status, husband's age, birth order, number of living children, number of unions, number of other wives and family size.

*Women's current age is* recorded in five years categories as 1= 15-19 and 2= 20-24.

Marital status is recoded in three levels as follow 0=Married, 1=Living with partner and 3=Divorced/separated, and widowed.

*Birth Order* is recoded in four levels: 'first birth order', 'birth order second or third', 'birth order fourth or more'.

*Number of living children* is coded as 0= None, 1=1 to 3, and 2 = 4 to 6.

*Ideal number of children* is coded as 0= None, 1=1 to 5, 2=6 to 10, 3= above10.

*Number of unions* is classified in 1=only once, and 2=More than once

*Number of other wives* is coded 0=No other wives, 1= one and plus, and 2=Don't know.

*Age of the Husband* is recoded into three groups 0= 15-24, 1=25 to 34, and 3=35 and above.

*Family size* is recoded in four categories: 1 to 3, 4 to 5, 6 to 10 and more than 10.

**Reproductive health/Family planning variables**

These involve knowledge of contraceptive methods, knowledge of ovulatory cycle, and ever used anything to delay pregnancy and awareness factors such as hearing family planning through the media and family planning worker visits.

*Knowledge of contraceptive methods* is recoded: 0= 'No' or 1= 'Yes'.

*Knowledge of ovulatory cycle* recoded 0='N' or 1= 'Yes'.

*Family planning worker visit* was a binary variable (0= 'No' or 1= 'Yes').

*Hear family planning from media* is coded 0='N' or 1= 'Yes'.

*Ever used any method to delay pregnancy* is coded 1=Yes, and 2= No and recoded 0='No' or 1='Yes'.

**Enabling variables**

Enabling's variables consist of health insurance, provinces, and place of residence.

*Health insurance* is coded 1=Yes, and 2=No.

*Province* was categorised into 1= 'Kinshasa', 2= 'Bandundu', 3= 'Bas-Congo', 4= 'Equateur', 5= 'Kasai-Occidental', 6= 'Kasai-Oriental', 7= 'Katanga', 8= 'Maniema', 9= 'Nord-Kivu', 10= 'Orientale' and 11= 'Sud-Kivu'.
*Place of residence* was categorised in 1= 'urban' and 2= 'rural'.

**Behavioural variables**

Behavioural variables include personal health practices such as smoking and reproductive health behaviour for instance age at first sexual intercourse, age at first cohabitation, and age at first birth.

*Smoking status* is coded 0= 'No' or 1='Yes '.

*Age at first sexual intercourse* is categorised in three categories 1= <16 years, 2=16-17 years, 3= 18-24.

*Age at first cohabitation* is organised into three categories 1= <15 years, 2=15-17 years, 3= 18-24.

*Age at first birth* is classified into Three groups 1= <15 years, 2=15-19 years, 3= 20-24.

### 3.6.2 Variables for binary logistic regression analysis

This section stresses the determinant of reproductive health issues. In line, two categories of variables are involved: dependent and independent variables.

**Dependent Variables**

Two categories of variables are considered as follows: fertility and fertility control issues and maternal health care services utilisation.

**Variables related to fertility and fertility control issues**

The dependent variables refer to age at first cohabitation, age at first birth, use of contraceptive and number of ever born children. In order to attain the aim of this study, these variables are recorded into two options (dichotomised).

*Age at first sexual intercourse is* dichotomised into 0= less than 16 years, 1=16 and above.

*Age at first cohabitation* is dichotomised into 0= less than 18 years, 1= 18 and above.

*Age at first birth* is dichotomised into 0= less than 20 years, 1= 20 years and above.

*Current contraceptive use* is dichotomised into 0= No, 1= Yes.

*Number of ever born children* is dichotomised into 0= less than 3, 1= 3 and above.

**Variables related to maternal health care services utilisation issues**

Maternal health care services entail a number of components, the present study focused on few important matters: antenatal care and skilled birth assistance utilisation. In order to achieve the purpose of this research, these variables were dichotomised.

*Antenatal Care (ANC)* is dichotomised into 0 ='received less than four visits' or 'none'**,** 1= at least 4' visits (Based on the WHO guidelines of adequate antenatal care)**.**

*Skilled Birth Assistance (SBA)* is dichotomised into 0= No, 1= Yes.

**Independent Variables**

These variables are defined as in the section relative to variables for bivariate analysis. Moreover, the difference can be observed in coding.

## 3.7 Data Analysis

Empowering young girls is acknowledged as fundamental to improving overall reproductive health outcomes and accelerating social and economic development in developing countries. As far as data analysis is concerned, the operationalisation is done at individual level. Analysis of data was profiled and quantification of relationships between dependent variables (reproductive health issues) and independent variables for instance, socioeconomic, sociocultural and demographic variables, were carried out. Univariate, bivariate and multivariate analyses were implemented. To analysis the data, Statistical Packages for Social Sciences (SPSS) 23.0 version was used to conduct descriptive and inferential analysis. All analyses were weighted to account for survey design. The study had performed three levels of analysis to construct valid models. Firstly, bivariate analysis between the predictor variables and dependents variables was done, in order to insure a direct relationship between the predictor variables and the dependent variables. Secondly, bivariate analysis was achieved between independents variables, to check for high intercorrelations amongst independent variables (multicollinearity). Ideally, predictor variables have to be strongly related to dependent variables but not amongst them. In addition, as a result, two variables with a bivariate correlation of .7 or more could not be included in the same analysis (Pallant, 2011). This situation occurred in this work, with only one of the variables amongst women's educational level and literacy was considered. Thirdly, the multivariate analysis was done between the set of variables included in the model and the dependant variable. The frequency tables were used in this study to determine the proportion of young women's categorical variables such as educational level, place of residence, marital status, family wealth index, ethnicity, provinces, religion and so forth. In line with this, the mean and standard deviation were used to describe central measure and dispersion of age at first

cohabitation and first birth, number of antenatal care visits, number of ever born children and so on.

Additionally, cross tabulation, Chi-square, Phi coefficient and Cramer's V were used to test for association between two variables. The Pearson's chi square test in this research was used to determine whether there was a significant difference between the expected frequencies and the observed frequencies in one or more categories. However, Cramer's V (or Phi coefficient) is a coefficient of correlation that can be ranged between 0 and 1 indicating strength of association (low, moderate or high). The hypothesis test of association was accepted if the P-value scored is less than .05, meaning the relationship is statistically significant. Moreover, binary logistic regression was performed to explore the effect of socioeconomic, sociocultural and demographic variables on reproductive health issues (fertility and maternal health care services).

### 3.7.1 Statistical tools

This section covers logistic regression equation, assessing the model, assessing the contribution of predictors and the odds ratio.

**Logistic Regression**

**Equation**

Logistic regression is multiple regression in which an outcome variable is categorical and predictor variables are continuous or categorical (Field, 2009). It predicts the probability of Y occurring given known values of $X_1$ (or Xs).

In its uncomplicated form, when there is only one independent variable $X_1$, the logistic regression equation from which the probability of Y is predicted is mathematically given by:

$$P(Y) = 1/1 + e - (b_0 + b_1 X_{1i}) \tag{4.1}$$

in which P(Y) is the probability of Y occurring, e is the base of natural logarithms, $b_0$ is the Y constant , $b_1$ is the coefficient (or weight) attached to the predictor variable $X_1$ and $X_1$ is the value of the predictor variable.

When there are several predictors the equation becomes:

$$P(Y) = 1/1 + e - (b_0 + b_1 X_{1i} + b_2 X_{2i} + \ldots + b_n X_{ni}) \qquad (4.2)$$

in which $P(Y)$ is the probability of Y occurring, e is the base of natural logarithms, $b_0$ is the Y constant and $b_n$ is the regression coefficient of the corresponding variable Xn.

## Assessing the model: R and $R^2$

Three measures provide a gauge of the substantive significance of the logistic regression model using SPSS.

The Hosmer and Lemeshow's $R_{L2}$ computed as:

$$R^2_L = - 2LL \text{ (model)}/- 2 LL \text{ (original)} \qquad (4.3)$$

In which LL (model)/ is the log-likelihood of the model and LL (original) is the log-likelihood of the original.

Cox and Snell's $R^2_{CS}$ (1989), which is based on the log-likelihood of the model (LL (*new*)) and the log-likelihood of the original model (LL (*baseline*)), and the sample size, *n*:

$$R^2_{CS} = 1 - e^{[-2n^{1/2}( LL(new)) - (LL(baseline))]} \qquad (4.4)$$

However, this statistic never reaches its theoretical maximum of 1. Hence, Nagelkerke (1991) suggested the following amendment (Nagelkerke's $R^2_N$):

$$R^2_N = R^2_{CS} /1 - e^{[2( LL(baseline)) /n]}. \qquad (4.5)$$

For the Hosmer-Lemeshow Goodness of Fit Test poor fit is indicated by a significance value less than .05, so as to support a  model the researcher requires a value greater than .05 (Pallant, 2011).

Consecutively, The Cox and Snell's $R^2_{CS}$ and Nagelkerke's $R^2_N$ provide an indication of the amount of variation in the dependent variable explained by the model , lying from a minimum value of 0 to a maximum of approximately1 (Pallant, 2011).

**Assessing the contribution of predictors: the Wald statistic**

In order to assess the individual contribution of predictors from the logistic regression model, the Wald statistic reveals to the researcher whether the b coefficient for that predictor is significantly different from zero. If the coefficient is significantly different from zero then the researcher can assume that the predictor is making a significant contribution to the prediction of the outcome (Y):

$$Wald_i = b_i/SE_{b_i} \qquad\qquad (4.6)$$

In which is $b_i$ is the value of the regression coefficient corresponding to the predictor variable $X_i$ and $SE_{b_i}$ is its associated standard error.

Indeed, the Wald statistic is generally used to ascertain whether a variable is a significant predictor of the outcome; nonetheless, Menard found that when the regression coefficient (b) is large, the standard error tends to become inflated, resulting in the Wald statistic being underestimated (Menard, 1995 cited in Field, 2009). It is therefore in all probability more accurate to examine the likelihood ratio statistics.

**The odds ratios: OR**

The value of the odds ratios (Exp (B) in the SPSS output) is more decisive in the interpretation of logistic regression. According to Tabachnick and Fidell (2007), the odds ratio represents 'the change in odds of being in one of the categories of outcome when the value of a predictor increases by one unit' (p. 461).

The odds of an event occurring are defined as the probability of an event occurring divided by the probability of that event not occurring (Field, 2009).

$$Odds = P(event)/P(no\ event) \qquad\qquad (4.7)$$

$$P(event\ Y) = 1/1 + e - (b_0 + b_1 X_1) \qquad\qquad (4.8)$$

In which $b_0$ is the coefficient of the constant, $b_1$ is the coefficient for the predictor and X the value of the predictor itself.

$$P(no\ event\ Y) = 1 - P(event\ Y) \qquad\qquad (4.9)$$

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The researcher can interpret the odds ratio in terms of the change in odds. Hence, if the value is greater than one, it indicates that as the predictor increases, the odds of the outcome occurring increase. Conversely, a value less than one indicates that as the predictor increases, the odds of the outcome occurring decrease (Field, 2009).

## 3.8  Conceptual framework

Several studies have found that a large variety of factors impact young people's reproductive health (Adamchak *et al*., 2000; Markham *et al*., 2010; Sawyer *et al.*, 2012, Viner *et al.*, 2012).  Adamchak *et al.* (2000) for instance, divided the group of factors influencing young people's sexual and reproductive health into two categories; namely sociocultural (individual, sexual partners and peers, families and adults in the community, institutions and communities), and behavioural characteristics. At the same time, studies had indicated a number of factors that influence the use of maternal health care services (Andersen, 1968, 1995; Andersen & Newman, 1973, Aday, 1981). In line with this, Anderson's behavioural model of health care services suggests that the use of health care services is a function of three groups of factors namely environment (heath care system and external environment), population (predisposing, enabling and need), and behavioural characteristics (Andersen,1995).

In the diagram below, the researcher brings together and lists the most usual factors affecting young women's fertility and those related to the use of maternal health care services from the frameworks developed by the above investigators.

**Conceptual diagram of factors influencing reproductive health and maternal health care services model**

According to literature reviewed, individual characteristics such as demographic, socio-economic and cultural, family planning as well as enabling factors, and behavioural characteristics may be conceptualised as factors that mould fertility and maternal health care services utilisation amongst young women in DRC.

Demographic characteristics consist of variables such as woman and husband's age, marital status, birth order, number of living children, ideal number of children, number of unions, number of other wives and family size. Socioeconomic and cultural factors concern women educational level and literacy, husband's educational level, women's employment status, husband's occupation, family wealth index, exposure to medias, religion and ethnicity. With reference to family planning, factors for instance knowledge of ovulatory cycle and contraceptive method, ever used anything method to delay pregnancy, hear family planning from medias and visited by the family planning worker, were considered. As far as enabling characteristics are concerned, variables such as health insurance, provinces and place of residence were taken into account. When comes to behavioural characteristics, variables, for instance smoking status, age at first sex, age at first cohabitation, contraceptive use, and age at first birth were considered.
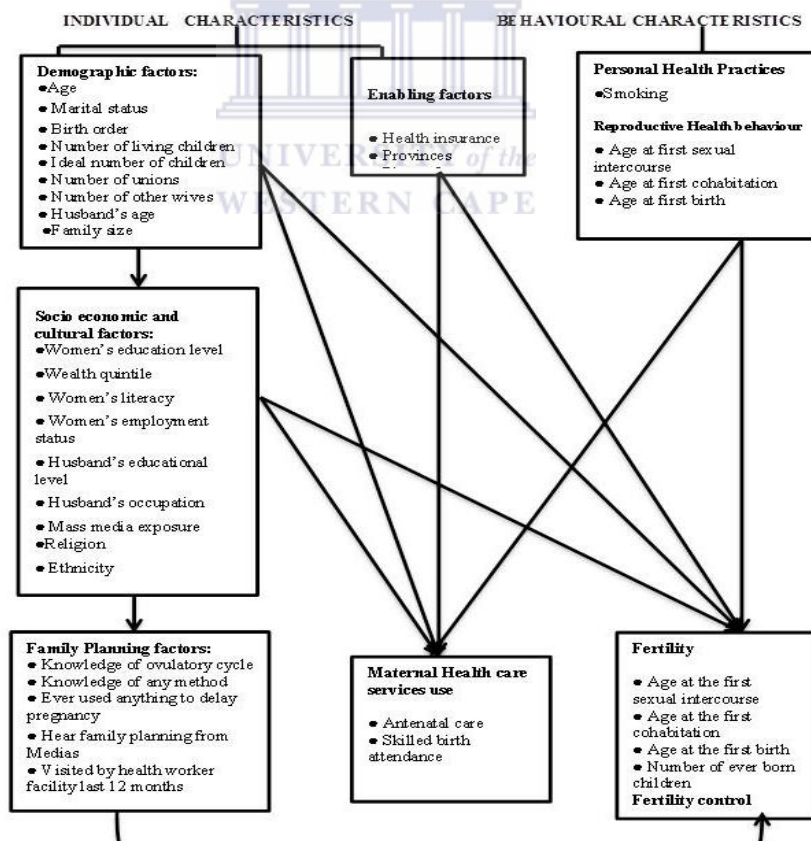


Figure 3.1.*Conceptual Framework of the study (Jacques Elengemoke, 2015*

## 3.9 Limitations

The present study has a number of limitations, as listed underneath:

The first, this study is essentially based on a quantitative approach; while the combination with qualitative data such as sociological, anthropological or psychological would be more useful for optimal understanding of the reproductive health issues.

The lack of certain information in our database is the second limitation. The study analysed secondary data obtained from the DRC-DHS(2014), the absence of some variables such as age at menarche, age at last birth, parents' educational level, profession and income, and most variables related to the institutional environment was not possible to measure their effects deem relevant in the literature.

The third, this study relied on self-reported statement of fertility issues and use of maternal health care services. The periods of reference which are twelve months and five years prior to the survey might lead to under-reporting fertility issues and utilisation of maternal health care services.

Lastly, this study was based on cross-sectional data, which involves that the direction of casual relationships cannot always be established as mentioned Meekers and Klein (2002).

# Chapter IV

## 4. SOCIO-ECONOMIC, DEMOGRAPHIC AND BEHAVIOURAL CHARACTERISTICS

### 4.1 Introduction

The analytical objective of this study was to ascertain young women's reproductive health collected from selected DHS 2013-2014 in DRC. This part of results focuses on the description of the observable characteristics and statistics. Background and behavioural variables such as highest educational level, ethnic groups, provinces, family wealth index, exposure to media, age group, marital status, age at first cohabitation and age at first birth are described underneath.

### 4.2 Background characteristics

This section records individual characteristics which involve socio-economic and cultural, demographic, family planning and enabling variables. Results gained for the different subgroups of variables are presented below in the form of graphs and tables.

### 4.2.1 Socio-economic characteristics

Socio-economic characteristics consist of variables for instance women and husband's/partner's educational level, literacy, women employment status, husband's/partner's occupation, family wealth index and type of media exposed. Moreover, the graphs give the visualization difference in these variables.

### Women's highest educational level

Pertaining to women's educational level, the Figure 4.1 reveals that less than half 44.5% (1548) of respondents had secondary education, less than two tenths had primary education 14.2 % (1415) whereas less than one hundredth 0.6% (23) had tertiary education.

**Women's literacy**

Table A.1 highlights that nearly two fifths of respondents cannot read at all 38.6% (977) compared to half 50.6% (1759) of those who can read whole sentence. This reveals that a considerable part of respondents were illiterate.

**Figure 4.1  Percentage of women educational level   Figure 4.2  Percentage of women literacy**
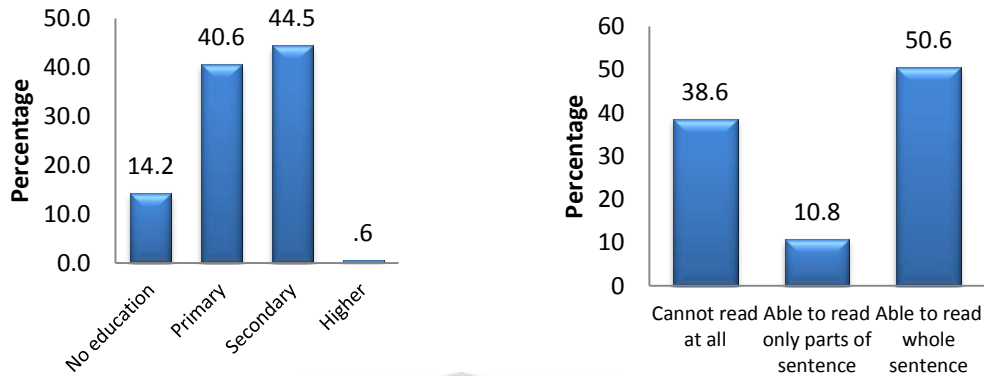


*Source: DRC-DHS-2013-2014; computed by author*          *Source: DRC-DHS-2013-2014; computed by author*

**Husband/partner's highest educational level**

As far as the educational level of young women's husband is concerned, figure 4.3 indicates the majority 66.9% (2323) of husband had secondary education while few had no education 6.2% (215)  and higher education 6.4% (222).

**Women's employment status**

Considering young women's employment status, Figure 4.4 highlights that the majority of respondents were employed during the period of survey 67.7% (2353) whilst 32.3% (1121) were unemployed.

Figure 4.3 Percentage of husband's educational level status
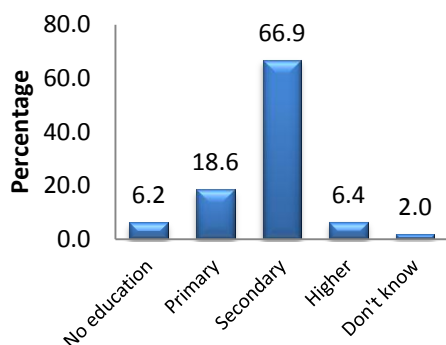
Figure 4.4 Percentage of young women employment



*Source: DRC-DHS-2013-2014; computed by author*
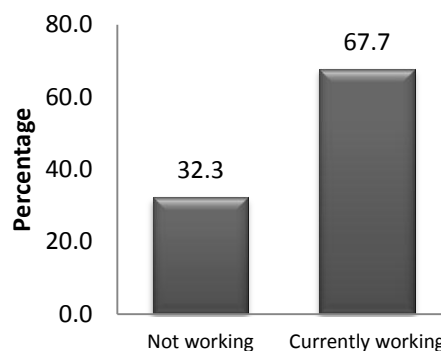


*Source: DRC-DHS-2013-2014; computed by author*

## Husband's / partner's occupation

Considering husband's occupation, the Table A.2 in appendices points out that four in ten husbands (40%) were working in agriculture self- employed sector, more than one in ten were working in services sector (14.0 %) while less than one hundredth (0.7%) were working in clerical sector.

## Family Wealth Index

Holding Family Wealth index, the Figure 4.5 shows that over all, more than two in ten respondents (23.4%) were poorest, 22.5% were poorer while more than one in ten respondents (13.7%) was richest.

**Figure 4.5 Percentage of young women family wealth index**



*Source: DRC-DHS-2013-2014; computed by author*

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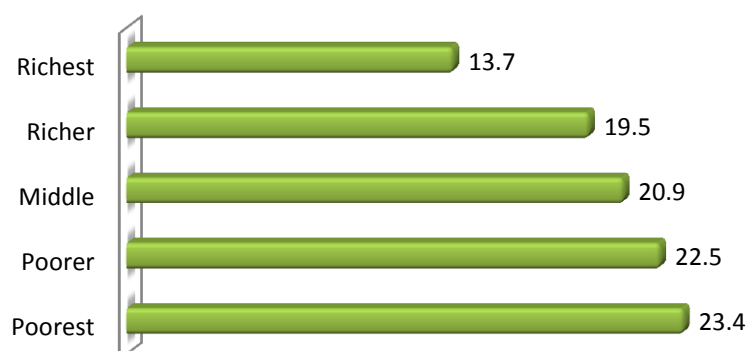
**Type of Media exposed**

With regard to the type of media exposed viz. radio, television and newspapers, Figure 4.6 indicates that three quarters of the respondents were not exposed 75.0% (2594 ) to media against only one quarter who were exposed 25.0% (865).

**Figure 4.6 Percentage of women exposure to media**
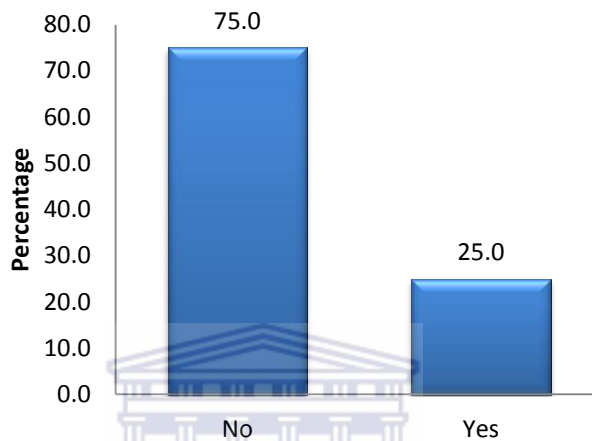


*Source: DRC-DHS-2013-2014; computed by author*

**4.2.2 Socio-cultural characteristics**

Socio cultural characteristics implied religion and ethnicity.

**Ethnicity**

The distribution of ethnicity is presented in the Table A.3 in appendices. The preponderant ethnic groups are Kasai, Katanga, Tanganika & Lunda (28.1%) and Basele-K, Man. & Kivu (20.0%) while the Bakongo Nord & Sud women represent only 5.2%.

**Religion**

Regarding the religion aspect, the Table A.3 in appendices displays that more than one in three young women (36.9%) expressed their confession as "Other Christians".

The protestant religion came second with 29.6% and catholic religion was the third (27.8%). Muslim religion was the less practiced by young women (1.3%).

### 4.2.3 Demographic characteristics

These factors consider variables such as current age, marital status, number of children ever born, number of living children, birth order, number of unions, and number other wives.

**Current age groups**

Results from Table 4.1 reveals that the majority 72.1% (2511) of young women in the study were young adult (aged 20-24), while 27.9% (971) were adolescents (aged 15-19) with an average (standard deviation) age of 21.8 (1.4) and 17.9 (1.1) years respectively. This suggests that nearly three fourth of the participants were young adults whilst only one fourth were adolescents. In all, the average (standard deviation) age of respondents was 20.7 (2.2) years.

**Table 4.1 Distribution of young women by age groups**

| Current age group | Number (%) | Mean (SD) |
|---|---|---|
| 15-19 | 971 (27.9) | 17.9 (1.1) |
| 20-24 | 2511 (72.1) | 21.8 (1.4) |
| Total | 3482 (100) | 20.7 (2.2) |

Source: DRC-DHS-2013-2014; computed by author

**Marital Status**

With regard to marital status, Figure 4.7 depicts that the majority 57.5% (2003) of young women were married, 31.3% (1091) were living with partners whereas 11.1% (388) were widowed, separated or divorced.

**Birth order**

Considering the birth order, results from Figure 4.8 indicates that the average birth order was 1.9, 44.5% of respondents reported being in first birth, 49.0% in second

or third and 6.5% was in fourth order and above. It appears that nearly half of young women were in second or third birth order.

**Figure 4.7  Percentage of marital status**          **Figure 4.8 Percentage of birth order**
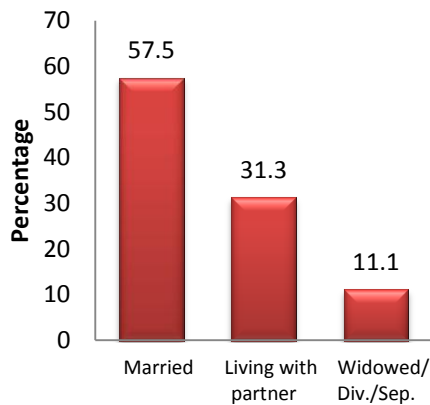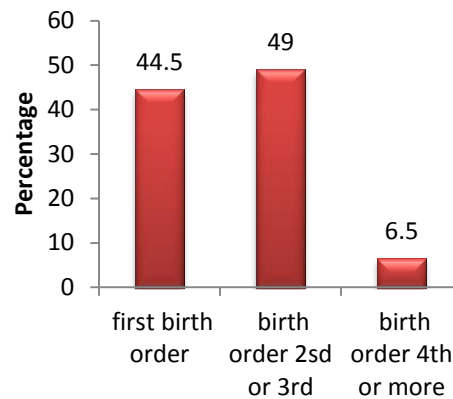


*Source: DRC-DHS-2013-2014; computed by author        Source: DRC-DHS-2013-2014; computed by author*

## Age of husband/partner

Pertaining to husband's age, findings from Table A.4 brings to light that the average age of respondents' husbands was 27.8 years. However, the majority 62.6% (1918) of women's husbands were aged 25-34, followed by 26.3% (339) aged 15-24, while not more than 11.1% (339) were aged 35 and above.

## Number of children ever born

Table A.4 in appendices displays the repartition of number of children ever born. The overall average number of children ever born was 1.5 per young women; the majority (65.6%) of respondents have one to two children, 17.7% three to seven births and 16.7% have not experienced child birth.

## Number of living children

The distribution of the number of living children is presented in the Table A.4 in appendices. In general, the average number of living children was 1.4 per young woman; the majority (77.3%) of respondents had 1 to 3 living children, very few (3.1%) had four to six and 19.1% had no living children.

**Ideal number of children**

Figure 4.9 highlights that on average the ideal number of children was 6.0. However, the majority of respondents (52.0%) wanted one to five children against 43.4% who wanted between six to ten children. Moreover, 4.0% wanted more than ten children while 0.6% did not want children.

**Family size**

Concerning the number of household members, Figure 4.10 indicates the average size of household is 5.5 members. In addition, more than three in ten families (33.6%) have four to five members, less than three in ten have six to ten members (29%), while less than one in ten families (8.5%) have more than ten members.

**Figure 4.9 Percentage of ideal number of children**    **Figure 4.10 Percentage of family size**
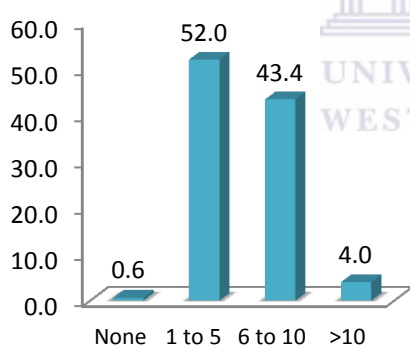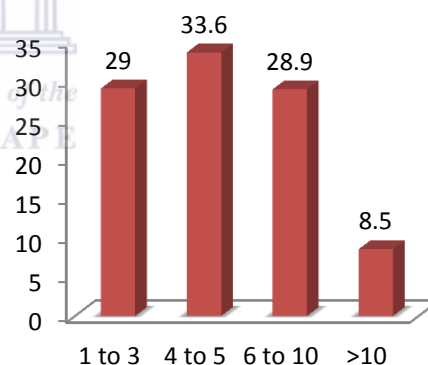


*Source: DRC-DHS-2013-2014; computed by author.*          *Source: DRC-DHS-2013-2014; computed by author*

**Number of unions**

Considering the number of unions, the majority of the respondents (94.1%) have not experienced more than one union while few (5.9%) have experienced more than one union.

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**Number other wives**

Be concerned about the number of other wives, findings from the Table A.4 highlights the greater part of the participants (83.9%) were not in polygamous marriage against 16.1% who were in monogamous marriage.

## 4.2.4 Family planning characteristics

These variables deal with knowledge and awareness factors.

**Knowledge characteristics**

Knowledge characteristics taken into consideration in this section are variables such as knowledge of ovulatory cycle, knowledge of contraceptive methods, and ever used anything to delay pregnancy.

**Knowledge of ovulatory cycle**

Considering young women's knowledge of ovulatory cycle, the Figure 4.11 reveals that the majority of respondents (55.8%) reported not knowing their ovulatory cycle while 44.2% reported to know.

**Knowledge of contraceptive methods**

Figure 4.12 highlights that the largest part of respondents (87.5%) reported knowing modern method, 3.6% know traditional and folkloric methods whereas 8.9 % testified not knowing any contraceptive methods.

**Figure 4.11 Knowledge of ovulatory cycle**
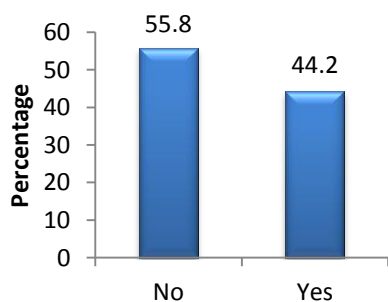
**Figure 4.12 Knowledge of contraceptive methods**
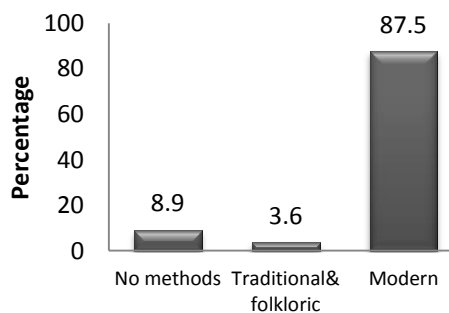
**Ever used anything to delay pregnancy**

Results from Table A.5 brought to light that only 32.6% (1134) of participants reported ever used anything to delay pregnancy compared to 67.4% (2348) of those who never used. This suggests that the majority of women never tried to delay or avoid pregnancy.

**Awareness characteristics**

To the extent that awareness characteristics are involved, variables for instance, hear family planning from media and visit by health worker in the last 12 months were bear in mind.

**Hear family planning from Media**

Pertaining to hear family planning from media, findings from the Table A.5 reveals that the majority (89.2%) of the respondents testified not heard compared to 11.8 % who heard family planning from media.

**Visited by health worker facility last 12 months**

Regarding the visit of health worker, Table A.5 in appendices indicates that more than nine tenths (93.8%) of participants confirmed not been visited during the 12 months preceding the survey against 6.2% who were visited by the health worker. Young women were less visited by health worker.

**4.2.5 Enabling characteristics**

These characteristics include insurance coverage, provinces and type of place of residence.

**Insurance coverage**

The findings from Figure 4.13 show that almost all respondents reported having no health insurance (97.1%) while 2.9% reported covered by health insurance.

**Type of place of residence**

According to the place of residence, Figure 4.14 indicates the majority of respondents 70.7% (2461) resided in rural areas whereas 29.3% (1021) lived in urban areas.

**Figure 4.13 Percentage of insurance coverage**     **Figure 4.14 Percentage of place of residence**
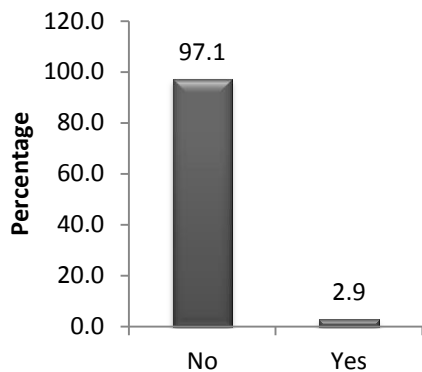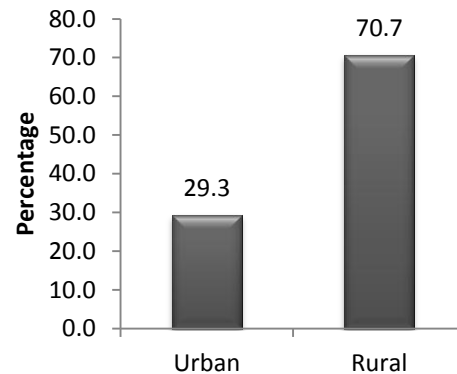


*Source: DRC-DHS-2013-2014; computed by author*     *Source: DRC-DHS-2013-2014; computed by author*

**Province**

As far as the provinces are concerned, Table A.6 in appendices points out that the highest proportion of respondents (15.4%) lived in Bandundu followed by Equateur (15.2%) while the smallest (3.2%) lived Bas Congo.

## 4.3 Behavioural characteristics

To the degree that behavioural characteristics are concerned, factors such as personal practices and reproductive health behavioural were taken into consideration.

### 4.3.1 Smoking status

With reference to smoking status which is the only personal practice taken into account in the context of this research, the results from the Table A.7 in appendices points out that nearly all of respondents reported not smoking (97.6%) whereas only 2.4% acknowledged smoking.

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### 4.3.2 Reproductive health behaviour factors

These variables consist of age at first sexual intercourse, age at first cohabitation, age at first birth and Contraceptive use.

### Age at first sexual intercourse

The repartition of age at first sexual intercourse is highlighted in the Table A.7. Averagely, young women age at the first sexual intercourse was 15.7. Furthermore, Figure 4.15 indicates that 48.6% of respondents had their first sexual intercourse before reaching the age of 16, 31.1% started at the age of 16-17 and 20.4% initiated it in emerging adulthood (18-24). Subsequently, 79.6% of respondents were sexually active before reaching the age of 18. This indicates the earlier age of sexual intercourse.

### Age at first cohabitation

The Table A.7 in appendices depicts the distribution of the age at first cohabitation. Overall, adolescent and young adult women average age at first cohabitation was 16.7. Figure 4.16 shows that majority (64.3%) of respondents entered into cohabitation by 18, 35.7% got married in their emerging adulthood while 17.7% of participants were cohabitated in their early adolescence (by 15). It emerges that the substantial part of young women faced early cohabitation.

**Figure 4.15 Percentage of age at first sex**      **Figure 4.16 Percentage of age at first cohabitation**
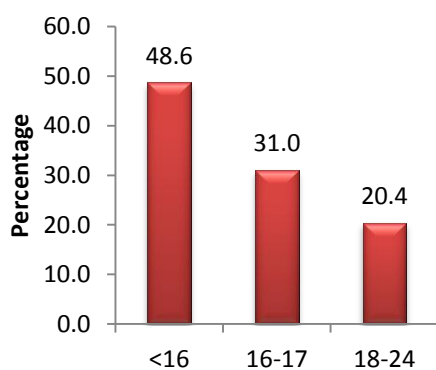


*Source: DRC-DHS-2013-2014; computed by author*      *Source: DRC-DHS-2013-2014; computed by author*
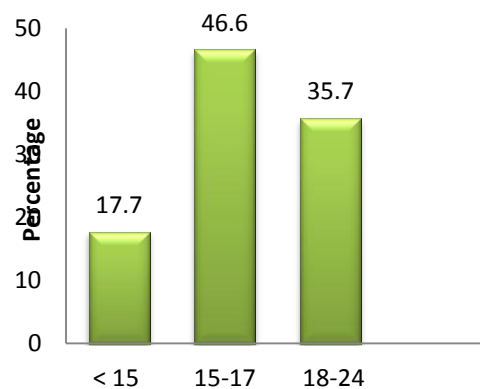
**Age at first birth**

Findings from Table A.7 in appendices reveal that the average age at first birth was 17.6. However, the Figure 4.17 indicates that the majority of participants (72.5%) experienced childbirth at the age 15-19, 8.4% experienced it in their early adolescence and 19.1% undergone childbearing in their emerging adult hood. Consequentially, the substantial part (80.9%) of respondents faced childbirth before 20. This indicates that young women predominantly faced early entry into motherhood.

**Current contraceptive use**

With regard to current contraceptive use, Figure 4.18 reveals in all, less than one tenth of participants reported using modern method (7.8%), only one tenth reported using traditional or folkloric method (10.0%) and more than eight tenths (82.1%) of participants reported not using contraception (82.1%). It emerges that the use of contraceptive methods remains low among young women.

**Figure 4.17 Age at first birth methods**
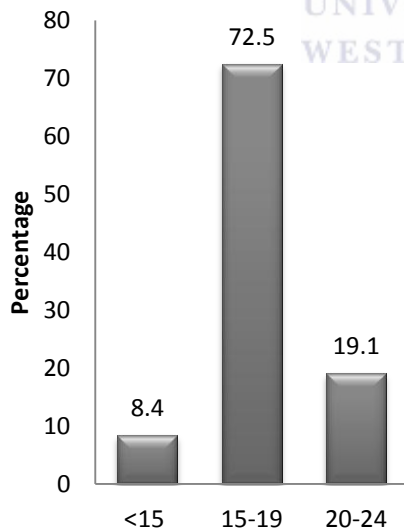
**Figure 4.18 Current use of contraceptive**



*Source: DRC-DHS-2013-2014; computed by author*

*Source: DRC-DHS-2013-2014; computed by auth*

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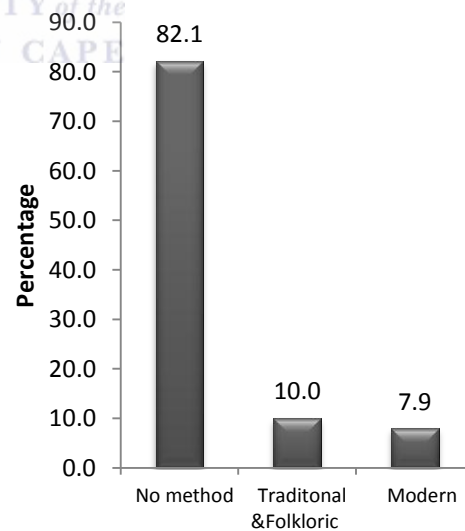
# Chapter V

## 5. BIVARIATE ANALYSIS: FACTORS AFFECTING YOUTH REPRODUCTIVE HEALTH IN DRC

### 5.1 Introduction

This chapter provides the findings concerning the determination of reproductive health issues among young women in DRC. The subject of analytical interest is the evaluation of the relationship between reproductive health issues such as fertility, fertility control and maternal health care services utilisation; and young women's background and behavioural characteristics.

### 5.2 Method and Techniques

The main objective of this research is to examine and compared the characteristics of population related to their reproductive health and the main methods are cross-tabulations, charts and statistics tests. The evaluation of youth's reproductive health quality would focus on such issues as fertility and fertility control, as well as maternal health care services utilization. The assessment of factors that influence the reproductive health is completed using Pearson's Chi square test for independence. If p-value is less than the 0.05(5%), the researcher concluded that the two variables are associated. Otherwise, there is independence between two variables. Phi coefficient and Cramer's V were also used to determine the strength of association. Phi coefficient was used for 2 by 2 tables applying Cohen's (1988) criteria of 0.10 for small association, 0.30 for medium and 0.50 for large association. Cramer's V in line was used in case of tables larger than 2 by 2 using Pallant's procedure (Pallant, 2004 cited in Pallant, 2011) to determine the strength of association. First subtract 1 from the number of categories in row variable (R−1), and then subtract 1 from the number of categories in column variable (C−1).

Pick whichever of these values is smaller. For R–1 or C–1 equal to 1 (two categories): small=.01, medium=.30, large=.50; for either R–1 or C–1 equal to 2 (three categories): small=.07, medium=.21, large=.35 and for either R–1 or C–1 equal to 3 (four categories): small=.06, medium=.17, large=.29.

## 5.3 Fertility and fertility control results

As far as fertility and fertility control results are concerned, age at first sexual intercourse, age at first cohabitation, age at the first birth, contraceptive use and number of children ever born were considered. The behavioural approach highlighted factors, interacting with others, which contribute to the occurrence of early sexual intercourse and cohabitation, early motherhood and high fertility, and low contraceptive use amongst youth. The next section presents the factors that act in the context of this research.

### 5.3.1 Relationship between individual and behavioural characteristics and age at first sexual intercourse

Women's age at first sexual intercourse marks the beginning of exposure to risk of pregnancy. As suggested above, that directly influences adolescents and young adults' fertility; it should identify its magnitude in some adolescent groups to better understand their exposure to fertility. The association between age at first sexual intercourse and the different variables of studies are presented in Table A.8. Of the 8 variables initially defined as potential predictors of first sexual activity, 7 were significantly associated.

**Socio-economic and cultural and age at first sexual intercourse**
**Highest educational level**
Considering young woman's educational level, it was found a significant relationship with the age at first sexual intercourse ($x^2$= 52.7, df= 6, p= .000), with Cramer's V=0.09 insinuating the weakness of this relationship. Figure 5.1 indicates that averagely, women with primary education were more likely to experience first sexual intercourse at the early age (15.3) compared to those with tertiary education (17.0 years). Results from Table A.8  indicates that young

women with primary education scored higher (54.3%) in participants who experienced early sexual intercourse (before reaching the age of 16) while those with tertiary education scored lower (13.0%). This suggests that age at first sexual intercourse positively varied with educational level as expected.

**Family Wealth Index**

There was a significant and weak association between young women's family wealth index and age at first sexual activity ($x^2$= 28.8, df= 8, p=.000), with Cramer's V= 0.06. Figure 5.2 emphasises that young women in poorest wealth quintile were most likely (15.4 years on average) to start sexual activity at the early age compared to those recorded in other wealth quintiles such as richest quintile (16.2 years). Furthermore, Table A.8 in appendices reveals 53.4% of respondents registered in poorest quintile initiated sexual activity by 16 against 41.9% registered in richest quintile. Age at first sexual activity positively differed with the standard of living of household.

**Figure 5.1 Age atsexual intercourse by educational level**    **Figure 5.2 Age at first sexual activity by Family Wealth Index**
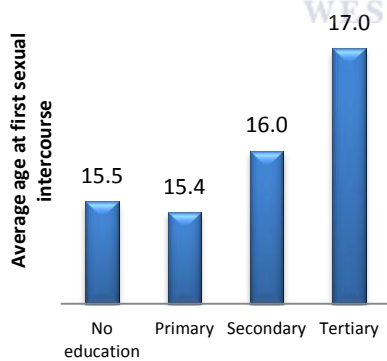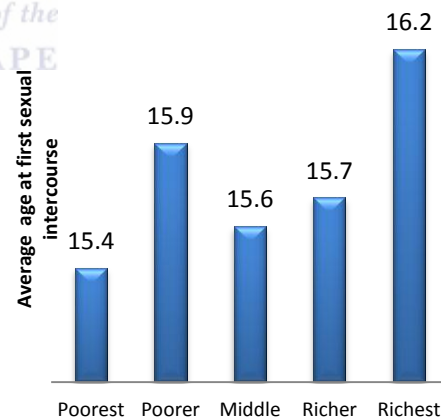


*Source: DRC-DHS-2013-2014; computed by author*      *Source: DRC-DHS-2013-2014; computed by author*

**Religion and ethnicity**

Religion was not significantly associated with young women's age at first sexual intercourse ($x^2$ = 15.3, df= 10, p= .13), regardless that age at first sexual intercourse fluctuated between religions. Concerning ethnicity effects, there was a significant and small association with the age at first sexual intercourse ($x^2$ = 110.0, df= 14, p=.000), together with Cramer's V= 0.13. Figure 5.3 brings to light that on average, Cuvette central & Foreigners young women experienced first sexual intercourse at early age (14.8) compared to other ethnic group's women for instance Kasai- Katanga / Tanganika & Lunda (16.2). Subsequently, the proportion of respondents who initiated early sexual activity was higher amongst cuvette central & Foreigners young women (63.5%) while the lower was found amongst Kasai-Katanga/Tanganika & Lunda women (40.3%).  Age at first sexual intercourse sensibly varied with ethnicity.

**Figure 5.3 Mean of age at first sexual activity by ethnicity**
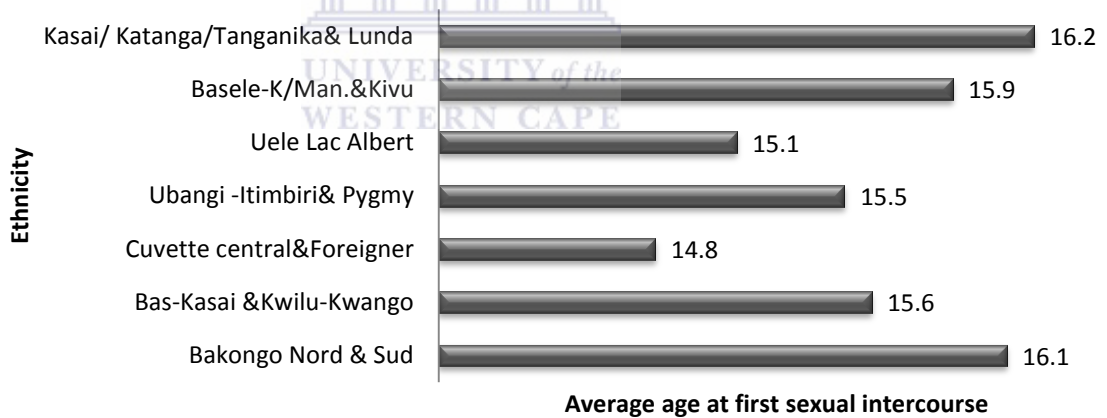


*Source: DRC-DHS-2013-2014; computed by author*

**Demographic and age at first sexual intercourse**

**Age groups and marital status**

With regard to the age of the young women, a significant relationship with the age at first sexual intercourse was found ($x^2$= 189.3, df= 2, p= .000), although the strength of this association was observed to be small at .23 using Cramer's V. Table A.8 in appendices highlights that on average, adolescents have initiated sexual intercourse at the early age (14.9) than young adults (16.0). In line, adolescents were more likely to experience early first sexual intercourse (60.9%) compared to young adults (43.9%). Young women's age at first sexual intercourse positively varied with age; the younger, the early sexual activity. Likewise, significant and small relationship between young women's marital status and age at first sex was found ($x^2$= 27.8, df= 4, p=.000), together with Cramer's V=0.06. In the light of that, widowed, divorced or separated women scored 56.1% in participants who experienced early sexual activity versus 46.5% amongst married participants. Initiation to sexual activity changed with marital status.

**Enabling and age at first sexual intercourse**

**Province and type of place of residence**

The relationship between age at first sex and province was statistically significant ($x^2$=144.7, df= 20, p=.000) and weak (Cramer's V= 0.14). Figure 5.3 emphasises that compared to young women from other provinces, those from Orientale province were more likely to initiate early sexual activity (15.0 on average) contrasted by women from Kasai Oriental (16.4). Similarly, the results from Table A.8 show that women from Orientale province scored higher in respondents who experienced early sexual intercourse (62.8%), while those from Nord Kivu scored lower (37.4%). Age at first sexual activity reasonably varied with province. Pertaining to the type of place of residence, Table A.7 indicates a significant and weak association with the age at first sexual intercourse ($x^2$= 20.2, df= 2, p=.000), with Cramer's V = 0.08. On average, young women who resided in rural area were more likely to initiate early sexual intercourse (15.6 years) compared to their resided in urban area counterparts (16.0 years). In concordance, 50.8% of

participants who live in rural area experienced first sexual intercourse by 16 years of age, which declined to 43.4% amongst those who resided urban area. It emerges that young women age at first sexual activity fluctuated with place of residence.

**Figure 5.4 Mean of age at first sexual activity by provinces**
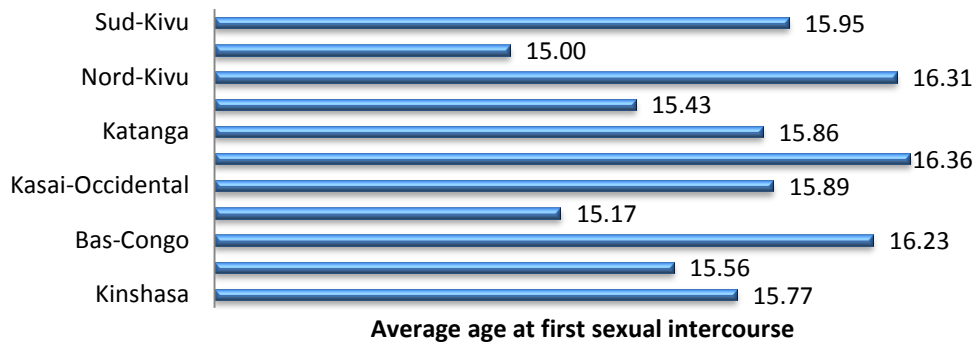


*Source: DRC-DHS-2013-2014; computed by author*

## 5.3.2 Relationship between individual and behavioural characteristics and age at first cohabitation

Age at first cohabitation (marriage) is acknowledged socially mark the commencement of exposure to risk of pregnancy. Age at first marriage straight affects young people's fertility; its extent in some adolescent and young adults groups also helps to effective apprehend their exposure to fertility. The relationships between age at first cohabitation and the various variables of researches are depicted from the Tables 5.1, 5.2, 5.3, A.9 and A.10. Amongst 14 variables initially defined as potential predictors of age at conjugal union, 13 were found to be significantly related to the age at first cohabitation.

**Age at first cohabitation by socio economic and cultural characteristics**

Table A.9 in appendices presents the variations in age at first cohabitation within socio economic and cultural characteristics.

**Highest Educational level**

Women's level of education was significantly connected with the age at first cohabitation of the young women $(x^2 = 136.1$, df=9, p=.00), with a bit small association at 0.2 considering Cramer's V. However, Figure 5.5 displays the Average age at first union increased from young people with no education (16.2) to those with higher education (19.5). In the light of that, the Figure 5.6 reveals the highest proportion of participants who experienced early cohabitation (by 18 years) was found amongst young women with no education (70.9%), which was lowest among women with higher education (27.3%). Age at first cohabitation increased with educational level.

**Figure 5.5 Age at first cohabitation by educational level**   **Figure 5.6 Age at first cohabitation by educational level**
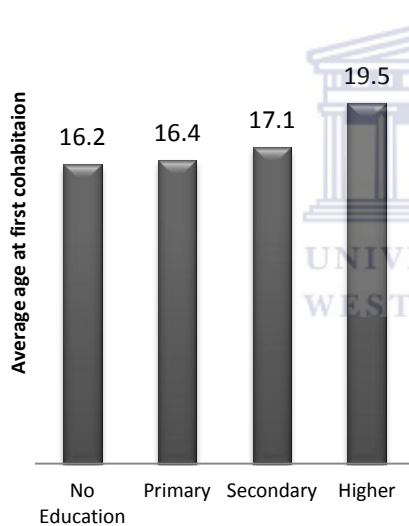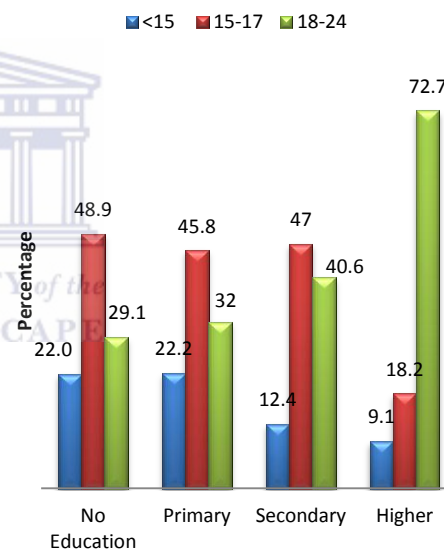


*Source: DRC-DHS-2013-2014; computed by author*   *Source: DRC-DHS-2013-2014; computed by author*

**Literacy**

Concerning women's literacy, there was a significant and weak relationship with age at first union $(x^2 = 83.5$, df= 3, p=.000), along with Cramer's V=0.110. On average, young women's age at first cohabitation increased from illiterate (16.3) to literate (16.9) implying that the higher literacy, the tardy cohabitation.

Furthermore, illiterate women scored the higher percentage (70.4%) in participants who have begun first union by 18 compared to literate women (60.4%). Moreover, 22.5% of illiterate women got married in the early adolescence against 14.7% of literate.

**Women's employment status and family wealth index**

Women's employment status was significantly associated with the age at first cohabitation ($x^2$=10.5, df=3, p=.015), though the strength of this relationship was found to be very small at 0.05 with Cramer's V. Results from Table A.9 in appendices indicates that 65.9% of employed women experienced first union by 18 years, which decreased among unemployed women (61.2%). Moreover, the age at first union was significantly associated with the living standard in the household ($x^2$=56.8, df=12, p=.000), in spite that this association was weak at 0.13 by Cramer's V. Figure 5.7 reveals women in the poorest wealth quintile were more likely to enter into cohabitation at the early age (16.3 years on average) when compared to women in other wealth quintiles such as richest (17.1 years). Likewise, the percentage of young people who experienced early marriage was bigger in the poorest quintile (70.3%), which decreased in other wealth quintiles for instance richest (59.6%). It appears that women's age at first union increased with the living standard in the household.

**Figure 5.7 Percentage of age at first cohabitation by Family Wealth Index**
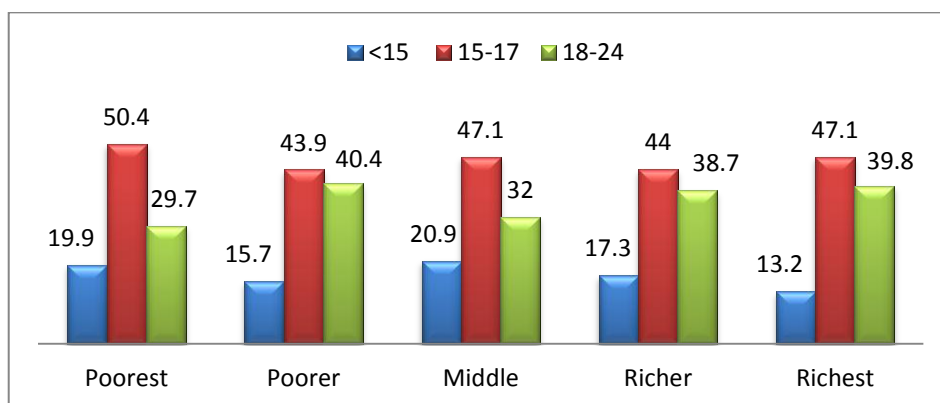


*Source: DRC-DHS-2013-2014; computed by author*

**Exposure to media**

With regard to the exposure to media, a statistically significant relationship was found with young women age at first union ($x^2$=17.3, df=3, p=.001), with Cramer's V=0.070 suggesting a small strength of this association. The findings reveal that 65.8% of women not exposed to media have experienced their first union by 18 years versus 59.7% among those exposed to media.

**Religion and ethnicity**

Muslim young women entered in marriage or union at early age (16.1years) than women in other religious confessions for example Protestants and Kimbanguists (16.6 and 17.2 years respectively). Despite, religion was found not to be significantly associated to the age at first cohabitation($x^2$=18.3, df=15, p=.25), insinuating that variations in young women's age at marriage or union is not related to religion. As far as ethnicity is concerned, a statistically significant association with the age at first union was uncovered ($x^2$=76.2, df=21, p=.00), but small at 0.09 using Cramer's V. Young women in Cuvette central group were more likely to marry at the early age (16.3) compared to women in other ethnic groups for instance, Bakongo Nord & Sud (17.3). Moreover, the proportion of women who faced early cohabitation was higher in cuvette central group (71.1%), which decreased in other ethnic groups such as, Bakongo Nord & Sud (54.7%).

**Age at first cohabitation by Demographic characteristics**

**Current Age group and marital status**

Women's age was moderately related with the age at first cohabitation ($x^2$=372, df=3, p=.000), with Cramer's V= 0.33. This emphasises that women's age at entry into the first conjugal union reasonably varied with the age. The results from Table 5.1 highlight that on average, adolescents aged 15-19 were more likely to start cohabitation at the early age (15.6) than young adults (17.2). Moreover, 88.5% of adolescents have undergone early cohabitation against 54.9 % of young adults. In the same tendencies, 25.4% of adolescents have been cohabiting in their early adolescence versus 14.7% of young adults. Regarding marital status, a

significant and small association with the age at first cohabitation was found ($x^2$=34.4, df=6, p=.000), by Cramer's V at .10. Widowed, divorced or separated women scored higher (67.9%) in young people who have faced early marriage whereas married and living with partner women scored lower (65.9% and 60.0% respectively). Age at first cohabitation varied with marital status.

**Number of unions and number of other wives**

Table 5.1 shows a statistically significant and small relationship between the number of unions and the age of the woman at first union ($x^2$=50.2, df=3, p=.000), with Cramer's V = 0.12. Furthermore, 83% of respondents who have experienced more than one union entered into conjugal union before reaching the age of 18 which fallen to 63% among those who faced once cohabitation. With regard to the number of others wives which express the type of union (monogamous or polygamous), a statistically significant and small relationship with the age at first cohabitation was uncovered ($x^2$=16.2, df=6, p=.013), with Cramer's V=0.07. The proportion of women who faced early cohabitation slightly decreased from women in monogamous union (64.3%) to those in polygamous union (61.9%). Contrary, 16.3% of women in monogamous union entered into first union by 15 years that increased to 21.4% amongst those in polygamous union.

**Table 5.1 Distribution of age at first cohabitation by demographic characteristics**

| | <15 N (%) | 15-17 N (%) | 18-24 N (%) | Total N (%) | Mean(SD) | $X^2$ | p-value | Cramer'sV |
|---|---|---|---|---|---|---|---|---|
| ***Current Age group*** | | | | | | 372 | 0 | 0.33 |
| 15-19 | 247( 25.4) | 613(63.1) | 111(11.4) | 971(100) | 15.6(1.7) | | | |
| 20 -24 | 370(14.7) | 1008(40.2) | 1132(45.1) | 2510(100) | 17.2(2.5) | | | |
| Total | 617(17.7) | 1620(46.5) | 1244(35.7) | 3481(100) | | | | |
| ***Marital status*** | | | | | | 34.4 | 0 | 0.1 |
| Married | 357(17.8) | 963(48.1) | 683(34.1) | 2003(100) | 16.6(2.4) | | | |
| Living with partner | 173(15.8) | 483(44.2) | 436(39.9) | 1092(100) | 17.0(2.6) | | | |
| widowed/ Divorced/ Separated | 88(22.7) | 175(45.2) | 124(32) | 387(100) | 16.4(2.4) | | | |
| Total | 618(17.7) | 1621(46.6) | 1243(35.7) | 3482(100) | | | | |
| ***Number of unions*** | | | | | | 50.2 | 0 | 0.12 |
| Once | 547(16.7) | 1516(46.3) | 1208(37.0) | 3271(100) | 16.8(2.4) | | | |
| More than once | 67(32.5) | 104(50.5) | 35(17.0) | 206(100) | 15.5(2.4) | | | |
| Total | 614(17.6) | 1620(46.6) | 1243(35.8) | 3477(100) | | | | |
| ***Number other wives*** | | | | | | 16.22 | 0.013 | 0.07 |
| No other wives | 422(16.3) | 1244(48.0) | 928(35.7) | 2594(100) | 16.7(2.4) | | | |
| 1 and plus | 94(21.4) | 178(40.5) | 167(38.0) | 439(100.0) | 16.7(2.8) | | | |
| Don't know | 14(23.3) | 23(38.3) | 23(38.4) | 60(100) | 16.7(2.5) | | | |
| Total | 530(17.1) | 1445(46.7) | 1118(36.1) | 3093(100) | | | | |

*Source: DRC-DHS-2013-2014; computed by author*

## Age at first cohabitation by enabling en characteristics
## Provinces and type of place of residence

Table 5.2 indicates a statistically significant and weak relationship between young women's age at first cohabitation and provinces ($x^2$=103.6, df=30, p=.000), with Cramer's V= 0.10. Moreover, compared to young women from other provinces, those from the province of Maniema scored highest in respondents who faced early cohabitation (75.3%), while those from the province of Bas Congo scored lowest (48.2%). This indicates that women's age at first cohabitation substantially varied with provinces. Similarly, there was a statistically significant and small

relationship between place of residence and women's age at the first union ($x^2$= 12.5, df= 3, p=.000), with Cramer's V=0.06. In line, young women who resided in rural area were more likely to face early union (16.6 years on average) than those who resided in urban area (16.9 years). Furthermore, rural area scored higher proportion in women who have challenged early union (65.2%) when compared to urban area which scored (62.0%). This suggests that the age at first union slightly varied either women were living in rural or urban area.

**Table 5.2 Distribution of age at first cohabitation by enabling characteristics**

| Enabling characteristics | <15 N (%) | 15-17 N (%) | 18-24 N (%) | Total N (%) | Mean(SD) | $X^2$ | p-value | Cramers'V |
|---|---|---|---|---|---|---|---|---|
| *Provinces* | | | | | | 103.6 | 0 | 0.1 |
| Kinshasa | 31(17.7) | 69(39.4) | 75(42.9) | 175(100) | 17.1(2.9) | | | |
| Bandundu | 83(15.4) | 227(42.3) | 227(42.3) | 537(100) | 17(2.6) | | | |
| Bas-Congo | 16(14.3) | 38(33.9) | 48(51.8) | 112(100) | 17.5(2.3) | | | |
| Equateur | 106(20.0) | 269(50.9) | 154(29.1) | 529(100) | 16.4(2.4) | | | |
| Kasai-Occidental | 45(17.0) | 138(52.1) | 82(30.9) | 265(100) | 16.4(2.1) | | | |
| Kasai-Oriental | 70(15.7) | 219(49.2) | 156(35.1) | 445(100) | 16.6(2.2) | | | |
| Katanga | 55(15.9) | 185(53.3) | 107(30.9) | 347(100) | 16.6(2.4) | | | |
| Maniema | 39(22.9) | 89(52.4) | 42(24.7) | 170(100) | 16.1(2.4) | | | |
| Nord Kivu | 35(14.4) | 99(40.7) | 109(44.8) | 243(100) | 17.2(2.3) | | | |
| Orientale | 81(20.9) | 176(45.5) | 130(33.6) | 387(100) | 16.5(2.5) | | | |
| Sud Kivu | 56(20.6) | 113(41.5) | 103(37.8) | 272(100) | 16.8(2.4) | | | |
| Total | 617(17.7) | 1622(46.6) | 1243(35.7) | 3482(100) | | | | |
| *Place of residence* | | | | | | 12.5 | 0.006 | 0.06 |
| Urban | 151(14.8) | 482(47.2) | 288(38.0) | 1021(100) | 16.9(2.5) | | | |
| Rural | 466(18.9) | 1139(46.3) | 855(34.7) | 2460(100) | 16.6(2.4) | | | |
| Total | 617(17.7) | 1620(46.5) | 1244(35.7) | 3481(100) | | | | |

*Source: DRC-DHS-2013-2014; computed by author*

**Age at first cohabitation by behavioural characteristics**

**Age a first sex**

The age at first sexual intercourse was found to be strongly associated with the age at first cohabitation ($x^2$=1803.8, df=6, p=.000), with Cramer's V= 0.51; indicating that the age of entry into union largely changed with sexual activity initiation. On average, women who started sexual intercourse by 16 were more

likely to face early entry into marriage (15.4 years) than those who initiated at the age 18-24 (19.1). Moreover, the proportion of respondents who faced early cohabitation was larger among women who experienced sexual intercourse by 16 (83.2%), which collapsed among those who experienced it at the age 18-24 (6.8%).

**Table5.3 Distribution of age at first cohabitation by age at the first sexual intercourse**

| Behavioural characteristics | <15 N (%) | 15-17 N (%) | 18-24 N (%) | Total N (%) | Mean (SD) | $X^2$ | p-value | Cramers'V |
|---|---|---|---|---|---|---|---|---|
| *Age at first sex* | | | | | | 1803.8 | 0.00 | 0.51 |
| <16 | 597(35.3) | 810(47.9) | 284(16.8) | 1691(100) | 15.4(2.31) | | | |
| 16 to 17 | 18(1.7) | 764(70.8) | 297(27.4) | 1079(100) | 17.2(1.65) | | | |
| 18 to 24 | 2(0.3) | 46(6.5) | 661(93.2) | 709(100) | 19.1(1.53) | | | |
| Total | 617(17.7) | 1620(46.6) | 1242(35.7) | 3479(100) | | | | |

*Source: DRC-DHS-2013-2014; computed by author*

### 5.3.3 Relationship between individual and behavioural characteristics and age at first birth

Tables 5.4, 5.5 and A.11 display the associations between age at first birth and a range of variables of investigates. Seventeen variables out of the eighteen initially defined as potential predictors of age at the entry into motherhood, were found to be significantly associated.

**Age at first birth by socio economic and cultural characteristics**

Table A.11 in appendices displays the results of association between age at the first birth and socio economic and cultural characteristics.

**Women's highest and husbands'/partners' highest educational level**

Women's education was significantly and moderately related to the age at the entering into motherhood ($x^2$=124.9, df = 6, p=.000), with Cramer's V=0.21. On average, women with no education were more likely to start childbearing at early age (17.1) compared to those with other categories of education namely, tertiary

92

(19.5years). However, nearly nine tenths (87.8%) of young women with no education experienced early childbearing (by 20) compared to about six tenths (56.2%) of those with tertiary education. Pertaining to the respondents husband's education, a statistically significant and moderate association to the age at first birth was found ($x^2$=129.1, df = 8, p=.000), Cramer's V=0.21. Women whose husband had no education were more likely to enter into motherhood at early age (17.1years) when compared to those whose husband had other level of education explicitly, tertiary (18.9). Results highlight that young women whose husband/partner had primary education scored highest in respondents who have faced early childbearing (87.3%) which contrasts with women whose husband had tertiary education (57%). This suggests that women age at first birth rationally varied with husband's level of education.

**Women's employment status and family wealth index**

A statistically significant and small relationship was found between women's employment status and the age at first birth ($x^2$=13.1, df=2, p=.000), with Cramer's V=0.070. The proportion of respondents who undergone early childbirth (by 20) was higher among employed women (81.7%) when compared to those unemployed (79.2%). In regard to family wealth index, a significant and small association with the age at first birth was found ($x^2$= 49.3, df= 8, p=.000), with Cramer's V= 0.13. Women in poorest wealth quintile were found to enter into motherhood early (17.3 years) than those in other wealth quintiles for instance, poorer and richest (17.8 years each). Besides, the highest proportion of participants who undergone early motherhood was observed in poorest wealth quintile (84.3%); which was much lower in the richest quintile (77.7%). It emerges that the women's entry into motherhood positively fluctuated by household standard of living.

**Exposure to media**

As far as exposure to media is concerned, a significant and weak association was discovered with the age at first childbirth ($x^2$=20.9, df=2, p=.000), with Cramer's

V=0.090. Participants not exposed to media scored biggest in early childbirth (82.4%), which declined among those exposed to media (76.1%).

**Religion and ethnicity**

There was not significant relationship between young women's age at first childbearing and religion ($x^2$ =36.4, df=10, p=.107), regardless that the percentage of participants who faced early motherhood was higher amongst Protestant women (83.2%) that became lower amongst Kimbaguist women (67.1%). Considering ethnicity, the findings from Table A.11 in appendices shows a significant and moderate association with women's age at first birth group ($x^2$ =89.0, df = 14, p=.000), with Cramer's V at 0.18. Uele Lac Albert group was uncovered to have the lowest average age at first birth (17.1 years) compared to other ethnic groups for instance, Bakongo Nord & Sud (17.9 years). Consequently, Uele Lac Albert scored the biggest proportion in women who experienced childbirth before attaining the age of 20 (85.2%) against Bas–Kasai & Kwilu-Kwango who scored the smallest (71.0%).

**Age at first birth by demographic characteristics**

**Women's age and age of husband /partner**

There was a significant and strong association between young women's current age and the age at entry into motherhood ($x^2$ =305.1, df=2, p=.000), with Cramer's V= 0.32. Adolescents aged 15-19 were more likely to experience childbirth at early age (16.3 years on average) than young adults aged 20-24 (18.0). Naturally, all of adolescents (100.0%) have experienced their first childbirth before reaching the age of 20 against 75.4 % among young adults. Pertaining to husband's/partner's age, a significant and small association with the age at first birth was foun ($x^2$ =43.3, df=4, p=.000), together with Cramer's V=.092. On average, participants whose husband aged 35 and above faced first childbearing early (17.2 years), when compared to those whose husband aged 24-25 (17.8 years). Moreover, 87.0% of participants whose husband aged 15-24

experienced first birth by 20 years against 77.5% of those whose husband/partner aged 25-34.

**Marital status and number of other wives**

Consistent with the Table 5.4, marital status was significantly associated with age at first birth ($x^2$=19.14, df=4, p=.004), with Cramer's V at .08. It appears that widowed, divorced or separated women scored highest (84.9%) in young people who experienced early childbirth whereas, living with partner women scored lower 78.3%. With regard to number of other wives, a significant and weak relationship was uncovered with the age at first birth ($x^2$=14, df=2, p=.003), with Cramer's V=0.07. The proportion of respondents who started childbearing by 20 years decreased slightly from young women with no other wives (80.4%) to those with one and plus other wives (80.3%).

**Table 5.4 Distribution of age at first birth by demographic characteristics**

| Demographic characteristics | < 15 N (%) | 15-19 N (%) | 20-24 N (%) | Total N (%) | Mean(SD) | $X^2$ | p-value | Cramer's V |
|---|---|---|---|---|---|---|---|---|
| *Current Age* | | | | | | 305.1 | 0.000 | 0.32 |
| 15-19 | 92 (14.1) | 1060(85.6) | 0(0.0) | 652(100) | 16.3(1.65) | | | |
| 20-24 | 152 (6.8) | 1542(68.6) | 553(24.6) | 2247(100) | 18.0(2.24) | | | |
| Total | 244 (8.4) | 2102(72.5) | 553(19.1) | 2899(100) | | | | |
| *Age of husband/ partner* | | | | | | 43.3 | 0.000 | 0.092 |
| 15-24 | 39 (6.8) | 458(80.2) | 74(13.0) | 571(100) | 17.4(2.00) | | | |
| 25-34 | 126 (7.5) | 1169(70.0) | 375(22.5) | 1670(100) | 17.8(2.27) | | | |
| 35 and above | 34 (11.7) | 215(73.9) | 42(14.4) | 291(100) | 17.2(2.19) | | | |
| Total | 199 (7.9) | 1842(72.8) | 491(19.4) | 2532(100) | | | | |
| *Marital status* | | | | | | 19.14 | 0.004 | 0.08 |
| Married | 145 (8.6) | 1233(72.9) | 313(18.5) | 1691(100) | 17.6(2.22) | | | |
| Living with partner | 57 (6.5) | 626(71.6) | 189(21.7) | 872(100) | 17.7(2.20) | | | |
| Widowed/Divorced/ Separated | 41 (12.2) | 245(62.7) | 51(15.1) | 337(100) | 17.2(2.31) | | | |
| Total | 243 (8.4) | 2104(72.5) | 553(19.1) | 2900(100) | | | | |
| *Number other wives* | | | | | | 14 | 0.030 | 0.07 |
| No other wives | 160 (7.5) | 1554(72.9) | 419(19.6) | 2133(100) | 17.7(2.20) | | | |
| 1 and plus | 41 (10.8) | 265(69.5) | 75(19.7) | 381(100) | 17.4(2.39) | | | |
| Don't know | 1 (2.0) | 41(83.6) | 7(14.3) | 49(100) | 17.7(2.86) | | | |
| Total | 202 (7.9) | 1860(72.6) | 501(19.5) | 2563(100) | | | | |

*Source: DRC-DHS-2013-2014; computed by author*

**Age at first birth by family planning characteristics**

**Knowledge of ovulatory cycle and knowledge of any contraceptive method**

Knowledge of ovulatory cycle was found to be significantly related to women's age at first birth ($x^2$=17.6, df=2, p=.001), with Cramer's V= .078. Table 5.5 reveals that the higher proportion of respondents who faced early motherhood was found amongst young women with no knowledge of their ovulatory cycle (83.0%), which decreased among those with knowledge of their ovulatory cycle (78.4%). This suggests that women's early entry in motherhood slightly varied with the knowledge of ovulatory cycle. Regarding knowledge of any contraceptive method, a small significant relationship with women's age at first birth was found ($x^2$=44.6, df=4, p=.000), with Cramer's V= 0.088. The results from Table 5.5 demonstrate that the percentage of respondents who experienced early childbearing was greater (90.1%) among women who have not known any contraceptive method and smaller (75.7%) amongst the one who have known traditional & folkloric method.

**Ever used anything or tried to delay pregnancy**

The results depicted in Table 5.5 reveals that women's age at first birth was significantly associated to the fact that women ever used anything or tried to delay pregnancy or not($x^2$=9.7, df=2, p=.022),with Cramer's V=.058. The proportion of participants who challenged early childbirth a little decreased from women who never used anything or tried to delay pregnancy (81.5%) to those who ever used anything or tried to delay (79.9%).

**Table 5.5 Distribution of age at first birth by family planning characteristics**

| Family planning characteristics | < 15 N (%) | 15-19 N (%) | 20-24 N (%) | Total N (%) | Mean(SD) | $X^2$ | p-value | Cramer's V |
|---|---|---|---|---|---|---|---|---|
| *Knowledge of ovulatory cycle* | | | | | | 17.6 | 0.001 | 0.078 |
| No | 149(9.3) | 1182(73.7) | 273(17.0) | 1604(100) | 17.4(2.23) | | | |
| Yes | 95(7.4) | 918(71.1) | 279(21.6) | 1292(100) | 17.8(2.23) | | | |
| Total | 244(8.4) | 2100(72.5) | 552(19.1) | 2896(100) | | | | |
| *Knowledge of any method* | | | | | | 44.6 | 0 | 0.088 |
| No methods | 42(17.4) | 176(72.7) | 24(9.9) | 242(100) | 16.9(2.30) | | | |
| Tradit.&Folk. | 14(13.1) | 67(62.6) | 26(24.3) | 107(100) | 17.7(2.58) | | | |
| Modern | 189(7.4) | 1860(72.9) | 503(19.7) | 2552(100) | 17.7(2.21) | | | |
| Total | 245(8.4) | 2103(72.5) | 553(19.1) | 2901(100) | | | | |
| *Ever used anything or tried to delay or avoid getting pregnant* | | | | | | 9.7 | 0.022 | 0.058 |
| No | 178(9.5) | 1343(72.0) | 345(18.5) | 1866(100) | 17.5(2.28) | | | |
| Yes | 66(6.4) | 760(73.5) | 208(20.1) | 1034(100) | 17.8(2.16) | | | |
| Total | 244(8.4) | 2103(72.5) | 553(19.1) | 2900(100) | | | | |

*Source: DRC-DHS-2013-2014; computed by author*

## Age at first birth by enabling characteristics

### Province and type of place of residence

Women's age at first birth was found to be significantly connected with province ($x^2 = 104.6$, df = 20, p = .000), with Cramer's V= 0.19. Table A.12 indicates that 86.4% of respondents from Equateur province confronted early childbirth, which sensibly decreased amongst those from Kinshasa (68.3%). Besides, 14.6%, of participants from Orientale experienced motherhood in early adolescence when compared to those from Bas-Congo (1%). This brings to mind that age at first child birth rationally varied with province. In accordance with the Table A.12, there was a significant and weak association between women's age at first birth and place of residence ($x^2$=12.4, df=2, p=.000), with Cramer's V= 0.07. On average participants who lived in rural area entered into motherhood early (17.5 years) than those who resided in urban area (18.8 years). Accordingly, 81.4

% of respondents in rural area faced early childbirth when compared to their living in urban counterparts (79.7%).

**Age at first birth by behavioural characteristics**

**Age at first sexual intercourse and age at first cohabitation**

Respecting the age at first sexual activity, a significant and large relationship were found with the age at first birth $(x^2 = 706.5, df = 4, p = .000)$, with Cramer's V= 0.35. Averagely, respondents who initiated early sexual intercourse were more likely to face first childbearing at the early age (16.5 years) against those who stated it at 18-24 (19.8years). However, the proportion of respondents who entered into motherhood by 20 years was higher among women who experienced sexual intercourse by 16 ( 91.8%), which was lower amongst those who initiated it at the age 18-24 (46.8%). This shows that the entry into motherhood essentially contrasted whether the respondent have experienced early or late first sexual activity. With reference to age at first cohabitation, findings from Table 5.6 show a significant and strong association with the age at first birth $(x^2 = 1613.4\ df = 4, p = .000)$, together with Cramer's V=.53. Moreover, 98.4% of young women who faced cohabitation in early adolescence experienced early motherhood against 48.5 % of those who confronted cohabitation in emerging adulthood (18-24). This implies that the age at first cohabitation positively induced the early motherhood differential behaviour.

**Table 5.6 Distribution of age at first birth by behavioural characteristics**

| Behavioural characteristics | < 15 N (%) | 15-19 N (%) | 20-24 N (%) | Total N (%) | Mean(SD) | $X^2$ | p-value | Cramer's V |
|---|---|---|---|---|---|---|---|---|
| *Age at first sex* | | | | | | 706.5 | 0 | 0.35 |
| <16 | 235(16.0) | 1116(75.8) | 122(8.3) | 1473(100) | 16.5(2.13) | | | |
| 16 to17 | 1(0.1) | 735(83.9) | 140(16.0) | 876(100) | 18.1(1.55) | | | |
| 18 to 24 | 7(1.3) | 250(45.5) | 292(53.2) | 549(100) | 19.8(1.40) | | | |
| Total | 243(8.4) | 2101(72.5) | 554(19.1) | 2898(100) | | | | |
| *Age at first cohabitation* | | | | | | 1613.4 | 0 | 0.53 |
| <15 | 208(36.2) | 358(62.2) | 9(1.6) | 575(100) | 15.1(1.76) | | | |
| 15 to 17 | 24(1.7) | 1295(94.1) | 57(4.1) | 1376(100) | 17.3(1.38) | | | |
| 18 to 24 | 11(1.2) | 448(47.3) | 487(51.5) | 946(100) | 19.6(1.79) | | | |
| Total | 243(8.4) | 2101(72.5) | 553(19.1) | 2897(100) | | | | |

*Source: DRC-DHS-2013-2014; computed by author*

### 5.3.4 Relationship between individual and behavioural characteristics and contraceptive use

The use of contraception is considered to prevent pregnancy. The Tables 5.7, A.13, A.14, A.15 and A.16 depict the results of differential analysis of the use of contraceptive methods.

**Contraceptive use by socio economic and cultural characteristics**

Table A.13 in appendices present the variation of contraceptive behaviour within socioeconomic and cultural characteristics.

**Women's education and literacy and Husbands' education**

Results indicate that women's educational level was significantly linked to the use of contraceptive methods ($x^2$=155.1, df = 6, p=.000), together with Cramer's V= 0.15. Women with higher education were more likely (52.2%) to use contraceptive methods compared to their with no education counterparts (8.7%). Current use of any contraceptive methods decreased with women's educational levels. Moreover, There was a significant and small association between young women's literacy and the use of contraceptive methods ($x^2$ =102.3, df=2, p=.000), with Cramer's V= 0.171. In line, contraceptive behaviour nearly doubled from illiterate (10.1%) to literate women (22.9%). Women's use of contraceptive methods positively varied with literacy. Husband's level of education, was also significantly connected with women's use of contraceptive methods ($x^2$=93.6, df= 6, p=.000), with a small association at 0.117considering Cramer's V. Respondents whose husband had higher education were found more likely (31.2%) to use contraceptive methods when compared to those whose husband had other level of education for instance, no education (12.1%) and primary education (9.3%).

**Women's employment status, husband's occupation and family wealth index**

Regarding women's employment status, no significant association was found to the use of contraceptive methods ($x^2$ =2.96, df=2, p=.228). In opposite, a significant and small association between young women's contraceptive

behaviour and husband's occupation was found ($x^2$=56.0, df=10, p=.000); with Cramer's V=.090. Respondents whose husband were working in technical/professional/managerial and clerical profession were more likely (25.4%) to use contraceptive methods versus respondents whose husband were in agriculture Self-employed (13.5%). Family wealth index was also found to be significantly connected to the use of contraceptive methods ($x^2$=134.6, df= 8, p=.000). This relationship was observed small at 0.139 using Cramer's V. The prevalence of using contraceptive methods decreased continuously from women in richest wealth quintile (29.5%) to those in poorest wealth quintile (10.6%). Women's utilisation of contraceptive methods was linearly and positively fluctuated with standard of living of household.

**Exposure to media**

A significant and weak association was found between exposure to media and the use of contraceptive methods ($x^2$=39.1, df=2, p=.000), by Cramer's V= .106. Participants exposed to media were more likely (24%) to use contraceptive methods than their not exposed counterparts (16%). This indicates that women's use of contraceptive methods effectively varied with the degree of exposure to media.

**Religion and ethnicity**

A significant and small association was found between religion and young women's use of contraceptive methods ($x^2$=31.2, df=10, p=.001), with Cramer's V=.067. In line, Muslim young women were more likely (26.1%) to use contraceptive methods when compared to women in other religious confessions for instance, Animist/other &No Religion (8.3%). This insinuates that young women contraceptive behaviour varied a reasonably with religion. Similarly, ethnicity was revealed to be significantly associated to women's use of contraceptive methods ($x^2$=137.1, df=14, p=.000), at 0.14 using Cramer's V. Young women in Bakongo Nord & Sud group were more likely (34.8%) to use contraceptive methods than those in other ethnic groups for instance, Uele Lac

Albert (11.4%). Women's ethnicity sensibly affects the use of contraceptive methods.

## Contraceptive use by demographic characteristics

Table A.14 in appendices involves demographic variables.

## Women's age, marital status and Husband's /partner's age

There was a significant and small association between young women's current age and the use of contraceptive methods ($x^2$=23.7, df=2, p=.000), with Cramer's V= 0.082. Young adults aged 20-24 were more likely to use contraceptive methods (19.9%) than adolescents aged 15-19 (12.9%). It emerges that the use contraceptive methods increases with the age. Moreover, marital status was significantly associated to the use of contraceptive methods ($x^2$=45.2, df=4, p=.000), at by Cramer's V=0.081. Young women registered as living with a partner were more likely (22.3%) to use contraceptive methods than those registered as married women (14.9%). This indicates that the use of contraceptive methods was lower among married women when compared to other women. Considering husband's/partner's age, a significant and very small relationship with contraceptive methods use was found ($x^2$ =3.13, df=4, p=.003), with Cramer's V=.052. Women whose husband aged 25-34 were more likely (19.0%) to use contraceptive methods when than those whose husband aged 15-24 (13.3%).

## Number of living children, ideal number of children and family size

A significant and small association between women's number of living children and the use of contraceptive methods was found $\left(x^2 = 57.8, df = 4, p = .000\right)$, with Cramer's V=.091. Nevertheless, women with one to three living children were more likely (20.5%) to use contraceptive methods than those with no living children (8.4%). Young women's contraceptive behaviour increases with the number of living children. Similarly, women's ideal number of children was found to be significantly associated to the use of contraceptive methods

($x^2$=77.9, df= 6, p=.000).With Cramer's V=.106. The prevalence of current contraceptive methods use decreased continually from women who desired none children (25.0%) to those who desired more than ten (10.9%). With regards to the number of household members, there was a significant and weak relationship with young women's current use of contraceptive methods and ($x^2$=40.0, df=6, p=.000), by Cramer's V= 0.076. The prevalence of current contraceptive use was higher (20.4%) among women with four to five household members against no more than12.4% amongst women with one to three household members.

**Contraceptive use by family planning characteristics**

Table A.15 in appendices displays significant associations between whole family planning variables involved in current contraceptive methods use.

**Knowledge of ovulatory cycle and Knowledge of any method**

Knowledge of ovulatory cycle was found to be significantly and weakly associated to women's use of contraception methods ($x^2$=32.2, df=2, p=.000), at 0.096 using Cramer's V. Young women who have knowledge of their ovulatory cycle were more likely (22.1% ) to use contraceptive methods compared to those who have no knowledge of it (14.7%). Current use of contraceptive methods varied positively with women's knowledge of ovulatory cycle. Regarding the knowledge of any contraceptive method, a significant and small relationship with women's use of contraceptive methods was uncovered ($x^2$=88.6, df=2, p=.000), with Cramer's V= 0.11. Figure 4.6 demonstrates that respondents with knowledge of modern contraceptive methods were more likely (20.1%) to use contraceptive methods than those with knowledge of traditional and folkloric methods (10.4%).

**Figure 5.8 Percentage of current use of contraceptive methods by knowledge of methods**
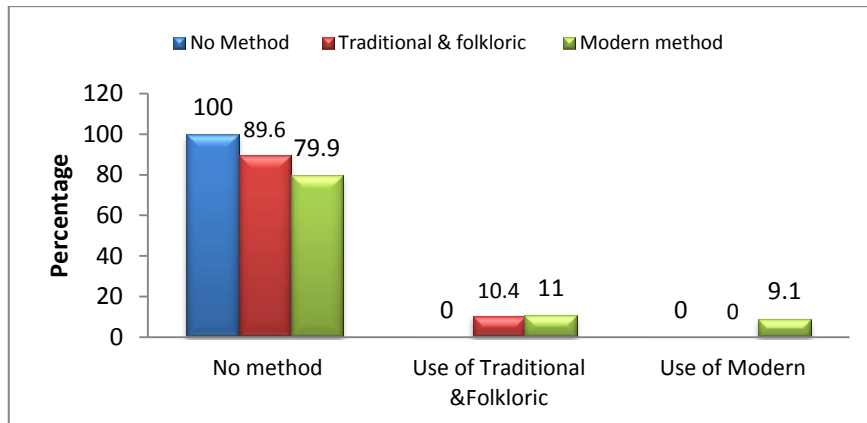


*Source: DRC-DHS-2013-2014; computed by author*

**Hear family planning from media and visit by family planning worker last 12 months**

There was a small significant association between young women's current use of contraceptive methods and awareness of planning from media ($x^2$=51.7, df=2, p=.000), by Cramer's V= .122. However, respondents who hear family from media were more likely (26.2%) to use contraceptive methods when compared to those who do not hear it from media (16.9%). This means that the use of contraceptive methods rationally changed with the family planning awareness from media. In the same way, the use of contraceptive methods was significantly associated to the visit by planning worker ($x^2$=22.9, df=2, p=.000), with by Cramer's V= .082. Women visited by planning worker in the last twelve months preceding the survey were more likely (29.8%) to use contraceptive methods compared to those not visited (17.2%).

**Ever used anything or tried to delay or avoid getting pregnant**

Women's current use of contraceptive method was very strongly associated to the fact that they have ever used anything or tried to delay or avoid getting pregnant ($x^2$ =1578.7, df=2, p=.000), with Cramer's V=0.673. Figure 5.6

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illuminates that amongst young women who ever tried to delay or avoid getting pregnant, 24.4% have currently used modern contraceptive methods, 30.8% used traditional and folkloric methods while, 44.8% never used contraceptive methods. This suggests that young women's current use of contraceptive methods effectively varied whether she ever tried to delay or avoid getting pregnant or not.

**Figure 5.9 Percentage of current use of contraceptive methods by ever tried to delay pregnancy**



| | No method | Traditional &Folkloric | Modern |
|---|---|---|---|
| No | 100 | 0 | 0 |
| Yes | 44.8 | 30.8 | 24.4 |
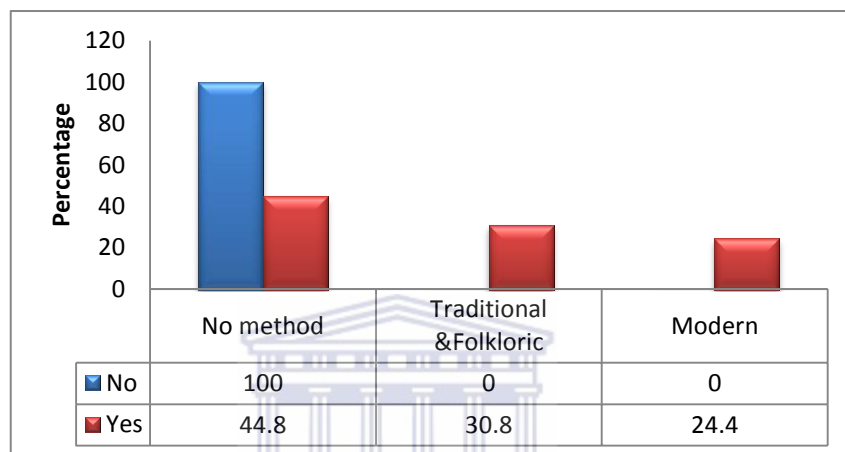
*Source: DRC-DHS-2013-2014; computed by author*

**Contraceptive use by enabling characteristics**

Results from Table A.16 indicate significant relationship between all enabling variables implicated in current contraceptive behaviour with the current contraceptive use.

**Health insurance**

There was a significant and weak relationship between current use of contraceptive methods and health insurance ($x^2$=33.5, df=2, p=.000), at .098 with Cramer's V. Participants with health insurance were more likely (39.6%) to use contraceptive methods when compared to those who had not it (17.3%). Women's contraceptive methods use was positively related to health insurance status.

**Province and place of residence**

A significant and small association was uncovered between the current use of contraceptive methods and province ($x^2$=204.3, df=20, p=.000), using Cramer's V= .171. Young women from Kinshasa province were most likely made use of contraceptive methods (42.9%) when compared to those from other provinces to be precise, Oriental and Kasai Oriental (10.6% and 10.4% respectively). Contraceptive use effectively changed with provinces. With regard to women's place of residence, there was a significant and moderate relationship with the use of contraceptive methods ($x^2$=97.8, df=2, p=.000), through Cramer's V= .168. Young women who lived in rural area were less likely (14.7%) to use contraceptive methods than their living in rural area counterparts (25.8%). This insinuates that women's use of contraceptive methods sensibly varied whether the women was living in urban or rural area.

**Contraceptive use by behavioural characteristics**
**Age at first cohabitation and age at first birth**

A significant and very weak association was found between women's current use of contraceptive methods and age at first cohabitation and ($x^2$=21.0, df=4, p=.002), with Cramer's V=.055. Table 5.7 indicates that the prevalence of respondents who currently used contraceptive methods declined constantly from women who entered into union at the age 18-24(20.2%) to those who commenced cohabitation by 15 years (14.2%). This elucidates that women's utilisation of contraceptive methods was positively associated to the age at first cohabitation the later entry into cohabitation, the more use of contraceptive methods. In Contrast, no significant relationship was found between the current use of contraceptive methods and the age at first birth and ($x^2$=8.8, df=4, p=.182). This indicates that women's use of contraceptive methods have not varied whether the women have started motherhood early or late.

**Table 5.7 Distribution of contraceptive use by behavioural characteristics**

| ` | No method | Traditional &Folkloric | Modern | Total | | | |
|---|---|---|---|---|---|---|---|
| **Behavioural characteristics** | N (%) | N (%) | N | N (%) | $X^2$ | p-value | Cramer's V |
| **Age at first cohabitation** | | | | | 21 | 0.002 | 0.055 |
| Mean(SD) | 16.7(2.4) | | | | | | |
| < 15 | 530(85.8) | 46(7.4) | 42(6.2) | 618(100) | | | |
| 15-17 | 1334(82.3) | 176(10.9) | 111(6.8) | 1621(100) | | | |
| 18-24 | 993(79.8) | 128(10.3) | 123(9.9) | 1244(100) | | | |
| Total | 2857(82.1) | 350(10.0) | 276(7.9) | 3483(100) | | | |
| **Age at first birth** | | | | | 8.8 | 0.182 | |
| Mean(SD) | 17.6(2.2) | | | | | | |
| < 15 | 213(86.0) | 19(7.8) | 13(5.3) | 245(100) | | | |
| 15-17 | 912(79.4) | 138(12.0) | 98(8.5) | 1148(100) | | | |
| 18-24 | 1193(79.1) | 175(11.6) | 140(9.2) | 1508(100) | | | |
| Total | 2318(79.9) | 332(11.4) | 251(8.7) | 2901(100) | | | |

*Source: DRC-DHS-2013-2014; computed by author*

## 5.3.5 Relationship between individual and behavioural characteristics and number of children ever born

The relationships between the number of ever born children and different variables of analyses are presented in the Tables A.17, A.18, A.19, A.20 and 5.8. Of the 14 variables initially defined as potential predictors of age at conjugal union, 13 were found to be significantly related to the number of children ever born.

**Number of children ever born by socio economic and cultural characteristics**

Table A.17 in appendices presents the relationships between socioeconomic and cultural variables and the number of children ever born.

**Women's education and literacy and husbands' education**

Mother's level of education was significantly linked with the number of children ever born ($x^2$=88.5, df=6, p=.000), with with Cramer's V= 0.09. The proportion of participants who confronted high fertility (three to seven childbirths) decreased from women with no education (25.6%) to those with higher education (9.1%). This indicates the negative association between women's educational level and number of children ever born. Similarly, a significant and small relationship was

found between women's number of children ever born and literacy ($x^2$=54.5, df=2, p=.000), by Cramer's V=.125. Illiterate participants were more likely to experience high fertility (23.7%) when compared to the literate women (14.0%). Women's number of children ever born positively varied with literacy. As far as husband's level of education is concerned, it was found a significantand small association with the number of children ever born ($x^2$=17.1, df=6, p=.009), through Cramer's V= .050. The percentage of respondents who experienced three to seven births decreased from women whose husband had no education (22.3%) to those whose husband had higher education (14.0%). The number of children ever born negatively varied with husband's educational levels.

**Women's employment status, husband's occupation and family wealth index**
The results from Table A.17 in appendices reveal that women's number of children ever born was significantly associated with women's employment status ($x^2$=35.6, df=2, p=.000), with Cramer's V at 0.10. Employed women were more likely to experience three to seven births (19.5%) than their unemployed counterparts (14.1%). Contrary, husband's occupation was not significantly associated to young women's number of children ever born ($x^2$=15.7, df=12, p=.20), although that number of children ever born varied from one husband's occupation to another. In the same vein, there was no significant association between family wealth index and women's number of births ($x^2$=6.9, df=8, p=.55), notwithstanding that women's number of birth was different between wealth quintiles.

**Exposure to media**
Considering exposure to media, a significant and very small relationship was found with young women's number of children ever born ($x^2$=16.7, df=2, p=.000), through Cramer's V=.069. Besides, young women not exposed to media were more likely to experience three to seven childbirths (19.2%) than their often exposed counterparts (13.2%).

**Number of children ever born by socio cultural characteristics**

**Religion and ethnicity**

There was not significant relationship between young women's number of children ever born and religion ($x^2$=6.8, df=10, p=.80), in spite that the number of children ever born varied from one religion to another. To the extent that ethnicity is concerned, a significant and small association with the women's number of children ever born was found ($x^2$=87.3, df=12, p=.000), by Cramer's V= 0.11. Young women in Basele-K, Man. & Kivu group have more likely to confront three to seven childbirths (22.7%) compared to other ethnic groups such as Bakongo Nord & Sud (6.6%). Women's number of children ever born sensibly changed with ethnicity.

**Number of children ever born by demographic characteristics**

**Current age and husband's age**

Mother's age was moderately related the number of children ever born ($x^2$= 377.3, df=2, p=.000), with Cramer's V= 0.33. Table A.18 in appendices indicates that young adult women were more likely to challenge (23.4%) higher fertility than their adolescent counterparts (2.9%). This suggests that women's number of children ever born intensely fluctuated with the age of women. Concerning the husband's age, there was a significant and weak relationship with the women's number of children ever born ($x^2$=178.7, df=4, p=.000), together with Cramer's V= 0.171. Women whose husband aged 35 and above were more likely (29.5%) to undergo high fertility compared to those whose husband aged 25-34 (21.0%) and 15-24 (7.2%). The number of children ever born was positively associated to women husbands' age.

**Marital status, number of other wives and ideal number of children**

Marital status was observed to be significant and very weakly linked to age at first sex ($x^2$=39.3, df=4, p=.000), with Cramer's V=.075. Table A.18 brings to light that married respondents were more likely to face high number of childbirths

(20.5%) when compared to those living with a partner and widowed, divorced or separated (14.3% and 12.6% respectively). Likewise, the number of other wives was found to be significantly associated to women's number of children ever born ($x^2$=16.9, df=2, p=.000), along with Cramer's V= .074. In line, young women in polygamous union wives were more likely (24.8%) to experience three to seven childbirths than those in monogamous union (17.3%). It emerges that respondent's number of children ever born a tad varied whether woman was experienced monogamous or polygamous union. As far as ideal women's number of children is concerned, a significant and very small association to the number of children ever born was found ($x^2$=59.3, df= 6, p=.000), through Cramer's V=.095. Table A.18 depicts that the higher proportion of women with three to seven children was ironically found among those who desired no children (36.8%), while the lower proportion was found among women who wanted one to five children (13.3%). This signifies women's number of birth in some measure varied with the preferred number of children.

**Number of children ever born by family planning characteristics**
**Knowledge of ovulatory cycle, knowledge of any method and hear family planning from media**

Table A.19 in appendices shows that there was no significant association between young women's number of children ever born and the knowledge of ovulatory cycle ($x^2$=2.7 df=2, p=.25), knowledge of any contraceptive method ($x^2$=7.6, df=2, p=.11) and hear family planning from media($x^2$=1.8, df=2, p=.41).

**Ever used anything or tried to delay or avoid getting pregnant**

Table A.19 portrays that There was significant and weak association between women's number of children ever born and the fact that women ever tried to delay or avoid getting pregnant or not ($x^2$=75.2, df=2, p=.000), by Cramer's V at 0.147. Young women who ever tried to delay or avoid getting pregnant were slightly more likely exposed to Experienced three to seven childbirths (19.3%) than those who never tried to delay pregnancy (16.9%). This suggests that woman's number

of children ever born was negatively associated to the fact that she tried to delay or avoid getting pregnant.

**Number of children ever born by enabling characteristics**

**Health insurance, province and type of place of residence**

Consistent with the Table A.20, a statistically significant and very weak relationship was found between young women's number of children ever born and health insurance ($x^2$=6.6, df=2, p=.037), by Cramer's V=.043. Women without health insurance were more likely to experience high number of births (17.7%) than to those with health insurance (16.7%). Similarly, Women's number of children ever born was found to be significantly related to province ($x^2 = 127.9, df = 20, p = .000$), with Cramer's V= 0.14. Women from Sud Kivu province were more likely to faced high fertility (32.0%) when compared to those from other provinces explicitly, Bandundu (11.2%) and Bas-Congo (7.1%). Women's number of children ever born was effectively changed with province. As far as type of place of residence is concerned, no significant association with women's number of children ever born was found ($x^2$= 4.8, df=2, p=.09).

**Number of children ever born by behavioural characteristics**

**Age at first sexual intercourse**

Regarding the age at first intercourse, a significant and small relationship were found with the number of children ever born($x^2 = 158.9, df = 4, p = .000$), with Cramer's V= .15. Furthermore, women who experienced early sexual intercourse (by16) were most likely (25.4%) to undergo high fertility than those who faced first sexual intercourse at the age 16-17 and 18-24 (13.0% and 6.6% respectively). Young women number of children ever born negatively varied with the age first sexual intercourse; the early sexual intercourse, the higher number of births.

**Age at first cohabitation**

Women's age at first cohabitation was found to be associated to the number of children ever born ($x^2$=310.6, df=4, p=.000), with Cramer's V=.21. Consistent with the Table 5.8, respondents who have entered into union in early adolescence

(by 15) were most likely (37.6% ) to experience high fertility when compared to those who entered into it in emerging adulthood (6.9%). This suggests that women's number of children ever born negatively varied with the age at first cohabitation; the early cohabitation, the higher number of childbirths.

**Age at first birth**

Women's age at first childbearing was revealed to be moderately associated to the total number of births $(x^2 = 303.7, \mathrm{df} = 4, \mathrm{p} = .000)$, through Cramer's V=0.32. Participants who entered into motherhood in early adolescence were most likely to face high fertility (58.0%) while those who entered in it at 20-24 were less likely (3.3%). This makes out that the number of children ever born experienced by women was negatively fluctuated with the age at first childbirth; the early first childbirth, the higher number of children ever born.

Table 5.8 Distribution of number of children ever born by behavioural characteristics

| ` <br> **Behavioural characteristics** | None <br> N (%) | 1to 2 <br> N (%) | 3 to 7 <br> N (%) | Total <br> N (%) | $X^2$ | p-value | Cramer's V |
|---|---|---|---|---|---|---|---|
| *Age at first sexual intercourse* | | | | | | | |
| Mean(SD) | 15.7(2.2) | | | | 158.9 | 0 | 0.15 |
| < 16 | 219(12.9) | 1044(61.7) | 429(25.4) | 1692(100) | | | |
| 16-17 | 203(18.8) | 736(68.2) | 140(13.0) | 1079(100) | | | |
| 18-24 | 161(22.7) | 501(70.7) | 47(6.6) | 710(100) | | | |
| Total | 583(16.7) | 2281(65.5) | 616(17.7) | 3481(100) | | | |
| *Age at first cohabitation* | | | | | 310.6 | 0 | 0.21 |
| Mean(SD) | 16.7(2.4) | | | | | | |
| < 15 | 41(6.6) | 344(55.8) | 232(37.6) | 617(100) | | | |
| 15-17 | 244(15.1) | 1079(66.6) | 297(18.3) | 1621(100) | | | |
| 18-24 | 297(23.9) | 860(69.2) | 86(6.9) | 1244(100) | | | |
| Total | 582(16.7) | 2283(65.6) | 615(17.7) | 3482(100) | | | |
| *Age at first birth* | | | | | 303.7 | 0 | 0.32 |
| Mean(SD) | 17.6(2.2) | | | | | | |
| < 15 | 0(0.0) | 102(42.0) | 141(58.0) | 244(100) | | | |
| 15-19 | 0(0.0) | 1646(78.3) | 457(21.7) | 2102(100) | | | |
| 20-24 | 0(0.0) | 535(96.7) | 18(3.3) | 553(100) | | | |
| Total | 0(0.0) | 2283(78.8) | 616(21.2) | 2899(100) | | | |

*Source: DRC-DHS-2013-2014; computed by author*

## 5.4 Maternal health care services utilisation results

Maternal health care services utilisation considered in this study are Antenatal care services (ANC) and Skilled birth assistance (SBA).

### 5.4.1 Relationship between and individual and behavioural characteristics Antenatal Care services utilization

This section points out the inequalities in young women's use of ANC services. The Tables A.21, A.22, A.23 and A.24 present the results of chi-square analyses. It comes to light that overall, respondents' average number of ANC visits was 4.1 together with nearly five out of ten young women (48.4%) who have received at least four ANC services, more than four out of ten (43.1%) have received one to three ANC services while, almost one out of ten(8.5%) have not received. Of the 14 variables initially defined as potential predictors of ANC, 13 were found to be significantly related to the age at first cohabitation.

**Antenatal care services by socio economic and cultural characteristics**

Table A.21 in appendices displays the relationship between ANC services utilisation and socioeconomic and cultural characteristics.

**Women's and husbands' education**

There was a statistically significant and small association between mother's educational and ANC use ($x^2$=106.3, df= 6, p=.000), at .137 using Cramer's V. The proportion of respondents who have received at least four ANC declined from women with higher education (56.8% each) to those with no education (36.8%). This indicates that women's use of ANC was positively associated to educational level; the higher educational level, the more use of ANC. Pertaining to husband's education, it was found a statistically significant and weak relationship with ANC use ($x^2$ =58.1, df= 8, p=.000), with Cramer's V=.102. The Percentage of participants who have received at least four ANC decreased from women whose husband had higher education (58.3%) to those whose husband had no education (34.3%). Women's use of ANC was positively related to husband's educational level; the higher educational level, the more use of ANC.

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**Women's employment, Husbands' occupation and family wealth index**

Concerning women's employment, a significant and very small association to the use of ANC was found ($x^2$ =11.3, df=2, p=.004), by Cramer's V=.063. Unemployed women were more likely to receive at least four ANC (51.7%) than their employed counterparts (46.9%). This denotes that women's use of ANC marginally varied with employment status. Likewise, husband's occupation was uncovered to be significantly related to the women's use of ANC services ($x^2$=11.3, df=12, p=.000), with a small relationship at .098 by Cramer's V. The proportion of women who have received at least four ANC decreased from women with husband in sales profession (58.5%) to women with husband in agriculture self-employed (44.3%). As far as Family Wealth Index is concerned, a significant and small association to women's ANC utilisation and ($x^2$ =98.0, df=8, p=.000), with Cramer's V= .132. the percentage of respondents who have used at least four ANC decreased linearly from women in richest wealth quintile (61.2%) to those in poorest wealth quintile (42.6%). This implies that ANC use positively varied with women's standard of living of household.

**Exposure to media**

A weak significant relationship was found with young women's ANC utilisation ($x^2$=43.3, df=2, p=.007), using Cramer's V=0.124. In line, 58.7 % of respondents exposed to media have received at least four ANC services, which decreased to 44.9% among those never exposed. This suggests that women's use of ANC positively fluctuated with the exposure to media.

**Religion and ethnicity**

There was a small significant relationship between religion and ANC use ($x^2$=58.9, df= 10, p=.000), by Cramer's V=.102. Muslim women scored higher (58.6%) in women who have received at least four ANC visits while Animist/Other religion women scored lower (28.1%). Women's use of ANC services effectively changed with religion. Concerning ethnicity, a small significant association was found to ANC services use ($x^2$ =100.6, df= 14,

p=.000), together with Cramer's V=.132. Cuvette Central group scored greater in respondents who have received at least four ANC (57.0%) versus Kwilu-Kwango group (43.0%). ANC utilisation differed with ethnicity.

**Antenatal care services by demographic characteristics**

The Tables A.22 shows the association between ANC services utilisation and demographic characteristics.

**Women's age and marital status**

Mother's age was not found to be significantly related to the use of ANC services ($x^2$=1.8, df= 2, p=.415). This implies that women's use of antenatal care services have not varied whether the woman was adolescent or young adult at the time of the survey. In contrast, a very weak association was found between marital status and ANC services utilisation ($x^2$=18.6, df= 4, p=.001), through Cramer's V=.057. The percentage of respondents who have received at least four ANC services to some extent decreased from women living with a partner (50.8%) to widowed, divorced or separated women (45.9%).

**Birth order and family size**

Women's birth order was found to be significantly associated to the use of ANC services ($x^2$=43.3, df= 4, p=.000), though this association was observed to be small at 0.086 using Cramer's V. Consitent, 54.9 % of respondents in first order birth category have visited at least four times the ANC services against 43.3% of those in four more birth order category. As expected, women' use of ANC services was negatively associated to birth order; the higher birth order, the lower ANC services use. With regard to the size of family, there was no significant association between women's ANC services utilisation and number of household members ($x^2$=11.1, df=6, p=.086), regardless that the percentage of ANC use varied between family size categories.

**Antenatal care services by enabling characteristics**

**Health insurance**

There was no significant association to young women's ANC services use ($x^2$=1.4df=2, p=.51), which indicates that the young women's number of ANC visits not varied whether the respondents had health insurance or not.

**Province and place of residence**

The results from Table A.23 indicate a significant and small association between province and the use of ANC services ($x^2$=150.6, df=20, p=.000), by Cramer's V= .16. The percentage of women who received at least four ANC was greater among young women from Kinshasa (73.7%) while the smaller percentage was found among young women form Maniema (36.1%). Women's use of ANC to some extent fluctuated with province. As far as place of residence is concerned, a significant and small relationship to women's ANC used was discovered ($x^2$=54.7, df=2, p=.000). Women from urban area scored higher in respondents who have received at least four ANC services (59.0%) when compared to those from rural area (44.1%). The women's use of ANC varied whether the respondents was living in rural or urban areas.

**Antenatal care services by behavioural characteristics**

Table A.24 depicts the relationship between ANC services utilisation and behavioural characteristics.

**Smoking status**

There was no statistically significant relationship with young women's ANC services use ($x^2$=2.3, df=2, p=.32), revealing that the young women's use of ANC not fluctuated whether the respondents had smoking or not.

**Age at first cohabitation and age at first birth**

There was a significant and small relationship between women's age at first cohabitation and the use of ANC services ($x^2$=9.6, df=4, p=.048), with Cramer's V=.04. The percentage of respondents who have used at least four ANC increased

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constantly from women who entered conjugal union by 15 (43.3%) to those who commenced it at 18-24 (50.0%). Women's utilisation of ANC services was positively associated to women's age at first cohabitation; the later entry into cohabitation, the more use of ANC services. Women's age at first childbearing was also showed to be weakly associated to the ANC services use ($x^2 = 18.8, df = 4, p = .003$), with Cramer's V= 0.05. The proportion of women who have received at least four ANC was low among women who entered into motherhood by 15 (38.9%) compared to 52.4% among those who experienced it at 20-24 years (52.4%). Women's utilisation of ANC was positively associated to age at first childbirth; the later entry into motherhood, the more use of ANC services.

## 5.4.2 Relationship between individual and behavioural characteristics and Skilled birth assistance

The current section illumines the inequities in adolescent and young adult women's SBA within the background characteristics concerned in this investigation. The Tables A.25, A.26, 5.9 and 5.10 exposed the associations between SBA use and a range of variables of investigates. The findings revealed that overall more than eight out of ten young women (84.1%) have received SBA at the last delivery, even as less than two out of ten (15.9 %) have not received.

**Skilled birth attendance by socio economic and cultural characteristics**

Table A.25 in appendices presents the disparities in SBA received during delivery among women within socioeconomic and cultural characteristics.

**Women's and husband's/partner's education**

To the extent that mother's education is considered, a small significant relationship was found with use of skilled assistance at delivery ($x^2= 84.4$, df=3, p=.000), through Cramer's V=.129. The percentage of women who have received SBA during delivery sensibly increased from 75.0% amongst no educated women to 92.3% amongst those with higher education. There was positive association between the level of mother's education and SBA; low education, low use of SBA. Husband's/partner's education as well was found to be significantly

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associated to women's use of SBA ($x^2$ = 80.7, df=4, p=.000), although this association was uncovered to be small at .169 using Cramer's V. Women whose husband had tertiary education were more likely (97.1%) to use SBA at delivery when compared to other women such as those whose husband/partners had primary education (75.1%). Women use SBA positively varied with husband's education.

**Women's employment status, husband's occupation and family wealth index**

There was a statistically significant relationship between women's use of SBA and women's employment status ($x^2$ = 40.5, df=1, p=.000), with Phi coefficient=.120 indicating the small strength of this relationship. Unemployed women were more likely to SBA (90.7%) than their employed counterparts (81.2%). Regarding husband's occupation, a significant association to women's utilisation of SBA at delivery was found ($x^2$ = 135.5, df=7, p=.000), with Cramer's V=.22 suggesting a moderate strength of this association. Women whose husband worked in services were more likely (94.9%) to be users of SBA than those whose husband were not working (75.1%). Similarly, a significant and moderate association between family wealth index and SBA utilisation was found ($x^2$ = 217, df=4, p=.000), by way of Cramer's V=.253. Respondents registered in wealth quintile richest were most likely (99.5%) to receive SBA compared to those registered in poorest wealth quintile (71.4%). There was a linear positive relationship between women's standard of living of household and SBA use; women's from richest households seek SBA more than those from poorest households.

**Exposure to media**

A significant and small association with the use of SBA was found ($x^2$ = 135.5, df=7, p=.000), with phi-coefficient =.129. Women exposed to media were more likely to use skilled professional assistance during delivery (92.3%) compared to their no exposed young women counterparts (81.4%).

**Religion and ethnicity**

As far as religion is concerned, a small relationship was uncovered with women's utilisation of SBA ($x^2$ =21.4, df=5, p=.001), through Cramer's V=.087. Furthermore, Muslim women were most likely to receive assistance from health professionals during delivery (89.5%) compared to other women for instance Animist/other &No Religion women who the received (64.0%). Women's utilisation of SBA varied from one religion to another. Furthermore, the use of professional skilled assistance at delivery was significantly associated with the ethnicity of young women ($x^2$= 112.8, df=5, p=.000), with Cramer's V=.200. Foreign/Non-Congolese and Bakongo Nord & Sud women were better users of SBA (100% and 98.1% respectively) against Ubangi - Itimbiri & Pygmy women (76.8%). Adolescent and young adult women's use of SBA fluctuated between ethnicity.

**Skilled birth attendance by demographic characteristics**

**Women's age and marital status**

Consistent with the Table A.26, no statistically significant association was found between young women's skilled assistance during delivery and current age ($x^2$=.004, df=1, p=.952), showing that the young women's use of professional assistance at delivery not changed whether the respondents were adolescents or young adults. However, a significant and small association was found between marital status and young women's skilled assistance use at delivery ($x^2$=29.4, df= 4, p=.000), with using Cramer's V= .102. Women recorded as living with a partner were more likely (89.6%) to seek skilled professional assistance at delivery compared to those registered as widowed/Divorced/Separated (84.5%) and married (81.3%). This illuminates that young women's use of SBA slightly varied with marital status.

**Birth order and family size**

Concerning women's birth order, no significant association was found to SBA use ($x^2$=29.4, df=4, p=.000), which implies no changes in use of skilled assistance at

delivery with women's birth order. Likewise, size of the family was not found to be significantly associated to young women use of skilled birth assistance during delivery ($x^2$= 3.5, df=7, p=.325), despite that women whose family had more than ten members scored higher (87.8%) in SBA use. Findings from Table A.26 highlight that the percentage of women who have used SBA during delivery increased with the size of the family. Women whose family had one to three members scored lower in use of SBA, which increased among those whose family had more than ten members (87.8%). Regardless of that, family size was not found to be significantly associated to young women use of skilled birth assistance during delivery ($x^2$= 3.5, df=7, p=.325).

**Skilled birth attendance by enabling characteristics**

Table 5.9 displays the change in SBA use within enabling characteristics.

**Health insurance**

Health insurance was found to be significantly associated to the use of SBA ($x^2$= 13.8, df=1, p=.000), though this association was detected to be weak at .070 using phi coefficient. Women covered by health insurance were better users (97.9%) of SBA during delivery compared to their no covered counterparts (95.4%).

**Province and type of place of residence**

With respect to provincial effects, a significant and moderate relationship was found with women's use of SBA = 179.6, df=10, p=.000), through Cramer's V=.253. Young women from Kinshasa were most likely (99.3%) to receive SBA when compared to those from other provinces for instance, Katanga (65.4%). This illustrates that women's use of SBA at delivery sensibly changed with provinces. There was also a significant and moderate association between place of residence and SBA utilisation ($x^2$= 117.6, df=1, p=.000), together with moderate at phi − coefficient equals to 0.204. Women from urban area were most likely (95.9%) to use SBA when compared to those from rural area (79.4%). This indicates that women's use of SBA during delivery well enough differed with place of residence.

**Table 5.9 Distribution of Skilled birth attendance by enabling characteristics**

|  | No | Yes | Total |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Enabling characteristics | N (%) | N (%) | N (%) | $X^2$ | p-value | Cramer's V |
| *Health Insurance* |  |  |  | 13.8 | 0 | 0.07 |
| No | 445(16.3) | 2278(83.7) | 2723(100) |  |  |  |
| Yes | 2(2.1) | 92(97.9) | 94(100) |  |  |  |
| Total | 447(15.9) | 2370(84.1) | 2817(100) |  |  |  |
| *Province* |  |  |  | 179.6 | 0 | 0.253 |
| Kinshasa | 1(0.73) | 136(99.3) | 137(100) |  |  |  |
| Bandundu | 62(14.0) | 380(86.0) | 442(100) |  |  |  |
| Bas-Congo | 3(3.0) | 98(97.0) | 101(100) |  |  |  |
| Equateur | 95(23.6) | 308(76.4) | 403(100) |  |  |  |
| Kasai-Occidental | 30(13.3) | 196(86.7) | 226(100) |  |  |  |
| Kasai-Oriental | 78(20.8) | 297(79.2) | 375(100) |  |  |  |
| Katanga | 103(34.6) | 195(65.4) | 298(100) |  |  |  |
| Maniema | 14(11.4) | 109(88.6) | 123(100) |  |  |  |
| Nord-Kivu | 19(10.4) | 163(89.6) | 182(100) |  |  |  |
| Orientale | 33(11.3) | 259(88.7) | 292(100) |  |  |  |
| Sud-Kivu | 8(3.4) | 229(96.6) | 237(100) |  |  |  |
| Total | 446(15.8) | 2370(84.2) | 2816(100) |  |  |  |
| *Type of place of residence* |  |  |  | 117.6 | 0 | 0.204 |
| Urban | 33(4.1) | 774(95.9) | 807(100) |  |  |  |
| Rural | 414(20.6) | 1595(79.4) | 2009(100) |  |  |  |
| Total | 447(15.9) | 2369(84.1) | 2816(100) |  |  |  |

*Source: DRC-DHS-2013-2014; computed by author*

## Skilled birth attendance by behavioural characteristics

### Smoking status

Regarding women's smoking status, a significant and very weak relationship with the use of skilled birth assistance was found ($x^2$=4.71, df=1, p=.046), with Cramer's V=.041. However, women registered as smokers were butter (97.4%) users of skilled birth assistance than those recorded as no smokers (83.9%). The use of SBA positively varied whether women's was smoking or not.

### Age at first cohabitation and age at first birth

As far as women's age at the first cohabitation is concerned, Table 5.10 indicates a small significant association to the use of SBA was uncovered ($x^2$=10.7, df=2, p=.002), with Cramer's V=.062. Young women who entered into cohabitation at 18-24 were most likely (86.6%) to use SBA compared those who started union by 15 and 15-17(85.3% and 82.0% respectively). This implies that the use of SBA positively fluctuated with women's age at entry into first conjugal union. Contrary, women's age at first childbearing was not found to be significantly

associated to SBA utilisation during delivery ($x^2$= 2.9, df=2, p=.243), revealing that women use of SBA not fluctuated with the age of entry into motherhood.

**Table 5.10 Distribution of Skilled birth attendance by behavioural characteristics**

| Behavioural characteristics | No N (%) | Yes N (%) | Total N (%) | $X^2$ | p-value | Phi & Cramer's V |
|---|---|---|---|---|---|---|
| *Smoking status* | | | | 4.71 | 0.046 | 0.041 |
| No | 443(16.1) | 2308(83.9) | 2751(100) | | | |
| Yes | 4(6.2) | 61(97.4) | 65(100) | | | |
| Total | 447(15.9) | 2369(84.1) | 2816(100) | | | |
| *Age at first cohabitation* | | | | 10.7 | 0.014 | 0.062 |
| < 15 | 79(14.7) | 457(85.3) | 536(100) | | | |
| 15-17 | 242(18.0) | 1100(82.0) | 1342(100) | | | |
| 18-24 | 126(13.4) | 812(86.6) | 938(100) | | | |
| Total | 447(15.9) | 2369(84.1) | 2816(100) | | | |
| *Age at first birth* | | | | 2.9 | 0.243 | |
| < 15 | 34(15.4) | 187(84.6) | 221(100) | | | |
| 15-19 | 336(16.4) | 1708(83.6) | 2044(100) | | | |
| 20 and + | 78(14.1) | 475(85.9) | 553(100) | | | |
| Total | 448(15.9) | 2370(84.1) | 2818(100) | | | |

*Source: DRC-DHS-2013-2014; computed by author*

## 5.5 Summary of bivariate analysis

Table 5.11 provides a summary of the results from bivariate analysis. All variables used in this study, and their associations to the outcomes are presented below.

## Table 5.11 Summary of bivariate analysis results: Pearson's Chi square $(x^2_{.95})$

| Independents variables | Age at first sex | Age at first cohabitation | Age at first birth | Use of contraceptive | Nb. of children ever born | ANC received | SBA received |
|---|---|---|---|---|---|---|---|
| **socio economic& cultural** | | | | | | | |
| Women's education | 52.7*** | 136.1*** | 124.9*** | 155.1*** | 88.5*** | 106.3*** | 84.4*** |
| Husband's education | - | - | 129.1*** | 93.6*** | 17.1** | 58.1*** | 80.7*** |
| Literacy | - | 52.4*** | - | 102.3*** | 54.5*** | - | - |
| Women's employment | - | 10.5* | 13.1*** | 2.96 | 35.6*** | 11.3** | 40.5*** |
| Husband's Occupation | - | - | - | 56.0*** | 15.7 | 39.1*** | 135.5*** |
| Family Wealth index | 28.8*** | 56.8*** | 49.3*** | 134.6*** | 6.9 | 98*** | 217*** |
| Exposure to medias | - | 17.3** | 20.9*** | 39.1*** | 16.7*** | 43.3*** | 45.8*** |
| Religion | 15.3 | 18.3 | 36.4 | 31.2*** | 6.8 | 58.9*** | 21.4** |
| Ethnicity | 110.0*** | 76.2*** | 89*** | 137.1*** | 87.3*** | 100.6*** | 112.8*** |
| **Demographic** | | | | | | | |
| Current age | 189.3*** | 372*** | 305.1*** | 23.7*** | 377.3*** | 1.8 | 0.004 |
| Marital Status | 27.8*** | 34.4*** | 19.14** | 45.2*** | 39.3*** | 18.6** | 29.4*** |
| Husband's age | - | - | 43.3*** | 16.3** | 178.7*** | - | - |
| Birth order | - | - | - | - | - | 43.3*** | 2.9 |
| Nb. of living children | - | - | - | 57.8*** | - | - | - |
| Ideal Nb. of children | - | - | - | 77.9*** | 59.3*** | - | - |
| Number of unions | - | 50.2*** | - | - | - | - | - |
| Number other wives | - | 16.2* | 14* | - | 16.9*** | - | - |
| Family size | - | - | - | 40.0*** | - | 11.1 | 3.5 |
| **Family planning** | | | | | | | |
| Knowledge of ovulatory cycle | - | - | 17.6** | 32.2*** | 2.7 | - | - |
| Knowledge of any method recoded | - | - | 44.6*** | 88.6*** | 7.6 | - | - |
| Hear FP from medias | - | - | - | 51.7*** | 1.8 | - | - |
| health worker Visits | - | - | - | 22.9*** | - | - | - |
| Ever tried to delay or avoid getting pregnant | - | - | 9.7* | 1578.7*** | 75.2*** | - | - |
| **Enabling** | | | | | | | |
| Health Insurance | - | - | - | 33.5*** | 6.6*** | 1.4 | 13.8*** |
| Province | 144.7*** | 103.6*** | 104.6*** | 204.3*** | 127.9*** | 150.6*** | 179.6*** |
| Place of residence | 20.2*** | 12.5** | 12.4* | 97.8*** | 4.9 | 54.7*** | 117.6*** |
| **Behavioural** | | | | | | | |
| Smoking Status | - | - | - | - | - | 2.3 | 4.7* |
| Age at first sex | - | 1803.8*** | 706.5*** | - | 158.9*** | - | - |
| Age at first cohab. | - | - | 1613.4*** | 21** | 310.6*** | 9.6* | 10.7* |
| Age at first birth | - | - | - | 8.8 | 303.7*** | 18.8** | 2.9 |

*Source: DRC-DHS-2013-2014; computed by author*

\*\*\*=p<0.001, \*\*=p< 0.01, \*=p<0.05 (\*\*\*, \*\* and \* indicated the level of significance at specific level)

# Chapter VI

## 6. BINARY LOGISTIC REGRESSION ANALYSIS: DETERMINANTS OF YOUTH REPRODUCTIVE HEALTH ISSUES IN DRC

The pertinent results from the previous chapter are used to serve as a bridge. Explicitly, the results arose from the bivariate analysis which enabled the researcher to fulfill the binary logistic regression in building relevant models on youth reproductive health in DRC.

### 6.1 Results of logistic regression analysis of fertility and fertility control

### 6.1.1 Early sexual intercourse: Model I

The risk factors for early sexual intercourse were ascertained using a logistic regression model. The model applied age at first sexual intercourse as the dependent variable, which is categorised in two groups by assigning the value of 0 for age at first sexual activity being 16 and above and the value of 1 for age being less than 16. The model, including all independent variables, was statistically significant, with a goodness-of-fit statistics ($X^2$= 301.422, df = 27, p<.001) implying that the model is proficient for differentiating young women who reported first sexual intercourse at the age of 16 years and above and those who faced it before reaching 16 years of age. In addition, the full model explained between 8.3% (Cox and Snell R square) and 11.1% (Nagelkerke R squared) of the variance in first sexual activity status, and correctly classified 62.2% of cases.

Table A.27 in the appendices presents the results of binary logistic regression analysis. All seven independent variables used in the model are significantly predictive of have faced early sexual intercourse explicitly, namely women's age, women's educational level, family wealth index, ethnicity, province, place of residence and marital status.

Evidence from Table A.27 brings to light that women's educational level is negatively associated with early sexual activity.

Women with no education, primary and secondary education are 8.9, 9.8 and 5.8 times (95% CI, 2.4 - 33.6; p< 0.005; 95% CI, 2.6 - 36.5; p< 0.005 and 95% CI, 1.6 - 21.5; p< 0.01 respectively) more likely to have early sexual intercourse than their higher educated counterparts. Likewise, women's current age is a negative predictor of early sexuality. Adolescent women (aged 15-19) are 2.0 times (95% CI, 1.7 – 2.4; p< 0.001) more likely to commence sexual activity before the age of 16 when compared to young adult women (aged 20-24). Women's province is found to be a determinant of early sexual activity. Adolescent and young adult women from Orientale and Maniema provinces are 2.3 and 2.2 times (95% CI, 1.3 – 4.2; p < 0.05 and 95% CI, 1.1 - 4.4; p< 0.01 respectively) more likely to experience early sexual intercourse compared to those from Kinshasa, the capital city. In turn, young women from the province of Kasai-Oriental are 0.5 times (95% CI, 0.3 – 0.9; p<0.05) less likely to initiate early sexual intercourse than those from Kinshasa.

Findings from Table A.27 show that ethnicity is a predictor of early sexuality. Young women who belong to the Cuvette central & Foreigners ethnic group are 1.9 times (95% CI, 1.1 – 3.4; p<0.05) more at risk of early sexuality compared to those who belong to the Bakongo Nord and Sud ethnic group. Family wealth index significantly and positively impacts on early age at first sexual intercourse. Respondents in wealth quintiles poorer and poorest are 0.55 and 0.66 times (95% CI, 0.39 – 0.78; p<0.005 and 95% CI, 0.47 – 0.95; p<0.05 respectively) less likely to face early sexuality compared to those in the richest quintile. However, marital status is uncovered, being a determinant of early sexuality. Widowed/divorced/separated youth women are 1.3 times (95% CI, 1.0 – 1.7; p < 0.05) more likely to initiate sexual intercourse at the early age compared to their married counterparts. To the extent that place of residence is concerned, women living in urban areas are 0.73 times (95% CI, 1.03 - 1.73; p< 0.05) less at risk of early sexuality compared to their counterparts living in rural areas.

**6.1.2 Early marriage: Model II**

Binary logistic regression analysis was performed to determine the risk factors of early marriage. In this model, age at first cohabitation (union) was used as a dependent variable. Moreover, age at first cohabitation was dichotomised by assessing the value of 0 for age at first marriage being 18 years and above, and the value of 1 for age being less than 18 years. As recommended, 18 years is considered as the legal age for marriage for females. The model, comprising all independent variables, was statistically significant, with a goodness-of-fit statistics ($X^2$= 1540.11, df = 32, p<.001) indicating that the model is able to make a distinction between young women who reported that they married at the age of 18 years and above and those who married before reaching 18 years of age. Furthermore, the full model explained between 39.6% (Cox and Snell R square) and 54.3% (Nagelkerke R squared) of the variance in cohabitation conditions, and correctly classified 82.9% of cases.

Table A.27 in the appendices presents the results based on the binary logistic regression analysis for early age at first cohabitation. Amongst 12 independent variables used in the model, 10 are significantly predictive of age at first cohabitation at 95% namely, age at first sexual activity, education, woman's current age, province, ethnicity, family wealth index, marital and employment status, number of other wives, number of unions. Other variables such as exposure to media and type of place of residence did not show any statistical evidence of significant influence at 95 %.

Age at first intercourse is the strongest positive factor related to the postponement of marriage. Table A.27 shows that age at first sexual intercourse strongly influences age at first cohabitation. Respondents who initiated sexual activity before reaching the age of 16 are 73.5 times (95% CI, 51.1 − 105.8; p< 0.001) more likely to experience early marriage than those who initiated it between the ages of 18 and 24. Moreover, respondents who had experienced first sexual intercourse at the age 16-17 are 42.3 times (95% CI, 29.4 − 60.8; p< 0.001) more

likely to get married before reaching the age of 18 compared to those who had initiated first sexual activity between the age 18and 24.

Evidence from Table A.27 reveals that education is a strong and positive significant predictor for the change in the age at first union. Respondents with no education are 14.1 times (95% CI, 3.1 - 63.2; p< 0.005) more likely to get married before reaching the age of age 18 than those with higher education. In turn, respondents with primary and secondary education are 10.7 and 8.6 times (95% CI, 2.4 – 46.8; p< 0.05and 95% CI, 2.0 – 37.3; p< 0.05 respectively) more likely to undergo early cohabitation than their higher educated counterparts. Similarly, women's current age also is a positive predictor of age at first cohabitation. Evidence from Table A.27 in the appendices highlights that adolescent women (aged 15-19) are 5.0 times (95% CI, 3.8 - 6.6; p< 0.001) more likely to commence conjugal union before the age of 18 than their young adult women (aged 20-24) counterparts.

With regard to provinces, Table A.27 shows a positive relationship between age at first cohabitation and respondent's province when compared to the respondents from Kinshasa. Respondents from Sud Kivu province are 2.7 times (95% CI, 1.1 – 6.5; p< 0.05) more likely to tie the knot before the age of 18 compared to those from Kinshasa. Early marriage is also very much affected by the Family's Wealth Index with regard to wellbeing. Participants registered in the poorer wealth quintile at the time of survey are 0.5 times (95% CI, 0.3 – 0.9; p< 0.05) less likely to face early cohabitation than those recorded in the richest wealth quintile. Similarly, participants registered in richer and poorest quintiles are 0.5 and 0.6 times (95% CI, 0.4 – 0.8; p< 0.01 and 95% CI, 0.3 – 1.0; p< 0.05 respectively) less likely to enter into the union of matrimony before the age of 18 than those registered in the richest quintile.

Furthermore, number of unions is a negative predictor of early first union. Respondents who experienced more than one union are 3.2 times (95% CI, 1.9 - 5.2; p< 0.001) more likely to marry before the age of 18 compared to those who had experienced one union. Ethnicity influences the frequency of early cohabitation and is quite acceptable in Congolese society($X^2$=18.18, df =6

p<0.01). Nevertheless, no significant variations were observed amongst different ethnic groups concerning the early age at first conjugal relationship when compared to the respondents from the Bakongo Nord & Sud group.

Marital and employment status were found to be predictors of early first cohabitation. Respondents registered as married at the time of the survey are 1.5 times (95% CI, 1.2 - 1.9; p< 0.001) more likely to challenge early marriage than those registered as living with a partner; on the other hand respondents who were not employed at the time of the survey are 0.75 times (95% CI, 0.60 – 0.94, p< 0.05) less likely to confront early cohabitation than their employed counterparts. Number of other wives shows a significant relationship with early age at first union. Women who are living in a monogamous union are 1.5 times (95% CI, 1.1 - 1.9; p< 0.05) more likely to wed by 18 years than those who are living in a polygamous system.

### 6.1.3 Early fertility: Model III

The risk factors for early fertility were identified using the logistic regression model. Age at first birth was employed as the dependent variable in this model, which is dichotomised by assigning the value of 0 for age being 20 and above and the value of 1 for age at first birth being less than 20; based on 20 years as the advocated age at first pregnancy. The model, involving all independent variables, was statistically significant, with a goodness-of-fit statistics ($X^2$= 1093.728, df = 42, p<.001) suggesting that the model is able to make a distinction between young women who reported first birth at the age of 20 years and above and those who gave birth before reaching 20 years of age. Moreover, the full model gave an explanation between 35.9% (Cox and Snell R square) and 57.1% (Nagelkerke R squared) of the variance in birth circumstances, and correctly classified 87.2% of cases.

Table A.28 in the appendices depicts the results based on binary logistic regression analysis for early age at first birth which reveals that respondents' early childbearing varies by different socio economic and cultural, demographic and behavioural characteristics. Amongst 17 independent variables used in the model,

only 10 were significantly predictive of early entry into motherhood to be precise, age at first cohabitation, provinces, age at first sexual intercourse, husband's age, women's education, ethnicity, husband's education, family wealth index, number of other wives and ever used anything or tried to delay or avoid getting pregnant.

Age at first cohabitation is a key predictor of early fertility. Respondents who got married in their early adolescence (by 15), and middle adolescence (15-17), are positively significant and are 38.3 and 20.03 times (95% CI, 16.60 - 88.15; p<0.001 and 95% CI, 13.55 - 29.61; p<0.001 respectively) more likely to experience early childbearing than those who got married in their emerging adulthood (18-24). Age at first sexual intercourse strongly determines early age at first birth. Table A.28 in the appendices suggests that young women who have engaged in early sexual activity (by 16) are positively significant and are 2.2 times (95% CI, 1.51 – 3.22; p<0.001) more likely to face early childbearing than those who initiated sexual activity in emerging adulthood. Province as well is a determinant of variation for age at first birth. Adolescent and young adult women from six out of ten provinces namely, Bas Congo, Kasai-Oriental, Kasai-Occidental, Equateur, Katanga and Bandundu are more likely to undergo early entry into motherhood compared to those from the province of Kinshasa. Young women from Bas Congo are 6.6 times (95% CI, 1.97 – 22.06; p<0.005) more likely to give birth before reaching the age of 20 than those from Kinshasa. In turn, young women from Kasai-Oriental, Kasai-Occidental, and Equateur provinces are 5.0, 4.9 and 4.7 times (95% CI, 1.81 – 13.73; p< 0.005; 95% CI, 1.66 – 14.23; p< 0.005 and 95% CI, 1.62 – 13.72; p< 0.005 respectively) more likely to challenge early motherhood compared to those from Kinshasa.

Evidence from Table A.28 shows that ethnicity influences young women's age at first birth ($X^2$= 15.00, df= 6, p<.05). Regardless of that, no significant variations between the Bakongo Nord & Sud group and other ethnic groups were found. In connection with fertility control, respondents who never used anything or tried to delay or avoid getting pregnant are negatively significant and are 0.5 times (95% CI, 0.39 – 0.72; p<0.001) less likely to face early childbearing than those who ever used anything or tried to delay or avoid getting pregnant. Family wealth

index significantly impacts early age at first birth. Respondents in the poorer quintile are negatively significant and are 0.3 times (95% CI, 0.19 − 0.83; p<0.05) less likely to confront early first birth compared to those in the richest quintile. Table A.28 reveals that women's education is a predictor for the change in the age at first childbearing($X^2$= 9.67, df= 3, p<.05). Despite this, no significant fluctuations between higher level and other educational level were found.

Concerning the relation between the husband's age and the woman's age at first birth, Table A.28 highlights that the age of the husband is a predictor of difference in starting childbearing. Respondents whose husbands are aged 35 and above are 2.0 times (95% CI, 1.09 - 3.56; p<0.005) more likely to undergo early childbearing than their counterparts whose husband are aged 15-24. Husband's education also is a significant predictor for the variation in age at first birth. Women whose husbands had primary and secondary education are 3.17 and 3.1times (95% CI, 1.65 − 6.12; p< 0.005 and 95% CI, 1.82 − 5.20; p< 0.001 respectively) more likely to challenge early entry into motherhood than those whose husband had tertiary education. Results from Table A.28 emphasise that number of other wives is a suggestive determinant of entry into motherhood. Women who had not shared husbands with other wives are 1.5 times (95% CI, 1.01 − 2.29; p<0.05) most likely to commence childbearing before 20 years of age when compared to those with one and more other wives.

### 6.1.4 Current use of contraceptive (fertility control): Model IV

As far as fertility control is concerned, binary logistic regression analysis was carried out to determine the significant correlation between the set of independent factors on the current use of contraceptive once the variables are taken together. Incorporating all predictors, the model was statistically significant, with a goodness-of-fit statistics ($X^2$= 1566.27, df= 57, p<.001) suggesting that the model is able to differentiate respondents who reported that they are currently using contraceptives and those who reported that they are not currently using them. Likewise, the model as a whole cleared up between 41.0% (Cox and Snell R square) and 68.1% (Nagelkerke R squared) of the variance in current use of contraceptives and correctly classified 89.1% of cases.

Table A.28 in the appendices illustrates the results of binary logistic regression analysis. Amongst 22 factors included in the model, only seven are significantly predictive of the current use of contraception to be precise, women's age, number of living children, women's literacy and husband's educational level, knowledge of any contraceptive method, provinces and age at first cohabitation.

Women's age is a negative and significant determinant of contraceptive use. Young adults women (20-24) are 0.60 times (95% CI, 0.39 - 0.92; p<0.001) less likely to use contraceptives compared to their adolescent (15-19) counterparts. Age at first cohabitation negatively affects the use of contraceptives. Participants who married in early adolescence (by 15) are 0.56 times (95% CI, 0.35 - 0.90; p<0.05) less likely to use contraceptives compared to those who wedded in emerging adulthood (18 -24). Number of living children is a positive predictor of the use of contraceptives. Respondents who have no living children are 0.24 times (95% CI, 0.09 - 0.63, p< 0.005) less likely to use a contraceptive method compared to those who have had four to six living children. The more the number of living children the higher the use of contraceptive, the less the number of living children, the lower the use of contraceptive.

Women's literacy is positively associated with the use of contraceptive. Illiterate women are 0.67 times (95% CI, 0.46 - 0.98; p< 0.05) less likely to use contraceptives compared to their literate counterparts. The lower the level of literacy, the lower the use of contraceptives. On the contrary, husband's educational level negatively influences the use of contraceptive. Women whose husband had primary educational level are 0.28 times (95% CI, 0.11 - 0.71; p< 0.01) less likely to use contraceptives compared to those whose husband had no education. Respondents' province significantly affects the use of contraception. Respondents from Equateur province are 0.4 times (95% CI, 0.16 - 0.96; p< 0.05) less likely to use contraceptives compared to those from Kinshasa. Knowledge of any contraceptive method is positively correlated to the use of contraceptive. Respondents who have knowledge of traditional and folkloric methods are 0.30 times (95% CI, 0.12 - 0.76; p< 0.05) less likely to use contraceptives compared to those who have knowledge of modern methods.

**6.1.5 Number of ever born children: Model V**

Binary logistic regression analysis was performed to evaluate the impact of a number of predictors on the likelihood that respondents would report a high number of children ever born. The model, including all predictors, was statistically significant, with a goodness-of-fit statistics ($X^2$= 751.69, df =38, p<.001) suggesting that the model is able to distinguish between respondents who reported at least three children ever born and those who have less than three. Moreover, the model as a whole explained between 25.9% (Cox and Snell R square) and 39.7% (Nagelkerke R squared) of the variance in number of ever born children status, and correctly classified 81.4% of cases.

Table A.28 in the appendices presents the results of binary logistic regression analysis. Amongst 16 independent variables used in the model, only seven are significantly predictive of number of ever born children specifically, woman's age at first birth, woman's and husband's age, provinces, woman's educational level, age at first cohabitation, and ideal number of children.

Age at first birth was found to be a very strong predictor of young women's total number of ever born children. Respondents who started childbearing in early adolescence (by 15) are 42.9 times (95% CI, 21.00 - 87.86; p<0.001) more likely to have at least three children ever born than those who start to give birth in their adulthood (20-24). Moreover, respondents who entered into motherhood in middle and late adolescence (15-19) are 6.5 times (95% CI, 3.79 -11.19; p<0.001) more likely to experience at least three births than those who entered motherhood in their young adulthood. Woman's current age is a strong, positive and significant predictor of the number of children ever born. Young adults women (20-24) are 19.0 times (95% CI, 11.39 - 31.61; p<0.001) more likely to have at least three children ever born compared to their adolescent women counterparts.
With regard to husband's age, a negative association with the number of births is uncovered. Women whose husbands are aged 15-24 are 0.40 times (95% CI, 0.25 - 0.63; p<0.001) less likely to face at least three births compared to those whose husbands are aged 35 and above.

Province negatively impacts women's total number of births when compared to those from Sud-Kivu. Young women from Bandundu and Equateur provinces are 0.18 and 0.21 times (95% CI, 0.07 - 0.47; p< 0.001 and 95% CI, 0.08 - 0.53; p< 0.005 respectively) less likely to have three and more children than those from Sud Kivu. Similarly, adolescents and young adult women from Maniema and Orientale provinces are 0.25 and 0.28 times (95% CI, 0.12 - 0.53; p< 0.001 and 95% CI, 0.12 - 0.66; p< 0.005 respectively) less likely to have three and more children compared to their Sud Kivu counterparts.

Age at first cohabitation is also a negative determinant of women's number of children ever born. Mothers who entered into conjugal union in early and middle adolescence are 3.2 and 1.7 times (95% CI, 2.01 - 5.07; p< 0.001 and 95% CI, 1.16 - 2.45; p< 0.01 respectively) more likely to face at least three births than those who started cohabitation in emerging adulthood. Women's educational level is negatively associated with the number of children ever born. Women with secondary education are 0.63 times (95% CI, 0.44 - 0.91; p< 0.05) less likely to have at least three children ever born when compared to those with no education. Ideal number of children is associated with the total number of ever born children ($X^2$= 6.24, df= 4, p<.05). However, no significant variations between categories were found.

## 6.2 Maternal Health Care Services utilization

### 6.2.1 Antenatal care services (ANC): Model VI

Considering ANC, binary logistic regression analysis was achieved to evaluate the impact of a number of independent variables on the likelihood that respondents would report having had at least four antenatal care visits as recommended by WHO. The full model was statistically significant, with a goodness-of-fit statistics ($X^2$= 250.47, df= 47, p<0.001) suggesting that the model is able to distinguish between respondents who reported having had at least four antenatal care visits and those who had less than four antenatal care visits during the last pregnancy. Moreover, the model as a whole explained between 8.6% (Cox and Snell R

square) and 11.5% (Nagelkerke R squared) of the variance in number of antenatal care visits, and correctly classified 61.9% of cases.

Table A.29 in the appendices displays the results of binary logistic regression analysis. Amongst 13 independent variables used in the model, eight are statistically significant predicting the number of antenatal care visits namely, women's educational level, ethnicity, religion, husband's/partner's occupation, exposure to the media, birth order, province and place of residence.

Results from Table A.29 in the appendices reveal that young women from all ten provinces are less likely to have had at least four visits than those who are from Kinshasa, the capital town. Respondents from Maniema and Sud Kivu are .05 and .08 times (95% CI, 0.02 - 0.12; p < 0.001 and 95% CI, 0.03 - 0.18; p< 0.001 respectively) less likely to have had at least four visits than those from Kinshasa. In turn, respondents from Equateur and Bas Congo are 0.38 and 0.42 times (95% CI, 0.20 - 0.74; p < 0.005 and 95% CI, 0.20 - 0.88; p< 0.05 respectively) less likely to have at least four visits than those who are from Kinshasa. When it comes to ethnicity, Basele-K-Man. & Kivu respondents are 5.8 times (95% CI, 2.38 - 14.31; p < 0.001) more likely to have had at least four visits than Bakongo Nord & Sud respondents.

Furthermore, Uele & Albert and Ubangi-Itimbiri and pygmy young women are 3.09 and 2.36 times (95% CI, 1.32 - 7.23; p < 0.05 and 95% CI, 1.13 - 4.96; p< 0.05 respectively) more likely to have had at least four visits than Bakongo Nord & Sud. The odds of antenatal care services utilisation increases with an increase in the women's level of education. Young women with no education and primary education are about 0.11 and 0.13 times (95% CI, 0.02 - 0.75; p < 0.05 and 95% CI, 0.02 - 0.84; p< 0.05 respectively) less likely to have had at least four visits than those with tertiary education.

In connection with husband's occupation, respondents whose husbands do not work and those whose husband work in the sales sector are 2.0 and 1.9 times (95% CI, 1.13 - 3.50; p < 0.05 and 95% CI, 1.02 - 2.16; p <0.005) more likely to have had at least four visits than their fellow counterparts who husbands work in the

skilled & unskilled manual sector. Moreover, respondents whose husbands work in agriculture self-employed and those whose husband work in technical/professional/man.& clerical sector are 1.6 and 1.5 times (95% CI, 1.1 - 2.19; p < 0.05 and 95% CI, 1.02 - 2.16; p < 0.05 respectively) more likely to have had at least four visits than their fellow counterparts whose husbands work in the skilled & unskilled manual sector. Women with birth order one are 1.4 times (95% CI, 1.21 - 1.70; p<0.001) more likely to visit at least four times the professional health care workers than those with birth order second and more. Respondents from the Kimbanguist faith are 0.47 times (95% CI, 0.27 - 0.81; p < 0.01) less likely to visit at least four times the professional health care workers than their Catholic faith counterparts. Considering exposure to media, women who are not exposed to media are 0.76 times (95% CI, 0.62 - 0.92; p < 0.01) less likely to visit at least four times the professional health care workers than those who are exposed to media. As far as place of residence is concerned, women living in urban areas are 1.3 times (95% CI, 1.03 - 1.73; p< 0.05) more likely to have had at least four visits than those who live in rural areas.

### 6.2.2 Skilled Birth Assistance (SBA): Model VII

With regard to SBA, binary logistic regression analysis was performed to assess the influence of a number of independent variables on the likelihood that respondents would report having received skilled birth assistance during last birth. The model as a whole was statistically significant, with a goodness-of-fit statistics ($X^2$= 586.51, df= 46, p<0.001) insinuating that the model is able to distinguish between respondents who reported have received SBA during last delivery and those who did not receive it. Likewise, the full model described between 19.0% (Cox and Snell R square) and 32.7% (Nagelkerke R squared) of the variance in the use of skilled birth assistance status, and correctly classified 84.9% of cases.

Referring to Table A.29 in the appendices, 11 out of 14 independent variables used in the model are significantly predictive of received skilled birth assistance during last delivery. These variables include FWI, husband's occupation, ethnicity, husband's educational level, women's employment status, marital

status, place of residence, smoking status, religion, age at first cohabitation and provinces.

FWI was found to be the strongest and positive predictor of receiving skilled birth assistance among young women. This suggests that the use of SBA increases with family standard of living. Respondents in poorest and poorer wealth quintiles are 0.026 and 0.032 times (95% CI, 0.005 - 0.136; $p< 0.001$ and 95% CI, 0.006 - 0.166; $p< 0.001$ respectively) less likely to receive skilled birth assistance compared to those in the richest wealth quintile. In the same way, respondents in middle and richer wealth quintiles are 0.039 and 0.100 times (95% CI, 0.008 - 0.201; $p< 0.001$ and 95% CI, 0.020 - 0.503; $p< 0.01$ respectively) less likely to receive skilled birth assistance than those in the richest wealth quintile. Husband's educational level and occupation are found to be significantly associated with the use of SBAs. Husband's educational level is a strong and positive determinant of SBA use. The odds of receiving SBA increase with the husband's level of education but not linearly.

Participants whose husband had no education and primary education are 0.18 and 0.17 times (95% CI, 0.06 - 0.54; $p< 0.005$ and 95% CI, 0.06 - 0.48; $p< 0.005$ respectively) less likely to receive skilled birth assistance during the last delivery compared to those whose husband had tertiary education. Likewise, participants whose husband had secondary education are 0.30 times (95% CI, 0.11 - 0.84; $p < 0.05$) less likely to receive skilled birth assistance than those whose husband had tertiary education.

In turn, husband's occupation is a significant factor of SBA. Young women whose husbands work in the services sector are 2.9 times (95% CI, 1.33 - 6.32; $p < 0.01$) more likely to receive skilled birth assistance than those whose husbands work in the skilled & unskilled manual sector. In contrast, young women whose husbands do not work are 0.29 times (95% CI, 0.12 - 0.71; $p < 0.01$) less likely to receive skilled birth assistance than those whose husbands work in the skilled & unskilled manual sector. Indeed, smoking and religion influence the use of SBA. Women who are not smoking are 0.34 times (95% CI, 0.12 - 0.99; $p < 0.05$) less likely to receive skilled birth

assistance compared to those who are smoking.

Considering religion, women recorded as Animist/Other and No religion have reduced odds of having SBA of 0.37 (95% CI, 0.17 - 0.80; p<0.05) compared to Catholic women. By the same token, women recorded as other Christians have reduced odds of having SBA of 0.62 (95% CI, 0.45 - 0.86; p<0.005) compared to their Catholic fellows. Women's place of residence, employment, marital status and age at first cohabitation are found to significantly affect the likelihood of .receiving SBA. Respondents living in urban areas are 1.8 times (95% CI, 1.11 - 2.85; p < 0.05) more likely to use professional skilled birth assistance compared to those who live in rural areas. Moreover, employed respondents are 1.7 times (95% CI, 1.24 - 2.29; p < 0.005) more likely to receive skilled birth assistance compared to their unemployed counterparts. In line with this, women living with partners are 1.5 times (95% CI, 1.08 - 2.04; p < 0.05) more likely to receive skilled birth assistance compared to those who are married.

However, respondents who married in middle adolescence (15-17) are 0.71 times (95% CI, 0.52 - 0.98; p<0.05) less likely to receive skilled birth assistance than those who started cohabiting in their early adolescence (less than 15). Women's province and ethnicity are uncovered to be significant determinants of receiving skilled birth assistance ($X^2$= 60.81, df =10, p<0.001 and $X^2$=27.23, df =6, p<0.001 respectively). In spite of this, no significant variations were observed between provinces and ethnic groups.

# Chapter VII

## 7. DISCUSSION

This chapter provides a discussion of descriptive and multivariate analysis results related to young women's fertility issues and maternal health care services utilisation found in the present study.

### 7.1 Determinants of fertility issues

This section assesses the determinants of young women's risk of early sexuality, early cohabitation and early childbirth. The current use of contraceptive methods and high fertility are ascertained.

### 7.1.1 Early sexual activity

Women's early sexual intercourse marks the beginning of exposure to poor reproductive health outcomes. Overall, the average age at first sexual activity was 15.7, along with nearly half of young women who confronted early sexuality (by 16) while eight tenths were sexually active before reaching the age of 18. Based on the binary logistic analysis results, all the independent variables used in the model are significant predictors of early sexual activity, to be precise age of the women, educational level of the women, family wealth index, ethnicity, province, place of residence, and marital status. The most relevant predictors are discussed further down.

**Age of the women**

An evaluation of women's age reveals that nearly three quarters of the participants were young adults (20-24) whilst only one quarter were adolescents (15-19). On average, adolescent women have initiated sexual activity at an earlier age (14.9) than young adult women (16.0). Moreover, the majority of adolescents have experienced early first sexual intercourse compared to less than half of

young adults. The finding from the multivariate analysis highlights that adolescent women are 1.8 times more at risk of early sexuality than their young adult counterparts.

The results from the current study indicate that young women's risk of early sexual activity decreases with an increase in age; the younger the woman, the higher the risk of early sexual activity. This confirms the results of other studies (Stephenson *et al.*, 2014; Tenkorang & Tyndale, 2008). In a study on community factors influencing early age at first sex among adolescents in Burkina Faso, Ghana, Malawi and Uganda, Stephenson *et al.* (2014) found that older adolescents were less likely to report early sex in all countries but Ghana. One of the possible reasons might be the fact that young girls generally face sexual pressures from older males. However, the propensity to give in to these sexual pressures may be affected by their youth and inexperience. There is a need for formal sex education before first sexual initiation, given that receiving formal sex education before first sex protects the youth from engaging in sexual intercourse at an early age (Muller *et al.*, 2008).

**Educational level of the women**

To the extent that women's education is concerned, the univariate analysis shows that some adolescents and young adults are likely to remain uneducated. Furthermore, women with primary education were observed to initiate first sexual activity earlier (15.3 years) than those with tertiary education (17.0 years). Likewise, more than half of youthful women with primary education initiated sexual activity before reaching the age of 16 compared to those few who have a tertiary education. The results of the study show that women with no education (OR=2.4), primary (OR=2.6) and secondary (OR=1.6) education are more likely to face early sexuality than those with tertiary education. The risk of early sexual intercourse decreases with a higher educational level, indicating that education is a protective factor of early sexuality. These results support previous studies which found an association between early sexual debut and educational level (DHS, 2014; Lloyd, 2006; Martin, 1995; Stephenson *et al.*, 2014; UNFPA, 2007a). A study in four African countries revealed that females with secondary education in

Malawi and Uganda were less likely to report early sex while this effect was not apparent for females in Burkina Faso or Ghana (Stephenson *et al.*, 2014).

**Ethnicity**

With regard to ethnicity, the preponderant ethnic groups are Kasai, Katanga, Tanganika & Lunda (28.1%) and Basele-K, Man. & Kivu (20.0%) while the Bakongo Nord and Sud ethnic group represents only 5.2%. Moreover, Cuvette central & Foreigners young women experienced first sexual intercourse at an early age (14.8) compared to women from other ethnic group for instance Kasai-Katanga / Tanganika & Lunda (16.2). Subsequently, the majority of Cuvette central & Foreigners young women faced early sexual activity compared to less than half of the women from the Kasai-Katanga/Tanganika & Lunda ethnic groups. The finding indicates that Cuvette central women are 1.9 times more likely to face early sexuality than Bakongo Nord and Sud women. Hence, woman's ethnicity sensibly influences the age at first sexual intercourse, which confirms previous studies (Ayiga & Rampagane 2013; Stephenson *et al.*, 2014). This may be explained by the fact in DRC, like in other African countries, there is a cultural heterogeneity in sexuality, which categorises ethnic groups into two classes (Romaniuk, 1967; Rwengé & Kamdem, 2002). One is an ethnic group for whom sexuality before marriage is tolerated and, in the other, this practice is strictly prohibited. The Cuvette central ethnic group tolerates premarital sexuality, and virginity does not matter, unlike in the Bakongo Nord and Sud group where the young woman is required to preserve her virginity until marriage.

**7.1.2 Early cohabitation/ marriage**

The associated risk factors of early cohabitation among youth women are examined. The results of the study have highlighted 10 factors that significantly predicted young women's risk of early cohabitation, namely age at first intercourse, education, women's current age, provinces, family wealth index, number of unions, ethnicity, marital and employment status and number of other wives. In contrast, exposure to media and the type of place of residence are not

significant. The most of important of these factors are discussed in more detail below.

**Age at first sexual activity**

In the present study, the average age at first sexual activity is 15.7, about half of respondents reported early sexual activity and the majority (79.6%) initiated sexual activity by 18. Moreover, the greater part of respondents who initiated early sexual activity faced early cohabitation compared to very few of those who initiated sex at the age 18-24; indicating that early sexual activity possibly leads to early cohabitation. The multivariate analysis found that respondents who faced early sexual activity (OR=73.5) and those who experienced it at 16-17 (OR= 42.3) are more at risk of early marriage than those who initiated at the age 18-24. This finding supports Ayiga & Rampagane's (2013) result that age at first sexual activity is a determinant of age at first marriage. In fact, the respondents' average age at sexual initiation is lower than what was reported by DRC-DHS (2014) at the national level (16.8). One possible explanation might be the young age of the respondents, given that there is an increased sexuality among youths the world over (Boonstra, 2011). Programme planners are encouraged to separate a set of interventions and support related to youth sexual activity. Therefore, youths who are already sexually active may develop the knowledge, skills, and motivation necessary to practise safer sexual behaviours. Combining age-appropriate sexual health information with activities to help develop communication and negotiation skills, can help young people who are not already sexually active to delay the onset of sexual activity (Goldman, 2011; Koyama *et al.*, 2009). Moreover, numerous girls in early and middle adolescence are coerced into sexual activity. Hence, there is a need for alternative education and skills-building strategies that differ from those developed for adolescents who freely engage in sexual activity (Goldman, 2011; Sedlock, 2000).

**Women's education**

An evaluation of the women's education reveals that the majority of women with no education and few of those with tertiary education engaged in early

cohabitation. Multivariate analysis indicates that women with no education (OR=14.1), primary and secondary education (OR=10.7 and OR=8.6 respectively) have a higher risk of early union than their higher educated counterparts. An attempt was done to assess the influence of education on early cohabitation; the findings indicate that the lower the education level, the higher the risk of early marriage. This finding confirms earlier research which showed a strong association between women's education and age at first marriage (Ayiga & Rampagane, 2013; Grant & Hallman, 2008; Nasrin & Rahman, 2012; Palamuleni, 2011; Romaniuk, 2011). This could be explained by the past two decades of rebellions and armed conflicts. Indeed, in an after conflict country such as DRC, households ironically fund approximately 80 to 90 per cent of educational spending (UNHCR, 2012), regardless of generalised unemployment and pauperisation. Given that education lets girls imagine and plan their own futures as noted by Martin (1995), policy makers are stimulated to implement article 43 of the current Congolese constitution which states that primary education is free and compulsory in the Democratic Republic of the Congo (Article 43 of the 2005 Congolese Constitution, 2006), in order to deal with this dramatic reality.

**Woman's age**

At the bivariate level of analysis, it appears that a greater number of adolescents have experienced early cohabitation compared to more than half of young adults. Multivariate analysis shows adolescent women are 5.0 times more likely to experience early cohabitation than their young adult women counterparts. In the vein of Palamuleni (2011), this study found women's current age as a risk predictor of early marriage. A possible explanation could be the observance of the "code de la famille" which maintains that the legal age of marriage is 15 for women and 18 for men (DRC, "Code de la famille", 1987). The DRC Government has refreshed its execution of the 2006 sexual violence law that criminalises child marriages in the country and considers 18 as the legal age of marriage for women (DRC Constitution, 2006).

### 7.1.3 Early childbirth

An attempt to identify the factors explaining early fertility amongst young women indicates that 10 out of 17 independent variables used were significantly predictive of the risk of early entry into motherhood, including age at first cohabitation, provinces, age at first sexual intercourse, husband's age, women's education, ethnicity, husband's education, family wealth index, number of other wives and ever used anything or tried to delay or avoid getting pregnant.

The most significant of these determinants are debated in more detail underneath.

### Age at first cohabitation

Descriptive analysis indicates that the average age at first cohabitation was 16.7 years, whereas the majority of respondents have experienced early cohabitation and few entered into union in early adolescence (by 15). Furthermore, the vast majority of young women who faced cohabitation in early adolescence experienced early motherhood against half of those who confronted cohabitation in emerging adulthood (18-24). The multivariate analysis reveals that respondents who married in their early adolescence (OR=38.3) and middle (OR=20.0) adolescence are more at risk of early childbearing than those who married in their emerging adulthood. The findings indicate that early cohabitation leads to early pregnancy and childbearing, several previous studies suggested the same (ICRW, 2012; Choe *et al*., 2001; UNFPA, 2012; WHO, 2011b). One possible reason might be cultural. Indeed, girls' social value is firmly rooted in their capacity for reproduction (Hindin & Fatusi, 2009; Najafi, 2011; Rossier, 2007; Presler-Marshall & Jones, 2012); women's main role is to give children to their husband's family (Rossier, 2007). Child marriage and rapid conception are therefore encouraged. In this context, marriage and pregnancy are "socially accepted, found identity, are sources of status, and reaffirm entry into adulthood" (Goicolea, 2009). A number of adolescent girls having internalised powerful socio-cultural values, and consider marriage as the only alternative which could secure their future. There is an urgent need to change societal attitudes towards early marriage and motherhood. Young girls need to have better options than early marriage, such as pursuing education and work skills as the impact of early marriage has

shown to have considerable impact on the livelihood and health of girls and their children (Mathur *et al.*, 2003; Raj, 2009; Save the Children, 2004). Therefore, preparing youth with the essential abilities and knowledge to make responsible decisions about sex may help to postpone marriage and delay childbirth beyond their adolescence. This may lead to preservation of health.

**Province**

Univariate analysis indicates that the highest proportion of respondents lived in Bandundu followed by Equateur while Bas Congo has the smallest number. Bivariate analysis shows that the majority of young women from Equateur endured early motherhood, which decreased amongst those from Kinshasa. Findings from multivariate analysis point out that young women from the provinces of Bas Congo (OR=6.6), Kasai-Oriental (OR=5.0), Kasai-Occidental (OR=4.9), and Equateur (OR=4.7) are more likely to face early motherhood than those from Kinshasa. Young women from six out of ten provinces are more likely to confront early childbearing compared to those from the province of Kinshasa. Many other researchers also validate the impact of the women's region on age at first childbearing (DRC-DHS, 2014). The noted variation by province might perhaps be a result of differences in the fertility behaviour across regions. In fact, urbanisation brings a range of hindrances for having large families. One is through exposure to a lifestyle that stimulates alternatives to childbirth (Romaniuk, 2011). Dwellers from big cities like Kinshasa face material and mental realities for instance, poverty and the unfulfilled desires of different types. This makes it difficult for a number of people to achieve their aspirations to have a family. This caused postponement in the age of first marriage and childbearing and aggravated marital instability. On the other hand, the majority of provinces have very different socio-demographic dynamics compared to the big cities such as Kinshasa. They are embedded in their ethnic and rural surroundings and can derive social and economic benefit from their setting (Romaniuk, 2011).

**Family Wealth Index (FWI)**

Concerning family wealth index, descriptive analysis shows that more than two tenths of respondents are in the poorest wealth quintile whereas one tenth is in the richest wealth quintile. Indeed, the highest proportion of participants who experienced early motherhood was observed amongst women in the poorest quintile, which was much lower amongst those in the richest quintile. Results from binary logistic analysis show that poorer respondents are 60% less likely to be at risk of early motherhood when compared to their richest counterparts. This is contrary to the descriptive result, suggesting that woman's current household living standard increases with the risk of early childbirth; the poorer the woman, the less the risk of early childbearing. However, it is surprising that the higher household living standard amongst young women is associated with higher odds of early childbirth. This finding differs with the results from other studies which indicated that the household living standard of young women decreases with an increase of early childbearing risk (Kara & Maharaj, 2015; Poumbou, 2008). An explanation could be the impact of cultural and tradition norms which may shape their reproductive behaviour.

**7.1.4 Current use of contraceptive methods**

In most developing countries, family planning plays an important role in fertility transitions. Univariate analysis shows that less than one tenth of respondents indicated that they use modern methods (7.8%), only one tenth of participants reported that they use traditional or folkloric methods (10.0%) while, nearly eight tenths stated that they do not use contraceptive methods (82.1%). In accordance with the multivariate findings, seven out of 22 variables included in the model are significantly predictive of the current use of contraception, namely women's age, number of living children, women's literacy and husband's educational level, knowledge of any contraceptive method, provinces and age at first cohabitation. The most relevant of predictors are discussed below.

**Number of living children**

An assessment of women's number of living children reveals that the average number of living children was 1.4 per young woman; the majority had one to three living children while very few had four to six. Nevertheless, women with one to three living children were more likely to use contraceptive methods than those with no living children. Multivariate analysis highlights that young women who had no living children are 76% less likely to use contraceptive methods compared to those who had four to six living children. Thus, the lower the number of living children, the lower the use of contraceptives. This finding reinforces results from previous studies. In a study of contraceptive use among women in Malawi for instance, Palamuleni (2013) suggested that the use of contraceptive increases with the number of living children. This could be explained by the fact that motherhood is often simply seen as what girls are "for"; their social value is firmly rooted in their capacity for reproduction (Hindin & Fatusi, 2009; Najafi, 2011). There is therefore no need for contraceptives for young women who do not have children. On the other hand, young women with more than four children are not required to prove their capacity for producing children and have an increasing need to stop or space childbearing, which may explain an increased prevalence of utilisation of contraceptive methods. There is a need for more efforts to change societal attitudes with regard to women's inferior status and unequal gender relations.

**Women's literacy**

Univariate analysis shows that half the respondents can read a whole sentence while nearly four tenths cannot read at all. Bivariate analysis reveals that contraceptive use nearly doubled from illiterate to literate women. Findings from multivariate analysis indicate that illiterate women are 33% less likely to use contraceptive methods compared to their literate counterparts. Our findings are consistent with studies conducted in other countries and confirm the importance of women's educational level (Ayiga & Rampagane, 2013; Lloyd, 2006; Palamuleni, 2011) in the use of contraceptive methods. The current study found that women's likelihood of using contraceptives increases with literacy. One of the possible

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reasons might be the fact that literate young women are likely to have a better knowledge of contraceptive methods and be more willing and able to use them effectively as suggested by some authors (Fuchs & Lutz, 2011; Malarcher, 2010; Romaniuk, 2011). This shows that improving the level of education may be one effective strategy for stimulating contraceptive use in DRC.

**Husband's/partner's educational level**

Regarding the educational level of husbands/partners, the bivariate analysis results show that women whose husbands had higher education were more likely to use contraceptive methods (31.2%) when compared to those whose husband had a different level of education for instance, no education (12.1%) and primary education (9.3%). Findings from the multivariate analysis reveals that women whose husband had primary education are 72% less likely to use any contraceptive method compared to those whose husband had no education. This indicates that the husband's level of education negatively impacts women's use of contraceptive methods, which contrasts with the results from a number of previous studies (Khan *et al.*, 2012; Kulaba, 2011). An explanation could be the influence of tradition. To increase the use of contraceptive methods amongst husbands, religious and traditional leaders are recommended to organise programmes and meetings which may encourage these household heads to internalise this reality in their daily life.

**7.1.5 High fertility**

Findings from multivariate analysis reveal that seven out of 16 independent variables used in the model are significantly predictive of high fertility, explicitly, woman's age at first birth, woman's and husband's age, provinces, woman' educational level, age at first cohabitation, and ideal number of children.

**Age at first birth**

An assessment of women's age at first birth highlights that participants who experienced motherhood in early adolescence were most likely to face high fertility, while those who experienced first birth at the age 20-24 were less exposed. Findings point out that women who challenged childbearing in early

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adolescence (OR=42.9) and those who faced it in middle and late adolescence (OR=6.5) were more at risk of high fertility than those who challenged motherhood in their young adulthood. This study reveals that early childbearing exposes young women to a high number of children ever born, which supports numerous other scholars who have shown that early pregnancy is a powerful predictor of high fertility (Casterline & Lazarus, 2010). One possible reason might be the fact that, girls who experienced early childbirth habitually have undergone early cohabitation and internalised positive attitudes towards multiple births in order to show their reproductive capacity and secure their union. Reducing the rate of early childbirth and promoting adequate birth spacing contribute to lower women's fertility. Lower fertility, in turn, is associated with better health status of children (WHO, 2011b).

**Age of the husband**

Indeed, the higher proportion of respondents who faced high fertility was found amongst women whose husband was aged 35 and above, whereas the lower fertility rate was amongst those whose husband was aged 15-24. Findings reveal that women whose husbands aged 15-24 are 60% less likely at risk of high fertility compared to those whose husbands were aged 35 and above. Similar to Izubara & Ezeh (2010), number of children ever born increases with the age of the husband. This could be driven by the fact that the majority of societies in DRC are predominantly patriarchal and characterised by patrilineal kinship organisation. In this context, young wives are married to men who are substantially older than them (Izubara & Ezeh, 2010) and unions in which the husband is older by ten or more years  are relatively frequent as documented by a number of authors (Das *et al.*, 2011; UNICEF, 2001 cited in Mathur *et al.*, 2003). This age gap, however, boosts the power that men have over their wives. Moreover, the strong pronatal views tend to be stronger among men than among women, and the husbands' real or perceived opposition to family planning may prevent wives who want to delay or stop childbearing, from using contraceptives (Ibisomi, 2014).

**Age of the women**

With respect to woman's current age, the bivariate analysis indicates that young adult women aged 20-24 are more likely to challenge higher fertility than their adolescent counterparts. Results from the multivariate analysis show that young adult women have a 19.0 times higher risk of high fertility compared to their female adolescent counterparts. Therefore, the older the woman, the greater the risk of high fertility as found in previous studies (Dixon-Mueller, 2008; Robey *et al.*, 1992 cited in Palamuleni, 2013).

## 7.2 Determinants of maternal health care services utilization

The current section deals with the determinants of antenatal care (ANC) services and skilled birth assistance (SBA) utilisation.

### 7.2.1 Antenatal care services (ANC) utilisation

An assessment of determinants of ANC utilisation highlights that eight out of 13 independent variables used in the model significantly predict the number of antenatal care visits, for instance, women's educational level, ethnicity, religion, husband's/partner's occupation, exposure to the media, birth order, province and place of residence. The most pertinent determinants are discussed below.

**Province**

The result of bivariate analysis indicates that more than seven and less than six tenths of young women from Kinshasa and Equateur provinces (respectively) reported having received at least four ANCs compared to less than four tenths of those from Maniema. Results from binary logistic regression analysis reveals that young women from Maniema, Equateur and Bas Congo provinces are 95%, 62% and 58% (respectively) less likely to have had at least four visits than those from Kinshasa; exposing the contrast in MHCS utilisation between provinces. In the same vein, Rai *et al.* (2012) have reported regional disparities in health-seeking behaviour concerning maternal and child healthcare utilisation in Nigeria. Findings show that respondents from all ten provinces are less likely to have had at least four visits than those from Kinshasa, the capital town. These disparities in

the utilisation of ANC could possibly due to differences in availability and accessibility of maternal health care facilities, on the one hand, and the persistence of inequitable distribution of qualified personnel health on the other hand. Indeed, facilities and health professionals are disproportionately distributed in favour of Kinshasa, the capital city (MS, 2010) making them more available and accessible to women from Kinshasa. The study recommends that the government of DRC should balance the distribution of health facilities and qualified personnel amongst provinces.

**Women's educational level**

As far as women's educational level is concerned, nearly six tenths of respondents with secondary and higher education have received at least four ANC against less than four tenths of those with no education. Findings reveal that adolescent and young adult women with no education and primary education are 89% and 87% (respectively) less likely to have had at least four visits compared to their counterparts with tertiary education. Several previous studies have revealed maternal education as a strong and positive determinant of maternal health care services utilisation (Liu *et al*, 2014; Mahapatro, 2012; Munsur *et al*., 2010; Rai *et al.*, 2012; Singh *et al.*, 2012). Likewise, the study found the odds of antenatal care services utilisation increase with the women's level of education. One of the possible reasons might be the fact that educated mothers are considered to have a greater awareness of the existence of maternal healthcare services and may benefit from using such services as noted by Bhattacherjee *et al.* (2013). Another explanation could be that educated women may be more empowered which will boost their decision-making power and ability to make independent decisions on their health leading to more extensive modern healthcare utilisation (Gabrysch & Campbell, 2009). Educated mothers are considered to have a greater awareness of the existence of maternal healthcare services and benefited in using such services.

**Ethnicity**

Regarding ethnicity, results show that the preponderant ethnic groups are Kasai, Katanga, Tanganika and Lunda (28.1%) and Basele-K, Man. & Kivu (20.0%)

while the Bakongo Nord and Sud ethnic group represents only 5.2%. Moreover, about six tenths of women from the Cuvette Central group have received at least four ANC versus more than four tenths of those from the Kwilu-Kwango group. Similar to other scholars (Celik & Hotchkiss, 2000; Liu *et al.*, 2014), the utilisation of ANC services varied by ethnicity. Basele-K-Man. & Kivu (OR=5.8), Uele and Albert (OR=3.1) and Ubangi-Itimbiri and pygmy (OR=2.4) young women are more likely to have had at least four visits than their Bakongo Nord and Sud young women counterparts. This is an expected result given that DRC is a multicultural country shaped by more than 260 ethnic groups with different health consultation behaviour.

### 7.2.2 Use of skilled birth assistance (SBA)

With regard to SBA, referring to the binary logistic analysis results, 11 out of 14 independent variables used in the model are found to be significant determinants of having received skilled birth assistance during last delivery. These variables include family wealth index, husband's educational level, husband's occupation, women's employment, women's marital status, place of residence, smoking status, religion, ethnicity, provinces and age at first cohabitation.

**Family Wealth Index**

Whether wealth is a determinant or not for SBA was given some consideration in the study.

The results from the current research reveal that almost all respondents registered in the richest wealth quintile (99.5%) receive skilled birth assistance compared to seven tenths of those registered in the poorest wealth quintile (71.4%). Findings show that respondents in the poorest (97.4%), middle (96.0%), and richer (90.0%) wealth quintiles are less likely to receive skilled birth assistance compared to those registered in the richest wealth quintile. As expected, this study found that the use of SBA increases with the family's standard of living, suggesting that the wealth status of a woman is significantly associated with SBA utilisation, which confirms the results of other studies (Koenig *et al.*, 2007; Rai *et al.*, 2012; Simkhada *et al.*, 2008). Various possible reasons might explain this finding. Since

health insurance is quasi absent in DRC, like in several Sub-Saharan African countries, access to health services depends on various out-of-pocket payments as mentioned by Adamu (2011). Given that the majority (59.2%) of the population in the DRC live on less than $1 per day (World Health Statistics, 2013), it is not surprising that wealth is a determinant of SBA utilisation. Therefore, an urgent improvement of the socio-economic conditions of life amongst the Congolese and the promotion of women's empowerment are urgently needed in DRC.

**Husband's educational level**

With regard to husband's educational level, descriptive analysis illustrates that the majority have secondary education while a few have no education and higher education. Furthermore, almost all of the women whose husband/partner has higher education have received skilled birth assistance versus three quarters of those whose husband/partner have primary education. Results from multivariate analysis indicate that young women whose husband had no education (82%) and primary education (83%) are less likely to receive skilled birth assistance during the last delivery compared to those whose husband had tertiary education. In the present study, it is revealed that the odds of receiving SBA increase     with the husband's level of education. This finding corroborates with earlier research which showed a strong association between husband's education and women's use of SBAs (Bhattacherjee *et al.,* 2013; Pallikadavath *et al*., 2004; Rai *et al.*, 2012). This could be driven by the fact that in many families, men play the dominant role in decision-making. Education of the husband therefore plays a significant role in influencing women's participation in various decisions within the household. Subsequently, having an educated husband may increase the promotion of pregnancy-related health-seeking behaviour as emphasised by some scholars.

**Type of place of residence**

As far as the type of place of residence is concerned, the majority of respondents resided in rural areas whereas few lived in urban areas. In addition, all women from urban areas received skilled birth assistance when compared to eight tenths

of those from rural areas. The finding reveals that respondents living in the urban areas are 1.8 times more likely to use professional skilled birth assistance compared to those who are living in rural areas, indicating that women's use of skilled professional assistance during delivery well enough differed with place of residence. Literature also confirms that women's place of residence significantly affects the receiving of SBAs with a higher proportion of users in urban areas (Bhattacherjee *et al.*, 2013; Rahaman *et al*., 1982 cited in Chakraborty *et al.*, 2003; Gertler, *et al*., 1993 cited in Say and Raine, 2007). A number of reasons might explain this finding. Perhaps the fact that there are generally more services available in urban areas, means that people who live there have easier access than in rural areas. A second possibility could be the lack of accessibility in rural areas (transportation and/or consideration of the cost of transportation). Finally the low quality of services and expectation of poor behaviour from health staff may be mitigating reasons. Investigations conducted in African countries and Bangladesh revealed that rural women give birth at home in the absence of skilled care (Dhakal *et al.,* 2011; Ronsmans *et al.*, 2003; Simkhada *et al.*, 2008). Hence, there is a need to enhance the availability, accessibility and quality of maternal health care services in rural areas.
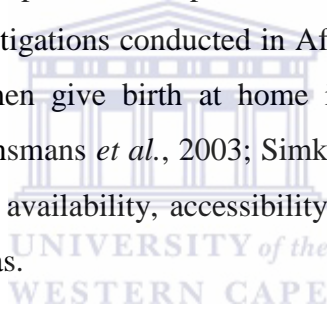
# Chapter VIII

## 8. SUMMARY AND CONCLUSIONS

This study aimed to ascertain information on youth reproductive health, thereby improving the state of knowledge of the factors explaining youth fertility behaviour issues and MHCS utilisation in DRC. This knowledge will then inform decision makers of key elements to be taken into account to improve or implement development policies and programmes designed for the youth. This chapter reports on the outcomes of the study and recommendations.

This study generated some interesting findings. It is therefore important to outline these findings putting in mind the research questions. The following paragraphs will focus on answers the results provided to each research question. This is necessary in order to formulate some recommendations.

The first research question of this study was: "What are the reproductive health issues among young women?" This question attempted to discover the reproductive health problems that challenged young women. Consistent with the findings of the study, young women in DRC experienced early sexual activity, early cohabitation (marriage), early childbirth, low use of contraceptive methods and high fertility. On the other hand, it was observed that there is insufficient utilisation of ANC services and a substantial use of SBAs.

Considering the second research question: "What are the factors affecting fertility issues among adolescents and young adult women?"- This question intended to find the background and behavioural factors that exposed young women to fertility problems. The multivariate analyses have revealed the predictors of fertility issues among DR Congolese young women.

Regarding first sexual activity, it emerges that the explanatory factors of early sexual initiation are current age of the women, women's educational level,

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province, family wealth index, ethnicity, place of residence and marital status. Adolescent females are subjected to sexual and cultural pressures. They are naïve and ignorant. The tradition in some ethnic groups encourages premarital sexual activity. On first conjugal union, it emerged that early entry into cohabitation is significantly determined by age at first sexual intercourse, education, woman's current age, province, ethnicity, family wealth index, marital status and employment status, number of other wives and number of unions. Worldwide, adolescents challenge increased sexual activity. On the other hand, primary education is not free in DRC and the "code la famille" maintains the legal age for marriage at 15 for women. Pertaining to early fertility, it appears that the predictors of early childbirth are age at first cohabitation, province, age at first sexual intercourse, husband's age, women's education, ethnicity, husband's education, family wealth index, number of other wives and ever used anything or tried to delay or avoid getting pregnant. The gender role of women and the powerful role of marriage as an institution are deeply rooted in DRC society, particularly in rural areas. With respect to youth contraceptive behaviour, it arises that young women's predictors of contraceptive methods are women's age, number of living children, women's literacy and husband's educational level, knowledge of any contraceptive method, province and age at first cohabitation. Women living in rural areas struggle to access contraceptive methods meanwhile, those who are illiterate lack knowledge of it. Educated husbands in turn do not encourage the use of contraceptives. Young women with no living children do not use contraceptive methods given that they need to prove their capacity for reproduction. Finally, concerning high fertility, woman's age at first birth, woman's and husband's age, province, woman's educational level, age at first cohabitation, and ideal number of children, are the significant determinants. Patrilineal and pro-natal systems which predominate in DRC encourage marriage and motherhood in childhood. Husbands or partners are commonly ten or more years older.

The last research question was: "What are possible factors that either inhibit or promote the utilisation of reproductive health services by young women?" The

purpose of this question was to determine the factors which significantly hinder or stimulate the utilisation of reproductive health services, specifically MHCS, amongst young women in DRC. The multivariate analyses have revealed the following results: To the extent that ANC is concerned, adolescent and young adult's utilisation of ANC services is significantly predicted by women's educational level, ethnicity, religion, husband's/partner's occupation, exposure to the media, birth order, province and place of residence. Persistent disparities in availability and accessibility of maternal health care facilities, as well the unbalanced allocations of qualified health personnel, impede the use of maternal care services. Educated women are more aware of maternal healthcare services and more empowered which leads to extended reproductive health care utilisation. Finally, regarding SBA use, family wealth index, husband's educational level, husband's occupation, ethnicity, women's employment status, marital status, place of residence, smoking status, religion, age at first cohabitation and province are explanatory factors in DRC. Access to health services is subject to a number of payments while a substantial number of DRC's population live in general poverty. The expectation of poor behaviour from health staff reduces the use of SBAs.

This study revealed that young women in DRC challenged a number of fertility and maternal health care services utilisation problems. In conclusion, this study highlighted that fertility behaviour and maternal health care services utilisation among DR Congolese youth are determined both by relevant background characteristics (socioeconomic, sociocultural, demographic and enabling), and behavioural characteristics, as mentioned above. Further qualitative research on these factors is needed to better understand how these factors may affect fertility behaviour and the decision to seek maternal health care services.

**Recommendations**

This study granted worthy results which could be useful to researchers in the field. It can also contribute to a better orientation of projects and programs related to reproductive health. Hence, it seems valuable to formulate some recommendations

from the findings whose implementation would equip young women to have responsible and safer sex and / or motherhood. Also improve their utilisation of maternal health care services.

DRC's Government authorities, policy makers, program managers, planners and program providers have to:
Introduce a programme that promotes formal sex education before the first sexual initiation.

Extend primary education from six to eight years and implement universal primary education, which should be free and compulsory in DRC.
Enforce the law that criminalises child marriages in the country, given the link of early marriage to poor reproductive health and social outcomes.

Promote adolescent friendly reproductive health services, which should be accessible, confidential and without prejudice, and which provide comprehensive information in plain language, supported by informational materials.

Facilitate the emergence of programmes that educate youth about the usefulness of contraceptive methods.

Promote the completion of at least four ANC visits amongst pregnant women and deliveries assisted by qualified healthcare personnel as recommended by WHO.
Promote women's financial and psychological empowerment which implies the improvement of their employment status, financial means and decision making power in relation to their reproductive health choice.
Establish a special program that provides training or assistance to young couples in reproductive health issues and risk factors.
Integrate husbands/partners in different programs related to women's reproductive health.

This study represents one of the first of its kind in DRC that examines reproductive health issues extensively from the first sexual intercourse to the use of maternal health care services. Moreover, through this study, we now have an

improved understanding of factors affecting some of most important reproductive health issues among young women in DRC.

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# APPENDICES

## A.1 Uniivariate analysis of socio-economic, demographic and behavioural characteristics

### Table A.1 Distribution of socio economic characteristics (Education)

| Background Characteristics | Number (%) |
|---|---|
| **Highest Educational Level** | |
| No education | 496(14.2) |
| Primary | 1415(40.6) |
| Secondary | 1548(44.5) |
| Higher | 23(0.7) |
| Total | 3482(100) |
| **Husband/partner's educatinal level** | |
| No education | 215(6.2) |
| Primary | 645(18.6) |
| Secondary | 2323(66.9) |
| Higher | 222(6.4) |
| Don't know | 69(2.0) |
| Total | 3474(100) |
| **Women literacy** | |
| Cannot read at all | 1343(38.6) |
| Able to read only parts of sentence | 375(10.8) |
| Able to read whole sentence | 1759(50.6) |
| Total | 3477(100) |

*Source:    DRC-DHS-2013-2014; computed by author*

### Table A.2 Distribution of socioeconomic characteristics

| Background Characteristics | Number (%) |
|---|---|
| **Women's employment status** | |
| Not working | 1121(32.3) |
| Currently working | 2353(67.7) |
| Total | 3474(100) |
| **Husband/partner's occupation** | |
| Not working | 103(3.0) |
| Professional/technical/managerial | 428(12.3) |
| Clerical | 25(0.7) |
| Sales | 435(12.5) |
| Agricultural - self employed | 1389(40.0) |
| Agricultural - employee | 246(7.1) |
| Services | 485(14.0) |
| Skilled manual | 207(6.0) |
| Unskilled manual | 60(1.7) |
| Army | 95(2.7) |
| Total | 3473(100) |

*Source:    DRC-DHS-2013-2014; computed by author*

### Table A.3 Distribution of socio cultural characteristics

| Background Characteristics | Number (%) |
|---|---|
| **Ethnicity** | |
| Bakongo Nord & Sud | 181(5.2) |
| Bas-Kasai et Kwilu-Kwango | 568(16.3) |
| Cuvette central | 300(8.6) |
| Ubangi / Itimbiri&Pygmy | 451(13.0) |
| Uele Lac Albert | 289(8.3) |
| Basele-K , Man. &Kivu | 695(20.0) |
| Kasai, Katanga, Tanganika&Lunda | 976(28.1) |
| Foreign/Non-Congolese | 17(0.5) |
| Total | 3477(100) |
| **Religion** | |
| Catholic | 965(27.8) |
| Protestant | 1027(29.6) |
| Kimbanguiste | 90(2.6) |
| Other christians | 1280(36.9) |
| Muslim | 45(1.3) |
| Animist/Other& No Religion | 61(1.8) |
| Total | 3468(100) |

*Source:    DRC-DHS-2013-2014; computed by author*

**Table A.4 Distribution of demographic characteristics**

| Demographic characteristics | Number (%) |
|---|---|
| *Marital Status* | |
| Married | 2003(57.5) |
| Living with partner | 1091(31.3) |
| widowed/Divorced/Separated | 388(11.1) |
| Total | 3482(100) |
| *Age of husband's* | |
| Mean(SD) | 27.8(6.13) |
| 15-24 | 805(26.3) |
| 25-34 | 1918(62.6) |
| 35 and above | 339(11.1) |
| Total | 3062(100) |
| *Number of children ever born* | |
| Mean(SD) | 1.5(1.12) |
| None | 582(16.7) |
| 1 to 2 | 2284(65.6) |
| 3 to 7 | 616(17.7) |
| Total | 3482(100) |
| *Number of living children* | |
| Mean(SD) | 1.4(1.04) |
| None | 681(19.6) |
| 1 to 3 | 2692(77.3) |
| 4 to 6 | 108(3.1) |
| Total | 3482(100) |
| *Birth order* | |
| Mean(SD) | 1.9(0.96) |
| First order | 1291(44.5) |
| Second or third order | 1421(49.0) |
| Four or more | 188(6.5) |
| Total | 2900(100) |
| *Number of unions* | |
| once | 3271(94.1) |
| More than once | 206(5.9) |
| Total | 3477(100) |
| *Number of other wives* | |
| No other wives | 2594(83.9) |
| One and plus | 440(14.2) |
| Don't know | 59(1.9) |
| Total | 3093(100) |

*Source: DRC-DHS-2013-2014; computed by author*

**Table A.5 Distribution of family planning characteristics**

| Family planning characteristics | Number (%) |
|---|---|
| *Knowledge of ovulatory cycle* | |
| No | 1941(55.8) |
| Yes | 1537(44.2) |
| Total | 3478(100) |
| *Knowledge of any method* | |
| No methods | 311(8.9) |
| Traditional& folkloric | 125(3.6) |
| Modern | 3045(87.5) |
| Total | 3481(100) |
| *Ever used anything to delay or avoid pregnancy* | |
| No | 2348(67.4) |
| Yes | 1134(32.6) |
| Total | 3482(100) |
| *Visited by family planning worker last 12 months* | |
| No | 3265(93.8) |
| Yes | 215(6.2) |
| Total | 3480(100) |
| *Hear family planning from medias* | |
| No | 3103(89.2) |
| Yes | 375(10.8) |
| Total | 3478(100) |

*Source: DRC-DHS-2013-2014; computed by author*

## Table A.6 Distribution of enabling characteristics

| Enabling characteristics | Number (%) |
|---|---|
| *Insurance Coverage* | |
| No | 3380(5.5) |
| Yes | 101(5.5) |
| *Provinces* | |
| Kinshasa | 175(5.0) |
| Bandundu | 538(15.4) |
| Bas-Congo | 112(3.2) |
| Equateur | 528(15.2) |
| Kasai- Occidental | 265(7.6) |
| Kasai-Oriental | 445(12.8) |
| Katanga | 347(10.0) |
| Maniema | 169(4.9) |
| Nord-Kivu | 243(7.0) |
| Orientale | 388(11.1) |
| Sud-Kivu | 272(7.8) |
| *Place of residence* | |
| Urban | 1021(29.3) |
| Rural | 2461(70.7) |
| Total | 3482(100) |

*Source: DRC-DHS-2013-2014; computed by author*

## Table A.7 Distribution of behavioural characteristics by age

| Behavioural characteristics | 15-19 N(%) | 20-24 N(%) | Total N (%) |
|---|---|---|---|
| *Age at the first sex* | | | |
| Mean(SD) | 14.9(1.8) | 16.0(2.3) | 15.7(2.2) |
| <16 | 591(60.9) | 1101(43.9) | 1692(48.6) |
| 16-17 | 325(33.5) | 754(30) | 1079(31) |
| 18 -24 | 54(26.6) | 655(26.1) | 709(20.4) |
| Total | 970(100) | 2510(100) | 3480(100) |
| *Age at the first cohabitation* | | | |
| Mean(SD) | | | |
| <15 | 247(25.5) | 370(14.7) | 617(17.7) |
| 15-17 | 613(63.1) | 1008(40.2) | 1621(46.6) |
| 18-24 | 111(11.4) | 1132(45.1) | 1243(35.7) |
| Total | 971(100) | 2510(100) | 3481(100) |
| *Age at the first birth* | | | |
| Mean(SD) | | | |
| <15 | 92(14.1) | 152(6.8) | 244(8.4) |
| 15-19 | 560(85.9) | 1542(68.6) | 2102(72.5) |
| 20-24 | 0 | 553(24.6) | 553(19.1) |
| Total | 652(100) | 2247(100) | 2899(100) |
| *Contraceptive use* | | | |
| No method | 846(87.1) | 2011(80.1) | 2857(82.1) |
| Traditonal &Folkloric | 68(7) | 281(11.2) | 349(10) |
| Modern | 57(5.9) | 219(8.7) | 276(7.9) |
| Total | 971(100) | 2511(100) | 3482(100) |
| *Smoking status* | | | |
| No | 940(96.8) | 2458(97.9) | 3398(97.6) |
| Yes | 31(3.2) | 52(2.1) | 83(2.4) |
| Total | 971(100) | 2510(100) | 3481(100) |

*Source: DRC-DHS-2013-2014; computed by author*

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## A.2 Bivariate analysis: Factors affecting youth reproductive health

**Table A.8 Distribution of the age at first sex by background characteristics**

| Background Characteristics | <16 N (%) | 16-17 N (%) | 18-24 N (%) | Total N (%) | Mean | X² | p-value | Cramer'sV |
|---|---|---|---|---|---|---|---|---|
| **_Socio economic_** | | | | | | | | |
| **_Highest educational level_** | | | | | | 52.7 | 0 | 0.09 |
| No education | 252(50.8) | 153(30.8) | 91(18.4) | 496 (100) | 15.5 | | | |
| Primary | 768(54.3) | 399(28.2) | 247(17.5) | 1414 (100) | 15.4 | | | |
| Secondary | 669(43.2) | 513(33.2) | 365(23.6) | 1547(100) | 16 | | | |
| Tertiary | 3(13.0) | 14(60.9) | 6(26.1) | 23 (100) | 17 | | | |
| **Total** | 1692(48.6) | 1079(31.0) | 709(20.4) | 3480 (100) | | | | |
| **_Family Wealth Index_** | | | | | | | | |
| Poorest | 436(53.4) | 248(30.4) | 133(16.2) | 817(100) | 15.4 | 28.8 | 0 | 0.06 |
| Poorer | 353(45.2) | 251(32.1) | 178(22.8) | 782(100) | 15.9 | | | |
| Middle | 376(51.6) | 208(28.6) | 144(19.8) | 727(100) | 15.6 | | | |
| Richer | 326(48.2) | 217(32.0) | 134(19.8) | 677(100) | 15.7 | | | |
| Richest | 200(41.9) | 156(32.7) | 121(25.4) | 477(100) | 16.2 | | | |
| **Total** | 1691(48.6) | 1080(31.0) | 709(20.4) | 3480(100) | 15.7 | | | |
| **_Socio cultural_** | | | | | | | | |
| **_Religion_** | | | | | | 15.3 | 0.13 | |
| Catholic | 473(49.0) | 310(32.1) | 182(18.9) | 965(100) | 15.6 | | | |
| Protestant | 528(51.4) | 286(27.8) | 213(20.8) | 1027(100) | 15.7 | | | |
| Kimbanguists | 44(49.4) | 32(36.0) | 13(14.6) | 89(100) | 15.5 | | | |
| Other Christians | 583(45.6) | 414(32.4) | 282(22.0) | 1279(100) | 15.9 | | | |
| Muslim | 24(52.2) | 14(30.4) | 8(17.4) | 46(100) | 15.6 | | | |
| Animist/No religion&Other | 30(50.0) | 21(35.0) | 9(15.0) | 60(100) | 15.3 | | | |
| Total | 1682(48.5) | 1077(31.1) | 707(20.4) | 3466(100) | | | | |
| **_Ethnicity_** | | | | | | 110 | 0 | 0.13 |
| Bakongo Nord & Sud | 75(41.7) | 57(31.7) | 48(26.6) | 180(100) | 16.1 | | | |
| Bas-Kasai &Kwilu-Kwango | 282(49.6) | 167(29.4) | 119(21.0) | 568(100) | 15.6 | | | |
| Cuvette central&Foreigner | 202(63.5) | 83(26.1) | 33(10.4) | 318(100) | 14.8 | | | |
| Ubangi -Itimbiri& Pygmy | 254(56.3) | 126(27.9) | 71(15.7) | 451(100) | 15.5 | | | |
| Uele Lac Albert | 175(60.8) | 85(29.5) | 28(9.7) | 288(100) | 15.1 | | | |
| Basele-K/Man.&Kivu | 311(44.7) | 218(31.4) | 166(23.9) | 695(100) | 15.9 | | | |
| Kasai/ Katanga/Tanganika& Lunda | 393(40.3) | 340(34.8) | 243(24.9) | 976(100) | 16.2 | | | |
| Total | 1692(48.7) | 1076(31.0) | 708(20.4) | 3476(100) | | | | |
| **_Demographic_** | | | | | | | | |
| **_Age group_** | | | | | | 189.3 | 0 | 0.23 |
| 15-19 | 591(60.9) | 325(33.5) | 54(26.6) | 970(100) | 14.9 | | | |
| 20-24 | 1101(43.9) | 754(30.0) | 655(26.1) | 2510(100) | 16 | | | |
| Total | 1692(48.6) | 1079(31.0) | 709(20.4) | 3480(100) | | | | |

## Marital status

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Married | 931(46.5) | 616(30.8) | 456(22.8) | 2003(100) | 15.9 | 27.8 | 0 | 0.06 |
| Living with partner | 545(49.9) | 358(32.8) | 189(17.3) | 1092(100) | 15.6 | | | |
| widowed/Divorced/Separated | 217(56.1) | 105(27.1) | 65(16.8) | 387(100) | 15.3 | | | |
| Total | 1693(48.6) | 1079(31.0) | 710(20.4) | 3482(100) | | | | |

### Enabling

| province | | | | | | 144.7 | 0 | 0.14 |
|---|---|---|---|---|---|---|---|---|
| Kinshasa | 78(44.8) | 58(33.3) | 38(21.8) | 174(100) | 15.8 | | | |
| Bandundu | 273(50.7) | 159(29.6) | 106(19.7) | 538(100) | 15.6 | | | |
| Bas-Congo | 42(37.8) | 35(31.5) | 34(30.6) | 111(100) | 16.2 | | | |
| Equateur | 315(59.5) | 155(29.3) | 59(11.2) | 529(100) | 15.2 | | | |
| Kasai-Occ | 120(45.1) | 85(32.0) | 61(22.9) | 266(100) | 15.9 | | | |
| Kasai-Oriental | 153(34.5) | 163(36.7) | 128(28.8) | 444(100) | 16.4 | | | |
| Katanga | 161(46.4) | 113(32.6) | 73(21.0) | 347(100) | 15.9 | | | |
| Maniema | 96(56.5) | 46(27.1) | 28(16.5) | 170(100) | 15.4 | | | |
| Nord-Kivu | 91(37.4) | 82(33.7) | 70(28.8) | 243(100) | 16.3 | | | |
| Orientale | 243(62.8) | 99(25.6) | 45(11.6) | 387(100) | 15.0 | | | |
| Sud-Kivu | 119(43.8) | 85(31.3) | 68(25.) | 272(100) | 16.0 | | | |
| Total | 1691(48.6) | 1080(31.0) | 710(20.4) | 3481(100) | | | | |

## Type of place of residence

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Urban | 442(43.4) | 368(36.1) | 209(20.5) | 1019(100) | 16 | 20.2 | 0 | 0.08 |
| Rural | 1249(50.8) | 711(28.9) | 500(20.3) | 2460(100) | 15.6 | | | |
| Total | 1691(48.6) | 1079(31.0) | 709(20.4) | 3479(100) | | | | |

*Source: DRC-DHS-2013-2014; computed by author*
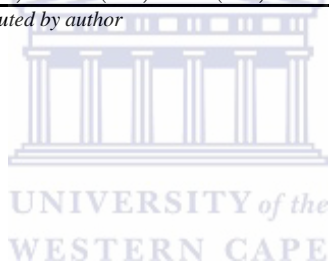
**Table A. 9 Distribution of age at first cohabitation by socio-economic characteristics**

| Socio economic characteristics | <15 N (%) | 15-17 N (%) | 18-24 N (%) | Total N (%) | Mean(SD) | X² | p-value | Phi&Cramer 'sV |
|---|---|---|---|---|---|---|---|---|
| **Highest Educational level** | | | | | | 136.1 | .000 | .200 |
| No Education | 109(22.0) | 242(48.9) | 144(29.1) | 495(100) | 16.2(2.4) | | | |
| Primary | 314(22.2) | 648(45.8) | 454(32.0) | 1416(100) | 16.4(2.4) | | | |
| Secondary | 192(12.4) | 727(47.0) | 629(40.6) | 1548(100) | 17.1(2.4) | | | |
| Higher | 2(9.1) | 4(18.2) | 16(72.7) | 22(100) | 19.5(3.1) | | | |
| Total | 617(17.7) | 1621(46.6) | 1243(35.7) | 3481(100) | | | | |
| *Literacy* | | | | | | 83.5. | .000 | .110 |
| Can not read at all | 303(22.5) | 643(47.9) | 397(29.6) | 1343(100) | 16.3(2.4) | | | |
| Able to read only parts of sentence | 64(17.1) | 175(46.8) | 135(36.1) | 374(100) | 16.7(2.3) | | | |
| Able to read whole sentence | 250(14.2) | 801 (45.5) | 709(40.2) | 1760(100) | 17.0(2.5) | | | |
| Total | 617(17.7) | 1619(46.6) | 1241(35.7) | 3477(100) | | | | |
| *Employment status* | | | | | | 10.5 | .015 | 0.05 |
| No | 171(15.3) | 515(45.9) | 435(38.8) | 1121(100) | 16.9(2.4) | | | |
| Yes | 444(18.9) | 1106(47.0) | 803(34.1) | 2353(100) | 16.6(2.4) | | | |
| Total | 615(17.7) | 1621(46.7) | 1238(35.6) | 3474(100) | | | | |
| *Exposure to medias* | | | | | | 17.3 | .001 | .070 |
| No | 481(18.5) | 1226(47.3) | 887(34.2) | 2594(100) | 16.6(2.4) | | | |
| Yes | 128(14.8) | 388(44.9) | 348(40.3) | 864(100) | 17(2.5) | | | |
| Total | 609(17.6) | 1614(46.7) | 1235(35.7) | 3458(100) | | | | |
| *Family Wealth index* | | | | | | 56.8 | .000 | 0.13 |
| Poorest | 162(19.9) | 411(50.4) | 243(29.7) | 816(100) | 16.3(2.4) | | | |
| Poorer | 123(15.7) | 343(43.9) | 316(40.4) | 782(100) | 16.9(2.4) | | | |
| Middle | 152(20.9) | 343(47.1) | 233(32) | 728(100) | 16.5(2.30 | | | |
| Richer | 117(17.3) | 298(44.0) | 262(38.7) | 677(100) | 16.9(2.5) | | | |
| Richest | 63(13.2) | 225(47.1) | 190(39.8) | 478(100) | 17.1(2.5) | | | |
| Total | 617(17.7) | 1620(46.5) | 1244(35.7) | 3481(100) | | | | |

*Source: DRC-DHS-2013-2014; computed by author*

**Table A. 10  Distribution of age at first cohabitation by socio-cultural characteristics**

| Socio cultural characteristics | < 15 N (%) | 15-17 N (%) | 18-24 N (%) | Total N (%) | Mean(SD) | X² | p-value | Cramers'V |
|---|---|---|---|---|---|---|---|---|
| ***Religion*** | | | | | | 18.3 | 0.249 | |
| Catholic | 189(19.6) | 424(43.9) | 353(36.5) | 966(100) | 16.7(2.5) | | | |
| Protestant | 172(16.7) | 500(48.7) | 355(34.6) | 1027(100) | 16.6(2.4) | | | |
| Kimbanguiste | 15(16.7) | 35(38.9) | 4044.4) | 90(100) | 17.2(2.6) | | | |
| Other christians | 215(16.8) | 605(47.3) | 459(35.9) | 1279(100) | 16.8(2.4) | | | |
| Muslim | 11(24.4) | 23(51.1) | 11(24.4) | 45(100) | 16.1(2.3) | | | |
| Animist/other &No Religion | 13(21.7) | 28(46.7) | 19(31.7) | 60(100) | 16.3(2.3) | | | |
| Total | 615(17.7) | 1615(46.6) | 1237(35.7) | 3467(100) | | | | |
| ***Ethnicity*** | | | | | | 76.2 | 0 | 0.09 |
| Bakongo Nord & Sud | 21(11.7) | 77(43.0) | 81(45.2) | 179(100) | 17.3(2.4) | | | |
| Bas-Kasai & Kwilu-Kwango | 89(15.6) | 228(40.1) | 252(44.3) | 569(100) | 17.1(2.7) | | | |
| Cuvette central | 60(19.9) | 154(51.2) | 87(28.9) | 301(100) | 16.3(2.4) | | | |
| Ubangi - Itimbiri &pymgy | 94(20.8) | 226(50.1) | 131(29.1) | 451(100) | 16.4(2.3) | | | |
| Uele Lac Albert | 59(20.5) | 131(45.5) | 98(34.1) | 288(100) | 16.6(2.5) | | | |
| Basele-K , Man. & Kivu | 131(18.8) | 306(44.0) | 259(37.2) | 696(100) | 16.7(2.5) | | | |
| Kasai, Katanga, Tanganika& Lunda | 153(16.3) | 490(50.2) | 317(33.6) | 976(100) | 16.6(2.3) | | | |
| Foreign/Non-congolese | 4(23.5) | 5(29.4) | 8(47.1) | 17(100) | 17.3(2.9) | | | |

*Source: DRC-DHS-2013-2014; computed by author*

**Table A.11 Distribution of age at first birth by socio economic and cultural characteristics**

| Socioeconomic and cultural characteristics | < 15 N (%) | 15-19 N (%) | 20-24 N(%) | Total N(%) | Mean(SD) | X² | p-value | Cramer'sV |
|---|---|---|---|---|---|---|---|---|
| | | | | | | 124.9 | 0 | 0.21 |
| ***Women's Highest educational level*** | | | | | | | | |
| No education | 66(16.1) | 295(71.8) | 50(12.2) | 411(100) | 17.1(2.34) | | | |
| Primary | 130(11) | 863(73.3) | 184(15.6) | 1177(100) | 17.3(2.20) | | | |
| Secondary | 47(3.6) | 937(72.3) | 312(24.1) | 1296(100) | 18.1(2.07) | | | |
| Higher | 2(12.5) | 7(43.8) | 7(43.8) | 16(100) | 19.5(2.64) | | | |
| Total | 245(8.4) | 2102(72.5) | 553(19.1) | 2900(100) | | | | |
| ***Husband's Highest educational level*** | | | | | | 129.1 | 0 | 0.21 |
| No education | 35(20) | 115(65.7) | 25(14.3) | 175(100) | 17.1(2.32) | | | |
| Primary | 49(9.1) | 419(78.2) | 68(12.7) | 536(100) | 17.4(2.07) | | | |
| Secondary | 147(7.6) | 1414(73) | 376(19.4) | 1937(100) | 17.7(2.19) | | | |
| Higher | 7(3.8) | 99(53.2) | 80(43) | 186(100) | 18.9(2.45) | | | |
| Don't know | 6(10.3) | 48(82.8) | 4(6.9) | 58(100) | 16.7(1.81) | | | |
| Total | 244(8.4) | 2095(72.5) | 553(19.1) | 2892(100) | | | | |
| ***Women's employment status*** | | | | | | 13.1 | 0 | 0.07 |
| No | 62(7) | 636(72.2) | 183(20.8) | 881(100) | 17.8(2.20) | | | |
| Yes | 182(9) | 1465(72.7) | 369(18.3) | 2016(100) | 17.5(2.26) | | | |
| Total | 244(8.4) | 2101(72.5) | 552(19.1) | 2897(100) | | | | |
| ***Wealth Index*** | | | | | | 49.3 | 0 | 0.13 |
| Poorest | 81(11.8) | 497(72.4) | 108(15.7) | 686(100) | 17.3(2.24) | | | |
| Poorer | 57(8.7) | 441(67.2) | 15(24.2)9 | 657(100) | 17.8(2.27) | | | |
| Middle | 57(9.5) | 442(73.6) | 101(16.8) | 600(100) | 17.5(2.25) | | | |
| Richer | 28(5.1) | 428(77.8) | 94(17.1) | 550(100) | 17.6(2.17) | | | |
| Richest | 21(5.1) | 296(72.6) | 91(22.3) | 408(100) | 17.8(2.21) | | | |
| Total | 244(5.1) | 2104(72.5) | 553(22.3) | 2901(100) | | | | |
| ***Exposure to medias*** | | | | | | 20.9 | 0 | 0.09 |
| No | 202(9.4) | 1576(73) | 380(17.6) | 2158(100) | 17.5(2.21) | | | |
| Yes | 42(5.8) | 506(70.2) | 172(23.9) | 720(100) | 17.9(2.30) | | | |
| Total | 244(8.5) | 2082(72.3) | 552(19.2) | 2878(100) | | | | |
| ***Religion*** | | 0 | | | | 36.4 | 0.11 | |
| Catholic | 75(9.3) | 579(72.1) | 149(18.6) | 803(100) | 17.5(2.31) | | | |
| Protestant | 80(9.3) | 633(73.9) | 144(16.8) | 857(100) | 17.6(2.24) | | | |
| Kimbanguiste | 6(8.2) | 43(58.9) | 24(32.9) | 73(100) | 18.0(2.29) | | | |
| Other christians | 75(7) | 778(72.7) | 217(20.3) | 1070(100) | 17.7(2.20) | | | |
| Muslim | 5(13.2) | 25(65.8) | 8(21.1) | 38(100) | 17.1(1.99) | | | |
| Animist/Other&No Religion | 3(5.9) | 38(74.6) | 10(19.6) | 51(100) | 17.4(1.99) | | | |
| Total | 244(8.4) | 2096(72.5) | 552 | 2892(100) | | | | |
| ***Ethnicity*** | | | | | | 89 | 0 | 0.175 |
| Bakongo Nord & Sud | 6(3.7) | 112(69.6) | 43(26.7) | 161(100) | 17.9(2.14) | | | |
| Bas-Kasai et Kwilu-Kwngo | 30(6.2) | 311(64.8) | 139(29) | 480(100) | 18.1(2.38) | | | |
| Cuvette central | 28(11.6) | 180(74.4) | 34(14) | 242(100) | 17.3(2.27) | | | |
| Ubangi et Itimbiri/Pygmy | 41(11.2) | 266(72.6) | 59(16.1) | 366(100) | 17.3(2.21) | | | |
| Uele Lac Albert | 31(14.3) | 154(70.9) | 32(14.7) | 217(100) | 17.1(2.38) | | | |
| Basele-K , Man. et Kivu | 49(8.6) | 430(75.4) | 92(16.1) | 571(100) | 17.6(2.13) | | | |
| Kasai,Katanga, Tanganika&Lunda | 59(6.9) | 637(75) | 153(18) | 849(100) | 17.6(2.13) | | | |

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| Foreign/Non-congolese | 0 | 9(81.8) | 2(18.2) | 11(100) | 17.4(1.95) |
|---|---|---|---|---|---|
| Total | 244 | 2099(72.4) | 554(19.2) | 2897(100) | |

*Source: DRC-DHS-2013-2014; computed by author*

## Table A.12 Distribution of age at first birth by enabling characteristics

| Enabling characteristics | < 15 N(%) | 15-19 N(%) | 20-24 N(%) | Total N(%) | Mean(SD) | $X^2$ | p-value | Cramer's V |
|---|---|---|---|---|---|---|---|---|
| *Type of place of residence* | | | | | | | | |
| Urban | 48(5.7) | 622(74.0) | 171(20.3) | 841(100) | 18.8(2.17) | 12.4 | 0.006 | 0.07 |
| Rural | 196(9.5) | 1481(71.9) | 382(18.6) | 2059(100) | 17.5(2.26) | | | |
| Total | 244(8.4) | 2103(72.5) | 553(19.1) | 2900(100) | | | | |
| *Province* | | | | | | 104.6 | 0 | 0.19 |
| Kinshasa | 7(4.9) | 90(63.3) | 45(31.7) | 142(100) | 18.1(2.17) | | | |
| Bandundu | 37(8.1) | 299(65.3) | 122(26.6) | 458(100) | 18.0(2.42) | | | |
| Bas-Congo | 1(1) | 74(72.5) | 27(26.5) | 102(100) | 18.1(2.02) | | | |
| Equateur | 47(11.2) | 316(75.2) | 57(13.6) | 420(100) | 17.3(2.17) | | | |
| Kasai-Occidental | 16(6.9) | 179(76.8) | 38(16.3) | 233(100) | 17.6(1.99) | | | |
| Kasai-Oriental | 20(5.3) | 284(75.4) | 73(19.4) | 377(100) | 17.8(2.06) | | | |
| Katanga | 27(8.8) | 230(75.1) | 49(16) | 306(100) | 17.4(2.26) | | | |
| Maniema | 13(10.3) | 91(72.2) | 22(17.5) | 126(100) | 17.5(2.25) | | | |
| Nord-Kivu | 13(6.7) | 150(77.3) | 31(16) | 194(100) | 17.6(2.20) | | | |
| Orientale | 44(14.6) | 209(69.2) | 49(16.2) | 302(100) | 17.1(2.40) | | | |
| Sud-Kivu | 18(7.6) | 179(75.2) | 41(17.2) | 382(100) | 17.5(2.12) | | | |
| Total | 243(8.4) | 2101(72.5) | 554(19.1) | 2898(100) | | | | |

*Source: DRC-DHS-2013-2014; computed by author*

**Table A.13 Distribution of contraceptive use by socio economic and cultural characteristics**

| Socioeconomic and cultural characteristics | No method N (%) | Traditional &Folkloric N (%) | Modern N (%) | Total N (%) | X² | p-value | Cramer's V |
|---|---|---|---|---|---|---|---|
| *Socio cultural* | | | | | | | |
| *Religion* | | | | | 31.2 | 0.001 | 0.067 |
| Catholic | 785(81.3) | 101(10.5) | 79(8.2) | 965(100) | | | |
| Protestant | 875(85.1) | 99(9.6) | 54(5.3) | 1028(100) | | | |
| Kimbanguiste | 81(90.0) | 3(3.3) | 6(6.7) | 90(100) | | | |
| Other christians | 1016(79.4) | 137(10.7) | 127(9.9) | 1280(100) | | | |
| Muslim | 34(73.9) | 5(10.9) | 7(15.2) | 46(100) | | | |
| Animist/other &No Religion | 55(91.7) | 3(5.0) | 2(3.3) | 60(100) | | | |
| Total | 2846(82.0) | 348(10.0) | 275(7.9) | 3469(100) | | | |
| *Ethnicity* | | | | | 137.1 | 0.000 | 0.14 |
| Bakongo Nord & Sud | 118(65.2) | 25(13.8) | 38(21.0) | 181(100) | | | |
| Bas-Kasai et Kwilu-Kwango | 454(79.9) | 51(9.0) | 63(11.1) | 568(100) | | | |
| Cuvette central &F./No-congolese | 222(70.0) | 63(19.9) | 32(10.1) | 317(100) | | | |
| Ubangi et Itimbiri &pymgy | 398(88.2) | 40(8.9) | 13(2.9) | 451(100) | | | |
| Uele Lac Albert | 256(88.6) | 19(6.6) | 14(4.8) | 289(100) | | | |
| Basele-K , Man. et Kivu | 585(84.2) | 47(6.8) | 63(9.1) | 695(100) | | | |
| Kasai, Katanga, Tanganika& Lunda | 822(84.2) | 101(10.3) | 53(5.4) | 976(100) | | | |
| Total | 2855(82.1) | 346(10.0) | 276(7.9) | 3477(100) | | | |
| *Socio economic* | | | | | | | |
| *Women's Highest educational level* | | | | | 155.1 | 0.000 | 0.149 |
| No Education | 453(91.3) | 30(6.0) | 13(2.6) | 496(100) | | | |
| Primary | 1243(87.8) | 111(7.8) | 61(4.3) | 1415(100) | | | |
| Secondary | 1150(74.3) | 200(12.9) | 198(12.8) | 1548(100) | | | |
| Higher | 11(47.8) | 7(30.4) | 5(21.7) | 23(100) | | | |
| Total | 2857(82.0) | 348(10.0) | 277(8.0) | 3482(100) | | | |
| *Husband's Highest educational level* | | | | | 93.6 | 0.000 | 0.117 |
| No Education | 189(87.9) | 6(2.8) | 20(9.3) | 215(100) | | | |
| Primary | 584(90.7) | 40(6.2) | 20(3.1) | 644(100) | | | |
| Secondary | 1862(80.2) | 270(11.6) | 191(8.2) | 2323(100) | | | |
| Higher | 152(68.2) | 29(13.0) | 42(18.8) | 223(100) | | | |
| Total | 2787(81.9) | 345(10.1) | 273(8.0) | 3405(100) | | | |
| *Literacy* | | | | | 102.3 | 0.000 | 0.171 |
| Illiterate | 1208(89.9) | 95(7.1) | 40(3.0) | 1343(100) | | | |
| Literate | 1647(77.1) | 254(11.9) | 234(11.0) | 2135(100) | | | |
| Total | 2855(82.1) | 349(10.0) | 274(7.9) | 3478(100) | | | |
| *Woman 's employment status* | | | | | 2.96 | 0.228 | |
| Not Working | 918(81.8) | 104(9.3) | 100(8.9) | 1122(100) | | | |
| Working | 1931(82.1) | 245(10.4) | 176(7.5) | 2352(100) | | | |
| Total | 2849(82.0) | 349(10.0) | 276(8.0) | 3474(100) | | | |
| *Husband's Occupation* | | | | | 56 | 0.000 | 0.09 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Not Working | 79(76.7) | 13(12.6) | 11(10.7) | 103(100) | | | |
| Techn/Professional/Man. &Clerical | 337(74.6) | 65(14.4) | 50(11.1) | 452(100) | | | |
| sales | 353(81.1) | 45(10.3) | 37(8.5) | 435(100) | | | |
| Agriculture Self-employed | 1201(86.5) | 121(8.7) | 67(4.8) | 1389(100) | | | |
| Agriculture - Employee/Army | 279(81.6) | 37(10.8) | 26(7.6) | 342(100) | | | |
| Services | 394(81.4) | 38(7.9) | 52(10.7) | 484(100) | | | |
| Skilled & Unskilled manual | 206(77.4) | 28(10.5) | 32(12.0) | 266(100) | | | |
| Total | 2849(82.1) | 347(10.0) | 275(7.9) | 3471(100) | | | |
| *Exposure to medias* | | | | | 39.1 | 0.000 | 0.106 |
| No | 2181(84.0) | 249(9.6) | 165(6.4) | 2595(100) | | | |
| Yes | 657(76.0) | 98(11.3) | 109(12.6) | 864(100) | | | |
| Total | 2838(82.0) | 347(10.0) | 274(7.9) | 3459(100) | | | |
| *Family Wealth index* | | | | | 134.6 | 0.000 | 0.139 |
| Poorest | 730(89.4) | 68(8.3) | 19(2.3) | 817(100) | | | |
| Poorer | 664(84.9) | 69(8.8) | 49(6.3) | 782(100) | | | |
| Middle | 604(83.0) | 81(11.1) | 43(5.9) | 728(100) | | | |
| Richer | 521(77.0) | 77(11.3) | 79(11.7) | 677(100) | | | |
| Richest | 337(70.5) | 55(11.5) | 86(18) | 478(100) | | | |
| Total | 2856(82.0) | 350(10.1) | 276(7.9) | 3482(100) | | | |

*Source: DRC-DHS-2013-2014; computed by author*

**Table A.14 Distribution of contraceptive use by demographic characteristics**

| Demographic characteristics | No method N (%) | Traditional &Folkloric N (%) | Modern N (%) | Total N (%) | $X^2$ | p-value | Cramer's V |
|---|---|---|---|---|---|---|---|
| *Current age groups* | | | | | 23.7 | 0 | 0.082 |
| Mean(SD) | | | | | | | |
| 15-19 | 846(87.1) | 68(7.0) | 57(5.9) | 971(100) | | | |
| 20-24 | 1554(80.1) | 201(11.2) | 163(8.7) | 1918(100) | | | |
| Total | 2857(82.1) | 349(10.0) | 276(7.9) | 3482(100) | | | |
| *Husband's age* | | | | | 16.3 | 0.003 | 0.052 |
| Mean(SD) | | | | | | | |
| 15-24 | 699(86.7) | 62(7.7) | 45(5.6) | 806(100) | | | |
| 25-34 | 1554(81.0) | 201(10.5) | 163(8.5) | 1918(100) | | | |
| 35 and plus | 280(82.6) | 40(11.8) | 19(5.6) | 339(100) | | | |
| Total | 2533(82.7) | 303(9.9) | 227(7.4) | 3063 (100) | | | |
| *Marital Status* | | | | | 45.2 | 0 | 0.081 |
| Married | 1704(85.1) | 191(9.5) | 108(5.4) | 2003(100) | | | |
| Living with partner | 848(77.7) | 120(11.0) | 123(11.3) | 1091(100) | | | |
| widowed/Divorced/Separated | 304(78.6) | 38(9.8) | 45(11.6) | 387(100) | | | |
| Total | 2856(82.1) | 349(10.0) | 276(7.9) | 3481(100) | | | |
| *number of living children* | | | | | 57.8 | 0 | 0.091 |
| Mean(SD) | | | | | | | |
| None | 624(91.6) | 27(4.0) | 30(4.4) | 681(100) | | | |
| 1 to 3 | 2140(79.5) | 310(11.5) | 242(9.0) | 2692(100) | | | |
| 4 to 6 | 92(85.2) | 12(11.1) | 4(3.7) | 108(100) | | | |
| Total | 2856(82.1) | 349(10.0) | 276(7.9) | 3481(100) | | | |
| *Family size* | | | | | 40.0 | .00 | 0.076 |
| Mean(SD) | | | | | | | |
| 1 to 3 | 885(87.6) | 79(7.8) | 46(4.6) | 1010(100) | | | |
| 4 to 5 | 931(79.6) | 126(10.8) | 112(9.6) | 1169(100) | | | |
| 6 to 10 | 8047(9.8) | 120(11.9) | 83(8.2) | 1007(100) | | | |
| >10 | 236(80.0) | 24(8.1) | 35(11.9) | 295(100) | | | |
| Total | 2856(82.1) | 349(10.0) | 276(7.9) | 3481(100) | | | |
| *Ideal number of children* | | | | | 77.9 | .00 | .106 |
| Mean(SD) | | | | | | | |
| None | 15(75.0) | 5(25.0) | 0(0.0) | 20(100) | | | |
| 1 to 5 | 1330(77.8) | 179(10.5) | 201(11.8) | 1710(100) | | | |
| 6 to 10 | 1224(85.7) | 140(9.8) | 65(4.5) | 1429(100) | | | |
| >10 | 287(89.1) | 25(7.8) | 10(3.1) | 322(100) | | | |
| Total | 2856(82.1) | 349(10.0) | 276(7.9) | 3481(100) | | | |

*Source: DRC-DHS-2013-2014; computed by author*

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**Table A.15 Distribution of contraceptive use by family planning characteristics**

| Family planning characteristics | No method N (%) | Traditional &Folkloric N (%) | Modern N (%) | Total N (%) | X² | p-value | Cramer's V |
|---|---|---|---|---|---|---|---|
| **Knowledge of ovulatory cycle** | | | | | 32.2 | 0 | 0.096 |
| No | 1656(85.3) | 160(8.2) | 125(6.4) | 1941(100) | | | |
| Yes | 1197(77.9) | 189(12.3) | 151(9.8) | 1537(100) | | | |
| Total | 2853(82.0) | 349(10.0) | 276(7.9) | 3478(100) | | | |
| **Knowledge of any method** | | | | | 88.6 | 0 | 0.113 |
| No Method | 311(100) | 0(0.0) | 0(0.0) | 311(100) | | | |
| Traditional & folkloric | 112(89.6) | 13(10.4) | 0(0.00) | 125(100) | | | |
| Modern method | 2434(79.9) | 336(11.0) | 276(9.1) | 3046(100) | | | |
| Total | 2857(82.1) | 349(10.0) | 276(7.9) | 3482(100) | | | |
| **Hear family planning from medias** | | | | | 51.7 | 0 | 0.122 |
| No | 2578(83.1) | 316(10.2) | 210(6.8) | 3104(100) | | | |
| Yes | 276(73.8) | 33(8.8) | 65(17.4) | 374(100) | | | |
| Total | 2854(82.1) | 349(10.0) | 275(7.9) | 3478(100) | | | |
| **Visit by family planning worker last 12 months** | | | | | 22.9 | 0 | 0.081 |
| No | 2704(82.8) | 310(9.5) | 251(7.7) | 3265(100) | | | |
| Yes | 151(70.2) | 39(18.1) | 25(11.6) | 215(100) | | | |
| Total | 2855(82.0) | 349(10.0) | 276(7.9) | 3480(100) | | | |
| **Ever tried to delay or avoid getting pregnant** | | | | | 1578.7 | 0 | 0.673 |
| No | 2348(100) | 0(0.0) | 0(0.0) | 2348(100) | | | |
| Yes | 508(44.8) | 349(30.8) | 276(24.4) | 1133(100) | | | |
| Total | 2856(82.1) | 349(10.0) | 276(7.9) | 3481(100) | | | |

*Source: DRC-DHS-2013-2014; computed by author*

**Table A. 16 Distribution of contraceptive use by enabling characteristics**

| Enabling characteristics | No method N (%) | Traditional &Folkloric N (%) | Modern N (%) | Total N (%) | X2 | p-value | Cramer's V |
|---|---|---|---|---|---|---|---|
| **Health Insurance** | | | | | 33.5 | 0 | 0.098 |
| No | 2796(82.7) | 328(9.7) | 257(7.6) | 3381(100) | | | |
| Yes | 61(60.4) | 21(20.8) | 19(18.8) | 101(100) | | | |
| Total | 2857(82.1) | 349(10.0) | 276(7.9) | 3482(100) | | | |
| *Province* | | | | | 204.3 | 0 | 0.171 |
| Kinshasa | 100(57.1) | 37(21.1) | 38(21.7) | 175(100) | | | |
| Bandundu | 406(75.5) | 78(14.5) | 54(10.0) | 538(100) | | | |
| Bas-Congo | 73(65.8) | 18(16.2) | 20(18.0) | 111(100) | | | |
| Equateur | 448(84.8) | 55(10.4) | 25(4.7) | 528(100) | | | |
| Kasai-Occidental | 206(77.4) | 42(15.8) | 18(6.8) | 266(100) | | | |
| Kasai-Oriental | 398(89.6) | 30(6.8) | 16(3.6) | 444(100) | | | |
| Katanga | 308(88.8) | 26(7.5) | 13(3.7) | 347(100) | | | |
| Maniema | 145(85.3) | 12(7.1) | 13(7.6) | 170(100) | | | |
| Nord-Kivu | 210(86.4) | 5(2.1) | 28(11.5) | 243(100) | | | |
| Orientale | 347(89.4) | 22(5.7) | 19(4.9) | 388(100) | | | |
| Sud-Kivu | 215(79.0) | 25(9.2) | 32(11.8) | 272(100) | | | |
| Total | 2856(82.0) | 350(10.1) | 276(7.9) | 3482(100) | | | |
| **Type of place of residence** | | | | | 97.8 | 0 | 0.168 |
| Urban | 758(74.2) | 112(11.0) | 151(14.8) | 1021(100) | | | |
| Rural | 2098(85.3) | 237(9.6) | 125(5.1) | 2460(100) | | | |
| Total | 2856(82.0) | 349(10.0) | 276(7.9) | 3481(100) | | | |

*Source: DRC-DHS-2013-2014; computed by author*

**Table A.17 Distribution of number of children ever born by socio economic and cultural characteristics**

| Socioeconomic and cultural characteristics | None N (%) | 1to 2 N (%) | 3 to 7 N (%) | Total N (%) | $X^2$ | p-value | Cramer's V |
|---|---|---|---|---|---|---|---|
| *Socio-economic* | | | | | | | |
| *Women's Highest educational level* | | | | | 88.5 | 0.0 | 0.11 |
| No Education | 84(16.9) | 285(57.5) | 127(25.6) | 496(100) | | | |
| Primary | 238(16.8) | 867(61.3) | 309(21.9) | 1414(100) | | | |
| Secondary | 252(16.3) | 1118(72.2) | 178(11.5) | 1548(100) | | | |
| Higher | 7(31.8) | 13(59.1) | 2((9.1) | 22(100) | | | |
| Total | 581(16.7) | 2283(65.6) | 616(17.7) | 3480(100) | | | |
| *Husband's Highest educational level* | | | | | 17.1 | 0.009 | |
| No Education | 40(18.6) | 127(59.1) | 48(22.3) | 215(100) | | | |
| Primary | 110(17.1) | 394(61.2) | 140(21.7) | 644(100) | | | |
| Secondary | 385(16.6) | 1553(66.9) | 384(16.5) | 2322(100) | | | |
| Higher | 36(16.2) | 155(69.8) | 31(14.0) | 222(100) | | | |
| Total | 571(16.8) | 2229(65.5) | 603(17.7) | 3403(100) | | | |
| *Literacy* | | | | | 54.5 | 0 | 0.125 |
| Illiterate | 198(14.7) | 827(61.6) | 318(23.7) | 1343(100) | | | |
| Literate | 385(18) | 1452(68.0) | 298(14.0) | 2135(100) | | | |
| Total | 583(16.8) | 2279(65.5) | 616(17.7) | 3478(100) | | | |
| *Woman 's employment status* | | | | | 35.6 | 0 | 0.10 |
| Not Working | 240(21.4) | 724(64.5) | 158(14.1) | 1122(100) | | | |
| Working | 337(14.3) | 1557(66.2) | 458(19.5) | 2352(100) | | | |
| Total | 577(16.6) | 2281(65.7) | 616(17.7) | 3474(100) | | | |
| *Husband's Occupation* | | | | | 15.7 | 0.20 | |
| Not Working | 21(20.4) | 73(70.9) | 9(8.7) | 103(100) | | | |
| Techn/Professional/ | 71(15.7) | 316(69.9) | 65(14.4) | 452(100) | | | |
| sales | 74(17) | 273(62.8) | 88(20.2) | 435(100) | | | |
| Agriculture Sel-employed | 238(17.1) | 900(64.8) | 251(18.1) | 1389(100) | | | |
| Agriculture -Employee/Army | 47(13.8) | 230(67.4) | 64(18.8) | 341(100) | | | |
| Services | 83(17.1) | 315(64.9) | 87(17.9) | 485(100) | | | |
| Skill & Unskill manual | 45(16.9) | 169(63.5) | 52(19.5) | 266(100) | | | |
| Total | 579(16.7) | 2276(65.6) | 616(17.7) | 3471(100) | | | |
| *Exposure to medias* | | | | | 16.7 | 0.000 | 0.069 |
| No | 436(16.8) | 1660(64) | 498(19.2) | 2594(100) | | | |
| Yes | 146(16.9) | 604(69.9) | 114(13.2) | 864(100) | | | |
| Total | 582(16.8) | 2264(65.5) | 612(17.7) | 3458(100) | | | |
| *Family Wealth index* | | | | | 6.9 | 0.55 | |
| Poorest | 131(16.1) | 537(65.8) | 148(18.1) | 816(100) | | | |
| Poorer | 125(16.0) | 529(67.6) | 128(16.4) | 782(100) | | | |
| Middle | 128(17.6) | 460(63.3) | 139(19.1) | 727(100) | | | |
| Richer | 127(18.8) | 433(64) | 117(17.3) | 677(100) | | | |
| Richest | 71(14.9) | 323(67.6) | 84(17.6) | 478(100) | | | |
| Total | 582(16.7) | 2282(65.6) | 616(17.7) | 3480(100) | | | |
| *Socio-cultural* | | | | | 6.8 | 0.80 | |
| *Religion* | | | | | | | |
| Catholic | 162(16.8) | 641(66.4) | 163(16.9) | 966(100) | | | |
| Protestant | 170(16.5) | 680(66.1) | 178(17.3) | 1028(100) | | | |
| Kimbanguiste | 17(18.9) | 64(71.1) | 9(10) | 90(100) | | | |
| Other christians | 209(16.3) | 824(64.4) | 246(19.2) | 1279(100) | | | |
| Muslim | 8(17.4) | 30(65.2) | 8(17.4) | 46(100) | | | |
| Animist/other &No Religion | 10(16.7) | 38(63.3) | 12(20) | 60(100) | | | |
| Total | 576(16.6) | 2277(65.6) | 616(17.8) | 3469(100) | | | |
| *Ethnicity* | | | | | 87.3 | 0 | 0.11 |
| Bakongo Nord & Sud | 21(11.6) | 148(81.8) | 12(6.6) | 181(100) | | | |
| Bas-Kasai et Kwilu-Kwango | 88(15.5) | 408(71.8) | 72(12.7) | 568(100) | | | |
| Cuvette central&Foreigners | 64(20.2) | 209(65.9) | 44(13.9) | 317(100) | | | |
| Ubangi et Itimbiri &pymgy | 84(18.6) | 300(66.5) | 67(14.9) | 451(100) | | | |
| Uele Lac Albert | 71(24.7) | 159(55.2) | 58(20.1) | 288(100) | | | |
| Basele-K , Man. et Kivu | 125(18) | 413(59.3) | 158(22.7) | 696(100) | | | |
| Kasai, Katanga, | 128(13.1) | 644(65.9) | 205(21) | 977(100) | | | |
| Total | 581(16.7) | 2281(65.6) | 616(17.7) | 3478(100) | | | |

*Source: DRC-DHS-2013-2014; computed by author*

**Table A.18 Distribution of number of children ever born by demographic characteristics**

| Demographic Characteristics | None | 1 to 2 | 3 to 7 | Total | X$^2$ | p-value | Cramer's V |
|---|---|---|---|---|---|---|---|
| | N (%) | N (%) | N (%) | N (%) | | | |
| *Current age groups* | | | | | 377.3 | 0 | 0.33 |
| Mean(SD) | 21.8 (1.4) | | | | | | |
| 15-19 | 319(32.9) | 623(64.2) | 28(2.9) | 970(100) | | | |
| 20-24 | 263(10.5) | 1660(66.1) | 588(23.4) | 2511(100) | | | |
| Total | 582(16.7) | 2283(65.6) | 616(17.7) | 3481(100) | | | |
| *Husband's age* | | | | | 178.7 | 0 | 0.171 |
| Mean(SD) | 27.8(1.9) | | | | | | |
| 15-24 | 235(29.2) | 512(63.6) | 58(7.2) | 805(100) | | | |
| 25-34 | 247(12.9) | 1268(66.1) | 403(21.0) | 1918(100) | | | |
| 35 and plus | 48(14.2) | 191(56.3) | 100(29.5) | 339(100) | | | |
| Total | 530(17.3) | 1971(64.4) | 561(18.3) | 3062(100) | | | |
| *Marital Status* | | | | | 39.3 | 0 | 0.075 |
| Married | 312(15.6) | 1280(63.9) | 411(20.5) | 2003 | | | |
| Living with partner | 220(20.1) | 716(65.6) | 156(14.3) | 1092(100) | | | |
| widowed/Divorced/Separated | 51(13.1) | 288(74.2) | 49(12.6) | 388(100) | | | |
| Total | 583(16.7) | 2284(65.6) | 616(17.7) | 3483(100) | | | |
| *Number of other wives* | | | | | 16.9 | 0 | 0.074 |
| None | 472(18.8) | 1723(64.9) | 458(17.3) | 2653(100) | | | |
| Once and more | 58(13.2) | 272(62.0) | 109(24.8) | 439(100) | | | |
| Total | 530(17.1) | 1995(64.5) | 567(18.3) | 3092(100) | | | |
| *Ideal number of children* | | | | | 59.3 | 0 | 0.095 |
| Mean(SD) | 6.0(0.4) | | | | | | |
| None | 4(21.1) | 8(42.1) | 7(36.8) | 19(100) | | | |
| 1 to 5 | 289(16.9) | 1192(69.7) | 228(13.3) | 1709(100) | | | |
| 6 to 10 | 235(16.4) | 863(60.4) | 331(23.2) | 1429(100) | | | |
| >10 | 27(20.3) | 82(61.7) | 24(18.0) | 133(100) | | | |
| Total | 555(16.9) | 2145(65.2) | 590(17.9) | 3290(100) | | | |

*Source: DRC-DHS-2013-2014; computed by author*

**Table A. 19 Distribution of number of children ever born by family planning characteristics**

| Family Planning characteristics | None N (%) | 1to 2 N (%) | 3 to 7 N (%) | Total N (%) | $X^2$ | p-value | Cramer's V |
|---|---|---|---|---|---|---|---|
| ***Knowledge of ovulatory cycle*** | | | | | 2.7 | 0.25 | |
| No | 336(17.3) | 1278(65.8) | 327(16.8) | 1941(100) | | | |
| No | 245(15.9) | 1004(65.3) | 288(18.7) | 1537(100) | | | |
| Yes | 245(15.9) | 1004(65.3) | 288(18.7) | 1537(100) | | | |
| Total | 581(16.7)) | 2282(65.6) | 615(17.7) | 3478(100) | | | |
| ***Knowledge of any method*** | | | | | 7.6 | 0.11 | |
| No methods | 69(22.1) | 189(60.6) | 54(17.3) | 312(100) | | | |
| Traditional & folkloric | 19(15.2) | 82(65.6) | 24(19.2) | 125(100) | | | |
| Modern | 494(16.2) | 2013(66.1) | 538(17.7) | 3045(100) | | | |
| Total | 582(16.7) | 2284(65.6) | 616(17.7) | 3482(100) | | | |
| ***Hear family planning from medias*** | | | | | 1.8 | 0.41 | |
| No | 511(16.5) | 2042(65.8) | 551(17.8) | 3104(100) | | | |
| Yes | 72(19.2) | 238(63.5) | 65(17.3) | 375(100) | | | |
| Total | 583(16.8) | 2280(65.5) | 616(17.7) | 3479(100) | | | |
| ***Ever used anything or tried to delay or avoid getting pregnant*** | | | | | 75.2 | 0 | 0.147 |
| No | 482(20.5) | 1469(62.6) | 397(16.9) | 2348(100) | | | |
| Yes | 100(8.8) | 814(71.8) | 219(19.3) | 1133(100) | | | |
| Total | 582(16.7) | 2283(65.6) | 616(17.7) | 3481(100) | | | |

*Source: DRC-DHS-2013-2014; computed by author*

**Table A. 20 Distribution of number of children ever born by enabling characteristics**

| Enabling Characteristics | None N (%) | 1to 2 N (%) | 3to 7 N (%) | Total N (%) | $X^2$ | p-value | Cramer's V |
|---|---|---|---|---|---|---|---|
| *Health Insurance* | | | | | 6.6 | 0 | 0.037 |
| No | 574(17.0) | 2207(65.3) | 599(17.7) | 3381(100) | | | |
| Yes | 8(7.9) | 77(75.5) | 17(16.7) | 101(100) | | | |
| Total | 582(16.70) | 2284(65.6) | 616(17.7) | 3482(100) | | | |
| *Province* | | | | | 127.9 | 0 | 0.14 |
| Kinshasa | 33(19.0) | 119(68.4) | 22(12.6) | 174(100) | | | |
| Bandundu | 80(14.9) | 398(74.0) | 60(11.2) | 538(100) | | | |
| Bas-Congo | 9(8.0) | 95(84.8) | 8(7.1) | 112(100) | | | |
| Equateur | 108(20.5) | 346(65.5) | 74(14.0) | 528(100) | | | |
| Kasai-Occidental | 33(12.4) | 179(67.3) | 54(20.3) | 266(100) | | | |
| Kasai-Oriental | 67(15.1) | 290(65.2) | 88(19.8) | 445(100) | | | |
| Katanga | 40(11.5) | 227(65.6) | 79(22.8) | 347(100) | | | |
| Maniema | 44(26.0) | 102(60.0) | 24(14.1) | 169(100) | | | |
| Nord-Kivu | 49(20.2) | 148(60.9) | 46(18.9) | 243(100) | | | |
| Orientale | 85(22.0) | 228(58.9) | 74(19.1) | 387(100) | | | |
| Sud-Kivu | 34(12.5) | 151(55.5) | 87(32.0) | 272(100) | | | |
| Total | 582(16.7) | 2283(56.6) | 616(17.7) | 3481(100) | | | |
| *Type of place of residence* | | | | | 4.8 | 0.09 | |
| Urban | 181(17.7) | 681(66.7) | 159(15.6) | 1021(100) | | | |
| Rural | 401(16.3) | 1602(65.1) | 457(18.6) | 2460(100) | | | |
| Total | 582(16.7) | 2283(65.6) | 616(17.7) | 3481(100) | | | |

*Source: DRC-DHS-2013-2014; computed by author*

**Table A. 21 Distribution of Antenatal care services by socio economic and cultural characteristics**

| Socioeconomic and cultural characteristics | No visit N (%) | 1to 3 N (%) | 4 and plus N (%) | Total N (%) | Mean(SD) | X² | p-value | Cramer's V |
|---|---|---|---|---|---|---|---|---|
| ***Socio-cultural*** | | | | | | | | |
| ***Religion*** | | | | | | 58.9 | 0 | 0.102 |
| Catholic | 49(6.3) | 347(44.6) | 382(49.1) | 778(100) | 3.8(3.9) | | | |
| Protestant | 62(7.4) | 371(44.4) | 402(48.1) | 835(100) | 4.7(10.7) | | | |
| Kimbanguiste | 2(3.0) | 43(64.2) | 22(32.8) | 67(100) | 3.1(1.4) | | | |
| Other christians | 107(10.2) | 416(39.8) | 522(50.0) | 1045(100) | 4.0(7.2) | | | |
| Muslim | 2(5.4) | 14(37.8) | 21(56.8) | 37(100) | 3.7(1.7) | | | |
| Animist/other &No Religion | 15(30.0) | 21(42.0) | 14(28.0) | 50(100) | 4.5(14.5) | | | |
| Total | 237(8.4) | 1212(43.1) | 1363(48.5) | 2812(100) | | | | |
| ***Ethnicity*** | | | | | | 100.6 | 0 | 0.134 |
| Bakongo Nord & Sud | 1(0.6) | 82(52.2) | 74(47.1) | 157(100) | 3.7(1.5) | | | |
| Bas-Kasai et Kwilu-Kwango | 32(6.9) | 232(50.1) | 199(43.0) | 463(100) | 3.7(6.2) | | | |
| Cuvette central | 28(12.2) | 71(30.9) | 131(57.0) | 230(100) | 4.4(6.8) | | | |
| Ubangi et Itimbiri &pymgy | 35(9.9) | 122(34.6) | 196(55.5) | 353(100) | 3.8(5.8) | | | |
| Uele Lac Albert | 14(6.6) | 96(45.3) | 102(48.1) | 212(100) | 3.9(5.8) | | | |
| Basele-K , Man. et Kivu | 20(3.6) | 283(51.0) | 252(45.4) | 555(100) | 3.4(1.5) | | | |
| Kasai, Katanga, Tanganika& Lunda | 109(13.1) | 324(38.9) | 400(48.0) | 833(100) | 4.9(11.6) | | | |
| Foreign/Non-congolese | 0(0.0) | 6(50.0) | 6(50.0) | 12(100) | 12.6(29.1) | | | |
| Total | 239(8.5) | 1216(43.2) | 1360(48.3) | 2815(100) | | | | |
| ***Socio-economic*** | | | | | | | | |
| ***Women's Highest*** | | | | | | 106.3 | 0 | 0.137 |
| No Education | 49(12.6) | 197(50.6) | 143(36.8) | 389(100) | 3.6(8.1) | | | |
| Primary | 135(11.7) | 529(45.7) | 493(42.6) | 1157(100) | 3.9(8.5) | | | |
| Secondary | 55(4.4) | 489(38.8) | 715(56.8) | 1259(100) | 4.4(7.0) | | | |
| Higher | 55(4.4) | 489(38.8) | 715(56.8) | 1259(100) | 6.1(3.4) | | | |
| Total | 239(8.5) | 1216(43.2) | 1363(48.4) | 2818(100) | | | | |
| ***Husband's Highest*** | | | | | | 58.1 | 0 | 0.102 |
| No Education | 19(11.2) | 92(54.4) | 58(34.3) | 169(100) | 3.1(3.5) | | | |
| Primary | 75(14.5) | 230(44.3) | 214(41.2) | 519(100) | 3.4(5.7) | | | |
| Secondary | 136(7.2) | 794(42.0) | 962(50.8) | 1892(100) | 4.3(8.2) | | | |
| Higher | 6(3.4) | 67(38.3) | 102(58.3) | 175(100) | 4.5(6.6) | | | |
| Don't know | 3(5.5) | 26(47.3) | 26(47.3) | 55(100) | 7.2(18.4) | | | |
| Total | 239(8.5) | 1209(43.0) | 1362(48.5) | 2810(100) | | | | |
| ***Woman currently working*** | | | | | | 11.3 | 0.004 | 0.063 |
| No | 52(6.1) | 360(42.2) | 441(51.7) | 853(100) | 4.1(6.3) | | | |
| Yes | 187(9.5) | 854(43.5) | 921(46.9) | 1962(100) | 4.1(8.4) | | | |
| Total | 239(8.5) | 1214(43.1) | 1362(48.4) | 2815(100) | | | | |
| ***Husband's Occupation*** | | | | | | 39.1 | 0 | 0.098 |
| Not Working | 2(2.5) | 32(40.0) | 46(57.5) | 80(100) | 6.4(15.9) | | | |
| Techn/Professional/Man.&Clerical | 19(5.1) | 154(41.2) | 201(53.7) | 374(100) | 4.0(4.7) | | | |
| sales | 28(8.1) | 116(33.4) | 203(58.5) | 347(100) | 4.7(9.4) | | | |
| Agriculture Sel-employed | 109(9.8) | 513(46.0) | 494(44.3) | 1116(100) | 4.1(9.0) | | | |

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| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Agriculture - Employee/ Army | 30(10.5) | 126(44.2) | 129(45.3) | 285(100) | 3.4(2.1) | | | |
| Services | 30(7.6) | 178(45.2) | 186(47.2) | 394(100) | 3.5(1.8) | | | |
| Skill & Unskill manual | 21(9.7) | 90(41.7) | 105(48.6) | 216(100) | 4.5(9.7) | | | |
| Total | 239(8.5) | 1209(43.0) | 1364(48.5) | 2812(100) | | | | |
| **Exposure to medias** | | | | | | 43.3 | 0 | 0.124 |
| No | 200(9.5) | 957(45.6) | 941(44.9) | 2098(100) | 3.8(6.5) | | | |
| Yes | 37(5.3) | 253(36.0) | 412(58.7) | 702(100) | 5.2(10.9) | | | |
| Total | 237(8.5) | 1210(43.2) | 1353(48.3) | 2800(100) | | | | |
| **Family Wealth index** | | | | | | 98 | 0 | 0.132 |
| Poorest | 105(15.8) | 277(41.7) | 283(42.6) | 665(100) | 3.3(5.5) | | | |
| Poorer | 55(8.5) | 315(48.6) | 278(42.9) | 648(100) | 4.3(10) | | | |
| Middle | 34(5.8) | 268(45.5) | 287(48.7) | 589(100) | 4.4(7.9) | | | |
| Richer | 26(4.9) | 223(42.3) | 278(52.8) | 527(100) | 4.3(7.6) | | | |
| Richest | 19(4.9) | 132(33.9) | 238(61.2) | 389(100) | 4.7(7.3) | | | |
| Total | 239(8.5) | 1215(43.1) | 1364(48.4) | 2818(100) | | | | |

*Source: DRC-DHS-2013-2014; computed by author*

**Table A. 22 Distribution of Antenatal care services by demographics characteristics**

| Demographic characteristics | No visit N (%) | 1to 3 N (%) | 4 and plus N (%) | Total N (%) | Mean(SD) | X² | p-value | Cramer's V |
|---|---|---|---|---|---|---|---|---|
| **Current age groups** | | | | | | 1.8 | 0.415 | |
| Mean(SD) | 21.0(2.1) | | | | | | | |
| 15-19 | 51(7.9) | 293(45.4) | 302(46.7) | 646(100) | 4.1(8.0) | | | |
| 20-24 | 188(8.7) | 923(42.5) | 1062(48.9) | 2173(100) | 4.1(7.8) | | | |
| **Marital Status** | | | | | | 18.6 | 0.001 | 0.057 |
| Married | 166(10.0) | 704(42.4) | 791(47.6) | 1661(100) | 4.2(8.4) | | | |
| Living with partner | 43(5.1) | 371(44.1) | 428(50.8) | 842(100) | 4.1(7.4) | | | |
| widowed/Divorced/ Separated | 30(9.5) | 141(44.6) | 145(45.9) | 316(100) | 3.7(5.5) | | | |
| **Birth order** | | | | | | 43.3 | 0 | 0.088 |
| Mean(SD) | 1.9(1.0) | | | | | | | |
| First order | 74(6.0) | 481(39.1) | 676(54.9) | 1231(100) | 4.3(7.4) | | | |
| Second or third order | 145(10.3) | 649(46.3) | 607(43.3) | 1401(100) | 4.1(8.6) | | | |
| Four or more | 20(10.7) | 86(46.0) | 81(43.3) | 187(100) | 3.2(2.0) | | | |
| Total | 239(8.5) | 1216(43.1) | 1364(48.4) | 2819(100) | 4.1(7.8) | | | |
| **Family size** | | | | | | 11.1 | 0.086 | |
| Mean(SD) | 5.7(3.1) | | | | | | | |
| 1t0 3 | 58(8.7) | 272(41.0) | 333(50.2) | 663(100) | 3.7(4.0) | | | |
| 4 t0 5 | 94(8.7) | 498(46.2) | 487(45.1) | 1079(100) | 4.3(9.6) | | | |
| 5 to 10 | 73(8.8) | 347(41.8) | 411(49.5) | 831(100) | 4.1(7.4) | | | |
| >10 | 14(5.7) | 98(40.0) | 1339(54.3) | 245(100) | 4.6(8.3) | | | |
| Total | 239(8.5) | 1215(43.1) | 1364(48.4) | 2818(100) | | | | |

*Source: DRC-DHS-2013-2014; computed by author*

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**Table A. 23 Distribution of Antenatal care services by enabling characteristics**

| Enabling characteristics | No visit N | 1to 3 N | 4 and plus N | Total N | Mean(SD) | $X^2$ | p-value | Cramer's V |
|---|---|---|---|---|---|---|---|---|
| *Health Insurance* | | | | | | 1.4 | 0.509 | |
| No | 233(8.5) | 1180(43.3) | 1313(48.2) | 2726(100) | 4.1(7.9) | | | |
| Yes | 7(7.4) | 36(38.5) | 51(54.3) | 94(100) | 4.0(2.3) | | | |
| Total | 240(8.5) | 1216(43.1) | 1364(48.4) | 2820(100) | | | | |
| *Province* | | | | | | 150.6 | 0 | 0.16 |
| Kinshasa | 4(2.9) | 32(23.4) | 101(73.7) | 137(100) | 6.1(12.0) | | | |
| Bandundu | 33(7.5) | 215(48.6) | 194(43.9) | 442(100) | 3.7(4.4) | | | |
| Bas-Congo | 1(1.0) | 60(58.3) | 42(40.8) | 103(100) | 3.4(1.3) | | | |
| Equateur | 37(9.2) | 133(33.0) | 233(57.8) | 403(100) | 4.1(7.3) | | | |
| Kasai-Occidental | 21(9.3) | 100(44.1) | 106(46.7) | 227(100) | 3.4(2.0) | | | |
| Kasai-Oriental | 48(12.8) | 148(39.5) | 179(47.7) | 375(100) | 6.6(17.0) | | | |
| Katanga | 52(17.4) | 107(35.9) | 139(46.6) | 298(100) | 3.2(2.2) | | | |
| Maniema | 8(6.6) | 70(57.4) | 44(36.1) | 122(100) | 3.1(1.4) | | | |
| Nord-Kivu | 6(3.3) | 89(48.9) | 87(47.8) | 182(100) | 3.4(1.5) | | | |
| Orientale | 23(7.9) | 129(44.2) | 140(47.9) | 292(100) | 3.8(5.1) | | | |
| Sud-Kivu | 7(3.0) | 132(55.7) | 98(41.4) | 237(100) | 3.4(1.4) | | | |
| Total | 240(8.5) | 1215(43.1) | 1363(48.4) | 2818(100) | | | | |
| *Type of place of residence* | | | | | | 54.7 | 0 | 0.14 |
| Urban | 42(5.2) | 289(35.8) | 476(59.0) | 100(100) | 4.6(7.9) | | | |
| Rural | 198(9.8) | 926(46.0) | 888(44.1) | 100(100) | 3.9(7.8) | | | |
| Total | 240(8.5) | 1215(43.1) | 1364(48.4) | 100(100) | | | | |

*Source: DRC-DHS-2013-2014; computed by author*

**Table A. 24 Distribution of Antenatal care services by behavioural characteristics**

| Behavioural characteristics | No visit N (%) | 1to3 N (%) | 4and plus N (%) | Total N (%) | Mean(SD) | $X^2$ | p-value | Cramer's V |
|---|---|---|---|---|---|---|---|---|
| *Smoking Status* | | | | | | 2.3 | 0.32 | |
| No | 237(8.6) | 1183(43.0) | 1334(48.4) | 2754(100) | 4.1(7.9) | | | |
| Yes | 3(4.6) | 33(50.8) | 29(44.6) | 65(100) | 3.6(2.0) | | | |
| Total | 240(8.5) | 1216(43.1) | 1363(48.4) | 2819(100) | | | | |
| *Age at first union* | | | | | | 9.6 | 0.048 | 0.041 |
| Mean(SD) | 16.5(2.3) | | | | | | | |
| < 15 | 57(10.6) | 247(46.1) | 232(43.3) | 536(100) | 3.3(2.6) | | | |
| 15-17 | 114(8.5) | 566(42.2) | 662(49.3) | 1342(100) | 4.1(7.5) | | | |
| 18-24 | 68(7.2) | 403(42.8) | 470(50.0) | 941(100) | 4.5(11.1) | | | |
| *Age at first birth* | 17.7(2.2) | | | | | 18.8 | 0.003 | 0.053 |
| Mean(SD) | | | | | | | | |
| <15 | 28(12.7) | 107(48.4) | 86(38.9) | 221(100) | 3.3(3.4) | | | |
| 15-19 | 177(8.7) | 880(43.0) | 988(48.3) | 2045(100) | 4.0(7.1) | | | |
| 20and plus | 34(6.1) | 229(41.4) | 290(52.4) | 553(100) | 5.1(11.8) | | | |
| Total | 239(8.5) | 1216(43.1) | 1364(48.4) | 2819(100) | | | | |

*Source: DRC-DHS-2013-2014; computed by author*

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**Table A. 25 Distribution of Skilled birth attendance by socio economic and cultural characteristics**

| Socio economic and cultural characteristics | N(%) | N(%) | N(%) | $X^2$ | p-value | Phi-coeff.& Cramer's V |
|---|---|---|---|---|---|---|
| **_Socio-economic_** | | | | | | |
| **_Women's Highest educational level_** | | | | 84.4 | 0 | 0.129 |
| No Education | 97(25.0) | 291(75.0) | 388(100) | | | |
| Primary | 235(20.3) | 923(79.7) | 1158(100) | | | |
| Secondary | 115(9.1) | 1143(90.9) | 1258(100) | | | |
| Higher | 1(7.7) | 12(92.3) | 13(100) | | | |
| Total | 448(15.9) | 2369(84.1) | 2817(100) | | | |
| **_Husband's Highest educational level_** | | | | 80.7 | 0 | 0.169 |
| No Education | 40(23.5) | 130(76.5) | 170(100) | | | |
| Primary | 129(24.9) | 390(75.1) | 519(100) | | | |
| Secondary | 255(13.5) | 1636(86.5) | 1891(100) | | | |
| Higher | 5(2.9) | 170(97.1) | 175(100) | | | |
| Don't know | 18(32.7) | 37(67.3) | 55(100) | | | |
| Total | 447(15.9) | 2363(84.1) | 2810(100) | | | |
| **_Woman employment status_** | | | | 40.5 | 0 | 0.12 |
| No | 79(9.3) | 775(90.7) | 854(100) | | | |
| Yes | 368(18.8) | 1591(81.2) | 1959(100) | | | |
| Total | 447(15.9) | 2366(84.1) | 2813(100) | | | |
| **_Husband'sOccupation_** | | | | 135.5 | 0 | 0.22 |
| Not Working | 18(22.5) | 62(77.5) | 80(100) | | | |
| Techn/Professional/Man.&Clerical | 49(13.1) | 325(86.9) | 374(100) | | | |
| sales | 30(8.7) | 316(91.3) | 346(100) | | | |
| Agriculture Self-employed | 277(24.9) | 836(75.1) | 1113(100) | | | |
| Agriculture -Employee/Army | 39(13.7) | 246(86.3) | 285(100) | | | |
| Services | 20(5.1) | 374(94.9) | 394(100) | | | |
| Skill & Unskill manual | 14(6.5) | 203(93.5) | 217(100) | | | |
| Total | 447(15.9) | 2362(84.1) | 2809(100) | | | |
| **_Exposure to medias_** | | | | 45.8 | 0 | 0.129 |
| No | 389(18.6) | 1706(81.4) | 2095(100) | | | |
| Yes | 54(7.7) | 648(92.3) | 702(100) | | | |
| Total | 443(15.8) | 2354(84.2) | 2797(100) | | | |
| **_Family Wealth index_** | | | | 217 | 0 | 0.278 |
| Poorest | 190(28.6) | 474(71.4) | 664(100) | | | |
| Poorer | 141(21.8) | 507(78.2) | 648(100) | | | |
| Middle | 90(15.3) | 499(84.7) | 589(100) | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| Richer | 24(4.6) | 503(95.4) | 527(100) | | | |
| Richest | 2(0.5) | 387(99.5) | 389(100) | | | |
| Total | 447(15.9) | 2370(84.1) | 2817(100) | | | |
| *Socio-cultural* | | | | | | |
| *Religion* | | | | 21.4 | 0.001 | 0.087 |
| Catholic | 106(13.7) | 670(86.3) | 776(100) | | | |
| Protestant | 141(16.9) | 694(83.1) | 835(100) | | | |
| Kimbanguiste | 15(22.1) | 53(77.9) | 68(100) | | | |
| Other christians | 163(15.6) | 880(84.4) | 1043(100) | | | |
| Muslim | 4(10.5) | 34(89.5) | 38(100) | | | |
| Animist/other &No Religion | 18(36.0) | 32(64.0) | 50(100) | | | |
| Total | 447(15.9) | 2363(84.1) | 2810(100) | | | |
| *Ethnicity* | | | | 112.8 | 0 | 0.2 |
| Bakongo Nord & Sud | 3(1.9) | 153(98.1) | 156(100) | | | |
| Bas-Kasai et Kwilu-Kwango | 71(15.3) | 392(84.7) | 463(100) | | | |
| Cuvette central | 46(20.0) | 184(80.0) | 230(100) | | | |
| Ubangi et Itimbiri &pymgy | 82(23.2) | 271(76.8) | 353(100) | | | |
| Uele Lac Albert | 15(7.1) | 197(92.9) | 212(100) | | | |
| Basele-K , Man. et Kivu | 41(7.4) | 514(92.6) | 555(100) | | | |
| Kasai, Katanga, | 188(22.6) | 644(77.4) | 832(100) | | | |
| Foreign/Non-congolese | 0(0.0) | 12(100) | 12(100) | | | |
| Total | 446(15.9) | 2367(84.1) | 2813(100) | | | |

*Source: DRC-DHS-2013-2014; computed by author*

**Table A. 26 Distribution of Skilled birth attendance by demographic characteristics**

| Demographic characteristics | No<br>N (%) | Yes<br>N (%) | Total<br>N (%) | $X^2$ | p-value | Cramer's V |
|---|---|---|---|---|---|---|
| *Current age groups* | | | | 0.004 | 0.952 | |
| 15-19 | 103(15.9) | 543(84.1) | 646(100) | | | |
| 20-24 | 344(15.8) | 1827(84.2) | 2171(100) | | | |
| Total | 447(15.9) | 237(84.1) | 2817(100) | | | |
| *Marital Status* | | | | 29.4 | 0 | 0.102 |
| Married | 311(18.7) | 1349(81.3) | 1660(100) | | | |
| Living with partner | 87(10.4) | 753(89.6) | 840(100) | | | |
| widowed/Divorced/Separated | 49(15.5) | 268(84.5) | 317(100) | | | |
| Total | 447(15.9) | 2370(84.1) | 2817(100) | | | |
| *Birth order* | | | | 2.9 | 0.235 | |
| First order | 189(15.4) | 1041(84.6) | 1230(100) | | | |
| Second or third order | 235(16.8) | 1165(83.2) | 1400(100) | | | |
| Four or more | 23(12.3) | 164(87.7) | 187(100) | | | |
| Total | 447(15.9) | 237(84.1) | 2817(100) | | | |
| *Family size* | | | | 3.5 | 0.325 | |
| Mean(SD) | | | | | | |
| 1t0 3 | 112(16.9) | 552(83.1) | 664(100) | | | |
| 4 t0 5 | 178(16.5) | 899(83.5) | 1077(100) | | | |
| 6 to 10 | 127(15.3) | 704(84.7) | 831(100) | | | |
| > 10 | 30(12.2) | 215(87.8) | 245(100) | | | |
| Total | 447(15.9) | 237(84.1) | 2817(100) | | | |

*Source: DRC-DHS-2013-2014; computed by author*

# A.3 Multivariate analysis: determinants of youth reproductive health issues

Table A. 27 Binary logistics analysis results of age at first sexual intercourse and age at first cohabitation in DRC 2013-2014

| Independent Variables | Age at first sex: Model I | | | Age at first cohabitation: Model II | | |
|---|---|---|---|---|---|---|
| | Odds Ratios(OR) | 95% C.I.for OR | | Odds Ratios(OR) | 95% C.I.for OR | |
| | | Lower | Upper | | Lower | Upper |
| **Demographic** | | | | | | |
| *Age groups* | | | | *** | | |
| 15-19 | 2.016*** | 1.723 | 2.36 | 4.990 | 3.798 | 6.555 |
| 20-24 | RC | | | RC | | |
| *Marital status* | | | | | | |
| Married | RC | | | 1.53*** | 1.208 | 1.937 |
| Living with partner | 0.97* | 0.813 | 1.158 | RC | | |
| Widowed /Divorced /Separated | 1.329* | 1.046 | 1.674 | | | |
| *Number of unions* | - | - | - | | | |
| Once | | | | RC | | |
| More than once | | | | 3.162*** | 1.933 | 5.172 |
| *Number other wives* | - | - | - | | | |
| One and plus | | | | RC | | |
| No other wives | | | | 1.445* | 1.085 | 1.924 |
| **Socio-cultural** | | | | | | |
| *Ethnicity* | *** | | | ** | | |
| Bakongo Nord & Sud | RC | | | RC | | |
| Bas-Kasai et Kwilu-Kwango | 1.352 | 0.773 | 2.364 | .543 | .243 | 1.213 |
| Cuvette central & Foreigners | 1.893* | 1.063 | 3.372 | 1.103 | .467 | 2.605 |
| Ubangi et Itimbiri &Pygmy/Other | 0.906 | 0.49 | 1.674 | 1.843 | .749 | 4.533 |
| Uele Lac Albert | 0.68 | 0.335 | 1.378 | .781 | .288 | 2.122 |
| Basele-K , Man. et Kivu | 0.633 | 0.313 | 1.28 | .560 | .208 | 1.505 |
| Kasai, Katanga, Tanganika &Lunda | 1 | 0.541 | 1.846 | .870 | .354 | 2.140 |
| **Socio-economic** | | | | | | |
| *Highest educational level* | *** | | | ** | | |
| No education RC | 8.903** | 2.362 | 33.55 | 14.082** | 3.135 | 63.248 |
| Primary | 9.803** | 2.633 | 36.505 | 10.657** | 2.429 | 46.757 |
| Secondary | 5.808* | 1.569 | 21.507 | 8.635** | 1.997 | 37.335 |
| Higher | RC | | | RC | | |
| *Employment status* | - | - | - | | | |
| Yes RC | | | | RC | | |
| Yes | | | | .752* | .601 | .942 |
| *Exposure to medias* | - | - | - | | | |
| Yes RC | | | | RC | | |
| Yes | | | | 0.81 | 0.63 | 1.06 |
| Wealth index | | | | ** | | |
| Richest | RC | | | RC | | |
| Poorest | 0.663* | 0.465 | 0.947 | 0.584* | .343 | .994 |
| Poorer | 0.548** | 0.386 | 0.778 | 0.511* | .305 | .855 |
| Middle | 0.731 | 0.522 | 1.023 | .745 | .454 | 1.224 |
| Richer | 0.924 | 0.688 | 1.241 | 0.543** | .353 | .836 |

**Enabling**

| *Old province* | *** | | | ** | | |
|---|---|---|---|---|---|---|
| Kinshasa | RC | | | RC | | |
| Bandundu | 0.907 | 0.566 | 1.454 | 1.084 | .567 | 2.073 |
| Bas-Congo | 0.537 | 0.283 | 1.02 | .448 | .174 | 1.151 |
| Equateur | 1.376 | 0.821 | 2.304 | .599 | .291 | 1.233 |
| Kasai-Occidental | 0.86 | 0.495 | 1.493 | 1.926 | .866 | 4.281 |
| Kasai-Oriental | 0.528* | 0.316 | 0.882 | 2.041 | .970 | 4.295 |
| Katanga | 0.849 | 0.497 | 1.451 | 1.416 | .654 | 3.066 |
| Maniema | 2.187* | 1.08 | 4.429 | 2.696 | .975 | 7.452 |
| Nord-Kivu | 0.927 | 0.48 | 1.789 | 1.134 | .463 | 2.777 |
| Orientale | 2.333** | 1.29 | 4.218 | .812 | .362 | 1.822 |
| Sud-Kivu | 1.193 | 0.615 | 2.313 | 2.651* | 1.075 | 6.538 |
| *Type of place of residence* | | | | | | |
| Rural | RC | | RC | | | |
| Urban | 0.728* | 0.581 | 0.911 | .832 | .602 | 1.151 |
| **Behavioural** | | | | | | |
| *Age at first sex* | - | - | - | *** | | |
| <16 | | | | 73.498*** | 51.047 | 105.823 |
| 16-17 | | | | 42.287*** | 29.429 | 60.765 |
| 18-24 | | | | RC | | |

\*\*\*=p<0.001, \*\*=p< 0.01, \*=p<0.05 (\*\*\*, \*\* and \* indicated the level of significance at specific level). RC= reference category
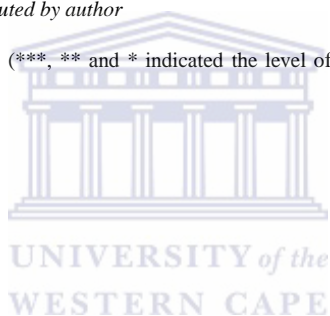
**Table A. 28 Binary logistics analysis results of age at first birth, current contraceptive use and number of children ever born in DRC 2013-2014**

| Independent variables | Age at first birth: Model III | | | Current contraceptive use: Model IV | | | Children ever born: Model V | | |
|---|---|---|---|---|---|---|---|---|---|
| | OR | 95%C.I.for OR Lower | Upper | OR | 95% C.I.for OR Lower | Upper | OR | 95% C.I.for OR Lower | Upper |
| **Demographic** | | | | | | | | | |
| *Age groups* | - | - | - | | | | | | |
| 15-19 | | | | RC | | | RC | | |
| 20-24 | | | | 0.6* | 0.391 | 0.922 | 18.98*** | 11.39 | 31.61 |
| *Marital status* | | | | | | | | | |
| Married | 1.204 | .853 | 1.698 | RC | | | RC | | |
| Living with a partner | RC | | | 1.215 | 0.859 | 1.72 | 1.32 | 0.98 | 1.77 |
| Widowed /Divorced /Separated | | | | | | | | | |
| *Husband's age* | ** | | | | | | *** | | |
| 15-24 | RC | | | 0.609 | 0.337 | 1.1 | 0.39*** | 0.25 | 0.63 |
| 25-34 | .856 | .574 | 1.276 | 0.88 | 0.53 | 1.459 | 0.83 | 0.59 | 1.17 |
| 35 and above | 1.9711* | 1.092 | 3.558 | | | | | | |
| *Number of living children* | - | - | - | *** | | | - | - | - |
| None | | | | 0.238** | 0.09 | 0.631 | | | |
| 1 to 3 | | | | 0.775 | 0.339 | 1.771 | | | |
| 4 to 6 | | | | RC | | | | | |
| *5..Ideal number of children* | - | - | - | | | | * | | |
| None | | | | 6.981 | 0.548 | 88.920 | 3.17 | 0.82 | 12.32 |
| 1 to 5 | | | | 0.869 | 0.622 | 1.214 | 0.8 | 0.63 | 1.03 |
| 6 and plus | | | | RC | | | RC | | |
| *Family size* | - | - | - | RC | | | | | |
| and plus | | | | 1.091 | 0.591 | 2.012 | - | - | - |
| 1 to 3 | | | | 1.296 | 0.726 | 2.312 | | | |
| 4 to 5 | | | | 1.132 | 0.636 | 2.012 | | | |
| 6 to 10 | | | | | | | | | |
| *Number of other wives* | | | | - | - | | | | |
| One and plus | RC | | | | | | RC | | |
| No other wives | 1.519* | 1.009 | 2.286 | | | | 0.97 | 0.7 | 1.35 |
| **Socio- cultural** | | | | | | | | | |
| *7.Religion* | - | - | - | | | | - | - | - |
| Catholic | | | | RC | | | | | |
| Protestant | | | | 1.192 | 0.797 | 1.783 | | | |
| Kimbaguist | | | | 0.536 | 0.19 | 1.514 | | | |
| Other Christians | | | | 1.481 | 0.996 | 2.201 | | | |
| Musilm | | | | 1.146 | 0.332 | 3.96 | | | |
| Animis/other& No religion | | | | 0.949 | 0.192 | 4.699 | | | |
| *Ethnicity* | * | | | 0.07 | | | | | |
| Bakongo Nord & Sud | RC | | | RC | | | RC | | |
| "Bas-Kasai et Kwilu-Kwango | 1.576 | .510 | 4.874 | 0.453 | 0.176 | 1.163 | 3.11 | 0.93 | 10.34 |
| Cuvette central & Foreigners | 1.689 | .499 | 5.722 | 1.371 | 0.505 | 3.72 | 1.98 | 0.56 | 6.97 |
| Ubangi et Itimbiri"&"Pygmy/Other | 2.052 | .593 | 7.092 | 1.316 | 0.449 | 3.855 | 2.36 | 0.63 | 8.81 |
| Uele Lac Albert | 6.316* | 1.510 | 26.417 | 1.168 | 0.305 | 4.477 | 2.8 | 0.67 | 11.65 |
| Basele-K , Man. et Kivu | 8.294** | 2.124 | 32.393 | 0.937 | 0.238 | 3.687 | 1.83 | 0.45 | 7.39 |
| Kasai, Katanga, Tanganika &Lunda | 1.880 | .573 | 6.167 | 0.768 | 0.276 | 2.141 | 1.84 | 0.51 | 6.6 |
| **Socio- economic** | | | | | | | | | |
| *Highest educational level* | * | | | | | | ** | | |
| No education | 1.968 | .366 | 10.588 | - | - | - | RC | | |
| Primary | 1.101 | .214 | 5.672 | | | | 1.02 | 0.74 | 1.42 |

| Variable | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Secondary | .856 | .172 | 4.275 | | | | 0.63* | 0.44 | 0.91 |
| Higher | RC | | | | | | 0.86 | 0.1 | 7.32 |
| *8.Literacy* | | | | | | | - | - | - |
| Literate | - | - | - | RC | | | | | |
| Illiterate | | | | 0.67* | 0.46 | 0.977 | | | |
| *Husband/partner's education level* | *** | | | * | | | - | - | - |
| No education | 1.762 | .745 | 4.168 | RC | | | | | |
| Primary | 3.172** | 1.645 | 6.116 | 0.283* | 0.111 | 0.719 | | | |
| Secondary | 3.079*** | 1.824 | 5.200 | 0.483 | 0.199 | 1.175 | | | |
| Tertiary | RC | | | 0.583 | 0.202 | 1.68 | | | |
| *Employment status* | | | | | | | | | |
| Yes | RC | | | - | - | - | RC | | |
| No | .898 | .662 | 1.217 | | | | 0.94 | 0.72 | |
| *11.Husband/partner's occupation* | | | | | | | | | |
| Skill&Unskill | - | - | - | | | | | | |
| Not working | | | | 2.821 | 0.852 | 9.338 | - | - | - |
| Techn/Prof./Man. &Clerical | | | | 1.659 | 0.888 | 3.099 | | | |
| Sales | | | | 0.979 | 0.536 | 1.788 | | | |
| Agr.-Self employed | | | | 1.09 | 0.597 | 1.991 | | | |
| Agr.-Employed &Army | | | | 1.081 | 0.548 | 2.134 | | | |
| Services | | | | 1.156 | 0.62 | 2.154 | | | |
| *Exposure to medias* | | | | | | | | | |
| Yes | RC | | | RC | | | RC | | |
| No | .929 | .651 | 1.326 | 1.021 | 0.701 | 1.488 | 0.12 | 1.27 | 0.94 |
| *Wealth index* | * | | | | | | | | |
| Poorest | .507 | .232 | 1.104 | 1.169 | 0.526 | 2.599 | - | - | - |
| Poorer | 0.396* | .188 | .831 | 1.664 | 0.797 | 3.475 | | | |
| Middle | .596 | .290 | 1.225 | 0.95 | 0.469 | 1.925 | | | |
| Richer | .854 | .462 | 1.579 | 1.659 | 0.919 | 2.997 | | | |
| Richest | RC | | | RC | | | | | |
| **Family planning** | | | | | | | | | |
| *Knowledge of ovulatory cycle* | | | | | | | | | |
| Yes | RC | | | RC | | | | | |
| No | 1.087 | .816 | 1.448 | 0.842 | 0.622 | 1.14 | - | - | - |
| *Knowledge of any method* | | | | * | | | | | |
| No methods | 1.686 | .885 | 3.210 | .000 | .000 | | 0.61 | 0.39 | 0.97 |
| Traditional & Folkloric | .719 | .337 | 1.537 | 0.299* | 0.117 | 0.764 | 0.98 | 0.54 | 1.79 |
| Modern | RC | | | RC | | | RC | | |
| *Visited by family planning worker last 12 months* | - | - | - | | | | - | - | - |
| Yes | | | | RC | | | | | |
| No | | | | 0.807 | 0.487 | 1.338 | | | |
| *Hear family planning from medias* | - | - | - | | | | - | - | - |
| Yes | | | | RC | | | | | |
| No | | | | 1.114 | 0.708 | 1.753 | | | |
| *Ever tried to delay or avoid getting pregnant* | | | | .00 | 0.000 | | | | |
| Yes | RC | | | RC | | | RC | | |
| No | 0.528*** | .388 | .717 | - | - | - | 0.82 | 0.64 | 1.07 |
| **Enabling** | | | | | | | | | |
| *Health insurance* | | | | | | | | | |
| Yes | | | | RC | | | RC | | |
| No | - | - | - | 0.714 | 0.36 | 1.415 | 1.92 | 0.93 | 3.96 |
| *Province* | *** | | | ** | | | *** | | |
| Kinshasa | RC | | | RC | | | 0.46 | 0.17 | 1.24 |
| Bandundu | 3.028* | 1.152 | 7.962 | 1.493 | 0.669 | 3.336 | 0.18*** | 0.07 | 0.46 |
| Bas-Congo | 6.593** | 1.970 | 22.061 | 1.59 | 0.529 | 4.781 | 0.52 | 0.1 | 2.67 |
| Equateur | 4.716** | 1.620 | 13.728 | 0.396* | 0.163 | 0.96 | 0.21** | 0.08 | 0.53 |
| Kasai-Occidental | 4.861** | 1.660 | 14.233 | 2.181 | 0.795 | 5.985 | 0.36 | 0.13 | 1.01 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Kasai-Oriental | 4.979** | 1.805 | 13.729 | 0.574 | 0.231 | 1.427 | 0.43 | 0.16 | 1.17 |
| Katanga | 3.651* | 1.315 | 10.136 | 0.681 | 0.271 | 1.713 | 0.62 | 0.23 | 1.71 |
| Maniema | .374 | .093 | 1.500 | 1.382 | 0.3 | 6.379 | 0.25** | 0.12 | 0.53 |
| Nord-Kivu | 1.931 | .565 | 6.599 | 1.048 | 0.276 | 3.983 | 0.75 | 0.43 | 1.3 |
| Orientale | 2.992 | .921 | 9.715 | 0.8 | 0.271 | 2.363 | 0.28** | 0.12 | 0.66 |
| Sud-Kivu | .858 | .238 | 3.091 | 0.642 | 0.169 | 2.433 | RC | | |
| *Type of place of residence* | | | | | | | | | |
| Rural | RC | | | RC | | | | | |
| Urban | .815 | .510 | 1.301 | 1.06 | 0.655 | 1.714 | - | - | - |
| **Behavioural** | | | | | | | | | |
| *Age at first sex* | *** | | | | | | | | |
| <16 | 2.208*** | 1.514 | 3.221 | | | | 1.65 | 1 | 2.73 |
| 16-17 | 1.342 | .928 | 1.939 | | | | 1.39 | 0.88 | 2.2 |
| 18-24 | RC | | | | | | RC | | |
| *Age at first cohabitation* | *** | | | * | | | *** | | |
| <15 | 38.257*** | 16.604 | 88.146 | 0.558* | 0.345 | 0.903 | 3.19*** | 2 | 5.07 |
| 15-17 | 20.03*** | 13.551 | 29.605 | 0.897 | 0.64 | 1.258 | 1.69** | 1.16 | 2.45 |
| 18 -24 | RC | | | RC | | | RC | | |
| *Age at first birth* | - | - | - | - | - | - | *** | | |
| < 15 | | | | | | | 42.96*** | 21 | 87.86 |
| 15-17 | | | | | | | 6.51*** | 3.79 | 11.19 |
| 18-24 | | | | | | | RC | | |

Source: DRC-DHS-2013-2014; computed by author

***=p<0.001, **=p<,0.01, *=p<0.05(***,**,and * indicated the level of significance at specific level). RC= reference category

**Table A. 29 Binary logistics analysis results of Antenatal care and Skilled birth assistance received in DRC 2013-2014**

| Independent variables | ANC Received: Model VI | | | SBA Received: Model VII | | |
|---|---|---|---|---|---|---|
| | Odds Ratios(OR) | 95% C.I.for OR | | Odds Ratios(OR) | 95% C.I.for OR | |
| | | Lower | Upper | | Lower | Upper |
| **Demographic** | | | | | | |
| *Marital status* | | | | * | | |
| Married | 1.204 | 0.915 | 1.584 | RC | | |
| Living with partner | 1.248 | 0.934 | 1.668 | 1.481* | 1.08 | 2.03 |
| widowed/Divorced/Separated | RC | | | 0.98 | 0.65 | 1.47 |
| *Birth order* | | | | | | |
| Birth order second or more | RC | | | - | - | - |
| Birth order one | 1.438*** | 1.216 | 1.701 | | | |
| **Socio- cultural** | | | | | | |
| *Religion* | * | | | * | | |
| Catholic | RC | | | RC | | |
| Protestant | 1.045 | 0.849 | 1.285 | 0.882 | 0.65 | 1.2 |
| Kimbaguist | 0.468** | 0.269 | 0.813 | 0.588 | 0.29 | 1.21 |
| Other Christians | 0.937 | 0.757 | 1.161 | 0.624** | 0.45 | 0.86 |
| Musilm | 1.669 | 0.801 | 3.477 | 1.147 | 0.33 | 4.05 |
| Animist/Other&No religion | 0.646 | 0.332 | 1.256 | 0.368* | 0.17 | 0.8 |
| *Ethnicity* | ** | | | *** | | |
| Bakongo Nord & Sud | RC | | | RC | | |
| Bas-Kasai et Kwilu-Kwango | 1.161 | 0.601 | 2.246 | 0.097 | 0 | 1.9 |
| Cuvette central & Foreigners | 2.021* | 1.013 | 4.031 | 0.193 | 0.01 | 3.63 |
| Ubangi et Itimbiri"&"Pygmy/Other | 2.363* | 1.127 | 4.957 | 0.255 | 0.01 | 4.9 |
| Uele Lac Albert | 3.094* | 1.316 | 7.275 | 1.491 | 0.07 | 31.5 |
| Basele-K , Man. et Kivu | 5.83*** | 2.375 | 14.312 | 0.938 | 0.04 | 21.56 |
| Kasai, Katanga, Tanganika"&Lunda | 1.574 | 0.758 | 3.266 | 0.198 | 0.01 | 3.91 |
| **Socio- economic** | | | | | | |
| *Women's educational level* | *** | | | | | |
| Higher | RC | | | RC | | |
| No education | 0.114* | 0.017 | 0.754 | 11.792 | 0.9 | 154.74 |
| Primary | 0.128* | 0.02 | 0.836 | 13.448 | 1.04 | 173.73 |
| Secondary | 0.188 | 0.029 | 1.212 | 14.113 | 1.11 | 179.73 |
| *Husband d'/partner's educational level* | | | | *** | | |
| Tertiary | RC | | | RC | | |
| No education | 0.869 | 0.534 | 1.414 | 0.177** | 0.06 | 0.54 |
| Primary | 0.978 | 0.633 | 1.513 | 0.166** | 0.06 | 0.48 |
| Secondary | 1.09 | 0.751 | 1.581 | 0.3* | 0.11 | 0.84 |
| *Employment status* | | | | | | |
| Yes RC | RC | | | RC | | |
| No | 1.045 | 0.871 | 1.255 | 1.681** | 1.24 | 2.29 |
| *Husband d'/partner's occupation* | * | | | *** | | |
| Skill & Unskill manua l | RC | | | RC | | |
| Not Working | 1.992* | 1.133 | 3.504 | 0.294** | 0.12 | 0.71 |
| Techn/Professional/Man.&Clerical | 1.484* | 1.019 | 2.162 | 0.856 | 0.42 | 1.74 |
| sales | 1.883** | 1.303 | 2.721 | 1.066 | 0.51 | 2.22 |
| Agriculture Self-employed | 1.547* | 1.096 | 2.184 | 0.913 | 0.48 | 1.74 |
| Agriculture -Employee/Army | 1.326 | 0.888 | 1.98 | 1.459 | 0.71 | 3.01 |
| Services | 1.357 | 0.944 | 1.952 | 2.897** | 1.33 | 6.32 |
| *Exposure to medias* | | | | | | |
| Yes | RC | | | RC | | |

| | | | | | | |
|---|---|---|---|---|---|
| No | 0.757** | 0.618 | 0.927 | 0.705 | 0.49 | 1.01 |
| *Family Wealth Index* | | | | *** | | |
| Poorest | 1.069 | 0.695 | 1.644 | 0.026*** | 0 | 0.14 |
| Poorer | 1.14 | 0.751 | 1.728 | 0.032*** | 0.01 | 0.17 |
| Middle | 1.267 | 0.848 | 1.891 | 0.039*** | 0.01 | 0.2 |
| Richer | 1.31 | 0.923 | 1.859 | 0.1** | 0.02 | 0.5 |
| Richest | RC | | | RC | | |
| **Enabling** | | | | | | |
| *Covered by health insurance* | - | - | - | | | |
| Yes | | | | R C | | |
| No | | | | 0.277 | 0.06 | 1.34 |
| *Province* | *** | | | *** | | |
| Kinshasa | RC | | | RC | | |
| Bandundu | 0.305*** | 0.169 | 0.551 | 4.311 | 0.52 | 35.56 |
| Bas-Congo | 0.421* | 0.201 | 0.881 | 2.37 | 0.07 | 82.55 |
| Equateur | 0.38** | 0.197 | 0.735 | 1.086 | 0.12 | 9.69 |
| Kasai-Occidental | 0.339** | 0.171 | 0.671 | 2.892 | 0.33 | 25.28 |
| Kasai-Oriental | 0.301*** | 0.158 | 0.572 | 1.196 | 0.14 | 10.29 |
| Katanga | 0.336** | 0.173 | 0.651 | 0.541 | 0.06 | 4.71 |
| Maniema | 0.048*** | 0.019 | 0.122 | 0.45 | 0.04 | 5.63 |
| Nord-Kivu | 0.096*** | 0.04 | 0.23 | 0.663 | 0.06 | 7.98 |
| Orientale | 0.183*** | 0.087 | 0.386 | 0.553 | 0.06 | 5.28 |
| Sud-Kivu | 0.076*** | 0.032 | 0.183 | 1.708 | 0.14 | 21.21 |
| *Place of residence* | | | | | | |
| Rural | RC | | | RC | | |
| Urban | 1.334* | 1.028 | 1.73 | 1.782 | 1.11* | 2.85 |
| **Behavioural** | | | | | | |
| *Smoking status* | - | - | - | | | |
| smoking | | | | RC | | |
| Don't smoke | | | | 0.336* | 0.11 | 0.99 |
| *Age at first cohabitation* | - | - | - | * | | |
| <15 | 1.049 | 0.792 | 1.39 | RC | | |
| 15 - 17 | 1.105 | 0.894 | 1.367 | 0.714* | 0.52 | 0.98 |
| 18 and above | RC | | | 0.924 | 0.65 | 1.31 |
| *Age at first birth* | 0.52 | - | - | - | - | - |
| 20 and plus | RC | | | | | |
| <15 | 0.785 | 0.515 | 1.197 | | | |
| 15 - 19 | 0.902 | 0.704 | 1.156 | | | |