

**THE PREVALENCE AND FACTORS ASSOCIATED WITH TEENAGE PREGNANCY  
IN KENYA; A CROSS-SECTIONAL SURVEY**

**By**

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**W62/87369/2016**

*A Thesis submitted as a partial fulfilment for a Master of Science Degree in Medical Statistics at  
the University of Nairobi Institute of Tropical and Infectious Diseases (UNITID)*

**2019**

**DECLARATION**

I declare that this dissertation is my original work and has not been submitted to any other institution of research or higher learning. Where information has been derived from other sources, it has been duly acknowledged.

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## **DEDICATION**

I dedicate this paper to the adolescent sexual reproductive health fraternity, To Almighty God for enabling me to achieve my goals and to my family and friends.

## **ACKNOWLEDGEMENT**

I would like to thank Almighty God for the opportunity to study. Special thanks to my supervisors, Dr Peter Nguhiu and Dr Anne Wang'ombe for their immense support, encouragement and counsel in this research work.

To Lilian, Carol, Janet, Mutiso, Isaiah, Philip and Sam for your ideas, encouragement and a wonderful time. I am forever indebted.

To my Family and Friends for their tireless support and prayers.

To PMA2020 for giving me the consent to use their secondary data for this project.

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## **ABBREVIATIONS**

ASRH – Adolescent Sexual Reproductive Health

COCs – Combined Oral Contraceptives

DEPO - Depo Provera

KDHS - Kenya Demographic Health Survey

LARC - Long Acting Reversible Contraceptives

PMA - Performance Monitoring and Accountability

POPs - Progestin only Contraceptives

STDs - Sexually Transmitted Diseases

WHO - World Health Organization

UNFPA- United Nations Population Fund

## **ABSTRACT**

**Background:** Teenage pregnancies account for 18% of all pregnancies in Kenya posing a health challenge in prevention of maternal mortalities, unsafe abortions and gender equity for these girls. The adolescent birth rate in Kenya is quite high at 96 live births per 1000 women compared to the global adolescent birth rate of 44.1 births per 1000 women. Projections indicate that the number of births for this age group is expected to rise worldwide by 2030 with the greatest contribution being from Africa. Teenage pregnancies interact with various contextual factors at individual, community, societal levels, health, education, social and economic outcomes and eventually impose a burden on economies and health systems in developing countries. This study is aimed to identify factors that contribute to the high incidence of teenage pregnancy irrespective of the interventions that have been introduced by the government to mitigate this phenomenon.

**Objective:** To determine the prevalence and factors contributing to pregnancies among teenagers aged 15-19 years in Kenya.

**Methodology:** The study analyzed secondary data from a retrospective cross-sectional survey, the Performance Monitoring and Accountability (PMA2020) database from the 2014. A total of 503 participants were analyzed. Focused exploratory analysis was performed to obtain descriptive statistics and a Log-binomial regression model was used to determine the factors affecting teenage pregnancy in Kenya.

**Results:** The analysis focused on 503 girls sampled from the PMA2020 database. Of these, 31% of the teenagers had a pregnancy history “ever pregnant”. The adjusted prevalence ratio of reporting a pregnancy history were greater for girls aged 18-19 years (PR=1.29), those with a secondary education were (PR=0.54) less likely to report a pregnancy compared to those with



primary or college education, teenagers who had a history of contraceptive use (PR=1.34) were more likely to report a pregnancy history compared to those who had never used a contraceptive, those who had reported a sexual debut of 12-14 years (PR=0.76) or more than 15 years (PR=0.81) were less likely to report a pregnancy history compared to those aged 11 years and below.

**Conclusion:** Findings from this study showed age of a teenager, education level attained, contraceptive use and age at first sex as important predictors in understanding what influence the occurrence of teenage pregnancy in Kenya. There is need for comprehensive sexual education to equip teenagers with information on safer sex in order to reduce the high prevalence of teenage pregnancy

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## CHAPTER ONE

### 1. INTRODUCTION

#### 1.0 Background Information

Teenage pregnancy refers to girls who are aged 13-19 who become pregnant. According to studies carried out in Kenya, there has been a decrease in the fertility rate of this age group that is from 114 to 103 to 96 births per 1000 women in 2003, 2008 and 2014 respectively (KDHS, 2014). This number still remains high compared to the global adolescent fertility rate which is 44.1 births per 1000 women (WHO, 2017b) in the same age group. Projections indicate that there will be an increase in teenage pregnancy globally by 2030 (WHO, 2017b) and therefore more needs to be done to mitigate this.

Almost 95% of all teenage pregnancies occur in developing countries and are more likely associated with poor, less educated and rural populations. Studies show that education, socioeconomic factors and low contraceptive use are some of the factors contributing to teenage pregnancies. Contraceptives have been proven to decrease the burden of unintended pregnancies, promotes lower fertility rates, and improves maternal child health, well-being, and women's gender equality efforts (Amo-Adjei, Mutua, Athero, Izugbara, & Ezeh, 2017).

There are 23 million girls with an unmet need for contraceptives and are at risk of unintended pregnancies. In 2016, there were 21 million teenage pregnancies in lower and middle income countries with 49% of these being unintended (WHO, 2017a). Early and unintended pregnancies are influenced by individual, interpersonal, community and societal factors and contribute to poor health, educational and socioeconomic outcomes which burden the economic development and health systems in developing countries(WHO, 2017a)

According to KDHS, the prevalence of contraceptive use among teenagers is 40.2% and 50.1% among married and sexually active unmarried teenagers respectively. This prevalence remains low compared to other age groups. This is despite 98% of teenagers reporting knowledge on modern method of contraceptives. Teenagers have the highest unmet need for contraceptives at 23% compared to other women of the reproductive age.(KDHS, 2014)

A study conducted in USA attributed an annual decrease in teenage pregnancy by 5.6% with increased contraceptive use among sexually active teenagers.(Lindberg, Santelli, & Desai, 2016)

Teenage pregnancy highly contributes to unsafe abortions, maternal and infant mortality globally. About 3 million teenagers aged 15-19 endure unsafe abortions each year while stillbirths and infant mortality are 50% higher compared to women in other age groups. Teenage pregnancy also poses a higher risk for other complications associated with pregnancy such as eclampsia, postpartum hemorrhage, puerperal endometriosis and systemic infections. It is also associated with factors such as early marriages, stigma against unmarried teenagers, rejection from parents and peer and fewer employment opportunities due to limited skills and education therefore perpetuating the cycle of poverty.(WHO, 2018)

It contributes to a continuous generational cycle of poor health, poverty and mortality from pregnancy related complications among girls aged 15-19 years. Research shows that adolescents who give birth are more likely to have larger number of children compared to women in other age groups.(KDHS, 2014)

Teenage pregnancies have adverse socioeconomic effects on these teenagers, their families and society. They are more likely to experience sexual and gender based violence within marriage,

school drop out as a result of early pregnancy and marriages, perpetuate the cycle of poverty due to low education attainment leading to fewer skills and job opportunities.(WHO, 2017a)

Adolescent and sexual reproductive health is an important aspect in the health and well-being of future generations for any country. WHO has spearheaded efforts in reduction of teenage pregnancy which pose huge burden in many countries. In 2011, it adopted resolutions for its member states to fast track efforts to improve the health of young people through

- Revising policies to protect girls against early marriages
- Providing adolescents with access to contraceptive and reproductive health services
- Promoting access to comprehensive sexual and reproductive health education

Kenya developed the Adolescent Sexual Reproductive Health policy in 2015 with an aim of promoting sexual reproductive health rights, contribute to increased access to information, reduce the burden of sexually transmitted illnesses and early unintended pregnancies, reduce harmful practices and sexual gender based violence among the adolescents (Ministry of Health Government of Kenya, 2015)

### **1.1 Problem Statement**

Teenage pregnancies account for 18% of all pregnancies in Kenya. This poses a health challenge in reduction of maternal mortalities, unsafe abortions and gender equality for these teenagers. Maternal mortality among adolescents is twice as high compared to that of older women in their 20's.(BOG, 2007).

Adolescents and young people constitute 18% and 26% of the world population respectively. It is therefore important to invest in the health of these groups for economic and social

development of a nation. The highest adolescent pregnancy rates are in Africa which also has the highest unmet need for contraception (Godia, Olenja, Hofman, & Broek, 2014)

Many girls drop out of school due to early pregnancy or marriage resulting in lower education attainment, fewer skills and employment opportunities. One of the ways of achieving the sustainable development goals is by reducing the number of teenage pregnancies as this will see more girls staying in school and therefore increase the likelihood of escaping poverty.

Teenage pregnancies are influenced by various contextual factors at individual, community and societal levels. This burden has an adverse effect on these girls including their health, education, social and economic outcomes and imposes burden on economies and health systems in developing countries.

## **1.2 Justification**

Teenage pregnancies still remain to be a burden in most developing countries with major health implications among the teenagers. The global adolescent fertility rate has been decreasing over the years from 65 births per 1000 girls in 1990 to 47 births per 1000 girls in 2015 while adolescent birth rate in Africa stands at 102 live births per 1000 women and that of Kenya at 96 live births per 1000 women. This number is significantly large compared to the global adolescent birth rate. Projections indicate that the number of births for this age group is expected to rise by 2030 with the greatest burden in Africa.(WHO, 2014)

In developing countries, it is estimated that there are 21 million teenage pregnancies annually. Of these, there are 3.1 million unsafe abortions conducted annually contributing to the burden of maternal mortality and morbidity. Half of these pregnancies are estimated to be unintended.

Although interventions have been introduced to mitigate this social problem, more needs to be done to reduce the number of teenage pregnancies which still have a significant burden in our societies.

Examining disparities in demographic factors and socioeconomic differences is critical in creating understanding that will help in policy making. This study aims to identify significant factors contributing to the high prevalence of teenage pregnancy in the sampled counties irrespective of the interventions that have been introduced by the government to mitigate this phenomenon.

### **1.3 Objectives**

#### **1.3.1 Broad objective**

To determine the prevalence and factors contributing to pregnancies among teenagers aged 15-19 years in Kenya

#### **1.3.2 Specific objectives**

- i) To determine the prevalence of teenage pregnancy in Kenya.
- ii) To determine the factors contributing to the occurrence of teenage pregnancy in Kenya

### **1.4 Research Questions**

- i) What is the prevalence of teenage pregnancy in Kenya
- ii) What are the factors contributing to the occurrence of teenage pregnancy in Kenya



## **CHAPTER TWO**

### **2. LITERATURE REVIEW**

#### **2.0 Introduction**

Teenage pregnancy refers to girls who are aged 13-19 who become pregnant. According to studies carried out in Kenya, there has been a decrease in the fertility rate of this age group that is from 114 to 103 to 96 births per 1000 women in 2003, 2008 and 2014 respectively (KDHS, 2014). This number still remains high compared to the global adolescent fertility rate which is 44.1 births per 1000 girls of the same age group (WHO, 2017b). Projections indicate that there will be an increase in teenage pregnancy globally by 2030 and therefore more needs to be done to mitigate this.

Teenage pregnancy is a global problem affecting countries and have a high occurrence in marginalized communities characterized by poverty, lack of education and unemployment. According to WHO, inequality in gender and social norms condone sexual violence particularly amongst adolescents putting girls at greater risks of unintended pregnancies. For some adolescents, teenage pregnancy is planned. There are about 15 million teenagers married each year and 90% percent of teenage pregnancies occur within marriage. However, many of the adolescents have unplanned pregnancies with 23 million girls in developing countries having an unmet need for contraceptives resulting in half of all teenage pregnancies in developing countries being unwanted (WHO, 2014).

The leading causes of death among pregnant teenagers arise from complications during their pregnancy and childbirth with approximately 3.9 million girls undergoing unsafe abortion yearly.

They are at a higher risk of eclampsia, puerperal endometriosis and systemic infections compared to women aged 20-24. Babies born to teenage mothers have higher risks of low birthweight, preterm deliveries and other neonatal conditions compared to those born to women aged 20-24

Teenage pregnancy has a negative social-economic effect on girls. These girls face stigma and rejection from parents and peers especially among the unmarried ones. They are also at risk of gender based violence from their partners. Since most teenage pregnant girls drop out of school, they may have fewer skills and job opportunities further exacerbating the cycle of poverty. It is estimated that child marriages reduce the future earnings by 9% reducing the income these girls would have earned over time if they had not had early pregnancies.

Research reveals that teenage mothers experience poorer health and social outcomes mostly linked to inadequate care. Girls aged 15-19 have a higher chance of dying from childbirth, have low birth weight babies who are at higher risks of malnourishment and poor development compared to girls aged 20-24. This was evidenced in a study that showed a significant higher incidence of low birthweight and premature delivery among adolescent girl at 10.2% and 14.8% respectively compared to women aged 20-34 at 5.6% incidence on low birthweight and 8.6% premature delivery (Kuo et al., 2010).

One of the ways of reducing teenage pregnancy is through sex education. This should not only be geared through prevention of STDs and pregnancies but focused on adoption of attitudes about positive sexual behaviour to delay beginning of sexual life among the teenagers (Abma & Martinez, 2017).

## **2.1 Prevalence and Factors Affecting Teenage Pregnancies**

### **2.1.1 Socioeconomic and environmental factors**

Teenage pregnancies are more common in marginalized communities which are usually characterized by poverty, lack of education and employment opportunities. Globally, around 15 million girls are already married before the age of 18 years and 90% of births occur within marriage.(Franjić, 2018)

The prevalence of teenage pregnancy varies by region with Nyanza at 22% and Rift Valley and Coast at 21%. A study conducted on urban differences showed that girls from Kisumu were more likely to engage in early sex and had four times the odds of becoming pregnant compared to girls from Nairobi. Majority of the pregnancies were reported as unintended demonstrating a gap in contraceptives use (Okigbo & Speizer, 2015)

Wealth quintile is an important factor that has an effect on education, cultural practices such as early marriages. Studies show that the prevalence of teenage pregnancy is higher in the lowest wealth quintile where one in four girls have already begun child bearing compared to one in ten girls in the highest quintile (PRB, 2015)

### **2.1.2 Individual factors and cultural factors**

One of the regular exposure to risk of pregnancy is marriage. In populations where the age first marriage is low, there is a tendency for early childbearing and high fertility rates. Birth intervals among girls aged 15-19 are lower compared to women in other age group (KDHS, 2014).

In Sub-Saharan Africa, factors such as early marriages, lack of parental guidance, lack of comprehensive sex education, early sex debut, alcohol and substance abuse, education status and

unfriendly adolescent reproductive services had an association with teenage pregnancy (Franjić, 2018)

Education is a protective factor for early pregnancy. In Kenya, having a secondary or higher education had an association with delayed sex debut and first pregnancy. Girls with secondary education level or higher account for lesser teenage pregnancies compared to those without any education at 33.2%. Household characteristics such as religion, employment status, household size, wealth, place of residence were associated with teenage pregnancy. The study also revealed that women become knowledgeable about contraceptives after their first sexual experiences or first pregnancy. There is need for conducting comprehensive education to equip adolescents with appropriate information on safer sex (Okigbo & Speizer, 2015).

Studies show that 15% of teenage girls have already given birth while 3% of them are pregnant with their first child. The number increases rapidly with age, that is, 3% among girls aged 15 years to 40% among girls who are 19 years. It is also lower among girls who have attained a secondary or higher level of education at 12% (KDHS, 2014).

A study conducted in Western Kenya on Teen pregnancy in rural Western showed that the odds for reporting a pregnancy history were higher for older girls, those who were ever married or cohabiting, those with a primary education or less and girls who had experienced partner violence in their union. The study also showed that three-quarters of the girls pregnant had unwanted pregnancies (Omoró et al., 2017)

### 2.1.3 Contraceptive usage among Teenagers

Contraceptive is a method used to prevent or delay pregnancy. There are different types of contraceptives

- Permanent/ nonreversible methods such as vasectomy and tubal ligation
- Long acting reversible methods such as intrauterine device (the coil), implants (Implanon and Jadelle)
- Short acting hormonal methods such as the pill (COC or POP), injectable (Depo)
- Emergency contraceptive such as the Ponistor-2
- Barrier methods such as condoms (male and female), diaphragm, spermicides
- Dual protection method that prevents both pregnancy and STDs
- Other methods include use of cycle beads, lactation amenorrhea method, withdrawal

According to UNFPA 2016, the global contraceptive rate among married and sexually active girls is 20% and 51% respectively. The current contraceptive rate among teenagers in Kenya is 40.2% and 50.1% among the married and sexually active girl.

According to survey carried out by KDHS in 2014, 98.2% of teenagers who were interviewed had knowledge of any of the modern contraceptive methods offered. Unmet need for contraceptives remains highest among the 15-19 year-old girls at 23% compared to women in other groups. Globally, there are 12.8 million who have an unmet need for contraceptives and this is estimated to increase to 50 million by 2030 if no intervention is done. Lowering the incidence of unmet need for contraceptives and strengthening health systems would contribute greatly to reduction in teenage pregnancy

Contraceptive use plays a major role in fertility. There are barriers that still hinder adolescents from accessing contraceptives such as their age, marital status, lack of knowledge about contraceptives leading to poor use, fear of side effects and stigma from health care providers.

Many adolescents worldwide face challenges to access of contraceptives due to restrictive policies on contraceptives provision based on age and marital status, stigma from health workers in acknowledging adolescents' sexual health needs, financial constraints and poor knowledge on contraceptives. Where services are available, fear of confidentiality breach as well as stigma associated with premarital sex may hinder access to contraceptives even if the clinics are youth friendly. Those that access contraceptives face barriers in consistent use due to pressure to have children among the married girls, stigma surrounding premarital sex and contraceptives, lack of knowledge on correct use and side effects of contraceptives (UNFPA, 2016)

Contraceptives are the major reason for decline in teenage pregnancy. One of the effective factor that has contributed to decline in teenage pregnancy in the US is sexual education focusing on the risks of sex and crisis in teenage pregnancy. The study also showed that increased access and proper use of contraceptives accounted for 28% decline in teenage pregnancy from 2007-2012. In Latin America, contraceptive use has accounted to a reduction in fertility by 6.8% while in Sub- Saharan Africa, it has contributed to a 4.1% reduction. The demand for contraceptives is usually higher for sexually active adolescents compared to their married counterparts.(UNFPA, 2016)

Despite increased use of contraceptives among adolescents, consistency in use is shorter resulting in failure compared to older women. The mostly used contraceptives are the pill and injectable at 71% followed by male condoms at 21%. LARC are the least used method despite their higher effectiveness in preventing pregnancies among teenagers

In East and Southern Africa, girls with a secondary education and higher (47%) are 2.5 times more likely to use contraceptives compared to those who have no education (18%).

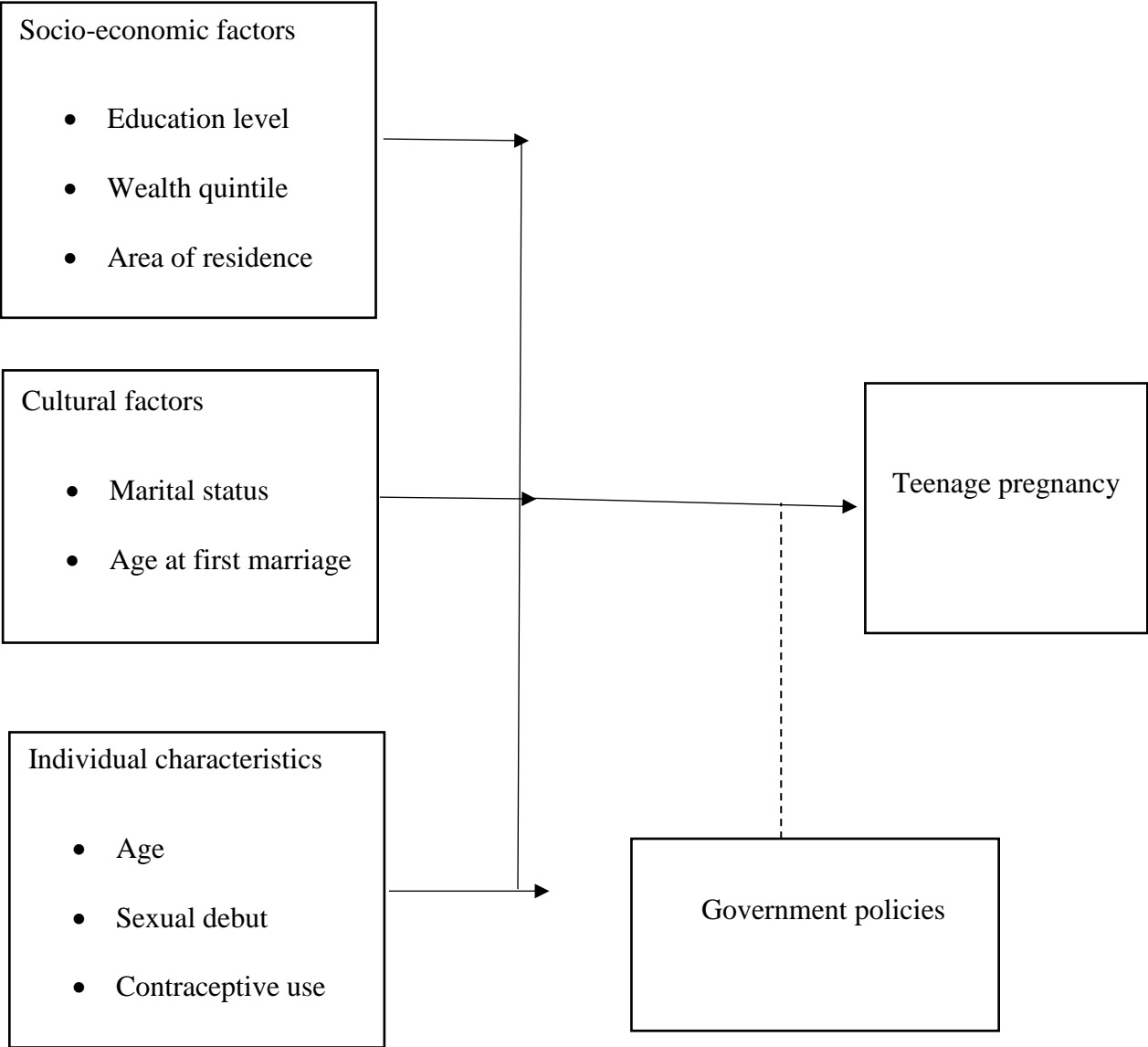
Study shows that 81% of adolescents used a contraceptive during sexual debut. Condoms are the mostly used. Age has an association with contraceptive use with adolescents younger than 14 years accounting for 70.2% use compared to 84.2% among those aged 15-19 (Abma & Martinez, 2017).

In as much as increased contraceptive use prevalence has reduced teenage pregnancy, adoption of sex education leads to increased demand and effective use of contraceptives resulting in reduction of unintended pregnancies and unsafe abortions.

## **2.2 Conceptual framework**

Conceptual framework is aimed at assisting a researcher to develop an understanding as well as awareness of the variables under scrutiny. It shows the linkage between independent and dependent variables

**Figure 1: conceptual framework for factors affecting teenage pregnancy**





## **CHAPTER THREE**

### **3. METHODOLOGY**

#### **3.1 Study Design**

This was a secondary data analysis and the study design was a retrospective cross-sectional survey that involved data obtained from PMA2020 database. The study will utilized data from 2014 round 1 survey.

#### **3.2 Study Area**

The study covered nine counties in Kenya; Kitui, Kiambu, Nyamira, Siaya, Bungoma, Kericho, Nandi, Nairobi and Kilifi in Eastern, Central, Nyanza, Western, Rift Valley, Nairobi and Coast regions respectively. These counties are a representative of the regions in Kenya except the North Eastern Region.

#### **3.3 Study Population**

The target population for the study included all the teenage girls aged 15-19 years old in the PMA2020 database for the year 2014.

#### **3.4 Inclusion criteria**

Female participants aged 15-19 years at the time of data collection were included.

#### **3.5 Exclusion criteria**

Female participants younger than 15 or over 20 years at the time of data collection were excluded.

#### **3.6 Data source**

Data for the secondary data analysis was extracted from the PMA2020 database.

PMA2020 is a national database that uses open data kit (ODK) innovative mobile technology to collect real time data from households and service delivery points. It is implemented by International Centre for Reproductive Health Kenya. Through surveys, resident enumerators use ODK to collect information on key health and development indicators including water sanitation and hygiene, family planning, gender based violence, reproductive health nutrition and HIV from ten counties in Kenya annually at household and facility levels.

PMA2020 utilizes multi-stage cluster sampling using urban-rural, major regions and districts as strata. National representative enumeration areas are then sampled. Each enumeration area has household and service delivery points mapped. Households are systematically sampled and all females aged 15-49 in each household interviewed. The surveys are carried out by resident enumerators who are women over 21 years and from or near the enumeration areas. The data is collected in six weeks and takes place semi-annually in the first two years and annually thereafter. Data is aggregated at community, district and national levels.

### **3.7 Sampling**

#### **3.7.1 Sample size**

The original data comprised of 4175 female respondents aged 15-49. Data was filtered to include respondents in the study's criteria of girls aged 15-19 years. A total of 503 participants was used for the study.

The sample size calculation formula was given by;

$$n = \frac{Z_{1-\alpha}^2 p(1-p)}{d^2}$$

Where;

$n$  = the required sample size

$Z_{1-\alpha}$  = critical value associated with significance level

$p$  = estimate of the proportion

$d$  = margin of error/precision

For sample size calculation, I used  $\alpha$  as 95%,  $P$  as 18% (proportion of teenage pregnancy in Kenya) and  $d$  as 1/5 of the estimate of the proportion ( $p$ ).

The formula for adjusted sample size is given by;

$$n' = \frac{n}{1 - r\%}$$

Where;

$n'$  = the adjusted sample size

$n$  = the calculated sample size

$r\%$  = non-response rate is anticipated

I used  $r$  as 10% for the adjusted sample size calculation.

The adjusted sample size was 483 observations.

The final sample size was 503.

## **3.8 Variables**

### **3.8.1 Outcome variable**

The outcome variable was pregnancy status, those who had had a live birth or are pregnant with their first child, which was measured by “ever pregnant” a binary outcome recorded as either Yes or No.

### **3.8.2 Explanatory variables**

- i. Demographic: Age, residence, age at first sex
- ii. Socio-economic: Education level, wealth quintile, marital status,
- iii. Contraceptive use: this was assessed using various questions asked during the survey such as age at first use, method used, knowledge of contraceptives, reason for none use

## **3.9 Data management and analysis**

### **3.9.1 Data management**

The data used was collected using a standardized questionnaire collected through the open data kit mobile technology that contained skip-patterns and built in response constraints to prevent data entry errors.

The dataset was evaluated carefully to ensure that all the important variable for the study were included and that data was operationalized and coded appropriately. An assessment was also done to determine the type of missing data. Non-random missing data was imputed depending on the trend of the available data.

Data was cleaned, managed and analysed using STATA 13.1. Focused exploratory analysis was performed to obtain descriptive statistics and results presented in tables and histograms plotted to depict the distribution of continuous variables. Frequencies and proportions were used to analyse categorical data using contingency tables.

Log-binomial regression was used to model binary outcome variables. It is a binomial generalized linear model whose link function is a natural logarithm. It models for Relative Risk (Risk Ratio or Prevalence Ratio) and combines a set of predictors to estimate the probability that a particular event will occur. It determines if a relationship exists between a binary response variable and a set of explanatory variables. The prevalence ratio calculated indicates the amount of change in the outcome variable expected from each unit change in explanatory variable when all other predictors are held constant (Daniel & Cross, 2013)

The log-binomial regression model is given by

$$\log(\pi) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots \dots \dots \beta_k X_k$$

Where;

$\pi$  is the probability of success given by P [Y=1] for a binary outcome Y.

$\beta_0, \beta_1, \beta_2, \dots \dots \dots \beta_k$  are the regression parameters.

$X_1, X_2, \dots \dots \dots X_K$  are the predictor variables

*Assumptions of the model;*

- The outcome variable is from a distribution within the exponential family

- the mean ( $\mu$ ) is normally distributed on a set of variables

### 3.9.2 Variable definition in data analysis

**Table 1: Dummy table for data analysis**

Variable	Definition	Measurement ( dummy variables)
Ever pregnant	Occurrence of teenage pregnancy	1 if pregnant or has started childbearing, 0 if otherwise
Location	The place of residence of the teenager	1 if lives in rural, 0 if otherwise
Socio-economic status	The wealth quintile of the teenager's household	1 if middle quintile, 0 if otherwise 1 if high quintile, 0 if otherwise
Contraceptive use	If a teenager has ever used a contraceptive	1 if ever used a contraceptive, 0 if otherwise
Age at first sex	Age of the teenager when she had sex for the first time	1 if age is 12-14, 0 if otherwise 1 if age over 15, 0 if otherwise

Level of education	Highest education level attained at the time of survey	1 if primary level, 0 if otherwise  1 if secondary level attained, 0 if otherwise  1 if college level attained, 0 if otherwise
Marital status	Teenager's current marital status	1 if currently married, 0 if otherwise  1 if separated/divorced, 0 if otherwise

**3.10 Ethical considerations**

Permission to use secondary data was sought from IPMUS which is a global platform that harmonizes and provides census and survey data on behalf of PMA2020. Data from the PMA2020 database had already been de-identified and anonymity of the survey participants exists. Data was only used for this study and not shared for use in other studies that had not sought consent.

In this study, participants' consent was not obtained since the data is already de-identified. However, during the survey, all participants had to give informed consent before participating in the study.

The study was presented for approval to the Ethical Review Committee of the Kenyatta National Hospital/University of Nairobi College of Health Sciences

### **3.11 Study Limitations**

Like any other study, this study was faced with some limitations. Firstly, there was no data collection on teenagers aged 13-14 years restricting the study to only those aged 15-19 years. There was limited control over the quality of the secondary data. The predictor variables contained in the dataset were also limited



## CHAPTER FOUR

### 4. RESULTS

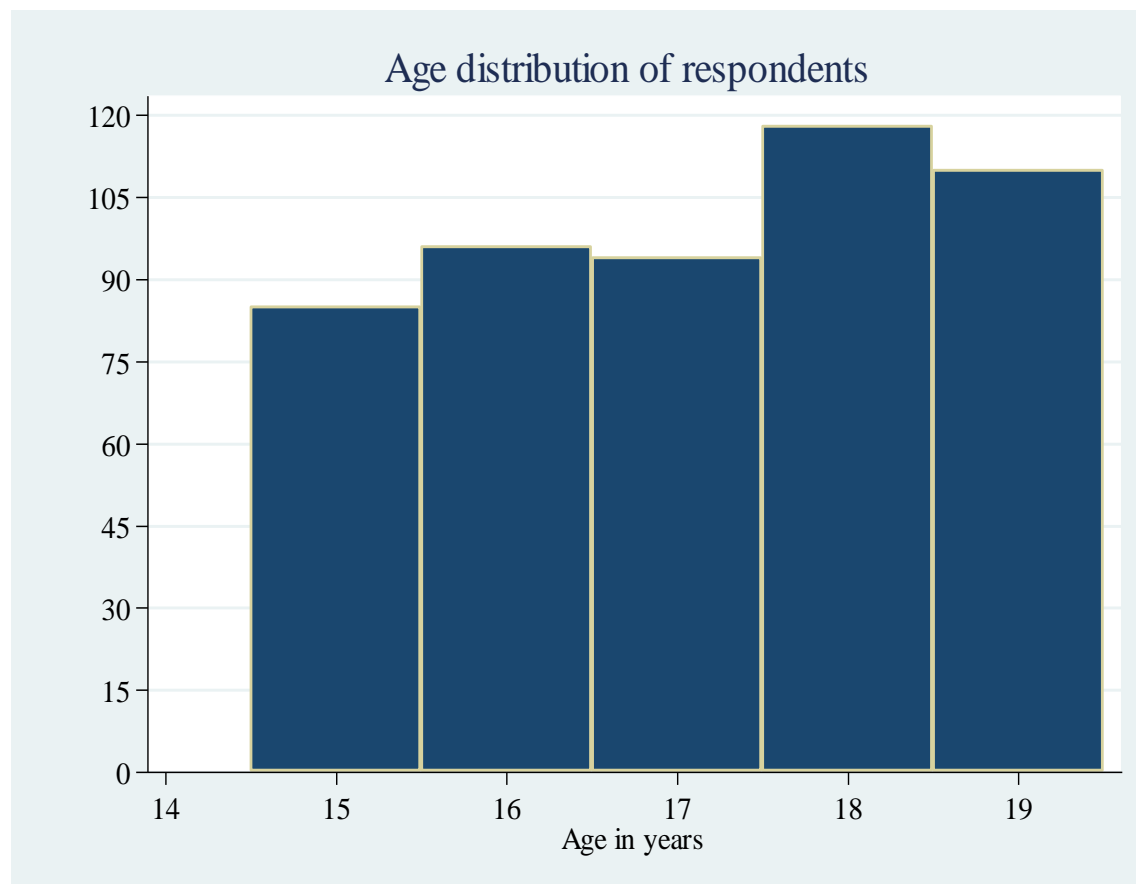
This chapter summarizes information obtained from PMA2020 database in 2014 where a sample of 503 teenagers aged 15-19 was extracted to provide information on factors affecting teenage pregnancy in Kenya.

#### Socio-Demographic Characteristics

**Table 2: Socio-demographic information**

Variable	Category	Frequency	Percent
Location	Urban	164	32.6
	Rural	339	67.4
Marital status	Currently married	68	13.5
	Currently living with a partner	24	4.8
	Divorced/Separated	4	0.8
	Never married	407	80.9
Education	Primary	267	53.1
	Post-Primary/vocational	9	1.8
	Secondary	217	43.1
	College	10	2.0
Wealth quintile	Lowest	222	44.1
	Lower	116	23.1
	Middle	79	15.7
	Higher	47	9.3
	Highest	39	7.8

Over two-thirds (67.4%) of the participants were from rural areas and a majority (80.9%) were never married. Approximately half (53.1%) had primary education while 43.1% had attended secondary education. Most of the respondents were in the lowest quintile (44.1%).



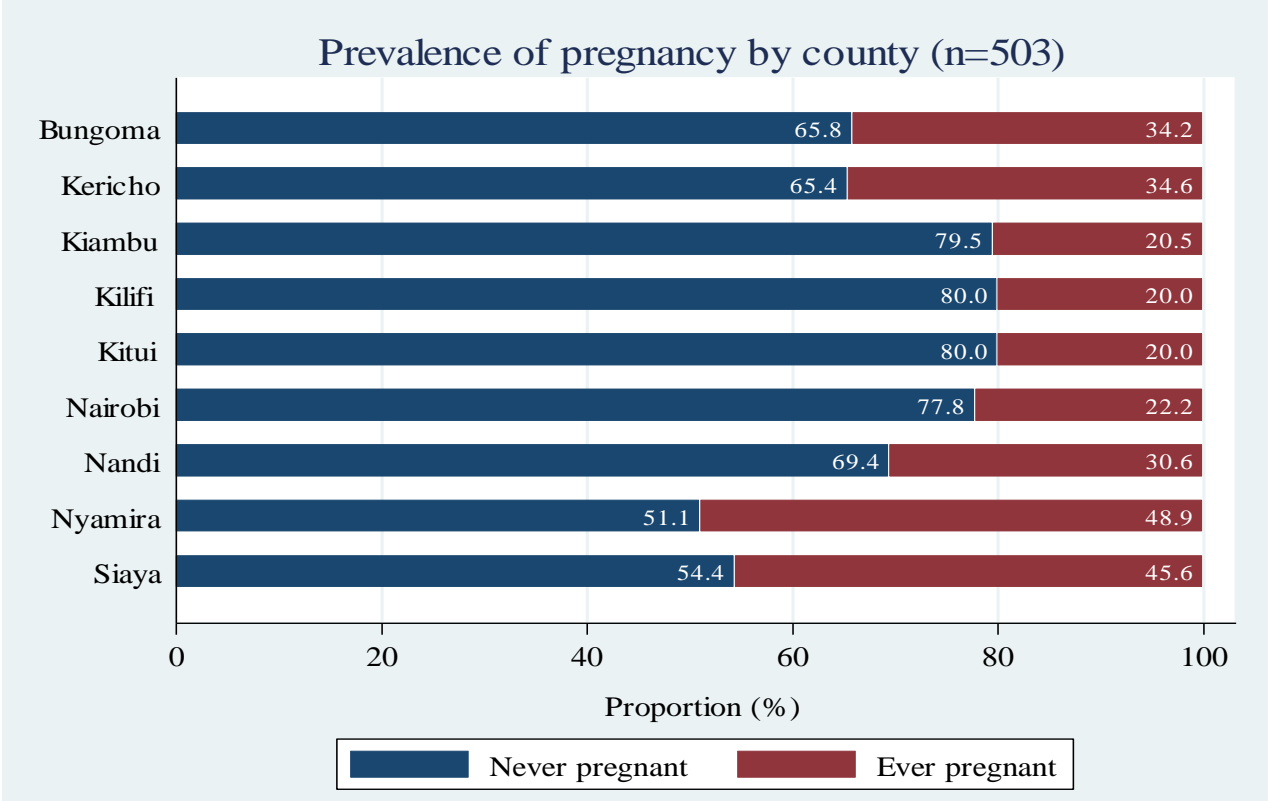
**Figure 2: Distribution of respondents' age**

There was a slight negative skew in the distribution of age as illustrated in figure 2. The median age was 17 years (IQR: 16-18) with the youngest being 15 years and the oldest 19 years.

**Table 3: Pregnancy history and parity of participants**

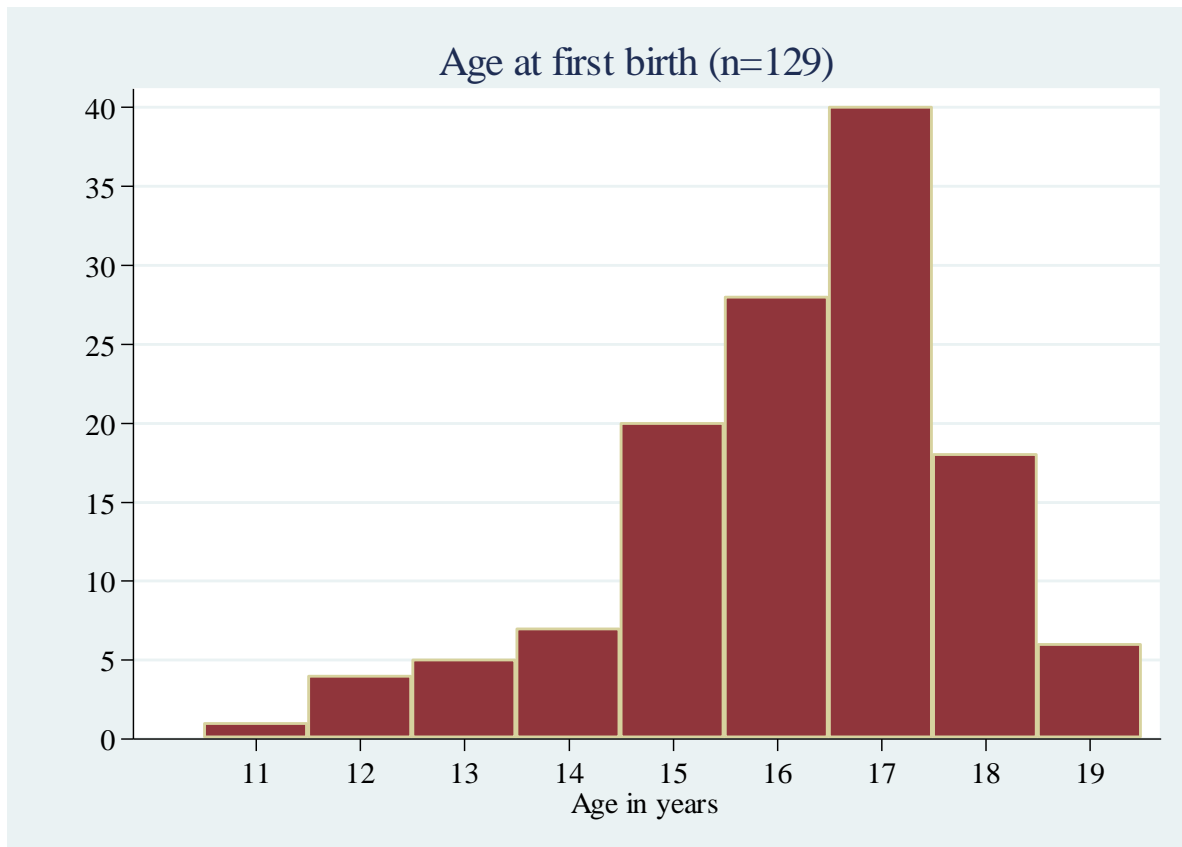
Variable	Category	Freq.	Percent
Ever pregnant	No	347	69.0
	Yes	156	31.0
Birth event	None	374	74.4
	One	106	21.1
	Two	19	3.8
	Three	4	0.8

The prevalence of teenage pregnancy in the pooled data was 31%, as presented in table 2. Majority of the respondents (21.1%) had given birth once.



**Figure 3: Respondents' pregnancy history by region**

The prevalence of teenage pregnancy was assessed per region and results are illustrated in figure 3. The counties with the highest prevalence of teenage pregnancy were Nyamira and Siaya at 48.9% and 45.6% respectively. Kitui and Kilifi counties had the lowest prevalence of 20% each.



**Figure 4: Distribution of age at first birth of respondents**

A majority of respondents (40/129; 31%) had their first birth at 17 years. The median age at first birth was 16 years (IQR: 15-17 years). With the youngest first birth at 11 years and oldest first birth at 19 years as shown in figure 4.

#### 4.1 Contraceptive use among teenagers

Questions were asked regarding respondents' sexual behaviour and their knowledge and use of contraceptives. Results are presented below.

**Table 4: Sexual behavior and contraceptive use among respondents**

Variable	Category	Freq.	Percent
Ever had sex	No	260	51.7
	Yes	243	48.3
Currently sexually active	No	387	76.9
	Yes	116	23.1
Knows contraceptives	No	218	43.3
	Yes	285	56.7
Ever used contraceptives	No	416	82.7
	Yes	87	17.3
Currently use contraceptives	No	433	86.1
	Yes	70	13.9
Ever used method of contraceptive	Implants	5	5.7
	IUD	1	1.2
	Injectables	54	62.1
	Pills	8	9.2
	Emergency pills	3	3.4
Wish to use contraceptive, but doesn't (unmet need)	Male condoms	16	18.4
	No	441	87.7
	Yes	62	12.3

Table 4 summarizes information on contraceptive use in the study population. About half (48.3%) of the study population had ever had sex while approximately one-fifth (23.1%) were sexually active. Over half (56.7%) had knowledge on at least one modern contraceptive while a fifth (17.3%) had ever used contraceptives and 13.9% were on a contraceptive method. Injectables were the most commonly (62.1%) used method followed by male condoms (18.4%). The least used methods of contraceptive was the IUD (1.2%). About 12.3% of the respondents had an unmet need for contraceptives.

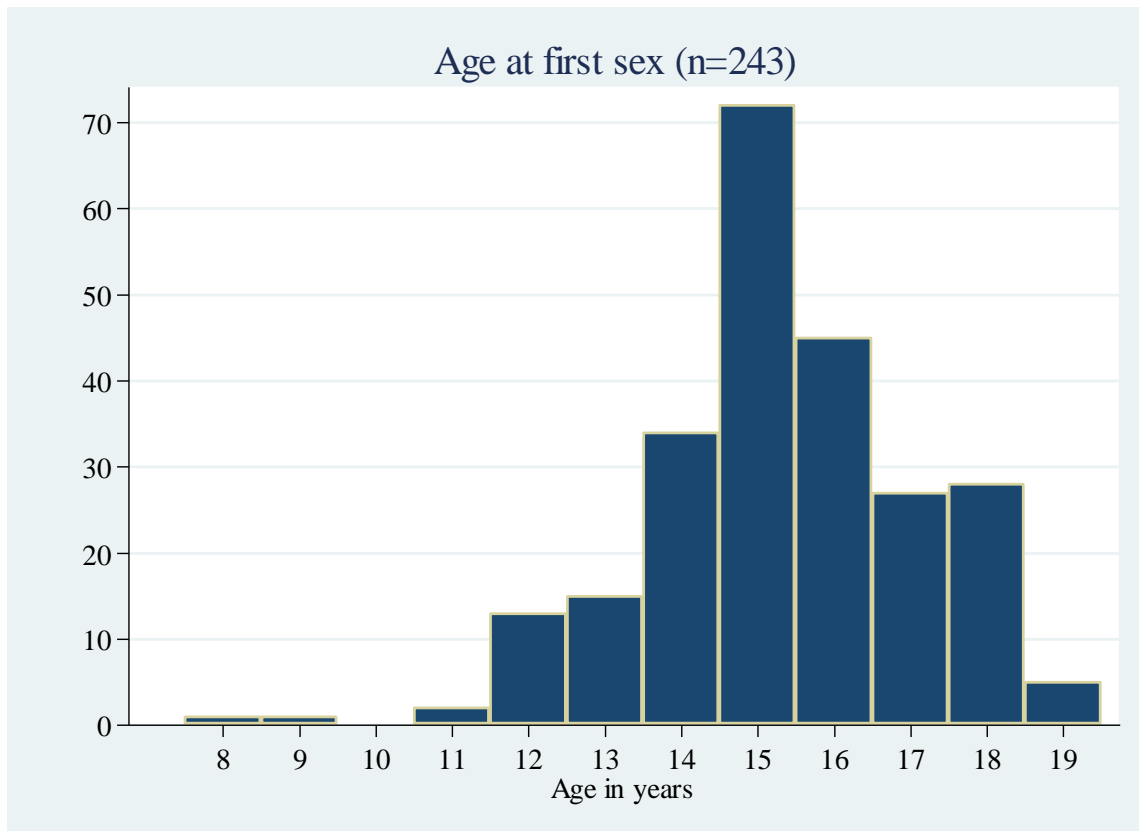
**Table 5: contraceptive use among sexually active and ever pregnant teenagers**

		Contraceptive use		Chi-square P-value
		No	Yes	
Sexually active	No	343	44	<b>&lt;0.001</b>
	Yes	73	43	
Ever pregnant	No	327	20	<b>&lt;0.001</b>
	Yes	89	67	

Sexual activity and a history of pregnancy were significantly associated with contraceptive use.

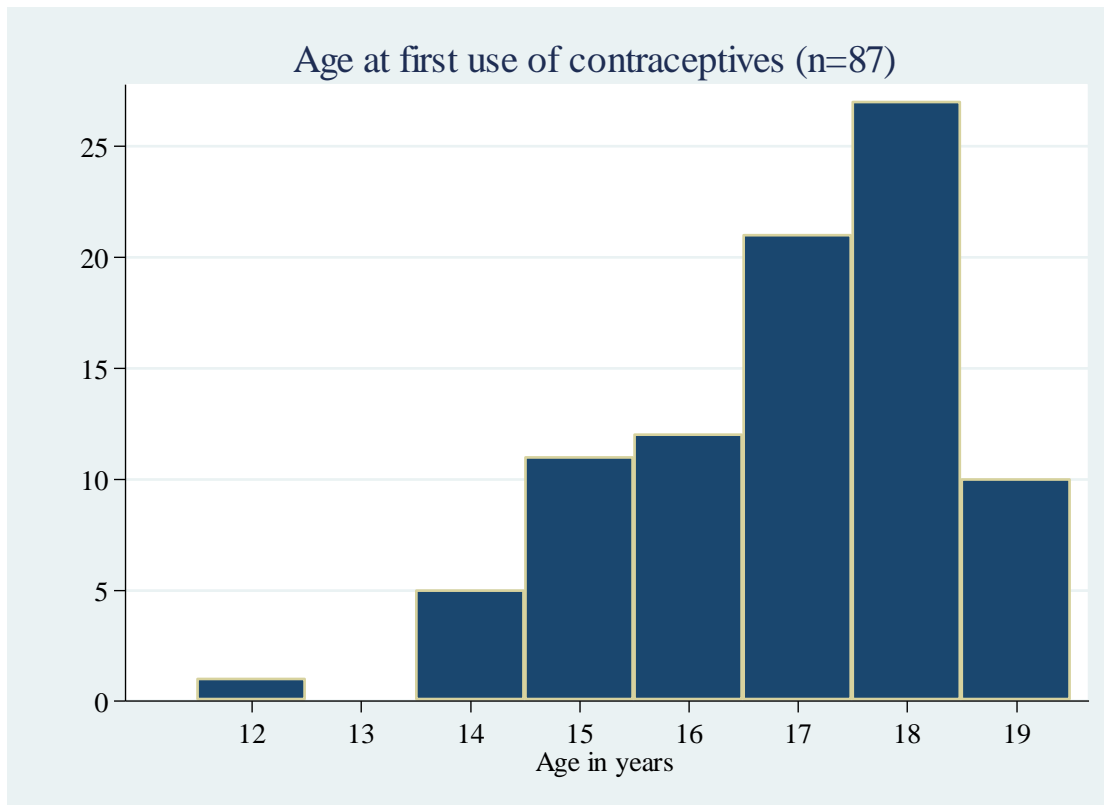
Among the sexually active teenagers, 63% of them were not using any contraceptive method.

Only 43% of the teenagers who were ever pregnant were using a contraceptive.



**Figure 5: Distribution of age at first sex**

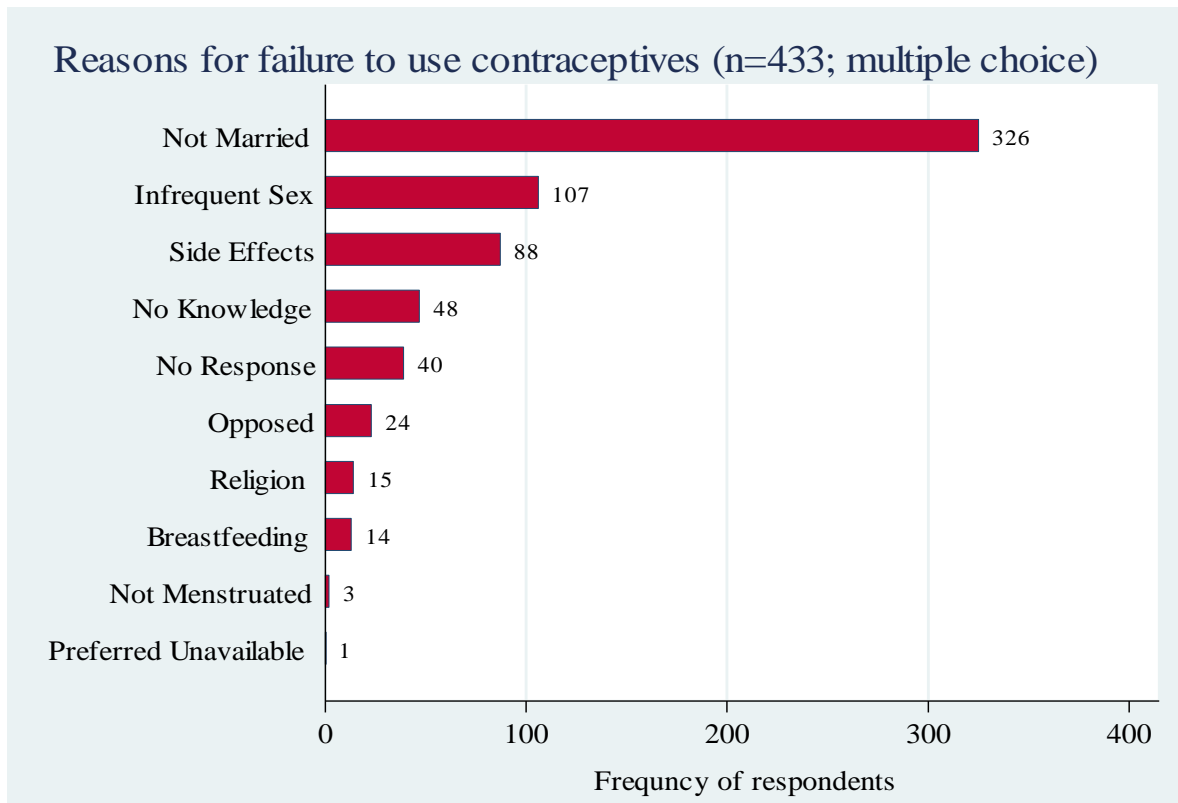
Figure 5 shows the distribution of age at first sex. Majority of the teenagers had their first sexual intercourse at the age of fifteen with the youngest debut at 8 years of age. The median age at first sex was 15 years (IQR: 14-16 years).



**Figure 6: Distribution of age at first use of contraceptives**

Respondents who had ever used any method of birth control were asked to give the age at first use. Majority of the teenagers started using contraceptives at the age of 18 years old. The median age at first use of contraceptives was 17 years (IQR: 16-18 years) while the youngest age at first use was 12 years.





**Figure 7: Reasons given for not using contraceptives**

Those who were not current users of contraceptives were asked to give reasons for the same and the results are shown in figure 7. Three-quarters of the respondents (326/433; 75.3%) sited non-use due to their “never married” status, while about a quarter (107/433; 24.7%) sited infrequent sex and 20.3% (88/433) due to side effects. Notably, 11.1% (48/433) had no knowledge about contraceptives.

#### 4.2 Factors associated with teenage pregnancy

To determine the factors associated with pregnancy in the study population, bivariate analysis was done to determine crude effect of socio-economic and contraceptive use on teenage pregnancy. To achieve this, chi square test of association was used at 5% level of significance. In each test, it was hypothesized that there was an association between a factor and pregnancy. Thereafter, multivariable analysis was done to determine the adjusted effect of each factor on teenage pregnancy. Here, Log-Binomial regression model was used and the statistic of interest was prevalence ratio (PR). Similarly, all tests were done at 5% level of significance.

#### Crude associations

**Table 6: Crude associations of factors affecting teenage pregnancy**

Variable	Category	Ever pregnant		Pearson $\chi^2$ Value	P-value
		No	Yes		
Age	15 to 17 years	223	52	41.55	<b>&lt;0.001</b>
	18 to 19 years	124	104		
Location	Urban	114	50	0.03	0.859
	Rural	233	106		
Socio-economic status	Low	219	119	12.95	<b>0.002</b>
	Middle	55	24		
	High	73	13		
Education	Primary	167	109	22.37	<b>&lt;0.001</b>
	Secondary	174	43		
	College	6	4		
Use contraceptives	No	327	89	104.03	<b>&lt;0.001</b>
	Yes	20	67		
Age at first sex	≤11 years	1	3	0.92	0.631
	12-14 years	28	34		
	≥15 years	71	106		

Table 6 presents results of crude associations between factors and teenage pregnancy. There were significant crude association between teenage pregnancy and age (P<0.001), socio-economic status (P=0.002), level of education (P<0.001) and contraceptive use (P<0.001).

## Multivariable analysis

**Table 7: Factors influencing teenage pregnancies**

Characteristic	Prevalence		z	P-value	[95% Conf. Interval]	
	Ratio (PR)	Std. Err.				
Age						
15-17 years	1.00	(Reference)				
18-19 years	1.29	0.142	2.27	<b>0.023</b>	1.04	1.60
Region						
Urban	1.00	(Reference)				
Rural	0.95	0.042	-1.17	0.240	0.87	1.03
Education						
Primary	1.00	(Reference)				
Secondary	0.54	0.068	-4.94	<b>&lt;0.001</b>	0.42	0.69
College	0.81	0.251	-0.67	0.506	0.44	1.49
Contraceptive use						
No	1.00	(Reference)				
Yes	1.34	0.111	3.56	<b>&lt;0.001</b>	1.14	1.58
Age at first sex						
≤11 years	1.00	(Reference)				
12-14 years	0.76	0.066	-3.12	<b>0.002</b>	0.65	0.91
≥15 years	0.81	0.035	-4.93	<b>&lt;0.001</b>	0.74	0.88

Table 7 shows output of multivariable analysis. Age, education level, contraceptive use and age at first sex were significantly associated with teenage pregnancy while adjusting for other factors. The proportion of pregnant teenagers aged 18 and 19 years was 29% more than that of teenagers aged 15-17 while controlling for all other factors. This implies that the older one is, the more likely she is to get pregnant.

Adjusting for other factors in the model, the proportion of those with secondary education who were pregnant was 46% less than that of those with primary education and pregnant. This means that teenagers with primary education are more likely to be pregnant compared to their peers with higher levels of education.

The proportion of those who use contraceptives and had ever gotten pregnant was 34% more than that of those who do not use them and were ever been pregnant, having controlled for other factors in the model. This showed that those who use contraceptives are more likely to have ever been pregnant compared to those who do not use.

Controlling for other factors, the proportion of those who had first sex aged 12-14 years and had ever been pregnant was 24% less than that of those whose first sex was at or before 11 years and had ever been pregnant. Also, adjusting for other factors in the model, the proportion of those who had first sex after 14 years and had ever been pregnant was 19% less than that of those who had first sex at or before 11 years and had ever been pregnant. Early sexual debut is highly associated with teenage pregnancy.

## CHAPTER FIVE

### 5.1 DISCUSSION

Teenage pregnancy is an important societal issue due to its impact on the social, economic and healthy wellbeing of girls. In the crude analysis factors that contributed to teenage pregnancy were age, socio-economic status, education and use of contraceptives. Studies have shown that higher age, low socio-economic status, low education, early sexual debut, early marriages and lack of contraceptives use as factors associated with teenage pregnancy.

In the multivariate analysis, teenage pregnancy occurrence increases with age. The study showed that 29% of the girls aged 18 and 19 were more likely to be pregnant compared to those aged 15-17 years. There is a similarity with results from KDHS 2014 that showed that pregnancy rates were 3% among the 15-year-old girls and increased to 40% among those aged 19 years.

Education remains a protective factor in teenage pregnancy. Higher education has an association with delayed sexual debut and first pregnancy. Results from the study showed that teenagers with a secondary education were 46% less likely to have had a pregnancy compared to those with primary education.

Contraceptive use among teenagers remains to be low despite evidence of use contributing to decline in teenage pregnancy by 6.8% in Latin America and 4.1% in Africa. Results showed that use of contraceptives was associated with a history of previous pregnancy. Teenagers using contraceptives were 34% more likely to have had a pregnancy history compared to those who did not use. Among the sexually active teenagers, only 37% were using a contraceptive. This is despite their increased chance of pregnancy due to unprotected sex. There was also low contraceptive knowledge among the participants at 56.7% compared a survey conducted by KDHS that showed a 98% knowledge of modern contraceptive among teenagers. Use of short

term contraceptives such as injectables, male condoms and pills were the preferred contraceptive methods at 54%, 16% and 8% respectively. LARC methods such as implants (5%) and IUDs (1%) were the least preferred methods despite their higher effectiveness in preventing pregnancies among teenagers compared to the short term contraceptive methods. The unmet need for contraceptives was at 12.3%. Lowering the incidence of unmet need for contraceptives would contribute greatly to reduction in teenage pregnancy.

Early sexual debut was highly associated with teenage pregnancy. Results showed that those who had their first sexual encounter when 12-14 years old were 24% less likely to have had a pregnancy history compared to those who were 11 years and below while those who were 15 years or older were 19% less likely to have had a pregnancy history compared to those who were 11 years old. It is therefore important focus on comprehensive sexual education for safer sex among the young adolescents in order to reduce the burden of teenage pregnancy.

## **5.2 CONCLUSION**

Findings from this study are important in understanding what factors influence teenage pregnancy in Kenya. Age of a teenager, education level, contraceptive use and age of fist sex are important predictors of teenage pregnancy. Risky sexual behaviour and early sexual debut remained high with fewer sexually active teenagers using a modern contraceptive to prevent pregnancy. Teenagers with primary education had the highest prevalence of teenage pregnancy. There is need for comprehensive sexual education to equip teenagers with information on safer sex. There is need for further research on counties with high burden of teenage pregnancy to assess the other predisposing factors.

### **5.3 RECOMMENDATIONS**

- Comprehensive sexual education to equip adolescents with appropriate information for safer sex should start from early adolescent years
- Campaign for increase in LARC methods among sexually active teenagers for higher effectiveness in preventing pregnancy
- Continued education on modern contraceptives and their use to reduce the number of teenagers who have an unmet need

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