PREGNANCY OUTCOMES AND EXPERIENCES AMONG TEENAGE MOTHERS IN OL’ JORO OROK, NYANDARUA COUNTY, KENYA.

BY

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A THESIS SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF SCIENCE IN NURSING (MATERNAL AND NEONATAL HEALTH), DEPARTMENT OF MIDWIFERY AND GENDER, MOI UNIVERSITY

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DECLARATION

I declare that this thesis is my original work and has not been submitted in any other Institution. I also declare that all the sources that I have quoted have been indicated and acknowledged by means of complete reference. No part of this thesis may be reproduced without written permission from the author and/or Moi University.

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DEDICATION

This research thesis is dedicated to my husband Dr. Paul N. Mwangi and my children; John Mwangi, Thomas Nderitu, Jasmine Mugure and Arthur Kamau, who have been my strength and my inspiration. To my mother, Zipporah Rwengo for all the support she has given me. God bless you.
ABSTRACT

Background: About 16 million teenage girls worldwide give birth each year with 95% of these births occurring in low and middle income countries. Of these, more than 50% occur in Sub-Saharan Africa compared to about 2% in China and 18% in Latin America (WHO, 2011). Teenage fertility rates are high in Kenya at 92 births per 1,000 women. Complications of pregnancy and childbirth are the leading causes of mortality among these women (Ministry of Devolution and Planning, 2013). This study identified the pregnancy outcomes and experiences among teenage mothers in Ol Joro Orok, Nyandarua county Kenya.

Method: The researcher used a mixed methods research design. A retrospective study of teenage mothers who delivered in J.M. Kariuki Memorial County Referral Hospital between 1st June 2014 and 31st May 2016 and Focused Group Discussions were performed in Kasuku health centre. Chi-square test and Fisher’s exact test were used to check for associations in quantitative data using STATA 13 SE and thematic analysis performed for the qualitative data with several sub-themes such as anger and opportunity. The objectives were to assess foetal and maternal outcomes of teenage pregnancy and to explore the experiences of teenage mothers during pregnancy, childbirth and postpartum period.

Results: A total of 196 delivery files for teenage mothers were examined of which the early teenagers (13-16 years) were 19 (9.7%) and late teenagers (17-19 years) were 177 (90.3%). There was a significant association between the age and marital status (p<0.001) where, 18 (94.7%) of early teenagers were single while 118 (67.7%) of late teenagers were married. Of all sampled delivery files, adverse foetal outcomes were birth asphyxia 17 (8.7%) which had a case fatality of 17.6%, prematurity 6 (3.1%) and congenital abnormalities 2 (1.0%). Adverse maternal outcomes associated with teenage pregnancy were perineal tears with majority 15 (79.0%) of early teenagers suffering more than the late teenagers 70 (39.5%). There was a significant association of perineal tears and being a younger teenager (p=0.004). A few 3 (1.5%) of the teenage mothers tested positive for HIV and 6 (3.1%) had hypertension and were put on treatment. None of the teenage mothers had gestational diabetes. Majority of the teenage mothers had spontaneous vertex deliveries 177 (90.3%), 16 (8.2%) underwent caesarean section deliveries, 1 (0.5%) had breech delivery while 2 (1.0%) had instrumental deliveries. Teenage mothers expressed both positive and negative experiences they had during pregnancy, delivery and postpartum. Majority of the teenage pregnancies are attributed to lack of knowledge and use of contraceptives and negotiating powers when it came to engaging in sex. Support from parents, guardians and husbands helped the teenage mothers adjust positively to motherhood.

Conclusion: Teenage pregnancy is associated with adverse outcomes both to the mother and the baby.

Recommendations: Ministry of Health should help facilitate access to contraceptives through Counties. Teenagers to be encouraged to use dual contraceptives to prevent teenage pregnancy and STIs including HIV by health care providers. Ministry of Education in collaboration with other stakeholders such as Ministry of Health should prioritize comprehensive sex education in primary and secondary school education. Parents and guardians to assist and encourage teenage mothers to continue with their education to achieve their dreams.
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ACKNOWLEDGEMENT

I have many people to thank for their contribution, time, understanding, friendship and assistance in the completion of this thesis. I convey my gratitude to my supervisors Dr. Dinah Chelagat and Dr. Hillary Mabeya for their professional guidance, support and motivation. Thanks a lot for being there for me.

Special appreciation goes to my family for their support, encouragement and their patience. To my lifelong friend Dr. Paul Ngarachu thank you for taking your time to critique my work. May our Lord Almighty bless you abundantly. To my peers in the Masters class of 2015 and my colleagues at work, thanks for your support.

Special thanks to the County Director of Health Nyandarua County Dr. D. Irungu; Medical Superintendent J.M Kariuki Memorial County Referral Hospital Dr. J. Macharia; Ol’ Joro Orok Sub-County Head Mrs. C. Kahando; health records officers S. Njuguna, L. Njeri and D. Kinga’ru for allowing me to carry out the research in their County, use their facilities and for their expert support and Institutional Research and Ethics Committee (IERC) for granting me a research clearance permit.
ABBREVIATIONS AND ACRONYMS

FGDs    Focused Group Discussions
HICs    High Income Countries
HIV     Human Immunosuppressive Virus
KDHS    Kenya Demographic and Health Survey
LMICs   Low and Middle Income Countries
PROM    Pre-labour Rupture of Membranes
STI     Sexually Transmitted Infections
SVD     Spontaneous Vertex Delivery
WHO     World Health Organization
DEFINITION OF OPERATIONAL TERMS

The following definitions apply to terms that are used within this thesis:

**Teenager:** A young person between ages 13 and 19 years.

**Pregnancy:** A state of carrying a developing embryo/ foetus within a female body.

**Early teenage pregnancy:** Pregnancy between ages of 13-16 years.

**Late teenage pregnancy:** Pregnancy between ages of 17 -19 years.

**Pregnancy outcomes:** In this study pregnancy outcomes will be the maternal and foetal delivery outcomes after the 37th week of gestation (term).

**Induction of labour:** Is an intervention to initiate the process of labour by artificial means.

**Augmentation of labour:** Is the process of stimulating the uterus to increase frequency, duration and intensity of contractions after onset of spontaneous labour.

**Delivery files:** a collection of information concerning a patient and her care during labour, delivery and postpartum period.

**Adolescent:** A young person in the process of developing from a child into an adult/ A person between ages 10-19.

**Experiences:** the act of living through an event/ events, individual reactions to the event, feelings and interactions that creates an impression in one’s life.
CHAPTER ONE
INTRODUCTION

1.1 Background
Teenage is a period of life between 13-19 years with specific health and developmental needs. It is a time to develop knowledge and skills, learn to manage emotions and relationships and acquire attributes and abilities that are important for enjoying this period and prepare to assume adult roles (WHO, 2014). Being a developmental stage, teenagers are not fully capable of understanding the complex concepts and relationships between behaviour and consequences. They may not understand the degree of control they have over health decision making including those related to sexual behaviour. This inability may make them particularly vulnerable to sexual exploitation and high-risk behaviours (WHO, 2011) and thus predisposing them to teenage pregnancies.

According to WHO (2011), about 16 million teenage girls between 15 and 19 years of age gave birth yearly worldwide. About 95 per cent of these births occur in the low and middle income countries (LMICs) with more than 50 per cent in Sub-Saharan Africa compared to about 2 per cent in China and 18 per cent in Latin America and Caribbean (WHO, 2011). The Kenya population situational analysis report identified Kenya to be among the countries with a large number of teenage pregnancies globally, by having 103 in every 1000 pregnancies attributed to girls between 15 and 19 years (National Council for Population and Development, 2013). Teenage fertility rate remains high in Kenya at 91.5 births per 1,000 women aged 15 – 19 according to the World Bank indicators (World Bank, 2016).
Although teenagers account for 11 per cent of all births worldwide, they account for 23 per cent of the overall burden of disease and health challenges associated with pregnancy and childbirth (WHO, 2011). Africa has the world’s highest rates of teenage pregnancies, a factor that affects the health, education and earning potential of millions of African girls. About 70,000 teenagers in LMICs die annually of causes related to pregnancy and childbirth (UNFPA, 2013). About 2.5 million teenagers have unsafe abortions every year of which 14 per cent occur in the LMICs and 65 per cent of women developed obstetric fistula as teenagers due to pregnancy complications (WHO, 2011). Complications of pregnancy and childbirth are the leading cause of mortality among women between the ages of 15 – 19 in Kenya while globally it is the second leading cause (World Health Organisation, 2016).

Social factors that have been associated with poor teenage pregnancy outcomes include poverty, unmarried status, low educational levels, smoking, drug use and inadequate perinatal care. Psychosocial problems include school interruption, persistent poverty, limited vocational opportunities, and separation from the child’s father, divorce and repeated pregnancy (Montgomery, 2003).

Underlying causes of teenage pregnancy include; child marriage, gender inequality, obstacles to human rights, poverty, sexual violence and coercion, national policies restricting access to contraception, lack of age-appropriate sexuality education, lack of access to education and reproductive health services and underinvestment in teenage girl’s human capital (UNFPA, 2013).
Pregnancy and childbirth for some is planned and wanted, but for the majority is not planned. Teenagers may be unable to refuse unwanted sex or to resist coerced sex and they are also less likely to negotiate for protected sex predisposing them to pregnancy and sexually transmitted infections such as HIV. Compared to adults who have unsafe abortions, teenagers are more likely to experience complications such as haemorrhage, septicaemia, internal organ damage, tetanus, sterility and even death. Some explanations for worse health outcomes for teenagers are that they are more likely to delay seeking and having an abortion, resort to unskilled persons to perform it, use dangerous methods and delay seeking care when complications arise. They are also less likely to obtain skilled prenatal, childbirth and postnatal care due to their economic status as they are still dependent on their parents, guardians and husbands (UNFPA, 2013).

According to Youth et al.(2015), the risk factors to teenage pregnancies include poverty, limited maternal educational achievements, having a mother who gave birth before the age of 20, a single-parent home, family conflict, early sexual activity, early use of alcohol and drugs and low self-esteem. Some protective factors include open communication with parents or adults about accurate contraceptive use, parental support, healthy family dynamics, peer use of condoms, intent to abstain from sex or limit one’s number of partners, accurate knowledge of sexual health, HIV infection, sexual transmitted infections, importance of abstinence and pregnancy (Youth & Board, 2015).

Teenage pregnancies have been associated with adverse outcomes such as foetal growth restriction, low birth weight, preterm birth, still birth and neonatal mortality.
Various factors have been attributed to pregnancy outcomes. Biologic immaturity has a role in increasing the risk of adverse outcomes; a young gynaecologic age and the effect it has on a young mother before her own growth has ceased, poor nutritional status, low pre-pregnancy body mass index and poor pregnancy weight gain. Teenage mothers are more likely to have more nutritional deficiencies than mothers in their 20s and 30s as many teenagers do not follow good eating habits and eat calorie-rich and fatty diets. They have inadequate knowledge on how unhealthy diet could impact negatively on them and may also have limited resources to afford a well-balanced diet (WHO, 2013).

Most married teenage girls might be unaware of family planning methods and even if they are, do not have easy access to family planning services or fail to utilise them due to inhibitions or pressure to attain motherhood to satisfy their mother’s-in-law or husbands (Bajwa, 2013). The idea of seeking an abortion in early stages of childbearing is neither approved by the family members or is socially sanctioned (Patra & Singh, 2013).

Sex and contraceptive education may be the most effective way to reduce teen pregnancy. However, teenagers are generally uninformed about availability, efficiency and choices of contraceptives. The World Health Organization has recently developed evidence-based guidelines addressing six areas: preventing early marriage; preventing early pregnancy through sexuality education, increasing education opportunities and economic and social support programs; increasing the use of contraception; reducing coerced sex; preventing unsafe abortion; and increasing the use of prenatal care childbirth and postpartum care. In each of these areas, World

Teenage mothers face numerous challenges that place demands not only on the young mother’s stage of teenage development but also on their ability to adapt to the obligations of parenthood (Konadu & Ankomah, 2013). Despite teenage pregnancy being associated with negative outcomes, motherhood can be a positive experience that makes sense in the lives of young women. The teenage mother has to grow and develop when her child is born and the same applies to her child creating a special bond between mother and child. A child causes the mother to learn responsibility necessary for the safe keeping of the new born child (Ngum, Liamputtong, & Mcmichael, 2015).

1.2 Problem statement

According to Kenya Demographic Health Survey, 2014 adolescents constitute 22.5 per cent of Kenya’s total population with 77.0 percent being adolescent girls. 15 per cent of women aged 15-19 years had already had a birth while 3 per cent were pregnant with their first child. The percentage of women who had begun childbearing increased rapidly with age from 3 percent among those aged 15 to 40 percent among those aged 19. The number of teenage pregnancy increased from 755,000 in 2009 to 843,000 in 2014 (Kenya National Bureau of Statistics et al., 2015).

Teenage fertility rate remains high in Kenya at 91.53 births per 1,000 women aged 15-19 according to the World Bank indicators (World Bank, 2016). According to Kenya Demographic and Health Survey (2015), 11 per cent of women aged 15-19
years were married compared to 1 per cent of men of the same age (Kenya National Bureau of Statistics et al., 2015).

Teenage childbearing has many negative social, demographic and health consequences. Teenagers aged 15 – 19 years are twice as likely to die while those under 15 years are five times likely to die during pregnancy and childbirth compared to individuals aged over 20 years. Still births and newborn deaths are 50 percent higher among infants born to teenage mothers than those born to mothers aged 20 – 29 years (WHO, 2013). Complications of pregnancy and childbirth are the leading cause of mortality among women between the ages of 15 and 19 in Kenya while globally it is the second leading cause (World Health Organisation, 2016). This is attributed to difficulties accessing quality health care due to distance, poverty, lack of information and inadequate obstetric services (Ministry of Devolution and Planning, 2013). Teenage girls who start having children often do not complete secondary school limiting their life choices and future employment possibilities (Kenya National Bureau of Statistics et al., 2015).

With a female population close to half a million (324,792) (County government of Nyandarua, 2015), teenage deliveries account for 15.6 per cent of all deliveries at the J.M. Kariuki Ol’ Kalou level 4 hospital (Muchemi, Echoka, & Makokha, 2015), a factor that may affect their education, health and earning potential.

1.3 Significance of the study
Teenage pregnancy is regarded as high risk pregnancy and has been associated with adverse outcomes due to the gynaecological immaturity, poor nutritional status of the
mother and limited resources thus putting the mother and the baby at risk during
delivery as teenagers still depend on their parents or guardian for their needs (WHO,
2011).

Prevention of teenage pregnancy is paramount to enable the teenage girl to mature
and become economically empowered. For married teenagers, prevention of
subsequent pregnancy in quick succession reduces pregnancy related complications.
Prevention of teenage pregnancies calls for an ecological approach that involves the
individual teenagers, the community and the government through policy making and
implementation, change of cultural practices that encourage teenage pregnancy such
as early child marriages and female genital mutilation (Pedrosa, Pires, Carvalho,
Canavarro, & Dattilio, 2011).

The findings of this study will provide information on the adverse maternal and
neonatal outcomes and help us understand perceptions of teenagers on childbearing
and early childcare thus suggest strategies that would reduce the complications of
teenage pregnancy. The findings and recommendations will also be useful to
stakeholders and the government’s policy direction in taking proactive measures to
safeguard teenage girls to enable them complete their education, curb teenage
marriages and ensure youth friendly services are being offered in all the Counties.

1.4 Research questions

1. What are the neonatal outcomes of teenage pregnancy?

2. What are the maternal outcomes related to teenage pregnancies?
3. What are the experiences of the teenage mothers during pregnancy, childbirth and postpartum period?

1.5 Objectives of the study

1.5.1 Main objective

To determine maternal and neonatal outcomes of teenage pregnancy and to explore the experiences of the teenage mothers during pregnancy, childbirth and postpartum period in Ol’ Joro Orok, Nyandarua County.

1.5.2 Specific objectives

The study will be guided by the following specific objectives:

1. To determine foetal outcome in teenage pregnancies in J. M. Kariuki Memorial County Referral Hospital, Nyandarua County.

2. To assess maternal outcomes in teenage pregnancy in J. M. Kariuki Memorial County Referral Hospital, Nyandarua County.

3. To explore the experiences of the teenage mothers related to the pregnancy, Childbirth and postpartum period in Kasuku health centre, Ol’ Joro-orok Sub-County.

1.6 Conceptual Framework

A conceptual framework is a theoretical structure of rules, principles and assumptions that holds together the ideas comprising a broad concept. It links concepts from previous research results, from selected theories or from researcher’s own experiences. It helps explain the relationship between concepts linked together from various sources (Nieswiadomy, 2010).
Complications during pregnancy:
- Visual disturbance,
- Excessive fatigue,
- Convulsion not from fever, Jaundice,
- Excessive bleeding and vaginal discharge,
- Weak or no movement of foetus,
- Abnormal position of the foetus

Complications during delivery:
- Preterm labour
- Postpartum haemorrhage,
- Prolonged labour,
- Obstructed labour,
- Convulsion/ high blood pressure

Normal delivery & postpartum:
- Live birth
- Apgar score 10/5 minutes
- Gestation >37 weeks
- Birth weight >2500 grams
- Positive adjustment to motherhood.

Health care offered during pregnancy:
- Ante-natal care,
- Pregnancy advice,
- IFA received,
- TT injection received

Perceived Support
- Social support
  - Physical
  - Emotional
- Economic support
  - Finances

Background Characteristics of Teenage Mother
Demographic:
- Age,
- Marital Status,
- Parity
- Gravidity
- Religion
- # of ANC visits
- Education level
- Occupation

Figure 1.1 Conceptual framework (modified from (Patra & Singh, 2013))
The conceptual framework shows the effects of the background characteristics of teenage mother. The teenage pregnancy is subjective to health care received during pregnancy, delivery and postpartum. It is evident that early pregnancy among teenage girls eventually results in a number of health complications for the mother and the foetus. With focused antenatal care (FANC), essential and comprehensive obstetric care teenage pregnancy can result in good outcomes where both the mother and the baby go through uncomplicated birth and postpartum period. FANC offers holistic individualized care to each woman to help maintain the normal progress of her pregnancy through guidance and advice on; birth preparedness, nutrition, immunization, personal hygiene and family planning. It also counsels on danger symptoms that indicate the pregnant woman should get immediate help from a health professional. Through antenatal care visits teenagers may benefit from early referrals to a specialist midwife (Lincetto, Mothebesoane-ano, Gomez, & Munjanja, 2013). Support from family, spouses and friends also helps the young mothers to positively adjust to motherhood which is associated with reduced depression and increased self-esteem.

1.7 Scope of the study

The study was carried out in Ol’ Joro-orok sub-county in Nyandarua County, Kenya. The study population were women aged between 13 and 19 years of age. The study period was from 1st June 2014 to 31st May 2016. Data extraction forms were used to review the delivery files for quantitative research and unstructured focused group discussion guide was used to explore the experiences of teenage mothers during pregnancy, childbirth and postpartum period for qualitative aspect.
1.8 Limitations

1. Since this study was a retrospective study, we had no influence on the quality of data entered into the delivery registers. The study was not able to capture the home deliveries of teenage mothers.

2. Although this study provides data for understanding the teenage mothers experiences during pregnancy, labour and postpartum period, it is a qualitative study with potential biases hence its results are not representative. Therefore the study is not generalizable to all teenage mothers in Kenya.
CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

As earlier stated this study intended to document the maternal and neonatal outcomes of teenage pregnancy and their experiences during pregnancy, childbirth and postpartum period with the view of looking for both adverse and positive outcomes of teenage pregnancy. Related literature was reviewed under various sub-titles.

a) Overview of teenage stages

b) Pregnancy outcomes among teenage mothers

c) Neonatal outcomes of teenage pregnancy

d) Experiences of teenage mothers during pregnancy, childbirth and postpartum

2.2 Overview of teenage stages

World Health Organization identifies adolescence as a period in human growth and development that occurs after childhood and before adulthood from ages 10 to 19. It represents one of the critical transitions in the life span and is characterised by a tremendous pace in growth and change that is second only to that of infancy (WHO, 2011).

Adolescence is divided into two; the early adolescence which stretches between ages of 10 and 14, where physical changes generally commence, usually beginning with a growth spurt and followed by maturation of sex organs and secondary sexual characteristic. The late adolescence encompasses the latter part of teenage years between 15 and 19. The major physical changes have usually occurred although the brain is still developing (UNICEF, 2011).
The biological determinants of adolescence are fairly universal; however, the duration and defining characteristics of this period may vary across time, culture and socio-economic situation. The process of adolescence is a period of preparation for adulthood during which time several key developmental experiences occur. Besides physical and sexual maturation, these experiences include movement toward social and economic independence and development of identity, acquisition of skills needed to carry out adult relationships and roles and the capacity for abstract reasoning. It is also a time of considerable risk during which social contexts exert powerful influences (Chandra-Mouli, Camacho, & Michaud, 2013).

Many teenagers face pressures to use alcohol, cigarettes or other drugs and to initiate sexual relationships at earlier ages, putting themselves at higher risk for intentional and unintentional injuries, unintended pregnancies and sexually transmitted infections including HIV. Many of these adolescents may experience a wide range of adjustment and mental health problems.

Behaviour patterns that are established during this process such as drug use or non-use and sexual risk taking or protection can have long-lasting positive and negative effects on future health and well-being. Teenagers depend on their families, communities, schools, health services and their work places to learn a wide range of important skills that can help them to cope with the pressures they face and make the transition from childhood to adulthood successfully (WHO, 2013).
2.3 Pregnancy outcomes among teenage mothers

According to Population Reference Bureau (2015), only 49 percent of teenage mothers under 20 years of age in Kenya received four or more antenatal care visits, as recommended by the World Health Organization, compared to 60 percent of mothers ages 20 to 34 in 2014. Approximately 40 percent of these teenage mothers gave birth without the assistance of a trained health professional. Majority of the birth occur outside of a health facility, putting them at risk of complications during childbirth (Population Reference Bureau and Centre for the Study of Adolescence, 2015).

Teenage mothers continue to grow during pregnancy and could compete with the developing foetus for nutrients, to the detriment of the foetus. A combination of the energy demands of the teenage growth spurt and an inadequate diet contributes a lot to the poor nutritional status of teenagers. The additional energy and nutrition demand of pregnancy place teenagers at nutritional risk. If their nutritional needs are not met, they are likely to give birth to underweight babies (Belete & Firehiwot, 2016).

Teen girls tend to consume about 25 per cent less food than teenage boys and are more likely to suffer from nutritional deficiencies. Total energy needs are influenced by growth status, physical activity, body composition, pre-gravid weight and stage of pregnancy. Energy requirements are greater for pregnant teenagers with a required intake of more than 2000 calories per day. Recommended daily protein intake is 45g per day with an additional allowance of 10g per day is required to support continued growth and development of both the foetus and the pregnant teenager. A teenager’s body requires calcium as it is still increasing in bone mass and pregnancy tends to increase the need for calcium. Maternal deficiency of vitamin A and vitamin D can
lead to impairment of foetal growth and neonatal hypocalcaemia respectively (Story, 2005).

Many teen mothers suffer from low iron level; low iron stores during the first two trimesters can increase the risk of preterm delivery and increase the risk of low birth weight. Low levels of folic acid levels can increase the risk of intrauterine growth retardation, congenital anomalies such as neural tube defects and spontaneous abortion (Story, 2005). Pregnant women need additional iron and folic acid supplements due to the great increase in blood volume and cells and the rapid growth of the foetus. This helps to meet the women’s own nutritional needs as well as those of their developing foetus. The world health organization (WHO), recommends daily oral intake of 30-60mg elemental iron and 0.4mg folic acid to prevent maternal anaemia, puerperal sepsis, low birth weight and preterm birth. Iron demands increase as the body conserves more than usual during pregnancy as the foetus draws on maternal iron stores and is also needed for haemoglobin synthesis. Folic acid is important for the rapid cell production, growth, repair and functioning of DNA during pregnancy (Peña-Rosas, De-Regil, Garcia-Casal, & Dowswell, 2015).

The immaturity of the uterine or cervical blood supply may predispose teenage mothers to subclinical infection, an increase in prostaglandin production and a consequent increase in incidence of preterm delivery. The physical immature first-time mothers are particularly vulnerable to prolonged, obstructed labour which may result in obstetric fistula especially if an emergency caesarean section is unavailable or inaccessible (UNFPA, 2013).
Perineal tears were about three times more likely to complicate adolescent than adult deliveries. This predisposition has been attributed to a biological immaturity particularly pelvic and perineal in adolescents. Perineal tears have been attributed to severe and stigmatizing complications like obstetric fistulae (Njim & Agbor, 2017).

Many health problems which are associated with pregnancy during adolescence include anaemia, malaria, HIV, sexually transmitted infections, postpartum haemorrhage, and mental disorders like depression (WHO, 2011).

2.4 Neonatal outcomes of teenage pregnancy

Children born from teenage mothers are likely to suffer from more health risks as compared to children born from grown up women. This is because most teenagers’ bodies are not fully developed to handle the complications that come with pregnancy. Teenagers also engage in unprotected sex, and this exposes them to sexually transmitted infections which they run a risk of transmitting to their unborn child. Teenagers are likely to experience social, emotional and other problems such as poor nutrition, lack health care, cognitive and social stimulation as a result, they are at risk for lower academic achievement.

Stillbirths and death in the first week of life are 50 per cent higher among babies born to mothers younger than 20 years of age. Death during the first month of life are 50 -100% more frequent if the mother is a teenage than among babies born to mothers 20 to 29 years old. The rates of preterm birth, low birth weight and asphyxia are also higher among babies of teenagers, all of which increase the chance of death and of
future health problems for the baby. Low birth weight can lead to blindness, deafness and respiratory distress syndrome due to hyaline membrane disease (Derme, Leoncini, Vetrano, Carlomagno, & Aleandri, 2013).

It has been stipulated that due to a deficient production of oxytocin, secondary to immaturity of the hypothalamo-epiphyseal pathway and uterine immaturity, teenage pregnancies have a greater tendency to persist beyond term compared to adult pregnancies (Agbor, Mbanga, & Njim, 2017).

2.5 Experiences of teenage mothers during pregnancy, childbirth and postpartum

Teenage mothers face numerous challenges that put demands on their young stage of adolescent development and also on their ability to adapt to the obligations of parenthood. They go through different experiences in pregnancy, child birth and postpartum period such as dropping out of school and not achieving their educational aspirations (Konadu Gyesaw & Ankomah, 2013). Having an incomplete education, no formal job qualification and being unable to afford healthcare, they experience financial constraints in meeting their basic survival needs thus their reliance on welfare support. Their lack of money denies them access to the full resources of the society and this places them in an economically vulnerable position (Sa-ngiamsak, 2016).

They also face stigmatization with disclosure of their pregnancy from the community around them. In developing countries, culture plays an important role in stigmatization of unmarried teenagers. Pregnant teenagers felt stigmatised when they
visited the health clinic and perceived that the healthcare and social service providers were being nice to them due to the underlying judgement based on the teenagers “spoiled mark” of being pregnant too early and outside wedlock in which was against their social value (Sa-ngiamsak, 2016).

The birth of a child can have a profound impact on infant-parent relationship, infant’s development and psychosocial functioning of the parents. The negative impact of childbirth experiences has been associated with difficulty in adjusting to the role of motherhood, difficulty in breastfeeding, less maternal affection towards the baby and fear of having another birth (Ngweso, Petersen, & Quinlivan, 2017).

A study done by Nichols et al. (2014), on experiences of childbirth in the adolescent group indicated that the presence of continuous support during childbirth was an essential feature as the support received enabled them to rely on others who kept their births safe and made it alright to be confused if the event was bizarre. When support was problematic, teenage mothers reported being frustrated, disappointed and having a sense of distance from the birthing experience (Nichols, Brown, Coley, Kelley, & Mauceri, 2014).

Motherhood brings increased responsibilities, social recognition and a sense of purpose for young mothers. In a study done by Ngum et al. (2015), teenagers described having a child as allowing them to be mature and become responsible. Many young mothers developed identity, a personal sense of stability, purpose and responsibility following early motherhood (Ngum Chi Watts et al., 2015).
Positive experiences were associated with good social support received during pregnancy and childbirth which contributed to feelings of acceptance and optimism for the teenage mothers (Ngum Chi Watts et al., 2015). Lack of support may exacerbate other problems encountered by teenage mothers such as role conflict and restrictions, school changes, attenuated educational achievements, underemployment, unstable relationships with the child’s father and physical health problems for themselves and their babies (Konadu Gyesaw & Ankomah, 2013).

Increased self-esteem and life satisfaction have been linked to supportive relationships between parents and pregnant/mothering teenagers. Family support leads to positive outcomes for teenage mothers and positive maternal wellbeing and is associated with less depression and less risk for child abuse. Friends also offer emotional support and it related to reduction in parenting stress, partner support help to increase self-esteem and can reduce depression. However, some partners may be a source of stress and conflict for the teenagers (Bowman, 2013).

Some teenage mothers do experience negative public attitudes directed towards them in areas such as bus stations, markets, churches and hospitals due to their being young. They also report being devalued and to have to cope with people perceiving them as being bad mothers just because they are teenagers and not fulfilling the contemporary social norms of motherhood (Sa-ngiamsak, 2016).

Teenage mothers face postpartum depression and some hide their symptoms as they are afraid that healthcare professionals could take their children away from them if they revealed they had depression and judged as unable to cope (Boath, Henshaw, &
Bradley, 2013). Depression was connected to different types of stressors associated with isolation from friends and community, weight gain and breastfeeding concerns, and maternal confidence. These stressors were seen to be consistent with the vulnerability of young mothers given the disturbances on changing body image and outlook of society. Young mothers experienced criticism for their skills and intuition in parenting and receiving unmerited advice on how to nurture their newborns. Developing a belief and confidence in their capability to efficiently care for a young one proved to be a stressful and challenging task encountered by almost all young mothers (Kleiber & Dimidjian, 2014).

Despite the negative attributes of teenage pregnancy and motherhood, it has been shown that having a child by some teenage mothers increase their interest in education and pushes them to discover how education could help them provide a better future for their children and increase their employment opportunities (Seamark & Lings, 2004).
CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Introduction

This chapter describes methods and procedures the study adopted in assessing the pregnancy outcomes of teenage mothers in Ol’ Joro Orok, Nyandarua County. It will focus on the research design, the study area and setting, study population, sampling, data collection methods, reliability and validity and ethical considerations.

3.2 Study population

The study population comprised of teenage mothers aged between 13 to 19 years of age, who delivered in the two health facilities within the Nyandarua County.

3.3 Study area

Ol’ Joro Orok sub-county is found in Nyandarua County in the central region of Kenya. Nyandarua County covers an area of about 3,245km$^2$. The population density is 184 people per SQ. Km with a total population of 636,814 of which women constitute 324,792. About 1 in 4 (24%) people are adolescents aged 10-19. The County has a growth rate of 2.2%. The County has two rainy seasons; long rains in March-April-May and short rains in November with annual rainfall of 700mm and 1500mm (County government of Nyandarua, 2015).

3.4 Study setting

The study was carried out in J.M. Kariuki Memorial County Referral hospital and Kasuku Health Centre in Ol’ Joro Orok Sub-County Nyandarua County, Kenya. The health facilities offer comprehensive and basic emergency obstetric care respectively.
Majority of pregnant teenagers get referred and prefer to deliver in J. M. Kariuki Memorial County Referral hospital that offers comprehensive obstetric care such as caesarean section and blood transfusion in case of complicated childbirth. The distance between the two health facilities is 23 kilometres. Majority of the participants in the Focused Group Discussion had delivered in J.M. Kariuki Memorial County Referral hospital and were attending mother child health/ family planning (MCH/FP) clinic in Kasuku Health Centre which was the nearest health facility that offered postnatal services.

3.5 Research design

The researcher used mixed method research. The quantitative research design used was a retrospective chart review using delivery files to assess pregnancy outcomes of teenage mothers who delivered in J.M. Kariuki Memorial County Referral hospital in Nyandarua County between 1st June 2014 and 31st May 2016.

The qualitative research design used was a narrative research study design where teenage mothers were recruited and interviewed in a focused group discussion. The group members were selected on basis of age (early and late teenagers) and educational level (primary and secondary school level).

3.6 Sampling procedure and Sample size

3.6.1 Sampling procedure

The study employed a census for quantitative research method that addressed the foetal and maternal outcomes in objectives 1 and 2 respectively. All delivery files of
mothers aged between 13 – 19 years from Ol Joro Orok sub-county were included in the study between the period of 1st June 2014 and 31st May 2016.

For objective number 3, the researcher used purposive sampling method to recruit participants fitting the inclusion criteria from mother and child health (MCH) clinic of the health facility.

3.7 Eligibility criteria

3.7.1 Inclusion criteria

- Delivery files of teenagers between 13 – 19 years from Ol Joro Orok sub-county who had delivered in J. M. Kariuki Memorial County Referral Hospital.

- Postnatal teenage mothers aged between 13 – 19 years attending MCH/FP clinic at Kasuku health centre, Ol Joro Orok sub-county.

3.7.2 Exclusion

- Incompletely filled delivery files

3.8 Sample size

The sample size determination was calculated according Israel D. Glenn (Israel, 2013).

\[ n_0 = \frac{Z^2pq}{E^2} \]

Where; \( n_0 \) = sample size
$Z^2 =$ desired confidence interval as at 95% confidence interval (1.96)

$p =$ prevalence of teenage pregnancies in Kenya is 15% (Kenya National Bureau of Statistics et al., 2015).

$q = 1-p$

$E^2 =$ alpha value, desired level of precision (0.05)

$n_0 = (1.96)^2 \times (0.15 \times 0.85) \\
= 3.8416 \times 0.1275 = 0.489804 \\
= 0.0025 \times 0.0025 \\
= 0.000005 \\
\therefore n_0 = 195.9216 \\
\therefore n_0 = 196$

Sample size used was 196 delivery files

3.9 Data collection methods

Quantitative data was collected using data extraction forms from 196 of 264 delivery files of teenage mothers between ages of 13-19 years who delivered in J.M. Kariuki Memorial County Referral Hospital between 1st June 2014 and 31st May 2016. The delivery files used in the research were for teenagers who resided in Ol Joro Orok sub-county and delivered in J. M. Kariuki Memorial County Referral Hospital. The variables required by the researcher were filled in the data extraction form from the delivery files. Saturation was achieved at 196. Delivery files that were incompletely filled were excluded from the study.

Qualitative data was collected through three focused group discussions conducted in Kasuku health centre, Ol Joro Orok sub-county. Teenage mothers attending mother
and child (MCH) clinic were purposively selected on basis of age and level of education in a group of between 6 to 8 members. They were grouped into early teenage (13-16 years) and late teenage (17-19 years). The FGDs consisted of primary and secondary school level teenage mothers. An assent was sort from the participants aged 16-17 years and consent sort from their guardians and husbands while consent was sort from teenagers aged 18 and 19 years. Open-ended questions were posed to the participants who then gave their perceptions about the issues asked. Each focused group discussion session lasted between 45 minutes to 60 minutes.

3.9.1 Data Collection Instruments

Data was collected using data extraction form for quantitative data and unstructured FGD guide and audiotapes for qualitative data. The data extraction form was in four parts;

i. Demographic information such as age, marital status and education level.

ii. Antenatal investigations and complications.

iii. Mode of delivery and maternal outcomes during delivery and

iv. Neonatal outcomes such as birth weight, Apgar score in 1 minute and 5 minutes and birth asphyxia.

The focused group discussion guide was administered in both English and Kiswahili language. Kiswahili language was used for those who did not understand English or could not express themselves in English. At the point of development, the tool had been translated from English into Kiswahili and then back translated into English to ensure no loss in the intended meaning of the questions.
3.9.2 Research Variables
Teenage pregnancy was the independent variable whereas outcomes (maternal outcomes such as anaemia, eclampsia, perineal tears and pre-eclampsia, and neonatal outcomes such as low birth weight, birth asphyxia) were the dependent variables. Normal outcomes such as live births, babies born at term, birth weight above 2500 grams, and normal puerperium were also considered as dependent variables.

3.9.3 Reliability of the study
In this study, the reliability was determined by conducting a pilot study at J.M. Kariuki Memorial County Referral Hospital, one of the study site using 20 delivery files of the teenage mothers selected from other sub-counties within Nyandarua County between the periods of June 2014 to May 2016. The selected files were not included in the final study.

3.9.4 Validity of the study
The research tools were validated by conducting a pilot study. The researcher also moderated the three focused group discussions. The research used different methods to address the topic in question. The methods used to collecting data quantitatively included data extraction forms and qualitatively Focused Group Discussions. Birth asphyxia was the leading cause of morbidity and mortality in neonates and this was also reported during the discussions by few teenage mothers as breathing problems that lead to admission of the newborns for several days and administration of oxygen.
The research observed the following measures of trustworthiness as follows;

**Credibility**

Credibility refers to the degree to which the research represents the actual meanings of the research participants or the true value (Nowell, Norris, White, & Moules, 2017).

Credibility was established by prolonged engagement during the ice-breaking session with the participants during focused group discussion. Saturation was reached after 3 focused group discussions.

Credibility was also established through referential adequacy where the researcher used audiotapes and notes to capture adequate information from the focused group discussion.

**Dependability**

Dependability refers to the consistency and reliability of the research finding and the degree to which research procedures are documented allowing someone outside the research to follow, audit and critique the research process (Anney, 2014).

The researcher used peer debriefing and code-recode strategy to ensure dependability of the study. Peer debriefing was used where the peers not involved in the study provided additional perspective on the analysis and interpretation.

The researcher used code-recode strategy to code the same data twice after a period of time and compared the results among the 2 coding to see if results were the same or different.
**Confirmability**

Confirmability refers to the degree to which the results of the inquiry could be confirmed or collaborated by other researchers (Nowell et al., 2017).

The researcher used electronic records (audiotape) and non-electronic records (field notes) during the focused group discussions to cross-check the data and writing of the final report of the study.

**Transferability**

Transferability refers to the degree to which the phenomenon described in the study is applicable to theory, practice and future research (Anney, 2014).

The researcher ensured transferability through use of purposive sampling to focus on the selected participants who are particularly knowledgeable about issues under investigation. The researcher also used thick description of the participants and research process described in the methodology to enable the reader to assess whether the finding are transferable to their own setting.

**3.9.5 Data Collection Procedures**

The researcher collected the quantitative data from delivery files using data extraction form from J.M. Kariuki Memorial County Referral Hospital. The questionnaires were filled within the records offices. Qualitative data was collected from three focused group discussions using semi-structured FGD guide. The principal investigator trained two nurses who worked at the MCH/FP clinic on the FGD guide and how to conduct a focused group discussion. Together we carried out the FGD and they assisted in taking notes on verbal and non-verbal responses. A tape recorder was used to capture
opinions, thoughts and ideas during the discussion, which was later transcribed and translated verbatim into English. Coding was done manually based on key words and phrases developed from the data. Categories and themes were created according to experiences in relation to pregnancy, childbirth and postpartum. Teenage mothers attending mother and child (MCH) clinic were purposively selected based on their age. The research assistants helped in recruiting three groups of 6 to 7 teenage mothers, the purpose of the study was explained and assent was sort after the participants fully understand the aim of the study and their rights during the study. Consent for the teenage mothers aged 16-17 years to participate in the study was sort from the teenager’s parent, guardian or husband who had accompanied them to the clinic. Teenagers aged 18-19 years consented to participate in the study. Each respondent was allocated a number on a piece of paper instead of their name during the discussions. The discussions were carried out within the hospital premises to maintain confidentiality of the information to be gathered and also to protect the teenage mothers who participated in the study. The participants were offered snacks and drinks after the focused group discussions.

3.9.6 Data Analysis and Presentation

Data was coded and analysed using STATA 13 SE. descriptive statistics was done to summarize the data. For categorical data such as marital status, occupation and education level frequency and proportions were tabulated and graphs plotted to show distribution. For numeric (discrete) data such as age, birth weight, Apgar score categories bearing clinical meaning were created and summarized as categorical variables.
Chi-square and fisher’s exact tests were done to check for association between variable of interest where appropriate. Chi-square test statistic and corresponding p-value were reported. The study was conducted at a-level of significance 0.05.

The qualitative data from the audiotapes and the notes taken during the discussion were analysed using thematic analysis into related themes and presented in prose. Thematic analysis included; transcription, familiarisation with the data, generating initial codes, searching for themes among the codes, reviewing the themes, defining and naming the themes and producing the final report (Nowell et al., 2017). The study results of quantitative data are presented in frequency tables, pie charts and bar graphs.

3.10 Ethical Considerations

In general, the law does not grant parents veto power over decisions of mature (competent) teenagers who decide to participate in research on their reproductive health. In such cases where teenagers are or are about to be sexually active, investigators commit no legal offence in undertaking research that promises a favourable benefit-risk ratio. However, where the law specifically denies decision-making authority to mature or competent teenagers below a given age, that provision must be respect (WHO, 2014). In studies involving pregnancy, treatment of sexually transmitted infections, contraceptives and abortion services, a teenager can provide informed consent and parental permission is not required (The American Congress of Obstetricians and Gynecologists, 2016).
In Kenya, teenagers below 18 years do not have the legal capacity to consent to respondent in research, medical care or treatment without a parental or legal guardian’s consent. However, they should be involved in the process if they are able to assent by showing willingness to participate in the research (National AIDS & STI control programme (NASCOP), 2015). A waiver of informed consent was sought for medical record review from institutional review board (CHOP institutional review board, 2015).

**PERMISSION TO CARRY OUT THE STUDY**

The researcher sought research permit from IREC, permission from the County Director of Health, Medical Superintendent and Sub-county head and assent from the teenage mother.

**Confidentiality**

The participants were assured that the information gathered will be used for purpose sort and would not be disclosed to unauthorised persons and their identities will be protected by ensuring anonymity. Data gathered could not be linked to the participants and no names were used to identify them. The participants were given numbers instead of using their names during the discussion.

**Respect for autonomy**

The participants were informed of their rights not to answer any question they feel like not answering. They were also give the option of withdrawing from the study at any point if they deemed it fit. To avoid anxiety and apprehension about the study, the participants were given prior information as to why the research was being carried
out. This helped to avoid psychological and legal harm to the participants. The teenagers who were aged 18 and 19 years gave their consent to participate in the study and a few aged 16 and 17 years assented to participate in the study after their guardians consented to the study.

A letter of introduction and a letter of permission from the County Director of Health, Sub-County head, Medical Superintendent together with approval letter from Institute of Research Ethics Committee (IREC) were availed during data collection.
CHAPTER FOUR

FINDINGS

The results presented here are based on data extracted from 196 in-patients files of teenage mothers aged between 13 and 19 years from Ol Joro Orok sub-county who delivered at J.M. Kariuki Memorial County Referral Hospital from 1st June 2014 to 31st May 2016.

4.1 DEMOGRAPHIC DATA

Table 4.1: Socio-demographic characteristics

<table>
<thead>
<tr>
<th>Variable</th>
<th>Category</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>16yrs &amp; below</td>
<td>19</td>
<td>9.69</td>
</tr>
<tr>
<td></td>
<td>17yrs &amp; above</td>
<td>177</td>
<td>90.31</td>
</tr>
<tr>
<td>Occupation</td>
<td>House wife</td>
<td>97</td>
<td>49.49</td>
</tr>
<tr>
<td></td>
<td>Casual jobs</td>
<td>31</td>
<td>15.82</td>
</tr>
<tr>
<td></td>
<td>Self Employed</td>
<td>27</td>
<td>13.78</td>
</tr>
<tr>
<td></td>
<td>Student</td>
<td>41</td>
<td>20.92</td>
</tr>
<tr>
<td>Marital status</td>
<td>Married</td>
<td>119</td>
<td>60.71</td>
</tr>
<tr>
<td></td>
<td>Single</td>
<td>77</td>
<td>39.29</td>
</tr>
<tr>
<td>Education level</td>
<td>None</td>
<td>1</td>
<td>0.51</td>
</tr>
<tr>
<td></td>
<td>Primary</td>
<td>87</td>
<td>44.39</td>
</tr>
<tr>
<td></td>
<td>Secondary</td>
<td>108</td>
<td>55.10</td>
</tr>
<tr>
<td>Religion</td>
<td>Christian</td>
<td>189</td>
<td>96.43</td>
</tr>
<tr>
<td></td>
<td>None</td>
<td>7</td>
<td>3.57</td>
</tr>
</tbody>
</table>

Most 177(90.3%) of the study subjects were aged between 17 and 19 years with a big proportion 119(60.7%) of them being married. Ninety seven (49.5%) were house wives, 31(15.8%) did casual jobs while 41(20.9%) were students. Majority 108(55.1%) had secondary education, 87(44.4%) had primary level education level
and 1 (0.5%) had no formal education. Almost all 189(96.4%) of the women were Christians.

### 4.2 PREGNANCY CHARACTERISTICS

Table 4.2: Pregnancy characteristics

<table>
<thead>
<tr>
<th>Variable</th>
<th>Category</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parity</td>
<td>0+0</td>
<td>173</td>
<td>88.27</td>
</tr>
<tr>
<td></td>
<td>1+0</td>
<td>18</td>
<td>9.18</td>
</tr>
<tr>
<td></td>
<td>0+1</td>
<td>2</td>
<td>1.02</td>
</tr>
<tr>
<td></td>
<td>1+1</td>
<td>1</td>
<td>0.51</td>
</tr>
<tr>
<td></td>
<td>2+0</td>
<td>2</td>
<td>1.02</td>
</tr>
<tr>
<td>Gravidity</td>
<td>1</td>
<td>173</td>
<td>88.27</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>20</td>
<td>10.2</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>3</td>
<td>1.53</td>
</tr>
<tr>
<td>GBD</td>
<td>20-28</td>
<td>2</td>
<td>1.02</td>
</tr>
<tr>
<td></td>
<td>29-36</td>
<td>20</td>
<td>10.2</td>
</tr>
<tr>
<td></td>
<td>37-42</td>
<td>173</td>
<td>88.27</td>
</tr>
<tr>
<td></td>
<td>&gt;42</td>
<td>1</td>
<td>0.51</td>
</tr>
<tr>
<td>ANC visits</td>
<td>None</td>
<td>6</td>
<td>3.1</td>
</tr>
<tr>
<td></td>
<td>1 – 3 visits</td>
<td>137</td>
<td>69.9</td>
</tr>
<tr>
<td></td>
<td>4 &amp; above</td>
<td>53</td>
<td>27.0</td>
</tr>
</tbody>
</table>

Primigravida women were the majority 173(88.3%), those having the third pregnancy were only 3(1.5%). Most 173(88.3%) of the women carried the pregnancy to term (37-42 weeks), 1(0.5%) had a post term delivery, and 2(1.0%) had extreme preterm delivery (20-28 weeks). Only 53(27.0%) of the women had attended the recommended 4 ANC visit during their pregnancy, 6(3.1%) never attended while the rest 137(69.9%) had attended 1-3 visits.
### Table 4.3: Laboratory investigations

<table>
<thead>
<tr>
<th>Variable</th>
<th>Categories</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hb level</td>
<td>7-10.9 g/dL</td>
<td>8</td>
<td>4.08</td>
</tr>
<tr>
<td></td>
<td>&gt;11 g/dL</td>
<td>87</td>
<td>44.39</td>
</tr>
<tr>
<td></td>
<td>Not done</td>
<td>101</td>
<td>51.53</td>
</tr>
<tr>
<td>Blood group</td>
<td>A</td>
<td>47</td>
<td>23.98</td>
</tr>
<tr>
<td></td>
<td>AB</td>
<td>11</td>
<td>5.61</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>35</td>
<td>17.86</td>
</tr>
<tr>
<td></td>
<td>O</td>
<td>89</td>
<td>45.41</td>
</tr>
<tr>
<td></td>
<td>Not done</td>
<td>14</td>
<td>7.14</td>
</tr>
<tr>
<td>Rhesus</td>
<td>Positive</td>
<td>176</td>
<td>89.8</td>
</tr>
<tr>
<td></td>
<td>Negative</td>
<td>5</td>
<td>2.55</td>
</tr>
<tr>
<td></td>
<td>Not done</td>
<td>15</td>
<td>7.65</td>
</tr>
<tr>
<td>VDRL</td>
<td>Positive</td>
<td>2</td>
<td>1.02</td>
</tr>
<tr>
<td></td>
<td>Negative</td>
<td>176</td>
<td>89.8</td>
</tr>
<tr>
<td></td>
<td>Not done</td>
<td>18</td>
<td>9.18</td>
</tr>
</tbody>
</table>

Hb level were not checked for 101 (51.5%) of the women, however 87 (44.4%) had adequate Hb levels of ≥11 g/dL and 8 (4.1%) had less than 11 g/dL. Majority 176 (89.8%) of the women were rhesus positive, however 5 were negative. Among those who were rhesus negative 2 were blood group A, 2 were blood AB and 1 blood group O. Overall blood group O had the majority followed by blood group A and B respectively, AB had the least of the number of women sampled. Only 2 (1%) women had VDRL results that were positive.
Figure 4.1: Blood group and Rhesus factor

Majority of the teenage mothers were blood group O at 88% with a few (11%) having blood group AB.

Table 4.4: Comorbidities

<table>
<thead>
<tr>
<th>Variable</th>
<th>Categories</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIV</td>
<td>Positive</td>
<td>3</td>
<td>1.53</td>
</tr>
<tr>
<td></td>
<td>Negative</td>
<td>191</td>
<td>97.45</td>
</tr>
<tr>
<td></td>
<td>Not done</td>
<td>2</td>
<td>1.02</td>
</tr>
<tr>
<td>HIV treatment</td>
<td>Yes</td>
<td>2</td>
<td>1.02</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>194</td>
<td>98.98</td>
</tr>
<tr>
<td>Hypertension</td>
<td>Yes</td>
<td>6</td>
<td>3.06</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>190</td>
<td>96.94</td>
</tr>
<tr>
<td>Hypertension treatment</td>
<td>Nifedipine</td>
<td>2</td>
<td>33.33</td>
</tr>
<tr>
<td></td>
<td>Aldomet</td>
<td>4</td>
<td>66.67</td>
</tr>
<tr>
<td>Gestational diabetes</td>
<td>Yes</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>196</td>
<td>100</td>
</tr>
</tbody>
</table>

HIV status were known to 194(98.9) of the women, where only 3(1.5%) were positive and two were on ART treatment. Six (3.1%) were hypertensive and all of them were on treatment. None of the patients had gestation diabetes.
Table 4.5: Radiology results

<table>
<thead>
<tr>
<th>Variable</th>
<th>Categories</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>OUS</td>
<td>Yes</td>
<td>37</td>
<td>18.88</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>159</td>
<td>81.12</td>
</tr>
<tr>
<td>OUS results</td>
<td>Live foetus in cephalic position</td>
<td>35</td>
<td>94.59</td>
</tr>
<tr>
<td></td>
<td>Fatal malpresentation</td>
<td>2</td>
<td>5.41</td>
</tr>
</tbody>
</table>

Obstetric ultra sound was done for 37(18.9%), where 35 showed live foetus in cephalic position and 2 had fatal malpresentation. Intra Uterine Fatal Death was reported in one case only.

4.3 INTRAPARTUM OUTCOMES

Majority 138(70.4%) of the women had labour that lasted between 9-17 hours, only 39(19.9%) had labour less than 9 hours, the rest 19(9.7) labour lasted more than 17 hours. The distribution of state of the membranes along the labour duration seems to follow the same pattern, where very few 11(5.6%) had pre-labour rupture of membranes (PROM), those who had artificial rupture of membranes (ARM) were 88(42.4%) and majority 102(52.0%) had spontaneous rupture of membranes (SROM).
The specific time period per the state of membrane is given in the table 6 below.

![Duration of labour and state of membranes](image)

**Figure 4.2: Duration of labour and state of membranes**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Category</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROM</td>
<td>&lt;=10 hours</td>
<td>2</td>
<td>18.18</td>
</tr>
<tr>
<td></td>
<td>11-20 hours</td>
<td>3</td>
<td>27.27</td>
</tr>
<tr>
<td></td>
<td>21-30 hours</td>
<td>2</td>
<td>18.18</td>
</tr>
<tr>
<td></td>
<td>&gt;30 hours</td>
<td>4</td>
<td>36.36</td>
</tr>
<tr>
<td>ARM</td>
<td>&lt;=4 hours</td>
<td>68</td>
<td>83.95</td>
</tr>
<tr>
<td></td>
<td>5-9 hours</td>
<td>11</td>
<td>13.58</td>
</tr>
<tr>
<td></td>
<td>10-14 hours</td>
<td>2</td>
<td>2.47</td>
</tr>
<tr>
<td>SROM</td>
<td>&lt;=4 hours</td>
<td>77</td>
<td>75.49</td>
</tr>
<tr>
<td></td>
<td>5-9 hours</td>
<td>19</td>
<td>18.63</td>
</tr>
<tr>
<td></td>
<td>10-14 hours</td>
<td>6</td>
<td>5.88</td>
</tr>
</tbody>
</table>

**Labour induction and augmentation**

Labour induction was done for 7(3.57%) of the patients, of which misoprostol was the drug of choice that was used in all the patients. Labour augmentation was done for
7(3.57%) where oxytocin was the drug of choice for all the patients. However none of the patient who had labour induction and labour augmentation at the same time.

![Pie chart showing delivery modes]

**Figure 4.3: Delivery mode**

Majority 177(90.3%) of the mothers delivered through normal vaginal delivery (spontaneous vertex delivery), 16(8.16%) through caesarean section, while 1 delivered through assisted breech delivery. Indications for caesarean section are as shown in the table 7 below:

**Table 4.7: Indication for caesarean section**

<table>
<thead>
<tr>
<th>Indication</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cephalopelvic disproportion</td>
<td>4</td>
<td>25</td>
</tr>
<tr>
<td>Poor progress</td>
<td>3</td>
<td>18.75</td>
</tr>
<tr>
<td>Foetal distress</td>
<td>3</td>
<td>18.75</td>
</tr>
<tr>
<td>Breech presentation</td>
<td>3</td>
<td>18.75</td>
</tr>
<tr>
<td>Prolonged labour</td>
<td>1</td>
<td>6.25</td>
</tr>
<tr>
<td>Malposition</td>
<td>1</td>
<td>6.25</td>
</tr>
<tr>
<td>Antepartum haemorrhage</td>
<td>1</td>
<td>6.25</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>16</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>
Maternal complications

Almost half 95(48.5%) of the mothers had an intact perineum after delivery, 16(8.2%) had an episiotomy done while 85(43.4%) of the mothers sustained a perineal tear during delivery, which were graded as first degree for 24(28.2%) and second degree for 61(71.8%). Only eight women (4.1%) had estimated blood loss (EBL) of more than 500mls, but no maternal mortality was reported during the study period.

Table 4.8: Maternal complication

<table>
<thead>
<tr>
<th>Variable</th>
<th>Category</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perineal status</td>
<td>Episiotomy</td>
<td>16</td>
<td>8.16</td>
</tr>
<tr>
<td></td>
<td>Perineal tear</td>
<td>85</td>
<td>43.37</td>
</tr>
<tr>
<td></td>
<td>Intact</td>
<td>95</td>
<td>48.47</td>
</tr>
<tr>
<td>Perineal tear</td>
<td>First degree</td>
<td>24</td>
<td>28.24</td>
</tr>
<tr>
<td></td>
<td>Second degree</td>
<td>61</td>
<td>71.76</td>
</tr>
<tr>
<td>EBL</td>
<td>&lt;500mls</td>
<td>188</td>
<td>95.92</td>
</tr>
<tr>
<td></td>
<td>&gt;500mls</td>
<td>8</td>
<td>4.08</td>
</tr>
<tr>
<td>Maternal mortality</td>
<td>No</td>
<td>196</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

4.4 NEONATAL OUTCOMES

Most 140(71.4%) of the newborns weighed 2500-3499 grams, 26(13.3%) weighed 1500-2499 grams (low birth weight), and 5(2.6%) had weight of <1499 grams (very low birth weight).

Majority 187(95.4%) of the newborns were born at term, 7(3.6%) were preterm, while 2(1%) were post term.
### Table 4.9: Birth weight and gestation at birth

<table>
<thead>
<tr>
<th>Birth weight</th>
<th>Preterm</th>
<th>Term</th>
<th>Postdates</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1000-1499 grams</td>
<td>3</td>
<td>2</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>1500-2499 grams</td>
<td>3</td>
<td>22</td>
<td>1</td>
<td>26</td>
</tr>
<tr>
<td>2500-3499 grams</td>
<td>1</td>
<td>138</td>
<td>1</td>
<td>140</td>
</tr>
<tr>
<td>&gt;3500 grams</td>
<td>0</td>
<td>25</td>
<td>0</td>
<td>25</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>7</td>
<td>187</td>
<td>2</td>
<td>196</td>
</tr>
</tbody>
</table>

**Figure 4.4: Gestation at birth**

Majority 187(95.4%) of the babies were born at term (gestation above 37 weeks of pregnancy), while 7(3.6%) were born before 37 weeks gestation and 2(1.0%) being born after 42 weeks gestation.

Most 140(71.4%) of the babies who were born were of normal weight born at term gestation, while the babies born preterm had a birth weight of below 2500 grams. A few 25(12.8%) were born with a birth weight of more than 3500 grams.
The proportion of newborns in different categories of Apgar score, that is, 0-3, 4-6, and 7-10 at time 1 minute did not change much in the next (at 5 minutes) period. Of the 7 who scored 0-3, 2 improved to 4-6 and 1 scored 7-10 at 5 minutes. Likewise of the 8 who scored 4-6 at 1 minutes, 5 improved to 7-10 at 5 minutes. None scored lesser at 5 minutes as compared to what they scored at 1 minute.

Table 4.10: Apgar score at 1 and 5 minutes

<table>
<thead>
<tr>
<th>Apgar at 1 minutes</th>
<th>Apgar at 5 minutes</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0-3</td>
<td>4-6</td>
</tr>
<tr>
<td>0-3</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>4-6</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>7-10</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>
The commonest newborn complication reported was birth asphyxia which affected 17 (8.7%) of the newborn followed by prematurity affecting 6 (3.1%), post maturity and caput succedaneum affected 1 newborn each. The 2 congenital anomalies reported were extra digits and congenital talipes.

**Table 4.11: Neonatal complications**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birth asphyxia</td>
<td>17</td>
<td>8.67</td>
</tr>
<tr>
<td>Prematurity</td>
<td>6</td>
<td>3.06</td>
</tr>
<tr>
<td>Congenital abnormality</td>
<td>2</td>
<td>1.02</td>
</tr>
<tr>
<td>Post maturity</td>
<td>1</td>
<td>0.51</td>
</tr>
<tr>
<td>Caput succedaneum</td>
<td>1</td>
<td>0.51</td>
</tr>
</tbody>
</table>
Deaths

There were 2 still births reported and 3 deaths, of which 2 occurred within 1 hour of life, while the other approximately 2-5 hours after birth. The cause of both deaths was severe birth asphyxia. The case fatality for birth asphyxia was 17.6%.

4.5 ASSOCIATION BETWEEN VARIABLES

Table 4.12: Association between mother’s age and other demographic variables

<table>
<thead>
<tr>
<th>variable</th>
<th>Category</th>
<th>Age</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>16yrs &amp; below</td>
<td>17yrs &amp; above</td>
</tr>
<tr>
<td>Occupation</td>
<td>House wife</td>
<td>1</td>
<td>96</td>
</tr>
<tr>
<td></td>
<td>Casual jobs</td>
<td>0</td>
<td>31</td>
</tr>
<tr>
<td></td>
<td>Self Employed</td>
<td>0</td>
<td>27</td>
</tr>
<tr>
<td></td>
<td>Student</td>
<td>18</td>
<td>23</td>
</tr>
<tr>
<td>Marital status</td>
<td>Married</td>
<td>1</td>
<td>118</td>
</tr>
<tr>
<td></td>
<td>Single</td>
<td>18</td>
<td>59</td>
</tr>
<tr>
<td>Education level</td>
<td>None</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Primary</td>
<td>10</td>
<td>77</td>
</tr>
<tr>
<td></td>
<td>secondary</td>
<td>9</td>
<td>99</td>
</tr>
</tbody>
</table>

* Fisher’s Exact test

Almost all 18(94.7%) of those aged 16 and below were students compared to those aged 17 above where 96 (54%) were housewives and only 23(13%) were students. Almost half 9(47.4%) of those aged 17 and above were in secondary school. There was a significant association between age and marital status (p<0.001) where 18(94.7%) of those aged 16 and below were single while 118(67.7%) of those aged 17 and above were married.
### Table 4.13: Association between mother’s age and ANC profile

<table>
<thead>
<tr>
<th>variable</th>
<th>Category</th>
<th>Age 16yrs &amp; below</th>
<th>Age 17yrs &amp; above</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANC visits</td>
<td>none</td>
<td>0</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1-3 visits</td>
<td>12</td>
<td>125</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4 &amp; above</td>
<td>7</td>
<td>46</td>
<td></td>
</tr>
<tr>
<td>Gravidity</td>
<td>1</td>
<td>19</td>
<td>154</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>0</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>0</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>HIV status</td>
<td>Positive</td>
<td>1</td>
<td>2</td>
<td>0.267*</td>
</tr>
<tr>
<td></td>
<td>Negative</td>
<td>18</td>
<td>173</td>
<td></td>
</tr>
<tr>
<td>OUS</td>
<td>Yes</td>
<td>3</td>
<td>34</td>
<td>&gt;0.999*</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>16</td>
<td>143</td>
<td></td>
</tr>
</tbody>
</table>

* Fisher’s Exact test

Twelve (63.2%) of those aged <16 years had attended 1-3 ANC visits as compared to 70.6% of those aged >17 years, however those aged below 16 years had a higher proportion (36.8%) of those who attended 4 & above ANC visits as compared to 26% of those aged >17 years. All 19 mothers aged below 16 years were primigravida.
Table 4.14: Association between mother’s age and labour outcome

<table>
<thead>
<tr>
<th>Variable</th>
<th>Category</th>
<th>Age 16yrs &amp; below</th>
<th>Age 17yrs &amp; above</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Labour duration</td>
<td>&lt;8hrs</td>
<td>7</td>
<td>32</td>
<td>0.102*</td>
</tr>
<tr>
<td></td>
<td>9-17hrs</td>
<td>10</td>
<td>128</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&gt;18hrs</td>
<td>2</td>
<td>17</td>
<td></td>
</tr>
<tr>
<td>Labour induction</td>
<td>Yes</td>
<td>0</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>19</td>
<td>170</td>
<td></td>
</tr>
<tr>
<td>Labour augmentation</td>
<td>Yes</td>
<td>0</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>19</td>
<td>170</td>
<td></td>
</tr>
<tr>
<td>Perineal status</td>
<td>Episiotomy</td>
<td>1</td>
<td>15</td>
<td>0.004*</td>
</tr>
<tr>
<td></td>
<td>Perineal tear</td>
<td>15</td>
<td>70</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Intact</td>
<td>3</td>
<td>92</td>
<td></td>
</tr>
</tbody>
</table>

* Fisher’s Exact test

There was significant association (p=0.004) between age and perineal status, 15(79%) of those below 16 years had perineal tears as compared to 39.5% of those aged above 17 years. None (0%) of those aged below 16 years had induction or augmentation of labour.

Table 4.15: Association between mother’s age and neonatal outcome

<table>
<thead>
<tr>
<th>Variable</th>
<th>Category</th>
<th>Age 16yrs &amp; below</th>
<th>Age 17yrs &amp; above</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gestation at birth</td>
<td>Preterm</td>
<td>1</td>
<td>6</td>
<td>0.516*</td>
</tr>
<tr>
<td></td>
<td>Term</td>
<td>18</td>
<td>171</td>
<td></td>
</tr>
<tr>
<td>Birth weight</td>
<td>&lt;2500grams</td>
<td>2</td>
<td>29</td>
<td>0.743*</td>
</tr>
<tr>
<td></td>
<td>2500grams &amp; above</td>
<td>17</td>
<td>148</td>
<td></td>
</tr>
<tr>
<td>Apgar score at 1minute</td>
<td>0-6 “low score”</td>
<td>1</td>
<td>14</td>
<td>&gt;0.999*</td>
</tr>
<tr>
<td></td>
<td>7-10 “normal score”</td>
<td>18</td>
<td>163</td>
<td></td>
</tr>
<tr>
<td>Apgar score at 5minute</td>
<td>0-6 “low score”</td>
<td>0</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td></td>
<td>7-10 “normal score”</td>
<td>19</td>
<td>168</td>
<td></td>
</tr>
<tr>
<td>Neonatal morbidity</td>
<td>No</td>
<td>16</td>
<td>156</td>
<td>0.710*</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>3</td>
<td>21</td>
<td></td>
</tr>
</tbody>
</table>

* Fisher’s Exact test
All (19) the mothers aged <16 years had neonates who scored 7-10 at 5 minutes, few 9(5%) of those aged 17 years and above had neonates who had low Apgar scores at 5 minutes. Eighteen (94.7%) mothers below 16 years had term newborns, this proportion was almost similar for those above 17 years that had 96.6% with term neonates.

4.6 Focused Group Discussions

The results presented here are based on focused group discussions from teenage mothers aged between 13 and 19 years who had delivered and were purposively selected from the MCH/FP clinic. The participants were grouped as early teenagers (ETA) aged 13-16 years and late teenagers (LTA) aged 17-19 years. The number of available participants was limited and the number of focused group was therefore few. The focused group members were allowed to discuss their issues and experiences until no new information was forthcoming. The findings are discussed under themes;

Characteristics of participants

Twenty participants participated in the three focused group discussions. The participants in the study were teenage mothers aged 16-19 years. The participants were able to understand and speak both English and Kiswahili. In terms of parity, the participants were all mothers of at least one child. The educational background of the participants included primary, secondary school and some waiting to join tertiary institutions of education. None had returned to school after delivery and the majority were not engaged in any employment.
### SUMMARY OF THEMES AND SUB-THEMES

<table>
<thead>
<tr>
<th>Themes</th>
<th>Sub-themes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Being a pregnant teenager</strong></td>
<td>• Opportunity</td>
</tr>
<tr>
<td></td>
<td>• Happy</td>
</tr>
<tr>
<td></td>
<td>• Excited</td>
</tr>
<tr>
<td></td>
<td>• Anger</td>
</tr>
<tr>
<td></td>
<td>• Regret</td>
</tr>
<tr>
<td><strong>Reasons for becoming pregnant</strong></td>
<td>• Lack of sexuality, reproductive health knowledge</td>
</tr>
<tr>
<td></td>
<td>• Perceived attitude of health care providers towards teens as barrier to utilisation of contraceptives</td>
</tr>
<tr>
<td></td>
<td>• Idleness</td>
</tr>
<tr>
<td></td>
<td>• Transactional sex</td>
</tr>
<tr>
<td></td>
<td>• Sexual violence and abuse</td>
</tr>
<tr>
<td></td>
<td>• Marital responsibility</td>
</tr>
<tr>
<td><strong>Perception of socioeconomic support</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Perception of services</strong></td>
<td></td>
</tr>
<tr>
<td>a) <strong>Antenatal service</strong></td>
<td>• Caring and concerned</td>
</tr>
<tr>
<td></td>
<td>• Lack of information</td>
</tr>
<tr>
<td>b) <strong>Labour and delivery</strong></td>
<td>• Overwhelmed</td>
</tr>
<tr>
<td></td>
<td>• Bearable</td>
</tr>
<tr>
<td></td>
<td>• Companionship</td>
</tr>
<tr>
<td>c) <strong>Postpartum care</strong></td>
<td>• Maturity</td>
</tr>
<tr>
<td></td>
<td>• Respect</td>
</tr>
<tr>
<td></td>
<td>• Hopelessness</td>
</tr>
<tr>
<td><strong>Post pregnancy aspirations</strong></td>
<td>• Continue with education</td>
</tr>
<tr>
<td></td>
<td>• No future aspirations</td>
</tr>
</tbody>
</table>
Theme one: Being a pregnant teenager

The participants described how they felt when they discovered that they were pregnant. This is well illustrated by the following participants:

Opportunity

Some participants felt that becoming pregnant was an opportunity for them to escape from their maternal homes that they perceived as being unbearable and to start their own with their husbands.

“I planned to get pregnant because living with my mother was very difficult. I finished primary school and passed well but was unable to join secondary school due to school fees. My mother said she did not have money to pay for my education. I decided to get married and start my own family. It was also an opportunity to leave home and own my home as a wife and mother”

The participants felt a wealth of emotions when they discovered they were pregnant. Some of them expressed positive emotions that were related to the pregnancy while others felt bad about being pregnant.

Happy

“I have always wanted to be called a mother. When I discovered that I was pregnant, I was really happy”

Excited

“When I got married I was eager to get pregnant and be called a mum. I used to admire small babies and I was excited when I missed my period for 3 months”

Anger

“When I realised that I was pregnant I was angry at myself…I was taught life skills in school and I knew the consequences of sex. I did not plan to be pregnant, I was still in school. I was afraid to use contraceptives because I did not want people to talk evil about me”
Regret

“My mother was not able to take me to secondary school. I was home doing nothing and I ended up getting pregnant”

Theme two: Reasons for becoming pregnant

Majority of the participants admitted that they had not planned to get pregnant. Lack of sexuality, reproductive health knowledge

The participants reported that they did not know the implications of sexual intercourse; they did not anticipate becoming pregnant.

“I was dating my boyfriend who had finished school a year before me. We were having sex occasionally and I did not expect to get pregnant. By bad luck, after the august school holidays were over I returned to school. When I missed my period that is when I realised that I was pregnant”

“I found myself pregnant. I had not planned to be pregnant while in school. I did not know anything about family planning”

Perceived attitude of health care provider towards teens as barrier to utilisation of contraceptives

“I had not planned to be a mother. I was afraid to use any method. I couldn’t go to any clinic to be give contraceptives since I was below 18 years of age”

Idleness

“I did not have work to do and I was not responsible. When I got pregnant I was glad because I was going to be a mum and be responsible for my baby”

Transactional sex

A few participants narrated that financial challenges led them to seek help/favours from their boyfriends whom they thought would help them by paying their school fees. Instead, they ended up conceiving and their dreams to go back to school were halted.
“My parents did not have enough money to pay for my secondary fees. I used to get chased from school very often and it devastated me. I met my boyfriend who is now my husband and he used to promise me that he would pay my fees. When I got pregnant he took me as his wife and assured to take me back to school once I give birth. I now have a second baby and he has never shown interest of taking me back to school. I loved school and wanted to be an engineer but now am a mother”

Sexual violence and abuse

One of the participants during the focused group discussion started sobbing when asked to talk about her experience during pregnancy and on further probing after the session she narrated her ordeal that lead to her pregnancy. This is what she said:

“I had a friend while in form one who invited me to her home. The day I visited her, the parents were not around. She tricked me into getting in a room and she locked me up with her brother…the brother forced himself on me. I went home and months later discovered that I was pregnant. My grandmother beat me up when she discovered that I was pregnant and accused me of misbehaving. Later my sponsors refused to pay my school fees”

Because of the evoked emotions, the researcher handed her over to the hospital counsellor who continued to counsel her.

Marital responsibility

A few choose to become pregnant because they were married and needed a family.

“I am married and it is my responsibility to give birth to children”

“When I got married I was eager to get pregnant and be called a mum”

Theme three: Perception of socioeconomic support

All the participants received support during pregnancy, child birth and postpartum. They identified different people who supported them and termed the support given as physical, financial and emotional.
Most of the participants who were not married and living with both their parents or one biological parent reported receiving emotional, physical or financial support. The following participants said:

“When I told my father that I was pregnant, he was very annoyed with me. He did not beat me but he ignored me for some time. I had finished form four and was to join Kisii University. I apologized for what I had done. My mother is never around...Later, he forgave me and he became very supportive. He gave me money to take care of myself and the pregnancy. I used the money to buy clothes for the baby and my clothes. He would also give my sister-in-law money to take me to the clinic”

“My mother was not happy when she discovered I was pregnant. She felt pity and really supported me by giving me food, fruits, bought me clothes for the baby and gave me money to attend the clinic”

“I told my mother that I was pregnant and she never reacted but she cried. When she informed my elder brothers about me, they came home and quarrelled me. They told me that they would not waste their money paying my school fees. I never returned to school and I stayed at home until I delivered my baby. My mother made sure that I ate all my food and she took me to the hospital for check-up. My mother the other day promised to take me to school when my baby is one year old”

Those teenager mothers who were married were supported by their husbands.

“For my case, my husband has been doing everything in taking care of us. He buys food, clothes and used to take me to the clinic”

“He (husband) would give me money to buy the things that I wanted and also transport to the hospital for clinic visits. I did the house chores like cooking and washing clothes until the day I developed stomach pains and I was taken to hospital and given a baby. After I gave birth, my mother-in-law helped me with cooking and a casual worker used to be paid to wash our clothes. Even now he still supports us. We live together”

Some of the participants who were not living with their biological parents were under the care of their relatives. They identified their grandmothers and aunts as people who supported them during their pregnancy.

“I have lived with my grandmother since when I was in primary school. My mother got married and she could not go with me so my grandmother took me. When I become pregnant my grandmother was very annoyed and she gave me a thorough
beating. Later she became nice to me and as the pregnancy continued to get big, she would tell me to rest and she did all the house chores. She made sure that I ate food and had money to go to the clinic.”

“I am living with my aunt, my father’s sister. She has been of great help since I got pregnant. She works in the hospital and every time I am supposed to go to the clinic, she could take me. She used to encourage me and ensured I did not sleep without eating even when I did not feel like eating”

The fathers of the babies were often unwilling or sometimes absent during and after the pregnancy. A few who were available were taking responsibility of caring for their children in the marital union. The married teenagers and a few of the unmarried teenage mothers received support from their baby’s father (husbands), who were around and provided financial, emotional and physical support as illustrated below:

“Since I got married to my boyfriend, now my husband, he has taken care of me and his baby to date. He buys us everything that we need and takes us to the hospital whenever we are required to go”

“My boyfriend has been supporting us with money to buy food and clothes for the baby. In one way or another I also get support from my mother on caring for the baby, feeding the baby and she gives me advice when I have problems dealing with the baby”

Most of the teenage mothers who were not married reported lack of support from their baby’s father. Some termed the amount of support provided by the baby’s father as being inadequate. The following narrated:

“The baby’s father promised me that when I get the baby he would assist by employing a house help to help us take care of the baby so that I can go back to school. But since I gave birth, am still living with my mother who is now taking care of my baby. He has never come to see the baby even sending money to buy food for his baby”

“He has never bothered to know whether I gave birth or not”

“When I got my baby, my boyfriend came home with his people and they talked with my mother to take care of the baby and that they will provide financially. He has been
sending my mother money for my son’s upkeep but he rarely comes to see his own baby”

“My baby’s father took responsibility for the first seven months after I delivered the baby then he started snubbing my calls. I tried to call him for some time till I gave up and decided to raise my child alone with the help of my mother”

**Theme four: Perception of services**

a) **Perception of Antenatal care**

Participants provided profound insights into their perception of service providers’ responses to issues of teenage pregnancy.

*Caring and concerned*

In certain aspects, the participants perceived the care providers as caring and concerned with their welfare.

“When the nurse examined me, she sent me to the lab. The lab man removed my blood and I was told to wait for the results. After one hour he gave me the results on a paper and told me to take back to the nurse in the clinic. The nurse told me that my blood level was low and she took me to the doctor who gave me medication to increase my blood level”

“I started antenatal clinic when I was six months pregnant... I attended only three visits before delivery. They took some blood from me... urine, blood group... I was given IFAS during the clinic visit. I was taught about eating a balanced diet. Sister (nurse) told me to eat a lot of fruits and I maintain personal hygiene”

“The nurse in the clinic used to gather all the women in the clinic and she would teach us. I was told to eat a balanced diet and to go back to the hospital if I experience any abdominal pain, any bleeding or drainage of baby’s water”

“The nurse told me to eat a well-balanced diet, to be clean and to have the baby’s clothes in the bag in case I start having stomach pains”

“During one of the clinic visits, I remember the nurse telling me about family planning methods available once I delivered my baby. She said that I can be give a method when I bring the baby for immunization, that it will help me not get pregnant again and help me have time to raise my baby”
Lack of information

Participants however indicated instances of gaps in antenatal care services in areas of health education and communication of findings of laboratory investigations.

Health education during antenatal care visits provide effective screening, advice, support, addresses and treat minor disorders of pregnancy and offers reassurance. Antenatal care personnel also provides information on new-born care, breastfeeding, postnatal care and danger signs of the mother and baby (Al-Ateeq, Mohammed, Al-Rusaiess, 2015).

Most of the participants reported that during the antenatal care visits, the nurse took their blood pressure, weight and examined their abdomen but could not recall the health care provider teaching them anything related to their pregnancy or care of their baby. This was illustrated by the following participants who had the following to say:

“I used to be examined and get my blood pressure checked then am told when to go back for check-up. I do not remember being taught by the health care providers”

“When I went to the clinic I never found other women there. The sister (nurse) would examine me quickly then am given a day to go back. She never taught me, she told me to take the tablets that she gave and go back for check-up on the day she wrote on the book”

“When I went to the clinic, the doctor took my blood for HIV and gave me the results. They gave me a bottle and asked me to bring urine. I took the urine to the lab but I was not told the result. Sister (nurse) took my blood pressure and gave me a date when to return to the clinic for check-up”

“They tested my blood and urine but I was not given the results. The nurse examined my tummy and took my blood pressure. She never told me anything except the day that I was to return to the hospital”
Out of the teenage mothers who attend the antenatal care clinic, majority of the participants reported to have been given tablets that would help increase the blood level though they were not able to recall the name of the tablets issued but were able to describe the tablets by size and colour. They had the following to say:

“In the clinic, the nurse took my blood pressure and my pregnancy was checked then the nurse gave me small red tablets that I was to take every day. I do not know the name but she told me it will help increase my blood level in the body”

“I was told to go buy some medicine by the clinic nurse and take every day to increase the level of my blood. I bought red small tablets though I cannot remember the name”

“Every time I went to the clinic the nurse used to give me tablets to take every day. She told me that am required to take them until I deliver. The tablets were small in size sometimes yellow sometimes red”

b) Perception of labour and delivery

Overwhelmed

The participants’ discourse related to feeling of anxieties and fears due to lack of birth preparation. They testified of the pain that came with labour as illustrated below:

“I do not think I can relive the pain that I experienced while giving birth again. My abdominal pain started on Sunday in the morning. I slept with the pain until Monday around 9 in the night. The abdominal pains were so painful and I wouldn’t wish any young person to go through what I went through”

“The stomach pain was too painful. I cried a lot I had the pain for one week. I used to go to the hospital and I was told to go back home. The doctor examined me three times and told me that the baby’s way was still closed. On the sixth day I was admitted in the hospital and I got the baby”

“My pain was unbearable...I would not want to get a second baby”
**Bearable**

A few of the teenage mothers felt that the labour pain was not too painful. One may assume that their pain threshold may be high to view labour pain as being less painful.

This was well illustrated by the following respondent:

“To me, I gave birth to my baby without feeling too much pain. The baby’s waters broke in the morning and when I got to the hospital I was examined and told that I was about to get the baby. I only felt the pain increasing when I was giving birth then when the baby was out, the pain disappeared”

**Companionship**

A birth companion is a non-medical person who assists a pregnant woman before, during and after birth by providing physical assistance and emotional support. Continuous support during labour is associated with improved maternal and foetal health, a lower risk of induction and interventions and less need for pain relief. Birth partners have several roles such as advocacy, explaining to the pregnant woman what is happening and reminding them what to do. They help them with massage, relaxation and breathing techniques. Emotionally, they help by reassuring and encouraging the woman in labour. Birth companion during labour remains a low cost intervention that has proved to be beneficial to women in labour (WHO, 2016).

All the participants were escorted to the hospital by their parents, husbands and guardians. They were left under the care of the nurse except for a few who had their loved ones by their side during labour until delivery.

“I started having stomach pains in the evening and my husband took me to the hospital. After admission he went back home and was to bring me tea in the morning”

“My mother noticed that I was in pain. She packed my clothes and the baby’s clothes and carried the antenatal card and took me to the health centre. I got admitted and she stayed with me and she kept telling me what to do like no to scream so that the baby does not get tired”
“I have been living with my grandmother. When the stomach pains started, I told her about it and she took me to hospital. The doctor examined me and told me that my baby’s way was opening. I was admitted in the labour room and my grandmother was there until I delivered my baby”

“My aunt took me to the hospital when labour pains started. She left me with food and went back home. The nurses and doctors took care of me until I delivered my baby”

c) Perception of postpartum experience

Most of the participants delivered in a hospital setting, staying for varied periods of time in postnatal ward.

“After I got my baby, I stayed in the hospital for a few hours then I was discharged home”

“I stayed in the hospital for 4 days because I was not able to give birth the normal way. I was operated on because my baby had sat instead of coming with the head first”

“My baby was born with difficulties in breathing and got admitted in the nursery. She was put on oxygen and I stayed in the hospital for one week taking care of her”

Maturity

The participants felt that becoming a mother was largely a positive experience. For some participants, motherhood brought with it a sense of maturity, responsibility and purpose as illustrated by the following participants:

“I have seen a lot of change in myself. When I was a girl, it was different than now when I am a mother. The baby has made me responsible. When I get some money I am able to budget according to my baby’s needs. I cannot misuse the money. I always think of my baby first before my own needs”

“My baby has made me stop wandering around...visiting my friends. When I think of visiting my friends the way I used to do when I was a girl, I cannot. Because I have a baby to look after and cannot leave my child with anyone”
**Respect**

Some felt that being a mother made people respect them and it brought an increased sense of self-worth as the following said:

“I was married and when I became a mother, I had my respectful place in the home”

“When I became a mother, people stopped treating me as a young girl and this made me feel good”

**Hopelessness**

A few of the participants reported that they were not happy to be mothers as they saw the baby as an obstacle to achieving their dream. This is what they had to say:

”My baby has spoilt my life...I could have been in school like my friends but this baby has made me be a school dropout”

“I feel like a prisoner. I cannot work, go to school, I cannot even visit my friends. My mother and sisters are assisting me in taking care of the baby so I cannot let my mother take care of my baby alone”

“I dropped out of school and my friends are almost finishing their secondary school but for me am still at home, it makes me sad”

“Taking care of my baby is very difficult...I have to depend on my parents for everything and it makes me sad”

**Theme five: Post pregnancy aspirations**

Each participant had different aspirations for their future.

**Continue with education**

Most of the participants expressed their desire to continue with their education which will enable them get employment that will assist in the care of their child. This is illustrated as follows:

“When my baby grows older, I plan to go back to secondary school and get my certificate with the support of my parents”

“I plan to join university Kisii University this September. My baby will be nine months old and my mother will take care of her”
“I was married at a young age and I really loved school. My dream was to be an Engineer. If I get the chance I will go back to school”

No future aspirations

Some participants expressed no desire of continuing with their education and others were not sure about their future in education.

“I have no future plans. For now I want to raise my child and take care of my husband”

“I lost my scholarship when I got pregnant when I was in form one. I am not sure whether I will go back to school”
CHAPTER FIVE
DISCUSSION OF FINDINGS

5.1 Introduction

This study sought to identify maternal and neonatal outcomes of teenage pregnancy and to explore the experiences of the teenage mothers during pregnancy, childbirth and postpartum period. The study was guided by the following specific objectives: to determine foetal outcomes associated with teenage pregnancies, to assess maternal outcomes related to teenage pregnancy and to explore the experiences of the teenage mothers related to the pregnancy, childbirth and postpartum period. This section of the study presents the discussion of the findings.

5.2 Discussion of the Results

5.2.1 Demographics

The study established that the majority of the women were aged between 17 and 19 years with a big proportion of them being married. Most of them had attained secondary school level of education. Almost all of those aged 16 and below were students compared to those aged 17 and above who were housewives while only a few were students. The number of working women was lesser in this group. An early start at childbearing greatly reduces the educational and employment opportunities of women (Kenya National Bureau of Statistics et al., 2015). There was a significant association between age and marital status where majority of those aged 16 and below were single while most of the teenage mothers aged 17 and above were married. All the early teenage mothers (13-16 years) were students and were pregnant for the first time (primigravida) with majority attending 1-3 antenatal care visits most probably due to lack of knowledge about availability and importance of the FANC schedule or
due to fear of people knowing that they are pregnant, while the late teenagers (17-19 years) had a higher proportion of those who attended more than 4 antenatal care as compared to the early teenage mothers and with majority being primigravida and a few multiparous. Antenatal care attendance finding is similar to a study by Gross et al. that compared antenatal attendance among the adolescent and adult pregnant women and found both groups had late attendance (Gross et al., 2012). Another study by Althabe et al. found slightly lower frequency of antenatal attendance by adolescents below 15 years at four visits compared to the older adolescents and adults (Althabe et al., 2015). Majority of the teenage mothers were of Christian religion.

5.2.2 Neonatal outcomes

Majority of the newborns weighed 2500-3499 grams, born at term and a few weighing <2500 grams. Our study findings contradicts other studies that found higher rates of low birth weight (<2500 grams) babies born to teenage mothers compared to adult mothers (Althabe et al., 2015) who carried out a large population based study in six LMIC, (Egbe et al., 2015) carried out a study on prevalence and outcome of teenage hospital births in Cameroon and (Najati & Gojazadeh, 2010) in Iran.

The newborns born with low Apgar score of 0-3 in one minute improved their score in the 5 minute scoring. None that scored lesser scores at 5 minutes as compared to what they scored at 1 minute. The common newborn complication reported was birth asphyxia followed by prematurity. This finding concurs with Agbor et.al, 2017 who found a significant association between teenage deliveries and neonatal asphyxia at the fifth minute of life (Agbor et al., 2017). Post maturity and caput succedaneum affected 1 newborn each. Congenital anomalies reported were extra digits and talipes.
There were still births and neonatal deaths reported. The neonatal mortality occurred within 1-5 hours of life. (Najati & Gojazadeh, 2010) found a higher incidence of congenital malformation and still births in their study on teenage pregnancies. The leading cause of neonatal mortality was reported as severe birth asphyxia.

5.2.3 Maternal outcomes

Primigravida women were the majority and most of them carried the pregnancy to term. A few had extreme preterm and post term neonates. There were a few teenage mothers who never attended antenatal care clinics with majority attending between 1-3 visits. Antenatal care visits fell short of the recommended 4 antenatal care visits by WHO and Kenya focused antenatal care requirements. This finding may be attributed to the fact that most of the pregnant teenagers may have started their antenatal care visits late in the third trimester, a similar finding reported by a study by (Sulaiman, Othman, Razali, & Hassan, 2013) who found that the pregnant teenagers had fewer attended antenatal care visits compared to the adult group. A higher percentage of regular antenatal care visits were reported by (Bakr, Mitwaly, Mahmoud, & Saman, 2016) among pregnant adolescents compared to adults. This may be attributed to the fears and negative anticipations related to pregnancy and labour among the adolescents. Of the teenage mothers who attended the antenatal care visits, majority did not have their haemoglobin level checked. A few of the teenage mothers were anaemic with their haemoglobin levels being below 11g/dL. Teenagers who had anaemia were few in this study compared to studies done by (Bakr et al., 2016) who reported anaemia as a more common finding among pregnant teenagers. Overall blood group was O followed by blood group A and then B. Only 5 of the teenage
mothers were rhesus negative with a few having their blood group and Rhesus factor not done.

A few teenage women tested positive for VDRL and HIV. Those who tested positive to HIV were started on HAART. This finding contradicts a study done in South Africa by Christofides et. al, 2014 who found that early adolescent pregnancy had an increased incidence of HIV infection (Christofides et al., 2014). Few had hypertension and all of them were on treatment of either nifedipine or aldomet. Findings from most studies found a higher rate of pre-eclampsia among the teenage group compared to the adult groups (Najati & Gojazadeh, 2010) and (Bakr et al., 2016).

No teenage mother was diagnosed with pregestational or gestational diabetes. This concurs with findings by (Socolov et al., 2017) and (Bakr et al., 2016) who reported no case of gestational diabetes in the teenage group. This may be attributed to the fact that teenagers are an active group and are not overweight or obese which is a risk factor for gestational diabetes.

Obstetric ultrasound was done, with majority of the results showing live foetus in cephalic position and the rest had foetal malpresentations. Intrauterine foetal death was reported in one case only. This finding was lower than what was found in one study by (Edessy, Gaber, & Maher, 2014) in Egypt that reported a higher incidence of IUFD.

Majority of the women had labour that lasted between 9-12 hours and a few who had prolonged labour (more than 17 hours). Labour induction was done for a few mothers
with misoprostol which was the drug of preference that was used in all patients. Labour augmentation was done for a few mothers where the drug of choice for all the mothers was oxytocin. However none of the mothers in the study had induction and subsequent augmentation of labour spontaneously. Pre-labour rupture of membranes (PROM) cases were very low compared to other studies done by (Derme et al., 2013) that reported PROM as the most common disease among teenage pregnant women.

The study showed that the teenage mothers had a higher rate of normal vaginal delivery with a lower caesarean section and instrumental delivery. This is similar to a study done by (Blomberg, Birch Tyrberg, & Kjølhede, 2014) who established that the teenage groups had more vaginal births and fewer caesarean sections compared to older women. This finding is also supported by others who propose that the better predisposition of the teenage pregnant women to have a spontaneous vaginal delivery is due to better myometrial function, greater connective tissue elasticity and lower cervical compliance. Similar results were found in a study by (Derme et al., 2013) who found that teenagers had a lower risk of instrumental deliveries and a higher proportion of spontaneous deliveries compared to the adult group. The commonest indications for caesarean section were cephalopelvic disproportion followed by poor progress, foetal distress and breech presentation. The common belief that the biological immaturity of the adolescent pelvis causes cephalo-pelvic disproportion (CPD) leading to increased caesarean section was not confirmed by this study. A similar finding on low incidence of caesarean section attributed to CPD was reported by (Egbe et al., 2015).
Almost half of the mothers had an intact perineum at delivery, with almost an equal number who suffered perineal tears and a few had episiotomies done. There was a significant association between age and perineum status with the early teenagers suffering more from perineal tears compared to the late teenagers. This finding is similar to a study by Papamicheal et al., 2009 who found a high rate of perineal trauma among the teenagers compared to the older teenagers and adult group (Papamicheal, Pillai, & Yoong, 2009). Several interventions have been used during childbirth to help reduce perineal trauma such as hands off technique, restrictive use of episiotomy, use of different birthing positions and delayed pushing (Devane, 2012). Only 8 of the mothers had an estimated blood loss of more than 500mls. The estimated blood loss of more than 500mls was not associated with anaemia in postpartum period but may suggest that bleeding depends on other causes such as inactive management of the third stage of labour, the technical skills of the staff carrying out the delivery as well as physiological processes rather than the mother’s age. This study reports fewer mothers who developed postpartum haemorrhage compared to a study by Socolov et al. that reported a higher incidence of postpartum haemorrhage in the teenage group compared with the young adult group (Socolov et al., 2017b). Obossou et al. in their study on teenagers in Benin reported lower incidence of postpartum haemorrhage that’s similar to this study (Obossou, Aguemon, Bib, Salifou, 2015). It was commendable that during the 2 years study period there was no maternal mortality reported among the teenage mothers.

### 5.2.4 Experiences of teenage mothers

The Focused Group Discussions provided insight into the teenage mother’s experiences of their pregnancy, childbirth and early motherhood. The study findings
showed that adolescent mothers face challenges that place demands on their developmental stage, on their ability to adapt to the obligations of parenthood, on their social life and future aspiration on education.

One adolescent was bold enough to disclose that she got pregnant through sexual coercion. Aside from her, those who became pregnant may in one way or another consented to sex by getting married. This study is similar to a study by (Ankomah & Konadu Gyesaw, 2013) that showed some adolescents do plan their pregnancy and in case of marriage seek motherhood to gain adult status and have sense of fulfilment.

From this study, majority of the teenage mothers attended antenatal care late thus falling short of the recommended four antenatal care visits scheduled by WHO and FANC policy in Kenya (Ministry of Public Health and Sanitation & Ministry of Medical Services, 2012). This finding concurs with (Gross et al., 2012b) who reported late attendance, infrequent attendance or no attendance among adolescent pregnant women due to lack of knowledge, lack of power to make decisions, lack of money or cultural factors including local concepts of illness in Tanzania.

Lack of communication between the health care provider and the teenage mothers was evident in the study as reported by the participants, who were issued with nutritional supplement tablets that only a few knew the name. A few participants reported being given their antenatal care profile results (HIV, blood group, Haemoglobin level, urinalysis, blood pressure) and being taught about their health (balanced diet, hygiene, family planning and danger signs).
All the teenager mothers received support during pregnancy, childbirth and post delivery period. The support came from parent, guardians/ relatives and their husbands in form of emotional, physical and financial support. The teenage mothers reported inadequate support during childbirth with a few having birth companions. They commended the health care workers (nurses and doctors) for taking good care of them during delivery. There was varied support from the baby’s father with some teen mothers not having any support while those who were married had full support from their husbands. A similar finding was recorded by (Ngum Chi Watts et al., 2015) on the support received by teenagers from different persons such as friends, parents and wider community.

Motherhood experience also varied among the teen mothers. Some reported that having a baby made them mature, more responsible and they were respected by increasing their self-value. While others felt that their lives had been destroyed as there was an interruption or a complete halt in their education a similar finding by (Ngum Chi Watts et al., 2015) who reported that some teenagers felt regret of having a baby while still at school, making them unable to complete their school education which led to difficulties in finding work. Many of the teenage mothers cared very much about returning to school and achieving their educational aspirations.
CHAPTER SIX
CONCLUSION AND RECOMMENDATION

6.1 Conclusion

The study identified several neonatal and maternal adverse outcomes associated with teenage pregnancies. The neonatal adverse outcomes identified in the study were birth asphyxia and prematurity (gestation <37 weeks). Maternal outcomes were hypertension and perineal tears which were more significant in the early teenage group. Majority of the late teenagers were married. None of the teenagers were employed and neither of them was in school. An early start of childbearing greatly reduces the employment and educational opportunities of teenage girls. It was commendable that during the study period there was no recorded maternal mortality related to the teenage pregnancy.

The study has also identified several challenges faced by the teenage mothers during pregnancy, child birth and postpartum period. Majority of the teenage pregnancy are attributed to engagement in unprotected sex without knowing the consequences. There was lack of knowledge and use of contraceptives and they also lacked negotiating powers when it came to engaging in sex. Most teenagers had emotional, physical and financial support from their parents, guardians and husbands. The support that they have received has helped them adjust to motherhood positively.

6.2 Recommendations

➢ Ministry of Health should help facilitate access to contraceptives through Counties. Teenagers to be encouraged to use dual contraceptives to prevent teenage pregnancy and STIs including HIV by health care providers.
➢ Ministry of Education in collaborations with other stakeholders such as Ministry of Health should prioritize comprehensive sex education in primary and secondary schools.

➢ Parents and guardians to assist and encourage teenage mothers to continue with their education to achieve their dreams.
REFERENCES


APPENDICES

Appendix 1: Map of Ol’ Joro Orok sub-county
Appendix 2: Participation Assent Form

Dear participant,

My name is Fridah Wanbui Rwengo (07225485403). I am a Master of Science in nursing student from Moi University, Eldoret conducting a research study on pregnancy outcomes of teenage mothers in Ol ’ Joro Orok, Nyandarua County. The purpose of this study is to explore the teenage mothers’ experiences during pregnancy, childbirth and postpartum period.

I kindly request for your participation and opinion on the experiences you’ve had during pregnancy, childbirth and postpartum period.

The information you give is completely confidential and I will not associate your name with anything you say.

I would like to record the focus group discussions, so that we can make sure to more adequately capture the thoughts, opinions and ideas we hear from the group. No names will be attached to the focus group sessions and the tapes will be destroyed as soon as they are transcribed.

You may refuse to answer any questions or withdraw from the study at any time.

I will undertake to keep all information from you private and confidential, and formally ask fellow participants to respect your confidentiality.

If you have any questions now or after you have completed the discussions, you can always contact me.

If you agree to participate in this study, kindly sign below.

Signature (Participant) ........................................ Date..................

Signature (Researcher) .......................................... Date..................

[Stamp: 26 DEC 2015]

[Institutional Research & Ethics Committee]

[Approval Number: DREC 0038/14]
Appendix 3: Parental/Guardian Consent Form

Dear parent/guardian,

My name is Fridah Wanjui Wenge (0725485403). I am a Master of Science in nursing student from Moi University, Eldoret conducting a research study on pregnancy outcomes of teenage mothers in Ol’ Joro Orok, Nyandarua County. The purpose of this study is to explore the teenage mothers’ experiences during pregnancy, childbirth and postpartum period.

I kindly request for your consent to have your child/spouse participate in this study. The information she gives will be completely confidential and I will not associate her name with anything she says.

The discussion will be recorded to ensure adequate capture of the thoughts, opinions and ideas.

Your daughter/wife may refuse to answer any questions or withdraw from the study at any time.

I will undertake to keep all information from her private and confidential, and formally ask fellow participants to respect her confidentiality.

If you have any concerns now or after she has completed the discussions, you can always contact me.

I agree to have my daughter/wife participate in this study.

Signature (Parent/guardian/spouse) .................................................. Date ..................................

Signature (Researcher) .......................................................... Date .................................
Appendix 4: Data Extraction Form

DEMOGRAPHIC DATA

Code number ................................ Residence/ Location ....................
Age .............................................. Occupation .........................
Marital status: Married ...................... Single .......................
Educational level: None .................... Primary ....................
Secondary ...............................
Religion .................................
Parity ......................................... Gravidity ..........................
L.M.P ........................................ E.D.D ..........................
GBD ...........................................
Number of ANC visits ......................

PREGNANCY CHARACTERISTICS

Laboratory investigations
1. Hb level ........................................
2. Blood group ...................................
3. Rhesus ........................................
4. VDRL ........................................ Positive ............. Negative ......................
   If positive, type of treatment offered? ........................................
5. HIV ........................................ Positive ...... Negative ...... Known positive ....
   If positive, HAART started? ........................................
6. Hypertension disorders in pregnancy?
   a. Yes ........................................ b. No .............................
      If yes, what treatment was offered? ......................................
7. Gestational Diabetes?
a. Yes ................................. b. No .................................
If yes, what treatment was offered? ........................................

8. Was obstetric ultrasound done?
   a. Yes ................................. b. No .................................
   What was the result? ..............................................................

9. Intrauterine fetal demise? ....................................................

**INTRAPARTUM OUTCOMES**

10. Duration of labour ..........................................................

11. State of membranes
   PROM........ For how many hours? ..............................................
   ARM........... at what cervical dilatation , hours before delivery.....
   Spontaneous rupture of membrane for how many hours? ............

12. Induction of labour? Yes .. No .................................
   If yes, what type of prostaglandin was used ..........................

13. Was labour augmented? Yes .. No .................................
   If yes, what medication was used ...........................................

14. Mode of delivery
   a. Normal vaginal delivery .....................................................
   b. Vacuum delivery .............................................................
   c. Forceps delivery ............................................................
   d. Caesarean section ...........................................................
   e. Assisted breech delivery ..................................................

15. Perineal status
   a. Episiotomy .................................................................
   b. Perineal tear: 1° ................................. 2° ................................. 3° ................................. 4° .................................
   c. Intact .................................................................
16. Estimated amount of blood loss
   a. < 500mls
   b. > 500mls

17. Maternal mortality: Yes No
    If yes, what was the cause?

NEONATAL OUTCOMES

18. Gestation at birth

19. Birth weight

20. APGAR score at 1 minute 5 minute

21. Neonatal morbidity
   a. Birth asphyxia: Yes No
   b. Prematurity: Yes No
   c. Postmaturity: Yes No
   d. Neonatal jaundice: Yes No
   e. Neonatal sepsis: Chorioamnionitis: Yes No
   f. Congenital syphilis: Yes No
   g. Congenital abnormality: Yes No
      If yes, specify

22. Birth trauma
   a. Cephalohematoma: Yes No
   b. Fractures: Humerus Clavicle Femur
   c. Caput succedaneum: Yes No
   d. Nerve trauma, Erb's palsy: Facial nerve

23. Neonatal mortality
   a. Still birth: FSB MSB
   b. Death a few hours after birth
      Specify cause of death
Appendix 5: Focused Group Discussion Guide

Part A: Pregnancy focused group discussion guide

Serial No

Age of the group participants:

1. Was the pregnancy planned?

2. At what gestation did you first attend antenatal care?

3. How many antenatal care visits did you have during the entire pregnancy period?

4. Which investigations were done during the antenatal care visits?

5. Which nutritional supplements were you given at the antenatal care clinic?

6. What health messages were you taught at the antenatal care clinic?
7. Did you receive any support during the pregnancy?

________________________________________________________________________

If yes, what sort of support?

________________________________________________________________________

____ who gave you much support?

8. What are some of the experiences you had while the pregnancy?

________________________________________________________________________

Part B: Intrapartum and postpartum focus group discussion guide

1. What was your experience during labour?

________________________________________________________________________

________________________________________________________________________

2. Who accompanied you to the hospital during the time of labour?

________________________________________________________________________

________________________________________________________________________

3. How long did you stay in hospital after delivery before being discharged?

________________________________________________________________________

________________________________________________________________________
4. Has the baby’s father taken any responsibility?

5. What are the experiences you’ve had on becoming a mother?

6. How has the pregnancy and the baby changed your life?

7. What are your aspirations for the future?
Appendix 6: Mwengozo Wa Kikundi Cha Majadiliano Yenyewe Maono
SEHEMU A: Mwengozo wa kikundi cha majadiliano yenye maono kuhusu ujuzito

Umri wa waahiri kwenye kikundi

1. Je, ujuzito huu ulipangwa?

2. Ni kaika kipindi kipili cha ujuzito ulipombelea kliniki kwa mafunzo ya ujuzito?

3. Je, uliuhudhiria mafunzo ya ujuzito mara ngapi wakati wote wa ujuzito?

4. Ni uchunguzi upi ulifanywa wakati uliuhudhiria kliniki ukiwa mjamzito?

5. Ni lisho bora ipi ya ziada ulipewa kaika kliniki ya ujuzito?
6. Ni mafunzo yapi ya kiafya uliofundishwa katika kliniki ya ujuzito?

__________________________________________________________________________

__________________________________________________________________________

7. Je, ulipokea afadhili wawote wakati wa ujuzito?

__________________________________________________________________________

__________________________________________________________________________

Ni ufadhili gani uliopata wakati ulikuwa njamzito?

__________________________________________________________________________

__________________________________________________________________________

Ni nani alikupa huo ufadhili?

__________________________________________________________________________

__________________________________________________________________________

8. Ni manbo yapi ulicyapitia wakati wa ujuzito?

__________________________________________________________________________

__________________________________________________________________________
SEHEMU B: Mwongozo wa kikuadi cha majadiliano yenye maono kubusu kujifungua moto sa baada ya kujifungua

1. Je, uhiisi vipi wakati wa kipindi cha kujifungua?

2. Ni nani aliyekepela hospitalini wakati uchungu wa motto uliasa?

3. Uliishi mada gani hospitalini baada ya kujifungua?

4. Je, baba ya mtoto anewahi kuchukua jakumu ya kumlea mwanawe?

5. Umchisi hali gani tangu uwe mama mzazi?

6. Je, ni vipi ujuzito na kumpata moto kumuhadilisha maisha yako?

7. Matarajio yako ya siku za usoni ni yapi?
Appendix 7: IREC approval letter

INSTITUTIONAL RESEARCH AND ETHICS COMMITTEE (IREC)

Reference: IREC/2016/189
Approval Number: 0001794

20th December, 2016

Fridah Wambui Rwengo,
Moi University,
School of Nursing,
P.O. Box 4606-30100,
ELDORET-KENYA.

Dear Ms. Rwengo,

RE: FORMAL APPROVAL

The Institutional Research and Ethics Committee has reviewed your research proposal titled:

“Assessment of Pregnancy Outcomes among Teenage Mothers in Ol’joro-crok, Nyandarua County Kenya”.

Your proposal has been granted a Formal Approval Number: FAN: IREC 1794 on 20th December, 2016. You are therefore permitted to begin your investigations.

Note that this approval is for 1 year, it will thus expire on 19th December, 2017. If it is necessary to continue with this research beyond the expiry date, a request for continuation should be made in writing to IREC Secretariat two months prior to the expiry date.

You are required to submit progress report(s) regularly as dictated by your proposal. Furthermore, you must notify the Committee of any proposal change(s) or amendment(s), serious or unexpected outcomes related to the conduct of the study, or study termination for any reason. The Committee expects to receive a final report at the end of the study.

Sincerely,

PROF. E. WERE
CHAIRMAN
INSTITUTIONAL RESEARCH AND ETHICS COMMITTEE

cc CEO - MTRH Dean - SCP Dean - SOM
Principal - CHS Dean - SON Dean - SOD
Appendix 8: County Director of Health approval

Fridah Wambui Rwengo  
P.O. Box 1899-30100  
ELDORERT.

06th January 2017

County Director of Health  
Nyandarua County  
P.O. Box 701-20303  
NYANDARUA.

Thru’

County Chief Nurse  
Nyandarua County  
P.O. Box 701-20303  
NYANDARUA

Dear Sir/Madam,

REG: DATA COLLECTION FOR RESEARCH WITHIN OL JOROOROK SUB-COUNTY NYANDURA

I am a post-graduate student at the Moi University, School of Nursing pursuing a Master’s Degree in Maternal and Neonatal Health. I am conducting research on: “Assessment of Pregnancy outcomes among teenage mothers in Oljoroork Sub-county Nyandarua”. The proposal has been approved by the Institutional Research and Ethics Committee (IREC). Attached is a copy of the approval.

I will carry out the research between January and June 2017. Your assistance will be highly appreciated.

Yours faithfully,

FRIDAH WAMBUI RWENGO  
SN/PGAMNH/02/15

Etsis:
MEDICAL SUPERINTENDENT
J.M. KARIUKI MEMORIAL HOSPITAL
P.O. BOX 121-36200
OL’KALOU.

THRU’

THE INCHARGE
RECORDS DEPARTMENT
J.M KARIUKI MEMORIAL HOSPITAL, OL’KALOU

DEAR SR/MADAM

RE: DATA COLLECTION FOR RESEARCH

I am a post graduate student at the Moi University School of Nursing. I am conducting research on; “Assessment of Pregnancy outcomes among teenage mothers in Oljorok subcounty Nyandarua”. The proposal has been approved by the Institutional Research and Ethics Committee (IREC); find attached a copy of the approval. I will carry out the data collection between the months of January and June 2017.

Your assistance will be highly appreciated.

Yours faithful,

FRIDAH WAMBUI RWENG'O
SN/PG/MRH/02/15

9/17

Approved
Appendix 10: Ol’ Joro Orok Sub-county approval

OL JORO OROK SUB COUNTY
COUNTY DEPARTMENT OF HEALTH

OL JORO OROK SUB COUNTY,
P.O BOX 80,
OL JORO OROK.
10/03/2017

THE NURSING OFFICER I/C,
KASUKU HEALTH CENTRE.

RE: DATA COLLECTION FOR RESEARCH AT KASUKU
I want to inform you that Fridah Wambui Rwengo a Post Graduate Student at Moi University school of Nursing pursuing a Degree Maternity Neonatal Health. She will be doing the above exercise in your facility at time convenient with her.
Please accord her necessary assistance.

Yours Faithfully,

C.W Kahando