

**FACTORS ASSOCIATED WITH ANTENATAL CARE
ATTENDANCE AMONG THE YOUTH WHO HAVE
DELIVERED AT PUMWANI MATERNITY HOSPITAL,
NAIROBI COUNTY, KENYA**

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**Factors associated with antenatal care attendance among the
youth who have delivered at Pumwani Maternity Hospital,
Nairobi County, Kenya.**

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DECLARATION

This thesis is my original work and has not been presented for a degree in any other University.

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This thesis has been submitted for examination with our approval as the University supervisors.

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DEDICATION

I dedicate this thesis with much love to the memory of my father, Mr. Jacob Nandwa. He gave me the greatest gift a parent can give to a child, the desire to excel. He taught me to be strong of heart and to stand tall.

It is also for my mother, Mrs. Grace Nandwa, whose love and support has equaled his.

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ABBREVIATIONS AND ACRONYMS

AIDS Acquired Immunodeficiency Syndrome

APHRC African Population and Health Research Center

ANC Antenatal Care

AU African Union

AOR Adjusted Odds Ratio

CARMMA Campaign Accelerated Reduction of Maternal Mortality in Africa

CCR Center for Clinical Research

EOC Emergency Obstetric Care

ERC Ethical Review Committee

FANC Focused Antenatal Care

GOK Government of Kenya

ITNs Insecticides Treated Nets

ITROMID Institute of Tropical Medicine and Infectious Diseases

KEMRI Kenya Medical Research Institute

KDHS Kenya Demographic and Health Surveys

KNBS Kenya National Bureau of Statistics

MDG Millennium Development Goal

MOH Ministry of Health, Kenya

OR Odds Ratio

PMH Pumwani Maternity Hospital

PMTCT Prevent of Mother to Child Transmission

PPH Postpartum Hemorrhage

STD /Is Sexually Transmitted Diseases/Infection

TBAs Traditional Birth Attendants

UN United Nations

UNESCO United Nations Educational, Scientific and Cultural Organization

UNFPA United Nations Population Fund

UNICEF United Nations Children's Fund

WHO World Health Organization

SPSS Scientific Package for Social Sciences

SSC Scientific Steering Committee

ABSTRACT

Early initiation and frequent antenatal care (ANC) attendance during pregnancy is important to identify and mitigate risk factors in pregnancy and to encourage women to have skilled attendants at childbirth. However, a 2008—2009 survey carried out on health facilities in Kenya indicated that 92% of pregnant women attended ANC services at least once but only 47% attended four or more visits as recommended by World Health Organization and Kenya's guidelines on focused antenatal care. Youth comprised over half (55%) of the proportion who didn't utilize ANC services properly and thus experienced higher proportions of morbidity and mortality compared to other adult expectant women. This study aimed at determining factors associated with ANC attendance among the youth. A prospective hospital-based cross-sectional study was conducted among 235 youth aged between 15—24 years who had delivered at Pumwani Maternity Hospital during the study period. Maternity Delivery Register (MDR) was used to identify and recruit eligible study participants. A sampling frame constituting of serial numbers assigned to the mothers was made. Using Computer Generated Random Numbers (CGRN), ten mothers were selected every day from the sampling frame for participation. Quantitative data was collected using pre-tested structured questionnaires. Descriptive statistics such as proportions were used to summarize categorical variables. Chi-square or Fishers' Exact Tests were used to test for the strengths of associations. Variables identified to be significantly associated with ANC attendance at bivariate analysis were further analyzed at multivariate analysis using binary logistic regression.

Prevalence Adjusted Odds Ratios (PAOR) with their respective 95% confidence intervals (CI) was used to estimate the strengths of associations. Threshold for statistical significance was set at $p \leq 0.05$. Data analysis was performed using Scientific Package for Social Sciences (SPSS) version 20.0 software. Among the 235 respondents, 80.0% were in their first pregnancy (primiparous) with majority (77.4%) being married. A few (39.1%) were living more than 10 km from the hospital with majority (95.7%) having lived in Nairobi for over one year. Slightly over half (52.3%) had attained Secondary level of education with 37.9% having attained Primary level. Only 46.0% had desired and timely pregnancies with over half (54.0%) having unwanted and mistimed pregnancies. Majority (80.0%) had attended ANC services in public funded health facilities with 56.6% having attended the recommended four or more ANC visits. Over half (58.7%) had attended their first ANC visit after the recommended four months of pregnancy with majority (68.1%) having initiated ANC attendance during second trimester of pregnancy. A few (17.9%) initiated during the third trimester. Majority (94.9%) were knowledgeable by expounding on the importance of regular ANC attendance with 95.3% having positive attitudes towards ANC services by believing in the services. Factors such as unfriendly/poor treatment from the clinic staffs (51.9%), when a sexual partner refuse to take responsibility for the pregnancy (65.5%), high costs associated with ANC services (91.1%), fear of testing HIV positive (90.2%), unwanted and mistimed pregnancies (69.8%) were determined as barriers towards proper utilization of ANC services. Being within the age groups of 18—24 years (PAOR 4.95,

95% CI 0.088—0.727), paying between Ksh 100—2,000 for ANC services received (PAOR 2.89, 95% CI 1.441—5.814), desired and timely pregnancies (PAOR 2.263, 95% CI 1.308—3.913) and early initiation of ANC attendance (PAOR 4.95, 95% CI 2.737—8.99) were significantly and independently associated with ANC attendance at multivariate binary logistic regression analysis. Poor utilization of ANC services during pregnancy was observed among the youth Programs targeting to improve ANC attendance are required to enhance early enrolment and proper utilization of ANC services.

CHAPTER ONE INTRODUCTION

1.1 Background information

Globally, maternal mortality has substantially declined except in Sub-Saharan Africa (WHO, 2010). Of the 21 countries with highest mortality rates, 15 are in Sub-Saharan Africa, including Kenya where recent estimates in the 2008—09 survey by the Kenya Demographic and Health Survey (KDHS) suggested maternal mortality rates of 488 deaths per 100,000 live births (KDHS, 2010). This is a far cry from the projected target of 147/100,000 live birth by 2015, which would accelerate attainment of Millennium Development Goal 5 (KDHS, 2010; Kihara *et al.*, 2015). Maternal morbidity and mortality is high among the youth with nearly half of all Kenyan women beginning childbearing before reaching the age of 24 years (WHO, 2010; KDHS, 2010). Several studies have shown that pregnant women who initiate antenatal care (ANC) attendance early and attend frequently are more likely to fully benefit from its preventive and curative services and be assisted during delivery by skilled attendants compared to those who initiate ANC quite late and attend only few visits (APHRC, 2010; KDHS, 2010; Kihara *et al.*, 2015; Shakil *et al.*, 2011).

According to a 2008—2009 survey conducted on health facilities in Kenya, 92% of pregnant mothers attended at least one ANC visit, but only 47% attended four or more visits as recommended by World Health Organization

(WHO) and Kenya's guidelines on focused antenatal care (UNICEF, UNFPA and The World Bank, 2012). Although ANC attendance might not have the potential to predict and avert obstetric emergencies, it exposes expectant mothers to health education on risk factors and encourages them to deliver with the help of skilled attendants or in health facilities (Grosset *al.*, 2012; Teferra *et al.*, 2012).

Maternal morbidity and mortality can be significantly reduced with adequate provision and proper utilization of antenatal care services (KDHS, 2010; Kihara *et al.*, 2015). The revised focused antenatal care (FANC) model of the World Health Organization as well as the Kenya's focused antenatal care guidelines recommend at least four visits for uncomplicated pregnancies with the first visit starting within the first trimester of pregnancy (KDHS, 2010; WHO, 2010; Kihara *et al.*, 2015). This is meant to assist expectant mothers with development of individual birth plans, educate them on danger signs, identify and manage of obstetric complications such as pre-eclampsia, prepare them for complications, counsel them on family planning, identification and management of infections including HIV, syphilis and other sexually transmitted infections (STIs), teach them on how to prevent mother to child transmission (PMTCT) of HIV, sensitize them on proper nutrition in addition to ensuring the availability of skilled personnel and timely intervention to avoid maternal and neonatal

morbidity and mortality (Odhiambo *et al.*, 2006; APHRC, 2010; Shakil *et al.*, 2011; Kihara *et al.*, 2015).

According to the United Nation (UN), youth are defined as persons between the ages of 15—24 years (UN, 2010). Youth is best understood as a period of transition from childhood dependence to adulthood independence and awareness of independence as a member of a community (USAID, 2008; UNESCO, 2010). Youth aged between 15—24 years account for about 1.2 billion people of today's population with the majority(70%) living in developing countries (The World Bank, 2012). In East Africa, 80million people are in this age bracket, comprising over half (58%) of the region's population (UN, 2010). Currently, 56% of the Kenyan population comprises of the youth (GoK, 2010). Maternal morbidity and mortality rates are high among the youth. These rates can be significantly reduced with adequate provision and proper utilization ANC services among the youth. However, pregnant youth (especially those from impoverished households) have been associated with poor health seeking behavior due to malnutrition, lower levels of education, less empowerment and financial insecurity (Magadi *et al.*, 2001; Odhiambo *et al.*, 2006;Phafolis *et al.*, 2007; KDHS, 2010; Kihara *et al.*, 2015).

Although preliminary evidence indicates that ANC attendance during pregnancy is important to identify and mitigate risk factors in pregnancy and to

encourage women to have skilled attendance at childbirth, little is known about the factors associated with ANC attendance among the youth (KDHS, 2010; Gross *et al.*, 2012; Teferra *et al.*, 2012; Shakil *et al.*, 2011). A systematic analysis of these factors would thus be very useful in demonstrating potential impact of improving maternal health through determining the associated factors. This study sought to answer this important question, i.e whether determining factors associated with ANC attendance among the youth are successful in improving proper utilization of ANC services which will translate to improved maternal health, one of the three main objectives (namely, completed focused antenatal care, barriers, knowledge, attitudes and practices associated with ANC attendance).

1.2 Statement of the problem

In Kenya, every expectant mother is known to be at risk of developing pregnancy-related complications (KDHS, 2010; Kihara *et al.*, 2015). Those with pre-existing conditions that worsen during pregnancy are even at a higher risk of adverse pregnancy outcome (WHO, 2010). These are major public health problems since over half (56%) of the expectant mothers are the youth (KDHS, 2010). Such risks can be better addressed when expectant mothers initiate early ANC attendance and attend regularly to achieve the recommended number of visits (WHO, 2010; APHRC, 2010; Obwaka *et al.*, 2005).

At present, there is still high maternal mortality rates of 488 deaths per 100,000 live births in Kenya (KDHS, 2010; Kihara *et al.*, 2015). This is a far cry from the projected 147/100,000 by 2015 (APHRC, 2010; KHDS, 2010; Kihara *et al.*, 2015). These deaths can be reduced significantly with adequate provision and proper utilization of ANC services during pregnancy (Gross *et al.*, 2012; Kihara *et al.*, 2015). Kenya is also experiencing surging numbers of youth pregnancies with majority of them being from impoverished households (Obwaka *et al.*, 2005; Odhiambo *et al.*, 2006; KDHS, 2010). However, majority of the youth (75%) often initiated ANC attendance quite late and they do not attend the recommended number of visits (KDHS, 2010; Mutunga *et al.*, 2005). This has led to increase in the numbers of adverse pregnancy outcome among the youth since most of them miss out on important services such as preventive and screening of risk factors offered during early ANC attendance. To contribute to significant reduction in the number of adverse pregnancy outcome among the youth, it was important to determine factors associated with ANC attendance with a view of designing suitable interventional programs.

1.3 Justification

Adequate provision and proper utilization of antenatal care (ANC) services during pregnancy is the cornerstone of adverse pregnancy outcome prevention strategy (APHRC, 2010; KDHS, 2010; Shakil *et al.*, 2011). However, a number

of factors such as socio-demographic characteristics, maternal previous ANC and obstetrical history, availability and utilization of ANC services during pregnancy, views and perception on barriers associated with proper utilization of ANC services, pregnancy timing and desirability, system related factors, knowledge, attitude and practices associated with ANC services have continually been associated with ANC attendance. But understanding of their epidemiology remains limited in Kenya (KDHS, 2010).

To improve early enrolment and proper utilization of ANC services, it was important to determine the associated factors with a view of improving maternal health. The likely loss of life and high costs incurred in treating youth as a result of pregnancy related complications also called for urgent need to determine the associated factors.

Pumwani Maternity Hospital offered a unique opportunity to conduct this study since it is an obstetric referral hospital for delivery of expectant mothers which provides delivery services to over 20,000 women every year—majority of whom are the youth (PMH, 2010). Lastly, this study focused on the youth because they are over half (56%) of Kenyan population and are known not to utilize ANC services properly during pregnancy thus experiencing higher rates of morbidity and mortality compared to other adult expectant women (KDHS, 2010; Kihara *et al.*, 2015).

1.4 Research Questions

(i). What are the factors associated with completed focused antenatal care (FANC) attendance among the youth who are between the ages of 15—24 years and who have delivered at Pumwani Maternity Hospital?

(ii). What are the factors that act as barriers towards proper utilization of ANC services among the youth who are between the ages of 15—24 years and who have delivered at Pumwani Maternity Hospital?

(iii). What is the knowledge, attitudes and practices associated with ANC attendance among the youth who are between the ages of 15—24 years and who have delivered at Pumwani Maternity Hospital?

1.5 Study Objectives

1.5.1 General Objectives

The general objective for this study was to determine factors associated with antenatal care attendance among the youth who were between the ages of 15—24 years and who had delivered at Pumwani Maternity Hospital during the study period.

1.5.2 Specific Objectives

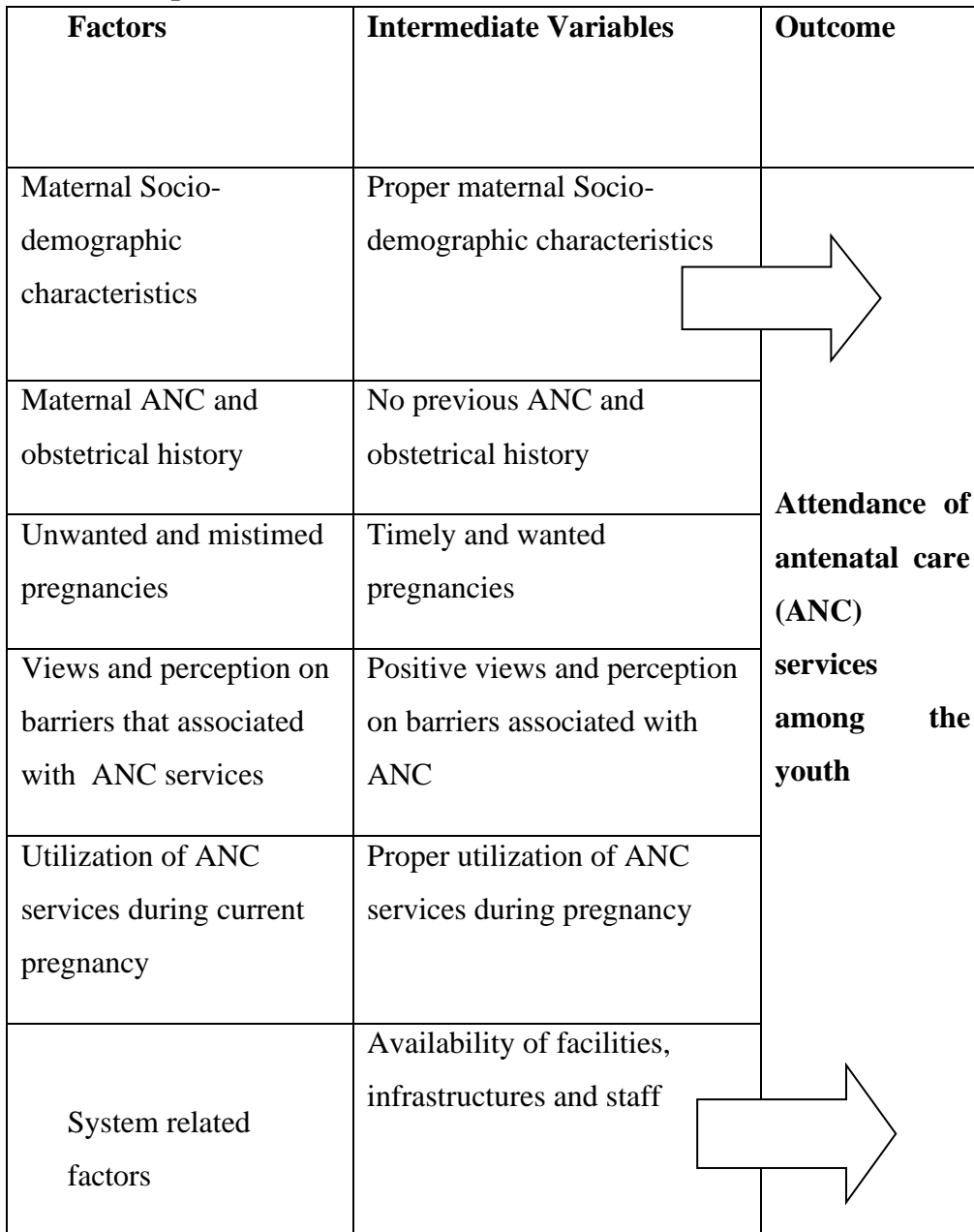
(i). To determine factors associated with completed focused antenatal care attendance.

(ii).To determine barriers that hinder proper utilization of ANC services among the youth.

(iii).To determine knowledge, attitudes and practices associated with ANC attendance among the youth.

1.6 Conceptual Framework

Factors	Intermediate Variables	Outcome
Maternal Socio-demographic characteristics	Proper maternal Socio-demographic characteristics	Attendance of antenatal care (ANC) services among the youth
Maternal ANC and obstetrical history	No previous ANC and obstetrical history	
Unwanted and mistimed pregnancies	Timely and wanted pregnancies	
Views and perception on barriers that associated with ANC services	Positive views and perception on barriers associated with ANC	
Utilization of ANC services during current pregnancy	Proper utilization of ANC services during pregnancy	
System related factors	Availability of facilities, infrastructures and staff	



The diagram illustrates a conceptual framework for antenatal care (ANC) services among youth. It is structured as a table with three columns: Factors, Intermediate Variables, and Outcome. The Outcome column is a single cell that spans all rows, containing the text 'Attendance of antenatal care (ANC) services among the youth'. Two large white arrows point from the Intermediate Variables column to the Outcome column, one at the top and one at the bottom, indicating the flow of influence from the intermediate variables to the final outcome.

CHAPTER TWO

LITERATURE REVIEW

2.1 Global view

Over 6 million women of reproductive age conceive every year worldwide (WHO, 2010). However, 5 million of these pregnancies result in childbirths (WHO, 2010). Millennium Development Goals (MDGs) are to improve maternal health, reduce neonatal and child mortality, reduce the spread of HIV/AIDS and achieve women empowerment and gender equality (UN, 2010; WHO, 2010). Attainment of these goals will have positive impact on poverty reduction and reduce maternal/infant mortality and new cases of HIV/AIDS (WHO, 2010). Significant attainment of these MDGs is through adequate provision and proper utilization of antenatal care (ANC) services (KDHS, 2010; WHO, 2010). Adequate provision and proper utilization of ANC services during pregnancy (at least four visits providing essential evidence based interventions—a package often called focused antenatal care) are key strategies in improving maternal and infant health (KDHS, 2010; Kihara *et al.*, 2015; Koblinsky *et al.*, 2008; Shakil *et al.*, 2011).

Essential intervention in ANC include identification and management of obstetric complications such as pre-eclampsia, tetanus toxoid immunization, intermittent preventive treatment for malaria during pregnancy (IPTp), and identification and management of infections including HIV, syphilis and other

sexually transmitted infections (Kihara *et al.*, 2015). ANC is also an opportunity to promote the use of skilled attendance at birth and healthy behaviors such as breastfeeding, early postnatal care, and planning for optimal pregnancy spacing (Odhiambo *et al.*, 2006; Koblinsky *et al.*, 2008; Shakil *et al.*, 2011).

United Nation estimates that over 800,500 women of reproductive age die every year from complications during pregnancy and childbirths (UN, 2010). Higher proportions(75%) of these deaths occur in developing countries(USAID, 2008; WHO, 2010; UN, 2010; Khasakhala *et al.*, 2005; Kihara *et al.*, 2015). However, these deaths can be reduced significantly with adequate provision and proper utilization of antenatal care (ANC) services amongpregnant women from the time that conception is confirmed until beginning of labor (Gross *et al.*, 2012; Bhatia *et al.*, 2009; Hobcraft *et al.*, 2005). Despite the available ANC services, a pregnant mother in Sub-Sahara Africa is 500 times more likely to die during childbirth compared to her European counterpart (WHO, 2010; Al-muhim *et al.*, 2011; *Desai et al.*, 2007).

To ensure that pregnant mothers (with youth being over half of the proportion) achieve four or more antenatal care visits and potential complications are identified early during pregnancy and managed effectively, adequate provision and proper utilization of ANC services are recommended (KDHS, 2010;

Kavoo-Linge *et al.*, 2005; Marindo *et al.*, 2007). Moreover, most expectant youth do not receive antenatal care services early in their pregnancy with only 15% obtaining antenatal care during the first trimester of pregnancy (KDHS, 2010). Majority, (70%), receive antenatal care before the sixth month of pregnancy (KDHS, 2010; Kirkwood *et al.*, 2005; Marindo *et al.*, 2007). It is therefore more likely that most of them miss out on important preventive services such as screening and curative of risk factors offered during early ANC attendance (WHO, 2010; KDHS, 2010).

2.2 Maternal Health in Kenya

Recent estimates suggest that there are 488 maternal deaths per 100,000 live births in Kenya (KDHS, 2010). This is a far cry from the projected target of 147/100,000 by the year 2015 (KDHS, 2010; Kihara *et al.*, 2015). These deaths are as a result of pregnancy related complications with youth accounting for over half (56%) of the proportion (KNBS, 2010; KDHS, 2010; Kihara *et al.*, 2015). Indeed, the African Union (AU) has encouraged its members to dedicate more resources to its campaign on accelerated reduction of maternal mortality in Africa (CARMMA) as a strategy for the integrated, multi-sectoral and multi-agency promotion of maternal, newborn and child Health (WHO, 2010; Al-muhim *et al.*, 2011).

The Kenyan government has adopted a policy on free maternity services to encourage more expectant mothers from impoverished households to seek delivery services in health facilities (GoK, 2013; Kihara *et al.*, 2015). It is important to determine factors associated with ANC attendance first in order to effectively improve maternal health in Kenya (KDHS, 2010). Adequate attendance of ANC services and recipient of professional delivery care have been associated with reduced maternal morbidity and mortality (Odhiambo *et al.*, 2006; APHRC, 2010). However, data from Kenya Demographic and Health Survey (KDHS) on comparison of trends in ANC attendance since 2003 has shown continuing decline in proportion of youth who make four or more antenatal care visits from 52% in 2003 to 47% in 2009 (KDHS, 2010). Similarly, a 2008—2009 survey carried out on health facilities in Kenya indicated that 92% of pregnant women attended ANC services at least once but only 47% attended four or more visits as recommended by World Health Organization and Kenya's guidelines on focused antenatal care (UNICEF, UNFPA and The World Bank, 2012).

Youth accounted for over half (56%) of the proportion who did not utilize ANC services properly and thus experience high morbidity and mortality rates than other adult pregnant women (KDHS, 2010; Hobcraft *et al.*, 2005). These declines in proper utilization of ANC services translated to calls for

interventional measures that will help to determine the associated factors and encourage more youth to initiate ANC attendance early and have frequenting visits throughout their pregnancy (KDHS, 2010; Bhatia *et al.*, 2009).

In 2007, the Kenya national reproductive health policy (KNRHP) was developed to enhance equitable, efficient and effective delivery of quality reproductive health services (KDHS, 2010; Kihara *et al.*, 2015). Through this mechanism, special attention has been given to the inclusion of vulnerable and marginalized populations (Maine *et al.*, 2007; KDHS, 2010; Kihara *et al.*, 2015). These policies include a comprehensive approach to improving maternal health services and encourage inter-sectorial implementation through public-private partnerships. Additionally, the policy serve as a guide to the planning, standardization and implementation of maternal health services provided by the private sector, faith-based organizations and the Kenyan government as a whole (MacCaw *et al.*, 2007; KDHS, 2010).

Evidence on best related practices on prevention of maternal morbidity and mortality is urgently needed (APHRC, 2010; KDHS, 2010). Such evidence in the recent past has led to the re-examination of the place of traditional birth attendance (TBA) in the society. Subsequently, there have been changes in programs, policies and strategies (APHRC, 2010; KDHS, 2010; Kihara *et al.*, 2015).

In informal settlements (slums) in Nairobi (Kenya's capital city) it has been shown that these areas have maternal mortality rates of 706 deaths per 100,000 live births (Voorhoeve *et al.*, 2006; APHRC, 2010; Kihara *et al.*, 2015). This is higher than the country's average. The study has further revealed that majority, (70%), of the expectant women in slums are youth and they do not receive minimum number of ANC visits (at least four) as recommended by World Health Organization and Kenya's guidelines on focused antenatal care (Tinuade *et al.*, 2005; WHO, 2010; KDHS, 2010). These women either deliver at home, with the assistance of traditional birth attendants (TBA) or in unlicensed and unregulated health facilities that lack capacity to handle even minor obstetric complications (APHRC, 2010).

2.3 Antenatal care

It is important that all pregnant women have access to preventive interventions, early diagnosis, treatment and emergency care (Maine *et al.*, 2007; WHO, 2010; KDHS, 201; Shakil *et al.*, 2011; Kihara *et al.*, 2015) The lack of adequate antenatal care has been identified as a risk factor for maternal and other adverse pregnancy outcome in many developing countries (WHO, 2010; Shakil *et al.*, 2011; Kihara *et al.*, 2015). Several corroborative studies have demonstrated the association between lack of adequate antenatal care and perinatal mortality, low birth weight, premature delivery, pre-eclampsia and anemia (KDHS, 2010;

Phafolis *et al.*, 2010; Gross *et al.*, 2012; Kihara *et al.*, 2015). Regular antenatal care attendance is essential to establish confidence between the mother and her healthcare provider (KDHS, 2010; Kihara *et al.*, 2015). This is meant to individualize health promotion messages and to identify and manage any maternal complications or risk factors (KDHS, 2010; Atuyambe *et al.*, 2008; Shakil *et al.*, 2011). The visits are also essential for providing useful services such as tetanus toxoid immunization, iron and folic acid tablets and nutrition education (KDHS, 2010; Kihara *et al.*, 2015).

Several studies have shown that the quality of ANC care and the timing and frequency of antenatal care visits are important (Al-muhim *et al.*, 2011; Shakil *et al.*, 2011; Kihara *et al.*, 2015). A community based cross-sectional study done in Ethiopia found out that receiving fewer components of antenatal care was associated with increased perinatal deaths (Teferra *et al.*, 2012).

Another study on the effectiveness of antenatal care on birth weight in rural Kenya found out that women who received poor antenatal care services had a 76% excess risk of low birth weight associated with premature delivery compared to those who received adequate antenatal care services (Corio-Soto *et al.*, 2006). In this study, Poor antenatal care was defined as lack of the recommended contents such as: measurement of blood pressure, height, weight, taking sample of urine/blood and pelvic examination (Corio-Soto *et al.*, 2006).

In the same study, inadequate numbers of antenatal care visits were associated with 63% high risk intra uterine growth retardation (Corio-Soto *et al.*, 2006). Similar results have been found in south-eastern Tanzania where birth weight was positively correlated with the frequency of antenatal care visits (Gross *et al.*, 2012). All these results point to the important role of antenatal care in identifying and mitigating any potential complications during pregnancy (KDHS, 2010; WHO, 2010).

It has been argued that some of the poor pregnancy outcome and complications of high risk women are as a result of lack of adequate antenatal care attendance. Llewelly and Jones asserted that lack of antenatal care rather than biological inefficiency may be responsible for complications such as pre-eclampsia, anemia and low births weight among teenagers and unmarried women(Llewelly *et al.*, 2007). However, there is no doubt that pregnancies in very young and the older mothers have increased risks for both the mother and the baby (Llewelly *et al.*, 2007; Anandalasshmy *et al.*, 2010).

In developing countries, high proportions, (70%), of pregnant women often initiate ANC attendance late and they do not attend antenatal care regularly (WHO, 2010; Atuyambe *et al.*, 2008)). It is generally recommended that antenatal care visits be made monthly for the last 7 months, fortnightly in the 8th month, and then weekly until birth (WHO, 2010; KDHS, 2010). Assuming that

the first ANC visit is made during the third month of pregnancy, a woman would be expected to have about 12 to 13 visits in total (WHO, 2010). Recent reports from Kenya Demographic and Health Surveys (KDHS) indicated that the minimum numbers of antenatal care visits are between four and six (KDHS, 2010). Oberymeger and Potterin their study of the use of maternal health services in central Uganda found out that higher levels of education were associated with greater use of antenatal care, while larger numbers of children in the household and rural residence were associated with less use of antenatal care (Oberymeger *et al.*, 2011).

In another study of the determinants of maternal healthcare utilization in India, Bhatia and Cleland confirmed the important role played by the socio-economic factors on the use of maternal health facilities (Bhatia *et al.*, 2009). In this study, higher maternal education and high personal hygiene were observed to be associated with significantly higher probability of routine ANC check-ups (Bhatia *et al.*, 2009). Demographic factors have also been observed to play important roles (KDHS, 2010). Mothers below 18 years are less likely to have routine antenatal care check-ups, while the first order pregnancies are more likely to receive routine AN checkups (Bhatia *et al.*, 2009; Shakil *et al.*, 2011).

The desirability and timing of the pregnancy is another important determinant of the use of maternal health services (KDHS, 2010). Pregnancies that are

mistimed or those which are unwanted are associated with irregular and late antenatal care visits than pregnancies which are conceived at the right time a woman wanted the pregnancy (Joyce *et al.*, 2006;Weller *et al.*, 2006).

2.4 Factors Associated with Utilization of ANC Services

2.4.1 Socio-economic factors: Women from low socio-economic strata are less likely to receive adequate antenatal care, less likely to have completed high school education, and are more likely to have received antenatal care services from a publicly funded health facility (KDHS, 2010). A corroborative study done in Lesotho on variables that influence delay in antenatal clinic attendance among teenagers revealed that poverty and unemployment were associated with delayed antenatal care initiation (Phafolis *et al.*, 2007). Moreover, women who have had previous stillbirths are also less likely to have sought obstetric care in the first three months of their pregnancy (Phafolis *et al.*, 2007; WHO, 2010; Al-muhim *et al.*, 2011).

2.4.2 Systems-related factors: Many useful interventions can be implemented in resource-poor settings, but weak health care delivery systems remain an important barrier (WHO, 2010). For example, there is a clear lack of well-functioning public funded ANC centers and maternity care referral systems in Kenya. The public funded maternity facilities such as Pumwani (which are accessed by majority of Kenyans) struggle to treat even minor obstetric

complications (Maine *et al.*, 2007; Kihara *et al.*, 2015). There is also lack of a decentralized basic emergency obstetric care facilities in local areas which can be easily accessed on a 24-hour basis (Maine *et al.*, 2007). Moreover, provisions of comprehensive emergency obstetric care services are not guaranteed (Main *et al.*, 2007; Kihara *et al.*, 2015). The referral systems do not focus on emergencies and women considered to be more vulnerable to complications such as pregnancy induced hypertension are at a higher risk of experiencing adverse pregnancy outcome (KDHS, 2010). Furthermore, not all institutions that offer ANC and maternity services meet the minimal standards for safe childbirth and new-born care in Kenya (Maine *et al.*, 2007; KDHS, 2010). Such facilities are often hampered by scarcity of health care providers, inadequate skills, overcrowding, inadequate hygiene and lack of essential medical supply (Maine *et al.*, 2007; APHRC, 2010). For instance, the government-run hospitals such as Pumwani struggle to provide even the most basic services since it lacks sufficient resources, infrastructure, equipments and staffs (KDHS, 2010). The Kenyan government also faces the challenge of building health care systems that can meet the needs of an increasing number of women and infants (APHRC, 2010; KDHS, 2010; Kihara *et al.*, 2015).

CHAPTER THREE

MATERIALS AND METHODS

3.1 Study area

The study was conducted at Pumwani Maternity Hospital. The hospital is situated in Kamukunji constituency, Nairobi County. Located close to Mathare and Korogocho,(two of Nairobi's slums), the hospital provides delivery services to over 20,000 women every year. Most of them are between the age of 15 to 30 years and from low socio-economic households (KDHS, 2010; PMH, 2010).

Nairobi is the capital city of Kenya with a population of about 3 million people (KNBS, 2010).The livelihood of most dwellers in Nairobi comes from regular wage employment (GoK, 2010; KDHS, 2010). The source of employment is both in the informal and formal sector. The formal and informal sectors are generally thought to be symbiotic, with the vitality of the informal sector depending upon the wages and demand generated by formal sector (KNBS, 2010). Poverty in Nairobi is as old as the city itself with the city's population being categorized into low, middle and high income groups (KDHS, 2010; KNBS, 2010). Majority (70%) are of low income groups (KNBS, 2010).

Pumwani Maternity Hospital was founded in 1926 by a Charitable Organization called Lady Grigg Welfare Leagues and was named Lady Grigg Maternity (PMH, 2010). In 1928, the first permanent building was put up at the hospital

and later some extensions were made to give the hospital a bed capacity of 27 (PMH, 2010). In 1944, the hospital was taken over by the Municipal Council of Nairobi and the name changed to Pumwani Maternity Hospital (PMH, 2010). The name “Pumwani” is derived from Swahili words to “Breath” or “Relax” which is befitting of a mother who has just delivered a well-baby (PMH, 2010). Today, it is an obstetric and referral hospital for delivery of expectant mothers in Nairobi and adjoining Districts (MoH, 2010). It has 350 beds, 60 labor ward beds, 150 baby cots and 10 incubators. In 2009, the hospital had three operation theaters two of which were functional. On average, 60—80 mothers give births 8—15 of whom are by caesarean section daily (PMH, 2010). To date, the hospital remains the largest maternity hospital in the country and is reported to be third busiest maternity hospital in the African Continent (PMH, 2010).

3.2 Study population

The study population comprised all the youth between the ages of 15—24 years who had delivered at the hospital during the study period. According to United Nation (UN), youth are defined as persons between the ages of 15—24 years (UN, 2010). The Kenyan law recognizes a young mother (below 18 years) as a mature minor (GoK, 2010). These groups of youth were also included into the study after they had consented to participate.

Inclusion Criteria

The following criteria were used to recruit participants into the study:

- Must have delivered at Pumwani Maternity Hospital
- Should be between the age of 15 to 24 years (youth)
- Those who consented to participate in the study

Exclusion Criteria

- Refusal to consent for participation
- Those with serious illness/complications and who could not be interviewed
- Those mothers who were below 15 and above 24 years
- Those who did not deliver at Pumwani Maternity Hospital.

3.3 Study Design

The study employed a prospective hospital based cross-sectional study design in which data was collected through use of structured and pre-tested questionnaires.

3.4 Sample Size Determination

The following sample size calculation formula was employed (Daniel *et al.*, 1999)

$$n = Z^2 P (1 - P) / d^2$$

Where n = sample size

Z = Z statistics for level of confidence standard normal value corresponding to 95% Confidence Interval (1.96)

P = the expected proportion of youth population who take up ANC services i.e 30% according to KDHS, 2010 (In proportion of one which is 30%, P = 0.3)

d = Precision (In proportion of one 5%, d = 0.05).

$$n = (1.96)^2 \times 0.3 \times 0.7 / (0.05)^2$$

Using finite sample size correction formula on a small population of 609 youth who attended Pumwani Maternity Hospital's ANC services as per Feb, 2013 and 30% of the proportion of youth who take up ANC services according to KDHS, 2010, the sample size therefore was calculated as follows:

$$n_1 = n_0/1 + (n_0 - 1)/N$$

$$n_1 = 323/1 + (323-1)/ 609$$

The sample size was at least 213 samples/participants. A 10% over the 213 participants was included to cater for non-response.

$10\% \times 213 = 22$ was approximately 22 participants. Therefore, total number of participants was $213 + 22 = 235$ participants.

n = was calculated to be 235 youth.

The total number of participants (youth) whom questionnaires were administered to was 235.

3.5 Sampling Method

Hospital Delivery Record(HDR) was used to identify and select eligible study participants. Serial numbers were then given to the study participants who were selected and who met eligibility criteria. From the serial numbers, a sampling frame was constituted. Using Computer Generated Random Numbers (CGRN), ten mothers were randomly selected from the sampling frame for participation into the study everyday (Monday to Friday) until the required sample size was achieved.

3.6 Pretesting of questionnaires

A preliminary pre-testing of the questionnaires was done on 10 sampled youth who met eligibility criteria and who had delivered at the hospital prior to data collection. This was done to ascertain homogeneity and clarity of the questions.

This was also used to fine-tune the questionnaires including an estimate of the duration it was expected to take on one respondent.

3.7 Data Collection

Pretested and structured questionnaires written both in English and Kiswahili and covering socio-demographic characteristics of the mother, maternal previous ANC and obstetrical history, views and perception on barriers that influence proper utilization of ANC services, knowledge, attitudes and practices associated with ANC attendance, utilization of ANC services during current pregnancy were used for data collection among sampled study participants. Preferred language was used for each participant. Questionnaires were administered after risks and benefits of the study were well explained to each of the participant and after the subject had consented to participate in the study. Collected data was then recorded in the questionnaires by the principal investigator as they were being administered to the participants. An access data base was created to enter recorded data in the questionnaires. All questionnaires were serialized using unique serial numbers assigned to each respondent in order to facilitate validation and accountability process. There was consistent use of a standardized interview protocol to minimize interpersonal variation in data quality.

3.8 Variables definitions

Dependent variables: The dependent variables for this study was the number of visits to antenatal care (ANC) clinic during current pregnancy—four and above ANC visits were considered as proper or adequate utilization of ANC services while one to three visits were considered to be poor or inadequate utilization of ANC services.

Independent variables: The independent variables for this study were; socio-demographic characteristics of the mother, maternal ANC and previous obstetrical history, availability and utilization of ANC services during current pregnancy, views and perception on barriers that influence proper utilization of ANC services, pregnancy desirability and timing, involvement of male partner in pregnancy planning and costs associated with ANC services. Knowledge was assessed by asking respondents whether they understood the importance of regular ANC visits. If they did they were requested to expound on the importance of regular ANC attendance. Those who were able to expound were reported to be knowledgeable. Attitude was assessed by asking respondents if they believed in services they were receiving during ANC visits. Those who believed were reported to be having a positive attitude.

3.9 Data Management and Storage

The principal investigator sought consent from the respondents, collected data and stored the questionnaires. He also ensured completeness and consistency of the questionnaires. The data collected from the questionnaires was assembled by keying into an access data base and analyzed using Statistical Package for Social Sciences (SPSS) Version 20.0 software. Data was kept in the principal investigator's personal computer protected with the aid of a password. To avoid any loss or tampering of the data, back-ups were made by keeping the information on CD's and flash disks.

All personal information was coded using serial numbers assigned to the study participants and names of study participants or their contact details were not recorded anywhere on the questionnaires. Each study participant was assigned a serial number as early as possible and data collected using questionnaires and consent forms were filed against this serial numbers. The principal investigator ensured safety of the collected information by filing all the filled questionnaires and the consent forms in their original form. All study records were properly kept and archived in lockable drawers for confidentiality. In the event of loss, damage or unauthorized access to the data, contingency plans such as back-ups were used to retrieve the lost data.

3.10 Data Analysis

Data captured in the questionnaires were entered into access database and analyzed using SPSS Version 20.0 software. Random samples of 10% of the questionnaires were selected and double entry was done to ascertain homogeneity and clarity. Descriptive statistics such as proportions were used to summarize categorical variables. Chi-square or Fishers' Exact Tests were used to test for the strength of association between categorical variables.

Prevalence Odds Ratios (POR) and 95% Confidence Intervals (CI) were used to estimate the strength of association between the independent and dependent variables. All independent variables significant on univariate analysis were included in multivariate analysis. Multivariate analysis was performed using binary logistic regression with backward conditional method. Prevalence Adjusted Odds Ratios (PAOR) with their respective 95% CI was calculated. Threshold for statistical significance was set at $p \leq 0.05$ and at 95% CI reported for corresponding analysis.

3.11 Ethical Consideration

This study involved human subjects aged between 15—24 years hence ethical consideration was imperative. Clearance to carry out the study was sought and obtained from the KEMRI's Scientific Steering Committee (SSC protocol number 2401) and the National Ethics Committee (ERC). Permission was also

requested from the Medical Superintendent's office, Pumwani Maternity Hospital. All other relevant stakeholders were informed about the study. The respondents were expected to willingly participate in the study and they were given all information about the study in order to make informed decision about whether to participating or not. In Kenya, a young mother (below 18 years) is known as a mature minor (GoK, 2010). These groups were also included in the study after they had consented to participate.

During the study period, the principal investigator had access to private information of the mothers from medical records. However, the principal investigator ensured safety of the information by treating such information with confidentiality it deserved. The principal investigator also used serial numbers assigned to the mothers and names or their contacts details were not recorded anywhere on the questionnaires.

During interviews, the principal investigator could also have asked uncomfortable or sensitive questions relating to previous pregnancies, family planning and use of alcohol or other drugs. To mitigate the potential risks and discomfort caused by such questions, the principal investigator worked closely with the facility counseling services to ensure respondents who were deemed as having negative reactions as a result of interview received counseling services. Since mothers from the labor wards were considered to be tired, the principal

investigator ensured that the interviews were not too long and tedious. Interviews were one-to-one interaction and no information was given to any other unauthorized persons. The filled questionnaires were taken by the principal investigator and kept under lock and key.

CHAPTER FOUR RESULTS

4.1 Socio-Demographic characteristics of the mother

The study was conducted at Pumwani Maternity Hospital with a total of 235 youth who had delivered at the hospital being interviewed during the study period. Majority (95.7%) had lived in Nairobi for over one year. The youngest mother interviewed was 15 years while the oldest was 24 with a mean age of 21 and a standard deviation of 2.45 (Table 4.1).

Slightly over half (52.3%) had attained Secondary school level of education with 37.9% having attained Primary level as summarized in Figure 4.1. Regarding the religion of the respondents, majority (95.7%) was Christians' (Table 4.1).

Among the 235 respondents, 39.1% were living more than 10 kilometers from the hospital with 77.4% being married. For those who were single, 0.9% of them were separated, 21.3% had never married while only 0.4% were widows (Table 4.1)

Economically, 26.1% of the households earned a monthly income of between Ksh 10,000 to 20,000 with the highest level of income recorded during interview being Ksh 42,000 while the lowest was less than Ksh 9,000. The mean income was ksh 13,000 with a standard deviation of 2.07 (Table 4.1). For

the respondents who didn't know their level of household income, most of them (70.0%) were students and were still living with their parents. For those who were married but didn't know their level of income, their spouses had not disclosed to them how much they earned. Most of the married respondents (77.4%) were either housewives or self-employed. For the house wives, (50.0%), their spouses worked in informal sectors such as carpentry, shoe-making, petty trading and hawking while those in formal sectors were employed as drivers, typists, clerks and domestic servants.

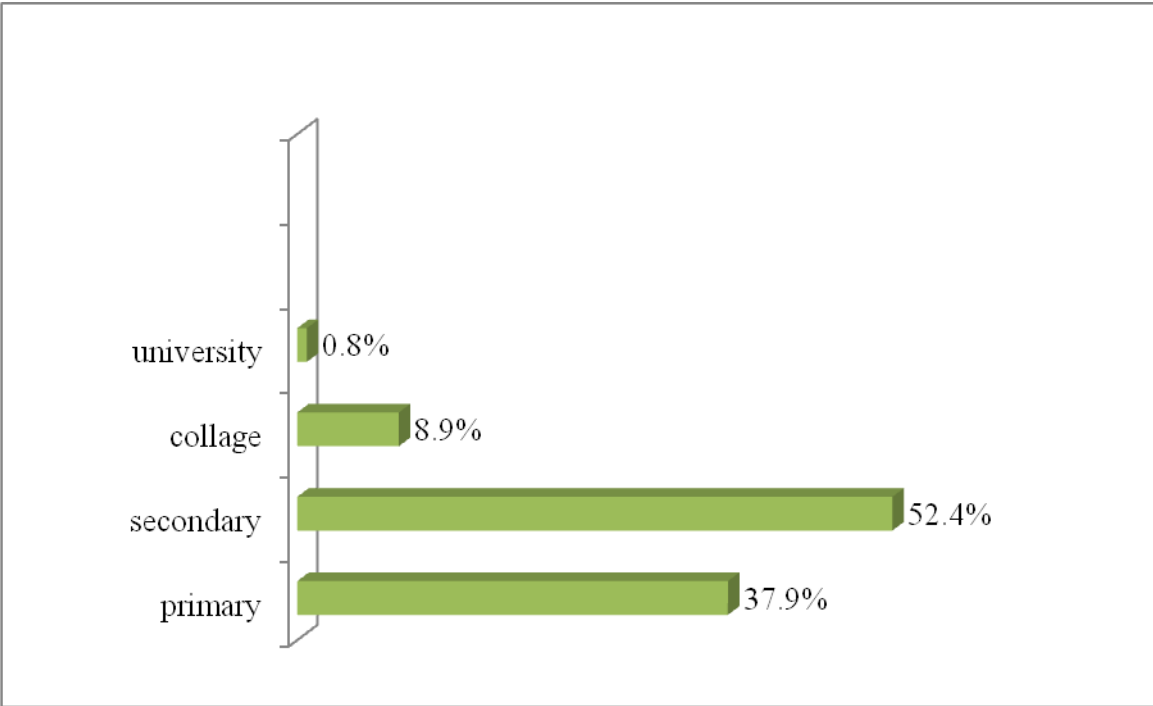


Figure 4.1 Level of Education

Table 4.1 Socio-demographic information (Mother)

Variable description	Frequency N= 235 No (%)
Place of residence	
Nairobi	225 (95.7%)
Other towns and countryside	10 (4.3%)
Age groups (years)	
15—16	14 (6.0%)
17—18	41 (17.4%)
19—20	52 (22.1%)
21—22	63 (26.6%)
23—24	65 (27.7%)
Religion	
Muslims	10 (4.3%)
Christians	225 (95.7%)
Distance from place of residence to the hospital (km)	
<1—3	41 (17.4%)
4—6	61 (26.0%)
7—10	92 (39.1%)
>10	
Marital status	
Single	53 (22.6%)
Married	182 (77.4%)
Household level of income (KES)	
<9,000	27 (11.5%)
10,000—20,000	97 (40.9%)
21,000—30,000	10 (4.3%)
31,000—40,000	5 (2.1%)
>41,000	1 (0.4%)
Don't know	96 (40.9%)

4.2 Maternal ANC and previous obstetrical history

Among the 235 respondents, 80.0% were in their first pregnancies (primiparous) while 20.0% had other children of whom 12 had one child, 33 had two children and two had three or more children (Table 4.2).

Of the 47 respondents with other children, majority (87.2%) had delivered in hospital for their previous pregnancies (Table 4.2). Those who had delivered at home cited long distance from place of residence to the hospital, close attention from family members and lack of money to attend delivery services in health facilities as factors that influenced their decision to deliver at home. Those who had delivered at the hospital during their previous pregnancies had sought ANC services at least once.

Of the 47 respondents with other children, 66.0% had made four or more ANC visits while 34.0% had received less than four ANC visits. Those who had not received adequate number of ANC visits during their previous pregnancies gave several reasons as summarized in Figure 4.2 below.

Table 4.2 Maternal ANC and previous obstetrical history

Variable description	Frequencies N= 235 No (%)
Previous number of children	
Without other children	188 (80.0%)
With one child	11 (4.7%)
With two children	34 (14.4%)
With three or more children	2 (0.9%)
Place of delivery for previous pregnancies	
No Obstetrical history for previous pregnancies	188 (80.0%)
Hospital	30 (12.8%)
Home	17 (7.2%)
Mode of delivery for previous pregnancies	
No obstetrical history for previous pregnancies	188 (80.0%)
Normal (spontaneous virginal delivery)	46 (97.1%)
Cesarean	1 (2.9%)
Whether respondents attended recommended number of ANC visits for previous pregnancies	
Without obstetrical history for previous pregnancies	188 (80.0%)
Yes	30 (12.8%)
No	17 (7.2%)

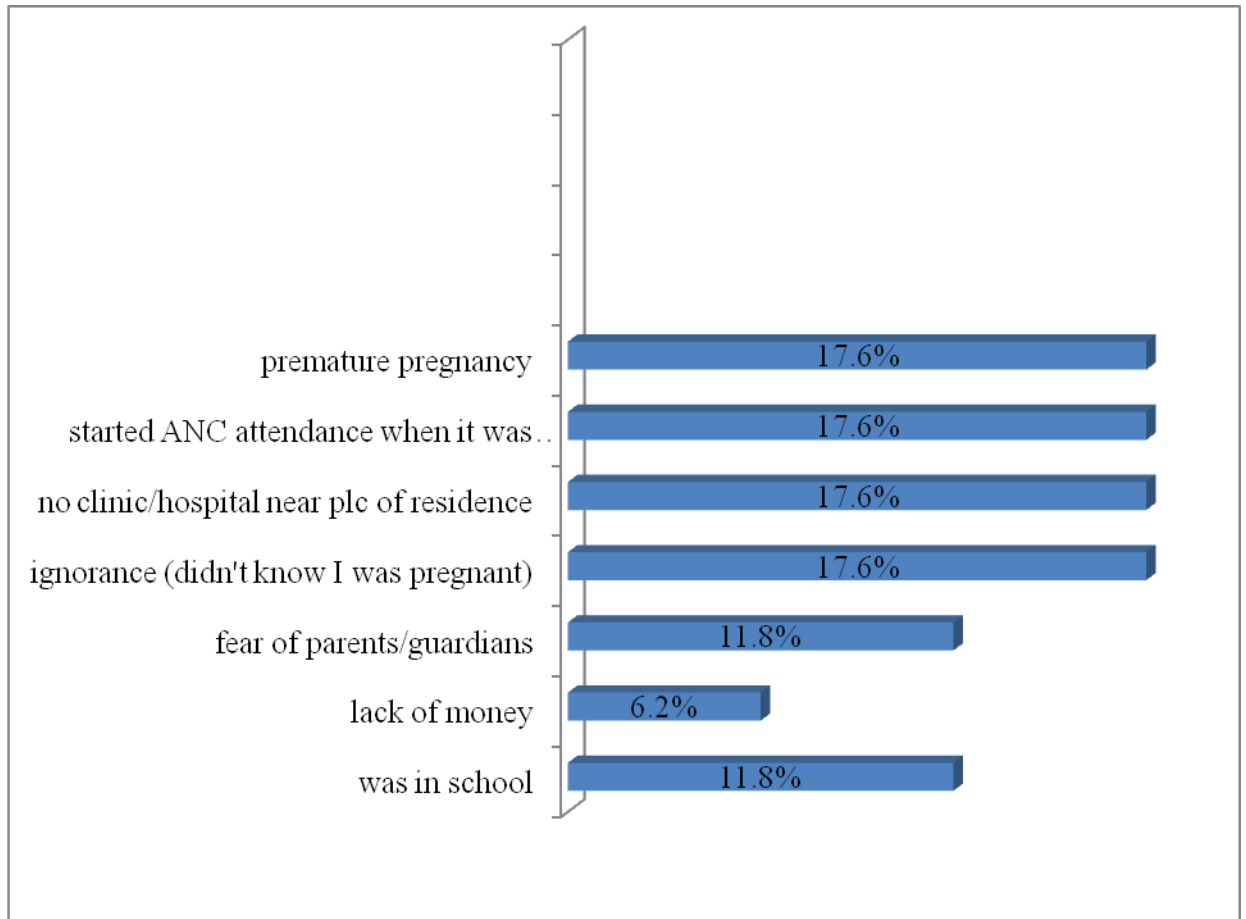


Figure 4.2 Reasons for not attending recommended number of ANC visits for previous pregnancies

4.3 Views and perception on barriers associated with utilization of ANC services

Unfriendly and poor treatment from the hospital/clinic staffs was cited by slightly over half (51.9%) of the respondents as a barrier towards proper utilization of ANC services.

High costs associated with ANC services (for example; ultrasound scanning, baseline tests including urinalysis, hemogram and VDRL) was cited by majority (91.1%) as major barriers.

Of the 235 respondents, majority (91.2%) cited fear of testing HIV positive as barriers towards proper utilization of ANC services during pregnancy.

Among the respondents, 65.5% cited refusal by a partner to take responsibility for the resulting pregnancy as a barrier towards proper utilization of ANC services

Of the 235 respondents, unwanted and mistimed pregnancies were cited 69.8% as barriers towards proper utilization of ANC services.

4.4 Pregnancy desirability and timing

Of the 235 respondents, only 46.0% had desired and timely pregnancies with over half (54.0%) having mistimed and unwanted pregnancies as summarized in Figure 4.3 below. Additionally, half of the proportion (50.6%) interviewed did not involve their partners in deciding the timing of the current pregnancy.

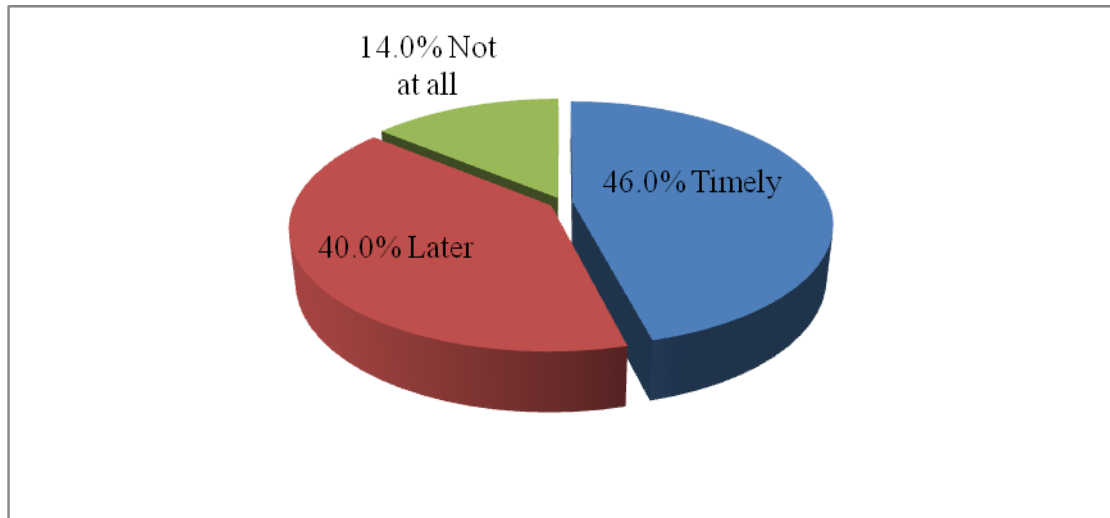


Figure 4.3 Pregnancy desirability and timing

4.5 Initiation, Availability and Utilization of ANC services during current pregnancy

All the respondents(235) had attended ANC at least once during their current pregnancies (Table 4.3). Obtaining ANC booklet to avoid reprimands from health workers and the desire to know status of their pregnancy were cited as motivating factors. However, their descriptions of antenatal care (ANC) were often vague with general ideas about pregnancy care and checking of feta's position or monitoring its progress being mentioned during interviews.

Among the 235 respondents, majority (80.0%)had received their ANC services in public funded health facilities with 13.2% attending private health facilities as summarized in Figure 4.4 below.Majority (75.5%) did not attend their first ANC visist at Pumwani Maternity.The reasons were not clear during interview

but may be related to health seeking behavior, the proximity of their homes to a health facility, transport costs and enrolment bureaucracy.

Of the 235 respondents, only 23.4% had initiated their ANC attendance within the first four months of pregnancy. Respondents made their first ANC visit at a mean of 4.9 months (SD = 1.44, range = 1—8 months). It is noteworthy that over half (58.7%) initiated ANC attendance after the recommended fourth months of pregnancy as shown in Table 4.3 below. Majority (68.1%) initiated ANC attendance during late stages of second trimester (14—27 weeks) with 14.0% initiating during the third trimester (28—39 weeks) as shown in Figure 4.5 below.

Of all respondents, 33.6% had attended ANC services four times with 20.4% attending five or more times. Moreover, over half (56.6%) had attended the recommended number of visits (four and above) as shown in Table 4.3 below. Additionally, majority (70.0%) had undergone normal tests such as weight, height, blood pressure, urine and blood samples. However, ultrasound scanning services was undertaken by a few (30.0%). This was attributed to the high cost associated with the service.

Majority (92.3%) had been educated on danger signs during ANC attendance (Table 4.3). Some of the danger signs mentioned during interviews include; swelling of legs/hands, frequent headaches, vaginal bleeding and smelly

virginal discharge. Amount paid as fees for the services offered during ANC attendance ranged between Ksh 100 to 3,300. Highest amount recorded was Ksh 3,500 (Table 4.3).

Of the 235 respondents, 75.9% had planned to come and deliver at the hospital with majority (90.0%) having been attended by the maternity staff. Most of them (80.0%) were willing to come back and deliver at the hospital.

Majority (79.0%) strongly agreed that they were satisfied with the delivery services they received at the facility with slightly over half (52.0%) agreeing that the post-delivery services were good. Those who disagreed with post-delivery services offered at the hospital (48.0%) cited insufficient water supply and low quality of food as barriers towards good post-delivery services.

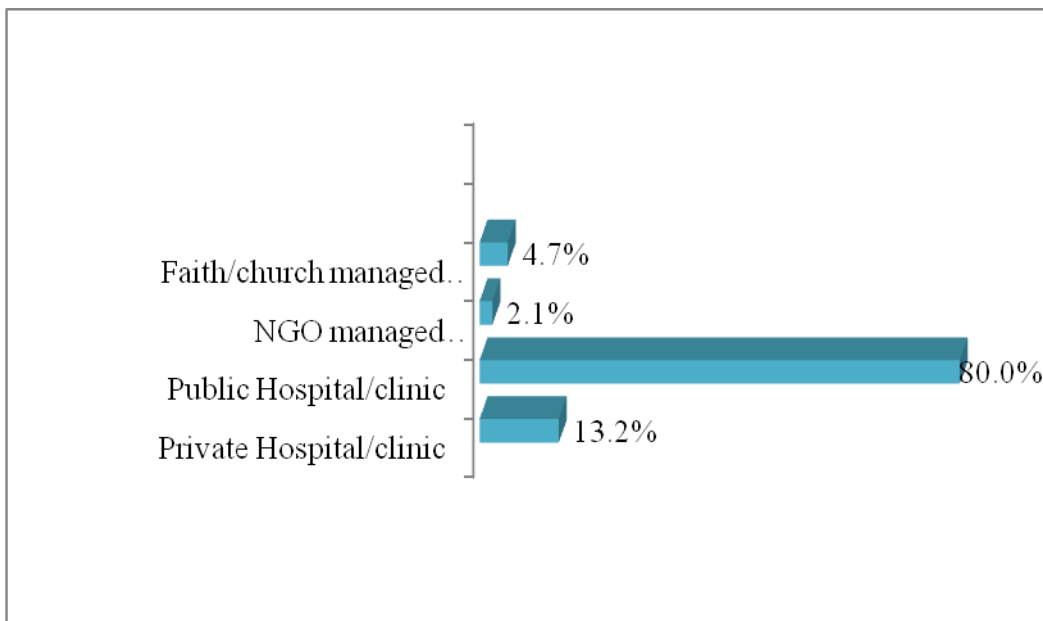


Figure 4.4 Place where respondents attended their ANC services

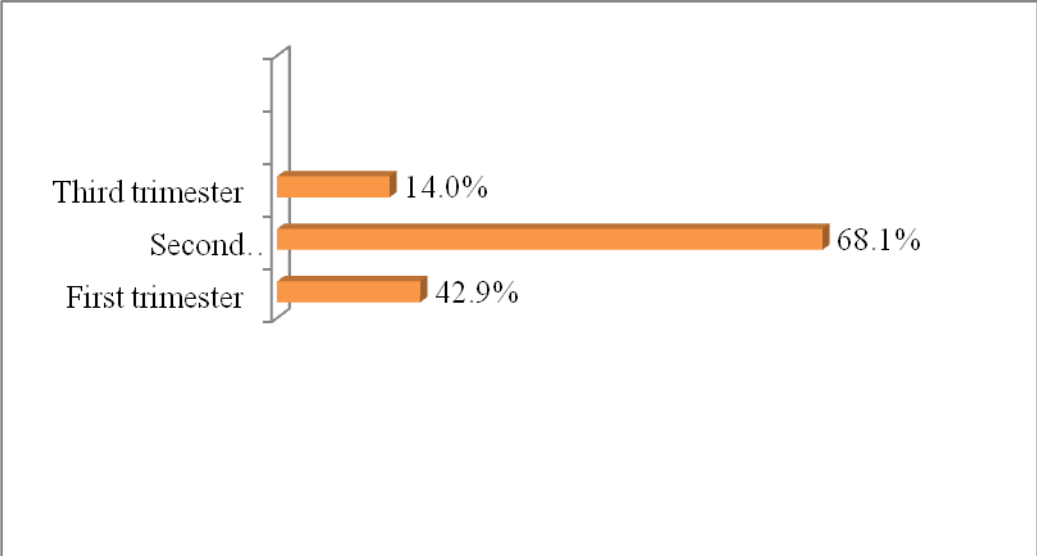


Figure 4.5 Trimester at first ANC clinic attendance

Table 4.3 Initiation, availability and utilization of ANC services among the respondents

Variable description	Frequencies N=235 No (%)
Whether respondents attended ANC during current pregnancies	
Yes	235 (100.0%)
No	0 (0.0%)
Month(s) at first ANC visits	
One month	2 (0.9%)
Two months	6 (2.6%)
Three months	34 (14.5%)
Four months	55 (23.4%)
Five months	62 (26.4%)
Six months	43 (18.3%)
Seven months	25 (10.6%)
Eight months	8 (3.4%)
Number of ANC visits	
One visit	16 (6.8%)
Two visits	31 (13.2%)
Three visits	61 (26.0%)
Four visits	79 (33.6%)
Five or more visits	48 (20.4%)
Utilization of ANC services	
Poor/inadequate utilization (1—3 visits)	102 (43.4%)
Proper/adequate utilization (4—5 and above visits)	133 (56.6%)
Whether respondents were educated on danger signs during ANC attendance	
Yes	217 (92.3%)
No	18 (7.7%)
Amount paid for the ANC services received in total (ksh)	
< 100—999	176 (74.9%)
1,000—1,999	40 (17.0%)
2,000—2,999	13 (5.5%)
>3,000	6 (1.7%)

4.6 Knowledge, attitude and practices associated with ANC attendance among the youth

Among the 235 respondents, majority (94.9%) were knowledgeable on the importance of regular ANC attendance during pregnancy. Being knowledgeable was assessed by asking respondents to expound on the importance of regular ANC attendance. In this study, being able to expound on the importance of regular ANC attendance during pregnancy was interpreted as being knowledgeable (Table 4.4). Similarly, majority (95.3%) had positive attitudes towards ANC services. In this study, positive attitudes were defined as believing in the services received during ANC visits. Positive attitudes were assessed by asking respondents to expound on why they believed in the services received during ANC attendance. Believing in ANC services was interpreted as accepting important role played by ANC in identification and mitigation of risk factors in pregnancy which translates to improved maternal health (Table 4.4).

When respondents were requested to give their views on the importance of regular ANC attendance during pregnancy, they cited health education on proper nutrition, prevention of HIV/AIDS to unborn babies-also known as prevention of mother to child transmission (PMTCT), general pregnancy and its complications check-ups, education on family planning, monitoring of progress during pregnancy and being informed on the date of delivery. Respondents also

cited general pregnancy care such as being given supplementary drugs(also known as iron and folic acid tablets) and immunization to protect against tetanus (toxoid immunization). Malaria and anemia prevention through preventive measures and being issued with treated mosquito nets were also mentioned. Additionally, mothers knowing their blood groups in advance which could help in case of emergencies such as rhesus incompatibility was also cited.

When respondents were asked to give their views concerning the practices an expectant youth should adopt in order to enhance ANC attendance during pregnancy, initiation of ANC attendance once pregnancy has been confirmed, having positive attitude towards ANC services and appreciating their importance during pregnancy were cited as some of the very important practices towards enhancing proper utilization of ANC services. Following keenly dates of appointments and making sure that ANC attendance is regular and on time without failure. Respondents also indicated that youth should always maintain high standards of hygiene during pregnancy and ANC attendance, practice proper mode of dressing (maternity dress) and wear appropriate shoes. Frequent exercise during pregnancy, eating a balanced diet and drinking a lot of water were also cited as some of the habits an expectant youth should practice in order to enhance ANC attendance. Finally, respondents suggested that during pregnancy and ANC attendance, youth should avoid

uptake of alcohol or drugs and if they experience danger signs such as bleeding, frequent headaches, stomachaches, smelly vaginal discharge and swelling of hands and legs they should visit a health facility immediately.

Table 4.4 Knowledge, attitude and practices associated with ANC attendance

Variables description	Frequencies N = 235 No (%)
Knowledge on importance of regular ANC attendance	
Knowledgeable	223 (94.9%)
Not knowledgeable	12 (5.1%)
Attitude on ANC services	
Positive attitude	224 (95.3%)
Negative attitude	11 (4.7%)

4.7 Bivariate analysis of factor associated with ANC attendance among the youth

On bivariate analysis, maternal age, marital status, pregnancy timing and desirability, amount paid for ANC services received, understanding the importance of regular ANC attendance (knowledge), believing in ANC services received during ANC attendance (attitude), involving male partner in pregnancy

planning, and month(s) at first ANC visit were found to be significantly and independently associated with ANC attendance among the youth who had delivered at the hospital as summarized in Table 4.5. Threshold for statistical significance was set at $p \leq 0.05$.

Table 4.5 Bivariate analysis of factors associated with ANC attendance among the youth

Variable description	Poor utilization Of ANC services (1—3 visits)		Proper utilization Of ANC services (4—5 or more visits)		POR	95% CI	P-value
	N	%	N	%			
Age groups							
15—17	21	(80.8%)	5			2.14—	0.000
18—24	87	(41.6%)	122	(58.4%)	5.9	16.22	
Marital status							
Single	32	(60.4%)	10			1.14—	0.017
Married	87	(41.6%)	106	(58.2%)	2.1	3.97	
Level of education							
Primary level	47	(52.8%)	42	(47.2%)		0.92—	0.100
Secondary level and above	61	(41.8%)	85	(58.2%)	1.6	2.65	
Pregnancy timing and desirability							

Wanted to become pregnant then	38	(35.2%)	70	(64.8%)			0.26—	0.002
Wanted to become pregnant later and not at all	70	(55.1%)	57	(44.9%)	0.4		0.75	
Religion								
Muslims	2	(20.0%)	8	(80.0%)			0.06—	0.113
Christians	106	(47.1%)	119	(52.9%)	0.3		1.35	
Amount paid for ANC services (ksh)								
100—2,000	105	(50.0%)	105	(50.0%)	7.33		2.13—	0.000
>2,001	22	(88.0%)	3	(12.0%)			25.25	
Knowledge on importance of regular ANC attendance								
Knowledgeable	97	(43.5%)	126	(56.5%)	14.29		1.21—	0.001
Not knowledgeable	11	(91.7%)	1	(8.3%)			112.6	
Attitude on ANC services received								
Positive attitude	98	(43.5%)	126	(56.5%)	12.86		1.62-	0.015
Negative attitude	10	(90.9%)	1	(8.1%)			102.2	
Whether respondents involved male partner in								

planning current pregnancy	44 (37.9%)	72 55	(62.1%) (46.2%)	1.90	1.13— 3.20	0.015
Yes	64					
No	(53.8%)					
Fear of testing HIV positive						
Yes	100	112	(52.8%)		0.243—	0.258
No	(47.9%)	15	(65.2%)	0.60	1.47	
	64					
	(53.8%)					
Months at first ANC visit						
1—4 months	22	75	(77.3%)	0.18	0.11—	0.000
5—8 months	(22.7%)	52	(37.7%)		0.32	
	86					
	(62.3%)					

4.8 Multivariate binary logistic regression analysis

Variables that were found to be significantly associated with ANC attendance at bivariate analysis were subjected to multivariate binary logistic regression with maternal age, paying for ANC services, month(s) at first ANC visit and pregnancy desirability and timing being found to be significantly and independently associated with ANC attendance among the youth who had delivered at the hospital (Table 4.6).

Respondents who were within the age groups of between 18—24 years were 5 times more likely to have four or more ANC visits than respondents who were aged between 15—17.

Respondents who paid between Ksh 100—2,000 were 3 times more likely to have four or more ANC visits compared to those who paid over Ksh 2,001.

Respondents who initiated ANC visits early (within the first four months of pregnancy) were 5 times more likely to have four or more ANC visits than respondents who initiated their ANC visits late.

Pregnancies that were desired and timely were 2 times more likely to be associated with four or more ANC visits than those which were unwanted and mistimed (Table 4.6). Threshold for statistical significance was set at $p \leq 0.05$.

Table 4.6 Multivariate analysis of factors associated with ANC attendance among the youth

Variables	B	SE	PAOR	95% CI	P-value
Age groups (years)					
15—17 (26)					
18—24 (209)	-1.376	.539	4.95	0.088—0.727	0.011
Month(s) at first ANC attendance					
1—4 months					
5—8 months	1.599	0.305	4.95	2.737—8.99	< 0.001
Paying for ANC Services received.					
	-1.062	-0.355	0.346	0.172—0.694	0.003
Marital status					
Married (182)	-214	0.458	0.808	0.329—1.981	0.641
Single (53)					
Pregnancy desirability and timing					
Wanted to become pregnant then (108)	0.817	0.279	2.263	1.308—3.913	0.003
Wanted to become pregnant later and not at all (127)					
Whether respondents involved male partner in pregnancy planning.)					
Yes (106)				0.016—1.181	0.071
No (126)	-1.979	1.095	0.138		
Understanding the importance of regular ANC visits (Knowledge)					
Yes (223)	-2.051	1.084	0.129	0.015—1.076	0.058
No (12)					
Belief in ANC services received					
Positive attitude (224)Negative attitude (11)				0.016—1.897	
	-2.76	0.812	1.576		
					0.085

CHAPTER FIVE

DISCUSSION, CONCLUSION AND RECOMMENDATIONS

5.1 Antenatal care attendance

This was a prospective hospital-based cross-sectional study whose aim was to determine factors associated with antenatal care (ANC) attendance among the youth who had delivered at Pumwani Maternity Hospital. In this study, adequate utilization of ANC services during current pregnancy was defined as having attended four or more ANC visits during. According to World Health Organization (WHO) and Kenya's guidelines on focused antenatal care, at least four ANC visits providing essential based intervention (a package often called focused antenatal care) during pregnancy are recommended for pregnancies with few complications (KDHS, 2010; WHO, 2010; Kihara *et al.*, 2015). Essential interventions during early initiation and frequent ANC attendance include identification and management of obstetric complications such as pre-eclampsia, tetanus toxoid immunization, intermittent preventive treatment for malaria during pregnancy and identification and management of infections including HIV, syphilis and other sexually transmitted infections (STIs) in addition to encouraging women to have skilled attendants at childbirth (Joyce *et al.*, 2006; Odhiambo *et al.*, 2006; WHO, 2010; KDHS, 2010; Shakil *et al.*, 2011; Kihara *et al.*, 2015).

Analysis on socio-demographic characteristics revealed that slightly over half (52.3%) of the respondents had attained Secondary level of education with 37.9% having attained Primary level (Figure 4.1). This finding underscores the need to encourage expectant youth to continue with their studies after delivery and discourage expulsion of pregnant youth from school since most of the respondents (80.1%) cited being expelled from school once pregnancy had been confirmed. Their expulsion from school means that their education levels will remain low—affecting their future socio-economic status since low educational attainment makes it difficult for them to get well-paid jobs (Tinuade *et al.*, 2005; Phafolis *et al.*, 2007). The study further revealed that 39.1% of the respondents were living more than 10 kilometers from the hospital (Table 4.1). This was an encouraging finding since it demonstrated commitment to seek skilled attendant at the time of delivery despite a distance of 5—10 kilometers from a health facility recommended by World Health Organization for easy and quick access (Weller *et al.*, 2006; Magadi *et al.*, 2010; WHO, 2010). Moreover, findings on the level of income, (Table 4.1), with reference to poverty according to The World Bank revealed that 11.5% of the youth interviewed were from low socio-economic strata (The World Bank, 2012).

5.2 Factors associated with completed focused antenatal care (FANC) attendance among the youth

During focused antenatal care (FANC), a minimum of four antenatal care visits are recommended for pregnancies with few complications (KDHS, 2010; Oberymeger *et al.*, 2011; Kihara *et al.*, 2015). Of the 235 youth interviewed, over half (56.6%) had attended the recommended four or more ANC visits (Table 4.3). Additionally, this study revealed that over half (58.7%) had initiated ANC attendance after the recommended four months of pregnancy at an average of 5 months (Table 4.3). This was consistent with the national average of 5 gestational months reported among health facility users in Kenya (KDHS, 2010; APHRC, 2010; Kihara *et al.*, 2015).

Maternal age is a strong predictor of utilization of antenatal care services (KDHS, 2010; Al-muhim *et al.*, 2011). In this study, respondents who were aged between 18—24 years were five times more likely to have received four or more ANC visits compared to young respondents who were aged between 15—17 years as summarized in Table 4.6 in multivariate logistic regression. Similar results were found in a corroborative study done in south-eastern Tanzania on timing of antenatal care for adolescent and adult pregnant women. The study confirmed the effect of age and utilization of maternal health facilities (Grosset *al.*, 2012). Another similar corroborative study done in

Bangladesh on reducing maternal mortality and improving maternal health found similar results (Koblinsky *et al.*, 2008). All these findings underscore the need to increase access to family planning services among the youth (especially those below 18 years) to prevent early and unwanted pregnancies. Moreover, there should be regular sensitization to educate youth on the risks of engaging in risky sexual behaviors and the consequences thereof.

Reducing costs associated with ANC services (for example; ultrasound scanning, baseline tests such as urinalysis, hemogram and VDRL) will effectively improve utilization of ANC services among the youth who are from impoverished households (Corio-Soto *et al.*, 2006; APHRC, 2010; Kihara *et al.*, 2015). This study revealed that respondents who paid between Ksh 100—2,000 were three times more likely to have received four or more ANC visits than respondents who paid over ksh 2,001 as shown in Table 4.6. This finding was in agreement with a study done in Lesotho on variables that influence delay in antenatal clinic attendance among teenagers (Phafolis *et al.*, 2007). Another corroborative study done on antenatal care (ANC) and pregnancy outcome in a safe motherhood health voucher system in rural Kenya, 2007—2013 confirmed that removing financial barriers through health voucher system that target women from impoverished households was associated with proper utilization ANC services (Kihara *et al.*, 2015). These findings denote that to encourage

early initiation and improve utilization of ANC services among the youth, the government—through the Ministry of Health—should implement policies aimed at reducing costs associated with ANC services. Moreover, the government should increase voucher system that target women from low socio-economic households. It is important, however, that these efforts do not end at policy level but reaches down to the health facilities at community levels. It should focus more on expectant youth from low socio-economic strata. Similarly, more youth from low socio-economic households should be empowered economically by being involved in income generating activities.

Pregnancy desirability and timing are independent predictors of utilization of antenatal care services (Corio-Soto *et al.*, 2006; Llewelly *et al.*, 2007; Bhatia *et al.*, 2009; KDHS, 2010). Pregnancies that are desired and timely are more likely to be associated with early initiation and proper utilization of ANC services compared to those which are unwanted and mistimed (Corio-Soto *et al.*, 2006; Voorhoeve *et al.*, 2006). In this study, pregnancies that were desired and those conceived at the right time were two times more likely to be associated with four or more ANC visits compared to those which were unwanted and mistimed (Table 4.6). Other corroborative studies done in Kenya and Tanzania have confirmed similar effects on pregnancy desirability and timing and utilization of ANC services (APHRC, 2010; Gross *et al.*,

2012Corio-Soto *et al.*, 2006). In these studies, pregnancies that were conceived at the right time a woman wanted to become pregnant were more likely to be associated with early initiation and frequent antenatal care visits compared to pregnancies that were mistimed and unwanted. These findings underscore the need to prevent unwanted and mistimed pregnancies among the youth by availing family planning services to them. Additionally, youth should be empowered through education and counseling on the importance of abstinence from risky sexual behavior and how to prevent unwanted and mistimed pregnancies. The results further legitimizes the attempts by the Kenyan Government, through the Ministry of Health, to introduce family planning services in schools that target sexually active youth to reduce early and unwanted pregnancies.

Previous studies have confirmed the association between early initiation and frequent antenatal care attendance with more ANC visits compared to late initiation and infrequent visits (APHRC, 2010; KDHS, 2010; Marindo *et al.*, 2007; Bhatia *et al.*, 2009; Gross *et al.*, 2012). This study revealed that respondents who initiated ANC attendance early (within the first trimester of pregnancy) were five times more likely to have received four or more visits than those who initiated ANC attendance quite late (Table 4.6). Similar results have been found in other corroborative studies done in rural Kenya and Bangladesh

which revealed that those mothers who initiated ANC attendance early and attended frequently were more likely to be associated with more visits than those who initiated ANC attendance quite late and attended only few visits (Khasakhala *et al.*, 2005; Kihara *et al.*, 2015; Shakil *et al.*, 2011). However, this study showed that majority (68.1%) initiated their ANC attendance during the late stages of second trimester with 14.0% initiating at the third trimester. Since late initiation provides little opportunities for screening risk factors and provision of preventive and curative services, it is more likely that majority (82.1%) missed these essential services. These findings were similar with a study done in south-eastern Tanzania which showed late ANC initiation among the youth (Gross *et al.*, 2012). To improve early enrollment and proper utilization of ANC services among the youth, it is important to carry out regular sensitization on the increasing rates of late initiation of ANC attendance among the youth and the consequences thereof. Youth should also be actively involved in seminars aimed at creating awareness on importance of proper utilization of ANC services during pregnancy.

Higher maternal education is a variable associated with proper utilization of antenatal care services (Jelka *et al.*, 2005; WHO, 2010; KDSH, 2010). Several corroborative studies done in Kenya, Ethiopia, Bangladesh and India have confirmed the correlation of higher maternal education and personal hygiene

with probability of routine antenatal care check-ups (KDHS, 2010; Kihara *et al.*, 2015; Bhatia *et al.*, 2009; Llwelly *et al.*, 2007; Shakil *et al.*, 2011; Teferra *et al.*, 2012). However, this study did not confirm the correlations of such effects at multivariate binary logistic regression. Most presumably, it could have been due to majority (91.1%) having attained Primary and Secondary levels of education with about 70.0% citing expulsion from school once pregnancy was confirmed. This finding denotes the need to encourage youth to continue with their studies after delivery and discourage expulsion of pregnant youth from school since low education level is a barrier towards accessing well-paying jobs which eventually affect their future economic status in the society. Moreover, the national curriculum development center (NCDC) should include life skills education and youth pregnancy issues in health courses for both primary and secondary school learners.

Increasing public funded health facilities that provides ANC services at lower costs are independent predictors of proper utilization of ANC services among expectant youth who are from low socio-economic households (APHRC, 2010; KDHS, 2010; Kihara *et al.*, 2015; Bhatia *et al.*, 2009; Maine *et al.*, 2007). This study revealed that majority (80.0%) received their ANC services in public funded health facilities (Table 4.3). In this study, respondents preferred to attend ANC services in public facilities due to low fees charged for the services

offered. However, the reasons for not attending Pumwani Maternity Hospital's ANC services first were not clear, but may be related to health seeking behavior, the proximity of their homes to a health facility, transport costs and enrolment bureaucracy. These results were similar with a community based cross-sectional study done in Sekele District, north-western Ethiopia that showed preference for public funded health facilities among pregnant teenagers. This was attributed to the affordability of the fees charged in these institutions (Teferra *et al.*, 2012). These findings detonate the need to increase public funded health facilities in order to effectively improve utilization of ANC services among the youth who are unemployed and from impoverished households. Additionally, evaluation research should be done regularly to assess service utilization of the existing public funded health facilities and the problems experienced during ANC attendance.

5.3 Barriers towards proper utilization of Antenatal Care (ANC) services among the youth

Unfriendly and poor treatment from the hospital/clinics staffs providing ANC services are strong predictors of poor utilization of ANC among the unemployed and single youth (APHRC, 2010; Teferra *et al.*, 2012; Kihara *et al.*, 2015). In this study, slightly over half (51.9%) cited unfriendly and poor treatment from clinic staffs as barriers towards early initiation and proper

utilization of ANC services. Other corroborative studies have positively identified poor treatment from the hospital staffs as barriers towards proper utilization of ANC services among the youth (Phaffolis *et al.*, 2007; Kolinsky *et al.*, 2008; Shakil *et al.*, 2011; Kihara *et al.*, 2015). These findings denote that in order to improve utilization of ANC among the unemployed and single youth, health workers providing ANC services must be friendly, committed and have non-judgmental approach towards pregnant youth. This will also encourage more youth to enroll for ANC services early. The staffing pattern should also be improved to reduce long waiting hours. The health care workers should be well educated regarding issues related to the youth in addition to being interested in working with them. This will effectively improve utilization of ANC services among the youth.

In this study, majority (90.2%) cited fear of testing HIV positive as barriers towards early initiation and proper utilization of ANC services. This revelation showed that despite the ongoing programs on sensitizations of HIV, fear is still very prevalent among the youth. Other corroborative studies have confirmed the effect of fear of testing HIV positive and utilization of ANC services among pregnant youth (KDHS, 2010; APHRC, 2010; Kihara *et al.*, 2015) Youth who didn't know their HIV status and those whose partner had not been tested were more likely to delay ANC visits. These findings call for further research to help

curb the spread of HIV. Moreover, there should be regular campaign that target the youth and which aim to sensitize on the importance of regular HIV testing and being faithful to one sexual partner.

Most of the respondents who were single, particularly whose boyfriends had refused to take responsibility for the pregnancy reported that they were disappointed, unhappy and hurt about the pregnancy. These findings were similar with other studies done on factors that influence delay in antenatal clinic attendance among teenagers (Phafolis *et al.*, 2007; Bhatia *et al.*, 2009; Corio-Soto *et al.*, 2006; Llewelly *et al.*, 2007). Other corroborative studies have demonstrated that in order to improve utilization of ANC among the youth especially those who are single and unemployed, such youth should have access to well-designed counseling programs that teach parenting skills (Phafolis *et al.*, 2007; Corio-Soto *et al.*, 2006). This will help to ease the pain of being pregnant even if the boyfriend has denied responsibility for the pregnancy. These could be the necessary weapons to improve utilization of ANC services.

Stigma associated with being pregnant while in school is a strong predictor of poor utilization of the ANC services among the youth (WHO, 2010; Shakil *et al.*, 2011; Phafolis *et al.*, 2007). In this study, youth who were pregnant, still in school and unemployed felt too ashamed to attend ANC with other pregnant women of adult age groups. Moreover, pregnancy outside wedlock is still a

taboo in Kenya. These findings denote the need to reduce stigma associated with pregnancy among youth by encouraging them to attend ANC early. The Government, through the Ministry of Education, should discourage expulsion of pregnant youth from school since most of the respondent interviewed had been expelled from school once pregnancy had been confirmed. This denies them their right to education and thus influences their future economic status in the society.

Lack of economic power to pay for the services associated with ANC attendance has been positively identified as a barrier towards proper utilization of antenatal care services among youth from impoverished households (KDHS, 2010; Kihara *et al.*, 2015; Shakil *et al.*, 2011). This study further provided evidence for the negative influence of lacking financial ability on youths' timing of their first ANC visits. This finding was consistent with a study done in rural Kenya which showed that most of the youth who wanted services associated with ANC (such as ultrasound scanning, urinalysis and baseline tests) but could not afford to pay for the services were forced to delay early initiation and look for the money required to pay for the services (Kavoo-Linge *et al.*, 2005). Another corroborative study done in Bangladesh showed that removing financial barrier through provision of vouchers that targeted women

from low socio-economic households was associated with proper utilization of ANC services. (Shakil *et al.*,2011).

These findings denote that in order to improve utilization of ANC services among the youth, there is need for the Government, through the Ministry of Health, to put in place policies aimed at reducing the costs associated with ANC services. Similarly, youth should be empowered economically through supporting income generating activities such as revolving funds and innovative tailor-made financial skills. The results of this study further validated the government's efforts, through the Ministry of Health, to offer free maternity services in public funded health facilities (GoK, 2010).It is important, however, that these efforts should involve more youth. Emphasis to educate more youth should be given priority and that the youth should be fully educated on the benefits of early enrolment and regular ANC attendance during pregnancy.

5.4 Knowledge, attitudes and practices associated with ANC attendance among the youth

Being knowledgeable on the importance of regular antenatal care attendance and having positive attitudes toward antenatal care services are factors associated with proper utilization of ANC services (KDHS, 2010; Bhatia *et al.*, 2009; Shakil *et al.*, 2011; Corio-Soto *et al.*, 2006). This study revealed that majority (94.9%) were of knowledgeable on the importance of regular ANC

attendance. Knowledge was assessed by asking respondents to expound on the importance of regular ANC attendance during pregnancy. In this study, being able to expound on the importance of regular ANC attendance was interpreted to mean the respondent was knowledgeable. Similarly, 95.3% had positive attitudes towards ANC services. Attitude was assessed by requesting the respondents to expound on why they believed in ANC services and why it was necessary for them to access the services during pregnancy. Believing in ANC services during ANC attendance was interpreted to mean respondents accepted and appreciated the important role played by ANC in identification and mitigation of risk factors in pregnancy. However, neither respondents who were knowledgeable (94.9%) nor those with positive attitudes (95.3%) were found to have initiated ANC attendance early (within the first trimester). Moreover, neither being knowledgeable nor having positive attitudes was found to be significantly associated with utilization of ANC services at multivariate binary logistic regression analysis. This finding was consistent with a study done on timing of antenatal care initiation for adolescent and adults' pregnant women in south-eastern Tanzania (Gross *et al.*, 2012). Similarly, as part of the practices associated with proper utilization of ANC services, majority (90.0%) cited following keenly dates of appointments, eating a balanced diet, regular exercise, proper mode of dressing (maternity dress), and avoiding uptake of

alcohol and drugs as were mentioned as practices associated with proper utilization of ANC services among the youth.

5.5 Strength and weakness of the study

The main strength of this study is that having focused on the youth as its study subjects, the study was best placed to bring out salient factors associated with ANC attendance and use the findings thereof to improve utilization of ANC services and consequently improve maternal health. However, due to lapse in time, mothers might not have remembered well all the factors associated with ANC attendance which posed the possibilities of recall biases. Additionally, since this was a hospital based study, the study excluded youth who might have attended ANC services at some point but did not come to deliver at the hospital. This is an area of interest that I would like to look into in future.

5.6 Conclusion

5.6.1. Utilization of ANC services during pregnancy among the youth

Poor utilization of ANC services was observed among the youth who had delivered at the hospital. Although slightly over half (53.6%) had attended the recommended four or more ANC visits, majority (68.1%) had initiated ANC attendance during late stages of second trimester with 17.9% initiating during the third trimester. It is therefore more likely that majority (86.0%) missed out

on important services such as preventive health measures, risk screening and health education offered during early ANC visits.

5.6.2 Determinants of antenatal care (ANC) attendance among the youth

This study has found/determined that the most important factors associated with antenatal care attendance among the youth who had delivered at the hospital are: maternal age, month(s) at first ANC visit, costs associated with ANC services and desirability and timing of the pregnancy. Factors such as unfriendly and poor treatment from the hospital clinic/staffs (51.9%), fear of testing HIV positive (90.2%), refusal by a sexual partner to take responsibility for the pregnancy (65.5%), high costs associated with ANC services (91.1%), unwanted and mistimed pregnancies (69.8%) were determined as barriers towards proper utilization of ANC services.

Respondents who became pregnant at the ages of between 18—24 years were five times more likely to have four or more ANC visits than those who became pregnant at younger ages of between 15—17 years.

Respondents who paid between Ksh 100—2,000 were three times more likely to have four or more ANC visits than those who paid over Ksh 2,001.

Respondents who initiated ANC attendance quite early (during the first trimester) were five times more likely to have four or more ANC visits

compared to those who initiated ANC attendance after the first trimester of pregnancy.

Respondents who had desired and timely Pregnancies were two times more likely to be associated with four or more ANC visits than those whose pregnancies were unwanted and mistimed.

5.7 Recommendations

- (a) Increase access to family planning to reduce mistimed and unwanted pregnancies among the youth.
- (b) Health improvement strategies, with a special focus on increasing accessibility through reducing costs associated with ANC services should be designed and implemented.
- (c) Healthcare providers should be friendly and have non-judgmental approach towards pregnant youth. They should also be well educated regarding issues related to youth.
- (d) Support income generating activities by creating revolving funds for the unemployed youth and innovate tailor-made financial skills. This could potentially scale up utilization of ANC services and reduce delay of early ANC initiation due to lack of the required funds for the services associated with ANC.

- (e) Maternal health voucher systems that target youth from impoverished households and which aim to lessen financial barriers should be designed and adopted.
- (f) A comprehensive approach is needed that explicitly addresses description of adequate provision and proper utilization of ANC services during pregnancy. Regular sensitization will be a crucial aspect of this comprehensive approach that focus more on the youth since their knowledge and having positive attitude towards ANC services does not translate to early initiation and frequent ANC attendance.

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APPENDICES

Appendix 1: Questionnaire (English)

CONFIDENTIAL

Questionnaire for the study on Factors Associated with Antenatal Care attendance among the youth who have delivered at Pumwani Maternity Hospital, Nairobi County, Kenya

Participant's Serial number

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(A) Socio-Demographic Information (Mother).

First, I am grateful for your willingness to participate in the study. Now I would like to ask you some questions about you and your household.

1. (a) For most of the time before you started attending antenatal care (ANC) services, did you live in Nairobi, other city or the country-side? **Circle on the number of the city mentioned.**

--

1. Nairobi 2. Other city/town 3. Country side

(b) How long have you been living continuously in (name of current place of residence?) **If less than one year, record "00" years.**

Years

--	--

2. Which year were you born?(Yrs)?Record "00" if don't know.

➤ Year

3. Level of education. Enter "0" if not attended school.

1. Primary/Vocational 2. Secondary "A" Level 3. College "Middle Level" 4.
University

4. (a) What is your Religion? 1. Muslim 2. Christianity

5. What is the distance from Place of residence to the Hospital/clinic (Km)

1. Less than One to One KM 2. Two KMs 3. Three KMs. 4. Four and Above
KMs

6. (a) Marital Status: 1 Single 2 Married

(b) If married, are you living with your spouse? 1. Yes 2. No

(c) If single, then state which category:

1. Separated 2. Never Married 3. Widowed 4. Divorced

7. What is your household monthly income (ksh) _____

1. Less than 9K 2. 10K—20K 3. 21K--30K 4. 31K.-- 40K 5. Over 41K

6. Don't Know

(B) Questions on Maternal ANC and Previous Obstetrical History

Now I would like to ask you about your previous ANC attendance. As a young mother, it is important to get the right information from you because it will be important while formulating policies aimed at improving uptake of ANC services among expectant youth. However, any question you're not comfortable with you are free not answer it.

8. (i) Do you have any other children?

1. Yes 0. No

(ii) If yes in i above, how many children do you
have?_____

(iii) For the number of children mention in ii above, how many are under your
care?

(iv) Place of delivery for the above mentioned:

1. Hospital 2. Home

(v) What was your mode of delivery?

1. Cesarean 2. Normal

(viii) (a) Did you attend ANC services four more visits for the above mentioned pregnancy?

1. Yes 0. No

(b) If **No** in a above, why?

1. _____

2.

-

3. _____

-

4. _____

-

(C) Questions relating to the Views and perception on Barriers that Influence Proper Utilization of ANC's services.

Now I would like to ask you some questions on factors that influence proper utilization of ANC services. Some of the questions might be too personal and I am sorry to ask them. But it is important to get correct information from you.

9. (a) Since most youth are more likely to be single and are unemployed, state whether each of these factors can influence ANC attendance during pregnancy?

Factors	Yes 1	No 0
Ignorance.		
Traditional beliefs and culture.		
Unfriendly and poor treatment from the hospital/clinic staffs.		
High cost associated with ANC services.		
Distance from place of residence to the hospital/clinic		
Availability of the mother to attend ANC services.		
Fear of testing HIV positive		
When partner refuses to take responsibility for the pregnancy		
Unwanted and mistimed pregnancies		
Other (Specify)_____		

10. Now I would like to ask you about this pregnancy.

(a) At the time you became pregnant, did you want to become pregnant **then**, did you want to wait until **later**, or did you **not want** to become pregnant at all?

Enter the number mentioned in the box.

1. Then 2. Later 3. Not at all

(b) Did you involve your male partner in deciding the time you wanted to have this pregnancy?

1. Yes 0. No

(D) Questions on Initiation, Availability and Utilization of ANC services during current pregnancy

Now I would like to ask some questions on ANC attendance during this pregnancy. I understand the sensitivity of such questions but it is important to get the right information from you. However, you are free not to answer any question you are not comfortable with.

11. I would like to talk about Antenatal Care services.

(a) (i) Were you attending antenatal care services during your pregnancy?

1 Yes 0 No

(ii) If yes in i, where did you receive your ANC services? **Enter number mentioned in the box.**

1. Private clinic/hospital 2. Public hospital/clinic 3. NGO managed clinic 4. Faith/church managed hospital/clinic 5. Other (specify) _____

(b) How many months pregnant were you when you first received ANC services for this pregnancy? **Record “0” if don’t know months.**

1. One month 2. Two months 3. Three months 4. Four months 5. Five months 6. Six months. 7. Seven months 8. Eight months

(c) How many times did you receive ANC care during this pregnancy? **Record “0” if don’t know.** 1. One time 2. Two times 3. Three times 4. Four times 5. Five times and above

(d) As part of your antenatal care services during this pregnancy, were any of the following done at least once? **Circle on the code**

- Were you weighed? WEIGHT..... 1. Yes 0.No
- Was your height measured? HEIGHT1. Yes 0.No
- Was your blood pressure taken? BP.....1. Yes0.No
- Did you give a urine sample? URINE.....1. Yes0.No

➤ Did you give a blood sample? BLOOD SAMPLE... 1. Yes 0. No

➤ Ultrasound/scanning examination Ultrasound..... 1. Yes 0. No

(e) During your antenatal visits, were you told about the signs of pregnancy complications? **Record “0” if don’t know.**

1. Yes 0. No

(f) How much did you pay for the ANC services in total? **If don’t know enter “0”**Ksh. _____

(E) Questions on Knowledge, Attitude and Practices associated with ANC attendance.

Youth are perceived to have poor Knowledge, attitudes and practices associated with ANC attendance. I would like to ask you some questions about Knowledge, attitude and practices associated with ANC attendance. It is important to get correct information from you because it will help in formulation of policies that are aimed at reducing such problems among the youth. However, any questions you’re not comfortable with you are free to avoid them.

12. (a) Did you believe in the services you were receiving during your ANC visits?

1. Yes 0. No

(b) (i) Did you understand the importance of regular ANC visits during pregnancy?

1. Yes 0 No

(ii) If yes in i, what is the importance of regular ANC visits?

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

(c) As part of enhancing ANC attendance, what are the things an expectant youth should do to enhance ANC attendance?

1. _____

—

2. _____

—

3. _____

—

4. _____

—

5. _____

—

6. _____

—

7.-

—

8. _____

—

(F) Questions on Usage and Availability of Maternity Services

13. Now I would like to ask you questions about the maternity services you received in this hospital. It is important for you to provide the right information

because this information will be very crucial in designing strategies aimed at improving utilization of maternity services among the youth. Also the hospital can use the information to improve provision of services among the mothers who come to deliver here.

(a) Did you plan to come here for delivery?

1. Yes 0. No

(b) How long did it take for you to be attended on when your labor started?_____

1. Less than 1 hr 2. 2—4 hrs 3.6—11 hrs 4. Over 12 hrs

(c) How many maternity staffs were there to attend to you?**Enter 00 if not attended by maternity staff.**

1. One 2. Two 3. Three 4. Four 5. Five and above staffs

(d) Will you come here next time for delivery?

1. Yes 0. No

(e) Do you think the introduction of free maternity services by the government will improve the uptake of the ANC and maternity services as far as youth are concerned?

1. Yes 0. No

14. Finally, I would like to see your level of satisfaction with the services you received here. It is important to get the right information from you. **Tick where appropriate.**

Level of satisfaction with services received.	Good Delivery services	Good Post-delivery Services
Strongly Agree (1)		
Agree (2)		
Not sure (3)		
Disagree (4)		
Strongly Disagree (5)		

Thank you very much for your participation.

N/B:

This questionnaire will be administered in either English or National language, Kiswahili depending on the participant's language of preference.

Appendix 2: Questionnaire in National Language (Kiswahili)-Daftari la Maswali

Maswali Kuhusu Sababuzinazohusianana kutembelea Kliniki ya wajaa

Wazito Katikati ya Vijana Waliojifungua Katika Hospitali ya Pumwani

Kaunti ya Nairobi, Kenya.

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Nambari ya anayeshiriki

weka alama ya kusawazisha (✓) kwa majibu ya anayehojiwa. Mwache ayajibu maswali mwenyewe bila kushurutishwa.

(A) Mambo ya kukutambua naya kijamii (Kwa mama).

Kwanza ningependa kukushukuru sanakwa kukubali kushiriki katika utafiti huu. Sasa ningependa kukuuliza maswali kukuhusu na kuhusu jamii yako.

1. (a) Wakati uliopita kabla hujaanza kuja kwa kliniki ya wamama wajawazito, je, ulikuwa ukiishi Nairobi, Mombasa, miji mingine, au mashambani? Weka alama ya mviringo kwa jibu sahihi.

1. Nairobi 2. Mji mwengine 3. Mashambani Nje ya Kenya

(b) Kwa mji mji uliotaja, umeishi hapo kwa mda wa miaka ngapi? KAMA NI CHINI YA MWAKA MOJA WEKA ALAMA “00”

--	--

2. Ulizaliwa mwaka gani? **weka “0” kama hajui mwaka**

dd	mm	yyyy
<input type="text"/>	<input type="text"/>	<input type="text"/>

Sijui Mwaka _____

3. (a) Je, Umewahi Kwenda Shule? 1. Ndio 2. La

(b) Kama jibu la ani ndio, ulifikia kiwango kipi cha elimu cha juu?

1. Nimepita shule ya msingi 2. Nimepita shule ya upili 3. Collage 4. Chuo kikuu

4. (a) Wewe ni wa dini gani? 1 Muislamu 2 Mukristo

(b) Kama ni mukristo, wewe ni?

1. mkatoliki 2. MSDA 3. Protestanti 4. Nyenjine (taja)

5. Umbali wa mahali unapoishi na hospitali

1. chini ya kilomita moja, 2. Kilomita nne 3. Zaidi ya kilomita Tano 4. Sijui

6. Kiwango cha mapato cha nyumba yako kila mwezi ni shilingin ngapi?

1. Chini ya 9,000 2. Kati ya 10,000 hadi 20,000 3. Kati ya 21,000 hadi 30,000
4. Kati ya 31,000 hadi 40,000 5. Zaidi ya 41,000. 6. Sijui

7. (a) Hali ya ndoa? 1 Hujaolewa 2 Umeolewa

(b) Kama umeolewa, unaishi namume wako? 1 Ndio 2 La

(c) Kama bado hujaolewa, tafadhali tueleze uko katika kundi lipi kati ya haya:

1.Nimewachana na mchumba wangu 2.Sijawahi Kuaolewa 3.Mimini mjane 4.

Nimetalakiwa

(B) Maswali Kuhusu Historia ya uzazi na kliniki ya vijana

Sasa ningependa kukuuliza maswali kuhusu historiayako kwa kliniki wakati uliopita. Ukiwa mama mdogo, ni muhimu kupata maelezo kwa ukweli kwa sababu itatusaidia kutengeneza sheria itakayosaidia utumiaji wa huduma za kliniki za wamama wajawazito na vijana. Hata hivyo, kama hujiskii kujibu swali lolote uko huru kutolijibu.

Ningepend kukuliiza maswaali kuhusu historia yako ya kliniki. Ni muhimu kupata maelezo haya kwa sababu itasaidia wakati nitakapo toa ripoti kuhusu utafiti huu

8. (i) Je, uko na watoto wengine? 1. Ndio 2. La

(ii) Ikiwa ndio, uko na watoto wangapi?

1. moja 2. Wawili 3.Watatu 4.Zaidi ya watoto wane

(iii) Kwa idadi ya watoto uliowataja hapo juu, ni wangapi wako chini ya ulinzi wako? WEKA NAMBARI YA WATOTOT WALIO TAJWA KWA KIJISANDUKU

(iv) Je ulimza mtoto uliyemsema hapo juu wapi?

1. Nyumbani 2. Hospitalini

(v) Je, mtoto huyu ulizalishwa kwa njia gani?

1. Upasuaji 2. Njia ya kawaida ya mama

(vi) (a) Ukiwa mjamzito, ulienda kliniki zaidi ya mara nne?

1. Ndio 2. La 3. Sijui

(b) Ikiwa la katika a, tafadhali eleza ni kwa nini?

1. _____

2. _____

3. _____

4. _____

5. _____

6.

7.

8.

(xi) Je, uliwahi kuwa na matatizo ya kiafya kama haya wakati ukiwa mja
mzito?

1. Sukari 2. Msukumo wa haraka wa damu 3. Kukosa damu mwilini
4. Malaria 5. Mengine (Taja) _____

9. (i) Je, mimba yako imewahi tolewa kabla ya wakati wake? 1. Ndio 2. La

(iii) Ni nini kilichosababisha hiyo mimba kutoka?

1. Niliavya mimba 2. Mimba ilitoka yenyewe 3. Nyengine
(taja) _____

**(C) Maswali kuhusu sababu zinazoweza kuzuia utumiaji mwema wa
Kliniki vijana wawazito.**

Sasa ningependa kukuuliza maswali kuhusu kuhudhuria kliniki. Maswali
mengine yanaweza kuwa ya kibinafsi lakini naomba msamaha kwa kuyauliza.
Ni muhimu kupata majibu ya kweli kutoka kwako.

10. (A) Kwa sababu vijana wengi hawajaolewa na hawana kazi, nieleze kama baadhi ya mambo haya yanaweza kumfanya kijana asihudurie kliniki.

Sababu	Ndio	La
	1	2
Ikiwa hujui kuhusu hali yako ya mimba		
Mila na utamaduni		
Kunyanyaswa na wahudumu wakliniki		
Bei ghali ya kupata huduma hizi		
Mama kuishi mbali na hospitali/kliniki		
Mama kukosa nafasi ya kuhuduria huduma hizi		
Ikiwa aliyekupachika mimba atakataa hiyo mimba au kuchukua majukumu ya kulea mtoto.		
Ikiwa unuogopa kupimwa na kupatikana na virusi vinavyosababisha ugonjwa wa ukimwi.		
Nyengine (taja)_____		

11. Sasa ningependa kukuuliza swali kuhusu mimba hii.

(a) Wakati ulipopata mimba hii, je ulikuwa unataka kupata mimba **wakati huo**, **baadae** au **hukutaka kupata mimba kamwe**. Andika jibu kwa sanduku hili.

1. Wakati huo 2. Baadae 3. Sikukutaka kupata mimba kamwe

(b) Je ulimhusiha mpenzi wako katika kupanga kama utapata mimba hii?

1. Ndio 0. La

(D) Maswali kuhusu Kupatikana na utumiaji wa Kliniki baathi ya vijana wajawazito

Sasa ningependa kukuuliza maswali kuhusu huduma zakliniki ya wamama waja wazito. Maswali mengine yanaweza kuwa ya kibinafsi lakini naomba msamaha kwa kuyauliza. Ni muhimu kupata maelezo haya kutoka kwako kwa sababu yatasaidia wakati ripoti ya uchunguzi huu utakapo chapishwa.

12. (a) (i) Je, ulikuwa ukitumia huduma ya kliniki ya wamama waja wazito ukiwa ukiwa na mimba? Andika jibu kwa sanduku hili.

1. Ndio 0. La

(ii) Ikiwa ndio katika i, ulipata huduma hizi wapi?

1.Kliniki au Hospitali ya kibinafsi 2. Kliniki au hospitali ya serikali 3.Kliniki au hospitali ya kanisa 4. Kliniki au hospitali ya shirika 5.Kwengine (taja).....

(b) Ulikuwa na mimba ya miezi mingapi ulipoanza kuhudhuria huduma hizi?

Ikiwa hajui jaza “00” kwenye vijisanduku hivi.

--	--

(c) Mimba yako ilikuwa ya miezi mingapi kliniki ya kwanza? Andika “00” kama hajui.

1. Mara mbili 2. Mara nne 3. Mara tano 4. Zaidi ya mara sita

(d) Kama badhi ya vitu vinavyofanywa kwa kliniki ya wamama waja wazito, jemoja kati ya vitu hivi vilifanywa hata mara moja? weka alama ya mvingo.

➤ Je, walikupima kilo? KILO..... 1. Ndio

2. La

➤ Je, walikupima urefu? UREFU.....1. Ndio

2.La

➤ Je, ulipimwa msukumo wa damu? BP.....1. Ndio

2 .La

➤ Je, ulitoa sampuli ya mkojo ipimwe? MKOJO.....1. Ndio

2. La

➤ Je, ulitoa sampuli ya damu ipimwe? SAMPULI YA DAMU

1. Ndio 2. La

➤ Je, mtoto aliangaliwa kwa picha? PICHA.....1. Ndio

2. La

(e) Wakati wa matembezi ya kliniki, je uliambiwa ishara inayoonyesha hali ya hatari ya mimba?

1. Ndio 2. La

(f) Kwa jumla, uliitishwa pesa ngapi kwa huduma uliyopewa?

1. chini ya sh 500 2. Sh 600—1,000 3. 1,500—2,500 4. Zaidi ya Sh 3,000

(E) Maswali kuhusu upatikanaji na utumishi wa huduma za kuzalisha.

15. Sasa ningependa kukuuliza maswali kuhusu kuzaa. Ni muhimu kupeana majibu ya kweli kwa sababu maelezo yako yatatusaidia sana kuunda mbinu za kupunguza baadhi ya mambo haya.

(a) Je, uilpanga kuja kuzaa hapa? 1. Ndio 2. La 3. Sijui

(b) Wakati uchungu wa mwana ulianza, ilikuchukua mda wa kiasi gani kabla hujahudumiwa?

1. Chini ya saa moja. 2. Saa 2—4 3. Saa 6—11 4. Zaidi ya masaa 12

(c) (i) Je, ulihudumiwa na wakunga wa hapo? 1. Ndio 2. La

(ii) Ikiwa ndio, ni wakunga wangapi walikuhudumia

1. Hakuna 2. Moja 3. Wawili 4. Watatu 5. Zaidi ya nne

(iii) Je, unafikiri kutoa huduma za uzalishaji bure na serikali itawafanya akina mama wadogo (vijana) wengi kutumia huduma hii?

1. Ndio 2. La

16. Ya mwisho, ningependa kujua kama umeridhika na kwa kiasi kipi kwa huduma uliopat hapa. Ni muhimu kupata jibu sahihi kutoka kwako. Sahihisha ipasavyo.

Kuridhika na huduma za hospitali.	Huduma bora za uzalishaji	Huduma bora za baada ya kuza
Nakubali kabisa (01)		
Nakubali (02)		

Nimekataa (03)		
Nimekataa kabisa (04)		
Sijui (05)		

Asaante kwa kukubali kushiriki.

Appendix 3: Informed Consent for the Study Participants

Title of the Research: Factors Associated with antenatal care attendance among the youth who have delivered at Pumwani Maternity Hospital

Researcher: William Muhadi Nandwa

Master Degree Candidate, Institute of Tropical Medicine and Infectious Diseases (ITROMID), Jomo Kenyatta University of Agriculture and Technology

Purpose of the Consent

You are being requested to participate in this research entitled above. For you to be able to decide whether you want to participate in this study, you should understand what the study is all about; as well as possible risks and benefits in order to be able to make an informed decision. This process is known as an

informed consent. This describes the purpose, procedure, possible benefits and risks.

It also explains how your personal information will be used and protected. Once you have read this form and your questions about the study are answered, you will participate in this study. You should file a copy of this document to keep a record.

Explanation of the Study

Attempts have been made to scale up the heights of success in the improvement of maternal health in Kenya. To underscore the seriousness of the efforts made, Kenya has resolved to reduce by 2/3 in deaths of children under the age of five, improve maternal health, reduce the spread of HIV/AIDS, empower women and promote gender equality. However, the country is still facing a serious problem of low uptake of antenatal care services among expectant youth in Kenya (KDHS, 2010).

This is especially true in rural areas which lack even the most basic health facilities to provide ANC services. What is not clear are the associated factors. Accordingly, this study was proposed to highlight factors that hinder or promote proper utilization of ANC services with the aim of determining factors

associated with ANC attendance among the youth who have delivered at this hospital and using them as heralds of improving maternal health.

Study Procedure

The PI will identify himself to you after which you will be required to fill a detailed questionnaire through an interview. This will be a private and confidential exercise done in a secluded area. You are supposed to be interviewed and your information to be filled in the questionnaire only after you have accepted and signed a consent form. Since you are from delivery wards, the questionnaire will not be too long.

Risks/ Discomforts

There will be no any physical risks associated with participation in this study except that one may get thirsty during the interview. A bottle of water will be provided to quench your thirst. However, there may be access to private information from the medical records, uncomfortable/sensitive questions in the questionnaire related to previous pregnancies and family planning. Such risks/discomfort will be mitigated by ensuring that the information I will get from you will not be relayed to any other person. I will also ensure all the information collected during the study is secure by using a computer that will be used to save the information. The computer will be locked by a password.

Names of study participants or their contact details will not be entered anywhere on the questionnaires. Only serial numbers will be used on the questionnaires.

Alternative to Participation

If you feel you cannot carry on with the study, you are free to stop your participation. You have a choice to do so and I will appreciate your willingness to participate in the study. You are also free to avoid any question(s) or giving any information you are uncomfortable with.

Confidentiality

The information I will get from you will be purposely for research and will not be relayed to anybody. I will keep the confidentiality of every participant by use of serial numbers on the questionnaires. Names or contact details will not be used at any point and are of no purpose for the study.

Contact Information

If you have any question(s) regarding this study, kindly feel free and contact William Muhadi Nandwa on phone number: **0728491050** or the secretary, KEMRI/National Ethics Committee, P.O BOX 54840—00200, Nairobi; Telephone number 020—272 2541; 0722 205901.

Declaration

Having read and understood the purpose of the study, I willingly accept to take part in it.

P I

Study

Participant

Signature _____

Signature _____

Date _____ Date _____

N/B: By putting your signature, you are agreeing that:

You have read this consent form and you have been given the opportunity to ask questions.

You have known the risks and they have been explained to your satisfaction.

You understand JKUAT and KEMRI have no policy or plan to pay for any injuries you might receive as a result of participating in this research protocol.

Your participation in this research is given voluntarily

Apendix 4: Informed Consent Form in Local Language (Kiswahili). Fomu ya makubaliano kwa lugha ya Kiswahili

Jina la Utafiti: Kichwa cha Utafiti: Mambo yanayohusiana na kutembelea kliniki ya wajaa wazito katikati ya vijana waliojifungua kwa hospitali ya kujifungua ya Pumwani .

Mtafiti: William Muhadi Nandwa

Mtadini wa shahada la Master kutoka Institute of Tropical Medicine and Infectious Diseases (ITROMID), Jomo Kenyatta University of Agriculture and Technology.

Madhumuni ya makubaliano

Unaombwa kushiriki kwa utafiti ilioandikwa hapo juu, Ili kuamua kushiriki kwa utafiti huu, ni muhimu uelewe utafiti huu unahusu nini vilevile madhara na faida yanayoweza kutoka kwa utafiti ili ufanye uamuzi kwa kuelewa (wa busara). Maelezo haya yanaitwa maelezo ya makubaliano. Hii inaeleza madhumuni ya utafiti, jinsi utafiti utakavyo fanywa, madhara na faida yanayoweza kutokea kwa utafiti.

Pia, inatoa maelezo kuhusu jinsi habari zote tutakazo pata kutoka kwako zitatumika na kulindwa. Baada ya kusoma maelezo haya na maswali yako kujibiwa, utaamua kama utakaka kushiriki kwa utafiti huu. Utatia sahihi kwa

fomu hii ya makubaliano kama ishara ya kukubali kushiriki kwa utafiti huu. Utapewa fomu kama hii uliotia sahihi ili uhifadhi kwa rekodi yako..

Maelezo kuhusu utafiti

Majaribio mengi yamefanywa ili kupata ufanisi kwa kuboresha afya ya wamama waja wazito nchini Kenya. Ili kuonyesha umuhimu wa juhudi zinazowekwa, Kenya imeiodhoresha katika malengo yake ya maendelo ya miaka mia moja (Millennium Development Goals) inayolenga kupunguza kwa thuluthi 2/3 vifo ya watoto walio chini ya miaka 5, kuboresha maisha ya mama, kupunguza kuenea kwa ugonjwa wa ukimwi, kuimarisha wamama na kuendeleza usawa wa kijinsia. Hata hivyo, kulingana na utafiti uliofanywa na KBS mwaka wa 2004, nchi bado inakabiliana na changamoto kubwa ya wamama wajaa wazito kutotumia huduma zinayotolewa kwa wamama wajaa wazito nchini Kenya (KDHS 2010).

Hii ni kweli kabisa haswa sehemu za mashambani ambazo hazina hata vifaa muhimu za kutoa huduma za uzalishaji. Kisichoeleweka ni kwa nini watu hawatumii huduma ya uzalishaji. Kwa hivyo, utafiti huu umependekezwa kutambua ni mambo yapi yanayozuia au yanayochangia wamama kutumia huduma za wamama wajaa wazito kwa hospitali ya kujifungua ya Pumwani,

ikiwa na lengo la kupata mambo yanayochangia matumizi ya huduma za wamama wajaa wazito na kuzitumia kama nguzo za kuboresha afya ya wamama. .

Jinsi utafiti utakavyo fanywa

Mtafiti mkuu atajitambulisha kwako halafu utaulizwakujibu maswali kupitia njia ya mahojiano. Hii itakuwa shughuli ya siri itakayofanywasehemu iliyotengwa. Utahitajika kujibu maswali baada ya kusomana kuelewa maelezo kuhusu utafiti huu na kisha kuweka sahihi kwa fomu hii ya makubaliano. Kwa sababu umetoka kujifungua, sitachukua mda mrefu kuuliza maswali kwa sababu ninaelewa ya kwamba umechoka. .

Hathari za kushiriki

Hakuna madharayoyote ya kimwili kutokana na kushiriki katika utafiti huu isipokuwa anaweza hisi kiu wakati wa mahojiano. Utapewa kopo la maji ili kukuwezesha kukata kiu wakati wa mahojiano. Hata hivyo tutapata habari zako za kibinafsi kwa nakala zako za hospitali, unaweza kuulizwa maswali yasiyo kumpendeza kuhusu mimba yako uliyopita na kupanga uzazi. Tutajaribu kuzuia ili usihisi vibaya kwa kuhakikisha ya kwamba hatutashiriki na wengine juu ya mambo yako. Nitahakikisha ya kwamba mambo yako nitakayokusanya yamewekwa kwa tarakilishi inayofungwa. Tarakilishi hili litafungwa na

litaweza tu kufunguliwa kwa neno la siri. Hakuna majina ya washiriki yatakayoandikwa kwa karatasi la maswali. Nambari la hesabu litatumika kwa hivyo jina la mshiriki halina umuhimu kwa utafiti huu.

Njia Nyingine tofauti na kushiriki kwa utafiti

Ukihisi kwamba hauwezi kuendelea na utafiti huu, uko huru kujitoa wakati wowote. Una uhuru wa kufanya hivyo na bado nitashukuru kushiri kwako. Pia, uko huru kutojibu swali lolotea au kupeana habari yoyote ambayo hutaki au hjisikii kupeana.

Siri

Habari nitakayopata kutoka kwako yatakuwa yanahusu utafiti huu na hayatatolewa kwa mtu mwingine yeyote. Nitahifadhi habari hizi kwa kutumia nambari ya usajili kwenye daftari la maswali. Majina hayatumika mahali popote na hayana maana yoyote kwa utafiti huu.

Njia ya Mawasiliano

Ukiwa na swali lolote kuhusu utafiti huu, tafadhali kuwa huru kuwasiliana nami William Muhadi Nandwa kwenye nambari ya simu: 0728491050 au kupitia kwa katibu, KEMRI/National Ethics Committee, sanduku la barua;

54840 – 00200 Nairobi, au kwa nambari ya simu, 020 – 2722541, 0722205901,
0733400003.

Maeleza Baada ya kusoma na kuelewa madhumuni ya utafiti huu, najitolea
kushiriki katika utafiti huu.

Mtafiti

Mshirika

Sahihi _____

Sahihi:

Tarehe _____

Tarehe:

Kwa kutia sahihi unakubali ya kwamba:

Umesoma au kusomewa fomu hii ya makubaliano na umepewa nafasi ya
kuuliza _____ maswali.

Umejua madhara na umeelezwa kikamilifu

Unaelewa ya kwamba JKUAT na KEMRI hawana mpango wa kulipa jeraha
lolote litakalosababishwa na kushiriki kwa utafiti.

Umetoa idhini kushiriki kwa utafiti huu kwa hiari yako

Appendix 5: Ethical Review Committee Approval



KENYA MEDICAL RESEARCH INSTITUTE

P.O. Box 54840-00200, NAIROBI, Kenya
Tel (254) (020) 2722541, 2713349, 0722-205901, 0733-400003; Fax: (254) (020) 2720030
E-mail: director@kemri.org info@kemri.org Website:www.kemri.org

KEMRI/RES/7/3/1

September 03, 2013

**TO: WILLIAM NANDWA,
PRINCIPAL INVESTIGATOR**

**THROUGH: DR JUMA RASHID,
DIRECTOR, CCR,
NAIROBI**

Dear Sir,

**RE: SSC PROTOCOL NO. 2401 (RESUBMISSION): FACTORS ASSOCIATED WITH
ANTENATAL CARE ATTENDANCE AMONG THE YOUTH WHO HAVE
DELIVERED AT PUMWANI MATERNITY HOSPITAL, NAIROBI COUNTY,
KENYA. 2nd VERSION, 23rd AUGUST 2013**

*Forwarded
6/9/2013*

Reference is made to your letter (undated). The ERC Secretariat acknowledges receipt of the revised proposal on 27th August 2013.

This is to inform you that the Committee determined that the issues raised are adequately addressed. Consequently, the study is granted approval for implementation effective this **3rd September 2013** for a period of one year. Please note that authorization to conduct this study will automatically expire on **September 02, 2014**.

If you plan to continue data collection or analysis beyond this date, please submit an application for continuation approval to the ERC Secretariat by **22nd July 2014**. The regulations require continuing review even though the research activity may not have begun until sometime after the ERC approval.

You are required to submit any proposed changes to this study to the ERC for review and the changes should not be initiated until written approval from the ERC is received. Please note that any unanticipated problems resulting from the implementation of this study should be brought to the attention of the ERC and you should advise the ERC when the study is completed or discontinued.

Work on this project may begin.

Yours faithfully,

EAB

**DR. ELIZABETH BUKUSI,
ACTING SECRETARY,
KEMRI ETHICS REVIEW COMMITTEE**

Appendix 6: Scientific Steering Committee Approval



KENYA MEDICAL RESEARCH INSTITUTE

P.O. Box 54840-00200, NAIROBI, Kenya
Tel (254) (020) 2722541, 2713349, 0722-205901, 0733-400003; Fax: (254) (020) 2720030
E-mail: director@kemri.org info@kemri.org Website: www.kemri.org

ESACIPAC/SSC/101811

25th June, 2013

William Nandwa

Thro'

Director, CCR
NAIROBI

W. Nandwa
26/6/2013

REF: SSC No.2401 (3rd Revised) – Factors associated with Antenatal care among the youths at Pumwani Maternity Hospital, Nairobi county

Thank you for your letter dated 24th June, 2013 responding to the comments raised by the KEMRI SSC.


I am pleased to inform you that your revised proposal now has formal scientific approval from SSC.

The SSC however, advises that work on the proposed study can only start after ERC approval.

Sammy Njenga, PhD
SECRETARY, SSC

**Appendix 7: Approval Letter for Data Collection from Pumwani
Maternity Hospital**

PUMWANI MATERNITY HOSPITAL



Tel: 02/6763291- 4
Fax: 02/6762965

P.O. Box 42849
Code: 00100- GPO
Nairobi, Kenya

PMH/DMOH/12/1071/2013

25TH SEPTEMBER 2013

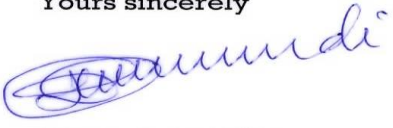
William Muhadi Nandwa,
P. O. Box 9681-00200
Nairobi, Kenya.

RE: APPROVAL OF RESEARCH PROPOSAL

This is to inform you that your research proposal entitled “**Factors Associated with Antenatal Care Attendance among the Youth who have Delivered at Pumwani Maternity Hospital**” has been approved.

You are hereby allowed to collect data. We look forward to receiving a summary of the research findings upon completion of the study.

Yours sincerely



DR. L.O. KUMBA
MEDICAL SUPERINTENDENT

Appendix 8: Publication approval letter

