UTILIZATION OF ANTENATAL CARE SERVICES AMONG ADOLESCENT MOTHERS IN MATHARE INFORMAL SETTLEMENTS, NAIROBI COUNTY, KENYA

BY

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NOVEMBER, 2015
DECLARATION

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

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To my beloved wife Sharon Mwikali and daughter Nikita Pendo Makii for their support and encouragement that made the whole study process easy.
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<th>Description</th>
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<tbody>
<tr>
<td>ANC</td>
<td>Antenatal Care</td>
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<tr>
<td>APH</td>
<td>Ante-Partum Hemorrhage</td>
</tr>
<tr>
<td>APHRC</td>
<td>Africa Population Health Research Centre</td>
</tr>
<tr>
<td>BSC</td>
<td>Bachelor of Science</td>
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<tr>
<td>FND</td>
<td>Food Nutrition and Dietetics</td>
</tr>
<tr>
<td>KDHS</td>
<td>Kenya Demographic and Health Survey</td>
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<tr>
<td>MDG</td>
<td>Millennium Development Goals</td>
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<tr>
<td>MMR</td>
<td>Maternal Mortality Ratio</td>
</tr>
<tr>
<td>MPH</td>
<td>Master of Public Health</td>
</tr>
<tr>
<td>NACOSTI</td>
<td>National Commission for Science, Technology and Innovation</td>
</tr>
<tr>
<td>PIH</td>
<td>Pregnancy Induced Hypertension</td>
</tr>
<tr>
<td>PPTCT</td>
<td>Prevention of Parent to Child Transmission</td>
</tr>
<tr>
<td>SBA</td>
<td>Skilled Birth attendance</td>
</tr>
<tr>
<td>SPSS</td>
<td>Statistical Package for Social Sciences</td>
</tr>
<tr>
<td>TBA</td>
<td>Traditional Birth Attendance</td>
</tr>
<tr>
<td>TV</td>
<td>Television</td>
</tr>
<tr>
<td>UK</td>
<td>United Kingdom</td>
</tr>
<tr>
<td>UN</td>
<td>United Nations</td>
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<tr>
<td>UNDP</td>
<td>United Nations Development Program</td>
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<tr>
<td>UNICEF</td>
<td>United Nations Children Education Fund</td>
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<tr>
<td>WHO</td>
<td>World Health Organization</td>
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OPERATIONAL DEFINITION OF TERMS

**Adolescence:** A period between childhood and adulthood characterized by emotional, biological and psychological changes (Casey, Jones, & Hare, 2008)

**Adolescent mother:** Any woman between 10 and 19 years who has delivered a baby irrespective of gravida, parity, neonatal outcome or marital status (Ehlers, 2003).

**Antenatal care:** An umbrella term used to describe the health care procedures and care rendered during pregnancy (Ekabua, Ekabua, & Njoku, 2011)

**Quality of care:** Care provided according to the set WHO standards and national guidelines, based on Evidence-Based Medicine, and meeting client needs (Banda, 2013).
ABSTRACT

Antenatal care contributes to good pregnancy outcomes and often times benefits of antenatal care are dependent on the timing and quality of the care provided. Antenatal care is necessary to establish confidence between the woman and her health care provider, to individualize health promotion messages, and to identify and manage any maternal complications or risk factors. In low and middle income countries, complications of pregnancy and childbirth are the leading cause of death in women aged 15–19 years. This study aimed at determining the level of utilization of antenatal care services among adolescent mothers in Mathare Valley informal settlements, Nairobi County, Kenya. Ethical clearance was sought from Kenyatta University Ethics committee, consent was sought from respondents and confidentiality was maintained by not using any form of identification. The study adopted a descriptive cross-sectional study design. The target population consisted of all adolescent mothers aged 10 years to 19 years within Mathare Valley informal settlements. Data collection instruments was researcher administered questionnaires. The questionnaire was administered to the adolescent mothers who met the inclusion criteria. Data collected was coded and entered into the computer for analysis using SPSS version 20. Results of the study were summarized using percentages, tables and charts. Chi-square statistics were used to test for strength of association between the research variables and the relationship between the dependent and independent variables under study. The study established that source of income ($\chi^2=17.700; \ df=4; \ p=0.001$), person living with the adolescent mothers ($\chi^2=11.332; \ df=4; \ p=0.023$) were significantly associated with ANC utilization. About 78.9% of the respondents had visited ANC at least once and above for checkup while 21.1% had never visited ANC clinics. Only 31.6% of the adolescent mothers managed the recommended 4 and above ANC visits. Number of children adolescent mothers have given birth (Parity) $\chi^2=46.998; \ df=2; \ p<0.0001$, adolescent mother complications during pregnancy $\chi^2=17.799; \ df=2; \ p<0.003$, Fear of disclosing pregnancy ($\chi^2=8.150; \ df=2; \ p=0.017$) and peer Influence ($\chi^2=10.014; \ df=2; \ p=0.007$) influenced utilization of ANC services by adolescent mothers. This study recommends customized ANC services targeting adolescent mothers to be established to increase utilization of ANC by adolescent mothers in Mathare Valley informal settlements.
CHAPTER ONE: INTRODUCTION

1.1 Background to the Study

Antenatal care (also known as prenatal care) refers to the regular medical and nursing care recommended for women during pregnancy (Catling et al., 2015). Prenatal care is a type of preventative care with the goal of providing regular check-ups that allow doctors or midwives to treat and prevent potential health problems throughout the course of the pregnancy while promoting healthy lifestyles that benefit both mother and child (Atuyambe et al., 2008). ANC offers a woman advice and information about appropriate place of delivery, depending on the woman’s condition and status. It also offers opportunity to inform women about the danger signs and symptoms which require prompt attention from a health care provider. Furthermore, ANC may assist in abating the severity of pregnancy related complications through monitoring and prompt treatment of conditions aggravated during pregnancy, such as pregnancy induced hypertension, malaria, and anemia which put at risk both the life of the mother and unborn baby (Banda, 2013).

Antenatal care should begin at the early stages of pregnancy as accessing antenatal care in a timely manner enables women to receive information early enough concerning the full range of screening tests available (National Collaborating Centre for Women’s and Children’s Health (UK), 2008). Antenatal care provides an opportunity to monitor the health of mother and baby, to detect hypertension, anaemia or malaria, and offer tetanus toxoid immunization, iron and nutrition supplements as appropriate (Koblinsky, Conroy, Kureshy, Stanton, & Jessop, 2000).
More than 50 percent of the world’s population lives in urban areas. While Asia has the largest number of urban slum residents, Africa is urbanizing faster than any other continent and 72 percent of city residents in sub-Saharan Africa live in slums (United Nations, Department of Economic and Social Affairs, Population Division, 2014).

Globally, an estimated 287,000 maternal deaths occurred in 2010, of which 99% (284,000) occurred in developing countries (World Health Organization, 2014). Implementing and assuring utilization of maternal health care services is potentially one of the most effective health interventions for preventing these deaths as well as maternal morbidity (Birmeta, Dibaba, & Woldeyohannes, 2013).

In Kenya, less than half (47%) of pregnant women (including adolescent mothers) make four or more antenatal visits according the 2008/09 Demographic health survey. Antenatal health seeking behaviour in these young mothers is a concept that influences them to reflect positively on their antenatal maternal health (Kenya demographic Health survey 2008/09).

The fifth Millennium Development Goal (MDG) aims to reduce the maternal mortality ratio by 75% between 1990 and 2015 (Nour, 2008). However, maternal mortality remains high at 488 maternal deaths per 100,000 live births (KDHS 2008/09). While this is below the Sub-Saharan average of 640 deaths per 100,000, Kenya experiences a very slow progression in maternal health (Kenya National Bureau of Statistics and ICF Macro, 2010).
Effective level of utilization of ANC services can enable adolescents to develop into mature adults, complete their education, start their lifelong careers, become economically independent and prepare for marriage and childbearing when their personal and social circumstances are favorable. This study sought to investigate the level of utilization of ANC services by adolescent mothers in Mathare Valley informal settlements, Nairobi County.

1.2 Statement of the problem

Less attention has been paid to the reproductive health problems of urban poor populations than to those of rural residents (Fotso, Ezeh, & Oronje, 2008). This is probably due to the fact that most income-earning opportunities, the major hospitals, and a disproportionate high share of health budgets are concentrated in cities and towns (Zulu, Dodoo, & Chika-Ezee, 2002). Low income areas especially in urban informal settlements, adolescent mothers struggle with access and utilizing of the ANC services due to the social determinants that are a challenge to them. 11% of adolescents’ attend for ANC services in their first two trimesters, while 14.6% deliver their babies without utilizing any ANC services at all in Nairobi urban slums (Fotso et al., 2008).

Despite the relatively high proportion of antenatal care from a health professional among urban slum women (about 97%), 48% made less than the recommended four visits. This figure compares with nearly 25% in Nairobi as a whole and 28% in urban Kenya. Noticeably, this proportion of slum resident women with less than four visits was slightly higher than that observed in rural Kenya (45%). This suggests that with regard to the
frequency of antenatal care, urban poor women are at least as disadvantaged as their rural counterparts (Fotso et al., 2008).

There are a number of health centers located on the periphery of Mathare valley that offer Antenatal care services. The dwellers however use other health care providers, including traditional healers and unqualified pharmacists, because of low cost, accessibility, longstanding cultural beliefs and distrust of the official health system (Izugbara, Ezeh, & Fotso, 2009).

1.3 Justification of the study

First pregnancy at an early age is risky. Although births among adolescents account for 11% of all births worldwide, they account for 23% of the overall burden of disease (in terms of disability adjusted life years) due to pregnancy and childbirth among women of all ages (WHO, 2014a). Low income areas especially in urban informal settlements, adolescent mothers struggle with access and utilizing of the ANC services due to the social determinants that are a challenge to them. 11% of adolescents’ attend for ANC services in their first two trimesters, while 14.6% deliver their babies without utilizing any ANC services at all in Nairobi urban slums (Fotso et al., 2008)

The worsening of key demographic and health indicators Maternal Mortality Ratio (MMR) and Skilled Birth Attendance (SBA) call for immediate action to provision of reproductive health services to adolescent mothers (Kenya National Bureau of Statistics and ICF Macro, 2010). There is therefore need for utilization of antenatal care services especially in urban low-income level settings where majority of the adolescent girls don’t transit to secondary education after completion of primary level. Recent studies done in
the urban informal settlements targeting adolescent mothers are minimal and so this will help the government in their new plan of free ANC services to all mothers in Kenya.

**1.4 Research Questions of the study**

The study sought to answer the following questions:

i. What is the extent of ANC utilization among adolescent mothers in Mathare valley informal settlements?

ii. What factors influence adolescent mother’s utilization of ANC services in Mathare Valley informal settlements?

**1.5 Hypothesis of the study**

Socio-demographic, cultural, economic and facility factors are not associated with utilization of ANC services among adolescent mothers in Mathare Valley informal settlements.

**1.6 Objectives of the study**

**1.6.1 General Objective**

To establish the level of utilization of antenatal care services by adolescent mothers in Mathare Valley informal settlements, Nairobi County, Kenya

**1.6.2 Specific objectives**

i. To determine the extent of ANC utilization among adolescent mothers in Mathare Valley informal settlements.

ii. To determine factors that influence utilization of ANC services among adolescent mothers in Mathare Valley informal settlements.
1.7 Significance of the study

The primary beneficiaries of the findings of this study will be thousands of adolescent mothers not utilizing antenatal care services in Mathare Valley informal settlements. This will lead to improved pregnancies, delivery and postpartum outcomes. It will also provide a systematic body of knowledge that can be explored for appropriate policy formulation, act as a reminder to both the state and civil society to always incorporate reproductive health needs of adolescents. Effective level of utilization of ANC services, through early ANC attendance, receiving health promotion information and health care is crucial to improving maternal and foetal health during pregnancy and reducing morbidity and mortality rates. The findings will assist in coming up with policies for improving the level of utilization of ANC services by larger percent of fertile women in Mathare Valley informal settlements in Nairobi County and can also be generalized to other urban slums in Kenya. The findings may also provide guidance to health care facilities in Mathare area in planning for strategies to improve the services rendered to adolescent mothers.

1.8 Limitation of the Study

Despite the contribution of the study to the literature on maternal health care, this study has some limitations. First, it is a cross-sectional study in which temporal relations could not be assessed. Second, there gestational age of the adolescent mother wasn’t considered. Third, the study has considered only delivery of last child; the situations for deliveries of other children are unknown.
1.9 Conceptual Framework

**Socio-demographic Characteristics**
- Age, Marital status
- Level of education
- Accessed TV, Phone esp. cell phone
- Employment
- Source of income
- Person living with

**Socio-cultural factors**
- Unplanned Pregnancy
- Fear of testing for HIV status
- limited Knowledge about ANC benefits
- Poor family/social support
- Peer Influence
- TBA Influence
- low decision making authority

**Obstetric factors**
- Gravida
- Parity
- Complications during pregnancy

**Economical factors**
- financial constraints (Poverty)
- High ANC fees

**Facility factors**
- Distance to the health centre
- Delay in attending to clients
- Quality of care

Figure 1.0.1: Conceptual framework-adopted from Anderson and Newman (Babitsch, Gohl, & von Lengerke, 2012)
2.1 The Concept of Adolescent Mothers

Adolescence is a period between childhood and adulthood characterized by emotional, biological and psychological changes; putting adolescents at risk for early marriage, unwanted pregnancies, sexual abuse and exploitation (Nisar & White, 2003). Adolescent mother is any woman between 10 and 19 years who has delivered a baby irrespective of gravida, parity, neonatal outcome or marital status (Ehlers, 2003). Despite their high proportions in developing countries, available literature shows that young people do not routinely seek appropriate sexual and reproductive health information and care due to various socio-economic, cultural and political constraints (Kasabiiti, 2007).

According to (Rosenfeld, 2009), female adolescents experience increased feelings of depression, hopelessness, and vulnerability with a rate of suicide attempt four to seven times higher than that of boys. They further assert that providing humane, thoughtful psychosocial care to the young woman during this period of enormous transition and growth is exciting and often very challenging for the provider. The stakes are inevitably high and there is significant contend in screening, assessment and risk factors that the provider is attempting to cover.

2.2 Global Perspective of Antenatal Care

Antenatal care has long been considered a basic component of any reproductive health care program. Different models of antenatal care have been put into practice all over the world (Banda, 2013). These models are the result of factors such as socio-cultural, historical, traditional nature as well as economy of the particular country. Moreover, human and financial resources of the specific health system substantially play a part in
building the model (Shah & Say, 2007). Most developed countries use traditional model of prenatal care which is based on larger number of visits, approximately 7-10 visits. They include starting antenatal as early as possible, monthly visits up to 28 weeks, followed by weekly up to 36 weeks until delivery, (Say & Raine, 2007). Pregnant women in these high income countries receive adequate prenatal care which includes frequent tests, and ultra sound evaluation. They also give birth under supervision of medically trained personnel and have prompt access to emergency treatment if complications arise (Chaibva, 2009). Child mortality increases, to an important extent, with births to very young or to very old mothers. Several studies from a variety of countries, relating maternal age to various aspects of pregnancy and child development, suggest that maternal age is a central variable influencing pregnancy outcome (Rosenfeld, 2009).

Roughly one third of all the women ages 20-24 in 10 of 11 Latin American countries, and half in Guatemala, have their first child before their 20th birthday (Erickson, 1998). Approximately one in five young women less than 18 years in Mexico and Bolivia has given birth (Population Reference Bureau, 2015). Rural, less educated women are more likely to give birth as adolescents (WHO, 2014b). The Task Force on Education and Gender Equality of the UN Millennium Project recommends the indicator of adolescent fertility rate as a way of focusing on access to reproductive health services, and as a way to help monitor progress toward achieving better child health rates (Dixon-Mueller & Germain, 2007).

A retrospective observational study conducted by Nisar and White in far North Queensland Australia examined reasons for women not accessing antenatal care and subsequent pregnancy outcomes. The study revealed that women who did not access
antenatal care were more likely to be highly parlous or young. The same group were more indigenous and users of alcohol than those who accessed antenatal care (Nisar & White, 2003).

Another study on the effectiveness of antenatal care on birth weight in Mexico found that women who received poor antenatal care had a 76 per cent excess risk of low birth weight associated with premature delivery compared to those who received adequate antenatal care (Coria-soto, Bobadilla, & Notzon, 2015). Poor antenatal care was defined in this study as lack of the recommended contents such as: few antenatal visits, measurements of blood pressure, height and weight; taking samples of urine and blood; and pelvic examination. In the same study an inadequate number of visits were associated with 63 per cent higher risk of intra-uterine growth retardation. Similar results have been found in Bangladesh where birth weight was positively correlated with the frequency of visits at antenatal clinics (Villar & Bergsjø, 1997). All these results point to the important role of antenatal care in identifying and mitigating the potential complications during pregnancy.

2.3 Maternal Health Care Systems in Sub-Saharan Africa

The WHO and UNICEF estimates that there are approximately 585,000 women who die each year of pregnancy-related cause (Health, Tsui, Wasserheit, & Haaga, 1997). Ninety-nine per cent of these deaths occur in developing countries, while in developed countries the range is between 10 to 15 deaths per 100,000 births (Ezegwui et al., 2013). The greatest risk of maternal deaths, which is now compounded by the HIV/Aids pandemic, is faced by women in Sub-Saharan Africa (Ramjee & Daniels, 2013)
In sub-Saharan Africa, even when services are available, many pregnant women come late for ANC and many attend only once thereby limiting the quality of care provided. This hampers the delivery of effective antenatal care (ANC) screening and treatment programs, potentially contributing to the high maternal morbidity and mortality (Alam, 2009). Young people in particular are reluctant to seek health service for their sexual and reproductive health needs. Included among the many barriers are restrictive laws and policies, judgmental health workers and a lack of training in and understanding of adolescent reproductive needs (Atuyambe et al., 2008). There is fear among adolescents of humiliation or having to respond to unpleasant questions and procedures. Furthermore, there is lack of respect, privacy and confidentiality within the health care system (Atuyatumb, Mirembe, Johansson, Kirumira, & Faxelid, 2015).

Delay in deciding to seek antenatal care is predominant among pregnant teenagers in Lesotho (Phafoli, Aswegen, & Alberts, 2007). This subsequently leads to delay in reaching treatment and in receiving adequate treatment. Early antenatal care attendance plays a major role in detecting and treating complications of pregnancy and forms a good basis for appropriate management during delivery and after childbirth (James, 2012) Although antenatal care is provided at different levels, Lesotho still has a high maternal mortality rate, estimated at 762 per 100,000 live births, and an infant mortality rate of 72 per 1000 live births. Lesotho has a chronic shortage of doctors and nurses. According to the Lesotho Population Data Sheet of 2000, the doctor-patient ratio for this country for the year 1999 was 1:13,041 and the nurse ratio was 1:2,035 (Phafoli et al., 2007).
Early sexual activities with consequent early pregnancy lead to high maternal and neonatal morbidity and mortality. As a result, the National Adolescent and Development Programme was started in Lesotho in 1998 by the Ministry of Health and Social Welfare to address the needs of teenagers (Silverstein, 2009). This led to the establishment of adolescent health clinics (referred to as teenage corners) that focus on teenagers in three districts of Lesotho, namely Mafeteng, Maseru and Leribe. Despite the establishment of these teenage corners, delay in ante-natal attendance is still prevalent in Lesotho (Phafoli et al., 2007). Out of 632 pregnant teenagers in 2007 who attended the clinic at Queen II Teenage Corner, the majority (43%) visited the antenatal clinic for the first time during the third trimester and only 14.9% attended in the first trimester. This late antenatal clinic attendance provides little or no time for appropriate screening, management of risk factors, if detected, and timely referral (Kisuule et al., 2013).

According to Magadi, the lack of antenatal care has been identified as a risk factor for maternal mortality and other adverse pregnancy outcomes in many developing countries (Magadi, 2004). Many studies have demonstrated the association between lack of antenatal care and prenatal mortality, low birth weight, premature delivery, pre-eclampsia, and anaemia.

Leonard, in 2007 conducted a study in southern Tanzania to assess whether antenatal care achieves identification and timely referral of high-risk pregnancies (Leonard, 2007). It was revealed that a significant risk selection towards obstetric referral level care was observed only for previous caesarean section.
2.4 Antenatal Care in Kenya

The government of Kenya recognizes that good health is a prerequisite to socioeconomic development and its commitment to the provision of health services is evident (Ministry of Health-Kenya, 2010). According to United Nations Development Program (UNDP), maternal mortality rate in Kenya has remained unacceptably high at 488 maternal deaths per 100,000 live births with some regions reporting Maternal mortality ratios (MMRs) of 1,000/100,000 live births) in 2008/9, an increase from 414/100,000 in 2003, 590/100,000 in 1998 (Zoe, 2012).

The proportion of women making the recommended number of antenatal care visits of 4 and above declined from 64 per cent in 1993 to 52 per cent in 2003 and to 47% in 2008/9, while the proportion receiving skilled care during delivery declined from 45 per cent in 1998 to 42 per cent in 2003. Skilled attendance at birth increased to 44% in 2008/9 (Kenya National Bureau of Statistics and ICF Macro, 2010)

Studies on maternal health care utilisation in Teso district revealed that 67% of women, including adolescents, attended ANC during the second trimester of their pregnancies, 20.4% during the third trimester while 14% never attended ANC (Ikamari, 2004). According to the Kenya Demographic health survey results of 1998, 40% of Kenyan women had not made any antenatal visits by the start of the sixth month of pregnancy (Kenya National Bureau of Statistics and ICF Macro, 2010).

A Cohort survey of 1,562 prenatal outcomes (response rate 100%) during 2004–05 in the catchment areas for five Ministry of Health dispensaries in two divisions of the Kwale region (Brown, Sohani, Khan, Lilford, & Mukhwana, 2008). Results showed that only 32% (506/1,562) of women reported having attended any ANC. Women with secondary
education or above were more likely to attend for ANC, while those living further than 5 km from a dispensary were less likely to attend. Women attending ANC at least twice were more likely to have a live birth (vs. stillbirth) in both multivariate models. Women attending for two ANC visits (but not more than two) were more likely to have a healthy weight baby. The low attendance for ANC combined with a positive relationship between attendance and prenatal outcomes for the women in the Kwaio region highlight the need for further research to understand reasons for attendance and non-attendance and also for strategies to be put in place to improve attendance for ANC (Brown et al., 2008)

2.5 Benefits of antenatal care

Antenatal care contributes to good pregnancy outcomes and often times benefits of antenatal care are dependent on the timing and quality of the care provided, (WHO, 2014b). It has been shown that regular antenatal care is necessary to establish confidence between the woman and her health care provider, to individualize health promotion messages, and to identify and manage any maternal complications or risk factors (Banda, 2013). During antenatal care visits, essential services such as tetanus toxoid immunization, iron and folic acid tablets, and nutrition education are also provided (Atuyatumbe et al., 2015). Lack of antenatal care has been identified as one of the risk factors for maternal mortality and other adverse pregnancy outcomes in developing countries (Banda, 2013). Moreover, many studies have demonstrated the association between lack of antenatal care and prenatal mortality, low birth weight, premature delivery, pre-eclampsia, and anaemia (Chaibva, 2009). All these results point to the important role of antenatal care in identifying and mitigating the potential complications during pregnancy. Moreover, a study conducted in Canada by (Heaman, Newburn-Cook,
Elliott, & Helewa, 2008) on inadequate prenatal care and association with adverse pregnancy outcome indicated that preterm birth, low birth weight, small-for-age gestational and increased mortality rate were associated with inadequate prenatal care. Similar findings in a study conducted in India, where an increase in low birth weight infants, more fetal deaths, and more neonatal deaths were common among those under attending ANC (A. Singh, Pallikadavath, Ram, & Alagarajan, 2014).

2.6 Number of Antenatal care visits

Antenatal care is more beneficial in preventing adverse pregnancy outcomes when it is sought early in the pregnancy and is continued through delivery (Kenya National Bureau of Statistics and ICF Macro, 2010). Early detection of problems in pregnancy leads to more timely referrals in the case of women in high-risk categories or with complications; this is particularly true in Kenya, where three-quarters of the population lives in rural areas and where physical barriers pose a challenge to health care delivery (Kenya National Bureau of Statistics and ICF Macro, 2010). Health professionals recommend that the first antenatal visit occur within the first three months of pregnancy, that subsequent visits continue on a monthly basis through the 28th week of pregnancy, and that visits thereafter take place every two weeks up to the 36th week (or until birth). Under normal circumstances, WHO recommends that a woman without complications should have at least four antenatal care visits, the first of which should take place during the first trimester (WHO, 2014b). In Kenya, less than half (47 percent) of pregnant women make four or more antenatal visits. Sixty percent of urban women make four or more antenatal care visits, compared with less than half of rural women (44 percent) (Kenya National Bureau of Statistics and ICF Macro, 2010). Moreover, most women do
not receive antenatal care early in the pregnancy. Only 15 percent of women obtain antenatal care in the first trimester of pregnancy, and only about half (52 percent) receive care before the sixth month of pregnancy. Overall, the median number of months of pregnancy at first visit is 5.7 (KNBS and ICF Macro., 2010)

2.7 Frequency and Timing of Antenatal Care

The frequency and timing of antenatal care visits are important because they offer the service providers opportunities to identify and address potential pregnancy complications as early as possible (African Population and Health Research Centre (APHRC), 2014). In Kenya, the government recommends that pregnant mothers make at least four antenatal care visits during pregnancy, with the first visit occurring early in the pregnancy. For mothers making more than the minimum visits, monthly visits are recommended with the frequency increasing during the last two months of pregnancy to fortnightly and weekly visits.

The initial ANC visit should take place any time before 16 weeks of gestation during the first trimester of pregnancy. The ANC activities performed at the first visit include history taking, physical examination, laboratory investigations for syphilis, hemoglobin estimations, testing urine for albumen and glucose, as well as counseling and management of prevention of parent-to-child transmission (PPTCT) of HIV. Tetanus toxoid and anti-malarial prophylaxis are given. The goal of the first interview is to make a risk assessment, provide appropriate health education and discuss the plan for delivery with the pregnant adolescent, and to supply iron supplements throughout the pregnancy (Chaibva, 2009) and (Ekabua et al., 2011).
The second ANC visit should occur between 16 and 23 weeks’ gestation. The aim is to discuss the laboratory results and take action on abnormal results and to treat the partner if necessary. The interview focuses on foetal movements, problems the woman might be experiencing and findings of the urine tests. The blood pressure is checked to exclude pregnancy-induced hypertension (PIH). Health education is given on danger signs during pregnancy, how to recognise them and what actions to take. The second dose of anti-tetanus toxoid is given (Conrad et al., 2012)

The third ANC visit takes place between 24 and 28 weeks’ gestation and this visit also centers on potential problems, blood pressure checks and urine analysis. Obstetric problems such as Ante-partum haemorrhage (APH) and Pregnancy Induced Hypertension (PIH) are discussed. The palpation should detect multiple pregnancies and abnormalities (Chaibva, 2009)

The fourth ANC visit takes place between 32 and 34 weeks of gestation; the assessment and the discussion focuses on problems the mother might be experiencing and also review the delivery plan, including labour. Haemoglobin estimations, palm and conjunctival pallor, foetal size in relation to gestational dates, foetal heart rate and presentation should be recorded on the client’s ANC card (Chaibva, 2009). The fifth interview is conducted between 36 and 37 weeks, and the sixth interview between 38 and 42 weeks respectively. The interviews ensure re-assessment of the woman, health education, emotional and social support. Information on labour, childbirth and the preparation for the coming baby is reinforced. The ANC visits may be more frequent when there are potential health risks (Chaibva, 2009).
2.8 Utilization of ANC services

Antenatal care allows for the management of pregnancy, detection and treatment of complications and promotion of good health (D’Alton & Miller, 2015). According to Kasabiiti jennifer Asiimwe, (Kasabiiti, 2007) in western Uganda the ability of a woman to afford antenatal care (ANC) services has a significant association to the number of ANC visits she is likely to make. This resonates with studies elsewhere that women having to take transport to ANC facility, high fees for necessary but costly laboratory fees, drugs and consultation fees in case of private centers not serviced by government hospitals are deterrence to the level of utilization of maternal services as highlighted by (Atuyambe et al., 2008). Although in their study, there was no significant relationship between affordability and level of utilization of antenatal care, these associations indicates the unwillingness by mothers to pay for ANC services.

According to study done by Birmeta and others in Holeta town Ethiopia, (Birmeta et al., 2013), among 422 women who had given birth in the past three years prior to the survey, 87% of the women had at least one antenatal visit during their last pregnancy. Among the antenatal service users, 33.7% had less than four antenatal visits. More than half of the antenatal care (ANC) attendants made their first visit during their second and third trimester of pregnancy although WHO recommended ANC should be started at the first trimester of the pregnancy. This study also revealed that there was a significant association (P<0.05) between ANC attendance and some demographic, socio-economic and health related factors (age at last birth, literacy status of women, average monthly
family income, media exposure, attitude towards pregnancy, knowledge on danger signs of pregnancy and presence of husband approval on ANC).

A study by Friedman and others (Susan Hatters Friedman, 2009) among 211 women with no prenatal care identified the primary reasons as follows: 30% had problems with substance use; 29% experienced denial of pregnancy, 18% had financial reasons, 9% concealed pregnancy and 6% believed they did not need prenatal care due to multiparity. Women with substance use disorders were significantly more likely to be older, unemployed multi-gravidas.

2.9 Factors influencing Utilization of Antenatal Care

Many factors influence late initiation or poor ANC. Some of the identified factors contributing to late ANC include: unavailability of services, cost of services, lack of media exposure, low social economic status and others (Simkhada, Teijlingen, Porter, & Simkhada, 2008).

2.9.1 Demographic and Social cultural factors

ANC utilization can be influenced by demographic and socio-cultural factors (Banda, 2013). Maternal age has been shown to both negatively and positively influence utilization of ANC in general. Younger women may be less likely to use either antenatal care or delivery care, or to have their infants immunized. According to (Adamu & Salihu, 2002), delay in seeking care, in reaching adequate health facilities, and in receiving appropriate care at facilities is a well-known barrier to care for all women. This may be especially pronounced for young women, who may have little knowledge and experience in seeking care.
According to Mlilo-Chaibva, (Chaibva, 2009) a woman’s age might influence her decision to initiate ANC late or not to attend ANC at all. She claimed that pregnant adolescents might tend to hide their pregnancies because they might be unmarried, attending school, afraid of or prejudicial against health care providers or they might be simply too young and ignorant to appreciate the value of ANC.

A study conducted in Turkey demonstrated that teenage mothers were statistically less likely to use ANC services (Ciceklioglu, Soyer, & Ocek, 2005). However, in other studies teenage mothers were more likely to start utilizing ANC services earlier than their older counter parts (Banda, 2013). Other than age, maternal education has also been shown to influence utilization of ANC. Matsumura and Gubhaju study (Matsumura & Gubhaju, 2001) conducted in Nepal demonstrated that women with higher education were more likely to utilize ANC than those with lower education. A study carried out by Pallikadavath and others (Pallikadavath, Foss, & Stones, 2004) found similar results, in their study they had demonstrated that both maternal and paternal education positively influence utilization of ANC.

The client’s level of education could also influence pregnant adolescents’ utilization of the health facilities as well as the understanding of the importance of seeking health care promptly. Low educational status has been identified as a major barrier to the utilization of health care services, especially ANC (Chaibva, 2009). Knowledge on ANC is critical in determining pregnant women’s use of antenatal services (Simkhada et al., 2008). Studies have shown that exposure to mass media particularly television and radio significantly predicts utilization of ANC. (Pallikadavath et al., 2004) and (Shah & Say,
in studies done in India and Nepal, respectively, found that pregnant women who were watching television every week were more likely to use ANC.

Moreover, studies have shown that adequate knowledge of ANC has a positive and statistically significant effect (Banda, 2013). In the study conducted in Nigeria by Amosu (Amosu et al., 2011) the findings indicated that health care provider and pregnant women ignorance about ANC was one of the factors affecting utilization of ANC.

Other demographic factors such as marital status, occupation, religion, family size and ethnicity also statistically significantly influence utilization of ANC. Studies on social factors influencing utilization of ANC demonstrates that, desirability of pregnancy, is a statistically significant determinant of ANC use. Pregnant women with unplanned pregnancies were found to make less ANC visits (Paredes, Hidalgo, Chedraui, Palma, & Eugenio, 2005).

According to study done by Fekede and others in Ethiopia (Fekede & G/Mariam, 2007) literacy status, income, Gravidity, Religion and occupation showed statistically significant association with utilization of antenatal care among 360 pregnant women. Age was also identified to be a factor influencing ANC utilization as women in the age group 15-24 were more likely to attend ANC 2.75 times larger than that of women in the age group 25-34.

Marital status could influences antenatal care seeking behaviours. Unmarried pregnant adolescents are less likely to seek ANC services due to a lack of economic and social support from parents, guardians or spouses. Married pregnant adolescents may also lack social independence and decision-making powers to seek ANC. There may be pressure or
oppression from the spouse or influential members of the extended family forcing pregnant adolescents to accept the decisions made on their behalf (Atuyatumbe et al., 2015). In other studies, cultural beliefs, high parity, unplanned pregnancies, mothers aged below 18 years and unmarried status was associated with less ANC use (Magadi, Diamond, Madise, & Smith, 2004).

Place of residence has also been shown to influence ANC utilization, women in urban areas were more likely to use ANC more than rural women in Ecuador (Paredes et al., 2005) and Nepal (Say & Raine, 2007). Distance to the health facility is inversely associated with ANC utilization (Glei, Goldman, & Rodríguez, 2003a). A study conducted by Magadi and others (Magadi et al., 2004) in Kenya demonstrated that an increase in distance to the nearest healthcare facilities was associated with fewer antenatal visits. Moreover, uncomfortable transport, poor road conditions and difficulties in crossing big rivers have also been shown to be barriers to utilization of ANC in studies conducted in Zimbabwe cited by Banda (Banda, 2013) and in Pakistan (Mumtaz & Salway, 2005)

Some cultural beliefs have also been found to influence utilization of ANC. The study conducted by (Simkhada et al., 2008) in Nepal found that mother in laws negatively influenced utilization of ANC by their daughter in-laws. Lee and others (Lee, Yin, & Yu, 2009) in a study conducted in Taiwan also found that mother in laws and spouse, heavily influence decision about where and whether to go for antenatal care. Engaging men as partners is a critical component of ANC, but their involvement has been low
(Byamugisha et al., 2011) and there’s hence a need to encourage male participation to promote the uptake of ANC by pregnant women. A study conducted in Malawi by Chiwaula (Chiwaula, 2011) also demonstrated that cultural beliefs negatively influence utilization on ANC.

Religious beliefs in certain societies may pose barriers to the utilization of ANC services because some religious communities might believe in prayer and prefer home deliveries with no ANC from skilled health personnel (Chaibva, 2009). Social support has been reported to affect attitudes and behaviours, including satisfaction with pregnancy and parenting. Pregnant adolescents who have high stress and low social support networks have been found to have more neonatal and obstetric problems than those who have low stress and high social support networks. Attending antenatal clinics early will assist in the identification of such stress and/or depression, resulting in appropriate management of the identified problems (Phafoli et al., 2007).

It is important that antenatal services, especially those meant for pregnant adolescents, are planned with input from adolescents and that the services are made as meaningful and as interesting as possible otherwise the pregnant adolescents will not view the services as valuable to them (Raghupathy, 1996)

2.9.2 Economic factors

Poverty exacerbates the problem of low birth weight for the less fortunate have both nutritional and inadequate access to food during pregnancy (Gitonga, 2007). Social economic disadvantage may lead to adverse psychological, behavioural or other
environmental exposures that restrict foetal growth (Bhargava, 2009). Limited economic power may be an impediment in seeking ANC services among pregnant adolescents, since most of them might be school going and financially dependent on parents, spouses or boyfriends and might be unable to afford ANC fees and the basic requirements for delivery in a hospital (Chaibva, 2009).

According to Hadi (Abdullahel Hadi, 2007) in their research on “The inaccessibility and utilization of antenatal health care services in Balkh Province of Afghanistan”, the utilization of Antenatal care (ANC) services was differentiated by the participation of women in activities. The use of each of the ANC services was significantly lower among women who were involved in economic activities than among those not economically active.

**High ANC Fees**

According to the World Health Organization (WHO), the cost of providing basic maternal and newborn health services in developing countries averages about US$3 per person (Gilbert, Patel, Farmer, & Lu, 2015). The perceived high fees might influence some pregnant women, including adolescents, to resort to the services of traditional birth attendants (TBAs), which are cheaper and can be paid in kind (Ikamari, 2004). This has serious implications for the pregnant adolescents’ health. Home care and home deliveries without ANC may contribute to poorer pregnancy outcomes for the adolescent mother and her baby. Many pregnant adolescents depend on spouses and/or parents and are unlikely to have health insurance to cover the health care costs. Reynolds and others cite socio-economic factors as contributing to poor ANC attendance and thus also to poor maternal and neonatal outcomes (Reynolds, Wong, & Tucker, 2006). Studies by Fatusi and Chiwunzie (Osubor, Fatusi, & Chiwuzie, 2006), revealed that clients are usually
prepared to overcome barriers such as high user fees if they are satisfied with the quality of care rendered and if the human and material resources are available.

Although more than 90 percent of Kenyan women receive antenatal care from a medical professional, only 43 percent of births take place in a health facility, according to the 2008-2009 Kenya Demographic Health Survey (Kenya National Bureau of Statistics and ICF Macro, 2010). The government of republic of Kenya abolished user fees for maternal services including Antenatal care services in 2013 however the resultant high usage of the services is yet to be realized (Hatt, Makinen, Madhavan, & Conlon, 2013) and also (Dzakpasu, Powell-Jackson, & Campbell, 2013).

2.9.3 Obstetric related factors

Adolescents who are pregnant for the first time face higher risks of obstetric complications than women aged 20 or older (Reynolds et al., 2006). Parity refers to the number of pregnancies a woman has had that have each resulted in the birth of an infant capable of survival (Books, 2014). Gravida indicates the number of times the woman has been pregnant, regardless of whether these pregnancies were carried to term (Collins, 2013). Study done in England and Wales (Kupek, Petrou, Vause, & Maresh, 2002) Primiparous women of high obstetric risk were 13.4% more likely to initiate antenatal care after 10 weeks of gestation than a low risk reference group, and 34.3% more likely to initiate antenatal care after 18 weeks of gestation. This association between high obstetric risk status and late initiation of antenatal care was not replicated among multiparous women,
2.9.4 Health facility related factors

Quality of ANC Care

To ensure women accesses quality care adequate number of trained health workers, sufficient equipment and supplies; and adequate referral or reliable transportation to a hospital or other health facilities in the event of an emergency (Banchani & Tenkorang, 2014). Studies clearly indicate that countries with high maternal, perinatal and neonatal mortality have inadequate and poor quality health service, which can be associated with reduced utilization of health service. Reference on these studies show that the use of evidence-based guidelines leads to better process and outcomes of health, when appropriately implemented.

Emphasis is therefore placed on the use of standards of care as a way of addressing barriers to quality care (World Health Organization, 2007). Data was collected from 15 health facilities in Eastern Uganda to establish capacity of delivering ANC services concluded; to improve the quality of ANC; interventions need to improve staffing, infection control facilities and drug-supplies. In addition to better counseling for risk factor-recognition and birth preparedness (Tetui et al., 2012).

Improving quality of care for clients means understanding their cultural values, previous experiences and perceptions and the role of the health system (Saha, Beach, & Cooper, 2008). Patient-centered care is not limited to communication and often focuses on other aspects of care such as convenience of office hours, ability to get appointments when
needed, being seen on time for appointments and having services near one’s place of residence (Saha et al., 2008).

**Distance to ANC facility**

Distance to the health facility is inversely associated with ANC utilization (Glei et al., 2003a). A study conducted by Magadi (Magadi et al., 2004) in Kenya demonstrated that an increase in distance to the nearest healthcare facilities was associated with fewer antenatal visits. Moreover, uncomfortable transport, poor road conditions and difficulties in crossing big rivers have also been shown to be barriers to utilization of ANC in studies conducted in Zimbabwe (Mathole, Lindmark, Majoko, & Ahlberg, 2004) and in Pakistan (Mumtaz & Salway, 2005).

**2.10 Summary of the Literature Review and Identification of Gaps**

From the reviewed literature, it is evident that adolescent mothers are faced with numerous challenges. To add on the challenges they face, there are no known services set aside for adolescent mothers. There are several studies which have been done on antenatal care but little has been done on the utilization of ANC services among adolescent mothers in the informal settlements and one of them is the Mathare Valley informal settlements.
CHAPTER THREE: MATERIALS AND METHODS

3.1 Introduction
This section outlines the procedure used in this study. The section focuses on the research design, locale, target population, sample size and sampling procedure, data collection techniques and data analysis.

3.2 Study Design
The study adopted a descriptive cross-sectional study design to investigate on level of utilization of antenatal care services among adolescent mothers. This study design enables one to obtain information about the situation at hand at one specific time and shows the current situation of the condition under study in the desired population. It is used in preliminary and exploratory studies to allow one to gather information, summarize, present and interpret for the purpose of clarification (Orodho, 2004).

3.3 Variables
The independent variables in this study were socio-demographic characteristics, individual perceptions, social cultural factors, economic factors and facility factors influencing utilization of ANC services among adolescent mothers in Mathare Valley informal settlements. The dependent variable was the level of utilization of ANC services.

3.4 Study Area
Mathare Valley informal settlements lies approximately 6 kilometres to the northeast of Nairobi’s central business district and is bordered by Thika Road to the north and Juja Road to the south. It is home to about a half a million people (Hendriks, 2010).
3.5 The Study Population

The study comprised of adolescent mothers between the ages of 10-19 years within Mathare valley informal settlements, Nairobi County.

3.5.1 Inclusion criteria

Adolescent mothers aged 10-19 years who were residents of Mathare Valley informal settlements and were willing to participate in the study.

3.5.2 Exclusion criteria

Eligible subjects who declined to consent, adolescent mothers who were sick and unable to give information at the time of study and mentally challenged eligible subjects.

3.6 Sampling techniques and sample size

3.6.1 Sampling Techniques

Sampling is the process or technique of selecting a suitable sample or a representative part of a population, for the purpose of determining parameters or characteristics of the whole population (Jeanfreau & Jack, 2010). Mathare valley informal settlement was purposively selected. List of all households from each location in the study area was made with assistance from local leaders and community health volunteers; this was done prior to commencement of data collection. Simple random sampling was used to sample the 247 households visited. Each of the six locations within Mathare valley had different population sizes (Table 3.1) the number of households in each location was calculated proportion to its size. At household level, respondents meeting the inclusion criteria were
selected and if more than one adolescent mother was found, only one was randomly selected. This continued until the desired sample size was achieved.

Table 3.1: Sampling frame

<table>
<thead>
<tr>
<th>Location</th>
<th>Population of adolescents pregnant/lactating</th>
<th>Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Hospital</td>
<td>248</td>
<td>26</td>
</tr>
<tr>
<td>2 Mabatini</td>
<td>342</td>
<td>36</td>
</tr>
<tr>
<td>3 Huruma</td>
<td>439</td>
<td>46</td>
</tr>
<tr>
<td>4 Ngei</td>
<td>439</td>
<td>46</td>
</tr>
<tr>
<td>5 Mlango Kubwa</td>
<td>464</td>
<td>50</td>
</tr>
<tr>
<td>6 Kiamaiko</td>
<td>409</td>
<td>43</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>2341</strong></td>
<td><strong>247</strong></td>
</tr>
</tbody>
</table>

3.6.2 Sample size determination

The total population is greater than 10,000 thus the formula below was used to determine the sample size. Fischer et al., 1998 cited in Kothari, 2004

\[ n = Z^2 \times p \times q / d^2 \]

\( n \) = the desired sample size

\( Z \) = the standard normal deviate at the required confidence level in this case 1.96

\( p \) = the proportion of the target population estimated to have characteristic being measured. Proportion of adolescent mothers either pregnant or lactating is 18.5% (Kenya National Bureau of Statistics and ICF Macro, 2010)
q=1-p

d= the level of accuracy of the statistic being measured

n=1.96^2 \times 0.185 \times 0.815 / 0.05^2

Sample Size (n) selected was 232

However a sample of 247 was used in the study with an addition of (6\%) 15 to take care of non-respondents.

3.7 Data Collection Instruments

Semi-structured questionnaires were administered to all adolescent mothers. Focus group discussion guides were used to get information from adolescent mothers attending ANC services and notes were taken by researcher. The questionnaires were administered by the researcher assisted by research assistants who were trained by the researcher beforehand.

3.8 Study pretesting

Pretesting involves testing the research instruments in conditions as similar as possible to the research, but not in order to report results but rather to check for problems in wording or content of questions or lack of clarity of instructions. In this study, pretesting of the instruments was done in Korogocho slums, Nairobi County. Korogocho slum was chosen by the researcher because it reflects the same characteristics as those of Mathare Valley informal settlements.

3.9 Validity of the Instruments

Validity refers to the extent to which a test measures what the researcher actually wishes to measure (Mugenda & Mugenda, 2003). To ensure that the instruments are valid, that is, whether they measure what they ought to measure. The research used criterion related
evidence to determine the degree of relationship between the values obtained. Predictive validity was used. Predictive validity is where a time-interval elapses between the administrations of the instrument and obtaining criterion scores. The researcher also used peer review to enhance face and content validity.

3.10 Reliability of the Instruments

Reliability refers to the consistency of the scores obtained, how consistent they are for each individual from one administration to another and from one set of item to another (Mugenda & Mugenda, 2003). A research instrument is reliable when it provides consistent results, (Kothari, 2004). In order to determine reliability, instrument triangulation was used. Further, the questionnaires and interview schedules were subjected to a test-retest method to estimate if similar results could be obtained on administration for accuracy of the same concept after a period of over 2 weeks.

3.11 Ethical Considerations

Approval to conduct the study was sought from Graduate school and clearance was sought from Kenyatta University Ethics and Review Committee. Permit was obtained from National Council for Science and Technology (NACOSTI).

All community entry protocols were observed to respondents at household level. The respondents were explained the purpose of the study, the benefits and risks for informed consent. Confidentiality was ensured by avoiding writing named on study tools, instead they were coded. Informed consent was sought verbally and by signing the consent form. For respondents aged below 18 years, written consent was sought from the parent or guardian.
Confidentiality and anonymity was ensured by not using any form of identification of the study participants. No names were used or indicated on the questionnaires; instead, coding was used then data obtained was analysed in groups.

### 3.12 Data Analysis

After all data was collected, it was cleaned and coded for analysis. Data cleaning involved identification of incomplete or inaccurate responses then cross checking against original documents and corrected. After data cleaning, the data was coded and entered in the computer for analysis using the Statistical Package for Social Sciences (SPSS) 20.0. This study yielded both qualitative and quantitative data.

The chi-square \( (\chi^2) \) test was used to assess differentials existing between various characteristics of adolescent women on utilization of antenatal care services. Cross tabulation was used to display the nature of association between the study variables. P-Value of less than 0.05 was considered statistically significant. The results of data analysis were then presented using frequency distribution tables and bar graphs. The information was presented using proportions and percentages in tables, figures.
CHAPTER FOUR: RESULTS

4.1 Demographic characteristics of the respondents

A total of 247 adolescent mothers between the age of 10 and 19 years and were residents of Mathare Valley informal settlements were interviewed for the study, with a response rate of 100%. Socio-demographic information sought from them included age, marital status, level of education, main source of income, person living with them, religion, reason(s) for leaving school, employment status, access to TV and ownership or access to mobile phone. The results were as follows.

One hundred and sixty nine (68%) of the respondents were in the age group of 17-19 with the mean age of 17.23±0.17 years. The study indicated that slightly fewer adolescents of 14 years (1.6%), 15 years (12.1%) and 16 years (17.8%) had become mothers in relation to the older adolescents of 17 years (23.1%), 18 years (22.3%) and 19 years (23.1%). One hundred and forty six (59.1%) of the study participants had primary level of education, 34% had secondary level, and those with post-secondary level were 6 (2.4%) while those who never went to school were 4.5% (Table 4.1).

Pregnancy was the major reason accounting for (46.2%) of the respondents for leaving school. This was followed by lack of school fees (36.0%), started working/Earning money (5.3%), unsatisfactory academic progress (5.7%), while 6.9% gave other reasons. From the study most adolescents in Mathare valley informal settlement became mothers before getting married. Out of the 247 respondents, almost half (47%) were not married, 31.2% were married, (10.1%) were cohabiting, (9.3%) were separated, and 2.4% were
divorced (Table 4.1). The results showed that, majority of respondents (37.7%) lived with their parents, 36.8% lived with their spouses, (14.6%) lived with friends and (10.9%) lived with relatives. Majority (83.4%) of the study respondents were Christians, 15.8% were Muslim, while 0.8% indicated other religions (Table 4.1).

Sixty seven point six percent of the adolescent mothers were not employed. Those who were employed were asked to indicate the type of employment to which they responded as follows; (17.4%) indicated casual labour, (10.9%) indicated self (selling groceries, kiosk, and second hand clothes) and 4% had salaried employment. The respondent’s main source of income was mainly from parents (38.5%), followed by spouse (34%), self (24.7%) and 2.8% from other sources. Finally the study found that most respondents (65%) owned a TV while those who owned a cell phone were 63.2%. Table 4.1 below summarizes the social demographic characteristics of the respondents.
Table 4.1: Socio-demographic Characteristics of the respondents

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;14 years</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>14 years</td>
<td>4</td>
<td>1.6</td>
</tr>
<tr>
<td>15 years</td>
<td>30</td>
<td>12.1</td>
</tr>
<tr>
<td>16 years</td>
<td>44</td>
<td>17.8</td>
</tr>
<tr>
<td>17 years</td>
<td>57</td>
<td>23.1</td>
</tr>
<tr>
<td>18 years</td>
<td>55</td>
<td>22.3</td>
</tr>
<tr>
<td>19 years</td>
<td>57</td>
<td>23.1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>247</strong></td>
<td><strong>100</strong></td>
</tr>
<tr>
<td>Mean age</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Level of Education</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>College/university</td>
<td>6</td>
<td>2.4</td>
</tr>
<tr>
<td>Secondary</td>
<td>84</td>
<td>34.0</td>
</tr>
<tr>
<td>Primary level</td>
<td>146</td>
<td>59.1</td>
</tr>
<tr>
<td>None</td>
<td>11</td>
<td>4.5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>247</strong></td>
<td><strong>100</strong></td>
</tr>
<tr>
<td><strong>Marital Status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single (Never Married)</td>
<td>116</td>
<td>47.0</td>
</tr>
<tr>
<td>Married</td>
<td>77</td>
<td>31.2</td>
</tr>
<tr>
<td>Separated</td>
<td>23</td>
<td>9.3</td>
</tr>
<tr>
<td>Divorced</td>
<td>6</td>
<td>2.4</td>
</tr>
<tr>
<td>Cohabiting</td>
<td>25</td>
<td>10.1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>247</strong></td>
<td><strong>100</strong></td>
</tr>
<tr>
<td><strong>Persons Living With</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spouse</td>
<td>91</td>
<td>36.8</td>
</tr>
<tr>
<td>Parents</td>
<td>93</td>
<td>37.7</td>
</tr>
<tr>
<td>Friends</td>
<td>36</td>
<td>14.6</td>
</tr>
<tr>
<td>Relatives</td>
<td>27</td>
<td>10.9</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>247</strong></td>
<td><strong>100</strong></td>
</tr>
<tr>
<td><strong>Religion</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Christianity</td>
<td>206</td>
<td>83.4</td>
</tr>
<tr>
<td>Muslim</td>
<td>41</td>
<td>16.6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>247</strong></td>
<td><strong>100</strong></td>
</tr>
<tr>
<td><strong>Source of income</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self</td>
<td>61</td>
<td>24.7</td>
</tr>
<tr>
<td>Spouse</td>
<td>84</td>
<td>34.0</td>
</tr>
<tr>
<td>Parents</td>
<td>95</td>
<td>38.5</td>
</tr>
<tr>
<td>Other</td>
<td>7</td>
<td>2.8</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>247</strong></td>
<td><strong>100</strong></td>
</tr>
<tr>
<td><strong>Employment</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employed</td>
<td>80</td>
<td>32.4</td>
</tr>
<tr>
<td>Not Employed</td>
<td>167</td>
<td>67.6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>247</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>
4.2 Utilization of ANC services among adolescent mothers

4.2.1 Number of times adolescent mothers had visited an ANC clinic

The study established that nearly a third (78) of the adolescent mothers (31.6%) had attended four or more antenatal visits during their current pregnancy. Nearly half of the respondents 47.4% managed less than four visits while 21.1% had not made any visit to Antenatal care services. (Figure 4.1)

Figure 4.1: Number of times adolescent mothers visited ANC Clinics for check-ups.
4.3 Factors that influence utilization of antenatal care services among adolescent mothers

4.3.1 Socio-Demographic factors

The study showed significant relationship between persons living with adolescent mothers and utilization of ANC services ($\chi^2=11.332$; df=2; p=0.023). The source of income for the adolescent mothers was also significantly associated with utilization of ANC services among adolescent mothers ($\chi^2=17.700$; df=4; p<0.001). There were no statistical differences in the utilization of ANC and the following demographic characteristic; marital status, level of education, religion and employment status.

Table 4.2: Association between demographic factors and utilization of ANC services among adolescent mothers in Mathare Valley informal settlements

<table>
<thead>
<tr>
<th>Socio/Demographic Variables</th>
<th>ANC services utilization</th>
<th>Significance (p-Value)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0 visits (Never utilized)</td>
<td>&lt;4 visits (Inadequate)</td>
</tr>
<tr>
<td></td>
<td>n (%)</td>
<td>n (%)</td>
</tr>
<tr>
<td>Marital status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>17 (32.7%)</td>
<td>47 (40.2%)</td>
</tr>
<tr>
<td>Single</td>
<td>35 (67.3%)</td>
<td>70 (59.8%)</td>
</tr>
<tr>
<td>Employment status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employed</td>
<td>12 (23.1%)</td>
<td>16 (13.7%)</td>
</tr>
<tr>
<td>Not employed</td>
<td>40 (76.9%)</td>
<td>101 (86.3%)</td>
</tr>
<tr>
<td>Persons living with adolescent mothers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spouse</td>
<td>14 (26.9%)</td>
<td>38 (32.5%)</td>
</tr>
<tr>
<td>Parents</td>
<td>19 (36.5%)</td>
<td>48 (41.0%)</td>
</tr>
<tr>
<td>Friends and relatives</td>
<td>19 (36.5%)</td>
<td>31 (26.5%)</td>
</tr>
<tr>
<td>Religion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Christianity</td>
<td>43 (82.7%)</td>
<td>102 (87.2%)</td>
</tr>
<tr>
<td>Muslim</td>
<td>9 (17.3%)</td>
<td>15 (12.8%)</td>
</tr>
<tr>
<td>Source of income</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self</td>
<td>22 (43.1%)</td>
<td>26 (22.4%)</td>
</tr>
<tr>
<td>Spouse</td>
<td>11 (21.6%)</td>
<td>36 (31.0%)</td>
</tr>
<tr>
<td>Parents</td>
<td>18 (35.3%)</td>
<td>54 (46.6%)</td>
</tr>
<tr>
<td>Education Level</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Secondary level and above</td>
<td>20 (38.5%)</td>
<td>38 (32.5%)</td>
</tr>
<tr>
<td>Primary level and below</td>
<td>32 (61.5%)</td>
<td>79 (67.5%)</td>
</tr>
</tbody>
</table>
4.3.2 Obstetric factors

The study did not find any significant relationship between number of pregnancies (Gravida) ($\chi^2=3.415; \text{df}=2; p=0.181$) and utilization of ANC services by adolescent mothers. However, there was significant relationship between number of children adolescent mothers have given birth to (Parity) and number of times adolescent mothers utilized ANC services; ($\chi^2=46.998; \text{df}=2; p<0.0001$). There was also significant relationship between whether the adolescent mother had complications during pregnancy and the number of times adolescent mothers utilized ANC services ($\chi^2=17.799; \text{df}=2; p<0.003$). (Table 4.3)

<table>
<thead>
<tr>
<th>Obstetric Variables</th>
<th>ANC services utilization</th>
<th>Significance (p-Value)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0 visits (Never utilized)</td>
<td>&lt;4 visits (Inadequate)</td>
</tr>
<tr>
<td>Number of Pregnancies (Gravida)</td>
<td>Primigravid</td>
<td>47 (90.4%)</td>
</tr>
<tr>
<td></td>
<td>Multigravid</td>
<td>5 (9.6%)</td>
</tr>
<tr>
<td>Number of children mothers have given birth (Parity)</td>
<td>Nulliparous</td>
<td>29 (55.8%)</td>
</tr>
<tr>
<td></td>
<td>Para 1 and more</td>
<td>23 (44.2%)</td>
</tr>
<tr>
<td>Complications during pregnancy</td>
<td>Yes</td>
<td>6 (12.5%)</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>46 (23.1%)</td>
</tr>
</tbody>
</table>
### 4.3.3. Social cultural factors

Adolescent mothers in Mathare Valley informal settlements identified fear of disclosing pregnancy (51.4%) as a major social factor influencing utilization of ANC services. Other socio-cultural factors mentioned by adolescent mothers included unplanned Pregnancy (49.8%), fear of testing for HIV status (49.4%), limited Knowledge about ANC (40.9%), unfriendly attitudes of older mothers (30.8%), poor family and social support (27.1%), peer Influence (23.5%), low decision making authority (18.6%), and TBA Influence (15.4%). Socio-cultural factors which were significantly related with adolescent mothers ANC utilization were fear of disclosing pregnancy \( \chi^2=8.150; \text{df}=2; \ p=0.017 \) and peer influence \( \chi^2=10.014; \text{df}=2; \ p=0.007 \). All others were not significantly related.

<table>
<thead>
<tr>
<th>Variables</th>
<th>ANC services utilization</th>
<th>Significance (p-Value)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0 visits (Never utilized)</td>
<td>&lt;4 visits (In adequate)</td>
</tr>
<tr>
<td>Fear of disclosing Pregnancy</td>
<td>n (%)</td>
<td>n (%)</td>
</tr>
<tr>
<td>No</td>
<td>31 (25.8%)</td>
<td>61 (50.8%)</td>
</tr>
<tr>
<td>Yes</td>
<td>21 (16.5%)</td>
<td>56 (44.1%)</td>
</tr>
<tr>
<td>Peer Influence</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>44 (23.3%)</td>
<td>95 (50.3%)</td>
</tr>
<tr>
<td>Yes</td>
<td>8 (13.8%)</td>
<td>22 (37.9%)</td>
</tr>
<tr>
<td>TBA Influence</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>44 (21.7%)</td>
<td>99 (48.8%)</td>
</tr>
<tr>
<td>Yes</td>
<td>8 (18.2%)</td>
<td>18 (40.9%)</td>
</tr>
<tr>
<td>Unplanned Pregnancy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>25 (20.2%)</td>
<td>66 (53.2%)</td>
</tr>
<tr>
<td>Yes</td>
<td>27 (22.0%)</td>
<td>51 (41.5%)</td>
</tr>
<tr>
<td>Fear of testing for HIV status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>29 (23.2%)</td>
<td>59 (47.2%)</td>
</tr>
<tr>
<td>Yes</td>
<td>23 (18.9%)</td>
<td>58 (47.5%)</td>
</tr>
<tr>
<td>Poor family support and social support</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>42 (23.3%)</td>
<td>85 (47.2%)</td>
</tr>
<tr>
<td>Yes</td>
<td>10 (14.9%)</td>
<td>32 (47.8%)</td>
</tr>
<tr>
<td>Low decision making authority</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>44 (21.9%)</td>
<td>92 (45.8%)</td>
</tr>
<tr>
<td>Yes</td>
<td>8 (17.4%)</td>
<td>25 (54.3%)</td>
</tr>
<tr>
<td>Culture/Religion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>45 (21.1%)</td>
<td>102 (47.9%)</td>
</tr>
<tr>
<td>Yes</td>
<td>7 (20.6%)</td>
<td>15 (44.1%)</td>
</tr>
</tbody>
</table>

Table 4.4: Socio-cultural factors influencing utilization of ANC services among adolescent mothers in Mathare Valley Informal settlements.
4.3.4 Economic factors

Various economic factors were determined as influencing utilization of ANC services among adolescent mothers in Mathare Valley informal settlements. Economic factors indicated by adolescent mothers included home based high ANC fees (21.0%), and distance to nearest ANC facility (12.6%). The study found out that there was no significant relationship between utilization of ANC service and high ANC fee \( \chi^2 = 3.441; \text{df} = 2; p = 0.179 \); and distance to the nearest ANC facility \( \chi^2 = 1.590; \text{df} = 2; p = 0.452 \). (Table 4.5)

Table 4.5: Association between Economic factors and utilization of ANC services among adolescent mothers in Mathare Valley informal settlements

<table>
<thead>
<tr>
<th>Variables (Economic factors)</th>
<th>ANC services utilization</th>
<th>Significance (p-Value)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0 visits (Never utilized)</td>
<td>&lt;4 visits (In adequate)</td>
</tr>
<tr>
<td>Health facility based (High ANC fees)</td>
<td>n (%)</td>
<td>n (%)</td>
</tr>
<tr>
<td>No</td>
<td>45 (23.1%)</td>
<td>93 (47.7%)</td>
</tr>
<tr>
<td>Yes</td>
<td>7 (13.5%)</td>
<td>24 (46.2%)</td>
</tr>
<tr>
<td>Distance to ANC facility</td>
<td>n (%)</td>
<td>n (%)</td>
</tr>
<tr>
<td>No</td>
<td>40 (23.0%)</td>
<td>82 (47.1%)</td>
</tr>
<tr>
<td>Yes</td>
<td>12 (16.4%)</td>
<td>35 (47.9%)</td>
</tr>
</tbody>
</table>
4.3.5 Health facility factors

Fifty six point seven percent of the adolescent mothers reported that there were delays in attending ANC clients in all ANC offering facilities. Thirty two percent experienced unfriendliness of ANC care givers and unfriendly attitudes of other mothers accounted for 30.8%. (Figure 4.2)

![Bar chart showing health facility factors affecting adolescent mother's utilization of ANC services](chart)

**Figure 4.2: Health facility factors that affected adolescent mother’s in Mathare Valley informal settlements utilization of ANC services**

The study did not find any significant relationship between utilization of ANC service and unfriendly health workers attitudes ($\chi^2=0.874; \text{df}=2; \text{p}=0.646$), delays in attending ANC clients ($\chi^2=2.203; \text{df}=2; \text{p}=0.332$) and unfriendly attitudes of other mothers ($\chi^2=1.605; \text{df}=2; \text{p}=0.448$).
4.3.6 Respondents’ opinion on the quality of ANC services

Eighty nine point seven percent of the adolescent mothers who had utilized ANC services termed the quality of the services as either very good (29.6%), good (40.5%) or satisfactory (19.5%) while the remaining 10.3% of the adolescent mothers rated the ANC services as poor. Quality of ANC service was significantly associated with utilization of ANC services ($\chi^2=12.950; \text{df}=6; p=0.044$). (Table 4.6).

Table 4.6: Association between Quality of ANC services and utilization of ANC services.

<table>
<thead>
<tr>
<th>Variable</th>
<th>ANC services utilization</th>
<th>Significance (p-Value)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0 visits (Never utilized)</td>
<td>&lt;4 visits (In adequate)</td>
</tr>
<tr>
<td>Quality of ANC service</td>
<td>n (%)</td>
<td>n (%)</td>
</tr>
<tr>
<td>Very Good</td>
<td>22 (30.1%)</td>
<td>27 (37.0%)</td>
</tr>
<tr>
<td>Good</td>
<td>17 (17.0%)</td>
<td>57 (57.0%)</td>
</tr>
<tr>
<td>Satisfactory</td>
<td>6 (12.5%)</td>
<td>21 (43.8%)</td>
</tr>
<tr>
<td>Poor</td>
<td>7 (26.9%)</td>
<td>12 (46.2%)</td>
</tr>
</tbody>
</table>
CHAPTER FIVE: DISCUSSION, CONCLUSION AND RECOMMENDATIONS

5.1 Discussion

World Health Organization recommends a minimum of four ANC visits (P. K. Singh, Rai, Alagarajan, & Singh, 2012) initiated during the first trimester of pregnancy. In this study, the overall ANC attendance was found to be high (31.6%).

5.1.1. Socio-demographic Characteristic of the respondents

The study showed that the proportion of the adolescent mothers increased with age. Majority of the adolescent mothers’ highest level of education was primary. This indicated that most adolescents became mothers while at their basic level of education. This could be as a result of the younger generation engaging in sexual activity at a very tender age, without understanding the consequences and without use of any contraceptive. It could also be attributed to older men taking advantage of young naive girls and engaging them in sexual activity.

The study however showed, there was no significant relationship between level of education and utilization of ANC services. This finding were contrary with other studies such as an Ethiopian study which indicated that education is likely to enhance female autonomy so that women develop greater confidence and capability to make decisions for their own health. It is also likely that educated women seek higher quality services and have greater ability to use health care inputs that offer better care (Regassa, 2011). As shown by (Emelumadu et al., 2014) higher level of education has been shown to improve utilization of ANC services for women of reproductive age (15-49 years). However, since adolescent girls are not in a position to make autonomous decision and have not
developed greater confidence and capability to make decisions about their own health. There was no relationship between level of utilization of ANC services and their educational status.

The study established that most of the adolescent mothers in Mathare were not married. This was an indication of unplanned pregnancies among the adolescents in the area. There was no relationship between marital status and utilization of ANC services. The finding were contrary with other studies such as that done by Matua, as cited by (Chaibva, 2009) which indicated that pregnant single adolescents might shun ANC services for fear of being labelled “promiscuous”. On the other hand, older adolescents who have had uneventful pregnancies and deliveries with previous pregnancies might see no reason to attend ANC.

From the findings, majority of respondents lived with their parents, spouses, friends and relatives in that order and the person with whom, they lived with influenced their utilization of ANC services. This concurred with Upadhyay and others (Upadhyay, Liabsuetrakul, Shrestha, & Pradhan, 2014) who established that people who lived with the adolescents mothers influenced their decisions on the utilization of antenatal care services. It also concurred with a study by Dallas (Dallas, 2013) who observed that the unemployed, single and economically dependent adolescent mothers were not likely to utilize ANC services.

This study revealed that majority of respondent were not employed and there was no statistical significance between employment status and utilization of ANC services by the adolescent mothers.
5.2.2. Extent of utilization of ANC services

The study established that only 31.6% of the adolescent mothers managed to make four and above recommended ANC visits. This was much low below the national percentage in Kenya as shown by a study conducted by Kenya National Bureau of Statistics, which showed that less than half (47 percent) of pregnant women including adolescents make four or more antenatal visits. Sixty percent of urban women make four or more antenatal care visits, compared with less than half of rural women (44 percent) (Kenya National Bureau of Statistics and ICF Macro, 2010). Forty seven point four percent did not attend the four recommended visits (Mrisho et al., 2009) although they attended at least once. This could be attributed to inadequate information about the existence and importance of ANC services, ignorance, fear, and shyness, culture, economic reasons and un-friendly approach of health workers (Bearinger, Sieving, Fergusion, & Sharma, 2007). This finding is consistent with the result of the studies in rural Guatemala which showed 90% ANC attendance (Glei, Goldman, & Rodríguez, 2003b).

Fifty six point seven percent (56.7%) of the adolescent mothers reported delays in attending ANC clients.

The study found out that about 21.1% of the adolescent mothers never visited ANC clinic for any service at all. Banda, commented that regular antenatal care is necessary to establish confidence between the woman and her health care provider, to individualize health promotion messages, and to identify and manage any maternal complications or risk factors (Banda, 2013).
5.2.3. Factors that influence utilization of ANC services by adolescent mothers

5.2.3.1. Social-cultural factors

Adolescent mothers in Mathare slums identified fear of disclosing pregnancy and peer influence as major socio-cultural factors influencing utilization of ANC services. This meant that adolescent girls did not go or went to ANC clinic late. Study done by Edward (Edward, 2011) in Uganda related with findings of this study as per pressure was a factor that influenced utilization of ANC services by adolescent mothers. Fear of disclosing pregnancy concurs with a cross sectional study done in Uganda by (Kawunjezi et al., 2015).

Other socio-cultural mention by adolescent mothers but were not significantly related to ANC utilization included unplanned Pregnancy, unfriendly attitudes of older mothers, poor family support and social support, TBA influence, and low decision making authority.

5.2.3.2. Obstetric factors

This study revealed that parity influenced four ANC visits. As the number of children a woman have increases, utilization of ANC becomes less likely. Interestingly, association between maternal age, maternal education, and maternal occupation with ANC service utilization was not statistically significant. This finding is contrary to the findings of previous study conducted in Italy (Chiavarini, Lanari, Minelli, & Salmasi, 2014) which showed that maternal education, maternal age and maternal occupation were strong determinants of ANC service utilization.
5.2.3.3. Economic factors

From the study, various economic factors were mentioned by adolescent mothers but were not significantly influencing utilization of ANC services in Mathare Valley informal settlements. Economic factors reported by adolescent mothers and were not associated with ANC utilization included financial constraints, High ANC fees and distance to health facility. This study was contrary with a study by (Mngadi, Zwane, Ransjö-Arvidson, Ahlberg, & Thembi, 2002), which identified that long distance to the antenatal care facility is an obstacle to the antenatal care.

The study further disagreed with studies by Mlilo-Chaibva, (Chaibva, 2009) who showed that poverty as one of the social factors responsible for the non-utilization of health services, including ANC.

5.2.3.4 Health facility factors

The study determined that the following facility related factors mentioned by adolescent mothers did not influence utilization of ANC services, quality of ANC care offered at the health facility and distance to health facility. Findings of this concur with those of (Ministry of Health-Kenya, 2010), quality of care can be measured from the perspectives of clients or providers (perceived quality) or by measuring adherence levels to the set standards and guidelines. The distance to health facility corresponded with study carried out in Siaya county by (Asweto, Aluoch, Obonyo, & Ouma, 2014) which revealed mothers who travel less than one hour had seven times more likely to have early ANC initiation and five times more likely to have at least 4 ANC visits than mothers who travel more than one hour. In Mathare valley informal settlements nearly all mothers had to travel less than 30 minutes to access ANC services. Women perception on quality of care was found
to have no significant relationship with ANC use and having at least four ANC visits. Perceived quality of care had no influence on antenatal care services (Asweto et al., 2014).

5.3 Conclusion

There is high percentage of adolescent mothers having at least one ANC visit (70.0%), however 31.6% of them had at least four ANC visits as recommended by WHO. This indicates low utilization of antenatal care services. Persons living with adolescent mothers, sources of income, parity, fear of disclosing pregnancy, per influence and quality of antenatal care were predicting the pattern of antenatal care utilization.
5.4 Recommendations

5.4.1 Recommendation from the study

- Although 75% of Adolescent mothers were aware of the existence of ANC services within Mathare Valley informal settlements, utilization was low (31.6%). Ministry of Health (MOH) and other stakeholders should come up with specific efforts targeting Adolescent mothers to increase their utilization.

- Anyone living with Adolescent mothers should encourage them to seek ANC services. There is need for MOH to educate Mathare residents on importance of ANC services.

- There is need to design intervention targeting adolescent mothers of higher parity in order to improve on number of ANC visits as recommended by WHO.

- Customized ANC services targeting adolescent mothers should be established to increase uptake. This will address issues related to peer influence and fear of disclosing pregnancy.

5.4.2 Recommendations for Further Research

i) Utilization and uptake of postnatal care among adolescent mothers in informal settlements in Kenya

ii) Determinants of Safe motherhood among women in informal settlements in Kenya

iii) Barriers to utilization of antenatal care services
REFERENCES


5.5 Appendices

Appendix 1: Consent form

My name is Joel Makii Munywoki, Masters Student from Kenyatta University. I am conducting a study on “Utilization of antenatal care services among adolescent mothers in Mathare Valley informal settlements, Nairobi County, Kenya”. The information will be used by the Ministry of Health Services to improve access and quality of Maternal Health.

Procedures to be followed

Participation in this study will require that I ask you some questions in order to establish ANC services utilization. I will record the information from you in a questionare. You have the right to refuse participation in this study. You will get the same ANC care and medical treatment whether you agree to join the study or not and your decision will not change the care you will receive from the health clinics today or that you will get from any other clinic at any other time.

Please remember that participation in the study is voluntary. You may ask questions related to the study at any time.

You may refuse to respond to any questions and you may stop an interview at any time. You may also stop being in the study at any time without any consequences to the services you receive from this clinic or any other organization now or in the future.

Discomforts and risks

Some of the questions you will be asked are on intimate subject and may be embarrassing or make you uncomfortable. If this happens, you may refuse to answer these questions if you so choose. You may also stop the interview at any time. The interview will take approximately ten minutes.

Benefits

If you participate in this study you will help us to learn how to improve utilization of ANC services.
**Reward**

There is no reward which will be given for agree to participate in this study.

**Confidentiality**

The interviews and discussions will be conducted in a private setting within the hospital. Your name will not be recorded on the questionnaire. The questionnaires will be kept in a locked cabinet for safe keeping. Everything will be kept private.

**Contact information**

If you have any questions you may contact Dr. Justus Osero on 0724 869 330 or Dr Peterson Warutere on 0721993833 or the Kenyatta University Ethical Review Committee Secretariat on kuerc@ku.ac.ke.

**Participant’s Statement**

The above information regarding my participation in the study is clear to me. I have been given a chance to ask questions and my questions have been answered to my satisfaction. My participation in this study is entirely voluntary. I understand that my records will be kept private and that I can leave the study at any time.

Name of Participant……………………………………………….

___________________________ ________________

Signature or Thumbprint Date

**Investigator’s statement**

I, the undersigned, have explained to the volunteer in a language s/he understands the procedures to be followed in the study and the risks and benefits involved.

Name of Interviewer…………………………

________________________

Interviewer signature Date________________________
### Appendix 2: Semi Structured Questionnaire

<table>
<thead>
<tr>
<th>Section</th>
<th>Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td>Age in years</td>
</tr>
<tr>
<td>1.2</td>
<td>What is your marital status?</td>
</tr>
<tr>
<td>1.3</td>
<td>Whom do you live with?</td>
</tr>
<tr>
<td>1.4</td>
<td>What is your religion?</td>
</tr>
<tr>
<td>1.5</td>
<td>What is your employment status (self)</td>
</tr>
<tr>
<td>1.6</td>
<td>Type of employment</td>
</tr>
<tr>
<td>1.7</td>
<td>Highest education level attained?</td>
</tr>
<tr>
<td>1.8</td>
<td>Reasons for leaving school</td>
</tr>
<tr>
<td>1.9</td>
<td>What is your source of income</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Subsection</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td></td>
</tr>
<tr>
<td>1.4</td>
<td>1. Christianity 2. Muslim 3. Atheist 4. Other (specify)________________________</td>
</tr>
<tr>
<td>1.5</td>
<td>1. Employed 2. Not employed</td>
</tr>
<tr>
<td>1.6</td>
<td>1. Self (selling groceries, kiosk etc) 2. Casual labor 3. Salaried employment 4. Not applicable</td>
</tr>
<tr>
<td>1.8</td>
<td>1. Started working/ earning money 2. Unsatisfactory academic progress 3. No money to pay school fees 4. Pregnancy 5. Other Specify………………………………</td>
</tr>
<tr>
<td>1.9</td>
<td>1. Self 2. Spouse 3. Parents/guardian 4. Other (specify)…………</td>
</tr>
</tbody>
</table>
1.10 Do you own a mobile phone?
   1. Yes
   2. No

1.11 Do you own or where you live do you have access to TV?
   3. Yes
   4. No

### 2.0 Obstetric information

2.1 How many times have you been pregnant? (Gravida)

2.2 How many children have you given birth (Parity)..how many children do you have

2.3 How old were you when you gave birth to your first child?

2.4 How many months is your pregnancy (if mother pregnant)

2.5 What gestational stage did you first visit the clinic for your first antenatal checkup?

2.6 How many visits have you made for ANC checkups?

2.7 Did you have complications with your previous pregnancy?
   1. Yes
   2. No
   3. Not applicable

2.8 If yes 2.9 above state the problem______________________________________________

### 3. Extent of utilization of ANC services

3.1 How many ANC visits have you made?
   1. None
   2. Less than 4
   3. 4 and above

3.2 At what stage of your pregnancy did you begin ANC visits?
   1. First trimester
   2. Second trimester
   3. Third trimester

3.3 Did your health care provider make you aware of the ANC services offered at the health facility?
   1. Yes
   2. No

3.4 For those who answer yes, please name some of the services (fill appropriately)
1. Weight and height taking,
2. BP checking,
3. Palpation,
4. ANC profile,
5. PMTCT,
6. IPT,
7. Folic acid/folate supplementation,
8. Advice on delivery

3.5 Did you/ have you received individualized care at the health facility?
   1. Yes
   2. No

3.6 If no, why not?
   1. The nurses were busy
   2. I don’t know

3.7 Did you/ have you received individualized health education at the health facility?
   1. Yes
   2. No

3.8 Have you ever had a discussion on health problems during pregnancy with the ANC care giver?
   1. Yes
   2. No

3.9 What is your opinion on the quality of ANC services?
   1. Very good
   2. Good
   3. Satisfactory
   4. Poor

3.10 Did you get clear instructions of what to do if you suspect any health problems during pregnancy?
   1. Yes
   2. No
   3. Not sure

3.11 If you were to seek ANC in your next pregnancy would you go back to same health center?
   1. Yes
   2. No

3.12 Where did you deliver your child/planning to deliver?
   1. Health facility
   2. Home assisted by TBA or relative

4.0 Socio-cultural and economic factors

4.1 Who of the following people motivated you to book for ANC?
   1. Spouse
   2. Parents/guardian
   3. Peers
### 4.2 What are some factors that could prevent you from attending ANC services?

1. Unplanned pregnancy
2. Limited Knowledge about ANC
3. Cultural/religious factors
4. Financial constraints
5. Distance to the health center
6. Fear of disclosing pregnancy
7. High ANC fees
8. Unfriendly health workers attitudes
9. Delays in attending to clients
10. Unfriendly attitudes of older clients (mothers)
11. Poor family support and social support
12. Fear of testing for HIV status
13. Fear of HIV positive results
14. Inadequate knowledge about benefits of ANC
15. Poor economic power (poverty)
16. Low decision making authority
17. Peer influence
18. Parents influence
19. TBA influence
20. Other (specify) …………………………….

### 4.3 Are you aware of antenatal adolescents who are not seeking ANC within Mathare Valley informal settlements services?

1. Yes
2. No

### 4.4 If yes, what reasons do they give for not attending?

1. Restriction by husband
2. It is far
3. Did not see need to attend
4. No reason
5. Others (specify) __________________________________________________________

5.0 What strategies should be put in place to enhance your level of utilization of ANC services in Mathare Valley informal settlements?

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Thanks for taking part in this interview!
Appendix 3: Approval of Research Proposal by Graduate school

KENYATTA UNIVERSITY
GRADUATE SCHOOL

E-mail: dean-graduate@ku.ac.ke
Website: www.ku.ac.ke

FROM: Dean, Graduate School
TO: Munywoki Joel Makii
C/o Community Health Department.

DATE: 19th June 2014
REF: 157/10595/2006

SUBJECT: APPROVAL OF RESEARCH PROPOSAL

This is to inform you that Graduate School Board, at its meeting of 11th June, 2014, approved your Research Proposal for the M.Sc. Degree Entitled, “Utilization of Antenatal Care Services among Adolescent Mothers in Mathare Valley Slums, Nairobi County, Kenya.”

You may now proceed with your data collection, subject to clearance with the Permanent Secretary, Ministry of Higher Education, Science and Technology.

As you embark on your data collection, please note that you will be required to submit to Graduate school completed supervision Tracking Forms per semester. The form has been developed to replace the Progress Report Forms. The supervision Tracking Forms are available at the University's Website under Graduate School webpage downloads.

Thank you,

REUBEN MURIUKI
FOR: DEAN, GRADUATE SCHOOL

cc. Chairman, Department of Community Health

Supervisors:

1. Dr. Justus Osero
   C/o Department of Community Health
   Kenyatta University

2. Dr. Peterson Warutere
   C/o Department of Environmental Health
   Kenyatta University
Appendix 4: Research Authorization letter by Graduate school

KENYATTA UNIVERSITY
GRADUATE SCHOOL

E-mail: dean-graduate@ku.ac.ke
Website: www.ku.ac.ke
P.O. Box 43844, 00100
NAIROBI, KENYA
Tel: 8710991 Ext. 57890

Our Ref: 157/10595/2006
DATE: 19th June 2014

The Permanent Secretary,
Ministry of Higher Education, Science & Technology,
P.O. Box 30040,
NAIROBI

Dear Sir/Madam,


I write to introduce Mr. Munywoki Joel Makii who is a Postgraduate Student of this University. He is registered for M.Sc degree programme in the Department of Community Health.

Mr. Munywoki intends to conduct research for a M.Sc proposal entitled, “Utilization of Antenatal Care Services among Adolescent Mothers in Mathare Valley Slums, Nairobi County, Kenya.”

Any assistance given will be highly appreciated.

Yours faithfully,

MRS. LUCY N. MBAABU
FOR: DEAN, GRADUATE SCHOOL
Appendix 5: Research Permit by Kenyatta University Ethics Review Committee

KENYATTA UNIVERSITY
ETHICS REVIEW COMMITTEE

Email: chairman.kenerc@kun.ac.ke
secretary.kenerc@kun.ac.ke
ckcmkio2008@gmail.com
Website: www.kun.ac.ke

Our Ref: KUE/COMM/51/388

Date: 17th December, 2014

Munywoki Joel Makii
Kenyatta University,
P.O Box 43844, Nairobi

Dear Makii,

APPLICATION NUMBER PKU/267/1243—“UTILIZATION OF ANTENATAL CARE SERVICES AMONG ADOLESCENT MOTHERS IN MATHARE VALLEY SLUMS, NAIROBI COUNTY, KENYA”- VERSION 2.

1. IDENTIFICATION OF PROTOCOL
The application before the committee is with a research topic, “Utilization of antenatal care services among adolescent mothers in Mathare Valley Slums, Nairobi County, Kenya”, version 2 received on 17th December, 2014.

2. APPLICANT
Munywoki Joel Makii

3. SITE
Mathare Valley Slums, Nairobi County, Kenya.

4. DECISION
The committee has considered the research protocol in accordance with the Kenyatta University Research Policy (section 7.2.1.3) and the Kenyatta University Ethics Review Committee Guidelines AND APPROVED that the research may proceed for a period of ONE year from 17th December, 2014.

5. ADVICE/CONDITIONS
i. Progress reports are submitted to the KU-ERC every six months and a full report is submitted at the end of the study.
ii. Serious and unexpected adverse events related to the conduct of the study are reported to this board immediately they occur.
iii. Notify the Kenyatta University Ethics Committee of any amendments to the protocol.
iv. Submit an electronic copy of the protocol to KUERC.

When replying, kindly quote the application number above.
If you accept the decision reached and advice and conditions given please sign in the space provided below and return to KU-ERC a copy of the letter.

PROF. NICHOLAS E. GIKOMO
CHAIRMAN ETHICS REVIEW COMMITTEE

I accept the advice given and will fulfill the conditions therein.

Signature ........................................ Dated this day of .................. 2014.

cc. Vice-Chancellor
Appendix 6: Research Permit by NACOSTI

NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION

NACOSTI/P/15/2149/2881

Joel Makii Munywoki
Kenyatta University
P.O. Box 43844-00100
NAIROBI.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on “Utilization of antenatal care services among adolescent mothers in Mathare Valley Slums, Nairobi County, Kenya” I am pleased to inform you that you have been authorized to undertake research in Nairobi County for a period ending 30th June, 2015.

You are advised to report to the County Commissioner and the County Director of Education, Nairobi County before embarking on the research project.

On completion of the research, you are required to submit two hard copies and one soft copy in pdf of the research report/thesis to our office.

DR. S. K. LANGAT, OGW
FOR: DIRECTOR-GENERAL/CEO

Copy to:

The County Commissioner
Nairobi County.

The County Director of Education
Nairobi County.