DETERMINANTS OF UTILIZATION OF ANTENATAL CARE SERVICES IN KARACHUONYO NORTH SUB-COUNTY, HOMABAY COUNTY, KENYA

BY

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DEDICATION

This work is dedicated to my family for their love, support, sacrifices and encouragement.

ABSTRACT

Evidence has shown that Mothers who use ANC services, especially those who complete the WHO recommended four antenatal visits have higher likelihood of having childbirth in health facility and hence reducing incidences of pregnancy related deaths. On the other hand, Mothers who do not attend ANC or do not complete the visits are likely to experience maternal deaths related to pregnancy. Despite Kenya government policy of offering free maternity services including free antenatal care services, pregnant mothers are still not maximizing the uptake of ANC and especially completing the recommended minimum four visits. Homa Bay is one of the counties contributing to high maternal mortality in Kenya. Most maternal deaths occur due to inadequate utilization of antenatal and post-natal services. Challenges to maternal health in the county arise from an interplay of social, cultural, economic, and logistical barriers. Rachuonyo North sub county, located in Homa Bay county shares the same health challenges as Homa Bay county. This study sought to investigate the determinants of utilization of antenatal care services by mothers in Rachuonyo North Sub-County, Homa Bay County, Kenya with the objective of assessing the factors affecting utilization of ANC services. Specific objectives were to: a) Determine the proportion of mothers of reproductive age utilizing ANC services; b) Identify socio-cultural factors influencing utilization of ANC services by mothers of reproductive age; c) Determine the economic factors influencing access to ANC services by mothers of reproductive age and; d) Determine the influence of the perceptions of the mothers of reproductive age on utilization of ANC services. The study used descriptive cross-sectional study design. Women who had at least one pregnancy three years prior to the study were eligible for selection in the study. Multistage sampling was used to reach the study participants. Rachuonyo North Sub-County was purposively selected for the study. Simple random sampling was used to select 5 locations from East Rachuonyo division and six locations from West Rachuonyo division in Rachuonyo North Sub-County. Nine sub locations and eight sub locations were also randomly selected from West and East Rachuonyo divisions respectively. The target population involved 5000 mothers who had given birth at least once in the last 3 years preceding the study from which a sample size of 329 mothers of reproductive 15-49 years' age group were selected by multistage sampling procedure with participants subsequently selected through systematic random sampling technique. The data was collected and analysed using SPSS descriptive statistics to generate frequency tables, figures and Pearson chi-square tests to determine the relationship between independent and dependent variables. The results reveal that most (86.5%) of the mothers had utilized ANC services in their previous pregnancies citing awareness on the services provided at clinics as the reason for attendance. There was statistically significant relationship between the reasons of ANC clinic visits, religious affiliation, level of education of the mothers, decision making by husbands and ANC uptake (p-value of 0.000), number of deliveries and ANC uptake with p-values 0.003, 0.002 which are less than 0.05 significance level. In addition, there was no statistically significant relationship between marital staus, type of house and ANC uptake signified by p-values of 0.123, 0.414 which are greater than 0.05 significance level. With regard to economic factors; whereas there was statistically significant relationship between income, cost incurred during clinic attendance and the utilization of ANC services by the mothers as evidence by p-values of 0.010 and 0.001, there was no statistically significant relationship between either the mothers or their husbands' occupation on ANC utilization as depicted by p-values of 0.989 and 0.947 respectively. Mothers perceptions relating to poor services at the clinics, availability of alternative assistance (TBA and relatives), complications, feeling of shame do influence ANC uptake although taboos prohibiting discussing pregnancy did not influence ANC uptake.

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CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Antenatal care (ANC) is the care given by skilled healthcare professionals to pregnant Mothers to ensure best health conditions for both the mother and baby during gestation (WHO 2016). The components of ANC include; risk identification, prevention and management of pregnancy related or concurrent diseases, health education and health promotion. In addition to vaccination of pregnant Mothers to protect them and their unborn babies against vaccine preventable diseases, during antenatal care Mothers are given advice regarding the changes that they will go through and how their lifestyles may affect the health of the developing fetus. Antenatal care also provides encouragement and support for Mothers, and as well, screening programs that are incorporated into such care may lead to detection of problems that may arise during the pregnancy, thereby reducing complications or preparing for them in high risk groups (WHO 2016).

To achieve the full life-saving potential that ANC promises for Mothers and babies, WHO 2016 report recommends a minimum of four ANC visits providing essential evidence-based interventions. This package is called focused antenatal care. Essential interventions in ANC include identification and management of obstetric complications such as pre-eclampsia, tetanus toxoid immunization, intermittent preventive treatment for malaria during pregnancy (IPTs), and identification and management of infections including HIV, syphilis and other sexually transmitted infections. ANC is also an opportunity to promote the use of skilled attendance at birth and health behaviors such as breastfeeding, early postnatal care, and planning for optimal pregnancy spacing. The first visit which is expected to screen and treat anemia, syphilis, screen for risk factors and medical conditions that can be best dealt with in early pregnancy and initiate

prophylaxis if required is recommended to be held by the end of fourth month. The second, third and fourth visits are scheduled at 24-28, 32 and 36 weeks, respectively ("State of World Population 2004"). Minimum standards for adequate use of ANC services are met when pregnant Mothers attend at least four ANC visits during the course of pregnancy, with the first visit within the first trimester. Despite high uptake of ANC services in developing countries, few start in the first trimester and make the four minimum recommended visits (Muchie 2017).

Maternal mortality is unacceptably high. About 295 000 women died during and following pregnancy and childbirth in 2017. The vast majority of these deaths (94%) occurred in low-resource settings, and most could have been prevented. (WHO, 2019)

Sub-Saharan Africa and Southern Asia accounted for approximately 86% (254 000) of the estimated global maternal deaths in 2017. Sub-Saharan Africa alone accounted for roughly two-thirds (196 000) of maternal deaths. (ibid).

The 2014 KDHS reports that the maternal mortality for the seven-year period before the survey is 362 deaths per 100,000 live births ((KDHS, 2014)). In spite of the maternal mortality slightly reducing as compared to KDHS 2008, there is no evidence that the maternal mortality ratio has declined in recent years in Kenya.

Proper utilization of ANC services can immensely contribute to significant reduction of maternal mortality. The Government of Kenya abolished user fee for maternity care under the Free Maternity Service policy, in June of 2013 in all public health facilities (Langat, 2019). Despite the Kenya government policy of free maternal care in public health facilities, the utilization of these services is still very low. If not addressed, the country will not attain the targeted sustainable development goal of less than less than 70 deaths per 100,000 by 2030 ((UNICEF,

2019)). To attain this target, it is important to address the factors that affect the utilization of ANC services.

Quality appropriate ANC services reduce maternal and perinatal morbidity and mortality through early detection and treatment of pregnancy-related complications (Muchie 2017); besides, these services help in identification of Mothers at a high risk of developing complications during labour and delivery and hence, ensuring prompt referral to appropriate level of care (Okedo-Alex et al. 2019a). Previous findings demonstrate that antenatal care (ANC) is beneficial to Mothers (Darmstadt et al. 2005; Mrisho et al. 2009). Further, Mothers who use ANC services have higher likelihood of having childbirth in health facility or giving birth in the presence of trained birth attendants compared to those who do not use ANC services (Bloom et al, 1999).

Uptake of ANC services is attributable to sociocultural, socio economic factors in a population (Berri et al. 2020; Mgata and Maluka 2019; Nigatu and Gelaye 2019; Emiru, Alene, and Debelew 2020). As such, studies done previously have identified factors which are associated with utilization of ANC services to include age, level of education, income, Mothers's perception of the care offered at the antenatal care facilities and cultural practices within given communities (Berri et al. 2020; Mgata and Maluka 2019; Nigatu and Gelaye 2019; Emiru, Alene, and Debelew 2020). Factors which are associated with high utilization of antenatal care services include higher education background, high income and positive perception of quality of ANC services by pregnant Mothers. Inversely, factors which are associated with low utilization of ANC services include little or no education, poor income and poor perception of ANC services by pregnant Mothers among others (Yoseph et al. 2020; Yaya and Bishwajit 2020). These factors affecting the use of ANC would be worse for Mothers residing in rural areas.

Education level of Mothers as a key determinant of antenatal care attendance may have direct positive or negative effect in the way Mothers use the antenatal services during the period of pregnancy. School dropout among young Mothers in the rural areas is usually very high. This will translate into many Mothers getting into marriage or getting pregnant with very low level of education. The level of education of an individual plays a key role in making decisions. Mothers will only appreciate the values of antenatal care services if they are able to relate the services offered at the antenatal clinics including screening for health problems during pregnancy, physical examination to ascertain a healthy pregnancy, health education during the visits and identification of risk factors during pregnancy to the positive outcome of the pregnancy which is safe delivery of the baby. Studies done previously found direct relationship between the level of formal education and the antenatal clinic attendance (Nachinab et al. 2019) What has not been explored adequately through studies is at what time in her reproductive life she should be made aware of her responsibilities in regards to pregnancy and its association with level of education and antenatal care. In an ideal situation, reproductive health awareness and education should begin at an early reproductive health age in order for the woman to take responsibility of her health later during pregnancy.

Cultural beliefs in communities do have influence on the pregnancy and antenatal clinic attendances. These cultures will determine the health and health care beliefs among residents of a given community. Quite often Mothers have not attended antenatal clinics because of the beliefs in the community. Some cultures in certain communities bind Mothers to particular roles and this definitely can affect their timing of clinic attendance. A study done in South Africa (Worku and Woldesenbet 2016) found that after time has been spent attending to essential tasks that the entire family is dependent upon; rural Mothers don't have disposable time left to visit a health

facility. These cultural beliefs are usually implemented by very influential members of the family and community. Studies done previously have mostly concentrated on the influence of the cultural beliefs on the health among Mothers who need to seek antenatal care services. This study will focus more on understanding to what extent family members influence the decisions of the pregnant Mothers in seeking antenatal care services based on the cultural values in the community.

The income level of the woman, husband, Mother-in-law or other close relatives may have relationship with antenatal care attendance. In the rural communities where poverty is prevalent, the family may not give antenatal care priority if she has to spend money to utilize the services. Some Mothers who did not attend antenatal care cited lack of financial support as the reason for not attending (Kawakatsu et al. 2014a). In Kenya, the government has adopted a policy which ensures that all pregnant Mothers get free utilization to maternity services which include antenatal care and delivery (Kawakatsu et al. 2014b; Gitonga and Muiruri 2016; Ochako et al. 2011; Tama et al, 2018)). Studies have found out that distance from the health facilities can prevent Mothers from utilizationing antenatal care services (Kawakatsu et al. 2014b; Gitonga and Muiruri 2016; Ochako et al. 2011). However, if the facilities are not closer to the population where they would require transport to reach the services, then access to these services would still be a problem.

The quality of care provided at the antenatal clinics by the skilled attendants will determine whether the Mothers will appreciate those services and come back for subsequent services or not come back. These services may include the availability of space and privacy, the attitude of the staff attending to the clients, the time the client takes to be served and exit the health facility and the comfort or discomfort she experiences during physical examination especially abdominal

palpation. The awareness of these services at the clinic may depend on the level of education of the client. Studies done previously to assess the level of satisfaction with services offered at the antenatal clinics have yielded various findings. (Chemir, Alemseged, and Workneh 2014a) found that more than half of the respondents were satisfied with the services offered at the antenatal care clinic. The level of satisfaction in this study was related to educational status of the Mothers and the monthly income of the family. However, study done in Nigeria (Mbada et al. 2014) realized that more than two thirds of the respondents had negative perceptions about antenatal care services. Focus should be directed in identifying if there exists a relationship between the awareness of antenatal care services and the perceptions on the services offered at the health facilities.

Okedo-Alex et al. 2019 reported that ANC utilization in sub-Saharan Africa is highly challenged with a variety of predisposing, enabling and need factors, this review recommended intersectoral collaboration to promote female education and empowerment, improve geographical utilization and strengthen implementation of ANC policies with active community participation. Although a majority of pregnant Mothers visit ANC services in Rwanda, uptake is not to the recommended standard. Recent findings show that this poor utilization of ANC services is attributed to older age, single parenthood and poor social support (Rurangirwa et al. 2017). This study further recommended a need for community awareness on the importance of the number and timing of ANC visits, besides improving ANC clinics accessibility, subsidized costs and extended facility opening hours (Rurangirwa et al. 2017). Tekelab et al. 2019 in Ethiopia reported low ANC uptake suggesting need for more intensive programmatic efforts towards improving utilization to health services for pregnant Mothers. In Tanzania, Mrisho et al. 2009 reported that Mothers had positive attitude to ANC but maintained late initiation to avoid many visits to the health facility.

This study recommended efforts towards improving geographical and economic utilization and making services culturally sensitive. In Kenya, Ouma and Asweto 2017 report disparities in provision of ANC components by type of facility attended, rural-urban and low versus higher income biases. These anomalies in ANC service provision see vulnerable Mothers miss important care including screening for complications during pregnancy and labour. These findings from analysis of KDHS 2008/2009 data recommended improved government support to public health facilities. In Kilifi, Chorongo et al. 2016 reported that uptake of focused ANC services has continued to decline in association with socio-demographic characteristics and health facility inefficiencies. This study further recommends the need to standardize services across health facilities and increase awareness on FANC in both rural and urban settings.

Maternal health indicators vary across the country with about 15 counties accounting for 98.7% of all maternal deaths (Gatakaa *et al*, 2019). Homa Bay is one of the counties with the highest maternal deaths; one mother dies for every 171 who undergo successful deliveries (ibid)

Previous studies have reported a high burden of pregnancy outcomes yet there is limited data to explain constraining factors for ANC service utilization among Mothers in Karachuonyo North Sub County. Hence, this study aimed at exploring key determinants of ANC utilization in Karachuonyo North Sub County with emphasis on socio-cultural, economic and perception factors as determinants of ANC utilization in Karachuonyo North sub-County, Homa Bay County.

1.2 Problem Statement

About 800 women die from pregnancy or child related complications globally every day. Sub-Saharan Africa and Southern Asia accounted for approximately 86% (254 000) of the estimated

global maternal deaths in 2017. Sub-Saharan Africa alone accounted for roughly two-thirds (196 000) of maternal deaths.

In Kenya, the maternal mortality ratio was 342 per 100,000 live births by 2017. Although this is an improvement as compared to the previous years, the mortality is still relatively high.

To achieve the full life potential and positive pregnancy outcomes, WHO recommends that pregnant mothers are attended to by skilled health care workers specifically midwives. WHO further recommends a minimum of four ANC visits during in the first, second and third trimesters in order to identify early complications and ensure healthy pregnancy. However, not all pregnant mothers will complete the four visits, and sadly enough some mothers do not attend the ANC clinics at all when they are pregnant.

The Government of Kenya abolished user fee for maternity care under the Free Maternity Service policy, in June of 2013 in all public health facilities. This move was made to make maternity services accessible and affordable, and to reduce maternal and perinatal mortality. Despite this policy being in place, Kenya still experiences high maternal mortality. This can directly be attributed to the underutilization of the ANC services.

Challenges to maternal health in the country arise from an interplay of social, cultural, economic, and logistical barriers, coupled with a high fertility rate. Most of the maternal related deaths occur due to delay in accessing care during childbirth and inadequate utilization of antenatal and post-natal care services. The nature of livelihood for the rural poor of Homa Bay makes it difficult to create time for routine maternal care or for timely skilled obstetric care access.

This study therefore sought to investigate the factors which contribute to the utilization of the ANC services in Rachuonyo North Sub county in Homa Bay county with a view to reviewing the

reproductive health policies and program implementation in order to increase the number of pregnant women attending the antenatal clinics.

1.3 Objectives of the Study

1.3.1 Overall Objective

To determine the rate of ANC service uptake and assess the factors affecting utilization of ANC services in Karachuonyo North sub-County, Homa bay County, Kenya.

1.3.2 Specific Objectives

i. To determine the proportion of Mothers of reproductive age utilizing antenatal care services in Karachuonyo North sub-County, Homa Bay County, Kenya.

ii. To identify the socio-cultural factors influencing utilization of antenatal care services by Mothers of reproductive age in Karachuonyo North sub-County, Homa Bay County, Kenya.

iii. To determine the economic factors influencing utilization to antenatal care services by Mothers of reproductive age in Karachuonyo North sub-County, Homa Bay County, Kenya.

iv. To determine the influence of the perceptions of the Mothers of reproductive age on the ANC services and utilization of ANC services in Karachuonyo North sub-County, Homa Bay County, Kenya.

1.4 Research Questions

i. What proportion of Mothers utilizes antenatal care services in Karachuonyo North sub-County, Homa Bay County, Kenya?

ii. What socio-cultural factors influence utilization of antenatal care services by Mothers in Karachuonyo North sub-County, Homa Bay County, Kenya?

iii. What are the economic factors influencing utilization of antenatal care services in Karachuonyo North sub-County, Homa Bay County, Kenya?

iv. What are the effects of perceptions of Mothers on the utilizations of antenatal care services in Karachuonyo North sub-County, Homa Bay County?

1.5 Significance of the Study

The primary beneficiaries of the study are Mothers of child bearing age who are currently not utilizing midwifery services in Karachuonyo North sub-County, Homa Bay County, Kenya. The results of this study have the potential to inform both the national and county governments on the gaps still existing in the utilization of ANC services. Based on the results from the study, policy review can be done by the ministry of health to improve the utilization of ANC services in Karachuonyo North sub-County, Homa Bay County. Consequently, this will lead to easy utilization to reproductive health services by all who need the services; improved quality of reproductive health services with regard to education on reproductive health, ANC services delivery, postnatal and family planning services. Interventions may be sort to trigger motivation of healthcare workers to offer client-oriented quality reproductive health services.

1.6 Justification of the Study

The relatively high maternal mortality still prevalent in developing countries including Kenya, and with so little change in the proportion of Mothers attending ANC, the health system needs to improve its responsiveness to client needs if substantial achievements are to be made with regard to achieving the sustainable development goals which are already way off the mark for many developing countries including Kenya. This calls for immediate action to provision of reproductive health information, and uptake of trained midwifery services. There is therefore a need to enhance utilization of skilled midwifery services especially in rural and urban slum areas of developing countries like Kenya, where socio-cultural and economic factors hinder effective

utilization of ANC services. It is also necessary to improve the capacity of the facilities as well as effectively train birth attendants in midwifery services as well as continuously asses their skills to enable them provide quality services to Mothers of reproductive age within Karachuonyo North sub-County, Homa Bay County, Kenya.

An important question for research remains; why the majority of Mothers in the developing countries do not complete the recommended four ANC visits and subsequently get delivered by skilled birth attendants. This study area was purposively selected since it is among the most affected regions with some of the highest reported and unreported maternal and child mortality rates.

This study has the potential to address possible barriers to utilization of midwifery services in the study area hence improve pregnancy outcomes and satisfaction with the birthing experience among Mothers of reproductive age who utilize the midwifery services. It will also assist in assessing the perception of Mothers towards the delivery of health services and seek ways of improving ANC services. This will strengthen utilization of midwifery services across the country and help achieve the set sustainable development goals.

1.7 Scope and Limitation

This study sampled Mothers who had pregnancies in the last three years prior to this study in Karachuonyo North sub-County residing within the region. It also focused only on the proportion of Mothers of reproductive age utilizing midwifery services, the barriers to utilization of reproductive health services by Mothers of reproductive age and the socio-cultural factors influencing utilization of reproductive health services. Some of the respondents were not free to respond candidly to the question asked for fear of being victimized or considered illiterate. However, to overcome this, the research assistants relied on the secondary sources to get the relevant information. Besides, some Mothers were apprehensive if the research will benefit them

in anyway. However, the research assistants explained to them the intention of the research and how it will inform policy and program implementation.

1.8 Assumptions

All the responses that were provided by the Mothers respondents were correct, precise and accurate.

CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

Maternal mortality is usually high in situations and areas where there is low uptake of ANC services and especially among women who do not complete the WHO recommended minimum 4 antenatal visits. The availability of health facilities and skilled midwives ensures the maximization of utilization of ANC services during pregnancy. However, there is still low uptake of the ANC services among pregnant mothers.

This chapter reviewed studies done previously on utilization of ANC services and the factors associated with the underutilization of the services. Gaps identified in the previous studies were included in the current study in order to inform policy and program implementation

2.2 Uptake of ANC Services

WHO recommended ANC uptake encompass four antenatal visits during gestation with the first visit within the first trimester (Azizi 2020; Ousman et al. 2020). This period enables the pregnant Mothers to receive essential interventions included in ANC service package including; identification and management of obstetric complications such as pre-eclampsia, tetanus toxoid immunization, intermittent preventive treatment for malaria during pregnancy (IPTs), and identification and management of infections including HIV, syphilis and other sexually transmitted infections. The first visit which is expected to screen and treat anemia, syphilis, screen for risk factors and medical conditions that can be best dealt with in early pregnancy and initiate prophylaxis if required is recommended to be held by the end of fourth month. The second, third and fourth visits are scheduled at 24-28, 32 and 36 weeks, respectively (Dinh et al. 2013). Although most developing countries register high uptake of ANC services, most Mothers

take the initiative to begin in their first trimester to make the four minimum recommended visits (Muchie 2017).

ANC utilization in sub-Saharan Africa is highly challenged with a variety of predisposing, enabling and need factors, this review recommended intersectoral collaboration to promote female education and empowerment, improve geographical utilization and strengthen implementation of ANC policies with active community participation (Okedo-Alex et al. 2019). Although a majority of pregnant Mothers visit ANC services in Rwanda, uptake is not to the recommended standard. Recent findings show that this poor utilization of ANC services is attributed to older age, single parenthood and poor social support (Rurangirwa et al. 2017). This study further recommended a need for community awareness on the importance of the number and timing of ANC visits, besides, improving ANC clinics utilization, subsidized costs and extended facility opening hours. (Rurangirwa et al. 2017). Tekelab et al. 2019 in Ethiopia reported low ANC uptake suggesting need for more intensive programmatic efforts towards improving utilization to health services for pregnant Mothers. In Tanzania, Mrisho et al. 2009 reported that Mothers had positive attitude to ANC but maintained late initiation to avoid many visits to the health facility. This study recommended efforts towards improving geographical and economic utilization and making services culturally sensitive. In Kenya, Ouma and Asweto 2017 report disparities in provision of ANC components by type of facility attended, rural-urban and low versus higher income biases. These anomalies in ANC service provision see vulnerable Mothers miss important care including screening for complications during pregnancy and labor. These findings from analysis of KDHS 2008/2009 data recommended improved government support to public health facilities. In Kilifi, Chorongo et al. 2016 reported that uptake of focused ANC (FANC) services has continued to decline in association with socio-demographic

characteristics and health facility inefficiencies. This study further recommends the need to standardize services across health facilities and increased awareness on FANC in both rural and urban settings. In western Kenya, Lidoroh, 2013 reported that utilization of maternal health care services is associated with demographic traits such as marital status, age, level of income and level of education.

Previous studies have reported a high burden of unplanned pregnancy outcomes yet there is limited data to explain constraining factors for ANC service utilization among Mothers in Rachuonyo North Sub County. Hence, this study aimed at exploring the rate of ANC uptake and understand the key determinants of ANC utilization in Karachuonyo North Sub County.

2.3 Socio-Cultural Factors Affecting Utilization of Antenatal Care Services

Education and cultural values within a given community may have direct positive or negative effect in the way Mothers use the antenatal services during the period of pregnancy. The level of education of an individual plays a key role in making decisions. It becomes more critical when the decision to be made has any health-related outcome effect. Mothers will only appreciate the values of antenatal care services if they are able to relate the services offered at the antenatal clinics including screening for health problems during pregnancy, physical examination to ascertain healthy pregnancy outcome, health education during the visits and identification of risk factors during pregnancy to the positive outcome of the pregnancy which is safe delivery of the baby. Studies done previously found direct relationship between the level of formal education and the antenatal clinic attendance. The higher the education of the woman, the more likely that they will attend the antenatal clinic. What has not been explored adequately through studies is at what time in her reproductive life she should be made aware of her responsibilities in regards to pregnancy and its association with the level of education and antenatal care. (Downe et al. 2019)

Some values and norms in communities also do have influence on the pregnancy and antenatal clinic attendances. Some unwritten rules in the communities bind Mothers to particular roles and this definitely can interfere with the timing of clinic attendance. Studies done in South Africa (Okedo-Alex et al. 2019b; Worku and Woldesenbet 2016) found that after time has been spent attending to essential tasks that the entire family is dependent upon, rural Mothers don't have disposable time left to visit a health facility. Another study (Ye et al. 2010a) found that a large number of Mothers did not attend antenatal clinic due to lack of adequate time. Some people around the life of the woman in the community who have direct influence on her pregnancy may determine whether she attends antenatal clinic and subsequent delivery in the health facility. The significant others may include the husband, parents-in-law. (Gibore, Bali, and Kibusi 2019) found that in a big number of respondents, husbands were the main decision makers on whether the pregnant woman would attend antenatal care services. In the same study mother-in-laws were more likely to decide where the woman delivers her baby. Few studies have focused on the direct influence of the close relatives on pregnancy management and how they can be included in the reproductive health policy in order to have positive outcomes in the ANC attendance.(Ludwig et al. 2020)

Social cultural factors including; unplanned pregnancy, fear of testing for HIV status, limited knowledge about ANC benefits and peer influence were also found to be among factors affecting the utilization of ANC among pregnant women (Sumera A et al, 2018).

Results of a study on determinants of utililization of antenatal care services in Benishangul Gumuz Region of Western Ethiopia identified educational level, place of residence, ethnicity and household wealth as key determinants and concluded that lower education level, ethnicity difference, economic status and residential area were vital in influencing ANC untilization (Tiruaynet and Muchie, 2019). Further research on the effect of various traditional and cultural practices was recommended.

There is limited data on the influence of socio-cultural factors on uptake of ANC services in Karachuonyo North sub-County. Hence, this study investigated the impact of socio-cultural factors on uptake of ANC services in Rachuonyo Sub-County, Nyanza County.

2.4 Income Effects on Utilization of Antenatal Care

The income level of the woman, husband and parents-in-law may have a potential relationship with antenatal care attendance. Economic status impact is significant where antenatal care services have to be purchased including registration fees, purchase of essential antenatal drugs such as iron and folic acid, laboratory investigations for syphilis and other diseases and cost of transport to visit the health facility for the antenatal care. In the rural communities where poverty is prevalent, the family may not give antenatal care priority if money is to be spent to utilization the services (Klinkman, Gorenflo, and Ritsema 1997). In other studies, it was found that cost of the services, household income, and Mothers's employment were positively associated with antenatal care attendance (Downe et al. 2019; Klinkman, Gorenflo, and Ritsema 1997). Another study also found that the timing of the antenatal visit is related to income. Rich families were likely to have early prompt visits to the antenatal care visit as opposed to the poor families (Downe et al. 2019; Klinkman, Gorenflo, and Ritsema 1997; Ludwig et al. 2020).

In Kenya, the government has adopted a policy which ensures that all pregnant Mothers get free utilization to maternity services which include antenatal care and delivery(Ouma and Asweto 2017). However, the Kenya government may not be able to take care of the transport costs of these rural pregnant Mothers to the antenatal care clinics. Studies have found out that distance from the health facilities can prevent Mothers from utilizationing antenatal care services (Ye et al. 2010a). The impact of socio-economic factors to ANC service uptake remains unclear, hence, this study investigated the association between socio-cultural impact and uptake of ANC services in Karachuonyo North sub-County.

2.5 Influence of the Perception of Mothers on the use of Antenatal Care Services

The quality of care provided at the antenatal clinics by skilled attendants will determine whether Mothers will appreciate those services and come back for subsequent services or not come back. Attributes such as; availability of space and privacy, the attitude of the staff attending to the clients, the time the client takes to be served and exit the health facility and the comfort or discomfort experienced during physical examination especially abdominal palpation have a great influence on the woman's decision to attend ANC. The awareness of these services at the clinic may depend on the level of education of the client. Studies done previously to assess the level of satisfaction with services offered in antenatal clinics have yielded various findings. (Chemir, Alemseged, and Workneh 2014b) found that more than half of the respondents were satisfied with the services offered at the antenatal care clinic. The level of satisfaction in this study was related to educational status of the Mothers and the monthly income of the family. However, a study done in Nigeria (Mbada et al. 2014; Okedo-Alex et al. 2019b) realized that more than two thirds of the respondents had negative perceptions about antenatal care services. Another study (Afulani et al. 2019) found that there was more satisfaction with the antenatal care services offered in private health facilities compared to the public health facilities. However, it is important to note that the main provider of health care services in the rural communities is the government.

There is limited data on the impact of perception and ANC uptake in Karachuonyo North sub-County. This study therefore investigated the association between Mothers's perception and their decision to attend ANC services from designated clinics.

The finding from a related study on perceived barriers to utilization of antenatal care services in Northern Uganda revealed that the barriers included poor attitude of health workers, socio-cultural practices not being successfully aligned to ANC, unsupportive husbands beside the challenging task of encouraging

them to accompany their wives on ANC visits, institutional structures and procedures such as compulsory HIV testing in addition to transport (Kaducu F, Ovuga E & Sodemann M, 2020) recommending that future studies should focus on good patient-provider relationship.

Statistics have shown high rate of maternal mortality stemming from low utilization of ANC in Sub-Saharan Africa according to Mungai S, 2015. It was further revealed that economic status of a family, woman's education, utilization to finance, proximity to services and overall health beliefs of the household were likely to impact medical decisions taken. It was also reported that resultant from attendant risks associated with first pregnancy, a woman was likely to seek maternal healthcare services for first birth than subsequent birth. Furthermore, the findings also identified utilization to information to influence utilization of ANC concluding that realization of Vision 2030 maternal mortality reduction target of 147 per 100,000 live births in Kenya required consideration of factors that lead to utilization of ANC.

2.6 Conceptual Framework

The conceptual framework can be viewed as a constellation of factors as shown below. Skilled attendance has been defined explicitly as the process by which a woman is provided with adequate care during pregnancy, labor, delivery and the early postpartum period by qualified midwives (SMIAG, 2000). This definition goes on to emphasize that the process requires a qualified midwife and an enabling environment which includes adequate supplies, equipment and infrastructure as well as efficient and effective systems of communication and referral. This conceptual framework follows the causal pathway with structure, inputs, outputs (process) and outcome. Other factors like provider/client interaction greatly determine the outcome of pregnancy which can be maternal or neonatal morbidity, mortality or good health. All these pathways are designed to have an overall reduction in maternal and child mortality.

Independent Variables   **Dependent Variable**

Socio-Demographic Factors

- Age
- Marital status
- Education level
    - Mother
    - husband

Socio-Cultural Factors

- Religion
- Approval of pregnancy close relatives

Economic Factors

- Income level
- Cost of ANC
    - User fee
    - Transport

Perception Factors

- Awareness of services offered
- Previous use and knowledge of services
- Satisfaction with ANC services

Utilization of ANC Services

Figure 2.1: Conceptual framework for ANC Utilization Factors and Maternal outcomes
SOURCE: Belayneh T, Adefris M & Andargie G (2014)

CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Study Area

Karachuonyo North sub-County, which also forms Karachuonyo constituency, is located in Homa Bay County in the former Nyanza province. It borders Lake Victoria to the North, Nyando sub-County to the East, Rachuonyo South sub-County to the South and Rangwe sub-County to the West. The altitude of the district is around 1300m above sea level with an annual rainfall of around 1700 mm. The temperature ranges between 15 and 30 degrees Celsius (°C). It has a population of 162,045 ("Census-2009). It's coordinates using Kendu Bay town are 0.3684^0 s; 34.6497^0 E. The Sub County is approximately 412.50 square Km. Kendu Bay (Alaw Rachuonyo) is the administrative headquarter of the county.

3.2 Administrative Units of the Study Area

Karachuonyo North sub-County is divided into administrative units. The first level administrative units in the sub-County are the two divisions, east and west Karachuonyo Divisions. The seven wards with a total of 62 Sub-locations are distributed in the two divisions. In Kenya, the smallest administrative units are the sub-locations which are composed of multiple households. Each sub-location can have as many as 10-30 villages each having about 100 households. The locations and sub-locations are administratively managed by chiefs and sub-chiefs respectively.

Table 3.1: Administrative Units of Rachuonyo North Sub-County

Ward	No. of Sub Locations
Kendu Bay Town	8
Wang' Chieng	9
Kibiri	9
Kanyaluo	9
Central	6
North Karachuonyo	10
West Karachuonyo	11

The economic activities in Karachuonyo North sub-County are varied but mostly small scale. Subsistence farming is the most widespread economic activity in the region. However, the yields are not much since the rainfall is inadequate and erratic. The main agricultural products are maize, millet, cassava and cotton. In partnership with the government of Kenya, donors have put a multi-billion irrigation project running through some parts of Rachuonyo and Homa Bay Sub-Counties in order to boost the agricultural potential of the region. Fishing activities are also carried out in Lake Victoria which borders Karachuonyo North sub-County to the north. This activity is also carried out in small scale though. There are several retail trading shops spread across Rachuonyo north Sub County.

3.2.1 Health Care Services in Karachuonyo North Sub-County

Rachuonyo North Sub County has a total of 41 health facilities distributed across the wards. 93% of health care services are provided by the government of Kenya. Faith based and community-based organizations provide 7% of the health care services in the region. Several community health workers have been trained in the sub county to implement the primary health care activities. Table 3.2 below shows the levels of health care services available in the sub county.

Table 3.2: Levels of Health Facilities in Karachuonyo North sub-County

No.	Ward	Level 2	Level 3	Level 4	Ownership
1	Kanyaluo	4	1	0	GoK
2	Central Karachuonyo	4	0	0	GoK
3	Kendu Bay Town	4	0	2	GoK, FBO
4	Wang'chieng	8	1	1	GoK
5	North Karachuonyo	3	1	1	GoK
6	West Karachuonyo	5	3	0	GoK, CBO
7	Kibiri	2	1	0	GoK, FBO

(Source: Karachuonyo North Sub-County Hospital)

All the facilities offer the antenatal and delivery care services. The health facilities are distributed in the sub-County but not in a geographically equitable manner (Table 3.2).

The study area was selected due to its poor health indicators. It is situated in Homa Bay County, which is one of the counties with very poor health indicators nationally. The two divisions, East and west Karachuonyo divisions in Karachuonyo North sub-County were purposely selected for the study as it gave unbiased representation of the target population. The unequal distribution of the health facilities in the two divisions is another reason to include all of them in the study.

3.3 Study Design

This study adopted a descriptive, cross-sectional design. Mothers who had been pregnant in the last three years were selected for the study. This was done to determine the rate of ANC service uptake and assess the factors affecting the utilization of ANC services in Karachuonyo North sub-County including; socio-cultural, economic and Mothers's perception of ANC service provision. The design was suitable for this study because it describes a subject, by creating a profile of a group of problems, people or events, through data collection and tabulation of frequencies on research variables. Descriptive research design is also justified for this study because it determines the opinions, attitudes, preference and perceptions of study participants to the researcher which is the interest of this study. Descriptive research is concerned with conditions that exist, practices that prevail, beliefs and attitude that are held, processes that are on-going and trends that are developing.

3.4 Study Variables

The independent variables included the socio-cultural factors, socio-economic status and knowledge of the respondents as well as the perception of the respondents on the delivery of the antenatal care services in Karachuonyo North sub-County. The dependent variable was the utilization of ANC services and the resultant outcomes.

3.5 Study Population

The study population comprised Mothers of reproductive age group aged 15–49 years, who reside within Karachuonyo North sub-County, Homa Bay County.

3.6 Sample Size Calculation

The sample size was determined by the formula as used by ((Mugenda and Mugenda, 2003) as shown below. A confidence level of 95% was be assumed.

n = z²pq/d²

Where:

n = the desired sample size.

z = the standard normal deviate at the required confidence level

(Risk error 5%   z = 1.96),

p = usage of ANC services within Rachuonyo North Sub County= 69%

(Estimate of Mothers of reproductive age who utilize ANC services

within Karachuonyo North sub-County, in Homa Bay County (KDHS,

2008/09).

d = absolute precision expressed as a fraction of 100 (accuracy level of 5%

chosen = 0.05)

q = 1-p (that is 100% - 69%) = 31% or 0.31

n $= \dfrac{(1.96)^2 \ (0.31 \times 0.69)}{0.05^2}$ = approximately ~**329**

3.7 Inclusion Criteria

i.   Mothers between the ages of 15-49 years.

ii.   Mothers were residents within Karachuonyo North sub-County.

iii. Mothers who had previously been pregnant in the last 3 years in Karachuonyo North sub-County

iv. Mothers who had carried pregnancy to term.

3.8 Exclusion Criteria

i. Women who were pregnant but had other existing medical conditions

3.9 Sampling Procedure

This study adopted a multistage sampling design. Karachuonyo North sub-County was purposively selected for the study. In order to get enough respondents for the study, the study employed simple random sampling to select 5 locations from East Karachuonyo division and six locations from West Karachuonyo division. More locations were selected from West Karachuonyo because it has more sub-locations than East Karachuonyo division. Nine sub-locations and eight sub-locations were also randomly selected from West Karachuonyo division and East Karachuonyo division respectively. In the final stage of the sampling, 31 villages were selected randomly for the study. With the help of the village elders, a sampling frame of 1500 women who had delivered 3 years prior to the study was developed from the 31 villages. Every 4th woman in the list was selected. A total of 362 mothers were selected for the study. To identify the respondents in the study, systematic random sampling procedure was used. In this sampling method, every participant had an equal opportunity. A population proportional to size method was used to identify the number of participants from each village.

3.10 Data Collection Instruments

Given that the study obtained both quantitative and qualitative data, structured questionnaire schedule was used to collect quantitative data from mothers of reproductive age after signing the informed consent form. The first section of the questionnaire addressed questions on demographic profiles of the respondents, while the second part addressed issues revolving

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around utilization of ANC services including frequency of antenatal clinic attendance, socio-cultural factors affecting their uptake, income factors as well as perceptions of mothers regarding the quality of antenatal care services offered at the health facilities.

3.10.1 Validity of Instruments

Validity is the extent to which the study instruments captured what they were intended to measure (Howardlsalter, 2015). Validity of instruments is critical in all forms of research and the acceptable level is dependent on logical reasoning, experience and professionalism of the researcher. Circumstances upon which arguments were made were noted down and interpreted accordingly. In addition, validity was ensured by making items in the questionnaire simple and clear, including arranging the questionnaire from complex to simple terms. The instruments were also reviewed by the supervisors and experts in the field.

3.10.2 Reliability of Instruments

Reliability refers to how consistent a research procedure or instrument is (Bryman, 2008). It therefore means the degree of consistency demonstrated in a study. Pilot testing was done among the Mothers living in the neighboring Rachuonyo south sub-County. According to (Howardlsalter, 2015) pilot testing should be done between 9-10% of the sample frame. Simple random sampling method was used to generate a sample size of 30 respondents who had had pregnancies in the last 3 years preceding this study. Analysis from the pilot data obtained from the 30 mothers sampled yielded a Cronbach alpha value of 0.83.

3.11 Recruitment and Training of Research Supervisors and Assistants

Two supervisors and 11 research assistants were recruited from the local community to help in the data collection. The work of the supervisor included provisions of logistics, including transport, writing materials, the questionnaire and ensuring adherence to data collection procedure. Each supervisor was responsible for one division.

Research assistants were also recruited from the local community. The assistants were required to be in a position to speak the local language.

3.12 Data Analysis Plan

Statistical Package for Social Sciences was used to analyse the data. Univariate analysis was done for the demographic characteristics of the study participants. Frequencies were run to determine the proportions of ANC attendance at different visits. Bivariate regression analysis was done to determine the influence of socio-demographic, socio-cultural, income and perceptions factors on ANC uptake. P values less than 0.05 were considered statistically significant at 95% Confidence Level. Odds Ratio and Confidence Interval were reported. Graphs and tables were used to present the study results.

The raw data collected from the field was first sorted and coded into categories then entered into Statistical Package for Social Sciences (SPSS) and analyzed using descriptive statistics to generate frequency tables and charts and Pearson chi-square tests to determine the relationship between independent and dependent variables that was to determine the influence of socio-demographic, socio- cultural, income and the perceptions factors on the ANC uptake. Tests of relationship were set at 5% translating into 0.05 confidence level against which the Pearson Chi-Square p-values denoted as Asymp. Sig. (2-sided). p-values less than 0.05 were considered statistically significant at 95% Confidence Level, p-values greater than 0.05 signified there was no statistically significant relationship between the variables while p-values of 0.000 depicted existence of a strong relationship. The output is presented in chapter four.

3.13 Ethical Consideration

According to Wolverton (2009), the researcher has to be careful to avoid causing physical or psychological harm to respondents by asking embarrassing and irrelevant questions, threatening language or making respondents nervous. Therefore, for the sake of this study, prior approval

was sought from Maseno University Research Ethics committee before commencement of the study. Besides, written permission was sought from Karachuonyo North sub-County Commissioner to collect data from the sub-county. All Mothers who participated in the study were requested to give their informed consent after reading through the consent form with the interviewer. The information provided was confidential and did not in any way infringe on the rights and privacy of the mothers.

CHAPTER FOUR

RESULTS

4.1 Introduction

This chapter presents the findings in tabular and figure format including their interpretation of the results sequenced in accordance with the study objectives including; response rate, demographic factors, proportion of mothers of reproductive age utilizing antenatal care services, Socio-cultural factors influencing utilization of ANC services, economic factors influencing utilization of ANC services and impact of perceptions on utilization of ANC services as outlined in sub section 4.2, 4.3,4.4,4.5 and 4.6 respectively.

The results are presented according to the research objectives and the chapter is organized according to the themes derived from the research questions.

4.2 Response Rate
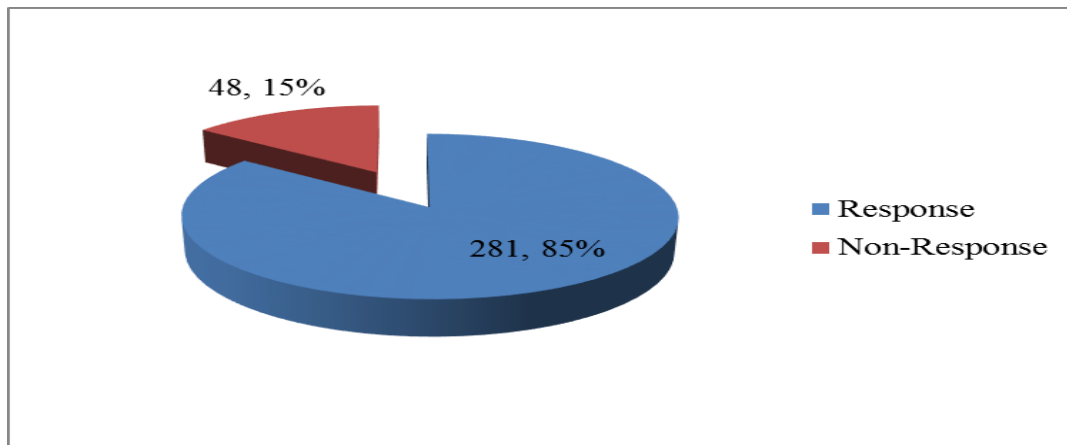
Figure 4.1: Response Rate

As shown in Figure 4.1, it is evident the study realized a response rate of 85.0% with a 15.0 % non response reported. The non reponse reported was attributable to the limitation identified in section 1.6 relating to some of the mothers fearing either victimization or being considered illiterate and some mother having been apprehensive that the research would benefit them. This

was achieved following the research efforts where after the distribution of the 329 questionnaires, 281 were collected back and were found to be valid to be employed in the study. According to <u>Jack E. Fincham</u> (2008), any response rate ≥ 80% is expected inorder for the research findings to be representative of the population of interest. This is aimed at limiting nonresponse bias that is likely to diminish reliability and validity of study findings.

4.3 Demographic Characteristics of the Mothers

Table 4.1 below summarizes the results obtained from the question that sought demographic information of the mothers.

Table 4.1: Demographic Characteristics

Characteristic	Frequency	Percentage
Age		
Not stated	5	1.8
<19	32	11.4
20 - 24	68	24.2
25 - 29	82	29.2
30-34	68	24.2
>35	26	9.3
Level of education		
Not stated	5	1.8
None	12	4.3
Primary	173	61.6
Secondary	77	27.4
Tertiary	13	4.6
University	1	0.4
Husband's level of education		
Not stated	30	10.7
None	10	3.6
primary	125	44.5
Secondary	85	30.2
Tertiary	23	8.2
University	8	2.8
Marital status		
Not stated	3	1.1
single	30	10.7
Married	219	77.9
Divorced	8	2.8
Widowed	20	7.1
other(specify)	1	0.4
Religion		
Not stated	2	0.7
Christianity	267	95.0
Islam	8	2.8
Hindu	2	0.7
others	1	0.4
Legio Maria	1	0.4

Table 4.1 indicates that when categorized by age, 82(29.2%) of the mothers were aged 25-29 years, 68(24.2%) each were either within 20-24 or 30-34 age brackets, 32(11.4%) were =<19 years, 26(9.3%) were 35 years and above while 5(1.8%) did not indicate their age bracket. In summary, majority of the mothers interviewed were between ages 20-34 (77%)

When distributed by level education, it is evident that majority, 173 (61.6%) of the mothers had primary level education, 77 (27.4%) had attained secondary level, 13 (4.6%) reported tertiary, 12(4.3%) had no formal education, the mothers who were university graduates represented only 1(0.4%) of the women who participated in the study while 5 (1.8%) did not comment.

With regard to the husband's level of education, 125 (44.5%) of the mothers reported that their husbands had achieved primary education. 85(30.2%) of the mothers indicated their husbands had attained secondary education, 23(8.2%) had tertiary education, 10(3.6%) reported their husbands had no formal education, husbands who had university education represented 8(2.8%) while 30(10.7%) did not comment. The table also depicts most of the mothers 219 (77.9%) were married, 30(10.7%) were single, 20(7.1%) were widowed and 8(2.8%) were divorced, 1(0.4%) did not specify their marital status while 3(1.1%) of did not comment.

When categorized by religion, most, 267 (95.0%) of the mothers were Christians, 8(2.8%) were Muslims, 2(0.7%) were Hindu, 1(0.4%) each were either of Legion other unspecified religions while another 2(0.7%) did not comment.

4.4 Proportion of Mothers of reproductive age utilizing antenatal care services

This section summarizes the results obtained from the questions that sought to determine the proportion of mothers utilizing the ANC services captured in figure 4.2 and table 4.2 respectively.

4.4.1 ANC Services Uptake

The mothers were first asked whether they had sought ANC services in their previous pregnancy. Their responses are captured in figure 4.2 below.
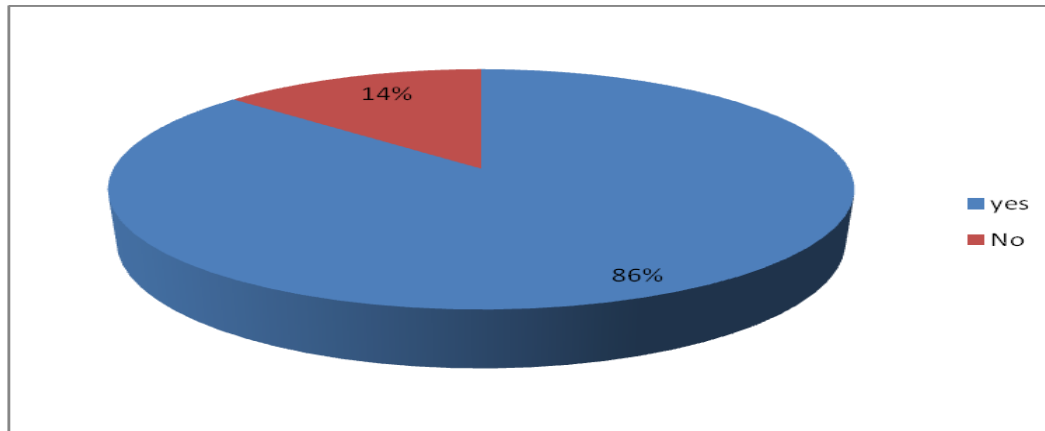
Figure 4.2: Uptake of the ANC Services

Figure 4.2 shows that, 243(86.5%) of the mothers who participated in the study had utilized the antenatal care services in their previous pregnancy as these had reported to have attended the antenatal clinic. However, 27(9.6%) of the mothers did not attend the antenatal clinic thus never utilized the services while 11(3.9%) did not comment. Some of the reasons cited for the non uptake of the ANC services by the mothers ranged from; distance involved which they would travel to utilization the services, perception that they never understood the importance of the services, never attended as they never liked the services and impact of transport services which were not available for them to reach the clinic centers.

4.4.2 ANC Clinic Attendance Initiation Time

When further asked about the trimester within which they had attended the clinics, table 4.2 outlines the results obtained.

Table 4.2: Clinic attendance Initiation Time

Trimester	Frequency	Percent
First trimester	111	39.5
Second trimester	121	43.1
Third trimester	36	12.9
Not stated	13	4.5
Total	**281**	**100.0**

As illustrated in the table, 121(43.1%) of the mothers attended the antenatal clinic during the second trimester. 111(39.5%) attended the clinic at the first trimester and 36(12.9%) attended at their third trimester while 13(4.5%) did not comment. When further asked to give reasons for the uptake, majority 197(70.2%) the mothers who participated in the study attributed their ability to attend the antenatal clinic having some awareness of the care services provided at the clinics whereas 59(20.2%) were prompted to go to the clinic as they were aware of complications.

4.4.3 Relationship between Reasons for ANC Visit and Uptake

Table 4.3 shows the results obtained from the test to establish whether there exists a relationship between the reasons for visits and ANC uptake

Table 4.3: Association between Reasons and ANC Clinic Visits

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	62.672[a]	18	.000
Likelihood Ratio	48.890	18	.000
N of Valid Cases	281		

a.   23 cells (82.1%) have expected count less than 5. The minimum expected count is .01.

It is clear from table 4.3 that there is strong relationship between the reason of ANC clinic visit and the mothers' level of ANC uptake as depicted by p-value of 0.000 which signify existence of statistically significant relationship. This is further amplified by the likelihood ratio of 48.890

which denote that reason for ANC clinic visit was likely to influence the ANC uptake 48 times and the reported p value of 0.000 which is less than 0.05 significance level.

4.5 Influence of Socio-Cultural Factors on ANC Service Uptake

4.5.1 Level of education of the Mothers

Table 4.4 below summarizes the results obtained from chi-square test obtained from the sought to find out the relationship between the mother's education and ANC uptake.

Table 4.4: Association between the mother's Level of Education and ANC Uptake

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	98.871[a]	15	.000
Likelihood Ratio	30.228	15	.011
N of Valid Cases	281		

a.   18 cells (75.0%) have expected count less than 5. The minimum expected count is .01.

It is evident from table 4.4 that there was a strong relationship between the level of education of the mothers and their level of ANC uptake as exemplified by p-value of 0.000 at 0.05 significance level at 95% confidence interval which is further corroborated by the reported likelihood ratio of 30.228, an indication that the mothers level of education was likely to influence their ANC uptake by 30 times in addition to the p value of 0.11 which is less than 0.05 significance level.

4.5.2 Husbands Level of Education

The result obtained from the question that sought to find out the relationship between the husband's level of education and ANC uptake by the mothers is outlined in table 4.5.

Table 4.5: Association between the Husband's Level of Education and ANC clinic visit

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	34.211[a]	15	.003
Likelihood Ratio	32.177	15	.006
N of Valid Cases	281		

a. 16 cells (66.7%) have expected count less than 5. The minimum expected count is .11.

As shown in table 4.5, there is statistically significant relationship between the husbands' level of education and the level of ANC uptake as depicted by p-value of 0.003 which is less than 0.05 at the 95% confidence interval. This is further supported by the reported 32.177 likelihood ratio which is indicative that the husbands' level of education was likely to influence ANC clinic visit by the mothers 32 times besides the observed p value of 0.006 which is less than 0.05 significance level.

4.5.3 Marital Status

Table 4.6 below recapitulates the results obtained from the question that had sought to find out the relationship between the marital status of the mother and their ANC uptake of the mothers.

Table 4.6: Association between the for Marital Status and ANC clinic uptake

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	21.464[a]	15	.123
Likelihood Ratio	14.499	15	.488
N of Valid Cases	281		

a. 18 cells (75.0%) have expected count less than 5. The minimum expected count is .01.

According to the results as presented in the table 4.6, there is no statistically significant relationship between marital status and the level of ANC uptake as indicated by the p-value of 0.123 which is greater than 0.05 at the 95% confidence interval indicating no evidence of significant relationship. This is also depicted by the likelihood ratio of 14.499 which is indicative that marital staus of the mothers was unlikely to influence their ANC clinic visit by 14 times alongside the reported p value of 0.488 which is greater than 0.05 significance level.

4.5.4 Religion

With regard to the relationship between religion and ANC uptake of the mothers the results obtained from the tests are captured in table 4.7.

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Table 4.7: Association between Religion and ANC uptake

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	152.742[a]	15	.000
Likelihood Ratio	25.503	15	.044
N of Valid Cases	281		

a. 20 cells (83.3%) have expected count less than 5. The minimum expected count is .01.

As shown in the table 4.7, there is statistically significant relationship between the mothers' religion and the level of ANC uptake as evidenced by a p-value of 0.000 at 0.05 significance level and the 95% confidence interval. The likelihood ratio of 25.503 indicates that the religious affiliation of the mothers was likely to influence their ANC uptake 25 times which also resonate with the reported p value of 0.044 which is less than 0.05 significance level.

4.5.5 Decision to attend the clinic

With regard to the question that sought to find out who made the decision that for the mothers to attend the clinics; the results are displayed in table 4.12.

Table 4.8: Decision to attend the clinic

Reason for clinic attendance	Frequency	Percent
Self	202	72.2
husband	48	17.4
mother-in-law	16	5.5
others	2	0.7
Aunt	1	0.4
Mother	5	2.0
Not stated	7	1.8
Total	**281**	**100.0**

As portrayed table 4.8, majority of the mothers 196(69.8%) were the sole decision makers for them to attend the antenatal clinic for the care services. 41(14.6%) of the mothers were influenced by their husbands who made the decision for them to attend the clinic and 12(4.3%) were asked by their mother-in laws to attend the clinic. Other decisions were from the mothers' relatives including mothers 5(1.8%), a combination of either self and husband or self, husband and mother-in-law accounting for 3(1.1%) each while husband and mother in-law and aunt

influenced 1(0.4%) of the mothers respectively. 2(0.7%) indicated others, 1(0.4%) wrote none while 14(5.0%) did not comment.

4.5.6 Association between the Decision maker and ANC uptake

When the results from the decision making were subjected to test to establish the relationship between decision maker and ANC uptake, the findings are depicted in table 4.13.

Table 4.9: Chi-Square Tests for the Decision Maker

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	168.438[a]	36	.000
Likelihood Ratio	89.459	36	.000
N of Valid Cases	281		

a. 47 cells (90.4%) have expected count less than 5. The minimum expected count is .01.

Findings also as illustrated in table 4.9 are indicative of there being a statistically significant relationship between the women's decision to undertake the ANC services and the level of ANC uptake. This is demonstrable by coefficient of 168.438 with a p-value of 0.000 which is less than 0.05 at the 95% confidence interval. This is further corroborated by the likelihood ratio value of 89.459 which signify that the decision maker was likely to influence the mothers ANC uptake 89 times in addition to the p value of 0.000 which is less than 0.05 significance level.

4.6 Influence of Economic Factors on ANC Uptake

This section summarizes the findings obtained from the question that sought to find out the influence of economic factors on utilization of ANC services.

4.6.1 Occupation of the Mothers

The mothers were first asked their occupation. Their responses are outlined in figure 4.4
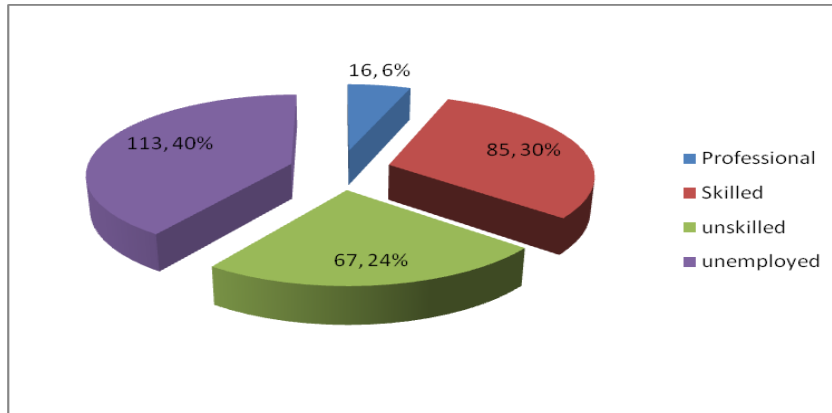
Figure 4.3 Occupation

The Figure 4.3 illustrate that, 112(39.9%) of the mothers were unemployed. 85(30.2%) were skilled personnel while 16 (5.7%) were professionals. On the other hand, 64(22.8%) of the mothers were unskilled laborers, 1(0.4%) were both unskilled and unemployed while 3(1.1%) did not comment. With regard to the husband's occupation, 29(10.3%) were married to professional personnel and 115(40.9%) were married to skilled personnel. 40(14.2%) of the mothers had husbands who provided unskilled labor services whereas 67(23.8%) were unemployed while 29(10.4%) did not comment.

4.6.2 Relationship between Mothers occupation and ANC uptake

Table 4.10 below summarizes the results obtained from the test to establish whether there was relationship between the mother's occupation and ANC uptake.

Table 4.10: Association between the Mothers' Occupation and ANC uptake

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	7.146[a]	18	.989
Likelihood Ratio	6.861	18	.991
N of Valid Cases	281		

a. 21 cells (75.0%) have expected count less than 5. The minimum expected count is .01.

Table 4.10 illustrate that, there is no statistically significant relationship between the mothers' occupation and the level of ANC uptake. This showed a chi-square coefficient of 7.146 with a p-value of 0.989 which is greater than 0.05 at the 95% confidence interval indicating no significant relationship. This is further amplified by the likelihood ratio of 6.861 which denote 6 times unlikelihood of the mothers' occupation to influence their ANC uptake besides the reported p value of 0.991 which is greater than 0.05 significance level.

4.6.3 Relationship between Husband's occupation and ANC uptake

With regard to test of relationship between the husband's occupation and ANC uptake, the results obtained are displayed in table 4.11.

Table 4.11: Association between the Husband Occupation and ANC uptake

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	7.347[a]	15	.947
Likelihood Ratio	7.779	15	.932
N of Valid Cases	281		

a. 17 cells (70.8%) have expected count less than 5. The minimum expected count is .01.

Similarly, the husband occupation showed no significant relationship with the mothers' level of ANC uptake. This is as indicated by the chi-square test results which showed a chi-square coefficient of 7.347 with a p-value of 0.947 which is greater than 0.05 at the 95% confidence interval. This is further amplified by the likelihood ratio of 7.79 which denote 7 times unlikelihood of the Husbands' occupation to influence the mothers' ANC uptake and also resonate with the reported p value of 0.932 which is greater than 0.05 significance level.

4.6.4 Income of the Mothers

On the question that sought to find out the total monthly income of the mothers, their responses are shown in table 4.16.

Table 4.12: Total Monthly Income

Monthly income (Kshs)	Frequency	Percent
less than 2000 per month	178	63.3
Btw 2001 – 5000 per month	72	25.6
Btw 5001 – 10000 per month	16	5.7
Btw 10001 - 20000 per month	11	3.9
Btw 20001 - 40000 per month	2	0.7
Not stated	2	0.7
Total	**281**	**100.0**

As illustrated in Table 4.12 majority of the mothers 178(63.3%) had a total monthly income of less than 2000. 72(25.6%) of the mothers had a monthly income of between 2001 – 5000, 16(5.7%) had a monthly income ranging between 5001 – 10,000 and 11(3.9%) had a total monthly income of between 10,001 – 20,000 whereas 2(0.7%) had a monthly income of between 20,001 – 40,000 while another 2(0.7%) did not comment.

4.6.5 Relationship between income and ANC uptake

Table 4.13 below summarizes the results obtained from the test that sought to establish the relationship between monthly income and ANC uptake.

Table 4.13: Association between the Monthly Income and ANC service uptake

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	30.461[a]	15	.010
Likelihood Ratio	18.528	15	.236
N of Valid Cases	281		

a. 18 cells (75.0%) have expected count less than 5. The minimum expected count is .03.

The findings from table 4.13 above also indicate a statistically significant relationship between the mothers' level of monthly income and the level of ANC uptake. This showed a chi-square coefficient of 30.461 with a p-value of 0.010 which is less than 0.05 at the 95% confidence interval. This is confirmed by the likelihood ratio of 18.528 which denote that monthly income was 18 times likely to influence the mothers' ANC uptake. However, the reported p value of

0.236 is greater than 0.05 significance level hence the observed influence could be attributable to some/combination of factors other than monthly income alone.

4.6.6 Cost of ANC Services

When asked about the nature of cost they had incurred on ANC services, the responses are outlined in table 4.18 below.

Table 4.14: Cost Incurred during Clinic Attendance and ANC Service Uptake

Nature cost	Frequency	Percent
Transport cost to the clinic	160	56.9
Payment of the user fees	26	9.3
Purchase of essential items to use during the care services	53	18.9
Not stated	50	17.8
Total	**281**	**100.0**

Table 4.14 shows that most 226(81.4%) of the mothers had incurred cost relating to transport to the clinics, payment of user fees and purchase of essential items for use during care services, 4(1.4%) did not specify the nature of cost, 1(0.4%) had not incurred any cost since they had not attended while 50(17.8%) did not comment.

4.6.7 Relationship between Costs and ANC uptake

When further the results on the cost incurred to utilization ANC services was subjected to test to establish the relationship between the costs and ANC uptake, the findings are shown in table 4.19.

Table 4.15: Association between the Costs and ANC Service Uptake

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	50.414[a]	24	.001
Likelihood Ratio	33.669	24	.091
N of Valid Cases	281		

a. 30 cells (83.3%) have expected count less than 5. The minimum expected count is .01.

It is also clear from the findings in table 4.15 above that there is a statistically significant relationship between the costs involved towards the ANC clinic visits and the level of ANC uptake as signified by a p-value of 0.001 which is less than 0.05 at the 95% confidence interval. This agrees with the reported likelihood ratio of 33.669 which signify there was 33 times likelihood of the costs to influence the mothers' ANC uptake. However, the reported p value of 0.091 is greater than 0.05 significance level hence the observed influence could be attributable to some factors other than the cost of the services only.

4.7 Influence of Mothers' Perception on ANC Uptake

4.7.1 Influence of husband/grandmother on ANC uptake

When asked whether either their husbands or grandmothers influenced their decision to attend antenatal visit, the responses obtained are shown in figure 4.4
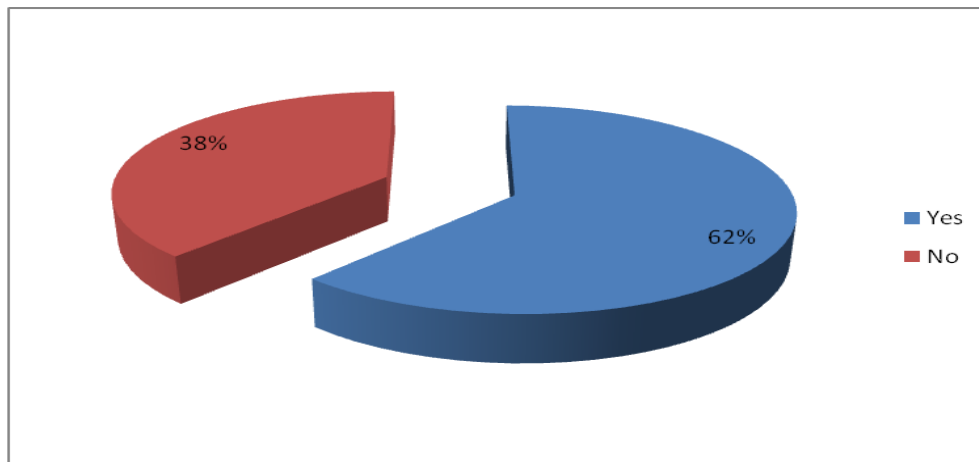
Figure 4.4: Husband /grandmother influence on decision to attend ANC

From the findings in figure 4.4 above, it is evident that the husbands and the grandmothers to the mothers had influenced their decision to attend the antenatal clinic with majority, 154(62.0%) confirming they had been influenced while 95 (38.0%) were never influenced.

4.7.2 Advice from Significant Relatives

Figure 4.5 below outlines the responses obtained when the responses were further asked whether they had been advised by either their husbands or grandmothers to attend ANC clinics
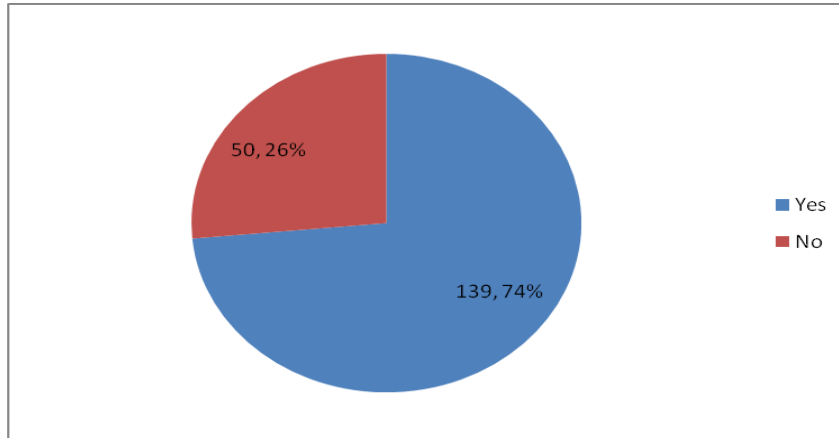
Figure 4.5: Advice from significant relatives to attend ANC

Figure 4.5 above indicates that among those who were influenced by the advice of their husband or grandmothers, majority 139(74.0%) had been advised to seek the services whereas 50(26.0%) were advised otherwise.

4.7.3 Awareness on ANC services

When asked about whether they were aware of the services offered at the antenatal clinic, the responses obtained are displayed in figure 4.6.
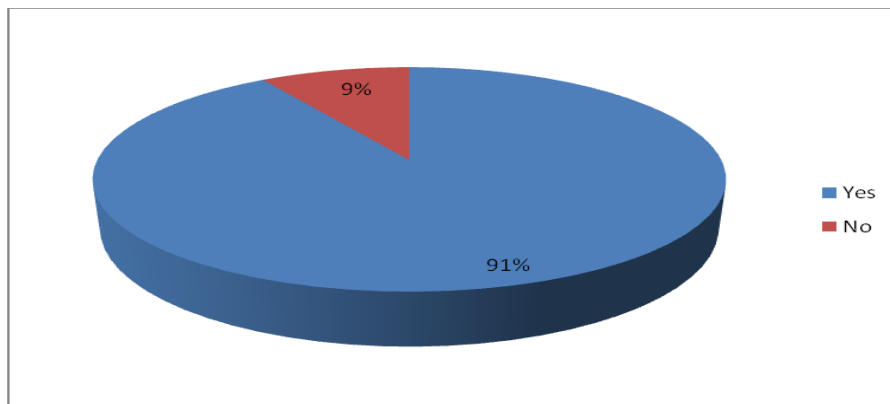
Figure 4.6: Awareness on the services offered at the antenatal clinic

The figure 4.6 indicates that most of the mothers, 256 (91.0%) who participated in the study were aware of the services offered at the antenatal clinic. However, 25(9.0%) of the women were not aware of the services being offered at the clinics.

4.7.3.1 Relationship between awareness and ANC uptake

Table 4.16 below summarizes the results obtained from the test to establish the relationship between awareness and ANC uptake.

Table 4.16: Association between the Awareness and ANC Uptake

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	73.295[a]	6	.000
Likelihood Ratio	44.445	6	.000
N of Valid Cases	281		

a. 7 cells (58.3%) have expected count less than 5. The minimum expected count is .21.

According to the findings as shown in the table 4.16, there is a statistically significant relationship between the mothers' awareness of the ANC services and the level of ANC uptake as depicted a p-value of 0.000 at 0.05 level of significance and the 95% confidence interval. This is also supported by the reported likelihood ratio value of 44.445 indicating there was 44 times likelihood of awareness to influence the mothers ANC uptake as also evinced by the reported p value of 0.000 which is less than 0.05 significance level.

4.7.4 Prior knowledge of ANC benefits

On the question that sought to find out whether the mothers had known the importance of antenatal care before they became pregnant, their responses are captured in figure 4.7.
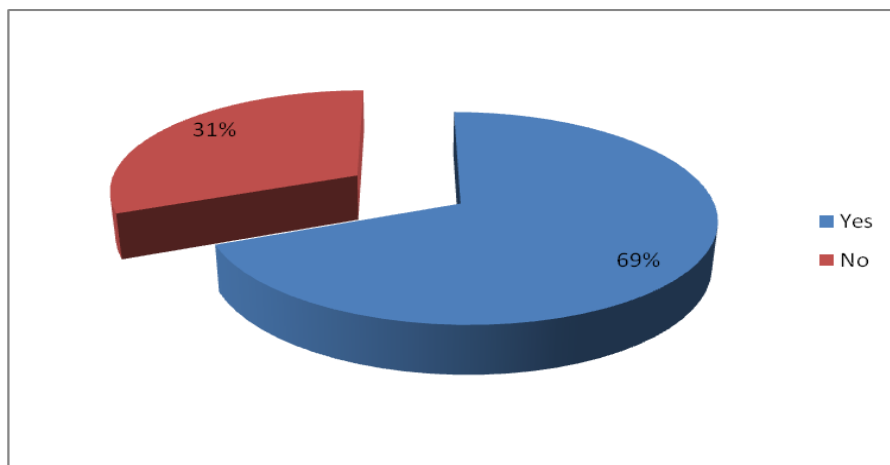
Figure 4.7: Awareness of the importance of ANC before pregnancy

Figure 4.7 evince that majority 194(69%) of the mothers reported that they were aware of the importance of the antenatal care before they became pregnant. This number however dropped from the number of the women who reported that they understood the importance of the services indicating that not all the women had the knowledge of the service before getting pregnant.

4.7.5 Relationship between prior knowledge and ANC uptake

Table 4.17 summarizes the results obtained from the test to establish the relationship between prior awareness of the importance of ANC before pregnancy and ANC uptake

Table 4.17: Association between the Awareness of the importance service and ANC Uptake

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	18.072[a]	6	.006
Likelihood Ratio	16.588	6	.011
N of Valid Cases	281		

a. 7 cells (58.3%) have expected count less than 5. The minimum expected count is .16.

Table 4.17 depict that there is a statistically significant relationship between the mothers' prior awareness of the importance of the ANC services and their level of ANC uptake as indicated a p-value of 0.006 which is less than 0.05 at the 95% confidence interval. This is in tandem with the observed likelihood ratio value of 16.588 denoting the mothers ANC uptake was 16 times likely to be influenced by their awareness of the importance of the ANC services and the reported p value of 0.011 which is less than 0.05 significance level.

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4.7.6 Satisfaction with ANC Services

The mothers were first asked whether they satisfied with ANC services. Figure 4.8 summarizes the responses.
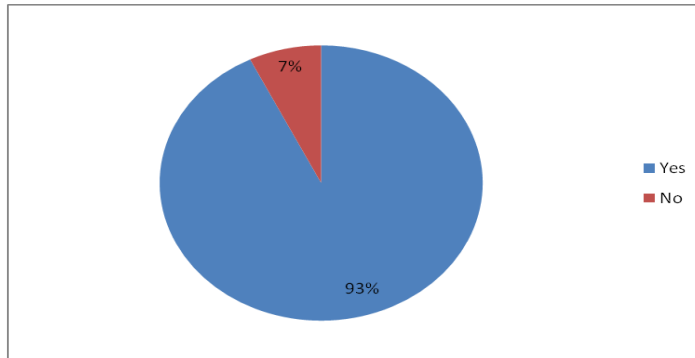
Figure 4.8: Satisfaction with ANC Services

According to the findings shown in figure 4.8, most of the mothers 261(93%) were satisfied with the antenatal care services offered at the health facilities. However, 20(7%) of the mothers who participated in the study were never satisfied with the services offered.

4.7.7 Areas of satisfaction with ANC services

When were further asked about their level of satisfaction with ANC services, the responses obtained are captured in figure 4.9 below.
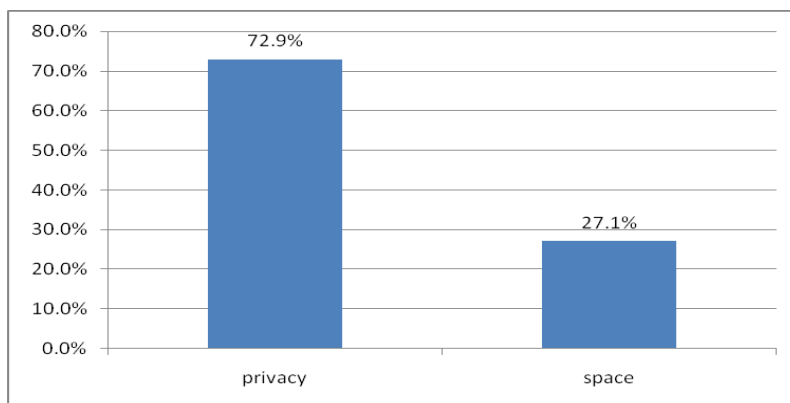
Figure 4.9: Level of Satisfaction

Figure 4.9 depicts majority, 205(72.9%) of the mothers reported that their level of satisfaction depended on the privacy status as provided by the health facilities whereas 76(27.1%) were concerned with the space at the clinic where the services were offered.

CHAPTER FIVE
DISCUSSION OF RESULTS

5.1 Introduction

The chapter discusses the study findings, comparison with other studies guided by the study objectives and is sequenced into seven subsections including the response rate, demographic characteristics of the mothers, proportion of ANC utilization, Socio-demographic, Socio-Cultural economic and perception factors influencing uptake of antenatal care Services by Mothers of Reproductive Age.

The findings show that when the mothers were categorized by age, 82(29.2%) of the mothers were aged 25-29 years, 68(24.2%) each were either within 20-24 or 30-34 age brackets, 32(11.4%) were =<19 years, 26(9.3%) were 35 years and above while 5(1.8%) did not indicate their age bracket. 77% of the respondents were between the ages of 20-34

When distributed by level education, majority, 173(61.6%) of the mothers had primary level education, 77(27.4%) had attained secondary level, 13(4.6%) reported tertiary, 12(4.3%) had no formal education, the mothers who were university graduates represented only 1(0.4%) of the women who participated in the study while 5 (1.8%) did not comment.

With regard to their husband's level of education, 44.5% of the mothers reported that their husbands had achieved primary education. 85(30.2%) of the mothers indicated their husbands had attained secondary education, 23(8.2%) had tertiary education, 10(3.6%) reported their husbands had had no formal education, husbands who had university education represented 8(2.8%) while 30(10.7%) did not comment.

It is deducible from the findings that most (77.9%) were married, 30(10.7%) were single, 20(7.1%) were widowed and 8(2.8%) were divorced, 1(0.4%) did not specify their marital status

while 3(1.1%) of did not comment. The findings also show that Christianity was the dominant religion in the sub county accounting for 95.0% with other religions such as Islam, Hinduism, Legion and others that were not specified representing 2.8%, 0.7 and 0.4% respectively. Additionally, 40.3% of the mothers were unemployed and only 5.7% were professionals.

From the findings it is evident that a response rate of 85.41% with a 14.58.0 % non-response reported. The non-response reported was attributable to the limitation identified in section 1.6 relating to some of the mothers fearing either victimization or being considered illiterate and some mother having been apprehensive that the research would not benefit them. With concerns about survey data biased by low response rates gaining traction in research in recent years, the higher response rates reported here indicate less of a potential for bias from non-response Mariolis P, (2001). The response rate reported above is also within the acceptable standard levels envisaged by Jack E. Fincham (2008), who postulated that any response rate $\geq 80\%$ is expected inorder for the research findings to be representative of the population of interest. This is aimed at limiting nonresponse bias that is likely to diminish reliability and validity of study findings.

This section summarizes the results obtained from the questions that sought to determine the proportion of women utilizing the ANC services captured in figure 4.2 and table 4.2 respectively. With regard to level of utilization of the antenatal care services, the findings indicate most (86.5%) of the mothers who participated in the study had utilized the antenatal care services in their previous pregnancy as these had reported to have attended the antenatal clinic. However, 27(9.6%) of the mothers did not attend the antenatal clinic thus never utilized the services while 3.9% did not comment. Their major reason for non-attendance was due to the distance involved which they would travel to access the services. Others included perception that they never understood the importance of the services, disdain for services and poor transport services to reach the clinic centers. These findings were consistent with the findings of Dairo and Owoyokun (2010) whose study illustrated that regardless of the recommended four

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visits for the low income countries, the percentage of visitations to the antenatal clinics is still low among countries. These findings are further corroborated by those of (Dairo and Owoyokun 2010; Fagbamigbe and Idemudia 2015; Muchie 2017) who reported that most mothers did not initiate utilization to ANC services in their first trimester to enable them receive the recommended number of visits despite the recommended four visits; low-income countries posted low percentage of visitations to the antenatal clinics. This is attributed to their perception, attitude and lack of prioritization for these services. Emphasis from recent findings report that most mothers of child bearing age hardly allocate adequate time and finances to ANC service related activities (Okedo-Alex et al. 2019b; Worku and Woldesenbet 2016). Despite non attendance of antenatal clinics reported being attributable to the mothers' attitude and lack of prioritization for these services with most mothers of child bearing age hardly allocating adequate time and finances to ANC service related activities. According to (Okedo-Alex *et al* 2019b; Worku and Woldesenbet 2016) and in line with (Ye et al. 2010a) study findings reported that a large number of mothers missed ANC services due to lack of adequate time, the mothers spending time executing their daily duties to earn a living allocating no or inadequate time to cater for their health coupled with their poor socioeconomic status. Current study findings report that mothers have inadequate financial ability to spend on optional financial obligations that go along with utilization to ANC services in form of transport. This is explained by the aforementioned inequitable distribution of health facilities in Karachuonyo North sub-County that may translate to distant travelling for utilization to health facilities. Although the Kenyan government has implemented policies on free maternity including ANC services, these does not take into consideration other related costs including transport. The attributable effect on ANC service uptake is evident from current findings which reveal that, 13.5% of the Mothers did not attend the ANC services due to long distance travelled to utilization health services. Worse still, these

services are inadequately provided in government facilities where they are free due to high demand and inadequate government provision of pre-requisite resources and trained personnel compromising on quality service provision (Ouma and Asweto 2017). This causes high competition for utilization that renders it time consuming due to congestion and long ques. Hence, these Mothers are left with no option but to utilize these services from private facilities where the services are partially subsidized to save on time and get quality attention. In a nutshell, ANC service uptake especially the completion of the recommended minimum four visits remains poor hence the high level of poor maternal health indicators including unplanned pregnancy outcomes, high gestational morbidity and mortality rates among Mothers in Karachuonyo North sub-County, Kenya.

The attendance to the antenatal clinic was mainly during the second trimester for the mothers. Only 39.1% had attended the clinic at their first trimester. The attendance was contributed to by the presence of awareness of the care services among the mothers. These were also in line with the study of Abosse et al, (2010) where the results showed that the number of women visiting antenatal clinics have remained low with the attendance being on the latest stages of pregnancy. The mothers were the main decision makers for their uptake of the antenatal care services. However, 14.6% of the mothers were advised by their husbands to undertake the care services and 4.3% were advised by their mother-in-laws.

With regard at what stage of pregnancy the mothers had attended antenatal clinic the findings reveal that 43.1% of the mothers had attended the antenatal clinic during the second trimester. 111(39.5%) attended the clinic at the first trimester and 36(12.9%) attended at their third trimester while 13(4.5%) did not comment. When further asked to give reasons for the uptake, majority 197(70.2%) the mothers who participated in the study attributed their ability to attend the antenatal clinic to having had some awareness of the care services provided at the clinics whereas 20.2% were prompted to go to the clinic as they were

aware of complications. There was also a significant relationship between the reasons for ANC clinic visits and mothers' level of ANC uptake as demonstrated by a p-value of 0.000 at 0.05 level of significance. This is further corroborated by likelihood ratio value of 48.890 which denote that reasons for ANC clinic visit was likely to influence the mothers' ANC uptake 48 times with reported p value of 0.000 which is less than 0.05 significance level.

The attendance of the mothers to the ANC was found to have been affected by the women knowledge on the services. Others were affected by the costs involved in seeking the services and the perception of the mothers on the poor services at the clinics. Most of the mothers were unable to access the services at the early stages of the pregnancies due to different factors including the distance involved, the knowledge of the women on the antenatal care services as well as the ignorance aspect of some mothers. These findings were also similar to the findings of a study conducted by Yang *et al*, (2010) who reported that a large number of mothers did not attend antenatal clinic because lack of adequate time and due to the unavailability of health facilities as the mothers perceived that the distance to the health facilities was a hindrance to their visit. These findings are also in line with those of a study by (Abosse, Woldie, and Ololo 2010) that showed the number of mothers attending antenatal clinic remaining low in addition to being confined to latest stages of pregnancy.

The study findings also illustrated that the decision to take the antenatal care services as well as to have the delivery at the health facilities among the mothers was agreed with their husbands where applicable. However, not all the married mothers were able to discuss about the antenatal care services with their husbands. This was contrary to findings by (Mwaniki et al. 2014) whose study indicated that, husbands were the main decision makers on whether their pregnant wives would attend the antenatal care clinics whereas in the current study, the Mothers were mainly the decision makers of attending the clinic The reason to attend the clinic among the mothers was majorly to know their maternal health status. These findings were however in disagreement with Sabeena and Nasreen (2011) whose study indicated that, husbands were the main decision makers on whether their pregnant wives

would attend the antenatal care clinics whereas in the current study, the mothers were mainly the decision makers of attending the clinic.

The findings also indicate there being a statistically significant relationship between level of education of the mothers and ANC uptake as demonstrated by a p-value of 0.000 which is less than 0.05 significance level at 95% confidence interval. The mothers had had between 1 -7 deliveries. These findings are in tandem with those of Mungai, S (2015) whose study revealed that primary and secondary education were statistically significant factors that were likely to influence utilization of the postnatal care.

There was also statistically significant relationship between religion of the mothers and their ANC uptake as shown by p-value of 0.000 which is less than 0.05 significance level at 95% confidence interval. This is further corroborated by likelihood ratio value of 25.503 evincing a 25 times likelihood of religious affiliation of the mothers influencing their ANC uptake with p-values of 0.04 which is less than 0.05 significance level. However, there was no statistically significant relationship between marital status of the mothers and the level of ANC uptake as shown by the p-value of 0.123 which is greater than 0.05 at the 95% confidence interval. The observed likelihood ratio of 14.499 is indicative that marital status of the mothers was 14 times unlikely to influence their ANC uptake with reported p value of 0.488 which is greater than 0.05 significance level. Similarly, there was statistically significant relationship between the husbands' level of education and the level of ANC uptake by the mothers as confirmed by the reported p-value of 0.003 which is less than 0.05 at the 95% confidence interval. This is further supported by the reported 32.177 likelihood ratio which indicates that the husbands' level of education was likely to influence ANC clinic visit by the mothers 32 times besides the observed p value of 0.006 which is less than 0.05 significance level. These findings concur with those of (Kawunguzi, et al, 2015) who contends that level of education was one of the factors that influenced the place of attendance, number of ANC attendance and the booking time since the husbands were expected to provide financial support, accompany their wives to the clinics and ensure the complete the recommended visits.

On the issue of decision to attend the clinic the findings illustrate majority, 69.8% of the mothers were the sole decision makers on whether to attend the antenatal clinic for the care services or not, 14.6% of the mothers were influenced by their husbands decisions to attend the clinic, 4.3% were asked by their mother-in laws to attend the clinic, other decisions were from the mothers' relatives including mothers contributed to 1.8%, a combination of either self and husband or self, husband and mother-in-law accounting for 1.1% each while husband and mother in-law and aunt influenced 0.4% of the mothers respectively. Another 0.4% of the mothers were not influenced any of the individuals cited here while 5.0% did not comment. There was also statistically significant relationship between the decision maker and the level of ANC uptake as demonstrated by the reported p-value of 0.000 which is less than 0.05 significance level at 95 confidence interval and further confirmed by likelihood ratio p value of 0.000 which is less than 0.05 significance level and the likelihood value of 89.459 p value signifying decision maker was 89 times likely to influence ANC uptake which contradicts the findings by Sabeena and Nasreen, 2011 who had observed that the husbands were the main decision maker on whether the pregnant woman was to attend antenatal clinics.

Previous findings report that income is the single most vital determinant of health. (New Zealand and National Advisory Committee on Health and Disability 1998). There exists a strong correlation between low income and poor health. It is majorly evident that financially worse-off individuals experience highest rates of illness and death on consideration of death rates, disease rates, health service utilization, and hospital admissions. Adequate income is pre-requisite for many other determinants of health including adequate housing, nutritious, dietary habits and proper educational opportunities.

Regarding the level of income for the mothers, majority (63.3%) had a total monthly income of less than Ksh 2000 whereas only 0.7% of the mothers had a monthly income of between Ksh 20,001 and Ksh 40,000. A majority of these mothers have little ability to afford ANC service associated no-

government subsidized costs (Ouma and Asweto 2017). The study findings further illustrated that majority of the mothers had incurred transport costs to the clinic. Other costs included the cost of purchasing other commodities items to use during the care services and the payments for the user fees at the health facilities when attending the antenatal clinic.

The study findings illustrated that majority of the mothers had incurred the transport costs to the clinic. Other costs included the cost of purchasing other commodities to use during the care services and the payments for the user fees at the health facilities when attending the antenatal clinic. These were found to have a statistically significant relationship between the cost and the mothers' uptake of antenatal care services as depicted by a p value of 0.01 which is less than 0.05 significance level at 95% confidence interval although this was contrasted by the likelihood ratio p value 0.091 which is greater than 0.05 significance level thus evincing possibility of other cost related factors contributing to the observed influence. On the contrary however, a study conducted by Simkhada *et al*, (2008) found that cost of the services, household income, and women's employment were positively associated with antenatal care attendance and further confirmed by (Mgata and Maluka 2019; Tekelab et al. 2019; Ye et al. 2010b) who in their studies found that cost of the services, household income, and Mothers's employment were positively associated with antenatal care attendance. This was attributed to the fact that the government has put in place a policy to ensure that all pregnant mothers get free access to maternity services which include antenatal care and delivery in all public health facilities in Kenya (Ouma and Asweto 2017). Generally, most mothers have limited ability to incur extra costs associated with ANC services.

The study findings also were consistent with the findings of a study conducted by Doku (2012) whose findings showed that the timing of the antenatal visit is related to income and the rich families were likely to have early visit to the antenatal care facilities as opposed to the poor families. However, the findings showed no significant relationship between the level of ANC uptake among women of reproductive age

and the costs involved during the exercise. The mothers however reported that the distance to the health facility, more workload and responsibilities held in the family as hindering their uptake. These factors are associated with the socio-economic status of the women as where the women could have utilization to the services of a house help there are high chances for them visiting the ANC as they have time and responsibilities shared.

With regard to occupation of the mother the findings illustrate 39.9% of the mothers were unemployed, 30.2% were skilled personnel, 22.8% were unskilled laborers, 5.7% were professionals, 0.4% were both unskilled and unemployed while 1.1% did not comment. When further asked about their husband's occupation, 40.9% of the mothers were married to husbands who skilled personnel, 23.8%) were unemployed, 14.2% provided unskilled labor, services, 10.3% were professionals while 10.4% did not comment. There was nonetheless no statistically significant relationship between both mothers' and husbands' occupations and the level of ANC uptake by the mothers as signified by p-value of 0.989 and 0.947 respectively which are greater than 0.05 at the 95% confidence interval. Similarly, the likelihood ratio p values obtained (0.991 and 0.932) respectively are also greater than 0.05 significance level. These findings on occupation contradict those of (Tsegay, et al 2013) who had listed husband's occupation among the factors associated with ANC visits.

The findings on income of the mothers evince majority of the mothers 63.3% earning a total monthly income that was less than Kshs. 2000. 25.6% had a monthly income of between Kshs. 2001 – 5000, 5.7% had a monthly income ranging between Kshs.5001 – 10,000, 3.9% had a total monthly income of between Kshs. 10,001 – 20,000 whereas 0.7% had a monthly income of between Kshs. 20,001 – 40,000 while another 0.7% did not comment. This explains the challenges relating to their inability to afford cost of user fee at the ANC and transport cost involved. The findings also indicated existence of statistically significant relationship between the mothers' level of monthly income and the level of ANC uptake as shown p-value of 0.010 which is less than 0.05 at the 95% confidence interval though the reported likelihood ratio p value of 0.236 was greater than 0.05 significance level hence the observed influence

could be attributable to a combination of other factors related to income beyond income alone. These findings also echo those of Akowuah et al, (2018) who indicated that household income did influence constant use of modern facilities.

Most 81.4% of the mothers had incurred cost relating to transport costs to the clinics, payment of user fees and purchase of commodities for use during care services, 1.4% did not specify the nature of cost, 0.4% had not incurred any cost since they had not attended while 17.8% did not comment. These findings are further corroborated by the p-value results of 0.001 which is less than 0.05 at 95% confidence interval indicating statistically significant relationship between cost and utilization of the ANC services. A study conducted by Simkhada *et al*, (2008) found that cost of the services, household income, and women's employment were positively associated with antenatal care attendance and further confirmed by (Mgata and Maluka 2019; Tekelab et al. 2019; Ye et al. 2010b) who in their studies found that cost of the services, household income, and Mothers's employment were positively associated with antenatal care attendance. Additionally, the findings demonstrate challenges relating to mode of transport with 47.7% of the mothers reporting use of motorcycles as the mode of transport for them to reach the hospitals for the antenatal clinics, 39.4% used the walking method while vehicles accounted for 12.9%. These findings corroborate those of study by Mungai S (2015) who had postulated that hospital deliveries were likely to be significantly influenced by residence and wealth indexes. The findings further resonate with those of Akowuah et al, (2018) who contends that vehicle usage to ANC facility reduced the chances of regular visit as opposed to walking to the facilities.

According to the findings, the mothers preferred the health facility services due to the perception that the health facility saves the Mothers' lives. These were in line with the findings of a study conducted by (Fawole, Okunlola, and Adekunle 2008; Nachinab et al. 2019) which illustrated that more than two thirds of the respondents had negative perceptions about antenatal care services. Other reasons for the preference was the Mothers believe that the problem of retained

placenta would not occur, the feeling that the health facilities supports labor, the facility cleanliness as well as the Mothers believe that bleeding would not occur at the hospital unlike when the delivery is under other methods. Majorly, home births were through the assistance of traditional birth assistants whereas others received the health of the community health workers. 86.1% of the Mothers were satisfied with the antenatal care services offered at the health facilities where the level of satisfaction depended on the privacy status of the health facilities. These findings were also similar to the findings of (Chemir, Alemseged, and Workneh 2014b) which illustrated that more than half of the Mothers studied were satisfied with the services offered at the antenatal care clinic.

With regard to husband and grandmother influence on decision to attend ANC, majority (54.8%) of the mothers confirmed being influenced whereas 33.8% were never influenced. Similarly, majority (74.0%) of the mothers who had been influenced by the advice of their husband or grandmothers, majority 74.0% had been advised to seek the services whereas 26.0% were advised otherwise.

On the number of the antenatal clinic attendance, the mothers had attended varied times with 28.1% reporting having attended thrice during their last pregnancy, 23.1% had attended the clinic four times, 18.1% had attended for more than four times, 8.2% had attended the antenatal clinic once during their last pregnancy while 2.1% had attended twice. Some of the reasons cited for late attendance of antenatal clinic ranged from the 33.9% of the mothers having not detected the pregnancy during the first trimester, 21.7% felt that the pregnancy was still young and 6.4% were not able to meet the costs of the services whereas 5.3% were unable to attend due to the poor services at these clinics. These reasons for late attendance however addresses the gap in knowledge on why those who attended the clinic at least once did not complete the recommended four visits (UNCEF,2014).The poor services herein reported are similar to those reported in the study by Akowuah et al (2018) on determinants of antenatal healthcare utilization by pregnant women in third trimester in Peri-urban Ghana had revealed the frequency of attending ANC was

likely to increase if the mother rated the ANC services rendered at the facilities to be good as opposed poor . It is also evident from the findings that the mothers' failure to attend antenatal clinics four times was attributable to dislike for the services, late commencement of their visits in the subsequent trimesters of their pregnancy and having to cover long distances to the clinics despite coupled with fatigue attendant to such journeys. Owing to some these reasons, majority (56.9%) of the mothers had attended the antenatal clinic at their second or third trimesters which was late according to the recommendations while 29.5% had attended the antenatal services at the early stages during their first trimester.

Contrary to the perceptions that pregnancy is not a subject of discussion, the findings show most (76.0%) of the mothers had discussed with their husbands about the pregnancy and attendance of antenatal care clinics while 24.0% had not discussed with their husband about the pregnancy or the antenatal services.

Whereas majority, (66.9%) of the mothers had attended the antenatal care clinic to know their maternal health status, 10.0% due to sickness whereas 10% sought to know of the fetal status.3 (1.1%) of the mothers reported other reasons that encouraged them to attend the ANC clinic. The findings also show 46.6% mothers who had never attended ANC were not aware of the benefits of the services, 24.3% failed to because the health facilities were too far away from their residences, 20.4% had the perception that the ANC should be attended by women with complications especially those who feel sick, 5.8% had more workload and could not get time to attend the clinic whereas 2.9% had the feeling of shame. Most (91.0%) mothers who participated in the study were aware of the services offered at the antenatal clinic with only 9.0% reporting lack of awareness, Chi square test results indicated there was statistically relationship between mothers' awareness of ANC services and the level of ANC uptake with reported p-value of 0.000 which is less than 0.05 at 95% confidence interval. This is further confirmed by the reported likelihood ratio of 44.445 indicating there was 44 times likelihood of awareness to influence the mothers' ANC uptake as also evinced by the observed p value of 0.000 which is less than 0.05 significance level. Consequently, when further asked whether they were aware of the importance of ANC before pregnancy it is deducible from the findings that majority (69.0%) of the mothers confirmed they

were aware of before they became pregnant which was a reduction from the number of the women who had reported that they understood the importance of the services indicating that not all the women had the knowledge of the service before getting pregnant. There was nonetheless a statistically significant relationship between the mothers' awareness of the importance of the ANC services and their level of ANC uptake as shown by p-value of 0.006 which is less than 0.05 at the 95% confidence interval. This is in tandem with the observed likelihood ratio value 16.588 denoting the mothers' ANC uptake was 16 times likely to be influenced by their awareness of the importance of the ANC services and the reported p value of 0.011 which is less than 0.05 significance level.

Regarding at what level they knew the importance of antenatal care services, the findings portray 26.7% of the mothers having known about the importance of the antenatal care services while in primary schools, 22.4% were informed of the importance after their marriage, 16.0% were at high school level while 4.6% learnt about the importance of the services while at college. The results stemming from chi-square test confirms existence of a statistically significant relationship between the time when the mothers had learned about the ANC services and their level of ANC uptake as depicted p-value of 0.017 which is less than 0.05 at the 95% confidence interval.

From the findings it can be inferred therefore that the decision to utilize ANC involved different parties ranging from 53.6% of the mothers themselves solely making deciding where to deliver their babies, 34.5% of the decision were made by the husbands, 8.5% were directions from mother-in-laws while 3.0% of the decisions were made on account of relatives and the doctors.

CHAPTER SIX
SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

6.1 Introduction

The chapter presents the conclusions arising from the foregoing summary of study findings and the recommendations drawn from the study conclusions as the study objective in addition to the suggestions made for further areas of research.

6.2 Summary of study findings

The study was undertaken with the aim of undertaking an assessment of the factors affecting utilization of antenatal care services in Karachuonyo North sub-County, Homa bay County, Kenya. The study involved participation of Mothers under the child bearing age 15-49. Women of ages between 20 and 34 formed the majority of the respondents (79%).

The study found out that 86.5% of the Mothers had utilized the services in their previous pregnancy. The attendance to the antenatal clinic was mainly during the second trimester for the Mothers. Only 39.1% had attended the clinic in the first trimester.

Majority of the respondents (62.3%) had primary education as their highest level achieved. 40.3% of the Mothers were unemployed and only 5.7% were professionals. With regard to the Regarding the level of income, majority of the respondents (63.3%) had a total monthly income of less than 2000.

The Mothers were the main decision makers for their uptake of the antenatal care services. According to the study findings, 80.4% of the births were at hospitals.

This study findings report that there is high uptake of ANC services in Karachuonyo sub-County although many of the Mothers initiate the visits late hence end up attending less clinics than recommended visits by the WHO. All the four ANC visits are important to ensure positive pregnancy outcome.

6.3 Conclusions

Although most (86.5%) of the mothers of reproductive age had utilized the antenatal care services in their previous pregnancy, majority had neither attended the ANC during the first trimester of their pregnancy nor the recommended four visits.

Non utilization of ANC services by respondents resulted from factors such as the distance, failure to understand the importance of the services, disdain for quality of the services and poor transport services to the clinic centers.

Majority (70.2%) the mothers had attended the antenatal clinic because of some awareness of the care services provided at the clinics and complications likely to arise by failure to attend.

There was statistically significant relationship between the husbands' level of education, number of deliveries and utilization of Antenatal Care Services by Women of Reproductive Age.

Although there was no statistical significant relationship between both mothers' and husbands' occupations and the level of ANC uptake by the mothers on the contrary there was statistically significant relationship between the mothers' monthly income, cost incurred and the level of utilization of ANC services.

Although majority 63.3% of the mothers earned less than kshs. 2000 monthly income which posed challenges in affording transport cost, they were willing to walk to the ANC centers an indication of appreciation of the benefits involved.

Decision to utilize ANC facilities was influenced by significant others including their husbands, mother-in-laws, relatives and the doctors in addition to assisted delivery, discussions on pregnancy and awareness on ANC.

Although there was no relationship between mothers' awareness of ANC services and the level of ANC uptake, there was statistically significant relationship between the time when the mothers had learned

about the ANC services, awareness of the importance of the ANC services and their utilization of the ANC services.

Other perception factors that influenced failure to utilize ANC included; poor services at these clinics, long distances involved to the clinics despite, availability of traditional birth attendants (TBA) and relatives and ability to deliver without assistance, perception that the ANC should be attended by women with complications and the feeling of shame arising from pregnancy out of wedlock.

6.4 Recommendations from the study findings

From the foregoing conclusions, the following recommendation seeking to address the non-uptake cases in the area can be made in tandem with research objectives;

i. There is need for more campaigns on the antenatal care services for the expectant mothers especially training on their expected frequency of attending the antenatal care services in order to ensure that they have completed the clinic as recommended. The ministry of health, county governments and other stakeholders therefore should fund more campaigns to be held in areas where more women of childbearing age can be reached such as churches and other community gatherings to sensitize the whole community of the importance of requirement of the expectant mothers to undertake the services.

ii. There is need for Policy formulation to mitigate against challenges arising from family backgrounds that encourages alternative delivery option such as traditional birth assistants.

iii. There is need for the County governments to improve road infrastructure to enhance utilization of health facilities services within the county and additional health facilities be constructed in conjunction with the Ministry of Health.

iv.   The county governments should initiate and intensify mobile ANC services in order to reach the mothers who are unable to reach the clinics because of the cost of transport.

v.   More recruitment of community health volunteers to disseminate the message on the benefits of utilizing ANC services before, during pregnancy and after pregnancy

6.5 Suggestion for Further Research

i.   There is need for a further study therefore to examine the uptake patterns for mothers across other regions of the country which would compare the uptake levels.

ii.   A further study should be undertaken also to examine other factors influencing uptake of ANC services among women of child bearing age.

iii.   The role of the faith community to influence utilization of ANC should be explored

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APPENDIX 1: WRITTEN INFORMED CONSENT

MASENO UNIVERSITY
PRIVATE BAG
MASENO

DETERMINANTS OF UTILIZATION OF ANTENATAL CARE SERVICES IN KARACHUONYO NORTH SUB-COUNTY, HOMABAY COUNTY, KENYA

Good Morning/ Afternoon. I am part of the team assessing The Use of antenatal care services in Rachuonyo North Sub County, Homabay County, Kenya. Our team will interview 362 respondents in this area. We have been granted permission by your local leaders to conduct this study. Your house has been selected randomly to participate. We would very much appreciate your participation in this survey.

Purpose of the Study

The main objective of the study is to assess the use of antenatal care services in Rachuonyo North Sub County, Homabay County; the study will be useful to the target population, Government and other stakeholders to know the importance of clinic attendants on the reduction of maternal mortality. The study will add new knowledge on the use of antenatal services in Rachuonyo North Sub County, Homabay County.

Study procedures

If you agree to take part in this study, you will be interviewed on various issues such as socio-demographic characteristics, sanitation practices and occurrence of diarrhea. The questionnaire will take about 30 minutes. It will be conducted at household level.

Confidentiality

Your identity and other records about you will remain confidential and will not appear when we present this study or publish its results. You will receive a copy of the consent form.

Right to refuse or withdraw

It is important that you understand the following general principles that will apply to all participants in the study:

1. Participation is entirely voluntary.
2. You may withdraw from this study at any time without penalty or loss of benefits.

I acknowledge that this consent form has been fully explained to me in a language that I understand and have had the opportunity to ask questions which have been answered to my satisfaction. I agree voluntarily to participate in this study and understand that I have the right to withdraw at any time without penalty.

Participant's signature _____   Date: _____

Study No.: _____

Research Assistants Signature: _____ Date_____

Contact: If you have questions in future, please contact John Okello, P. O. Box 307, Oyugis

APPENDIX 2. QUESTIONNAIRE FOR MOTHERS OF REPRODUCTIVE AGE RESPONDENTS

1. How old are you? ……...............
   a) ≤19   [   ]
   b) 20-24   [   ]
   c) 25-29   [   ]
   d) 30-34   [   ]
   e) ≥35   [   ]
2. What is your highest level of education? ….................
   a) None   [   ]
   b) Primary   [   ]
   c) Secondary   [   ]
   d) Tertiary   [   ]
   e) University   [   ]
3. What is your husband's level of education?
   a) None   [   ]
   b) Primary   [   ]
   c) Secondary   [   ]
   d) Tertiary   [   ]
   e) University   [   ]
4. What is your marital status? ……………………
   a) Single   [   ]
   b) Married   [   ]
   c) Divorced   [   ]
   d) Widowed   [   ]
   e) Other (please specify)
5. Which religion do you belong to? ………………..
   a) Christianity   [   ]
   b) Islam   [   ]
   c) Hindu   [   ]
   d) Others _____
6. What is your occupation? …………………..
   a) Professional   [   ]
   b) Skilled   [   ]
   c) Unskilled   [   ]
   d) Unemployed   [   ]
7. What is your husband's occupation? ………………………..
   a) Professional   [   ]
   b) Skilled   [   ]
   c) Unskilled   [   ]
   d) Unemployed   [   ]

8. What type of house do you reside in? ………………………….
   a) Permanent   [   ]
   b) Semi-permanent   [   ]
   c) Temporary structure   [   ]
   d) Other (please specify)
9. Who owns the house? ……………………………………………
   a) Husband   [   ]
   b) Landlord   [   ]
   c) Myself   [   ]
   d) Other _____
10. How many occupants live in the house? …………………………….
   a) < 3   [   ]
   b) Between 3 and 5   [   ]
   c) Between 6 and 10   [   ]
   d) Over 10   [   ]
11. How many deliveries do you have? ……………………..
   a) One   [   ]
   b) 2-3   [   ]
   c) 4-6   [   ]
   d) Over 7   [   ]
12. At what age did you have your first born? …………
   a) ≤ 19 [   ]
   b) 20-24   [   ]
   c) 25-29   [   ]
   d) 30-34   [   ]
   e) ≥ 35 [   ]
13. What is your total monthly income (Kshs)? ……………………………….
   a) Less than 2000 per month   [   ]
   b) Between 2001-5000 pm   [   ]
   c) Between 5001-10,000 pm   [   ]
   d) Between 10,001 – 20,000 pm   [   ]
   e) Between 20,001 – 40,000 pm   [   ]
   f) Over 40,001 pm   [   ]
14. Did you attend antenatal clinic in your last pregnancy
   a) Yes   [   ]
   b) No   [   ]
15. If NO why didn't you attend
   a) Distance   [   ]
   b) Didn't see importance   [   ]
   c) Do not like the services   [   ]

d) Transport not available   [ ]

e) Permission from Home   [ ]

f) No reason   [ ]

16. At what time of the pregnancy did you attend the clinic?

a) First Trimester   [ ]

b) Second Trimester   [ ]

c) Third trimester   [ ]

v. What prompted you to go the clinic

a) Awareness of Care   [ ]

b) Awareness of Complication   [ ]

17. Who made the decision that you go toe the clinic

a) Self   [ ]

b) Husband   [ ]

c) Mother – in – Law   [ ]

d) Other (Specify) : _____

18. Where did you deliver in your last pregnancy

a) Hospital   [ ]

b) At Home   [ ]

c) Others (Specify) : _____

19. Do you have a history of complications in the previous pregnancy

a) Yes   [ ]

b) No   [ ]

ii. If yes how were you assisted

_____

20. Did your husband or grandmother influence your decision to attend antenatal visit?

a) Yes   [ ]

b) No   [ ]

21. If yes, did he advice you to attend or did not advise you?

a) Yes   [ ]

b) No   [ ]

22. How many times did you attend the antenatal clinic in your last pregnancy?

a) 1   [ ]

b) 2   [ ]

c) 3   [ ]

d) 4   [ ]

e) More than 4   [ ]

23. Why didn't you attend clinic in the first trimester?

a) I had not detected the pregnancy   [ ]

b) Pregnancy was still young   [ ]

c) Poor services   [ ]

d) Cost of Services   [   ]

24. If you attended less than 4 visit what was the reason?
   a) I didn't like the services   [   ]
   b) I want late to the clinic   [   ]
   c) Clinic was far so I was tired   [   ]

25. How many months pregnant were you when you first received antenatal care for this pregnancy
   a. 2nd or 3rd trimester (Late)   [   ]
   b. First trimester (Early)   [   ]

26. Who assisted with the delivery
   a) None (No assistance and assistance from relatives or others without professional skills   [   ]
   b) TBA (Assistance from traditional birth attendance [   ]
   c) Skilled (Assistance from A doctor, nurse, midwife, auxiliary midwife or community health officer   [   ]

27. Did you husband discuss with you about the pregnancy and antenatal care?
   a) Yes   [   ]
   b) No   [   ]

28. Did any of the following influence you decision to attend or not attend clinic?
   a) Mother – In – Law   [   ]
   b) Father – In – Law   [   ]
   c) Others (Specify) _____

29. If yes how did they influence your decision on clinic attendance
   a) _____
   b) _____
   c) _____
   d) _____

30. Why did you decide to attend ANC ?
   a) To know maternal health status   [   ]
   b) Because of sickness   [   ]
   c) of fetal status   [   ]
   d) Others (Specify) _____

31. Why didn't you attend ANC?
   a) Not feeling sick   [   ]
   b) Lack Of awareness of the benefits   [   ]
   c) Feeling shame   [   ]
   d) Workload   [   ]
   e) Health facility too far away   [   ]

32. Where did you deliver your last baby?
   a) Health facility   [   ]

b) Home   [   ]

33. If health facility why did you choose health facility
    a) Saves mother's life   [   ]
    b) Health facility is clean   [   ]
    c) Bleeding will not occur   [   ]
    d) Problem of retained placenta will not occur [   ]
    e) Health facility supports labour   [   ]

34. Who assisted you when you delivered at home?
    a) Mother-in- law   [   ]
    b) TBA   [   ]
    c) CHW   [   ]

35. What was your reason for delivering at home?
    a) Easy labour   [   ]
    b) Transport problem   [   ]
    c) Health facility too far   [   ]
    d) User fees   [   ]
    e) Unfriendly staff   [   ]

36. Are there any costs you incurred during your clinic attendance?
    a) Transport to the clinic   [   ]
    b) Payment of user fees   [   ]
    c) Purchas of essential items to use during the
       care services   [   ]
    d) Others (Specify) _____

37. Are you or your spouse ready to spend part of your income to get services at the clinic?
    a) Yes   [   ]
    b) No   [   ]

38. Are you aware of the services offered at the antenatal clinic?
    a) Yes   [   ]
    b) No   [   ]

39. Did you know the importance of antenatal care before you became pregnant?
    a) Yes   [   ]
    b) No   [   ]

40. If yes when did you know this?
    a) In high school   [   ]
    b) In primary school   [   ]
    c) In college   [   ]
    d) When I got married   [   ]

41. Who decided where you should deliver you baby
    a) Husband   [   ]
    b) Mother – In – Law   [   ]

c) Self   [   ]
d) Others (Specify) : _____
42. Which mode of transport did you need to reach the health facility for the antenatal care?
    a) Walking   [   ]
    b) Motorcycle   [   ]
    c) Vehicle   [   ]
43. Were you satisfied with the services offered to you during your antenatal clinic visit?
    a) Yes   [   ]
    b) No   [   ]
44. Which areas were you satisfied /not satisfied with?
    a) Privacy   [   ]
    b) Space   [   ]

APPENDIX 3: MAP OF THE STUDY AREA

IEBC REVISED KARACHUONYO CONSTITUENCY
COUNTY ASSEMBLY WARDS

APPENDIX 4: RESEARCH AUTHORIZATION FROM MUERC

MASENO UNIVERSITY ETHICS REVIEW COMMITTEE

Tel: +254 057 351 622   Ext: 3050
Fax: +254 057 351 221

Private Bag – 40105, Maseno, Kenya
Email: muerc-secretariate@maseno.ac.ke

FROM: Secretary - MUERC

DATE: 31st July, 2015

TO: John Okello
PG/MPH/00087/2005
School of Public Health and Community Development
Maseno University

REF: MSU/DRPI/MUERC/00185/15

RE: Determinants of Utilization of Antenatal Care Services in Rachuonyo North Sub-County, Homabay County, Kenya. Proposal Reference Number MSU/DRPI/MUERC/000185/15

This is to inform you that the Maseno University Ethics Review Committee (MUERC) determined that the ethics issues raised at the initial review were adequately addressed in the revised proposal. Consequently, the study is granted approval for implementation effective this 31st day of July, 2015 for a period of one (1) year.

Please note that authorization to conduct this study will automatically expire on 30th July, 2016. If you plan to continue with the study beyond this date, please submit an application for continuation approval to the MUERC Secretariat by 22th June, 2016.

Approval for continuation of the study will be subject to successful submission of an annual progress report that is to reach the MUERC Secretariat by 22th June, 2016.

Please note that any unanticipated problems resulting from the conduct of this study must be reported to MUERC. You are required to submit any proposed changes to this study to MUERC for review and approval prior to initiation. Please advice MUERC when the study is completed or discontinued.

Thank you.

Yours faithfully,

Dr. Bonuke Anyona,
Secretary,
Maseno University Ethics Review Committee.

Cc: Chairman,
Maseno University Ethics Review Committee.

APPENDIX 5: RESEARCH AUTHORIZATION FROM DEPUTY COUNTY

COMMISSIONER – RACHUONYO NORTH SUB COUNTY

OFFICE OF PRESIDENT
MINISRTY OF INTERIOR AND COORDINATION OF NATIONAL GOVERNMENT

Telegram:

Telephone:

When replying, please quote:

Ref No: ED.12/VOL.I/231

Deputy County Commissioner,
Rachuonyo North Sub County,
P.O. Box 27
KENDU BAY.

29th December, 2015.

TO WHOM IT MAY CONCERN

RE: AUTHORITY TO CONDUCT RESEARCH IN YOUR AREAS OF JURISDICTION MR.
JOHN OKELLO ID NO.8628801.

The above named person is registered in the master of Public Health Program of
the school of Public Health & Community Development Maseno University.

He wishes to conduct research in Rachuonyo North Sub County on Determinants
of utilization of Antenatal cases services

He is therefore authorized to carry out the same in your areas of jurisdiction and
subsequently you are asked to accord him the necessary assistance.

Thank you,

(SOLOMON C. KITAI),
Ag: DEPUTY COUNTY COMMISSIONER,
RACHUONYO NORTH SUB COUNTY

DEPUTY COUNTY COMMISSIONER
RACHUONYO NORTH SUB-COUNTY
P. O. Box 27
KENDU-BAY.