AN ASSESSMENT OF THE KNOWLEDGE, ACCESSIBILITY AND UTILIZATION OF MATERNAL AND CHILD HEALTH SERVICES BY WOMEN OF REPRODUCTIVE AGE IN KISUMU WEST DISTRICT, KENYA

By

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Declaration

This thesis is my original work and has not been presented to any other university for a degree or any other award.

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May God bless you all!

Dedication

I dedicate this work to two women in my life who have always believed in me; to my mother and to my wife for all the moral support and always believing in me.

Abstract

Kenya has one of the highest maternal and child health mortality in Africa. Estimates developed by the UN inter-agency group for child mortality estimation indicate a 2011 infant mortality of 48 per 1000 live births while maternal mortality is estimated at 444 per 100,000 live births. Kisumu West District has one of the poorest maternal and child health indicators while the only measure available is the percentage of health facility based deliveries. There are no indicators for knowledge available at the health facility or the Ministry of Health departments. Despite these, the knowledge, accessibility and utilization of maternal and child health services in Kisumu West District remains unknown. Therefore, the objective of this study was to assess the knowledge, accessibility and utilization of maternal and child health services in Kisumu West District. The study used a cross-sectional survey using multistage sampling and further simple random sampling to select the study participants. Data was collected using structured questionnaires through interviews of 440 women of reproductive age. Focus group discussions were conducted for purposively selected women of reproductive age. Multivariate linear regression analysis was used to establish association of socio-demographic and socioeconomic factors with knowledge, access and utilization of maternal and child health services. Data from the FGDs were thematically summarized. Results from this study showed that the participants' knew more than 80% of antenatal and postnatal care services offered but knowledge of neonatal and postnatal care still needs to be improved (an average of 53% of the study population identified these services). There were no national benchmarks for knowledge. The study found out that the access to maternal and child health services are higher in Kisumu West District than the national averages and this was attributed to increased outreach services and new health facilities by the government in Kisumu west District. Utilization of maternal and child health services is still lower than the WHO standards adopted by the government. Among the knowledge factors, age (P=0.021), family size (P=0.032), education (P=0.020) and income level were found to be significantly associated with knowledge. Education (P=≤0.001) and income level were found to be significantly associated with access to MCH services. Among the utilization factors, marital status (P=0.018), family size (P=0.050), occupation (P=0.006) and income level were found to be significantly associated with utilization of MCH services. The study showed that 6% of the study participants still seek services from traditional birth attendants and only 30% seek services from government health facilities because of better drugs/remedies. 65% of the study participants still have to walk more than one hour to access a health facility. The degree of utilization of maternal and child health services by women of reproductive age and their under five children in Kisumu West District, Kenya was determined to be below WHO standards which have been adopted by the Kenyan government. The socio-demographic factors associated with knowledge, accessibility and utilization of maternal and child health services were age, marital status and family size while socio-economic factors associated with knowledge, accessibility and utilization of maternal and child health services in Kisumu West District were education, occupation and income level. Continuous health information, communication and education will improve knowledge, increased outreach services is essential to increase access and utilization of maternal and child health services and improvement of the socioeconomic status of the study participants will improve knowledge, access and utilization of maternal and child health services in Kisumu West District.

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Abbreviations and acronyms

AIDS – Acquired Immunodeficiency Syndrome

AMRA – Approximate Mothers of Reproductive Age

ANC – Ante-natal Care

AOP – Area Operational Plan

CHW – Community Health Worker

CI – Confidence Interval

CU – Community Units

DHMT – District Health Management Team

DMOH – District Medical Officer of Health

FGD – Focus Group Discussion

FP – Family Planning

HIS – Health Information System

HIV – Human Immunodeficiency Virus

HMIS – Health Management Information System

IPTs – Intermittent Preventive Treatment

ITNs – Insecticide Treated Nets

KEPI – Kenya Expanded Programme on Immunization

KRN – Kenya Registered Nurse

KRCN – Kenya Registered Clinical Nurse

KDHS – Kenya Demographic and Health Survey

MCH – Maternal and Child Health

MDGs – Millennium Development Goals

MMR – Maternal Mortality Rate

MNH – Maternal and Newborn Health

MoPHS – Ministry of Public Health and Sanitation

MoPND – Ministry of Planning and National Development

PMTCT – Prevention of Mother to Child Transmission

PNC – Postnatal Care

SSPPS – Sample Size Proportionate to Population Size

TBA – Traditional Birth Attendant

UNDP – United Nations Development Program

UNICEF – United Nations Children's Fund

US – United States

WHO – World Health Organization

WRA – Women of Reproductive Age

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Operational definitions

Access: In this study, access refers to location of health facilities in relation to the study group and availability of maternal and child health services at these health facilities.

Ante-natal Care (ANC): Ante-natal care constitutes screening for health and socio-economic conditions likely to increase the possibility of specific adverse pregnancy outcomes, providing therapeutic interventions known to be effective; and educating pregnant women about planning for safe birth, emergencies during pregnancy and how to deal with them.

Ante-natal Care Coverage: Percentage of women who used ante-natal care services provided by skilled health personnel for reasons related to pregnancy at least once during pregnancy, as a percentage of live births in a given time period.

Evaluation: A process of making a comparative assessment of the value of an intervention through systematic collection and analysis of data.

Health Management Information System: An information system specially designed to assist in the management and planning of health programmes, as opposed to delivery of care. HMIS is commonly used synonymously with HIS.

Knowledge: In this study, knowledge refers to the ability of the study population to correctly identify the services offered at the health facilities for antenatal care, postnatal care and all health services provided to the children below 5 years of age when they visit a health facility.

Live Birth: Live birth is defined as the complete expulsion or extraction from its mother of a product of conception, irrespective of the duration of the pregnancy, which, after such

separation, breathes or shows any other evidence of life such as beating of the heart, pulsation of the umbilical cord, or definite movement of voluntary muscles, whether or not the umbilical cord has been cut or the placenta is attached.

Maternal and Child Health Services: Maternal and health services refer to all services offered at health facilities to women of reproductive age from 14 weeks of pregnancy and to their unborn child and children up to the age of 5 years.

Maternal Mortality: This is the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes.

Postnatal Care: Postnatal care encompasses management of the mother, newborn, and infant during the postnatal period. This period usually is considered to be the first few days after delivery, but technically it includes the six-week period after birth.

Skilled Birth Attendant: A skilled birth attendant is an accredited health professional - such as a midwife, doctor or nurse - who has been educated and trained to proficiency in the skills needed to manage normal (uncomplicated) pregnancies, childbirth and the immediate postnatal period, and in the identification, management and referral of complications in women and newborns. Traditional birth attendants trained or not, are excluded from the category of skilled attendant at delivery.

Utilization: In this study, utilization means the actual consumption of the maternal and child health services by women of reproductive age.

CHAPTER ONE: INTRODUCTION

1.1 Background of the study

Maternal health refers to the health of women during pregnancy, childbirth and the postpartum period. While motherhood is often a positive and fulfilling experience, for too many women it is associated with suffering, ill-health and even death (WHO, 2010). Kenya has a considerable way to go before it meets the Millennium Development Goals (MDG) associated with health and standards of a middle income, rapidly industrializing state, particularly in maternal and child mortality and longevity (MoPND, 2009). According to the KDHS 2009 report, 54.9% of women in Nyanza Province deliver at home. The poor utilization in Nyanza also shown in a similar study (Owino, 2010). The Kenyan government strategies in maternal and child health through the community strategy aims to have all deliveries conducted in the health facilities under a qualified health officer (Ochako *et al*., 2011). In Kisumu West District, despite a wide coverage of health facilities, the knowledge of health providers, access and utilization of maternal and child health services remains unknown. As such, the current study was designed to establish the knowledge, determine access and utilization of maternal and child health services in Kisumu West District to enable strategic health planning and implementation in the district.

Mother and child health is clearly on the international agenda as a specific Millennium Development Goal. Lack of knowledge of maternal and child health services can adversely affect the access and utilization of maternal and child health services (Owino, 2010). This view is supported by the findings of a similar study by (Yar'zever and Said, 2013) that investigated

knowledge and barriers in utilization of maternal health care services in Kano State, Northern Nigeria. In addition, in a previous study (Zhao *et al.,* 2009), it was shown that majority of women did not know that first care-seeking should be done within the first trimester of pregnancy. This shows that knowledge of the available maternal and child health services are an important factor in the access and utilization of maternal and child health services. The Ministry of Public Health and Sanitation in Kisumu West District's area Working Plan 2010-2012 also shows that there are poor breastfeeding practices among mothers in the district (MoPHS, 2010b). Despite these facts, the knowledge of women of reproductive age on maternal and child health services offered at the health facilities in Kisumu West District remains unclear. As such, this study established the knowledge of women of reproductive age on maternal and child health services offered at the health facilities in Kisumu West District.

Studies indicate that greater numbers of maternal deaths could be avoided with widespread accessibility and utilization of maternal health care services. Inadequate medical facilities, treatment of complications and inadequate medical personnel contribute between 10% and 45% of all maternal deaths. Complications arising from maternal obstetric conditions need not lead to death; they occur mainly because of severe socio-economic deprivations that are prevalent in developing countries (Owino, 2010) . According to the Kisumu West District Ministry of Public Health and Sanitation's report (MoPHS, 2010b), the proportion of women attending ante-natal clinic is 17% and deliveries in health facilities account for 20% of all deliveries in the district. Kisumu West District has a total of 22 health facilities i.e. 5 hospitals, 7 health centers and 10 dispensaries offering basic health services. Generally, utilization of health facilities by the community is affected by poor infrastructure, long distance and inadequate distribution (MoPHS, 2010a).

Average distance to health facility is approximately 5-8 kilometers. The district has 15 Community Health Units (CUs) with trained Community Health Workers implementing community strategy. Compared to other regions in Kenya, this represents good health facility coverage. Despite the availability of adequate health facilities compared to other areas, there is still low access to maternal and child health services in Kisumu West District. As such, the current study sought to determine accessibility of maternal and child health services by women of reproductive age and their under five children in Kisumu West District.

According to the KDHS 2009 report, 54.9% of mothers in Nyanza Province deliver at home. While maternal mortality figures vary widely by source and are highly controversial, the best estimates for Kenya suggest that approximately 14,700 women and girls die each year due to pregnancy-related complications (Kenya National Bureau of Statistics and Marco, 2010). Additionally, another 294,000 to 441,000 women and girls will suffer from disabilities caused by complications during pregnancy and childbirth each year (Kenya National Bureau of Statistics and Marco, 2010). Utilization of services from health facilities has been shown to greatly reduce maternal mortality and child mortality as shown by previous studies (Govindasamy and Ramesh, 1997; Yar'zever and Said, 2013). The proportion of expectant women in Kisumu West District who have deliveries conducted by skilled health attendants in health facilities is 20% and the number of fully immunized children under one year is 38% (MoPHS, 2010a) relative to the national level which is 44% (VSO, 2012) and 61% (Ministry of Health, 2006), respectively. This clearly shows that there is low utilization of maternal and child health services in Kisumu West District. Reasons for such low utilization in Kisumu West District remain unclear. As such, the current study sought to determine

the utilization of maternal and child health services by women of reproductive age and their under five children in Kisumu West District.

As previously demonstrated (Jayaraman *et al.,* 2008, Konte 1997, and Zhao *et al.,* 2009), the socio-demographic and socio-economic factors like the level of education, income, and age can potentially influence the knowledge, access and utilization of maternal and child health services. Since the link between the socio-economic and socio-demographic factors and knowledge, access and utilization of maternal and child health services in Kisumu West District also remains unclear, the current study also sought to understand the link between socio-economic and socio-demographic factors and the knowledge, access and utilization of maternal and child health services in Kisumu West District.

1.2 Statement of the problem

The population of women of reproductive age (15-49 years) in Nyanza Province is projected at approximately 16.4% of the total population in Nyanza. In Kisumu West District, 35,836 women are of reproductive age forming 22.8% of the total population. The average age of sexual intercourse is 17 years. This means that the need for adequate reproductive health services for Kisumu West District is greater than other areas in Nyanza. Nyanza Province records one of the highest levels of maternal mortality in the country, with over 1,000 deaths per 100,000 live births in some areas. The attendance of ante-natal and delivery services is also very low in the region. On average, the number of visits by averages only 4.7 as opposed to the recommended 12 visits.

A critical examination at all the indicators of maternal and child health from the Kisumu West District Area Operational Plan review report shows very poor utilization of maternal and child

health services. However, the only indicator that the health management team has is the number of facility based deliveries which stand at 17%; way below the government target of having all deliveries done at a health facility. There are several indicators that measure the knowledge, access, and utilization of maternal and child health services that the ministry of health in Kisumu West needs to design interventions that will improve the maternal and health indicators in the district. This study included all these indicators and results from this study may be useful in future strategies by the ministry of health to improve maternal and child health.

1.3 General Objective

To assess the knowledge, accessibility and utilization of maternal and child health services and their association to socio-demographic and socioeconomic factors by women of reproductive age in Kisumu West District, Kenya.

1.4 Specific Objectives

i. To establish the knowledge of women of reproductive age on maternal and child health services offered at the health facilities in Kisumu West District, Kenya.
ii. To establish the accessibility of maternal and child health services by women of reproductive age and their under five children Kisumu West District, Kenya.
iii. To determine the degree of utilization of maternal and child health services by women of reproductive age and their under five children in Kisumu West District, Kenya.
iv. To determine the socio-demographic and socio-economic factors associated with knowledge, accessibility and utilization of maternal and child health services in Kisumu West District.

1.5 Research Questions

i. What is the knowledge of women of reproductive age on maternal and child health services offered at the health facilities in Kisumu West District, Kenya?

ii. What is the accessibility of maternal and child health services by women of reproductive age and their under five children Kisumu West District, Kenya?

iii. What is the degree of utilization of maternal and child health services by women of reproductive age and their under five children in Kisumu West District, Kenya?

iv. What are the socio-demographic and socio-economic factors associated with knowledge, accessibility and utilization of maternal and child health services by women of reproductive age in Kisumu West District, Kenya?

1.6 Justification of the study

Maternal mortality in Kenya has remained unacceptably high at 444 maternal deaths per 100,000 live births (with some regions reporting Maternal Mortality Rates of 1,000/100,000 live births) in 2008/9, an increase from 414/100,000 in 2003 (Kenya National Bureau of Statistics and Marco, 2010). The proportion of women making the recommended number of ante-natal care visits of 4 and above declined from 64% in 1993 to 52% in 2003 and to 47% in 2008/9, while the proportion receiving skilled care during delivery declined from 45% in 1998 to 42% in 2003 (UNDP, 2010). Additional statistics show that skilled attendance at birth increased from 26% in 2003 to 32% in 2008/9 (Kenya National Bureau of Statistics and Marco, 2010). To ensure all expectant women are safe and that they get quality health services, the government has abolished user fees in all public maternity hospitals and clinics. Women are being encouraged to deliver in the nearest maternity facility under the supervision of a skilled health worker (Sande *et. al.*, 2010).

There are sustained efforts on decentralization of healthcare system to the districts to ensure local needs are better addressed. Kisumu West District has no information on the knowledge, access and utilization of maternal and child health services except on facility based deliveries which is 20% (MoPHS, 2010b). Findings from this study may help the Ministry of Health in Kisumu West District to design evidence-based maternal and child health programs for the target groups in the districts so as to increase their knowledge on maternal health services, to improve access and utilization of maternal and child health services and in turn improve maternal and child health indicators in the district.

1.7 Limitations of the study

The study was based on recall of previous events and was subject to recall bias. Similar to other structured interview-based studies, this study was limited by the pre-determined responses, which are susceptible to response bias. However, the study reduced this by pre-testing the tools and training of the research assistants. The rough terrain of the study area also made it difficult to access some of the area.

1.8 Conceptual framework

Theoretical framework was adapted from the construct of the Health Belief Model (Rosenstock 1988) which addresses factors related to utilization of health services.

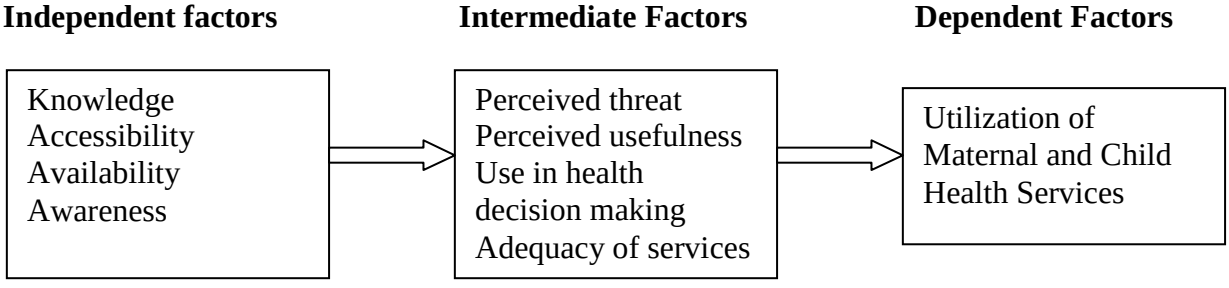

Figure 1.1 Conceptual Framework

1.9 Theoretical Framework

This study is based on people's knowledge, access and utilization of maternal and child health services. It will focus more on behaviour change towards knowledge, access and utilization of health facility based maternal and child health services and built on the Health Belief Model that was first developed in the 1950s by social psychologists Hochbaum, Rosenstock and Kegels working in the U.S. Public Health Services. The model is based on the understanding that a person will take a health-related action (in this case, utilization of maternal health services) when four conditions are fulfilled (Rosenstock, 1988). These are:

1. **Perceived Susceptibility**. A person believes that his or her health is in jeopardy. For the behaviour of seeking a screening test or examination for an asymptomatic disease such as tuberculosis, hypertension, or early cancer, the person must believe that he or she can have the disease yet not feel symptoms. This constellation of beliefs was later referred to generally as "belief in susceptibility."

2. **Perceived Severity**. The person perceives the "potential seriousness" of the condition in terms of pain or discomfort, time lost from work, economic difficulties, or other outcomes. The study will determine whether there are socio-demographic factors that affect beliefs in severity of the adverse effects of not utilizing maternal health services at the health facilities.

3. **Perceived benefits**. On assessing the circumstances, the person believes that benefits stemming from the recommended behaviour outweigh the costs and inconvenience and those they are indeed possible and within his or her grasp. Note that this set of beliefs is not equivalent to actual rewards and barriers (**reinforcing factors**). In the health belief model, these are

"perceived" or "anticipated" benefits and costs (**predisposing factors**). The study will determine if there are any socio-economic advantages or disadvantages associated with the utilization or non-utilization of maternal health services at the health facilities.

4. **Perceived barriers**. These are the foreseen and unforeseen obstacles in achieving the desired behaviour change. This can be either physical or psychological and can be influenced by the socio-cultural and physical environment (Rosenstock *et al.*, 1988). The study will determine the knowledge on the maternal health services and ascertain whether it is a barrier to utilization of maternal health services.

An added concept, *cues to action,* would activate that readiness and stimulate overt behavior. A recent addition to the HBM is the concept of *self-efficacy,* or one's confidence in the ability to successfully perform an action (Rosenstock *et al.*, 1988). This concept was added by Rosenstock and others in 1988 to help the HBM better fit the challenges of changing habitual unhealthy behaviors, such as being sedentary, smoking, or overeating.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

While motherhood is often a positive and fulfilling experience, for too many women it is associated with suffering, ill-health and even death (WHO, 2010). Maternal health has emerged as global priority because of a great gap in the status of mother's well-being between the rich and the poor countries. In rich nations, where women have access to basic health care, giving birth is a positive and fulfilling experience. On the other hand, for many women in poor countries it is associated with suffering, ill health and even death (WHO, 2010). Kenya has a considerable way to go before it meets the Millenium Development Goals (MDGs) in health and standards of a middle income, rapidly industrializing state, particularly in maternal and child mortality and longevity (Kenya National Bureau of Statistics and Marco, 2010).

In Kenya, only 14% of the pregnant women in rural areas attend ANC for the first time in pregnancy during the first trimester (Emelumadu *et al.*, 2014). Maternal health services are provided by facilities at every level of the Kenyan healthcare system. Dispensaries, the lowest-level facilities in the public health sector, are staffed by enrolled nurses and public health technicians. They provide ante-natal care, treat simple medical problems in pregnancy such as anaemia, and occasionally conduct normal deliveries. Health centres provide the next level of services. They are staffed by midwives/nurses and clinical officers, and provide a wider range of services, including deliveries. Health centres should be able to provide basic first aid for obstetric complications but are not equipped for surgery or for managing delivery complications such as obstructed labour. District

hospitals (and some sub-district hospitals) are the lowest level of health facility equipped to carry out caesarean sections (Ministry of Health, 2006).

Clinics and maternities also provide a wide range of maternal health services. Although there are some public-sector clinics and maternities, most are private establishments, and the types of services they provide vary widely. Some clinics provide only ante-natal care, while others, particularly the larger establishments or polyclinics, also provide delivery care and surgery. Most maternities provide normal delivery care, and some are equipped to carry out caesarean sections (Ministry of Health, 2006).

2.2 Knowledge of Women of Reproductive Age on Maternal and Child Health Services

Most people in Kenya are aware of the importance of ante-natal care, the majority seek ante-natal care late in pregnancy and make very few ante-natal visits, and that most of the childbirths take place at home mainly because of lack of access to institutionalized care; quick means of transport, inability to meet user charges and associated costs, the availability of cheap and more accessible alternative care providers such as traditional birth attendants (TBAs), and the poor quality of services offered at the local health facilities (Ikamari, 2004). The obstacles to utilization of maternal health care are manifold. The major constraints are lack of knowledge on available services at the health facilities, unavailability and inaccessibility of health facilities, poverty, exorbitant user charges and associated costs, and poor services offered at the local health facilities (Sande *et al.*, 2010). Reducing or removing these obstacles would result in increased utilization of maternal health care (Ikamari, 2004).

One of the government strategies to increase knowledge and awareness of maternal and child health services in Kenya is through Behaviour Change Communication (BCC) as practiced through various forms of media including posters, radio, television, theatre among others (MoPHS, 2010b). For maternal and child health, this is intensified during the government-led maternal and child health week (*Malezi Bora Week*) held twice a year throughout the country. Lack of knowledge of maternal and child health services have been one of the causes of low access and utilization of the services. In a study done in Rwanda by (Jayaraman *et al.,* 2008), lack of knowledge was shown to be one of the key factors affecting utilization of maternal and child health services in the rural areas compared to urban areas where the population have more access to information and are more knowledgeable on the services available. It has been shown that women usually considered pregnancy as a normal event unless complications arose (Choudhury and Ahmed, 2011). In addition, it has been shown that women refrained from seeking ante-natal care (ANC) except for confirmation of pregnancy, and thus no prior preparation for childbirth was taken (Kanu *et al.*, 2014).

In a study conducted in Tanzania, women were generally positive about both ante-natal and postnatal care (Mrisho *et al.*, 2009). Among common reasons mentioned for late initiation of ante-natal care was to avoid having to make several visits to the clinic. Other concerns included fear of encountering wild animals on the way to the clinic as well as lack of money. Fear of caesarean section was reported as a factor hindering intra-partum care-seeking from hospitals. Despite the perceived benefits of postnatal care for children, there was a total lack of postnatal care for the women. Previous studies observed that shortages of staff, equipment and supplies were common complaints in the community (Mrisho *et al.*, 2009). In yet another study (Phoxay *et al.*, 2001) it was

shown that enhancing the knowledge of women on maternal and child health care and reducing barriers related to socio-cultural beliefs through education are essential in improving maternal and child health. In Kisumu West District, the knowledge of women of reproductive age on maternal and child health services remains unclear. As such, the current study determined knowledge of reproductive age women on maternal and child health services in Kisumu West District.

2.3 Access to Maternal and Child Health Services by Women of Reproductive Age

Access to appropriate health care including skilled birth attendance at delivery and timely referrals to emergency obstetric care services can greatly reduce maternal deaths and disabilities, yet women in sub-Saharan Africa continue to face limited access to skilled delivery services (Essendi *et al.*, 2010). Women attending ante-natal clinic at least two times during their pregnancy have a higher chance of delivering a live and healthy baby compared to women who do not attend ante-natal clinics (Brown *et al.*, 2008). Even when birth takes place in hospital, non- or under-attendance at ante-natal care carries a substantially elevated risk of severe adverse pregnancy outcome (Raatikainen *et al.,* 2007). Strategies to increase the accessibility and availability of health care services are important particularly for communities in rural areas. Health promotion programs targeting women with low education are vital to increase their awareness about the importance of ante-natal services (Titaley, 2010).

Timing of first ante-natal care is indeed an important entry point for delivery care as young women who initiated ante-natal care early were more likely to use skilled professional assistance at delivery than their counterparts who initiated ANC late (Ochako *et al.,* 2011). A large percentage of young pregnant women do not seek ANC during their first trimester as is recommended by the WHO,

which may affect the type of assistance they receive during delivery (Mwangome *et al.*, 2011). It is important that programs aimed at improving maternal health include targeting young women, especially those from rural areas, with low levels of education, higher parity and from poor households, given their high risk during pregnancy (Ochako *et al.*, 2011). The finding that a considerably high proportion of young women use TBAs as opposed to use of skilled professionals is baffling and calls for further research (Ochako *et al.*, 2011). The most significant predictors of choosing an informal delivery setting are the household's distance from the nearest maternity bed and whether a household member has insurance (Hodgkins, 1996). Travel time is an important barrier to access. Therefore, quality improvements at existing facilities may not result in greater use of modern sector delivery, particularly if improvements are partially offset by user fees (Hodgkins, 1996).

The KDHS 2008/9 showed that only about 43% of births in Kenya took place in a health facility, and that the decision on place of delivery was mainly influenced by factors related to ease of access to services; availability of transport to, and charges for services at, the health facility. The same survey also reported that, overall, only 44% of births in Kenya were delivered under the supervision of a skilled health provider (nurse, midwife or doctor). Contrary to the prevailing policy, traditional birth attendants (TBAs) assisted up to 28% of women at delivery (the same proportion as were assisted by nurses and midwives) (MoPND, 2009). In terms of progress made, the proportion of births assisted by medically-trained personnel has increased only marginally, from 42% in the 2003 survey to 44% in 2008-09, this being far below the projected target of 90% by 2015. The proportion of women that received skilled attendance was lowest in rural areas, and among women of lowest socio-economic status (MoPND, 2009). From the Kenya Demographic and Health Survey 2009, it

is shown that women from Western and Nyanza regions have the lowest use of skilled birth attendants and this is a worrying situation (MoPND, 2009). The percentage number of expectant women attending at least four ante-natal care clinics stand at only 17%, the number of deliveries conducted by skilled health attendants in health facilities is only 20% and the number of fully immunized children under one year is 38% (MoPHS, 2010b).

The current coverage of skilled attendant-assisted delivery falls far below the current Kenyan national average of 40.1% and drastically below the Kenyan national goal of the coverage of 80% by 2010 (Cotter *et al.,* 2006). The study stated that the unavailability of skilled birth attendants in some facilities in rural areas is masked by their oversupply in some facilities, hence giving an average impression that a division/district is well supplied with skilled attendance (Cotter *et al.,* 2006). This, as argued, makes it very difficult for expectant women in these areas to have access to skilled birth attendants for improvement of maternal health during delivery (Cotter *et al.,* 2006). The study also went on to mention the Bangladesh Maternal Health Services and Maternal Mortality Survey 2001 in which women who use prenatal care are far more likely to use delivery services than those who receive no prenatal care (Cotter *et al.,* 2006). The survey also showed that a much larger proportion of women seek ante-natal care than delivery care (Cotter *et al.,* 2006). The barriers identified towards utilization of skilled delivery attendants are logistics (distance and cost of transportation), lack of sensitization of expectant women, value placed on traditional birth attendants and health facilities being viewed as harsh settings for child birth (Cotter *et al.,* 2006).

Ante-natal couple testing and counseling increases uptake of interventions to prevent HIV and hence increase the chances that the child will be born without the virus (Farquhar *et al.,* 2004). This is part of World Health Organization's comprehensive care package which is also being promoted

by the Ministries of Public Health and Sanitation and that of Medical Services in Kenya (Government of Kenya, 2014).

There is an association between perceived quality of care and access and utilization of maternal and child health services, as well as by pass by the expectant women (Gyimah *et al.,* 2006). However, there has generally been a low capacity of the health facilities to offer maternal health services (Audo *et al.,* 2005). The authors put in a case that utilization of maternal health services is largely dependent on the perceived quality (Audo *et al.,* 2005). Despite Kisumu West District having more health facilities than a neighbouring district like Bondo District and Non-governmental Organizations like Plan International and Marie Stopes Kenya supporting maternal and child health services in the District, access to maternal and child health services remain low compared to national targets (MoPHS, 2010b). As such, this study sought to determine the accessibility to maternal and child health services in Kisumu West District.

2.4 Utilization of Maternal and Child Health Services by Women of Reproductive Age

Utilization of maternal and child health services has been associated with the number of children of a woman (parity) and the distance from the health facilities. As the number of children a woman bears increases, the utilization of maternal health services reduces and the further the health facilities from the home, the less frequent the services are utilized (Mwaniki *et al.,* 2002). Place of residence can also be an important determinant of the use of modern health care resources for childbirth. A higher proportion of births in urban areas occur in modern health care facilities compared to rural areas (Paul and Rumsey, 2002). A study in Morocco also indicated that residence is the strongest predictor of use of maternal health care, with urban women two or three times more

likely to use health services (Obermeyer, 1993). Wong et al in a study in Philippines reported urban and rural women differed significantly in the types of prenatal care most frequently used. For the urban women the most frequently used type of care tended to be modern public (40.2%), while rural women frequently used traditional practitioners (45%). Overall, about 38% of the rural and 59% of the urban women had modern prenatal medical care.

The importance of place of residence in determining women's use of maternal health care can be explained through the availability of health facilities. It is undeniable that generally, medical facilities are more ready accessible in urban than rural are. In addition, urban women tend to be more educated and therefore, have greater knowledge about the benefits of maternal health care.

Kisumu West District also has a very high population living in poverty with the major sources of income being small-scale farming and fishing along the Lake Victoria (MoPHS, 2010b). Maternal health interventions are affected in resource-limited areas and maternal health programs integrating multiple interventions were likely to have a positive impact on maternal outcomes (Nyamtema *et al.,* 2011). Insufficient implementation of evidence-based interventions in resources limited countries/areas is also closely linked to a lack of national resources, leadership skills and end-users factors (Nyamtema *et al.,* 2011).

The barriers identified towards utilization of skilled delivery attendants are logistics (distance and cost of transportation), lack of sensitization of expectant women, value placed on traditional birth attendants and health facilities being viewed as harsh settings for child birth (Cotter *et al.,* 2006). Some of the challenges the communities face are public sector health facilities are under staffed, lack essential drugs and equipment and are unable to offer even basic therapeutic and diagnostic

services. Local people have lost confidence in the facilities and only use them when in absolute danger. Sometimes this may be late, leading to severe complications (Ondimu, 2000).

Financial constraints, coupled with traditional beliefs and rituals, delayed care-seeking in cases where complications arose. Furthermore, research show that financial constraints, traditional cultural beliefs and rituals also influence the expectant women in the choice of utilization of maternal health services in health facilities (Choudhury and Ahmed, 2011).

It is a fact that client-perceived quality of services and socio-cultural and economic factors, rather than geographical access, can affect the utilization of delivery services (Duong *et al.,* 2004). This study brings in an element of socio-cultural factors that are major influences of health seeking behaviour in Nyanza Province and Kisumu West District in particular.

Some cues to utilization of skilled health services during pregnancy, delivery and post-delivery care are related to fear of developing complications and losing the child in a study done in Bangladesh, which is also one of the developing countries as Kenya (Paul and Rumsey, 2002). This is also significant since it shows that women are aware that any complications developed during pregnancy and delivery can only be dealt with by the skilled attendants in health facilities (Paul and Rumsey, 2002). Most studies have ignored the influence of fathers in utilization of maternal health services in health facilities and have focused the role of the father only to that of the breadwinner and excluded them from pre-birth influence in the mother's choices (Teitler, 2000).

Fear of being tested for HIV at the ante-natal clinics has also been attributed to the low uptake of ante-natal care by expectant women in Bondo, Western Kenya (Sande *et al.,* 2010), a region neighboring the proposed study area. It is therefore imperative to investigate how HIV testing at

ANC visits relates to utilization of ANC services. Traditional beliefs and rituals and delayed care-seeking in cases where complications arose increased the maternal and child mortality (Sande et al., 2010). Furthermore, research show that financial constraints, traditional cultural beliefs and rituals also influence the expectant women in the choice of utilization of maternal health services in health facilities (Choudhury and Ahmed, 2011). With all these studies explaining some of the factors influencing utilization of maternal and child health services, it is not very clear to the maternal and child health service providers in Kisumu West District why, despite their efforts, there is still low utilization of maternal and child health services at the health facilities in Kisumu West District. This study set out to identify factors associated with utilization of maternal and child health services in Kisumu West District.

2.5 Association between Socio-demographic and Socio-economic factors and Knowledge, Access and Utilization of Maternal and Child Health Services by Women of Reproductive Age

As a region, sub-Saharan Africa is relatively lagging behind other regions of the world as far as inclusive development is concerned. The region is yet to recognize the necessity for the development of a social policy framework which combines economic dynamism with an active role for government in the provision of basic social and other services at local and national levels (Kalule-Sabiti *et al.*, 2014).

As far as maternal and child mortality is concerned, study after study has indicated that while generally in poorer or disadvantaged regions of the world it remains a major challenge, higher rates of utilization of maternal health care services helps in the reduction of these deaths (Kalule-Sabiti *et al.*, 2014).

A number factors have been associated with utilization of MCH services, among which are socio-demographic factors – age, religion, maternal education, husband's education, marital status, employment status and parity (Emelumadu *et al.,* 2014). Other factors that influence MCH care service use include cost, availability of service, household income and access to health information exposure, previous history of obstetric complications, cultural beliefs and ideas about pregnancy and family size (Emelumadu *et al.,* 2014).

Culture, belief systems and economic conditions are vital factors in determining health utilization services which can form the major concern of those who formulate and implement government health policies (Rumun, 2013). This study goes further to state that in order to improve maternal and child health indicators, the health policies should take recognition of the socio-economic and socio-cultural factors to ensure that the policies address these factors. This study also sort to determine the association of these factors to the utilization of maternal and health services.

Socio-economic factors are also confirmed to be associated with child health services (like Immunization) uptake. In a study in Nigeria, it highlighted the influence of the place of residence on the likelihood of fully vaccinating a child. Mothers who reside in urban area were more likely to vaccinate their children fully compared with those in rural areas (Chidiebere *et al.,* 2014). The information on the association between socio-demographic and socio-economic factors and the knowledge, access and utilization of maternal and child health services is currently unclear. As such, the current study sought to determine the association between socio-demographic and socio-economic factors and the knowledge, access and utilization of maternal and child health services in Kisumu West District.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Study area

Kisumu West District is one of the 37 districts in Nyanza Province, bordered by Kisumu North to the East, Emuhaya to the North, Gem to the North West, Rarieda to the West and Rachuonyo North to the South within Winam Gulf. It covers a total area of 361 Km^2 (MoPHS, 2010b). Administratively, Kisumu West District is divided into 3 administrative divisions namely Maseno, Chulaimbo and Kombewa. The divisional headquarters are fairly accessible in terms of telecommunications and road network. There are 5 locations and 20 sub-locations (Appendix 1).

In Kisumu West District, women of reproductive age comprise 22.8% of the total population making maternal health service access very important to the health of this proportion of the population. The number of women attending at least four ante-natal care clinics as recommended by the World Health Organization (WHO, 2007) and Ministry of Public Health and Sanitation is estimated at only 17% annually (MoPHS, 2010a). The number of deliveries conducted by skilled health attendants in health facilities comprises only 20% of the total deliveries in the district annually and this low proportion is still attributed to efforts by Marie Stopes Kenya through their Reproductive Health Output Based Aid Project (RHOBA) (MoPHS, 2010a). These figures indicate a need to improve utilization of maternal and child health services in the district. The majority of the population comprise of the Luo-speaking community who have strong cultural beliefs that may influence the utilization of maternal health services.

3.2 Research design

A cross-sectional study design was adopted. The study used both quantitative and qualitative data collection approaches were used to establish the knowledge, access and utilization of maternal and child health services and to determine the association between socio-economic and socio-demographic factors and knowledge, access and utilization of the maternal and child health services in Kisumu West District of Kenya.

3.3 Study population

The primary respondents for the study were women aged 15 – 49 years (women of reproductive age as defined by the Government of Kenya) with or without children. The women were required to have resided in the study area for a period of not less than three months prior to the study. The three months cut-off was chosen based on the fact that the study targeted women also eligible for a first ante-natal care visit to a health facility which is usually at around 14 weeks. The total population of the women of reproductive age in the three divisions was found to be 35,836 based on a previous report (MoPHS, 2010b).

3.4 Sample size and sampling procedures

The study used Yamane' sample size calculation formula (Yamane, 1967). The population of mothers aged 15–49 years who seek health care services from the health facilities serving Kisumu West District is 35836 (MoPHS, 2010b). To get a representative sample size, the following formula was used for sample size calculation as follows:

Formula:

$n = N/1+N(e)^2$ (Yamane, 1967)

Where

n – sample size N – study population

e – level of precision

Calculation

$n = 35,836/1+35,836(0.05)^2$ n = 400

A total of 10% of the sample size was added to cater for potential non-response hence the corrected sample size was 440 (MliloChaibva, 2007).

Households with women aged between 15 – 49 years in the randomly sampled locations were then coded with the help of the community health workers and study respondents selected randomly.

Selection of the FGD participants was purposively done to ensure homogeneity to maximize disclosure among the participants.

3.5 Research instruments

3.5.1 Structured Questionnaire

A structured questionnaire was used in the study to collect quantitative data (Appendix 3).

3.5.2 Focus Group Discussion Guide

The study used a Focus Group Discussion Guide to collect qualitative data (Appendix 4).

3.6 Pre-testing instruments

Training of the research assistants on survey interviewing techniques was done for one day followed by another day of pre-testing of the questionnaire and the FGD guides in Kajulu – Koker village, Kit Mikayi sub-location. This village was then omitted during the main data collection. Based on the experiences and results of the pre-testing, further re-training and refining of techniques of interviewing and modification of research instruments was done. Reliability was measured through 70% consistency (Ochako, 2011) in the responses and validity was measured through previous research work and peer review.

3.7 Inclusion and Exclusion Criteria

Those who were included in the study were consenting women of reproductive age between the ages of 15 – 49 years; have been residents of Kisumu West District for the past three months at the time of the study and including those who are 2 months pregnant. Those excluded from the study were non-consenting women of reproductive age and those who had mentally illness.

3.8 Data Collection Procedures

Data was collected by the researcher and field assistants. Prior to the actual study, four research assistants' who were residents of Kisumu West District with a minimum qualification of a form four level of education were interviewed and recruited by the researcher. The researcher also engaged a Focus Group Discussion (FGD) expert to assist in the FGD process.

The quantitative data was collected from 440 women of reproductive age using structured questions in the structured questionnaire. Quantitative data was collected by the use of structured questionnaires (Appendix 3) while qualitative data was collected by the use of Focus Group

Discussions (FGDs) (Appendix 4). The FGD groups were made up of 8-10 women of reproductive age nominated by the CHWs with an age gap of 10 years (Bos *et al.,* 2013). The groups were hence divided into 15-24 years, 25-34 years, 35-44 and 45 and above to make 4 FGD groups. The participants were screened to ensure that they fell into these age groups and for ease of conversation, they came from defined areas (sub-locations). The focus group interviews started with a brief introduction, presenting the aim of the study, how the information would be used and by asking permission for audio recording the interview. Consent was obtained from all participants and everyone agreed to the request to keep the discussion confidential. Participants were encouraged to discuss, rather than to find consensus, and to deeply explore underlying reasons for knowledge, access and utilization of maternal and child health services. The qualitative data collected was to provide a deeper insight into the specific objectives.

3.9 Data Analysis

Data analyses included 440 respondents to the structured questionnaires. Statistical analyses were performed using Statistical Packages for Social Sciences (SPSS, version 15.0; SPSS, Inc, Chicago, IL). Multivariate regression analysis between the independent and dependent variables was used to identify variables associated with knowledge, access and utilization of maternal and child health services among the study population. The data was then presented in tables. All $p \leq 0.05$ were considered statistically significant.

3.10 Data Management

The collected data was always in the custody of the trained research assistants when in the field before surrendering them to the researcher. The administered questionnaires were presented to the

researcher every day after each day's work. While in the field, the trained research assistants ensured that all filled-in questionnaires were kept safely in the folder that was issued to each of them before embarking on data collection. To ensure that all the questionnaires were returned back to the researcher, every research assistant had to account for all the issued questionnaires and the spoilt questionnaires were to be given back to the researcher. The researcher also ensured privacy and confidentiality of the information given by the respondents.

3.11 Ethical Consideration

The study protocol was approved by Maseno University Ethical Review Committee-MUERC (Appendix 5). This study commenced after approval had been received from Maseno University, School of Graduate Studies. The aim and purpose of all components of the study was discussed and agreed on with local leaders, and legal consent was obtained from all relevant authorities. The researcher always briefed the respondents about the nature of the research, its purpose, and implications in order to obtain informed consent from the respondents before interview. Confidentiality of the information given was assured to the respondents before starting each interview.

CHAPTER FOUR: RESULTS

4.1 Socio-demographic and socio-economic characteristics of the study participants

4.1.1 Socio-Demographic characteristics of the study participants

The study showed that slightly half 232 (52.2%) of the women were aged between 16 – 25 years, with majority 376 (85.5%) of them being married (Table 4.1). The study also showed that 317 (72%) have between 1 - 3 children, 223 (50.7%) had a family size of 5 – 7 members (Table 4.1).

Table 4.1: Socio-demographic Characteristics of Study Participants

Frequency n(%)		**Frequency n(%)**	
Age (years)		**Marital Status**	
16 -25	232(52.7)	*Not married*	49(11.1)
26- 35	184(41.8)	*Married*	376(85.5)
36-45	22(5.0)	*Divorced*	5(1.1)
46-55	1(0.2)	*Widow/widowed*	10(2.3)
> 55	1(0.2)		
No. of children		**Family Size**	
1 – 3	317(72)	*2 - 4*	186(42.3)
4 – 5	100(23)	*5 - 7*	223(50.7)
6 – 7	18(4)	*8 - 10*	29(6.6)
8 – 9	5(1)	*Over 10*	2(0.5)
Total	440(100)	Total	440(100)
Level of education		**Occupation**	
Primary	310(70.5)	*Unemployed*	191(43.4)

Secondary	107(24.3)	*Farming*	105(23.9)
College	17(3.9)	*Trading*	126(28.6)
University	4(0.9)	*Civil servant*	16(3.6)
Do not know	2(0.5)	*Professional*	2(0.5)
Total	440(100)	Total	440(100)

4.1.2 Socio-economic profile of the study participants

Looking at the socio-economic profile it emerged that slightly below three quarters i.e. 310 (70.5%) had at least primary education with only 4 (0.9) having university education (Table 4.1). On occupation, approximately 191 (43.4%) were unemployed with only 16 (3.6%) and 2(0.5%) being civil servants and professionals, respectively. A total of 290 (65.9%) of the study participants had a monthly income of less than KShs. 5000 and 327 (74.3%) had a household expenditure ranging between KShs. 1000 – 5000 and 246 (55.9) of the households spending at least KShs. 1000 every month on health. Slightly over half, 235 (53.4) played the important role of decision making on health**.** An analysis of religious affiliations of the study participants revealed that 7 (1.6%) of the women were traditionalist, 17 (3.9%) were Muslims and 416 (94.5%) were Christians.

4.2 Knowledge of Women of Reproductive Age on Maternal and Child Health Services

The study investigated the knowledge of women on maternal and child health services that were offered at the health facilities in Kisumu West District. The knowledge of the women was explored by requesting the women to mention maternal and child health services that were known to them and expected to be given when they visit health facilities within the district. Majority 352 (80.0%) of the women mentioned safe delivery services, 350 (79.5%) mentioned ANC services; 293 (66.6%); 281 (63.9%); 277 (63.0%); 274 (62.3%); 273 (62.0%) and 246 (55.9%), respectively

mentioned Voluntary Counseling and Testing (VCT); Insecticide Treated Nets (ITNs) distribution; family planning services; health education; malaria screening; post-natal services and immunization as the main maternal health services (Table 4.2). The child health services such as immunization was mentioned by 407 (92.5%) of the women. Slightly over sixty percent i.e. 270 (61.4%) mentioned oral rehydration; 241 (54.8%); 231 (52.5%) mentioned growth monitoring and breast feeding services, respectively as some of the child services. Other child health services that were mentioned by the women were voluntary medical male circumcision (VMMC) for their male children and nutritional information at 2 (0.4) (Table 4.2).

The study went further to investigate for knowledge of women on sources of maternal and child health services. Majority 363 (82.5%) of the women mentioned government public hospitals as a source of MCH services. There was also mentioning of private hospitals by 149 (33.9%) of the women and public health centers; pharmacy and medicine shops was mentioned by 133 (30.2%); 8 (1.8%) and 1 (0.2%) respectively by the women (Table 4.3). Knowledge of the women on specific services under broader maternal and child health service categories was equally explored. The maternal health services were grouped into ANC services; safe delivery; neonatal care services; family planning and malaria prevention services. Over 335 (76.1%) of the women mentioned at least one of the ANC services they expect from the health service providers. These included mentioning of blood pressure examination by 405 (92.0%) of the women; weighing of women mentioned by 404 (91.8%); 359 (81.6%) mentioned tetanus toxoid immunization; 349 (79.3%) abdominal examination and lastly 335 (76.1%) mentioned provision of iron tablets to women (Table 4.3). 408 (92.7%) knew that advice to deliver at the health facility was towards a safe delivery. 313 (71.1%) of the women also knew that having a birth plan constituted safe delivery. A total of 287

(65.2%) and 276 (62.7%) of the women respectively said that seeking the services of a skilled birth attendant and obtaining information on signs of complicated delivery were important elements of safe delivery (Table 4.2).

Discussant no. 7 in FGD 1 said: They teach us how to breast feed; teach us on diseases like syphilis and they also examine the genitals for any diseases.…..discussant no. 6: the nurses teach us on how to feed the baby after birth; discussant No. 4: they teach on the number of times to go for clinics. Discussant no. 5 in FGD2 said: immunization is given at the health facilities.

Discussant No. 5 in FGD 1 while contributing to safe delivery said: one need to have a number of a motorcyclist to take you to the hospital. …..discussant No. 6: one needs to alert a neighbor when you feel labor pains.

Knowledge of women on what constituted neonatal care services was equally explored. The study revealed that over three quarters of the women i.e. 387 (88.0%); 380 (86.4%) and 334 (75.9%), respectively knew that weighing of the baby; provision of information on breast feeding and umbilical cord care were some important neonatal health care services that should be given at the health facilities. Some other neonatal care services that were known to these women were provision of information on baby warming; neonatal danger signs; and information on child health complications that was respectively mentioned by 306 (69.5%); 263 (59.8%) and 207 (47.0%) of the women (Table 4.2). Another important maternal and child health services that was explored was the knowledge of women on family planning services. Over ninety percent i.e. 399 (90.7%) mentioned family planning injections as a family planning service; 353 (80.2%) mentioned pills; 346 (78.6%) mentioned implant; 249 (56.6%) mentioned condoms.

Discussant no. 6 in FGD 1 while contributing to family planning services said: I know they give us "depo provera"(an injectable contraceptive) while discussant no. 7 in FGD 1 said: they provide us with pills. Discussant 4; 3 and 2 in FGD 1 said: condoms; TL and coil were used for family planning.

Less known family planning methods as is evidenced in this study were coitus interruption that was mentioned by only 18 (4.1%); emergency contraception 31 (7.0%) and tubectomy 93 (21.1%). Knowledge on malaria prevention services was also investigated. The study found out that the women knew of malaria screening 373 (84.8%); ITNs distribution mentioned by 336 (76.4%) and lastly IPT prophylaxes mentioned by 192 (43.6%). During FGD the discussant gave varying measures that should be taken in order to prevent malaria.

Discussant no. 1 in FGD 1 and discussant no. 5 in FGD 2 said: to prevent malaria we clear bushes around the homes……discussant No. 5: use nets……..discussant No. 3: I drain water from around the houses…..discussant no. 7 in FGD 1 and discussant no. 6 in FGD 2 said: we should sleep under treated mosquito net while discussant no 1 in FGD 2 said. Mosquitoes can be prevented by use of mosquito coils.

Table 4.2: Knowledge of Women of Reproductive Age on Maternal and Child Health Services

	Frequency n(%)		Frequency no(%)
Knowledge on maternal health services		**Knowledge on child health services**	
Ante-natal care	350(79.5)	*Oral Rehydration*	270(61.4)
Safe Delivery Services	352(80.0)	*Immunization*	407(92.5)
Post natal services	273(62.0)	*Growth monitoring*	241(54.8)
Family planning services	281(63.9)	*Breast feeding initiative*	231(52.5)
Health education	277(63.0)	*Others (VMMC, Nutrition)*	2(0.4)
ITN distribution	293(66.6)		
VCT	325(73.9)		
Malaria Screening	274(62.3)		
Immunization/Vaccination	246(55.9)		

4.3 The Accessibility of Maternal and Child Health Services by Women of Reproductive Age

The second specific objective of the study explored the accessibility of MCH services by the women of reproductive age from Kisumu West District and their under-five year old children. The issues of accessibility that were investigated included home-based remedies before seeking specialized health care; where the women accessed health care including public and private hospitals as well as health centers; and clinics including mobile clinics; time when the women were free to visit a health service provider; distance travelled or walked to the nearest health facility; mode of transport used to the health facility; time spent travelling to the health facility; waiting time at the health facility before a health care service provider is consulted; availability of drugs/medicine; amount of money paid for the health care service given and finally sources of information on maternal and child health services.

It emerged in the study that over half 278 (63.2%) of the women took some remedies before seeking for professional health care services. On occasions where maternal and child health services was always accessed, 352 (80%) of the women said they accessed MCH services from government hospitals; 131 (29.8%) said they accessed MCH services from government health centers while some 23 (5.2%) accessed MCH services from government clinics. Those who said they accessed MCH services from private hospitals were 117 (26.6%); private clinics 33 (7.5%) and private doctors 2 (0.5%). Furthermore, others said they accessed MCH services from community village midwives 24 (5.5%) and nurses practicing at the villages levels 7 (1.6%). During FGD it was revealed that different remedies were used prior to seeking professional health care (Table 4.3).

Table 4.3: Access to Maternal and Child Health Services by Women of Reproductive Age

Variable	**Frequency n(%) No. (%)**	**Variable**	**Frequency No. (%)**
Home remedy before seeking health care		**Where MCH services was received**	
Rest	80(18.2)	**Government**	
Take remedies	278(63.2)	*Hospital*	352(80)
Herbs	9(2.0)	*Health Centre*	131(29.8)
Surface cooling	3(0.7)	*Clinic*	23(5.2)
Massage with warm water	7(1.6)	*Mobile Clinic*	7(1.6)
		Private	
Time when a client can see health service provider		*Hospital*	117(26.6)
Working hours (8 – 5PM)	346(78.6)	*Clinic*	33(7.5)
After working hours	85(19.3)	*Private Doctor*	2(0.5)
Holiday	4(0.9)	**Community**	

		Village Midwife	*24*(5.5)
		Nurse Practitioner	7(1.6)

Client's reason for choosing such a time		**Distance to health facility (in Km)**	
Better Care/Services	367(83.4)	*<1*	116(26.4)
Available Time of respondent	146(33.2)	*1 – 1.9*	84(19.1)
Suffered From Sick/Ill at that Time	135(30.7)	*2 – 2.9*	139(31.6)
Cheaper	139(31.6)	*3 – 3.9*	43(9.8)
Better Drugs/Remedies	135(30.7)	*4 – 4.9*	17(3.9)
		5 – 5.9	17(3.9)
		6 – 6.9	9(2.0)
		>7	15(3.4)

Mode of transport to Health Facility		**Time taken to health facility (hours)**	
Public transport	150(34.1)	*< 1hr*	288(65.5)
Private car	12(2.7)	*1 – 1.59hrs*	88(20.0)
Motor cycle/bicycle	64(14.5)	*2 – 2.59hrs*	59(13.40)
Walking	214(48.6)	*>3hrs*	5(1.1)

Cost of transport to the Health Facility (Kshs)		**Health personnel seen any time?**	
<100 Kshs	173(39.3)	*Yes*	354(80.5)
100 -199 Kshs	42(9.6)	*No*	79(18.0)
200 – 299 KShs	8(1.8)	*Don't know*	7(1.6)
> 300 KShs	3(0.7)		
Walked	214(48.6)		

Waiting time before health care is received (hrs)		**Clients' opinion on waiting time**	
<1hr	209(47.5)	*Too Long*	219(49.8)
1 – 1.59hrs	168(38.20)	*Moderate*	98(22.3)

2 – 2.59hrs	35(7.95)	*Short*	123(27.9)
3 – 3.59hrs	12(2.72)		
4 – 4.59hrs	8(1.82)		
>5hrs	8(1.82)		

Paid for MCH services received?		**Prescription drugs available?**	
Yes	319(72.5)	*Yes*	386(87.7)
No	121(27.5)	*No*	53(12.0)
		Don't Know	1(0.2)

Amount paid for MCH services received?		**Source of MCH information**	
<KShs 500	300(68.19)	*Magazine*	11(2.5)
500 – 1000KShs	20(4.54)	*Newspaper*	40(9.1)
>1000KShs	1(0.23)	*Posters/leaflets*	3(7)
Free	6(1.36)	*News booklets*	80(18.2)
N/A	113(25.68)	*Radio*	199(45.2)
Action taken by those who lack money to pay		*Television*	46(10.5)
Borrowing money from family	194(44.1)	*Religious centers*	46(10.5)
Borrowing money from neighbor	195(44.3)	*Village meetings*	28(6.4)
Borrowing money from "chama"	34(7.7)	*Schools*	15(3.4)
Withdrawing my saving	54(12.3)	*At work place*	37(8.4)
Selling any of my valuable items	13(3.0)	*Health personnel*	109(24.8)
Pawning (Singo) the valuable items	8(1.8)	*Family/Friends*	71(6.1)

In contributing to remedies they take at home before seeking professional health care services while either their under-five year old child or when they were sick. Discussant no. 3 in FGD 1 and Discussant no 1 in FGD 2 said: I do first aid i.e. cool the body temperature using cold water. Discussant no. 5 also in FGD 1 said: I bath using warm water. Discussant no. 8 in FGD 1 said: I

take painkillers. Discussant no. 6 in FGD 2 said: in the case of stomachache I give herbal medicine.

The study also found out that majority 346 (78.6%) of the women with under five year old children sought MCH services during the working hours i.e. 8.00 AM and 17.00 PM (Table 4.3). The reasons that were given by the women for choosing such times they sought health care services ranged from better services were given at such times 367 (83.4%); it was the time when I was free to go for the services 146 (33.2%); my child was ill at that time of the day 135 (30.7%) and also better medicines/remedies are available at that time 135 (30.7%). 139 (31.6%) of the women travelled between 2 – 2.9 km to the health facility; others 116 (26.4); and 15 (3.4%) respectively travelled less than 1 km and more than 3 km to reach the nearest health facility to access health care services. Public transport was used by most 150 (34.1%) of the women whereas 12 (2.7%) of them used private transport. A total of 64 (14.5%) of the women used motorcycles to travel to the nearest health facility yet close to half 214 (48.6%) walked to the nearest health facility. Close to two thirds, 288 (65.5%) of the women said it took them less than 1 hour to reach the health facility; 88 (20.0%) and 59 (13.4%) respectively spent 1 – 1.59 hours and 2 – 2.59 hours to reach the health facility with only 5 (1.1%) saying it took them over 3 hours to reach the nearest health facility (See table 4.3). 354 (80.5%) of the women appreciated the fact that the health personnel could be seen anytime against a paltry 79 (18.0%) who argued that the health personnel could not be seen at any time with 7 (1.6%) saying they did not know that the health personnel could be seen at any time.

While discussing how access to maternal and child health services is likely to be affected by distance; discussant no.1 in FGD 1 had this to say: there is delay when immediate treatment is

need. There can be death if the distance is too long. Discussant no. 5 in FGD 1 said: availability of transport hastens arrival to the health facility. During FGD 2 discussant no.8 said: the distance is not a factor because when you need the medication you have to find your way there. On the issue of transport discussant no. 2 in FGD 2 said: in case of available transport i.e. ambulance then work would be easy. This was equally supported by discussant no. 6 in FGD 2 who said: lack of transport has caused death. Though discussant no. 4 in FGD 2 was of the view that: transport was contributing to additional expenses.

The waiting time at the health facility before consulting a health care provider was equally investigated. It emerged that waiting time at the health facility is of concern as below fifty percent 209 (47.5%) of the women got to consult the health service providers in less than 1 hour; 168 (38.2%) had to wait for between 1 and 1.59 hours; 35 (7.95%) waited for between 2 and 2.59 hours and worse 16 (3.64%) said they waited for over 4 hours. When the opinion of the women was sought on the waiting time, 219 (49.8%) were of the view that the waiting time was too long; 123 (27.9%) and 98 (22.3) respectively felt that the waiting time was short and moderate.

The effect of waiting time at the health facility was also discussed during FGD. Discussant no. 3 in FGD 1 said: the patient can become sicker or condition may worsen if waiting time is too long. Discussant no. 1 in FGD 1: with less waiting time patient's health can be restored faster. Discussant no. 8 in FGD 1: death can occur if the time taken to receive medication is too long. Discussant no. 4 in FGD 2 said: sometimes the waiting time especially in the morning and market days when lines are long thus patients even die or get worse.

319 (72.5%) of the women said they paid for MCH services. A total of 386 (80%) said they got the recommended drugs at the health facilities with only 53 (12.0%) failing to get the prescribed drugs at the health facility. Amount paid for the MCH services accessed by the women and the under-five year old children was investigated. The amount of money paid ranged between less than KShs. 500 for a total of 300 (68.19%) of the women to KShs. 1000 that was paid by only 1 (0.23%). In cases where a mother did not have money, 195 (44.3%) and 194 (44.1%) of the women said they would borrow from neighbors and family/friends respectively. A total of 54 (12.3%) of the women said they would borrow from their informal women groups ("*chamas*") while 13 (3.0%) and 8 (1.8%) respectively, said they would sell and pawn their valuables.

In the discussion of the cost of health services, discussant no. 1 and 8 in FGD 1 said: health services are costly because one buys a card any time you go for treatment. Discussant no. 5 in FGD 1 said: in patient bills are too high. Discussant no. 5 in FGD 2 said: the out-patient costs are average but the in-patient services are costly. Discussant 7 in FGD 2 said: the cost of health services depends on the medication. On the issue of seeing the health service providers, discussant no. 5 in FGD 1 said: in most cases it is the trainees that are attending to patients and discussant 2 in FGD 2 said: the doctors are only available at certain times and not present at lunch time. On the contrary discussant no. 3 in FGD 1 said: doctors are also available. Discussant no. 1 in FGD 1 said: the nurses only give painkillers.

The other issues that was investigated on access was about source of maternal and child health information for the women. Close to half 199 (45.2%) said they received maternal and child health information from radio broadcasts; 109 (24.8) said maternal and child health information was being

given to them by the health personnel in the district (including CHWs); 80 (18.2%) said they got MCH information from health booklets and 40 (9.1%) got MCH information from newspapers (Table 4.3).

During FGD on sources of information on maternal and child health services, the following discussants said; discussant no. 3 in FGD 1and discussant 8 in FGD 2: we receive information on maternal and child services from the community health workers; discussant no. 2 FGD1: we get information on maternal and child services from other women in the village. Discussant no. 5 in FGD 1 and discussant 8 in FGD 2: we receive information on maternal and child services from nurses in the hospital. Discussant no. 8 in FGD 1 said: we receive information on maternal and child services from the elderly women in the village.

4.4 The Utilization of Maternal and Child Health Services by Women of Reproductive

Utilization of maternal and child health services was investigated using the structured questionnaire. Again the women were requested to list the maternal and child health services they were given on their last visit to the health facility and a check (tick) is made for every correct service mentioned. The broad categories for maternal and child health services included family planning; ANC; neonatal health services; postnatal; child feeding information and child health services.

The study revealed that 199 (45.2%) of the women had visited a health facility 1 to 2 months prior to the study; 106 (24%) had visited a health facility 3 to 4 months before the study period while 20 (4.5%); 5 (1.1%); 9 (2.0%); respectively, visited a health facility at least 5 to 6; 7 to 8 and 11 to 12 months prior to the study. The women gave varying reasons in support to their visit to a health facility. Over half of the women 239 (54.3%) said they went to a health facility to seek child health

services; 99 (22.5%) went to seek for child feeding information; 91 (20.7%) went for neonatal services; 48 (10.9%) went for family planning services and lastly 26 (5.9%) went for postnatal care services (Table 4.4).

Table 4.4: Time and reason for last visit to a health facility

	Frequency n(%)		**Frequency n(%)**
Last time of Health Facility visit (months)		**Reason given for visiting health facility**	
1 – 2	199(45.2)	*Family planning*	48(10.9)
3 – 4	106(24)	*ANC services*	77(17.5)
5 – 6	20(4.5)	*Neonatal services*	91(20.7)
7 – 8	5(1.1)	*Postnatal services*	26(5.9)
9 – 10	4(0.9)	*Child feeding information*	99(22.5)
11 – 12	9(2.0)	*Child health services*	239(54.3)
Over 13	4(0.9)		

For maternal family planning services about 176 (40.0%) admitted they received injections as a family planning service; 126 (28.6%) disclosed they received implants; 68 (15.5%) accepted they received pills; 17 (3.9%) received IUD while 5 (1.1%); 3 (0.7%) and 2 (0.5%) respectively, received tubectomy; diaphragm and emergency contraception. As for utilization of ANC health services, the women acknowledged receiving at least one of the following ANC services namely weighing of mother; receiving tetanus toxoid vaccination; blood pressure examination; abdominal examination and provision of iron tablets. Specifically; 400 (90.9%); 386 (87.7%); 347 (78.9%); 355 (80.7%) and 296 (67.3%) of the women, respectively acknowledged that: they were weighed; their blood pressure was examined; they received tetanus toxoid vaccination; their abdomen was examined and finally they were given iron tablets, which are very important for expectant women and their unborn children.

While contributing to utilization of family planning services discussant no. 3 said: I use pills but it makes me to have irregular periods and sometimes causes too much bleeding; discussant no. 5: I use depo provera. Discussant no. 2 said: I use TL because I wanted to stop giving birth completely. Discussants 4, 7, 8 said: they use an intra-uterine contraceptive device. Discussant no. 2 in FGD 2 said: condoms, pills and depo provera can be used for family planning. Discussant 6 in FGD 2 said: TL and injection is good for family planning. Discussant 2 in FGD 2 however, said TL is painful and some chores cannot be performed when one has undergone TL. Discussant no. 1 in FGD 2 said: I don't use any family planning method because my partner does not like them. Discussant no. 4 in FGD 2 said: I use pills because I don't know much about other family planning methods. Discussant no. 4 in FGD 2 said I only use condoms because I am affected by other methods.

Neonatal and postnatal health services were split into two and investigated. These were maternal, neonatal and postnatal health services, which were given to the women and their under-five children on their last visit to the health facility. For maternal health services, the study sought to know what services were given to the women. Slightly above half 261 (59.3%) of the women accepted that they received nutritional information from the health facilities; 247 (56.1%) appreciated receipt of blood pressure examination; 219 (49.8%) agreed that there was abdominal examination performed on them by the health service providers, a total of 206 (46.8%) said they were given advise on postpartum danger signs with 189 (43.0%) said the health services providers assessed them for postpartum danger signs. Close to half 205 (46.6%) of the women said their birth canal was examined to ascertain any complications and finally 171 (38.9%) said they received information on family planning and they were also given vitamin A supplements.

On neonatal and postnatal care services, discussant 3 in FGD 1 said: the nurses perform physical examination; weight is measured. Discussant no. 4 in FGD 1 said: the nurses also check on the movement, position and heartbeat of the baby. Discussant no. 1 in FGD 1 said: the nurses give immunization.

The women also mentioned a number of child health services that their under-five children received on their last visit to the health facility. Over two third, 380 (86.4%) of the women confirmed that their under five children were weighed; 366 (83.2%) acknowledged that they received information on breast milk feeding; 314 (71.4%) said they received information on umbilical cord care; 306 (69.5%) received information on child health danger signs with 177 (40.2%) saying they were given information on how to manage child health complications. Some of the women, 71 (16.1%) acknowledged that their under-five children were given assisted-breathing; 288 (65.5%) said their babies were medically examined within 1 and 7 days post-birth with 87 (19.8%) disclosed that their babies were examined 8 to 28 days post-birth.

The child feeding services that the women mentioned included information on when to first put a child on breast milk. Close to 321 (73.0%); 403 (91.6%) said they received advise on the time to first give water, other fluids or food in addition to breast milk. A total to 326 (74.1%) of the women appreciated that they were also given advice on the type of fluid or food to give their under-five year old children and 245 (55.7%) said they were advised on the right age a child can be weaned and stopped from feeding on breast milk.

Discussant no. 8 in FGD 1in her contribution to child feeding services had this to say: in the health facility there are no child feeding services given, however, they give information like breast feeding

up to 6 months, wean at six months, give boiled milk and express milk when going for a long journey and leave it for the baby.

Child health services that the women said their under-five year old children received last time they visited a health facility were child immunization for 395 (89.8%) of the women; 313 (71.1%) said their children received oral rehydration therapy; 271 (61.6%) received growth monitoring services; 254 (57.7%) received anti-malarial prophylaxes and 195 (44.3%) received advice on breast feeding initiatives. The second last child health service that was mentioned was malaria prevention services. Approximately 339 (77.0%) were screened for malaria; 311 (70.7%) received ITNs and 174 (39.5%) were given IPT (Table 4.7).

To further explore child growth monitoring and immunization services, the women were asked to produce their child growth monitoring card/MCH booklet. The study revealed that 397(90.2%) of the women had child growth monitoring cards/MCH booklet for their children and 43 (9.8%) did not have growth monitoring/MCH booklets (Table 4.5). The growth monitoring cards/MCH booklets were scrutinized to ascertain vaccination records for BCG, polio, DPT, measles and hepatitis in the cards/booklets. The study confirmed that 376 (85.5%) had received BCG; 394 (89.4%) received both polio 1 and 2; 375 (85.2%) and 364 (82.7%) in that order received polio 3 and 4. Approximately three quarters of the women said their under five children had i.e. 329 (74.8%) and 320 (72.7%) respectively, received DPT 1 and 2. Also 312 (70.9%) were vaccinated against measles with 298 (67.7%); 280 (63.6%) and 260 (59.1%) acknowledging that their children had been vaccinated against hepatitis 1, 2 and 3 in that order.

Discussant no. 3 in FGD 1 said: the child is immunized 3 times after birth, then at 9 months. Discussant no. 2 in FGD 1 said: vitamin A is given after 6 months.

Table 4.5: Maternal and Child Health Services Utilized by Women of Reproductive Age

	Frequency n(%) No. (%)		Frequency No. (%)
Maternal family planning services		**Maternal ANC health services**	
Tubectomy	5(1.1)	*Weighing of the mother*	400(90.9)
Implant	126(28.6)	*Tetanus toxoid immunization*	347(78.9)
IUD	17(3.9)	*Blood pressure measurement*	386(87.7)
Injection	176(40.0)	*Abdominal examination*	355(80.7)
Pill	68(15.5)	*Give iron tablets*	296(67.3)
Diaphragm	3(0.7)		
Emergency Contraception	2(0.5)		
Maternal health services		**Child health services**	
Assess Post-partum danger	189(43.0)	*Weighing the baby*	380(86.4)
Advice on postpartum danger	206(46.8)	*Breast feeding information*	366(83.2)
Nutritional information	261(59.3)	*Information in baby warming*	306(69.5)
Abdominal examination	219(49.8)	*Umbilical cord care*	314(71.4)
Birth canal examination	205(46.6)	*Danger signs information*	251(57.0)
Blood pressure examination	247(56.1)	*Information on complication*	177(40.2)
Family planning services	171(38.9)	*Baby given assisted – breathing*	71(16.1)
Provision of vitamin A.	171(38.9)	*Baby examined 1-7 days post-birth*	288(65.5)
		Baby examined 8-28 days post-birth	87(19.8)
Child feeding services ever received from the nearest health facility			
Information on when to first put the child on breast milk			321(73.0)
Time when to first give water, food, or other fluid other than breast milk			403(91.6)

The type of fluid or food to be given to the child	326(74.1)
The right age upon which a child can be weaned and stopped to have breast milk	245(55.7)
Child health services ever received from the nearest health facility	
Oral rehydration therapy	313(71.1)
Child immunization	395(89.8)
Anti-malaria prophylaxes	254(57.7)
Growth monitoring services	271(61.6)
Breast feeding Initiatives	195(44.3)
Is Child growth monitoring card/MCH Book present?	
Yes	397(90.2)
No	43(9.8)
Malaria Prevention services ever received from your nearest health facility	
ITNs distribution	311(70.7)
Malaria Screening	339(77.0)
IPT	174(39.5)

4.5 The Association between Socio-demographic and Socio-economic factors in Knowledge, Accessibility and Utilization of Maternal and Child Health Services in Kisumu West District

4.5.1: The association between Socio-demographic and Socio-economic factors and Knowledge of Maternal and Child Health Services in Kisumu West District.

As table 4.6 below demonstrate, education influences the knowledge of maternal and child health services (OR=0.060, 95% CI=0.025-0.045, *P*=0.020) and neonatal care services (OR=0.075, 95% CI=0.019-0.131, *P*=0.009). Family size influenced the knowledge on ante-natal care services at the health facilities (OR=0.052, 95% CI= 0.004-0.100, *P*=0.032). Age of the women of reproductive age influenced their knowledge on safe delivery services (OR=0.608, 95% CI=0.011-0.126, *P*=0.021). Income of the women of reproductive age influenced their knowledge on maternal and child health services (OR=0.0101, 95% CI=0.061-0.142, *P=0.001*), sources of maternal and child health services (OR=0.011, 95% CI=0.003-0.019, *P*=0.002), safe delivery (OR=0.080, 95%CI=0.034-0.125, *P*=0.001), neonatal care services (OR=0.099, 95% CI=0.054-0.145, *P*<0.001), family planning services (OR=0.053, 95% CI=0.013-0.093, *P*=0.010) and malaria prevention (OR=0.106, 95% CI=0.057-0.155, *P*<0.001). Income was the most influencer of knowledge of the study group.

Table 4.6: The Association between Socio-demographic and Socio-economic factors and Knowledge of Maternal and Child Health Services in Kisumu West District.

Socio-demographic and economic factors	**Age**	**Marital status**	**Family size**	**Education**	**Occupation**	**Income level**
Knowledge of Health services	**P (OR) 95% CI**					
Knowledge of MCH services at the HF	0.256 (0.031) 0.022 – 0.084	0.111 (0.059) 0.014 – 0.134	0.885 (0.004) 0.048 – 0.056	**0.020** (0.060) 0.009 – 0.110	0.572 (0.010) 0.025 – 0.045	**0.001** (0.101) 0.061 – 0.142
Knowledge of child health services	0.164 (0.047) 0.113 – 0.019	0.210 (0.057) 0.033 – 0.147	0.713 (0.012) 0.052 – 0.077	0.227 (0.039) 0.024 – 0.102	0.136 (0.033) 0.010 – 0.076	0.119 (0.041) 0.011 – 0.093
Knowledge of MCH sources	0.938 (0.000) 0.010 – 0.011	0.867 (0.001) 0.013 – 0.015	0.450 (0.004) 0.006 – 0.014	0.761 (0.001) 0.008 – 0.011	0.927 (0.000) 0.006 – 0.007	**0.002** (0.011) 0.003 – 0.019
Knowledge of ANC services	0.152 (0.036) 0.013 – 0.085	0.118 (0.053) 0.014 – 0.120	**0.032** (0.052) 0.004 – 0.100	0.308 (0.024) 0.023 – 0.071	0.418 (0.013) 0.019 – 0.046	0.110 (0.031) 0.007 – 0.070
Knowledge of safe delivery	**0.021** (0.608) 0.011 – 0.126	0.672 (0.017) 0.096 – 0.062	0.818 (0.007) 0.050 – 0.063	0.255 (0.032) 0.023 – 0.088	0.603 (0.010) 0.028 – 0.048	**0.001** (0.080) 0.034 – 0.125
Knowledge of neonatal care services	0.076 (0.053) 0.006 – 0.112	0.244 (0.048) 0.033 – 0.128	0.974 (0.001) 0.057 – 0.058	**0.009** (0.075) 0.019 – 0.131	0.457 (0.015) 0.024 – 0.054	**<0.001** (0.099) 0.054 – 0.145
Knowledge of FP services	0.499 (0.018) 0.034 – 0.069	0.826 (0.008) 0.062 – 0.078	0.109 (0.041) 0.009 – 0.091	0.465 (0.018) 0.031 – 0.067	0.806 (0.004) 0.030 – 0.038	**0.010** (0.053) 0.013 – 0.093
Knowledge of malaria	0.060	0.417	0.768	0.953	0.587	**<0.001**

prevention	(0.061) 0.003 – 0.125	(0.036) 0.051- 0.123	(0.009) 0.053 – 0.072	(0.002) 0.059 – 0.063	(0.012) 0.030 – 0.054	(0.106) 0.057 – 0.155
Knowledge of malaria control	0.101 (0.060) 0.012 – 0.131	0.761 (0.015) 0.082 – 0.113	0.222 (0.043) 0.026 – 0.113	0.513 (0.023) 0.046 – 0.091	0.962 (0.001) 0.046 – 0.048	0.223 (0.035) 0.021 – 0.091

4.5.2: The Association between Socio-demographic and Socio-economic factors and Access to Maternal and Child Health Services in Kisumu West District.

Table 4.7: The Association between Socio-demographic and Socio-economic factors and Access to Maternal and Child Health Services in Kisumu West District.

Socio-Demographic and economic factors	**Age**	**Marital status**	**Family size**	**Education**	**Occupation**	**Income level**
	P (OR) 95% CI					
Where the healthcare service was sought	0.509 (0.025) 0.049 – 0.099	0.680 (0.021) 0.080 – 0.122	0.221 (0.045) 0.027 – 0.117	0.564 (0.021) 0.050 – 0.091	0.377 (0.022) 0.027 – 0.071	<**0.001** (0.107) 0.050 – 0.165
Where healthcare service was received	0.278 (0.015) 0.012 – 0.041	0.652 (0.008) 0.028 – 0.044	0.108 (0.021) 0.005 – 0.047	0.402 (0.011) 0.014 – 0.036	0.094 (0.015) 0.003 – 0.032	0.296 (0.011) 0.010 – 0.032
Time the healthcare service was received	0.281 (0.034) 0.028 – 0.095	0.429 (0.034) 0.050 – 0.118	0.342 (0.029) 0.031 – 0.089	0.965 (0.001) 0.057 – 0.060	0.409 (0.017) 0.023 – 0.058	0.505 (0.016) 0.032 – 0.065
Transport to HF	-	-	-	<**0.001** (0.358) 0.168 – 0.549	0.075 (0.121) 0.012 – 0.254	**0.002** (0.250) 0.092 – 0.408
Drugs available	-	-	-	0.788	0.201	<**0.001**

				(0.007) 0.042 – 0.055	(0.022) 0.012 – 0.055	(0.073) 0.034 – 0.112
Access to MCH information	0.549 (0.009) 0.020 – 0.037	0.212 (0.025) 0.014 – 0.064	0.079 (0.025) 0.003 – 0.052	0.496 (0.009) 0.018 – 0.036	0.806 (0.002) 0.016 – 0.021	0.991 (0.000) 0.021 – 0.022

4.5.3: The association between socio-demographic and economic factors and mothers' utilization of maternal and child health services in Kisumu West District Health Facilities.

Table 4.8: The association between socio-demographic and economic factors and mothers' utilization of maternal and child health services in Kisumu West District Health Facilities.

Socio-Demographic and economic factors	**Age**	**Marital status**	**Family size**	**Education**	**Occupation**	**Income level**
	P (OR) 95% CI					
Family planning	0.218 (0.032) 1.099 – 1.268	**0.018** (1.297) 1.159 – 1.436	0.356 (1.095) 1.007 – 1.184	0.270 (1.199) 1.079 – 1.318	0.218 (1.175) 1.102 – 1.248	0.105 (1.184) 1.116 – 1.252
ANC services	0.062 (1.030) 0.958 – 1.102	0.660 (0.013) 0.046 – 0.073	0.455 (0.016) 0.059 – 0.026	0.750 (0.007) 0.035 – 0.048	0.549 (0.009) 0.020 – 0.037	0.087 (1.138) 1.080 – 1.196
Neonatal care services	0.951 (1.328) 1.212 – 1.445	0.479 (1.392) 1.201 – 1.584	**0.050** (1.436) 1.313 – 1.555	0.236 (1.230) 1.066 – 1.394	0.537 (1.297) 1.197 – 1.397	**0.022** (1.421) 1.328 – 1.514
Baby assisted breathing	0.723 (0.010) 0.047 – 0.068	0.324 (1.924) 1.768 – 2.081	**0.002** (1.701) 1.603 – 1.800	0.252 (0.032) 0.023 – 0.087	0.425 (1.878) 1.796 – 1.959	0.334 ((1.814) 1.738 – 1.891

Maternal health services	0.312 (1.568) 1.444 – 1.693	**0.002** (1.819) 1.617 – 2.022	0.291 (1.574) 1.444 – 1.704	0.171 (1.627) 1.452 – 1.802	**0.006** (1.642) 1.536 – 1.748	0.551 (1.536) 1.436 – 1.636
Child health services	0.886 (1.270) 1.158 – 1.381	**0.053** (1.452) 1.270 – 1.635	0.604 (1.306) 1.190 – 1.422	0.436 (1.337) 1.180 – 1.494	**0.038** (1.368) 1.273 – 1.463	**0.028** (1.366) 1.277 – 1.455
Child feeding services	0.949 (1.192) 1.094 – 1.289	0.358 (1.262) 1.102 – 1.421	0.505 (1.221) 1.119 – 1.322	0.148 (1.286) 1.149 – 1.423	0.377 (1.222) 1.139 – 1.306	**<0.001** (1.340) 1.263 – 1.417
Other child birth services	0.598 (1.289) 1.173 – 1.405	0.454 (1.389) 1.198 – 1.579	0.268 (1.382) 1.261 – 1.503	0.067 (1.172) 1.009 – 1.335	0.220 (1.374) 1.275 – 1.473	**0.006** (1.433) 1.341 – 1.525
Malaria prevention and control services	0.427 (1.738) 1.635 – 1.842	0.405 (1.847) 1.677 – 2.018	0.948 (1.774) 1.666 – 1.882	0.836 (1.762) 1.617 – 1.908	0.278 (1.821) 1.733 – 1.910	**0.005** (1.882) 1.799 – 1.964

CHAPTER FIVE: DISCUSSION

5.1 Socio-Demographic and Socio-Economic Characteristics of Study Participants

The study findings confirm the normal trend of decrease in the number of women who are actively reproducing with increase in age. A study argues that age is a good predictor of maternal and child health services utilization (Babalola and Fatusi, 2009). The study established that determinants of use of maternal health service in Nigeria in women aged between 25 – 34 years were more likely to be in the use ANC, skilled delivery services, and post-natal care. The study further demonstrated that a majority (85.5%) of the women were married. A number of studies for instance Chaibra (2008) and WHO (2004) established a positive correlation between marital status and maternal and child health service utilization. Majority (72%) of the respondents in the current study had between 1 – 3 children. It has been previously demonstrated that the number of children can also affect maternal and child health service utilization. For example, according to Kristian, (2009), women who have more children are less likely to attach importance to maternal health service utilization. Almost half (50.7%) of the respondents confirmed that they had a family size of 5 – 7 members.

Family size can be a strong predictor of maternal and child health services utilization. Babalola and Fatusi (2009) were able to demonstrate that family size was associated with increased odds of using medical personnel at delivery. The findings from the current study concur with the previous observations that the number of family members can affect maternal health service utilization (MliloChaibva, 2007). This concordance could be attributed to the fact that the previous and current studies targeted the same age groups, that is, women of reproductive age falling within the ages 15-49 years.

Education has been shown to influence knowledge access and utilization of maternal and child health services in a previous study (Titaley *et al.,* 2010). Reportedly low levels of education can serve as a

barrier to knowledge of maternal and child health services; poor access to such services and also their low utilization (Mathole *et al.,* 2005). Previous studies have found that education of a mother can indeed influence utilization of maternal and child health services (Govindasamy and Ramesh 1997; Mathole *et al.,* 2005). As a majority of the study participants' (70.5%) level of education was up to primary level, this study found that there could be a link between the level of education and the reported low utilization of maternal and child health services in Kisumu West District.

5.2 The Knowledge of Women of Reproductive Age on Maternal and Child Health Services

Lack of knowledge can adversely affect access and utilization of maternal and child health services(Ochako *et al.,* 2011). The women' knowledge was assessed in terms of what maternal health services they could be able to mention. Maternal and child health care services included ante-natal care; safe delivery services; post natal services; family planning services; health education; ITN distribution; VCT; malaria screening and immunization/vaccination. Child health care services included provision of oral rehydration; immunization; growth monitoring; breast feeding initiative and other child health services particularly for male children was VMMC, nutrition. The study establishes that slightly over half of the women knew at least one of the maternal health care services. This was equally observed for knowledge of child health services with the exception of VMMC and child nutrition. The number of women who knew of ANC services in the current study is higher than that of a previous study (Nwala *et al.,* 2013) where only 57% of the women knew of ANC; 54.3% knew of delivery services. The figures presented by Nwala *et al.,* (2013) are lower than the figures presented by the current study findings. This could be due to age difference in the study participants as those who participated in Nwala *et al.,* (2013) study was aged 36 – 45 as opposed to the current study where over 90% of the participants were aged below 36 years with only 5.4% being older than 36 years. The good knowledge demonstrated in the current study must be attributed to the young age of the study participants and their level of education. This view is supported by the findings of a

similar study (Yar'zever and Said, 2013) that investigated knowledge and barriers in utilization of maternal health care services in Kano State, Northern Nigeria. In their study (Yar'zever and Said, 2013), the participants displayed a good knowledge of maternal health facilities and programs that were provided by their government. The participants in the study of Yar'zever and Said (2013) were relatively young, that is, 76.2% aged less than 35 years of age and 77% were literate.

5.3 The Accessibility of Maternal and Child Health Services by Women of Reproductive Age

Distance to the health facility has often been viewed as one of the obstacles to access to health care services. This study agrees with the findings of a study (Uzochukwu *et al.,* 2004) and Said *et al.,* 2013 where it emerged that distance was one of the barriers in the utilization of MCH services in Kisumu West District. A similar observation was made by Owino (2013) which singled distance as one of the key factors to access on health services. Travelling long distances to seek MCH services could be a result of several factors one of which being the availability of specific services at a given health facilities and how well a given health facility is equipped. In Kenya, health facilities are classified according to levels ranging from level 2 to level 5. The extent to which the different levels are equipped differs and there are well coordinated referral systems between levels. The previous study (Owino, 2010) could report a different finding from the current study. The study indicated that more women from Homa Bay County accessed services from Jaramogi Oginga Odinga Teaching and Referral Hospital than women from Kisumu West. Transport system in Kisumu West District has also been revolutionized with the introduction of transportation means like tricycles, motorcycles and bicycles. This means that distance is becoming less of an obstacle in accessing maternal and child health services.

Maternal and child heath fees charged for health care services have been reported to serve as a barrier in the access and utilization of health care services in most developing states especially African states (Akin and Hutchinson, 1999 and Uzochukwu *et al.,* 2004). Waiting time emerged as a concern in the

current study as close to half of the women said they did not consult the health service providers until after 1 hour from the time they arrived at the health facility. The observed long waiting time by MCH clients in this study was also reported in the study of Uzochukwu *et al.*, (2004) where patients complained of long waiting time even when clients were few as a barrier to access of maternal and child health services. Access of quality MCH services is highly dependent on the availability of prescribed drugs (Arthur, 2012; Uzochukwu *et al.,* 2013). It is important that all drugs required by expectant women and their under five children are stocked at health facilities at all times as these are groups of people with low immune status. In the current study it was fortunate to note that 88% of the women said they received the prescribed drugs at the health facilities. However, it is still of concern that 12% of the women did not receive the prescribed drugs.

On the source of information on MCH services, the women said they received MCH services information from a variety of sources ranging from radios, health personnel working in the district; CHWs and newspapers. Radio emerged as a very important source of information for MCH services. Information should indicate where MCH services are offered; the importance of attending ante-natal and postnatal care for the mother and their children. A study (Mrisho *et al.,* 2009) was able to link lack of information to poor utilization of MCH services. Adequate information on ANC services has been reported to contribution to utilization of ANC services, which indirectly translates to reduction in maternal and child morbidity and mortality (Carroli *et al.*, 2001).

5.4 The Utilization of Maternal and Child Health Services by Women of Reproductive Age

Utilization of ANC services was over 67% of the women said they were weighed; received tetanus toxoid immunization; blood pressure was taken; abdominal examined and iron tablets were given. However, it should be noted that abdomen examination reduced after delivery as less than 50% of the women said they received abdominal examination implying that laxity starts setting in immediately women deliver. Laxity was noted for other postpartum services such as family planning and vitamin

A provision. Child immunization services seemed good though not impressive despite the fact that 90% of the women had child growth monitoring card/MCH book. Immunization was investigated with respect to the specific immunization schedules such as BCG vaccination against tuberculosis; Polio vaccine; pentavalent vaccination and a vaccination against measles. Overall number of children who received all the immunization was 59.1% implying that there was still a deficit of 40.9% of under five year old children who were not immunized. Nevertheless, the percentage of children who received all basic immunization was slightly below the national percentage of 60.8% reported in KDHS 2008 report (Kenya National Bureau of Statistics and Marco, 2010). With reference to individual vaccinations as was confirmed in the vaccination cards of the children the current study revealed that Kisumu West district is doing well with 59.1% of under five children in the study receiving measles injection, which compares very well with national percentage of 60.8% and BCG which was highest polio 1 (polio 0) in KDHS at 69.9% being way below the percentage for Kisumu West District which was 89.4%. However, of concern is the decreasing number of children who get to be immunized from birth after receiving BCG. This reducing trend is evident in the KDHS 2008 report and also in the current study (Kenya National Bureau of Statistics and Marco, 2010).

Client satisfaction with health care is one of the most important outcome measures in a clinical setting. The women were not satisfied with the length of waiting time and the amount of money paid for the MCH services received. The findings of the current study is consistent with that of Newman *et al.,* (1998) and Ehiri *et al.,* (2005) where clients were not happy with the long waiting times. Dissatisfaction is an indication that services delivered are lacking in some aspects. Above half of the women were generally satisfied with the services offered at the health facilities in Kisumu West District based on skills of health personnel; cleanliness of the health facility; provision of health services; provision of health services; security of the health services; certainty of results of treatment and easiness to reach the health facility. The availability of prescribed drugs at the facility is a good indicator of satisfaction to clients and is an assurance of the outcome of treatment. This is equally

supported by the findings of Ahmed *et al.,* (1996) where 89% of the patients visiting health center obtained their drugs. The current study contradicts that of Msamanga *et al.,* (1993) where 80% of the patients in public health facilities could not get their prescribed drugs. The contradictory finding in this study is the hospitality of the health personnel, which have always been reported to be poor (Uzochukwu *et al.*, 2004).

5.5 The Association between Socio-demographic and Socio-economic factors to Knowledge, Access and Utilization of Maternal and Child Health services by Women of Reproductive Age

The study findings were in line with findings by a previous study (Jayaraman *et al.,* 2008) carried out in Rwanda in which it was found that prevailing poverty, age and level of education among women of reproductive age is a determinant of the knowledge, access and utilization of maternal and health services. Given the level of poverty in Kisumu West district, majority of the women depend on fishing and small scale farming which limits their out-of-pocket spending to cater for non-emergency medical care. The fairly high education levels and increase in use of information and communication technologies (including mobile phones) in Kisumu West District explains the high level of knowledge of the maternal and child health services.

The studied age group was largely educated hence the high knowledge of the study participants of the maternal and child health services in Kisumu West district. High education, knowledge and the link to awareness of health services is clearly shown in a study by Nahar (2004) in which he states that the status of women (illiteracy, low standard of living, inadequate acquaintance of reproductive health and reproductive rights) strongly affects women utilization of MCH services. Other studies that show the link in socio-economic and socio-demographic factors and utilization of maternal and child health services include (Konte, 1997 and Mubyazi, 2004). In this current study, religion was not a major factor in influencing maternal and child health services.

This study was also consistent with the study conducted by Zhao *et al.* (2009) which found that the socio-economic status of education, husband's residence and annual family income, and delivery experiences were the main factors influencing the knowledge level of maternal health care among rural migrant women.

In the same study, education was found to have the most powerful influence on the knowledge score of maternal health (Mubyazi, 2004). Knowledge not only transforms, but also empowers women and improves their self-esteem. It is expected that educated women are more likely to be aware of their health status and seek health knowledge (MliloChaibva, 2007). Furthermore, educated women may have a greater decision making power on health-related matters. The current study also found out that educations was a key factor in access and utilization of maternal and child health services as was shown by Mubazi and MiloChaibva.

CHAPTER SIX: SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

6.1 Summary of Findings

Although there were no national benchmarks for knowledge of the study participants on maternal and child health, the study found that the knowledge of the study participants on nutrition, breastfeeding, growth monitoring and immunization of mothers against tetanus were below the other maternal and child health services.

Access to maternal and child health services among the study participants showed that Kisumu West District has more health facilities than the national average per district. The study showed that 6% of the study participants still seek services from traditional birth attendants and only 30% seek services from government health facilities because of better drugs/remedies. 65% of the study participants still have to walk more than one hour to access a health facility. Further 48% have to wait more than one hour to receive treatment.

In utilization, 78% receive of the study participants who visited antenatal care clinic have received immunization against tetanus. This is below the WHO recommendation of 100% immunization against tetanus. Iron and folate supplementation is only at 67%. Only 38% reported receiving family planning service advice from the health facility.

Among the knowledge factors, age, family size, education and income level were found to be significantly associated with knowledge. Education and income level were found to be significantly associated with access to MCH services. Among the utilization factors, marital status, family size, occupation and income level were found to be significantly associated with utilization of MCH services.

6.2 Conclusion

i. The knowledge of women of reproductive age on maternal and child health services offered at the health facilities in Kisumu West District, Kenya was found to be more inclined towards the antenatal care services than delivery and postnatal care services. There were no WHO nor national benchmarks to rate knowledge in Kisumu West District.

ii. The accessibility of maternal and child health services by women of reproductive age and their under five children Kisumu West District, Kenya showed that 6% of the study participants still seek services from traditional birth attendants and only 30% seek services from government health facilities because of better drugs/remedies. 65% of the study participants still have to walk more than one hour to access a health facility. Further 48% have to wait more than one hour to receive treatment.

iii. The degree of utilization of maternal and child health services by women of reproductive age and their under five children in Kisumu West District, Kenya was determined to be below WHO standards which have been adopted by the Kenyan government.

iv. The socio-demographic factors associated with knowledge, accessibility and utilization of maternal and child health services were age, marital status and family size while socio-economic factors associated with knowledge, accessibility and utilization of maternal and child health services in Kisumu West District were education, occupation and income level.

6.3 Recommendations from the current study

1. There is need to continue with continuous information, education and communication and behaviour change communication campaigns on importance of health facility-based maternal and child health services in Kisumu West District.

2. There is still need to increase outreach services in maternal and child health programs in Kisumu West District to increase access to maternal and child health services.

3. Utilization of maternal and child health services are still below WHO standards. There is need to educate the women of reproductive age on the importance of utilizing services at the health facilities to increase uptake. More efforts should be placed on neonatal and postnatal care.

4. Improvement of social and economic status of the study participants will improve the knowledge, access and utilization of maternal and child health services. The government needs to explore combining health programmes with poverty reduction initiatives and also further lower the cost of services at the health facilities to increase access.

6.3 Recommendations for further studies

1. There is need for a study to benchmark the measurement of knowledge of maternal and child health services globally and nationally.

2. Dilemmas associated with Voluntary Counseling and Testing (VCT) of women attending ANC services within Kisumu West District Hospital. Creation of awareness on the role VCT plays in mother and child health is very important to increase knowledge and utilization of these services.

3. A qualitative assessment of health care services provided by nurses practicing in villages of Kisumu West District. The study found out that some study participants are not utilizing the maternal and child health services due to poor services offered by nurses and the nurses' poor attitude towards women seeking services.

4. An investigation on out-of-pocket expenditure on drugs prescribed for patients attending public health facilities is necessary.

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APPENDICES

APPENDIX 1: Map of Kenya Showing Study Area

APPENDIX 2: Consent form to serve as a respondent in this study

Informed Consent

Good morning/afternoon, my name is ..... and I am working for an MPH student of Maseno University School of Public Health and Community Development. The student has contracted my services as Research Assistants to help in the survey on "***Assessment of the Knowledge, Accessibility and Utilization of Maternal and Child Health Services by Women of Reproductive Age in Kisumu West District, Kenya***". We will ask questions on the knowledge, accessibility and utilization of maternal and child health services in Kisumu West District. The whole process will take about 45 minutes. There are no direct benefits that you will gain by participating in this study. Your response will enable us gain an in-depth understanding on the utilization of maternal health services being offered in the health facilities in Kisumu West District. The study findings will be used to devise strategies that can improve utilization of maternal health services offered by health facilities in the district.

The information you give us will be kept confidential and will not be shared with anyone outside this study. Your name will not at any time be used or linked to any response you give. Participation in this study is voluntary i.e. you may choose to participate or not to participate. You are also free to respond to questions which you feel comfortable to answer. You can also stop participating at any time during the survey; however we hope that you will participate to the end since your views are very important. Would you like to ask any questions? At this moment, are you available to participate in this survey? May I start the interview?

(*If respondent agrees to be interviewed, interview can be started. If respondent does not agree to be interviewed stop and replace with other participant based on sampling procedure*).

Signature of interviewee……. Date……

Signature of interviewer …… Date ……

APPENDIX 3: Study Questionnaire

Questionnaire No:----------

Study Site		**Code**	
Province: Nyanza		01	
District: Kisumu West		002	
Division			
Kombewa (*two digit codes* e.g. 01)			
Maseno (*two digit codes* e.g. 02)			
Village: (*two digit codes* e.g. 01)			
Number of Household: (*three digit code* e.g. 001)			
Interview		**Checking**	
Date of Interview		Date of Cross Check	
Time (Clock): Start			
Finish		Name of Checker District Field Coordinator (DFC)	
Name of Interviewer			
Sign:		Sign:	

SECTION 1: SOCIO-DEMOGRAPHIC CHARACTERISTICS

101. Age: What is your age?

1. 16 -25yrs ( )

2. 26- 35yrs ( )

3. 36-45yrs ( )

4. 46-55yrs ( )

5. > 55yrs ( )

102. Marital status: What is your marital status?

1. Not married ( )

2. Married ( )

3. Divorce ( )

4. Widow/widowed ( )

103. No of children (specify) _____

104. Family size: How many other people are living in the same house with you for the last three months?

1. None ( )

2. 1 ( )

3. 2 – 5 ( )

5. > 5 ( )

SECTION 2: SOCIO-ECONOMIC CHARACTERISTICS

201. Education: What is your highest level of education?

1. Pre-school ( )

2. Primary ( )

3. Secondary ( )

4. College ( )

5. University ( )

6. Do not know ( )

202. Occupation: What is your main source of income?

1. Un-employed ( )

2. Farming ( )

3. Trading ( )

4. Civil servant ( )

5. Professional ( )

6. Others, Specify----------

203. In total, how much money does the household head earn every month?

1. < 5000 ( )

2. 5001 – 10000 ( )

3. 10001 – 15000 ( )

4. >15000 ( )

204. How much money is the expenditure of this household every month (In KShs):----------

205. How much money is the expenditure on health every month (In KShs):----------

206. Who is the person in this household taking the decision health when one of the members is sick or need routine health assessment?

1. Mother ( )

2. Husband ( )

3. Mother and Husband together ( )

4. Husband and Other trusted Person ( )

5. Mother and Other trusted person ( )

6. Guardian ( )

7. Other, specify:----------

207. Religion: How would you describe your religion?

1. Traditional ( )

2. Christianity ( )

3. Islam ( )

6. Others (specify): ----------

SECTION 3: KNOWLEDGE ABOUT MCH SERVICES

301. What maternal health services are available in your nearest health facility?

1. Ante-natal care ( )

2. Safe Delivery Services ( )

3. Post natal services ( )

4. Family planning services ( )

5. Health education ( )

6. ITNs distribution ( )

7. VCT ( )

8. Malaria Screening ( )

9. Immunization/Vaccination ( )

6. Others, specify: ----------

302. What child health services are available in your community?

1. Oral rehydration therapy ( )

2. Immunization services ( )

3. Growth monitoring services ( )

4. Breast feeding Initiatives ( )

6. Others, specify: ----------

303. Where can you get Maternal and Child Health Services?

1. Public hospitals ( )

2. Private hospitals ( )

3. Public Health Care centers ( )

4. Pharmacy ( )

5. Medicine shop ( )

6. TBA ( )

8. Others, specify: ----------

304. What Ante-natal care services are available in your nearest health facility?

1. Weighing of mother ( )

2. Tetanus toxoid immunization ( )

3. Blood pressure measurement ( )

4. Abdominal examination ( )

5. Give iron tablets ( )

6. Others, specify: ----------

305. What Safe Delivery Services are available in your nearest health facility?

1. Information on birth plan ( )

2. Advise to deliver at the Health facility ( )

3. Advise to seek attendance of skilled birh attendant ( )

4. Danger on signs of complicated delivery ( )

5. Others, specify: ----------

306. What Neonatal Care Services are available in your nearest health facility?

1. Weighing the baby ( )

2. Breast feeding information ( )

3. Information in baby warming ( )

4. Umbilical cord care ( )

5. Danger signs information ( )

6. Information on complication ( )

7. Others specify: ----------

307. What family planning services are available in your nearest health facility?

1. Tubectomy/Female Sterilization ( )

2. Vasectomiy/Male Sterilization ( )

3. Implant ( )

4. IUD ( )

5. Injection ( )

6. Pill ( )

7. Condom ( )

8. Diaphragma/Intravaginal Jelly ( )

9. Emergency Contraception ( )

10. Information on coitus interruptus ( )

11. Natural Method (Breastfeeding, Abstinent, Calender) ( )

12. Other, specify: ----------

13. Do Not Know ( )

308. What Malaria Prevention services are available in your nearest health facility?

1. ITNs distribution ( )

2. Malaria Screening ( )

3. IPT ( )

4. Others, specify: ----------

SECTION 4: ACCESS OF MCH SERVICES

401. Usually, what is the first action taken when you or your child suffers from an illness?

401_1. Self-Treatment:

1. Rest ( )

2. Take Remedies Bought From Small Store ( )

3. Drink Prayed/Superstitious Water ( )

4. Herbs/Parsley/Potion ( )

5. Surface Cooling ( )

6. Put Warm Water ( )

401_2. Seek health services from government:

1. Hospital ( )

2. Community Health Center ( )

3. Clinic ( )

4. Mobile Health Services ( )

401_3. Seek health services from private:

1. Hospital ( )

2. Clinic ( )

3. Private Doctor ( )

4. Private Midwife ( )

401_4. Seek health services from community:

1. Village Midwife ( )

2. Nurse Practitioner ( )

3. Traditional Healer ( )

4. Other, specify: ----------

5. Do Nothing ( )

402. Where can you get Maternal and Child Health Services?

402_1. Government:

1. Hospital ( )

2. Community Health Center ( )

3. Clinic ( )

4. Mobile Health Services ( )

402_2. Private:

1. Hospital ( )

2. Clinic ( )

3. Private Doctor ( )

4. Private Midwife ( )

402_3. Community:

1. Village Midwife ( )

2. Nurse Practitioner ( )

3. Traditional Healer ( )

4. Other, specify: ----------

5. Do Nothing

403_1. When did you visit the health facility or health personnel at that time?

1. Work day within work hours (at 08.00 -17.00) ( )

2. Work day out of work hours ( )

3. Holiday ( )

403_2. What is the reason of choosing the time for visiting health facility or health personnel?

1. Better Care/Services ( )

2. Available Time of respondent ( )

3. Suffered From Sick/Ill at That Time ( )

4. Cheaper ( )

5. Better Drugs/Remedies ( )

6. Others, specify: ----------

404. What is the estimated distance from your house to that health facility?

Distance in Km.....

406. How did you go to the health facility

1. Using Public Transport ( )

2. Using Private car ( )

3. Using Motorcycle ( )

4. Walking ( )

6. Others, specify: ----------

9. Do Not Know ( )

407. How was the length of time needed for going from your house to that health facility? (*Do Probing if respondent has difficulties in remembering the length of time*).

Length of Time: ……Hours: …….Minutes

408. How much money was needed for transport to reach that health facility?

Transport Cost in KShs.:…….

409. Can health personnel in that health facility be met or visited any time needed?

1. Yes ( )

2. No ( )

9. Don't know ( )

410. How long did you and your child have to wait from the time you arrived at that health facility until you were requested to be cared/examined?

Waiting Time: ……Hours: …….Minutes

411. In your opinion, was that length of time being too long, short, or just moderate?

1. Too Long ( )

2. Moderate ( )

3. Short ( )

9. Do Not Know ( )

412. Did you have to pay any cost for maternal and/or child services that you were given?

1. Yes ( )

2. No ( )

412_1. If yes in 412 above, how much money was needed for the maternal and/or child services that you were given? Service Cost in KShs.:…….

413. If you lack money for health services payment, usually what do you do?

1. Borrowing money from family/relatives ( )

2. Borrowing money from neighbor ( )

3. Borrowing money from "*chama*" ( )

4. Withdrawing my saving ( )

5. Selling any of my valuable items ( )

6. Pawning the valuable items ( )

8. Other, specify: ----------

414. Did the health facility provide you/your child with the needed drugs/remedies?

1. Yes ( )

2. No ( )

3. Don’t know ( )

306. What is your source of information on maternal and child health services?

1. Magazine ( )

2. Newpaper ( )

3. Poster/ Leaflet ( )

4. Booklet ( )

5. Radio ( )

6. Television ( )

7. Religious Places ( )

8. Village meeting ( )

9. At school ( )

10. At the workplace ( )

11. Health Personnel ( )

12. Friend/Family/Relatives ( )

13. Other, specify: ----------

14. Do Not Know: ( )

SECTION 5: UTILIZATION OF MCH SERVICES

501. When did you/your child go to health personnel or health facility at the last time?

……Months ago (record 99 if doesn’t remember).

502. What was the type of health facility or health personnel you visited at that time?

502_1. Government:

1. Hospital ( )

2. Community Health Center ( )

3. Clinic ( )

4. Mobile Health Services ( )

502_2. Private:

1. Hospital ( )

2. Clinic ( )

3. Private Doctor ( )

4. Private Midwife ( )

502_3. Community:

1. Village Midwife ( )

2. Nurse Practitioner ( )

3. Traditional Healer ( )

4. Other, specify: ----------

5. Do Nothing ( )

503. What was the reason of you for visiting above mentioned health personnel or health facility?

1. Family Planning ( )

2. Ante-natal Care ( )

3. Neonatal Care ( )

4. Postpartum Care ( )

5. Child Feeding Practice services ( )

6. Child Health ( )

8. Others, specify: ----------

503_1. Which of the following family planning health services have you ever received from the nearest health facility?

1. Tubectomy/Female Sterilization ( )

2. Implant ( )

3. IUD ( )

4. Injection ( )

5. Pill ( )

6. Diaphragma/Intravaginal Jelly ( )

7. Emergency Contraception ( )

8. Other, specify (Breastfeeding, Abstinent, Calender) :----------

9. Do Not Know ( )

503_2. Which of the following ante-natal health services have you ever received from the nearest health facility?

1. Weighing of the mother ( )

2. Tetanus toxoid immunization ( )

3. Blood pressure measurement ( )

4. Abdominal examination ( )

5. Give iron tablets ( )

6. Others specify: ----------

503_3. Which of the following neonatal and postnatal health services have you ever received from the nearest health facility?

1. Weighing the baby ( )

2. Breast feeding information ( )

3. Information in baby warming ( )

4. Umbilical cord care ( )

5. Danger signs information ( )

6. Information on complication ( )

8. Others specify: ----------

503_4. After birth, was the baby given assisted-respiration through pipe/special equipment by

health personnel?

1. Yes ( )

2. No ( )

3. Don’t know ( )

503_5 Please mention in detail, how many times NAME was examined by health personnel in:

1. 1-7 days after birth? ( )

2. 8-28 days after birth? ( )

3. Don’y know ( )

505. At the time of examination, did you receive the services:

505_1. For Mother:

1. Explanation of postpartum danger sign? ( )

2. Explanation of action to be taken if there is any danger sign or ( )

3. Explanation of nutrition for mother? ( )

4. Abdominal examination ( )

5. Birth canal/pathways examination? ( )

6. Blood pressure measurement? ( )

7. Explanation of family planning methods? ( )

8. Distribution of vitamin A ( )

505_2. For Child:

1. Recommendation to breastfeeding? ( )

2. Recommendation to baby warming? ( )

3. Explanation of umbilical cord care? ( )

4. Explanation of neonatal danger sign? ( )

5. Explanation of action to be taken if there is complication or danger sign? ( )

6. No kind of service received ( )

506. Which of the following child feeding services have you ever received from the nearest health facility?

1. Information on when to first put the child on breast milk ( )

2. The right time when to first give water, food, or other fluid other than breast milk ( )

3. The type of fluid or food to be given to the child ( )

4. The right age upon which a child can be weaned and stopped to have breast milk ( )

8. Others specify: ----------

507. Which of the following child health services have you ever received from the nearest health facility?

1. Oral rehydration therapy ( )

2. Child immunization ( )

3. Anti-malaria prophylaxes ( )

4. Growth monitoring services ( )

5. Breast feeding Initiatives ( )

6. Others, specify: ----------

508_1. Do you have record of immunization of your last child NAME (in the form of Child growth monitoring card/MCH Book)?

1. Yes ( )

2. No ( )

508_2. If the child (name) has MCH Book/ growth monitoring card, look at the Record, and answer the following questions. (*If does not have MCH Book/ growth monitoring card ask the following questions***): Was the child name given the following type of immunization:**

1. BCG (injection at the upper arm and usually has scarred) ( )

2. Polio1 (vaccine coloured white or red, dropped in the child's mouth) ( )

3. Polio 2 ( )

4. Polio 3 ( )

5. Polio 4 ( )

6. Dpt1 (injection at the leg, usually causes slight fever) ( )

7. Dpt2 ( )

8. Measles ( )

9. Hepatitis1 (injection at the outer side of leg) ( )

10. Hepatitis 2 ( )

11. Hepatitis 3 ( )

13. Has not been immunized ( )

14. Do not remember ( )

509. What Malaria Prevention services did you receive from your nearest health facility?

1. ITNs distribution ( )

2. Malaria Screening ( )

3. IPT ( )

8. Others, specify: ----------

THANK YOU FOR YOUR TIME.

APPENDIX 4: Focus Group Discussion Guide

Introductory Session

Good (morning, afternoon, night) ladies, my name is ……. I am working for an MPH student of Maseno University School of Public Health and Community Development. The student has contracted my services as Research Assistants to help in the survey on "***Assessment of the Knowledge, Accessibility and Utilization of Maternal and Child Health Services by Women of Reproductive Age in Kisumu West District, Kenya***". My partner Mr. /Ms. /Mrs. …….. is from the local community in particular……. location. Thank you for giving us your time to be a member of this discussion. We are gathering here, in this place, to have a discussion on health issues, especially on mother and child health. As the discussion is very important, we would like to record the discussion, as we do not want to lose any information you give to us. Therefore, we ask for your permission to record it. There will be no name stated in the report of the study, therefore, please feel free to answer the question, or to express your opinion for the issues. Your inputs, whether it is critique or suggestion will be worthy for us. Well, before we begin the discussion, we would like to have the information of your demographic background. Can we start from my right hand side please, [start to ask and write down the information in the list of attendance for FGD, name, age, level of education, occupation, etc.]

Start the discussion.

What maternal health services do you know? What child health services do you know?

What Ante-natal care services do you know? Where can you get maternal and child health services in Kisumu West District?

Do you know of any birth or delivery services plans? What are neonatal care services? What family planning services do you know? What malaria prevention services do you know?

What first action do you take when mother or child is sick? What do you think are the effects of distance in accessing MCH services?

What do you think are the effects of transport in accessing MCH services? What do you think are the effects of waiting time on accessing MCH services?

What do you think about the cost of MCH services? Are health personnel always available? Are prescribed drugs available?

What are your sources of information on MCH services? Is there any free health service delivery given in health facilities? How is information on health delivered to you? Who uses the information delivered? Are you satisfied with the method of delivering? What is your opinion?

What family planning health services have you used? What is your opinion on FP services received? How would you rate the quality of the services?

Have you used ANC health services? What ANC services did you use? Do you use any FP method? Why did you choose that method? What neonatal and postnatal health services have you used? How would you rate the quality?

What child feeding services were you provided with? Have you used any immunization and vaccination services? Which ones did you use? What would you recommend to be improved?

What is your opinion on age, marital status, education, occupation and income level on knowledge, access and utilization of maternal and child health services?

Thank the participants for their time, close the session.

APPENDIX 5: Maseno University Ethical Review Committee Approval

MASENO UNIVERSITY ETHICS REVIEW COMMITTEE

Tel: +254 057 351 622 Ext: 3050
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Private Bag – 40105, Maseno, Kenya
Email: muerc-secretariate@maseno.ac.ke

FROM: SECRETARY - MUERC **DATE**: 16th October, 2013

TO: Fredrick Ochieng Nyambare
Maseno University

REF: MSU/DRPC/MUERC/000013/13

ETHICAL APPROVAL: PROPOSAL REFERENCE NO.: MSU/DRPC/MUERC/00013/13 – KNOWLEDGE, ACCESSIBILITY AND UTILIZATION OF MATERNAL AND CHILD HEALTH SERVICES IN KISUMU WEST DISTRICT, KENYA.

This is to inform you that Maseno University Ethics Committee (MUERC) determined that the ethics issues were adequately addressed in the proposal presented.

Consequently, the study is granted approval for implementation effective this 16th day of October 2013 for a period of one (1) year.

Please note that authorization to conduct this study will automatically expire on 17th October 2014. If you plan to continue with the study beyond this date, please submit an application for continuation approval to the MUERC Secretariat by 16th September 2014.

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 16th September 2014.

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,

for **Dr. Bonuke Anyona,**
SECRETARY,
Maseno University Ethics Review Committee.

Cc: Chairman,
Maseno University Ethics Review Committee