DETERMINANTS OF SUCCESSFUL MATERNAL-CHILD HEALTH CARE PROGRAMMES IMPLEMENTATION IN KILIFI COUNTY, KENYA

BY

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DECLARATION

This Research Project is my original work and has not been submitted for any award in this University or any other institution of higher learning.

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REG NO: L50/66170/2013

This Research project has been submitted for examination with my approval as the university supervisor

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DEDICATION

I dedicate this research to my husband Rodgers, children Ryan and Mora who had to be patient with my absence and their love and support through the two years.

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ABBREVIATIONS AND ACRONYMS

ANC:	Anti-Natal Care
CHVs:	Community Health volunteers
CHRO	County Health Records Office
HSSP	Health Sector Strategic Plan
IEC	Information Education and Communication
KDHS	Kenya Demographic Health Survey
LDC:	Least Developed Country
MMR:	Maternal Mortality Ratio
MCH:	Maternal Child Health
MOH	Ministry of Health
PHO:	Public Health Officer
PMTCT:	Prevention of Mother to Child Transmission
WHA:	World Health Assembly
WHO:	World Health Organization

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABSTRACT

Antenatal care (ANC) is the health care service provided to a pregnant woman during the course of pregnancy at the antenatal clinic. The aim of ANC is to minimize complications to the mother and her unborn baby. In Kenya, the demographic health survey of 2008/09 indicates a high maternal mortality ratio (MMR), attributed to the high proportion of home deliveries of 56%. The study's purpose was to examine the determinants of successful maternal-child health care programmes implementation in Kilifi County, Kenya.

The objectives were : To examine if availability of financial resources has an influence on implementation of maternal-child healthcare programmes;to establish the extent to which availability of technology influences the implementation of maternal-child healthcare programmes; to examine the influence of health infrastructure facilities on implementation of maternal-child healthcare programmes and lastly to examine how the level of education of mothers influences the implementation of maternal-child healthcare programmes. The population target in this study was top hospital managers in MCH programs and mid-wives in the 12 Hospitals, 4 Sub County Hospital, 24 Health Centers, and all the medical attendants in the 77 Dispensaries. The sample size for this study was 53 respondents. Data collection was by use of researcher administered questionnaire. Data was descriptive analysis using Statistical Package for Social Scientists (SPSS) version. Presentation is by use of frequency tables and narrative text.

It was deduced from the research findings; that financial resources, IT and health infrastructure have a great influence in the implementation of MCH programmes in Kilifi County. More so 92 % of the respondents supported the idea that education levels of the mothers have a significant influence in the implementation of MCH programmes. The study recommended that the relevant bodies supporting healthcare in the county should increase funding to the MCH sector so that better buildings, expertise, technology and many more can be acquired and finally improve the success rate of MCH programmes. The government should highly invest in modern telephony, computers, and scanners. Finally, the researcher recommended that education should be availed to the mothers more specifically to the illiterate ones like the majority uneducated mothers in Kilifi through barazas and other adult education methods.

Ethical approval was sought at University of Nairobi and department of Health, Kilifi county health research coordination team and informed consent from the participants.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

WHO (World Health Organization) has its main focus in its health efforts in the world geared towards children's and women's health. This is due to the report that indicates that, up to 1,000 women die daily translating to 358,000 women dying per year –either while they are pregnant or while giving birth because of inaccessible health care or inadequacy in interventions/lack of proper MCH (maternal child health) programmes structure, poor infrastructural development for the available MCH programmes and even lack of basic operational facilities (WHO, 2011). A report by the World Bank (2014) describes that, across the world, skilled health care programs during childbirth are only available to 60% of women, and less than 40% of expectant mothers have a postnatal visit. On the other hand, unintended pregnancies are 76 million yearly, unsafe abortions reach 22 million and this is the group that contributes to 13 % of all maternal deaths. In most developing countries, the accesses to services in family planning remain a challenge despite the potential of family planning to prevent some related deaths. Meeting the contraceptive needs would greatly reduce unintended pregnancies by up to two-thirds; this would translate to more than 1.5 million maternal and newborn lives. 505,000 maternal deaths will thus be avoided (UNFPA, 2010).

The estimated annual deaths of children less than five years old, is 7.6 million, this includes 3 million child deaths occurring within their first month of life; another 2.6 million is stillbirths. Pneumonia, diarrhea and malaria contribute up to 43 % of deaths to children less than five years old. Even though these causes (diseases) can be treated, people have little or inadequate economical power for treatment. Antibiotics for pneumonia, for instant, are only available to only 25 % of affected children, diarrhea treatment is only available to 42 % (UN Interagency Group for Child Mortality Estimation, 2011).The challenges affecting global efforts to improve MCH programmes have been analyzed by a number of scholars and they have been numerous and almost uniform in middle developed economies like India, Malaysia and the LDCs (least developed countries) like the sub-Saharan Africa economies. World Vision (2013) categorizes issues that govern the health of mothers and their infants into two categories; environmental and economically structured challenges. Environmental issues like malnutrition among the under-fives have been cited as a global challenge in the 21st century. Stunting, wasting and micronutrient deficiencies, are still responsible for approximately 35% of the disease burden in children less than five years of age and 11 % of the total global

disease burden. This means that 3.5 million maternal and child deaths have under nutrition as an underlying cause (Black et al, 2008).

Over the last 10 years, progress has however been made towards achieving both 4^{th} and 5^{th} MDGs (millennium development goals). The achievements however are uneven across various regions and countries. Both the under-five and maternal mortality are noted to have been increasing. In relation to the above realization, governments have increased their efforts to develop and implement various MCH programmes so as to curb the number of mothers dying, the pains of poor deliveries and the sorrow of losing their young ones(MDGs, 2010).

Globally, studies by scholars like Akhter (2010), Chowdhury (2010) and many more have focused on the MCH programmes implementation as compared to the African countries. According to Akhter, in Bangladesh complications arising from pregnancy related conditions and childbirth contribute to more deaths and disability compared to any other reproductive health problems .This state is worsening as the Bangladesh population is ever increasing and the rate at which maternal health care programmes have been implemented in a wanting manner and ways for the last 2 decades. EC/UNFPA (2013) shows that, as a result of inadequate access to modern health services or proper planning and implementation of MCH programmes, the country is losing its glory of achieving the MDGs at the end of this year. In Kenya, although the government's commitment to increase access of health services to common people through approaches like Essential Service Package (ESP), the uptake of health services and the implementation of the various health programmes especially those focusing on women and the infants is still below the acceptable standard(World Bank, 2011)

The utilization of health services and the implementation of the ever proposed MCH programmes by various donors and the government of Bangladesh since 1990 has been a behavioral phenomenon that is complex. Studies on preventive and curative services often indicate that health services use is related to availability, quality and cost of the services, social structure, beliefs and the user's individual characteristics(Becker *et al.*, 1993; Saran, 1997 cited in UNICEF, 2012).

According to Plan International report (2014) the age of the mother may sometimes contribute to the women's accumulated knowledge on health care programmes, which in some cases has shown a positive influence on health services' use. On the other hand, development of modern medicine and marked improvement in educational opportunities for

women in recent years, has seen an enhanced knowledge to younger women regarding modern health care services and seen them place more value on modern medicine.

Some studies have indicated that factors like resources availability, the management processes, politics, technology and many more have a significant influence in the implementation of MCH programmes as well as other health programmes in Bangladesh(Sadri, 2014).Across Africa, Maternal health programmes implementation is still a complicated issue. Take an example of Angola, poor implementation of maternal health programmes has been systemic and an ongoing problem leading to decreased level of health in the early 21st century (WHO, 2012). UNICEF (2013), states that Angola has one of the highest maternal death rates currently in the world. The estimated MMR at the end of the Civil War was estimated to be between 1,281-1,500 maternal deaths to 100,000 live births. This estimate was taken in the late 1990s and, in 2002 as reported by UNICEF representing the MMR situation in the country at the end of the War. In 2008-2010, the estimate value decreased to 610 deaths per 100,000 live births. Even though this is an improvement,it is very minimal when compared to Sweden which has an MMR estimate of 5deaths to 100,000 live births.

According to USAID, 2010, the MMR of the country has shown reduction since the end of the Civil War in 2002. This has been attributed to the government's efforts in implementing the various MCH programmes. However, the MMR indicator is still one of the highest ones in the world. On average, it is estimated that a woman gives birth 7.2 times. The infant mortality ratio is 154 deaths per 1,000 live births. The mortality rate of children under 5 years of age is 254 per 1,000 live births. The improvement in these figures is attributed to the stage up campaigns by the government, even though they are very high still and there is need for further improvement. The Human Development Index for 2011 still shows a poor level of maternal health programmes implementation in Angola (Human Development Index, 2011).

Poor rates of MCH programmes implementation in Angola according to Jacobsen (2011) have been associated with poor infrastructural development more specifically due to the destruction of roads, electricity, water programmes, buildings and even waste disposals structures during the wars, high rates of HIV/AIDs, poverty levels that are very high, low per capita income that even constrains the budgets more, most of the population is not well educated due to the effects of the civil wars, the Angolan Civil War itself that polarized the locals and politicians thus making it hard for one to exactly make a paramount decision as per

programmes implementation. In their writing, Pettersson et al,(2012) indicate that, factors like the gender discrimination, poverty, an individual's perception of quality of care, the labor process, significance of informal fees, and a woman's perception of empowerment in making her own decisions in relation to childbirth have influenced the development and success of the MCH programmes in Angola today.

In East Africa, despite the efforts by the governments to implement MCH programmes that could see its old and young parents see the future, there exists a big challenge (Plan International, 2014). Burundi, has free programmes for antenatal care and for children aged below five years which started in 2006, and utilization has been noted to have increased tremendously as a result (CIDA, 2011).The introduction of the services forced the Burundi government to borrow extra funds from the World bank to the tune of $23.6 million in 2008/2009 to expand the MCH programme started in 2006,train extra 310 nurses and 34 doctors in Kenyan Universities between 2005 to 2010, acquire cheap but highly suited technology from China and Japan, increase its road network, electricity and clean water infrastructure to the MCH centres/clinics by 37% between 2005 and 2011 and have radios and television programmes that sensitized mothers not to deliver in their homes. These were among the factors that have greatly influenced the implementation of MCH programmes to the tune of 41% from 2005 to 2013 and the country has so far seen a reduction in maternal deaths and infant mortality rates reduced by 46.12% between the said years (UNICEF, 2013).These have been the general trends in east Africa.

In Kenya, 53% of mothers still give birth away from a modern health centre. This happens even though records show that up to 88% of mothers live within five kilometers or less to a health facility. 93% mothers on the other hand have visited ANC atleast once during their pregnancy. Higher education level, optimal ANC services attendance and insurance cover increase the chance of delivering in a health facility. A mother's choice of place for delivery varies among different ethnicities, regions, and the choice of health facility the mother uses (GOK, 2013).

Factors like strained governmental budgets due to donors withdrawal in 1995, the lack of proper structured medical infrastructure like the water and wards, the limited space for the erection of new hospitals more specifically in the urban centers, poor political integration that infuses poor leadership and management besides embezzlement of funds and many more have been cited as major hindrances to MCH programmes success in Kenya.

According to USAID (2011), in Kenya, MCH programmes have been given priority since the NARC government came into power in 2002. However, the implementation of the MCH programmes in the country has faced a number of challenges unlike the universal health programmes implementation, leading to more deaths than survivals. WHO (2012) for example it shows that majority of the maternal mortalities in Kenya occur during child birth, a significant number are caused by postpartum hemorrhage as a result of poor access to the MCH programmes that are poorly implemented today. This could easily be managed by providing quality health facility delivery that would ensure women deliver safely and avert most of the complications that arise during child birth (UNFPA, 2011). All expectant women are at risk of developing unexpected complications during child birth but almost all of these complications can be managed by skilled birth attendants at well-equipped health facilities. Yet in Kenya, only about (43%) of all deliveries take place at health facilities (KDHS, 2009) Investment in maternal-child health care programmes is important in driving the country's economic growth as well as reducing poverty rates (KNHCR, 2012).

In a publication by KNHCR in 2012/2013, the NARC government first announced a major shift in the maternal-child health programmes through the then minister of health that saw the scrapping off of the maternal fee in all public hospitals (KNHCR, 2013) In its publication of 2006/2007, the ministry of health and sanitation wrote that, Kenya has had policies that have seen the change in user fee regulation. In 2007, deliveries were announced to be free (MOH, 2007). The services also were aimed at being provided at low cost, minimal supervision, well sterilized environs, with high level of technology machines handling the operations and pregnancy scanning, experienced maternal care handlers from both the nurses and the doctors and electrification of almost 90% of the public hospitals and clinics through the rural electrification programme (GOK, 2010). The WHO (2012) argues that there have been major positive strides to improve the health of mother and child in Africa. Though this is the case, the indicators are still poor compared to the developed countries. In Kenya, a mother's and/or infant's risk of dying during or pregnancy/delivery or soon after childbirth is 1 in 39 while in the developed world the same index of maternal death and child impermanence is very low at 1 in 3800. To improve these ratios, there is critical need to increase the number of women taking up maternal health services during at ANC, delivery and postnatal clinics.

As much as the government has put major strides in trying to achieve the MDG-4 and 5 which touches on maternal deaths and infant mortalities, a great number of determinants have been in central play. In its quest for example of inauguration of free MCH programmes in

2007,the government was faced with great hostility politically from the opposition; who saw the move as a scheme that was aimed at enticing voters to have the then president re elected into presidency for the second term. This resistance was hence great to the point that including the then Minister for Health hard joined the opposition in political ideologies (GOK, 2012) Politics has only been a small factor in determining and giving the direction for MCH programmes implementation in the country. The giant factor for influence has been availability of financial resources. The Kenyan budget has been constrained between development programmes, education and repayment of debts. In his Speech of 2009/2010, the then minister for finance-read a budget that allocated less for medical facilities compared to infrastructural development and other sectors of the economy. This has left almost 41% of the MCH units across the country constrained with budgets, meaning that the programmes lack proper medicine and equipments and they cannot hire experienced experts.

In Kilifi County Government (2015)'s report entitled, 'Promoting Economic Transformation for a Shared Prosperity.' A healthy population is essential for higher productivity and sustained long term development of a nation. According to the report, the county health board has achieved notable progress, especially in controlling communicable diseases (tuberculosis, HIV/AIDS and malaria) and attaining marked decrease in child mortality, through the implementation of various MCH programmes across the county. A report by the MOH (2014) from Kilifi County shows that Under Age 1year and Under Age 5year are42, 640 against 1,339,775 in Kenya and 197,364 against 6,518,230 respectively. This has left a gap in the central tendencies deviation from the required average in the number of survivals in Kenya between ages 1 to 5 years as the deviation is too big in the county from the country, leaving one wondering what could be the problem. A research done by the WHO (2013), shows that KilifiCounty has been disadvantaged by over 67% in its quest of implementing the MCH programmes that could see the children and mothers of the county survive.

According to World Bank (2014), a number of factors have been in play. The factors include: Traditional Birth Attendants (TBA's), limited financial resources, poor management in the 93 public health programmes in the county that are aimed at helping the poor woman, politics, tribalism, nepotism, insufficient finances, poor information to the locals and the lack of adequate expertise. According to BBC (2012) report by SalimKikeke,Kilifi, Kwale and TaitaTaveta counties are gold in the Kenyan ruff that are getting diminished due to the poor implementation of programmes that are aimed at helping the poor mother and her child

survive; leading to diminishing production and output due to reduced healthy population. These are some of the issues the research sought to find out.

1.2 Statement of the Problem

According to MOH Kenya (2011), the hindering factors in proper implementation of MCH programmes in Kilifi like the rest of the country include,poor infrastructure, insufficient financial resources from both the central government and stakeholders, lack of sufficient skilled personnel to handle the expectant mothers' situations and their children, poorly informed clients especially those in rural areas on MCH services and their importance, the level of technology employed in these MCH units that is poor, poorly developed infrastructure like laboratories and theaters.

The Kenyan 2008-09 KDHS reports its findings that 47% of pregnant women make the recommended at least four ANC visits. 60% of women living in urban areas make at least four ANC visits unlike 44 % of rural women making the four visits. The report also shows most women received antenatal care late in the pregnancy; only 15% of pregnant women received antenatal care during their first trimester of pregnancy; the average month of first visit is month number 5.7 (KNBS and ICF Macro, 2010) Despite high ANC attendance in Kenya, deliveries in health facilities is still low at only 43 % of all live births within the five years prior to the 2008-09 KDHS were done in a modern health facility (KNBS and ICF Macro, 2010).

The 2009 National Reproductive Health Strategy for Kenya aims to have a lower MMR to at least 147 deaths per 100,000 live births and to increase percentage of women using skilled care in delivery to 90 percent by 2015. When compared to the 2008 KDHS MMR of 488 deaths per 100,000 live births, the target is yet to be reached.

However, a number of studies across the country have shown that, the vision of reduced maternal deaths coupled with those of the infants could be reduced significantly if the national government and the county one stepped up radical measures in implementing the various proposed programmes. The World Bank (2012) published a journal that touched on the maternal health situation of Kenya and the various perceived factors determining their success. Some of the cited examples in the report are, lack of enough funding from the government and other stakeholder, politicization of the health sector in Kenya, poor

infrastructural development in the country, poor organizational cultures and bureaucratic leadership in the health sector, poor financial management and planning.

WHO,(2013) carried out a research called, the causes of infant mortality and the effect of the MCH programmes implementation to the lives of the teenage mothers and the infants in the 47 counties. The report shows that, counties may not achieve the proposed universal maternal child health care programmes. This can be attributed to various factors surrounding the implementation of MCH programmes in public hospitals. In the rural, peri-urban settlements and the drought hit areas; the low performance has been influenced by a number of factors like lack of sufficient financial resources due to reduced revenue, poor remuneration of health workers by counties, low level of technology, poor management systems, poor leaderships and coordination of activities.

1.3 Purpose of the Study

The purpose of this study was to examine the determinants of successful maternal-child health care programmes implementation in Kilifi County, Kenya.

1.4 Objectives of the Study

This study was done under the following objectives:

i. To establish if the availability of financial resources have an influence on implementation of maternal-child healthcare programmes in Kilifi County.
ii. To establish the extent to which availability of technology influences the implementation of maternal-child healthcare programmes in Kilifi County.
iii. To examine the influence of health infrastructure facilities availability on implementation of maternal-child healthcare programmes in Kilifi County.
iv. To examine how the level of education of mothers influences the implementation of maternal-child healthcare programmes in Kilifi County.

1.5 Research Questions

The study looked to answer the following research questions:

i. Do the availability financial resources have an influence on the implementation of maternal-child healthcare programmes in Kilifi County?
ii. What is the extent to which technology influences the implementation of maternal-child healthcare programmes in Kilifi County?
iii. What is the influence of health infrastructure on the implementation of maternal-child healthcare programmes in Kilifi County?

iv. To what extent does education influence the implementation of maternal-child healthcare programmes in Kilifi County?

1.6 Research Hypothesis

The study was guided by the following hypothesis:

i. $H_{1:}$ Financial resources have an influence on the implementation of maternal-child healthcare programmes in Kilifi County.
ii. $H_{1:}$ Technology has influence on the implementation of maternal-child healthcare programmes in Kilifi County.
iii. $H_{1:}$ Health infrastructure has an influence on the implementation of maternal-child healthcare programmes in Kilifi County.
iv. $H_{1:}$ Education has a significant influence on the implementation of maternal-child healthcare programmes in Kilifi County.

1.7 Significance of the Study

The county decision makers, more specifically the Kilifi county health department is set to gain information from this study in regard to achieving MDGs 4 and 5. The decision makers and the county health department will get the first hand information on the factors like finances, education, infrastructure and technology and how to improve them so as to help in the process of the implementation of the various MCH programmes in the county.

Other stakeholders like NGOs, FBOs, Government and the community are set to benefit from this research since the study is to be carried out in a typical setting where factors highlighted would be most likely experienced. The government will actually get the figures in the county compared to others in the country, thus allowing ease of necessary inputs in the funding, intensified education, and increase in IT application to the health programs in Kilifi County.

The result of this study is also expected to be invaluable to researchers and scholars, as it would form a basis for further research. The students may use this study to form basis of discussion of maternal-child healthcare programmes in developing countries.

1.8 Basic Assumptions of the Research

The study was carried out with the assumption that the health workers more specifically the mid-wives, nurses and gynecologists will give information freely without bias.

Also the study assumed that the government officials more specifically those working in the public health department and those in the county department of health will not have

conflicting issues with the study; owing to the fact that health sector in the country and specifically in the county has been blamed for long due to the fact that several strikes have been reported regularly.

Finally, the research will be beneficial to the Kilifi County Development Board by getting information that can help the board improve its strategic plans in county health issues.

1.9 Limitations of the Study

The research was limited by access to information sought and inability to get accurate information from the respondents. The respondents were reluctant to provide information due to fear that that information provided may be used against them; due to the volatile situation of health situation in the Kilifi County today. However, this was overcome by treating the information given as confidential as possible and by not allowing participants to use their names.

Given the structure of the questionnaire, there was probability to have extreme responding or intermediate type of response bias; the respondents tended to choose the extreme answer of the scale or choose the central point of the scale.

1.10 Delimitations of the Study

The research limited itself to only 4 independent variables as indicated by the objectives. The scope of the study was only limited to the MCH programmes implemented by the government of Kenya in Kilifi County.

The research also delimited itself by using consent seeking paper so as to allow participants to participate willingly and this enabled them give the quality information required. The questionnaires to be used too were not bearing the name tags of the respondents. On the same note, informants were used to gather information from the hostile public hospitals to avoid any misunderstandings.

1.11 Definitions of Significant Terms

Education :refers to the process of learning whereby an individual is given formal conditioning and training that is aimed at changing the future of the individual(MOE, 2010).

Health Infrastructure: includes physical and organizational structures required for effective and efficient operation within the hospital set up. Physical structure include wards, theatre, incubators, beds, equipment and other facilities like toilet , bathroom while organizational

structures include body of rules and regulations governing various system e.g. procedure of patient admission and discharge (WHO, 2012).

Financial Resources: This is money that is available to an establishment or programme for use/investment. It can be in the form of cash, liquid securities or credit lines. When one looks to start a project, the manager needs to secure enough financial resources so as to ensure efficiency and sufficient project investment to promote success (World Bank, 2010).

Programmes: for the purpose of this research, a programme will refer to the MCH department or facility of the government health institutions.

1.12 Organization of the Study

This research project report is organized into five chapters. The first chapter is the introduction that includes the study background, statement of the problem, study purpose, objectives, research questions, statement of the problem research hypothesis, significance of the study, delimitations of the study, basic assumptions and the definition of significant terms. The second chapter has the literature review of information from other written sources which are relevant to this research. The third chapter outlines the methodology used in this research. The fourth chapter consists of the research findings and lastly chapter five has summary of the study, its conclusions and the recommendations.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

The reflection and collection of the literature review to this chapter attempts to present a review of various previous studies that have been undertaken in relation to implementation of maternal-child healthcare programmes across the globe and Kenya in particular .Various studies on this subject are reviewed herein to provide a broad perspective on how to implement MCH programmes in public hospitals in Kenya. A conceptual framework will be used to show the variables to be considered in the research. Major discussions will be done under sub-topics as indicated by the objectives.

2.2 Role of Financial Resources availability in Implementation of Maternal Child Healthcare Programmes

Margaret et al (2010) argues that, in each minute of the day, a woman dies during childbirth in the world. Most of these deaths are in Sub-Saharan Africa. Investing in maternal health has political and social aspects, and can contribute to the overall cost effectiveness of the healthcare system. There are at least three key approaches that can be used to positively affect health of mothers in this region: providing optimum health workers' services; having efficient financing mechanisms; and strengthening political and decision making partnerships. Also, financing Community health volunteers (CHV) programmes will greatly contribute to a reduction in maternal mortality. CHVs (community health volunteers) help provide some vital healthcare services to marginalized populations; these are usually in rural areas, where healthcare facilities are very few. CHVs can positively contribute to maternal health improvement through a cost-effective way that will reach larger populations. This target can be reached through use of CHVs that have been properly trained, equipped and facilitated (proper and adequate tools, like mobile phones, bicycles for faster transportation and delivery kits) (United Nations Children's Fund, 2009).

Studies have shown that costs cannot be avoided in quality implementation of MCH/MCPs across the globe. For example, Sidr (2014) argues that financial resources for example are required so as to finance the various infrastructural facilities in the hospitals handling the mothers and their toddlers, finances for hiring qualified mid-wives, doctors, nurses and medical consultants are inevitable, finances for buying medical equipment and many more have a far reaching effect in the implementation of these MCH programmes in the countries.

In his writing, Kalin (2009) argues that, were it Japan was Lesotho of Africa of today, it could have not only been deleted from the world map but it could be lacking even the few old people to entomb their fellows. His argument is based on the role played by financial resources in health provision in either cases of an eventuality or just structured diseases. His research shows that Japan was able to mobilize its own resources, borrow from IMF, World Bank and also access packages of dollars from international bodies like the WHO that made it easier for the country to implement MCH programmes that provided quality prenatal and postnatal cares for her population. Among the activities that were significantly carried out in 5 years after the twin bombings were: training, hiring and employing expertise in the MCH services providing hospitals, acquiring high levels of technology to protect the mothers and their children from the effects of the nuclear bomb; building of modern laboratories, acquiring of high treatment medicine and many more (World Bank, 2013).

A report by the UNICEF on the efforts made by Fidel Castro in empowering the Cuban people touched on his role in the providence of Medicare to almost 97% of his people by the time he went into a comma leaving leadership to the brother. According to the report, Cuban government invested up to $100 million in the implementation of the various Medicare programmes cited between 2006/2007.Included were 123 programmes that aimed at sustaining and taking care of the infants and the pregnant mothers. World Vision writes in this reference and argues that it is only in Cuba whereby almost 90% of all the children survive up to age 10 due to the fact that its MCH programmes have the best funding (UNICEF, 2010).This therefore has implied that Cuba has made great progress in her health systems due to the fact that it realized the role played by financial resources in ensuring the success of the MCH programmes that were rolled out in the early ages.

In the same note, the Department of Health of Philippines (2010) carried out a report on the Philippine's provinces and how much was spent in the maternal childcare programmes. Sorsogon province for example had a higher amount spent on health at 28.76% of the total budget during the time period of 2007 and 2010. Masbate had 25.73% or Albay (13.24%). The World Bank in this region did not have preconditions on health budget targets if the government could have had loan funds given towards the provincial safe motherhood programme it could have stimulated the government to reach its co-financing commitments.

Similarly, World Health Organization (2010) showed that a number of provinces across Philippines and Pakistan have for the previous half a decade made a number of progresses in

financing the MCHs and the results were seen in the number of new infrastructure, experts, medicine facilities and many more. In Sorsogon province for example, it achieved in increasing coverage of the national social health insurance scheme Phil Health which could support and finance the various construction and medical equipment purchases programmes. Before Phil Health makes payments, the facility has to have got accreditation. This requirement has however been a barrier in the expansion for the coverage of Phil Health because of inadequate capital for infrastructure development and financing of regulators to carry out the inspection. Sorsogon province had an increase from 5 to 17 Phil Health accredited facilities for outpatient services in the period of 2006 and 2009; facilities that have got accreditation for the maternity care package has increased from 0 to 15. More provinces also increased their number of accredited facilities, but at a smaller scale. By end of the year 2009, Sorsogon province had the highest number of Phil Health-accredited facilities in Bicol region (Philippine Poverty Statistics, 2011).

A comparative study by Dale Huntington (2014) in SA and Philippines show that the countries have had a challenge in deciding why there is a high need of investing in the MCH programmes across their main towns. However, the report concludes that the national and urban governments in the major cities across the world's LDCs have documented importance of heavily putting their budgets in MCH as follows. According to the UN report of 2011, developing countries need to invest more in maternal and child health as good health care to this population as it were, contributes to better development, as noted in numerous United Nations Conventions. Two out of the eight MDGs (MDGs 4 and 5) focus on the health of children and mothers. There are proven and affordable ways of saving the lives of women and children, that can be implemented for this population in low-income countries, whereby these interventions, reduce death of children under five years of age and newborn deaths by two thirds, and also reducing several maternal deaths; Investing in maternal and child health positively affects the economy as with better maternal, newborn and child health saves on money hence benefiting individuals, families, communities and society. Healthy mothers and children can contribute to peace and social stability as much as they benefit from them; and; Investing in maternal, newborn and child health makes the health system work better.

Studies across Kenya have shown that since 2005-2012, the health services especially to the pregnant mothers and the unborn children were on the rise (MOH, 2012), while the figures of the number of women giving birth either in hospitals or health clinics increased tremendously between 2009-2011 (GOK, 2012) and the funding to the health sector increased by three

folds in 2008-2010 (GOK, 2012).A report on health published by the then Minister of health in 2009 led to the expansion of the services offered to women during and after pregnancy by doubling the national budgetary allocations targeting the health sector (MOH, 2009).Some of the other radical moves that were made by the government in the MCH sector included: scrapping off the maternal bills for mothers, buying and distributing free mosquito nets to the expectant mothers and children under the age of 5years, launching several awareness campaigns in the media and many more (Republic of Kenya, 2012).

A study by the World Vision Kenya chapter (2012) shows that Kenya just like other countries in the sub-Saharan Africa needs more spending in MCH programmes than it spends in sectors like devolution and that of transport. The report though termed political (an issue that led to the ascending of the government to the NGOs bill in 2012); it highlighted the situation in Major MCH centers in the country. The focus was geared towards the state of MCH services in Pumwani, KNH, Thika Level Five, Kisii level Five, Kisumu District Hospital, Kilgoris District hospital, Garissa district hospital, Kitui District hospital, KajiadoDistrict hospital, MsambweniDistrict hospital, Kinango District hospital and Makadara in Mombasa. The report that interviewed 7 management employees in each category showed that, in Pumwani and Thika, the number of expertise medical attendants has been on the limit for the last 7 years due to reduced allocations by finances, 97% of the respondents in the interview argued that they worked in wanting conditions due to the fact that there were no basic medical equipment like gloves and hospital protective devices, hospitals lacking enough drugs and medical care due to insufficient finances attracted 91%, poor structures have been reduced the success of MCH programmes in the above hospitals attracted 89% and many more.

While focusing on the influence of financial resources in the success of MCH in Kenya, the government came up with the health sector strategic investment plans in 2012 to counter the poor painting by such NGOs like world vision, worldwide concern, RI and many more. The Kenya Health Sector Strategic and Investment Plan (2012-2018) that proposed estimates for current staff levels stated the situation to be at only 17% of minimum requirements needed for effective operation of the health system in all the public hospitals. While the hired staff to take care of the expectant women measures only 9.83% due to limited financial resources. Kenya currently has a ratio of 7 nurses per 4,000 persons, this is half the number of the recommendations of a ratio of 14 per 4,000 recommended by the World Bank (Bourbonnais, 2013). This is purely caused by the reduced funding by the government and worst bites when the health functions have been devolved and handed over to the non-consistence county

governments; contrary to Burns. Burns (2000) asserts that employing qualified persons to monitor labour in the health facility has a great impact on reducing maternal mortality and this qualified person can be employed at a higher remuneration than the non-qualified one; a factor that is a dream to be achieved in Kenya. In Kenya health workers are unevenly distributed across the country with particular gaps in the North Eastern, Coast region and Northern Rift provinces (UNICEF, 2012).

While focusing on the Kenyan coast MCH services situation, Bosire Boniface (2013) looked at the situation in 2013.According to him, devolving healthcare has not only worsened the situation of funding of various medical programmes but it has left the healthcare workers, poor than they could be in any the 21st century. Regular strikes that have been experienced in almost 30 out of the 47 counties in the country recently- with the nurses strikes in Kisumu, Makueni, Machakos, and Mombasa have derailed the rates of implementing the MCH programmes in the counties. Mombasa's Makadara hospital for example, has been hit by over 4 giant strikes that have been attached to the fact that the healthcare workers are not remunerated well; a factor that led to 10 children and 6 women dying in Makadara hospital alone last year(UNICEF, 2014).

After the introduction of free maternal healthcare services in Kenya for example, hospitals in the Kenyan coast like Kilifi district hospital, health centers in the area and many more public health centers reported increased overcrowding in maternity wards where some mothers were forced to leave the hospital early to make room for others. In other counties mothers delivered on the floor due to lack of adequate beds (United Nations Children's Fund, 2013). This has been attributed to the fact that the scrapping of the user fees by the government on maternal healthcare reduced the revenue of the hospital and due to limited financial allocations by the government; there is no major infrastructural development like construction of maternal wards in the Kilifi hospitals just like any other hospital in the region.

Increased population always is supposed to be tied proportionately to an increase in the personnel hired in the hospitals. However, studies have shown a different situation in almost 23 MCH centers in Kilifi just like it was established in the rest 46 counties in the country. Nurses have for example reported being overburdened due to the new policy, with nearly all working overtime and as few as three (3) nurses aiding about 20 mothers at a time (Ong'ech, 2013).This has for a long time left the hospital staff performing below par in their work and thus calling for more radical actions for local solutions in relation to MCH funding. However,

in their research, Chuma and Maina (2013) argue that the counties have not only failed to implement programmes that support the MCH services but have gone from broke to bankrupt of ideas. According to the two, MCH programmes need extra wards, theatres and they need more room for emergency cases. All these needs financial investment; the finances that are missing in most county government owing to the fact that almost 85% of the county governments are servicing debts left by the defunct county councils.

According to Kitui County Health Board (2013), the Kitui county, Mombasa county, Homabay county, Bomet county and many more failed to build the proposed average of 5 zones/wards and 5 clinics/health centers plus implementing the zero rate clinics due to the fact that the central government delayed in releasing the county revenue, failed to raise the county allocation to expected 40% of the national budget and in cases of Mombasa county, the county failed to raise its planned revenue to estimated 9.2billion due to the security menace and other challenges. This has left for example troubles in Makadara hospital, Likoni health center, Kongowea health clinic, Kisauni, Frere and many more seeing the expectant mothers giving birth on the floor and many sharing beds; a factor that can contribute to the spread of communicable diseases. It is estimated that for proper implementation of MCHs in Kilifi County for example, the county investment board need like Ksh. 1. billion to buy better equipment for the healthcare workers, build modern wards, improve the infrastructure like purchase of emergency generators plus installing electricity, training and hiring new expertise, finances for equipping the hospitals with medicine and many more (World Bank, 2013).

2.3 Influence of Technology in the Implementation of Maternal-Child Healthcare Programmes

Health technology involves use of knowledge and skills applied through utilization of health devices, vaccination programmes, medicine, procedures and systems that help resolve a health problem hence an improvement in the quality of life.

Medical technology encompasses healthcare products that are utilized in the diagnosis, monitoring and treatment of diseases/conditions affecting humans. Technology in health facilitates improvement of healthcare by ensuring early diagnosis, less invasive treatment and reduced hospital stay and recovery period. Medical technology has also been able to cut on medical cost.

The EU medical devices directive, best describes medical technology and more so medical devices. It states that a medical device is any item of instrument, appliance, apparatus, software or material, either used by itself or together with another, including software manufactured to be used exclusively for diagnosis or treatment and vital for its intended use by the manufacturer for humans.

In the 21st century, technology has been a driver of Major programmes; be it construction, education or Medicare. According to USAID 2012 for example, many innovations are being tested to decrease the cost of providing MCH services while increasing access to essential information and care.

World Bank (2015) writes that, an improvement of the health of the poorest in the developing world is dependent on health innovations, like new drugs and vaccines, diagnostic tools, devices, and new methodologies in programme procedure approaches, and policies in health systems. This cuts across all the countries in Africa, a number of countries in Asia and Latin America.

While comparing the role of technology in improved economic status for the low income earners in Cambodia and Kenya, Lagomarsino (2012) argues that, in Cambodia, the vouchers for Health Services programmes provides the mothers with vouchers that cater for health services at public hospitals and nonprofit health facilities also catering for transportation to these health facilities. CHMI has identified 13 health voucher programs around the world. In Kenya, Changamka Microhealth has used a mobile-phone based system to help women save money so they can pay for prenatal, maternity, and postnatal services. CHMI profiles three such mobile money programs for maternal, newborn and child health. This is a cashless technology of allowing women access finances for MCH thus increasing the access to Medicare points and has been operating in 112 centers across all the 47 counties with Kilifi, Kwale and Mombasa being the highest counties with the one on one effects being felt.

Bill & Melinda Gates Foundation (2012) focused on Technology to educate mothers in Kenya rural homes, Indonesia and India as a form of increasing the chances of the success of the MCH programmes. The Kenya Integrated Mobile MNCH Information Platform developed in 2008-2009 for example sends timely SMS and voice health messages to expectant and mothers who have register providing them with their due date in all the counties. In Bangladesh, mobile phone service provider provides expectant mothers with culturally relevant and reliable information about how to care for themselves and their babies.

Another area of technology that has been remarkably praised in bringing a change in the MCH programmes in developing countries is the use of technology to support frontline health workers. According to World Bank (2012), the D-tree International, a mobile phone-based clinical decision support software operating in several countries in Asia and sub Saharan Africa, helps clinic staff and community health workers diagnose and treat patients, and monitor the health of mothers and children during pregnancy. This is likened to the technology system that has seen the development of both mobile applications and automatic message systems that enable mid-wives, doctors and nurses to share information via their phones or the online platforms.

Another report byCHMI (2014) shows that, the role of modern operation machines like the 21st century scanners, modern fracture systems that could replace the old methods like light microscopes, modern run computer systems with full diseases-symptoms-prescription, mobile voice technology that shares information between the pregnant mothers, doctors etc., modern computers and internet connectivity is still a challenge more specifically in the troubled villages health centers and the various public hospitals in the various counties. A study done by Ogollah et al (2010) has shown that up to 87% of midwives in Kenya may not be having any information about the use of modern ICT for health like computers, modern scanning systems and 21st century medicine that needs the involvement of computer programmes in prescription. This has made it difficult for new MCH programmes to be true. The prices of modern technology gadgets have also been found to be too expensive; owing to the fact that Kenya imports up to 95% of its technology (Kenya National Commission on Human Rights, 2012).

A study done by WHO, UNICEF, World Bank and UNFPA (2011) shows that Kenya is too far from achieving the MDGs 4 and 5 respectively that speak of maternal health and children mortalities by the set year which is this year 2015.The report conducted in the health situation in the then 8 provinces mentioned coast and north eastern as the two major provinces greatly affected by lack of both doctors and medical practitioners that fully understood the role of technology in healthcare provision. In coast alone, 90% of the mid wives, nurses and doctors out of the 167 interviewed, admitted that they had little knowledge of modern technology use in their work. In Mombasa hospitals, the figure was a bit fair but the rate of poor knowledge of modern technology that involved modem computer programmes for health, cesarean operators and modern medical administering had 55% of the staff with little knowledge. This

means that up to 55% of the MCH programmes in the county are at a risk of failing once the element of modern technology is attached to them.

In Kilifi, the situation is not any better as the mothers and healthcare providers at the forefront have an understanding of the modern MCH information applications up to 32% only, the mobile health technology is accessible to only 47% of the medical practitioners. Changamka works with mobile phone network service providers and smart card technology services to facilitate clients to save for maternal and child health care services. This integrated system for health financing includes an account for health savings, an e-voucher, and a micro-insurance scheme. The smart card technology allows users to deposit as little as USD 0.56 at a time to save for their medical bills. Approximately 8,000 families are so far using this Smart Card (OBA) technology. Hospitals have seen an almost 30% increase in utilization of ANC services and hospital delivery is now available to 23% of the people of Kilifi (Millennium Development Goal, 2013).

2.4 The Influence of Health Infrastructure on Maternal-Child Healthcare Programmes

Reports by bodies like UNICEF, USAID, PI, WHO and World Vision have reported that governments cannot effectively improve quality of both urban and rural maternal health care without providing Primary and Secondary healthcare amenities to both the urban and rural areas. This study will focus on the infrastructure in four categories that include: the structural infrastructure, the electricity, the sanitationinfrastructure and the maternal wards beds.

2.4.1 Influence of Hospital Buildings in MCH programmes Implementation

According to Madhani (2011), the significance of the hospital infrastructure cannot be ignored when talking of MCH programmes success in the world. In Indian Healthcare Industry for example, it is estimated at USD 40 Billion of which 50% comprises of Hospital infrastructure, followed by Pharmaceuticals, Insurance & Medical Equipments, and Diagnostics making up 25%, 15% and 10% respectively. As the health care industry grows, hospital infrastructure should also grow proportionately to it. From the information gotten from above, a large number of the national budget in India is spent on hospitals infrastructure so as to make the whole process of MCH providence a success.

A research by Kathryn (2011) in Bangladesh and Indonesia has shown that, a large portion of the population in these countries is unable to effectively access Maternal Child healthcare services. This is directly linked to lack of adequate healthcare infrastructure due to poor financing from both the donors and the national government. In Bangladesh, UNICEF (2012)

reports that the government has failed to build, renovate and expand hospital wards meant for pregnant mothers in all of its rural areas, the number of laboratories are limited and are shrinking each day despite the ever increasing numbers of needy expectant mothers and their children.

A report by WHO (2013) in Lesotho shows that, accessibility to healthcare infrastructure imbalanced and is extremely limited to many both in urban and rural areas of the country. Ironically the few existing healthcare infrastructure are unplanned and irregularly distributed. This has pushed some of the NGOs and CBOs to come up with ways of developing modern and cheap maternal wars, child care laboratories and many more. For example, a report by Millenium Challenge Change (2014) that runs programmes that link more people with the healthcare system. The project aims to reduce the negative economic impacts of poor maternal health, HIV/AIDS, tuberculosis, and other diseases by strengthening Lesotho's health care infrastructure and building the capacity of those who work in the field.

In Kenya, Plan International (2012) shows that, Kenyan public health facilities have long suffered from insufficient infrastructure and equipment. Recent survey data found that only 36% of public health facilities that offer delivery services had all the basic delivery room infrastructure and equipment needed. with rural areas and lower level facilities particularly ill-equipped to handle deliveries and emergences associated with giving birth (KNBS and ICF Macro, 20103).According to Obare et al (2011), the health system in Kenya needs more rooms (more and more hospital wards need to be erected) to accommodate the increasing population. However, a challenge still exists in the construction of wards in new hospitals or the old ones. The Kenya government only allocates less than 12% of its national budget to the health sector and this worsens when it comes to the programmes targeting the under-fives and the expectant mothers whereby they just receive less that 3% of the national revenue (Magadi, 2010)

According to Ochako (2010), there is a risk of many mothers having their children die of uncontrolled cold that could lead to pneumonia when the mothers lack space in the full hospital wards and opt to give birth in the corridors and the floor. According to Stephenson (2011) Kenya's' women giving birth in public hospitals like Makadara, Msambweni, Pumwani, Kitui, Kajiado, Kinango, Kilifi, Garissa, Kakamega and many more have risks of their children being fed on when they are unconscious after births because they share the same environment while giving birth with dogs. Citing an incidence that was all over the

local and international media in 2013-14 whereby a lifeless mother was seen being beaten by the cold in the district hospital while giving birth in Kakamega and the woman whose child was eaten by a stray dogs in Pumwani in Nairobi during the 2013-2014 Pumwani crisis as cases of how the Kenyan government has failed to implement the MCH programmes, he maintains the complete maternal wards are a central factor in ensuring the success of the MCH services.

WHO (2013) carried out a research on the determinants of better health in the 47 counties in Kenya and found out that the absence of delivery wards have led to about 12 deaths per 100 births of infants in Western Kenya, 20 deaths in north eastern Kenya, 16 deaths in Kenya's coast, 17 deaths in HIV preference areas while the Nairobi case is reduced to only 9 deaths. The poor laboratories for medical checks and specialized treatment has left 12 deaths per 100 new born children in Nairobi, 17/100 in Kilifi, 21/100 in north eastern counties, 15/100 in lake region counties that have high HIV preferences and only the figures are said to be low in Nairobi as it has been attributed to the fact that up to 67% of the women in Nairobi go to private hospitals for deliveries; that are equipped with enough maternal wards (Elizabeth, 2011).

In order to implement free maternity service/Programme in Mombasa county public hospitals, Kilifi county hospitals, Tana Delta, Lamu, Garissa, Kwale and other marginalized areas, the government through the ministry of health need to build and /or equip already existing health dispensaries in the county to handle delivery cases(Fourth Annual Progress Report, 2011; 2013), while at the same time put in place proper referral network where patients experiencing complication are transferred to higher level hospitals as a means to handle congestions at a higher level hospital like Kenyatta National hospital and Pumwani Maternity hospital. This should be taken in account owing to the fact the figures have shown the MCH programmes rolled by various sectors for example in Kilifi hospital have always succumbed to the tune of 45% due to lack of proper wards (Ngilangwa, 2013), some have failed in the local health centres and clinics due to lack of wards that scare away pregnant women (WHO, 2014) or up to 32% of the mothers have opted to give birth at home or private hospitals due to the shying away from the poor conditions in the wards.

2.4.2 Electrical Power Infrastructure

India has been one global country that for a long time has had hospitals infrastructure; more specifically; the power and electrical connectivity that resembles that in most African states.

There were 3346 community health centres in the country, almost a 50 % shortfall from the normal numbers and in fact, the rate of infrastructure development has limited the number with the worst hit being the local rural whereby only 37% of the local CHC centers have connection to electricity(World Bank Report,2015).

There is an 81% shortage of buildings in India with fully installed power to run the various machines for example. According to RBI (2014), about 49.7 % of the sub-centers, 78.0 % of the PHCs and 91.5 % of CHCs are located in the government buildings which are having only 41% connection to modern power grids. The rest are located either in rented buildings or rent free Panchayat/Voluntary Society buildings with only 32% power supply. As on September 2005, overall 60,762 buildings are required to be constructed to house sub-centers. Similarly, for PHCs 2948 and for CHCs 205 additional buildings are still required. Unreliable electricity and poor water supply contribute greatly to the poor health sector performance in India today (NSSO ,2014).

MHFW (2015) carried a comparative study in January 2014 to January 2015 in Nigeria's rural settings, India, Pakistani and Guinea. The study showed that, 47% of rural MCH centers in Guinea were fully connected to HEP with fully backup alternative sources of power, in Nigeria only 41% are connected, in India only 52% are fully connected while in Pakistani the figure are 49.8% for both fully connected with a buck up source of power. This has been argued to be a major hindrance in the success of the MCH programs in this countries.Chaudhury et al. (2010) argues that, without electricity in our hospitals, our mothers will continue to die as most equipment in the hospital relies on power for its proper functioning and better results.

Across the country, Owino (2011) argues that, power supply is a very sensitive factor in the implementation of hospital related services just like the MCH programs; a factor that puts urban centers like the Nairobi city at an advantage than other rural areas and the marginalised areas.In his study on the socio-economic factors influencing the implementation of MCH services in Nyakach, Rongo, Kuria and Kisumu, he found out that the power supply added value to the MCH services offered and the innovation attached. In Kuria for example, in 2007-2009, infant mortality rates and the deaths of the mothers were high in Muthare areas, Kubweye, Kegonga and the far Kuria South compared to the areas that were supplied with electricity like Kehanche Town, Isibania and Mabera.The major reasoning behind this is that the power is used to operate machines like scanners, computers and give a longer presence of

mid-wives to take care of the expectant mothers/young ones as compared to areas without power.

According to Ochako (2011), hospitals have been lacking basic mother delivery services like electrical machine including x-rays, scanners, microscopes and many more because they are not well supplied with power sources. In his research, he cited an example of Kiogoro dispensary, Riana, Nyamagundo and Menyinkwa that have for a long time sent their pregnant mother to the far distant Kisii teaching and referral hospital for checkups including during the emergency situation since they lacked electricity. A report by the MOH (2012) shows that, MCH programmes in the proposed county hospitals together with the sub-country hospitals across the country faced a threat of failing due to the basic reasoning of lacking basic infrastructure. In the report for example, marginalized counties have been hit by poor supply of either wind, HEP, solar or generators' power and this has limited the use of machines that use electricity.

According to World Vision (2014), in Turkana, Isiolo, Kwale, Kilifi and many more for example the rates of power supply to the public hospitals ranges between 42.5% to 51.89%.In Kilifi and Kwale, the situation is worse with 43.1% 1nd 43.0% respectively power connection. The Republic of Kenya (2012) argued that, the rural electrification program aided in ensuring that the power supplied to various health centers across all the public hospitals in the country was as per the requirements of the MDGs but this is too far from reality, owing to the fact that only 52.1 % of the public hospitals are supplied with electricity in the country and more concentration is in the established cities like Nairobi and Kisumu while the ASALs(arid and semiarid areas) like Kilifi are left to suffer.

A study by MOH (2014) showed that the ministry needed much urgent power backup like generators to take care of emergency cases. In the case of Kilifi county hospital for example, electrical power supply has only been effective to the tune of 54% compared to counties like Bomet with 70%, Laikipia 69%, Meru 68.98%, Mombasa 65.46% and many more; making it hard for one to adopt modern machines and equipment in the process of MCH programs implementation in the area. Just like the Samburu county hospital and the Isiolo one, the Health Oversight Committees from the UNICEF NGO have shown that, the back-up generators in these hospitals have never been efficient due to the fact they have been breaking from time to time, and the other sources of power like wind or biofuel have not been developed. This has led to interrupted emergency operations and use of information system

equipment like the mobile sensors and the x-rays leading to unnecessary deaths more specifically in the local area of Msumarini, Magarini and many more. This has been an issue that needs farther information since less information is documented.

2.4.3 Sanitation Infrastructure and the Success of MCH programmes

Dry pipes for a long time have put off women, children and any sick person from any environment for a long time. Water is life. In India for example, when the country was undergoing the major overhaul in its health sector, piped water was laid to almost 78% of the medical centres while 12%water was from dug wells and boreholes. The reasoning behind this is that, hospitals need to keep the highest hygiene standards as possible and as such, the hospitals had to be connected with sure channels of proving water all round the clock (Banerjee ET al.2014). Waste disposal in the hospitals and handling both the unhealed infant cords plus the used towels by the local Indian women has left them in dilemmas that have seen a number of them contact diseases that come as a result of poor hygiene while others have had their kids pass on.

Unite for Sight (2015), in east Africa, the situation of the MCH program in Southern Sudan, Burundi and Uganda is wanting. It gets worse as you move to the rural settings of Tanzania. In Morogoro, Mbeya, Iringa and Shinyanga in Tanzania for example, the number of deaths of the infants in 2009 increased to 32% due to issues like lack of proper latrines in the hospitals, clean water and proper birth related wastes. This led to the increased spread of water borne diseases like the diarrhea among the children and at times their mothers. In Iringa for example, between 2008 to 2009, 21 deaths were reported of the 100 infants born in the local hospitals during the rainy season from basic diseases that were associated with diarrhea due to poor waste management from the maternal wards, poor water and sanitation services in the feeding points and finally due to contaminated foods from the wards.

According to the Central Bureau of Statistics (CBS) [Kenya] (2013), Kenya is 80% dry land and the available water needs to be used carefully. Citing examples in hospitals in Mombasa, Kwale, Kilifi and Tana delta areas, the report shows that the rates of contamination of the water headed to these hospitals is up to 49.2% and the rates of water borne diseases spread among them expands to 34%.The report showed that in Tana and Kilifi for example, mothers at times were forced to take medicine using contaminated water, that later on gave them water borne diseases like dysentery and diarrheas. This has for example scared up 23% of the women from taking their medication in hospitals (MOH, 2012), 49% of the young kids being

forced to take water from the bottles (WASHREB, 2010) and 56% of the attendants to sick women in Mombasa hospitals buying purified/bottled water for their daycare and use (Mwaniki, 2011); passing another extra cost to the above strained structures. Another study in Kwale and Kilifi has shown that up to 59% of the local lack pit latrines; a factor that has limited the fights against diseases that are related to water and poor sanitation; a factor leading to deaths of poor young children and their parents owing to the fact that they need strong care.

A report published on the role of the county government of Kilifi in helping change the health situation of her people especially the children and mothers has shown that, it has achieved notable progress, especially in controlling communicable diseases (tuberculosis, HIV/AIDS and malaria) and attaining marked decrease in child mortality, but other health challenges associated with affluence, outbreak of water related diseases in the health points and accidents areemerging from uncontrolled waste disposal– putting pressure on our health care system(Kilifi County Government, 2015).

However, the report indicates that in remote areas like Mdzongolani have major challenges when it comes to the health of the mothers and children. On-communicable disease for example continues to be a challenge and continued screening and management is a prerequisite. Community sensitization needs enhancing through community strategy strengthening. Development of systems to support, expand health care services and sanitation at the community level. A program for health care infrastructure upgrade and equipment modernization will be implemented. County health bills will be put in drafted and enacted a vehicle to provision of quality healthcare services and enhance efficiency, effectiveness accountability framework for the management of public resources and medical supplies at the facility levels. Hiss is due to the importance realized in relation to the above infrastructure in health programmes success (Kilifi County Government, 2015).

2.5 Influence of education level of mothers on the Implementation of Maternal-Child Healthcare Programmes

Cross-countries comparisons have shown that education to a community in general, contribute towards reduction of child morbidity and mortality. The benefits further improve with an even greater population of women being educated in the community. An educated woman is more likely to utilize modern MCH services (Boerma et al. 1990; Bicego and Boerma1993; Caldwell and Caldwell 1990; Ompad, 2010).Even with study methodological

problems in the measurement of maternal care utilization, studies have shown a link between maternal mortality indicator and morbidity and the absence of MCH programs in a country like India. They have also shown that the utilization of MCH care is dependent on, among other factors, maternal education (Okafor 1991; Okin, 2010).

Educated women tend to be more likely to take up modern means of healthcare for themselves and their children (Caldwell and Caldwell1988; Cleland 1990); educated women also are much more capable of utilizing available resources to their advantage (Jewkes et al. 2013); studies also link educated women to independent decision making in matters affecting them like health and more so reproductive health hence leading to greater utilization of modern health facilities (Caldwell 1979; Caldwell 1986;Jewkes et al. 2013).

A research carried out by Dunkle et al (2014) investigating the nature of association between maternal education and the utilization of maternal and child health (MCH) services in India. Using data from the 2008–10 National Family Health Survey (NFHS), examined the relationship between maternal schooling and factors known to reduce the risks of maternal and child mortality

The uptake of modern health services is often influenced by individual perceptions of the efficacy of modern health services and the religious beliefs of individual women that is very different between educated and non-educated women (Chowa, 2010). In Africa the woman's decision making space in the homestead is still greatly tied to the husband's say or other family members who are considered to be senior, like mother in-laws (WHO, 2012). In developing countries, women who are the majority of illiterate in the community, spend more time on other household chores and responsibilities like care of children, collecting water or fuel, cooking, cleaning, growing food, and trade than on their own health (World Bank, 2014a).

In Kenya, studies conducted to identify risk factors associated with incomplete MCH programs in slums and the extent of full, up-to-date MCH coverage among children aged 12–23 months living in the slums showed that mother's level of education, among other factors contributed to number of ANC visit and type of care chosen in the clinics. Specifically, when the MCH programmes were introduced in the slums like Kibera and Kisumu Ndogo; children of mothers who had completed primary education were nearly 1.5 times more likely to have been served than those whose mothers had no education. The mother's education level also significantly determined MCH services coverage among children aged less than 5 years and

their mothers who had lived in the Mathare Valley slum in Kenya in the 5 years before the study (KHDS, 2008-2009).

A Study conducted in Kilifi, Kenya, showed that travel time to a healthcare facility did not significantly affect the preference for MCH and timeliness like other counties like Meru and Kwale (GOK, 2012c). This study alluded to the fact that the level of maternal education played a key role in the mother's health seeking behavior. The finding of a strong education effect is consistent with findings from elsewhere in the country like the Butere-Mumias district in Kenya. According to GOK (2012b), there are a number of explanations for why education is a key determinant of MCH service use by women in western Kenya and other parts of the country. Education is likely to enhance female autonomy so that women develop greater confidence and capability to make decisions about their own health. It is also likely that educated women seek out higher quality services and have greater ability to use healthcare inputs that offer better care.

2.6 Conceptual Framework

The conceptual framework outlines the dependent, independent and extraneous variables as discussed in the literature review.

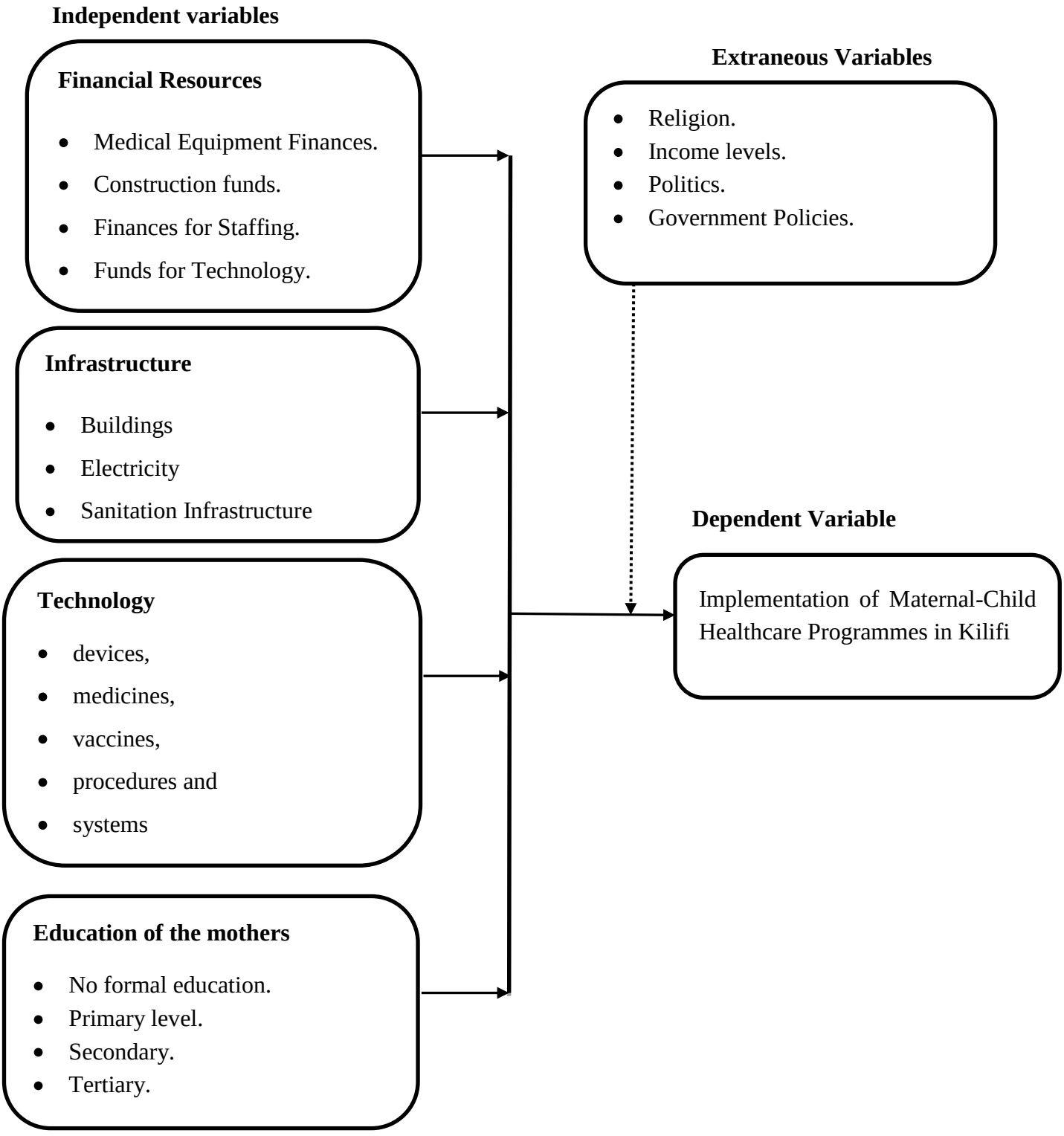

Figure 2. 1: Conceptual Framework

In relation to the literature review, the conceptual framework has underlined four major factors influencing the implementation of MCH programmes in the world, country and the Kilifi County. They are collectively called independent variables and assisted by a dependent variable that is the Implementation of MCH Programmes in Kenya. Independent variables include: financial resources, technology, infrastructure, and education. They have interacted to influence the programmes implementation of MCH programmes in the country. Politics, Religion, Income levels, and, Government Policies are extraneous variables; whose influence is significant in the programmes but they have not been included in the literature.

2.7 Summary of Literature Review

Previous studies indicate that the factors that determine MCH programmes implementation include sociocultural factors such as: mother's age at birth, mother's level of education and her partner's level of education and socio-economic factors like finances, technology and infrastructure. Structures like wards and theatre rooms have influenced the rate of the programmes while finances are central. Also the role of technology has been in the central play ground with up to 55% of programmes being pegged to the technology employed (WHO, 2012).This is what he chapter has highlighted in our literature that we seek to find out on the ground. The literature has been done in relation to the outlined objectives and sub heading have been included to give the relevant variables. The chapter also highlights the conceptual framework, relationship between variables and research gaps.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents the research design, the target population, the sampling procedure and size, data collection and analysis procedure followed by validation of the data for reliability. Finally the operational definition of variables has been included to give all the summary of the study.

3.2 Research Design

This study employed the use of a descriptive survey research design. Kraemer (1993) cited by Mugenda and Mugenda (1999) describes a descriptive survey as a means of gathering information about the characteristics, actions or opinions of a large group of people. Surveys are capable of obtaining information from large samples of the population. This design was suitable as it brought out information on attitudes that would be difficult to measure using observational techniques. Equally, surveys require minimal involvement to develop and administer and are quite easy for making generalizations (Kothari, 2003).The study also reviewed both primary data obtained through questionnaires and; secondary data referenced from journals, baseline / assessment research and strategy reports by different agencies, text and e-books and other related materials.

3.3 Target Population

The targeted population in this study was top hospital managers in MCH programs and mid-wives in the 4 Hospitals (3 managers in each), 2 Sub County Hospital (2 managers in each), 12 Health Centers (2 managers in each), and 1 medical attendant in each of the 77 Dispensaries. This sums to the total of (4x3+2x2+12x2+77) 117 respondents.

Table 3.1 Target Population

Center category	Population	Percentage
Hospitals	12	10.3%
Sub county hospital	4	3.4%
Health centers	24	20.5%
Dispensaries	77	65.8%
Total	117	100%

Source: http://iwebz-kenya.com/khco/background/

3.4 Sample Size and Sampling Procedure

The sample included all Medicare personnel who possess characteristics relevant to the study. According to Mugenda and Mugenda (2003), the desired sample when the population is less than 10,000 is given by sampling 10% of the total population. However for this study, the formula of 1989 was used as shown below:

$$n = \frac{N}{1 + N(e)^2}$$

n = Desired sample size when population is less than 10,000.

e= sampling error

N = Population size

At 90% confidence level, the sampling error is 0.1. Therefore the desired sample is:

$$n = \frac{117}{1 + 117(0.1)^2} = 53.917$$, equated to 54 respondents.

Given that the target population is heterogeneous due to the nature of the factors related to the topic of study, the 54 was the sample chosen for the purposed tool of data collection.

3.5 Validity and Reliability

According to Mugenda and Mugenda (2003; 1999), Gay (1998) etc. validity is the degree to which evidence supports inferences based on the data collected using a particular instrument to check whether the information obtained was relevant to the study or not. The prepared questionnaires were administered to the key informants before full administration to the selected sample. The validity of the instrument was also tested by having two senior lecturers plus the supervisor from the University of Nairobi go through it.

On the other hand, Kothari (2008) defines reliability is a measure of the consistence of results or scores obtained. A pilot test was done with the key informants before full administration of the questionnaires. A test-retest method was carried out to determine the reliability of the data collected. These questionnaires were administered twice to the same group after a certain time interval had elapsed since the previous test. In-depth discussions on the interview questions were held with the mid-level managers. This helped them fully understand and thus avoid distorted questions during interviews.

To ensure ‘correctness’ of the instrument, using the test –retest technique amongst a sample population from within the geographical scope of the study, the research instrument was pre tested with 10 respondents within a period of one and a half weeks prior to commencement of the actual study.

3.6 Data Collection Procedure

Data was collected through administration of questionnaires to minimize bias. The questionnaires were administered to the MCH programme staff and the mid-wives in all the categories of MCH services providers that are currently under the ministry of health and managed by the county government of Kilifi under. Interviews were also conducted by the researcher in cases of more detailed information especially from the managers. Secondary data was collected from documented records of government, those in the county government department of health, NGOs council and through internet searches. This study was conducted in a period of two weeks.

3.7 Data Analysis and Presentation

Quantitative data obtained from the open ended questions was coded to facilitate quantitative analysis. The coded data was analyzed by use of descriptive statistics comprising of frequency tables. The hypothesis was tested by use of Chi Square. Data analysis was done by use of the latest SPSS version.

3.8 Ethical Considerations

All government hospitals managers and county authorities were informed prior to the study to avoid suspicions and resistance from the community members and county development project managers. Consent was sought from the respondents whose participation in this study was voluntary. The information they provide was treated with utmost confidentiality. Privacy and dignity of the respondents was considered during the research. Names of the respondents werenot exposed and codes were used instead. The respondents were assured that a feedback session was to be organized in order to disseminate the research findings to the County ministries and other interested stakeholders.

3.9 Operational Definition of Variables

Table 3.2 Definition of variables

Research objectives	Type of variable	Indicator	Level of scale	Research design	Data collection method	Level of analysis
To establish if the availability of financial resources have an influence on implementation of maternal-child healthcare programmes.	Independent variable : Financial resources	Medical equipment finances Construction funds Finances for staffing Funds for technological equipments	Nominal scale	Survey	Questionnaire	Descriptive: central tendency
To establish the extent to which availability of technology influences the implementation of maternal-child healthcare programmes	Independent variable: Infrastructure	Devices Medicines Vaccines Procedures Systems	Nominal scale	Survey	Questionnaire	Descriptive: central tendency
To examine the influence of health facilities' infrastructure availability on implementation	Independent variable: Technology	Buildings Electricity Sanitation Infrastructure	Nominal scale	Survey	Questionnaire	Descriptive : central tendency

of maternal-child healthcare programmes						
To examine how the level of education of mothers influences the implementation of maternal-child-healthcare programmes	Independent variable: Education level	No formal education Primary level Secondary level Tertiary Non formal education	Nominal scale	Survey	Questionnaire	Descriptive : central tendency

CHAPTER FOUR: DATA PRESENTATION AND INTERPRETATION

4.1 Introduction

The data collected was sorted, classified, keyed and analyzed by simple descriptive analysis using Statistical Package for Social Scientists (SPSS) version. The data was then presented through frequency tables by calculating the percentages and narrative analysis with the calculation of mean value for the measure of the degree of measure on the rated questions.

4.2 Rate of Return of the Questionnaires

Out of the 54 questionnaires were issued, 50 were returned while 4 were not returned therefore the return rate was 92.59% positive.8 respondents clearly gave information as per the interviews schedules conducted. This means that 8 interview schedules were planned.

4.3 General Information of the Respondents

Respondents were required to give information concerning gender of the respondents, working experience and educational qualifications where the results were arrived as follows.
A question aimed at knowing the gender of the respondents in the field and the results were as follows;

Table 4.1 Gender of the Respondents

Gender	**Frequency**	**Percentage**
Female	20	40
Male	30	60
Total	**50**	**100**

From the responses 40% of the respondents were women while 30 who represented 60%were men. This is maybe tied to the fact that men are more educated than female in Kenya's Kilifi County.
Respondents were asked to give their work experience period.

Table 4.2 Work Experience from the Field

Work experience	Frequency	Percentage
Below 1 Year	10	20
1-2years	5	10
2-4years	5	10
4-10	15	30
Over 10years	15	30
Total	**50**	**100**

20% of the respondents had less than 1 year experience in the job, 10% had between 1-2 years' experience, 10 % had an experience of 2-4 years, and 30% had an experience of 4-10 years' work experience while the remaining 30% had an experience of over 10 years. The majority of the respondents ranged between 4-over 10 years in work experience. Responses on academic levels are indicated below were asked to indicate their levels of education and results were as below:

Table 4.3 Academic Qualification Level

Education level	Frequency	Percentage
Certificate	5	10
Diploma	10	20
Bachelors degree	15	30
Post graduate degree	20	40
Total	**50**	**100**

From the responses, certificate attracted 10% of the respondents, 20% was attracted by diploma certificate, bachelors' degree attracted 30% of the respondents, postgraduate attracted 20 respondents who made 40%.

4.4 Influence of Financial Resources in the Implementation of MCH programmes

A number of questions were asked in relation to financial resources and the implementation of MCH programmes and a number of results were as follows:

4.4.1 Response of Financial resources

A question was asked whether respondents thought financial resources have an influence in the implementation of MCH programmes in Kilifi County and the following.

Table.4.4 Response on Financial Resources Influence

Response	Frequency	Percentage
No	10	20
Yes	40	80
Total	**50**	**100**

The respondents totaling to 10 making 20% said that financial resources don't influence the implementation of MCH programmes in Kilifi County while the remaining majority 40 who represent 80% argued that financial resources have an influence in the implementation of MCH programmes. When asked to support their answers, on average 80% of the respondents said that financial resources are vital in hiring qualified medical personnel, motivating them to perform their duties better, purchase and use the relevant technology, money can be used to lay down the required infrastructure and many more capital equipment that will accelerate the implementation of MCH programmes.

4.4.2 Scale of Agreement or Disagreement with Financial Resources in MCH Programmes

On a rating scale, respondents gave different views in relation to the implementation of MCH programmes and the influence of financial resources.

On a scale, the respondents were asked to indicate the extent to which they agree or disagree with the following statements in relation to financial resources and results were as follows. Scale of use was 1-5 where 1= strongly disagree; 2 = disagree; 3 =weakly agree; 4 =agree; 5 = strongly agree.

Table 4.5 Degree of Rating of responses for financial influence in MCH Programmes

Statement	1	2	3	4	5
Medical equipment finances have been effectively provided for MCH programmes	20	20	5	5	0
Construction funds have been a challenge in MCH programmes implementation.	5	5	10	15	15
Finances for MCH programmes Staffing have been effectively provided in the county	18	22	5	3	2
Funds for Technology to facilitate MCH programmes have been effectively issued.	22	18	10	0	0

The first statement that read, medical equipment finances have been effectively provided for MCH programmes was to be rated in a scale of 1 to 5 and responses were as follows: 20 respondents strongly disagreed with the statement, 20 disagreed with the statement, 5 weakly agreed, 5 agreed with the idea, while 0 strongly agreed with the statement. The second statement that read, construction funds have been a challenge in MCH programmes implementation, 5 respondents strongly disagreed with the statement, 5 disagreed, 10 weakly agreed, 15 agreed, while the other 15 again strongly agreed. The third statement touched on finances for MCH programmes Staffing have been effectively provided in the county and attracted 18 respondents who strongly disagreed with the statement, 22 who disagreed, and 5 who weakly agreed, 3 agreed and the rest 2 strongly agreed. On the fourth statement that touched on Funds for Technology to facilitate MCH programmes have been effectively issued had 22 respondents who strongly disagreed, 18 disagreed, 10 weakly agreed while the rest responses attracted nothing.

4.5 Technology Influence in MCH Programmes Success.

A number of questions were asked in relation to the influence of technology on the implementation and success of MCH programmes in Kilifi County and the results were as shown below.

4.5.1 Response on Technology Influence in MCH Programmes Implementation

A question that read, do you think that the implementation of the MCH programmes is influenced by technology was asked and the response was shown below:

Table 4.6 Technology Influence Response

Response	Frequency	Percentage
No	5	10 %
Yes	45	90%
Total	**50**	**100 %**

From the findings, 45 respondents who represented 90% supported the idea that IT has an influence in the implementation of MCH programmes. In relation to the second responses, 5 respondents who represented 10% said that IT has no influence in the implementation of MCH programmes. When asked to give their views, 90% of the respondents who supported yes argued that factors dealing with modern technology for example the modern computers for medical examination, modern telephony for monitoring the progress of expectant mothers and many more have an influence in the implementation of MCH programmes. Those who said no had arguments like: financial resources were paramount to MCH success as opposed to technology.

4.5.2 Degree of Support of Statements on Technology on MCH programmes.

Respondents on a scale with : 1= Strongly disagree; 2 = Disagree; 3 =Not sure; 4 =Agree; 5 = Strongly agree ,show how you agree or disagree with the following.

Table 4.7 Rating of the Technology Influence on MCH programmes

Statement	1	2	3	4	5
Vaccines technology is effective in the MCH programmes in Kilifi	0	2	5	12	31
Procedures technology is applied by MCH providers in the county	32	8	5	4	1
System technology is a common application in MCH in the county	27	13	10	0	0
Medicines technology is effective in the MCH programmes in Kilifi	9	11	19	11	0
Devices technology is applied by MCH providers in the county	30	15	2	3	0

4.6 Health Infrastructure in the Implementation of MCH Programmes

Health infrastructure was addressed by a number of questions and the responses were as follows:

4.6.1 Response on Health Infrastructure and their Influence

A question was asked on health infrastructure and its influence in the implementation of MCH programmes in the county and the respondents were as follows:

Table 4.8 Response on Health Infrastructure and their Influence

Response	Frequency	Percentage
No	10	20
Yes	40	80
Total	**50**	**100**

20 % of the respondents who were made up of 10 respondents argued that infrastructure has no influence in the implementation of MCH programmes while the remaining 80% argued that it had a significant influence. When asked to give reasons for their answers in this question, over 80% of the respondents argued that infrastructural facilities like maternal wards, modern laboratories, running water, proper waste disposal and many have an influence in the programmes success.

4.6.2 Scale of Agreement or Disagreement with Infrastructure

Respondents were asked to show the extent to which they agreed or disagreed with the following statements in relation to financial resources. Scale of use was 1-5 where: 1= strongly disagree; 2 = Disagree; 3 =Not sure; 4 =Agree; 5 = strongly agree

Table 4.9 Scale of rating of Infrastructure contribution on MCH programmes

Statement	1	2	3	4	5
Maternal wards and other buildings like laboratories have been effectively developed in the county hospitals and other centers	20	25	3	1	1
Electrical power is connected to all the MCH centers in the county	25	20	2	2	1
Sanitation infrastructure like latrines and other waste disposals are up to date	30	11	5	2	2

4.7 Education's Influence in MCH Programmes Implementation.

A number of questions were asked in relation to education's role in MCH programmes implementation was asked and responses were given as it is shown below

Respondents were asked whether they supported the idea that MCH programmes implementation in Kilifi County are influenced by education levels of the mothers and the responses tabulated as shown below:

Table 4.10 Response on Education of mothers and MCH programme

Response	Frequency	Percentage
N o	4	8 %
Yes	46	92%
Total	**50**	**100%**

In the responses, 92 % of the respondents supported the idea that education levels of the mothers have a significant influence in the implementation of MCH programmes. Those who went against the idea were only 8% representing 4 people. In support of their ideas, those who were for the idea argued that mothers who were well learned were in the position of understanding and integrating the modern ideas in the MCH utilization and this in one way or the other could accelerate the implementation of MCH programmes. They further added that mothers with modern education could easily make use of both antenatal and postnatal care services in either the dispensaries or hospitals as opposed to the traditional methods used by the semi-illiterate mothers in the village.

Respondents were required to rate the extent to which they agreed or disagreed with the following statements by using a scale of 1-5 where, 1= strongly disagree; 2 = disagree; 3 =not sure; 4 =agree; 5 = strongly agree

Table 4.11 Rate of Support of Influence of Education in MCH projects Success.

Statement	**1**	**2**	**3**	**4**	**5**
Women with no formal education are frequent visitors of MCH centers.	40	5	3	1	1
Primary level educated women have a great knowledge of MCH services.	30	7	5	5	3
Secondary educated level mothers are relatively better in MCH utilization.	26	10	5	5	4
Tertiary educated women are more aware and frequent visitors to the MCHs	4	1	6	15	24
Informal Education has an influence in MCH programmes success in Kilifi.	6	4	9	21	10

In relation to the statement that read, women with no education are frequent visitors of MCH centers saw 40 respondents strongly who disagreed with the idea, 5 disagreed, 3 were not sure, 1 agreed while 1 again strongly agreed. On the second idea that Primary level educated women have a great knowledge of MCH services saw 30 respondents who strongly disagreed, 7 disagreed, 5 were not sure, 5 who agreed while 3 strongly agreed. Secondary educated level mothers are relatively better in MCH utilization attracted 14 respondents who strongly disagreed, 10 who disagreed, 6 who were not sure, and 15 who agreed while 5 strongly agreed. On the final idea that read, Traditional Education has an influence in MCH programmes success in Kilifi had 6 respondents who strongly disagreed, 4 who disagreed, 9 who were not sure, and 21 who agreed while 10 strongly agreed.

4.8Testing of the First hypothesis on Financial Resources

H_1: Financial resources have an influence on the implementation of maternal-child healthcare programmes in Kilifi County.

Table 4.12 Hypothesis Testing Using the Chi-Square

O	E	(O-E)	$(O-E)^2$	$(O-E)^2/E$
2 0	1 0	1 0	1 0 0	1 0
20	10	10	100	10
5	10	-5	25	2.5
5	10	-5	2	2.5
0	10	-10	100	10
				$\sum (O-E)^2/E = 35$

$\chi^2_C = 35 > \chi^2_{\alpha\ 0.05}$ − 9.488 at 4 degrees of freedom and 5% level of confidence.

Since the calculated Chi-square value of 33.8 is greater than the critical Chi-square value at 5% level of confidence, we accept the alternative hypothesis. Thersefore financial resources have an influence on the implementation of maternal-child healthcare programmes in Kilifi County

4.9Testing of the Hypothesis in Relation to Technology

H_1: Technology has an influence on the implementation of maternal-child healthcare programmes in Kilifi County.

Table 4.13 Hypothesis Testing Using the Chi-Square

O	**E**	**(O-E)**	**$(O-E)^2$**	**(O-E)2/E**
30	10	20	400	40
15	10	5	25	2.5
2	10	-8	64	6.4
3	10	-7	49	4.9
0	10	-10	100	10
				$\sum$ (O-E) ^{2}/E =63.8

$\chi^2_C = 63.8 > \chi^2_{\alpha\ 0.05}$ = 9.488 at 4 degrees of freedom and 5% level of confidence.

Since the calculated chi-square value of 63.8 is greater than the critical chi-square value at 5% level of confidence, we accept the alternative hypothesis. Therefore technology has an influence on the implementation of maternal-child healthcare programmes in Kilifi County.

4.10Testing of the third hypothesis on Health infrastructure

H_1: Health infrastructure has an influence on the implementation of maternal-child healthcare programmes in Kilifi County.

Table 4.14 Hypothesis Testing Using the Chi-Square

O	**E**	**(O-E)**	**$(O-E)^2$**	**(O-E)2/E**
20	10	10	100	10
25	10	15	225	22.5
3	10	-7	49	4.9
1	10	-9	81	8.1
1	10	-9	81	8.1
				$\sum$ (O-E) ^{2}/E =53.6

$\chi^2_C = 53.6 > \chi^2_{\propto\ 0.05}$ = 9.488 at 4 degrees of freedom and 5% level of confidence.

Since the calculated chi-square value of 53.6 is greater than the critical chi-square value at 5% level of confidence, we accept the alternative hypothesis. Therefore health infrastructure has an influence on the implementation of maternal-child healthcare programmes in Kilifi County.

4.11Hypothesis Testing for Education

H_1: Education has a significant influence on the implementation of maternal-child healthcare programmes in Kilifi County.

Table 4.15 Hypothesis Testing Using the Chi-Square

O	**E**	**(O-E)**	**$(O-E)^2$**	**(O-E)2/E**
4	10	-6	36	3.6
1	10	-9	81	8.1
6	10	-4	16	1.6
15	10	5	25	2.5
24	10	14	196	19.6
				$\sum$ (O-E) ^{2}/E =35.4

$\chi^2_C = 35.4 > \chi^2_{\propto\ 0.05}$ = 9.488 at 4 degrees of freedom and 5% level of confidence.

Since the calculated chi-square value of 35.4 is greater than the critical chi-square value at 5% level of confidence, we accept the alternative hypothesis. Thus, education has a significant influence on the implementation of maternal-child healthcare programmes in Kilifi County.

CHAPTER FIVE: SUMMARY, DISCUSSIONS CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary of the study findings, discussions, conclusions and recommendation of the research as per the objectives. Included in the chapter are suggestions for further studies by other researchers.

5.2 Summary of Findings

From the research, questionnaires were given to 54 respondents, 50 were valid and made it for the sample for the study. From a series of questions in the questionnaire, a number of findings were arrived at. Findings gotten from the first objective that touched on influence of financial resources in the implementation of MCH programmes, respondents totaling to 10 making 20% said that financial resources don't influence the implementation of MCH programmes in Kilifi County while the remaining majority 40 who represented 80% argued that financial resources have an influence in the implementation of MCH programmes. When asked to support their answers, on average, over 80% of the respondents said that financial resources are vital in hiring qualified medical personnel, motivating them to perform their duties better, purchase and use the relevant technology. Also, they argued that money can be used to lay down the required infrastructure and many more capital equipment that will accelerate the implementation of MCH programmes. When a chi-square test was done on the hypothesis, the calculated value was greater than the critical value of 9.488; meaning that financial resources have an influence in the implementation of MCH programmes.

As per the second objective that focused on technology influence in MCH programmes success, 45 respondents who represented 90% supported the idea that IT has an influence in the implementation of MCH programmes, while 5 respondents who represented 10% said that IT has no influence in the implementation of MCH programmes. When asked to give their views, 90% of the respondents who supported yes argued that factors dealing with modern technology for example the modern computers for medical examination, modern telephony for monitoring the progress of expectant mothers and many more have an influence in the implementation of MCH programmes. When a chi-square test was done on the hypothesis, the calculated value was greater that the critical value of 9.488; meaning that technology has an influence in the implementation of MCH programmes.

Similarly, responses in relation to the third objective that sought to establish the influence of health infrastructure in the implementation of MCH Programmes found that there is a very significant relationship and by extent great influence. For example, a question was asked on health infrastructure and its influence in the implementation of MCH programmes in the county and the response was 20 % of the respondents who were made up of 10 respondents argued that infrastructure has no influence in the implementation of MCH programmes while the remaining 80% argued that it had a significant influence. When asked to give reasons for their answers in this question, over 80% of the respondents argued that infrastructural facilities like maternal wards, modern laboratories, running water, proper waste disposal and many have an influence in the project's success. On a scale of rating, the first statement that read, maternal wards and other buildings like laboratories have been effectively developed in the county hospitals and other centers for example had 20 respondents who strongly disagreed , 25 who disagreed, 3 who were not sure, 1 who agreed while the last 1 strongly agreed. On a mean average, respondents disagreed with the idea; indicating that such infrastructure has been a disadvantage in such programmes success. When a chi-square test was done on the hypothesis, the calculated value was greater than the critical value of 9.488; meaning that health infrastructure has an influence in the implementation of MCH programmes.

Finally, the fourth objective that touched on education's influence in MCH programmes implementation in Kilifi County, a number of responses were arrived at. For example respondents were asked whether they supported the idea that MCH programmes implementation in Kilifi County are influenced by education levels of the mothers and in the responses, 92 % of the respondents supported the idea that education levels of the mothers have a significant influence in the implementation of MCH programmes. Those who went against the idea were only 8% representing 4 people. In support of their ideas, those who were for the idea argued that mothers who were well learned were in the position of understanding and integrating the modern ideas in the MCH utilization and this in one way or the other could accelerate the implementation of MCH programmes. They further added that mothers with modern education could easily make use of both antenatal and postnatal care services in either the dispensaries or hospitals as opposed to the traditional methods used by the semi-illiterate mothers in the village. When a chi-square test was done on the hypothesis, the calculated value was greater that the critical value of 9.488; meaning that education has an influence in the implementation of MCH programmes.

5.3 Discussion of Findings

Responses in the data conversion in chapter four as gotten from the field have shown that there is a great relationship between the independent variables and the success of MCH programmes. Findings gotten from the first objective that touched on influence of financial resources in the implementation of MCH programmes, respondents totaling to 10 making 20% said that financial resources don't influence the implementation of MCH programmes in Kilifi County while the remaining majority 40 who represented 80% argued that financial resources have an influence in the implementation of MCH programmes. When asked to support their answers, on average, over 80% of the respondents said that financial resources are vital in hiring qualified medical personnel, motivating them to perform their duties better, purchase and use the relevant technology. From the literature review, studies have shown that costs cannot be avoided in quality implementation of MCH/MCPs across the globe. For example, Sidr (2014) argues that financial resources for example are required so as to finance the various infrastructural facilities in the hospitals handling the mothers and their toddlers, finances for hiring qualified mid-wives, doctors, nurses and medical consultants are inevitable, finances for buying medical equipment and many more have a far reaching effect in the implementation of these MCH programmes in countries.

As per the second objective that focused on technology influence in MCH programmes success, 45 respondents who represented 90% supported the idea that IT has an influence in the implementation of MCH programmes, while 5 respondents who represented 10% said that IT has no influence in the implementation of MCH programmes. When asked to give their views, 90% of the respondents who supported yes argued that factors dealing with modern technology for example the modern computers for medical examination, modern telephony for monitoring the progress of expectant mothers and many more have an influence in the implementation of MCH programmes. When a chi-square test was done on the hypothesis, the calculated value was greater that the critical value of 9.488; meaning that technology has an influence in the implementation of MCH programmes. In agreement to this in the literature review, World Bank (2015) writes that, improving the health of the poorest people in the developing world depends on the development of many varieties of health innovations, such as new drugs, vaccines, devices, and diagnostic tools, as well as new techniques in process engineering and manufacturing, management approaches, software, and policies in health systems and services. Another report by CHMI (2014) shows that, the role of modern operation machines like the 21st century scanners, modern fracture systems that could replace the old methods like light microscopes, modern run computer systems with full

diseases-symptoms-prescription, mobile voice technology that shares information between the pregnant mothers, doctors etc., modern computers and internet connectivity is still a challenge more specifically in the troubled villages health centers and the various public hospitals in the various counties.

Similarly, responses in relation to the third objective that sought to establish the influence of health infrastructure in the implementation of MCH Programmes found that there is a very significant relationship and by extent great influence. For example, a question was asked on health infrastructure and its influence in the implementation of MCH programmes in the county and the response was 20 % of the respondents who were made up of 10 respondents argued that infrastructure has no influence in the implementation of MCH programmes while the remaining 80% argued that it had a significant influence. When asked to give reasons for their answers in this question, over 80% of the respondents argued that infrastructural facilities like maternal wards, modern laboratories, running water, proper waste disposal and many have an influence in the project's success. In agreement to this in the literature review, Obare *et al* (2011) argue that the health system in Kenya needs more rooms (more and more hospital wards need to be erected) to accommodate the increasing population. However, a challenge still exists in the construction of wards in new hospitals or the old ones. The Kenya government only allocates less than 12% of its national budget to the health sector and this worsens when it comes to the programmes targeting the under-fives and the expectant mothers whereby they just receive less that 3% of the national revenue (Magadi, 2010).

Also Owino (2011) argues that power supply is a very sensitive factor in the implementation of hospital related services just like the MCH programs; a factor that puts urban centers like the Nairobi city at an advantage than other rural areas and the marginalized areas. In his study on the socio-economic factors influencing the implementation of MCH services in Nyakach, Rongo, Kuria and Kisumu, he found out that the power supply added value to the MCH services offered and the innovation attached. In Kuria for example, in 2007-2009, infant mortality rates and the deaths of the mothers were high in Muthare areas, Kubweye, Kegonga and the far Kuria South compared to the areas that were supplied with electricity like Kehanche Town, Isibania and Mabera. The major reasoning behind this is that the power is used to operate machines like scanners, computers and give a longer presence of mid-wives to take care of the expectant mothers/young born as compared to areas without power.

Finally, the fourth objective that touched on education's influence in MCH programmes implementation in Kilifi County, a number of responses were arrived at. For example respondents were asked whether they supported the idea that MCH programmes implementation in Kilifi County are influenced by education levels of the mothers and in the responses, 92 % of the respondents supported the idea that education levels of the mothers have a significant influence in the implementation of MCH programmes. Those who went against the idea were only 8% representing 4 people. In support of their ideas, those who were for the idea argued that mothers who were well learned were in the position of understanding and integrating the modern ideas in the MCH utilization and this in one way or the other could accelerate the implementation of MCH programmes. According to KHDS (2009), mother's age, level of education, parity, place of delivery, ethnicity, and household assets are predictors of full attendance to the clinics. The report found that, among other factors, the mother's level of education predicted the attendance in the MCHs. Specifically, when the MCH programmes were introduced in the slums like Kibera and Kisumu Ndogo; children of mothers and mothers who had completed primary education were nearly 1.5 times more likely to have been served than those whose mothers had no education. The mother's education level also significantly determined MCH services coverage among children aged fewer than 5 and their mothers who had lived in the Mathare Valley slum in Kenya in the 5 years before the study for example.

Similarly, according to GOK (2012b), there are a number of explanations for why education is a key determinant of MC health service use by women in western Kenya and other parts of the country. Education is likely to enhance female autonomy so that women develop greater confidence and capability to make decisions about their own health. It is also likely that educated women seek out higher quality services and have greater ability to use health care inputs that offer better care.

5.4 Conclusions

The study concludes that financial resources have been a challenge thus has made it difficult for relevant medical equipment, enabling constructions, staffing and many more to be acquired so as to enable the implementation of MCH programmes in Kilifi County and by extension in Kenya at large. Also, the researcher concludes that technology like computers, modern blood filtering equipment, modern operation and scanners are missing in our hospitals and this has greatly limited the success of MCH programmes in Kilifi County. Infrastructure facilities like buildings (maternal wards), electricity, sanitation infrastructure

and many more are a challenge to our MCH programmes success and this has for long negatively influenced MCH programmes success. Finally, education levels of the mothers have an influence in the implementation of MCH programmes whereby mothers who are well educated tend to utilize maternal services as opposed to those who are not well educated.

5.5Recommendations

The results in the discussions have shown a concrete relationship between the independent variables and the dependent variable. In relation to the first objective that focused on financial resources, the researcher recommends that the national government, county govern, NGOs, CBOs and other bodies supporting healthcare in the country should increase funding to the MCH sector so that better buildings, expertise, technology and many more can be acquired and finally increase the success rate of MCH programmes.

In relation to modern technology, the researcher recommends that the government should highly invest in modern telephony, computers, and scanners so as to allow the medical doctors detect all the diseases, handle the dangers associated with the mothers and later on enable the implementation of MCH programmes in the county.

On the issue touching on infrastructure, the researcher recommends funds should be set aside by the politicians, county government, national government and donors so as to set up new maternal wards, electricity, sanitation points and structure, maternal laboratories and many more so to make the MCH programmes a reality in the county and the country at large.

Finally, the researcher recommends that education should be availed to the mothers more specifically to the illiterate ones like the majority uneducated mothers in Kilifi through barazas and other adult methods of education so that they can understand the importance of MCH services in their lives: thus increasing the implementation of MCH programmes in the county and country at large.

5.6 Suggestions for Further Research

i. A study can be done to investigate the sustainability of MCH programmes in Kilifi County.
ii. A study also can be done to establish the social and cultural determinants of MCH programmes implementation of in Kilifi County.
iii. Finally, a research can be done to investigate the impact of MCH programmes implementation to the welfare of the locals of Kilifi County.

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APPENDICES

Appendix I: Letter of Introduction

Areba Lydia Nyaboke
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Dear participant,

I am Areba Lydia, a student undertaking a Master of Arts Degree in Project Planning and Management at the University of Nairobi Mombasa campus. To fulfill the completion of this course, I am carrying out a study on the determinants of successful maternal-child health programmes implementations in Kilifi County; Kenya. I am inviting you to participate in this research study by completing the attached questionnaire and answer the questions sincerely.

If you choose to participate in this research, please answer all questions as honestly as possible. Participation is strictly voluntary and you may decline to participate at any time. In order to ensure that all the information will remain confidential, you do not have to include your name. The data collected will be for academic purposes only.

Thank you.

Yours faithfully,

Areba Lydia.

Appendix II: Research Questionnaire

Section A:

BACKGROUND INFORMATION

1. Your gender: Male [ ] Female [ ]

2. Your age bracket (**Tick appropriately**)

18-30yrs [ ] 31 - 40 Years [ ] 41 - 50 years [ ] 51- 60 years [ ] Over 61 years [ ]

3. What is your highest education level? (**Tick as applicable**)

Primary certificate [ ] Secondary certificate [ ] Diploma/certificate [ ] Bachelors' degree [ ] Postgraduate degree [ ] others [ ].

4. Working Experience ***(for those employed only)***

a) Less than 1 year ( ) b) 1-2 years ( ) c) 2-4 years ( ) d) over 5years ( )

Section B: Items as per the objectives

- **Item on availability of financial resources**

1. Do you think that availability of financial resources have an influence in the implementation of MCH programmes in Kilifi County?

Yes ( ) Not Sure ( ) No ( )

Support your answer with relevant examples

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2. On a scale indicate the extent to which you agree or disagree with the following statements in relation to availability of financial resources? Use a scale of 1-5 where

1= strongly disagree; 2 = disagree; 3 =weakly agree; 4 =agree; 5 = strongly agree.

Statement	**1**	**2**	**3**	**4**	**5**
Medical equipment finances have been effectively provided for MCH programmes					
Construction funds have been a challenge in MCH programmes implementation					
Finances for MCH staffing have been effectively provided in the county					
Funds for technology to facilitate MCH programmes have been effectively issued.					

II. Item on technology influence

3. Do you think that the implementation of the MCH programmes is influenced by technology?

Yes ( ) No ( ) Not Sure ( )

4. Support your answer in 3 above with relevant examples.

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5. On a scale with :**(1= strongly disagree; 2 = Disagree; 3 =Not sure; 4 =Agree; 5 = strongly agree.) ,** show the extent to which you agree or disagree with the following.

Statement	**1**	**2**	**3**	**4**	**5**
Vaccines technology is effective in the MCH centers in Kilifi.					
Procedures technology is applied by all MCHS providers in the county.					
System technology is a common application in MCH in the county.					
Medicines technology is effective in the MCH centers in Kilifi.					
Devices technology is applied by all MCHS providers in the county.					

III. Health Infrastructure

6. Do you think that health infrastructure has an influence in the implementation of MCH programmes in the county?

Yes { } No { }

7. Support your answer in 6 above with relevant examples.

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8. Use a scale of 1-5 where **1= strongly disagree; 2 = Disagree; 3 =Not sure; 4 =Agree; 5 = strongly agree** to show the extent to which you agree or disagree with the following.

Statement	**1**	**2**	**3**	**4**	**5**
Maternal wards and other buildings like laboratories have been effectively developed in the county hospitals and other centers.					
Electrical power is connected to all the much centers in the county.					
Sanitation infrastructure like latrines and other waste disposals are up to date.					

IV. Item on Education

9. Do you support the idea that MCH programmes' implementation in Kilifi County, are influenced by education levels of the mothers?

Yes ( ) No ( ).

10. With 3 examples, support your answer in 9 above.

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11. Rate the extent to which you agree or disagree with the following statements. Use a scale of 1-5 where, **1= strongly disagree; 2 = disagree; 3 =not sure; 4 =agree; 5 = strongly agree.**

Statement	**1**	**2**	**3**	**4**	**5**
Women with no education are frequent visitors of MCH centers					
Primary level educated women have a great knowledge of MCH services					
Secondary educated women are more aware and visitors to the MCH.					
Tertiary level educated women are more aware and visitors to the MCH.					
Traditional education has an influence in MCH programmes success in Kilifi.					