ASSESSMENT OF EFFECTIVENESS AND SUSTAINABILITY OF THE MIDWIFERY PRACTICE MODEL AT THE PRIMARY HEALTHCARE LEVEL OF THE HEALTH SYSTEMS

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DECLARATION AND APPROVAL

Declaration

This thesis is my original work and has not been presented for any award or conferment of degree in any other university or institution.

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This PhD work is dedicated to my husband Paul Syagga and our children Joseph Syagga, Marilyn Avery, Laura Njenga, Sheila Obara and Isaiah Syagga.

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ABSTRACT

A midwifery practice at the basic health facilities ensures that skilled care is available during pregnancy, labour and child birth as well as post-natal care of both mother and baby at the households. However, in Kenya there is ambiguity regarding the midwifery model in practice yet women continue to access midwifery services. The research question was about the type of midwifery practice in place and the model being followed. The broad objective of this study was to assess the effectiveness and sustainability of the functional midwifery practice model at the primary healthcare level of the health system. The specific objectives of the study were to establish the midwifery practice model, determine its effectiveness and sustainability as well as identify the challenges to the sustainability of the identified practice model at the Primary Health care settings. Research questions guiding the study were developed in tandem with the specific objectives. Literature was reviewed along the conceptual themes reflected in the specific objectives, and a theoretical model identified to ground the study as well as aid the development of a conceptual model. The study was significant in that the findings facilitate discourse on how best to ensure the challenges bedeviling the current midwifery practices are addressed, paving way for an optimally sustainable midwifery model for Kenya. This was a cross-sectional study that used both quantitative and qualitative approaches. The study sites were in Siaya sub counties of Ugenya, Ugunja, Gem and Alego-Usonga. The unit of observation and analysis was the primary health care facilities. Sampling method was both probability and non-probability sampling methods to identify the study facilities as well as the selected community respondents as appropriate. The study population included the Nurse/Midwives at the primary health care facilities, health facility administrators, the sub-county public health nurses, the community health volunteers (CHVs), and mothers within the community, who were served by the sampled health facilities. The study instruments included, individual questionnaires, observation checklists, focus group discussion guide and key informant interview guides. Quantitative data analysis was done using statistical package for social sciences (SPSS) version 24. Quantitative data was analysed using frequencies, correlation coefficient, chi square and regression analyses, while the qualitative data was analysed thematically. The findings show that the midwifery being practiced at the primary health care levels in Siaya County, is midwife-led that to a large extent, has adopted the Community Strategy and the Primary Health Care (PHC) concepts which are national concepts developed to meet the needs of the community. However, there was no guideline to that effect. The functional midwifery practiced was sustainable socially and environmentally but not financially as evidenced through the measured parameters of availability, accessibility acceptability and affordability. Data revealed that skilled birth attendance had improved, cumulatively, in the four Siaya Sub-counties (from 58% to 82%). However, daunting challenges to this sustainability were also unearthed, chief among them being insufficient and irregular funds disbursement, staffing shortage and minimal male involvement. In conclusion, the study objectives were fulfilled; the midwifery practiced in Siaya County is sustainable, being midwife-led and consistent with the team midwifery model in other developed countries, and also involving the community a lot in the promotion of skilled birth attendance. The study recommends that the model be adopted as a bottom-up team midwifery model with clear guidelines provided for standardization of the model in practice and there should be more stakeholder involvement to further enhance for its sustainability. Concerted measures should

likewise be put in pace to counteract the challenges to sustainability. A homegrown optimal model for Kenya can be tested and fine-tuned through further research in this field.

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LIST OF ABBREVIATIONS

ANC	Ante-Natal Care
CBHC	Community-Based Health Care
CHAs	Community Health Assistants
CHC	Community Health Committee
CHEWs	Community Health Extension Workers
CHW	Community Health Worker
CHV	Community Health Volunteer
CM	Community Midwifery
CORPs	Community Own Resource Persons
CU	Community Units
DRH	Division of Reproductive Health
EOC	Essential obstetric care
FP	Family Planning
HSR	Health Sector Reforms
ICM	International Council of Midwives
ICPD	International Conference on Population Development
IEC	Information Education and Communication
KDHS	Kenya Demographic Health Survey
KEPHS	Kenya Essential Package for Health Services
MCH	Maternal and Child Health
MDG	Development Goals
MMR	Maternal Mortality Rate
MOH	Ministry of Health
MOMS	Ministry of Medical Services
MOPHS	Ministry of Public Health and Sanitation
NCK	Nursing Council of Kenya
NGO	Non-Governmental Organisation
NHSSP	National Health Sector Strategic Plan
NRHS	National Reproductive Health Strategy

PHC	Primary Health Care
QI	Quality Improvement
RH	Reproductive Health
SBAs	Skilled Birth Attendants
SDGs	Sustainable Development Goals
SMNH	Safe Motherhood and Neonatal Health
SMP	Safe Motherhood Promotion
SRH	Sexual and Reproductive Health
SPSS	Statistical Package for Social Sciences
SWAp	Sector-Wide Approach
TBA	Traditional Birth Attendants
UNFPA	United Nations Food Program
UNDP	United Nations Development Program
USAID	United States Agency for International Development
WHO	World Health Organization

DEFINITION OF TERMS

Access: A measure of the ability of a person/community to receive health care services. It defines the capacity, and the factors influencing the entry into or use of, the health care system. Access relates to geographic, economic, social, cultural, organizational and linguistic barriers.

Basic essential obstetric care (BEOC): The obstetric care given with the exception of surgery, anesthesia and blood replacement.

Community: A community is a group of people living in a certain geographical area and working together for a common goal. They share the same resources, culture, beliefs and values.

Community Health Volunteer/Worker: community health aides selected, trained and working in the communities from which they come and who should be members of the communities where they work. They should be selected by the communities, should be answerable to the communities for their activities, should be supported by the health system but not necessarily a part of its organization, and have shorter training than professional workers.

Community Health Assistant (formerly Community Health Extension Worker): These are the community healthcare providers to whom the CHVs directly report. They are based at the community health facilities but work with/and oversee the CHVs performance in the community.

Community Midwife is a fully trained midwife who graduates from one of the recognized midwifery education programmes and is deployed to basic or comprehensive health centres. She is facility-based with outreach to the community.

Community Midwifery: It is the process of taking maternal services to pregnant women living in the community to assist them during pregnancy, childbirth and the postpartum period in their homes, manage minor complications and facilitate prompt referral when necessary with a backup referral mechanism to ensure speedy transfer to hospital.

Community Midwifery model: "the midwife in the community is the lead professional in the planning, organisation and delivery of care given to a woman from initial booking to the postnatal period"

Community own resource persons: the term includes any type of community health workers who are willing to work on voluntary basis.

Community strategy focal persons: Trained health care provider who is charged with the responsibility of the operations within the Community Health Strategy implementation

Essential Package of Health Services (EPHS): the **package** of services that the government is providing or is aspiring to provide to its citizens in an equitable manner.

Essential obstetric care (EOC): means professional medical and surgical **care** for pregnant women with a special focus on the delivery and immediate postpartum period.

Midwife: A person who, having been regularly admitted to a midwifery educational programme, duly recognised in the country in which the programme is located, has successfully completed the prescribed course of studies in midwifery and has acquired the requisite qualifications to be registered and/or legally licensed to practice midwifery.

Midwifery: The health science and health profession that deals with pregnancy, childbirth, and the postpartum period in addition to the sexual and reproductive health.

Model: A system or process that is a theoretical description that can help one understand how the system or process works, or how it might work.

Midwifery model of care: The process of providing the mother with individualized education, counseling and prenatal care, continuous hands-on assistance during labor and delivery, and postpartum support, by a midwife. It includes Monitoring the physical, psychological, and social well-being of the mother throughout the childbearing cycle,

Obstetrician: Medical doctors who specialize in pregnancy and childbirth care, especially in the management of high-risk pregnancies and pregnancy complications.

Obstetrical care: the practice of caring for women and their baby's health by an obstetrician through several stages of motherhood, beginning with prenatal care and ending with postnatal care. An obstetrician also provides obstetrical care during all three trimesters of pregnancy and labor.

Skilled birth attendants: Professionals with midwifery skills, such as midwives, doctors and nurses who have been trained to proficiency in the skills to manage normal (uncomplicated) pregnancies, childbirth and the immediate postnatal period, and identify, manage or refer complications in the woman and newborn

Skilled birth attendance: The process by which a woman is provided with adequate care by skilled attendants during labour, delivery and the postpartum period.

Sustainability: The occurrence of beneficial outcomes which are maintained for an agreed period at an acceptable level of resource commitment within acceptable organisational and community contingencies

Facility in-charge: The health care provider who is charged with the responsibility of running the health facility.

Sub-county public health nurse (SCPHN): A nurse who is in charge of the public health nursing issues at the Sub-county level and who is trained in public/community health nursing.

Women: The women in the community who had given birth within the previous 6 months

CHAPTER ONE
INTRODUCTION

1.1 Background

Childbirth is a major life event thus, it is extremely important to manage the care of pregnant women in an effective and safe manner, utilising best evidence where possible. The present debate on the normal model of maternity care and place in which to give birth is gathering momentum (Harvey, Rach et al. 2002). In many parts of the world, midwives are the primary providers of care for childbearing women. There are several ways to look after the health and wellbeing of women and babies during pregnancy, birth and afterwards; these ways are called 'models of care' (Sandall, Soltani et al. 2016). Midwifery is concerned with normal childbirth and the midwifery model of care is now being accepted by doctors as being the best choice for low-risk women. In many primary care settings, midwives have the main responsibility in caring for normal women in birth (Harvey, Rach et al. 2002).

The Midwives' Care includes monitoring the physical, psychological and social well-being of the mother throughout the childbearing cycle providing the mother with individualized education, counseling, and prenatal care, continuous hands-on assistance during labor and delivery, and postpartum support (Moghasemi, Vedadhir et al. 2018). Midwife led continuity models provide care from the same midwife or team of midwives during the pregnancy, birth and the early parenting period, and many women value this. These midwives also involve other care providers if they are needed. Obstetrician led or family doctor led models are not usually able to provide the same midwife/wives throughout (Sandall, Soltani et al. 2016). A team midwifery approach was examined in 12 studies done in Australia, the UK, China, Sweden, Ireland, Mexico and Canada, which found that care was delivered by a team of between four and 12 midwives in order to provide continuity. A team of just four would have to be increased to five or six in order to cover the 24-hour period adequately (Symon, Pringle et al. 2016). In other studies a caseload approach was adopted where one or more midwives were available for support when the caseload midwife was unavailable due to holidays, sickness, or caring for another woman in labour (Symon, Pringle et al. 2016). This approach aimed to provide continuity of care as well as care on a more one-to-one basis. The women were likely to have met both the caseload midwife and the back-up midwife/midwives during antenatal care, and were therefore unlikely to be attended during labour by an unfamiliar person. Caseload size per midwife ranged from 35–45

women at any one time, with midwives also providing back-up for colleagues(Symon, Pringle et al. 2016)

According to Friedman, in order to increase skilled birth attendance, developing countries must address human resources for health management. Developing countries with the poorest health indicators need to achieve appropriate coverage of facilities and have the minimum package of activities and the minimum required human resources for health for each level of the health system. These countries are also those affected by the most severe shortages of qualified healthcare workers (Friedman et al. 2015)

Globally an estimated 303,000 women and about 2.7 million newborns died in 2015 alone, most because of complications and illnesses that could have been prevented with proper antenatal, delivery, and postnatal care services provided by midwives (Li, Lu et al. 2018). Another 10 to 20 million women are estimated to annually suffer severe health problems, such as obstetric fistula, as a result of pregnancy and childbirth (Fauveau, Sherratt et al. 2008). Seventy-five percent of maternal deaths occur during and after childbirth, while the vast majority of maternal deaths and injuries are avoidable if only women had access to skilled health care before, during and after childbirth (Van Eijk et al. 2006). One of the objectives of the United Nations Millennium Development Goals (MDGs) was therefore, to reduce maternal mortality ratio (MMR) by 75% by the year 2015 (Teferra, Alemu et al. 2012) yet since 1990, maternal mortality had only reduced by 45% meaning that the target of 75% would not be reached by 2015 as expected. As a result, the date was pushed forward by the declaration of the Sustainable Development Goals (SDGs) whose SDG 3 states that *"by 2030, reduce the global maternal mortality ratio (MMR) to less than 70 per 100,000 live births*". In this instance, the two key indicators used to monitor the progress towards meeting the MMR target are the maternal mortality ratio and the coverage of skilled birth attendance (Adegoke and Van Den Broek 2009). The term skilled birth attendance refers to the process by which a pregnant woman and her infant are provided with adequate care during pregnancy, labour, birth and the postpartum, and immediate newborn periods, by a trained personnel, whether the place of delivery is in the home, health centre, or hospital (MOH 2014).

As a result of the concern for reduction of MMR, the first international meeting that focused on scaling up of the midwifery workforce at community level drafted a Call to Action for all countries with high Maternal Mortality Rate to embark on urgent and intensified action to scale up midwifery care at the community level (MOH 2005). Kenya was then one of the countries

with high MMR having been ranked 154 out of 177 countries in the UNDP Human Development Index, with over half the population living below the poverty line thus making it difficult for them to access skilled attendance due to lack of affordability. More effort was still needed in order to make any meaningful progress towards the attainment of the then MDG 5 which targeted achieving a significant reduction of maternal mortality ratio (MMR) to 147/100,000 live birth by 2015 (MOH, 2012). The Kenya Demographic Health Survey (KDHS, 2008/09) indicated that the maternal mortality ratio in Kenya had remained unacceptably high at 488/100,000 live births and that only 44% of births were attended by skilled birth attendants in spite of the high antenatal care attendance (92%) (MOH 2012). Skilled attendance at delivery was recognized as one of the most important factors in the prevention of maternal death. However, more than 50% of births in Kenya still occurred outside health facilities, supported by family members and/or traditional birth attendants (TBAs) (Kildea, Kruske et al. 2010, Kawakatsu, Sugishita et al. 2014). Reducing maternal mortality and disability would depend on identifying and improving those services that were critical to the health of Kenya's women, including antenatal care, emergency obstetric care, adequate postpartum care for mothers and babies, and services for family planning and sexually transmitted infections (STIs), including HIV/AIDS (MOH 2005). The Kenya Reproductive Health Policy released in October 2007 outlined priority actions for maternal and neonatal health, which included increasing access to skilled birth attendance for the poor and hard to reach women in the communities (MOH 2006). However, the proposals contained in the National Reproductive Health Strategy (NRHS) (1997-2010) continued to face numerous serious challenges which appeared to make the achievement of the Millennium Development Goals (MDGs) 4 and 5 by 2015 untenable. Strengthening of health systems was, therefore a requirement, in order that every pregnancy would be wanted and that all pregnant women and their infants would have access to skilled care; every woman would have access to a functioning health facility to obtain appropriate care when complications arose; and that every newborn would have access to appropriate care (NRHS, 2009-2015). It was also noted that the community systems had also been faced with the challenge of coping with the growing demand for care, in the face of deepening poverty and dwindling resources. This resulted in deteriorating trends in maternal health status throughout the country with unacceptable disparities between and within Counties (Mwangi and Warren 2009). Although many health facilities had improved the quality of care available, many women were still not

using the facilities for childbirth and still preferred to deliver in their own homes. This called for an approach that could address the issue of childbirth at home with the help of a skilled birth attendant. The community midwifery model was then the chosen approach to address this gap by ensuring that skilled care was available during pregnancy, labour and child birth and follow-up of both mother and baby done post-natally in the community (Mwangi & Warren, 2009).The community midwifery approach was therefore first piloted by the Division of Reproductive Health (DRH) and Population Council in some of the then provinces including Western Province, in 2005, in an attempt to address the existing low levels of skilled attendance at birth in particular. Guidelines and training materials for community midwifery were developed and mechanisms for linkages with existing MOH systems at Sub- County level strengthened. Four Sub-counties (Mount Elgon, Bungoma, Lugari and Butere Mumias) in the then Western province were among those selected for scale up of the approach (Mwangi, 2009). The overall goal of the community midwifery approach was to bring critical maternal health services to the community, through the services of skilled, community-based midwives, thus improving maternal, newborn and infant health. Due to the success of the DRH model of practice during the pilot stage, Kenya's Ministry of Health (MOH) formally commissioned the community midwifery approach in October 2006 (Liambila, 2012) and the roll out was expected to take place in all Sub-counties. However, to-date the maternal mortality remains high and the roll out of the community midwifery model was not done and therefore not implemented in most counties in Kenya including Siaya County.

According to a study done in Kenya by the World Bank in 2011, skilled birth attendance during childbirth remained below the expectation (44.3%) in spite of evidence that antenatal care attendance was high (92%). There were also regional disparities on who provided support during childbirth. As reported by the Safe Motherhood alert in 2005, in Central Kenya for instance, over 70% of the women delivered with the help of a skilled attendant compared to 28% in Western Province and 44% in Nyanza. The 2008-2009 Kenya Demographic and Health Survey also revealed that only 44% of deliveries were assisted by health professionals nationally while only 39.4% occurred in health facilities which indicated that there was very little skilled attendance provided outside the health facilities. In Siaya County, where the study was done, the County Health Information System (CHIS) of 2014 revealed that the proportion of deliveries attended by skilled attendants in the year 2013 was 58% and all these deliveries were conducted at the

facilities. The target for skilled birth attendance still remained lower than the then MDG 5 target of 75%.

Given that the proposed community midwifery model was not implemented yet there was dire need for reduction of maternal mortality, this study therefore wanted to assess the midwifery practice at the primary levels of healthcare in Siaya county and to determine the specific challenges in place and how best to address them in order to execute the good practices of the appropriate midwifery model. Primary health care (PHC) facilities are for many individuals the first point of contact with the formal health care system. These facilities are managed by professional nurses or clinical officers who are recognized to play a key role in implementing health sector reforms and facilitating initiatives aimed at strengthening community involvement (Nyikuri, Tsofa et al. 2015). They include households, community, dispensaries and health centres that fall under levels 1, 2 and 3 of the health care system.

The research questions in this study were therefore concerned with the midwifery practiced and the type of the model existing at the primary health care levels of the health systems.

1.2 Problem Statement

Despite considerable evidence showing the importance of midwifery services and the midwives' workforce, there are no systematic reviews outlining how these cadres are best supported to provide universal access and reduce health care disparities at the primary health care (PHC) level (Dawson, Nkowane et al. 2015). There are many midwifery models in use across the world, but little is known about the model in use in Kenya, an area that has prominent maternal and child health issues. Given that the community midwifery that was proposed by the Division of Reproductive Health was not rolled out in the counties, and therefore not implemented, it was still necessary that the community be provided with accessible, available, acceptable and affordable midwifery care. In other words, a midwifery service that is sustainable. A number of studies report that midwives want to work in models that offer the opportunity to work autonomously and to provide continuity to women across the continuum of maternity care, and that this opportunity may be an effective retention strategy for such midwives (Forster et. Al, 2011). A midwifery model of practice has advantages for many women because it avoids unnecessary interventions during labor, thus helping the process remain normal, as it also addresses needs that are often not adequately met by the medical management model (Sandall,

Soltani et al. 2016). There is therefore, the need to examine the identified midwifery practice model for its effectiveness and sustainability in improving skilled birth attendance, with subsequent reduction of mortality and morbidity.

Midwives can play a key role in empowering the community members and strengthening their involvement in their healthcare through knowing and understanding the health needs of local populations and targeting interventions to meet the wider determinants of health. However, there has been much debate about the clinical and cost effectiveness of the different models of maternity care and hence continuing debate on the optimal model of care for routine ante, intra and postnatal care for healthy pregnant women (Sandall, Soltani et al. 2016).

Information is deficient on how sustainable the functional midwifery practices are, and even less is known about the challenges to their sustainability. Yet without this vital information, mothers will continue to experience distress when it comes to accessing the full spectrum of midwifery services. Barriers to sustainable midwifery practice model have been studied before, but an information gap exists as to the status of these in Kenya and are regarded as key for improving child and maternal health. A worldwide systematic review on midwifery care in low and middle-income countries have argued that barriers for providing good midwifery care were created by social, economic and professional factors (Bremnes, Wiig et al. 2018) thus the need to explore the barriers and challenges the midwives face in their day-to-day practice, in the implementation of the functional midwifery in Kenya. It was therefore critical that midwifery practice at the primary health care level of the Kenyan health system be assessed to identify the model of practice and assess its sustainability and how best to address the barriers to the same.

1.3 Research Objectives

1.3.1 Broad Objective

To assess the midwifery model practiced in the Primary Health Care level of the health system for its effectiveness and sustainability.

1.3.2 Specific Objectives

The Specific objectives of the study were to:

i. Establish the midwifery practice model at the Primary Health Care level of the health system.
ii. Determine the effectiveness and sustainability of the midwifery model practiced at the Primary Health Care level of the health system.

iii. Identify the challenges to sustainability of the midwifery model practiced at the Primary Health Care level of the health system

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1.4 Research Questions

Based on the problem statement, the following questions to guide the study emerged.

i. What is the midwifery model of practice at the Primary Health Care level of the health system?
ii. How sustainable are the midwifery models practiced at the Primary Health Care level of the health system?
iii. What are the challenges to sustainability of the functional midwifery model practiced at the Primary Health Care level of the health system?

1.5 Justification and Significance of the Study

1.5.1 Justification of the Study

The midwifery model has advantages for many women because it avoids unnecessary interventions during labor, thus helping the process remain normal, and because it addresses needs that are often not adequately met by the medical management model. While sustainability is about the future of our society, it is also about the success of a programme to endure. It is therefore necessary to study the midwifery model of practice at the primary healthcare level for its effectiveness and sustainability as well as any challenges to the practice. This is also in line with the accessibility of the UHC and PHC among the communities. There is also a gap in the development of a generic midwife-led model for Kenya that has ever been rolled out and effectively implemented at the primary healthcare settings nationally. It is from this background that this study was justified. The findings from this study will form a basis for any future studies on the development of more midwife-led models and theories. It will also inform policies on the future interventions on effective and sustainable midwife-led model of practice at the primary health care levels of the health systems. The findings will also inform the Division of Reproductive Health and Siaya County health department as well as the other stakeholders on interventions to put in place for the improvement of the midwifery practice at the primary healthcare level. The information will also be used to influence the development of policies and strategies that will improve the uptake of the skilled birth attendance by the women of

reproductive age in line with the most emphasized primary health care service delivery. The results will also inform the policy makers on the most effective and sustainable midwifery model to implement.

1.5.2 Significance of the study

The Kenya Health Policy, which seeks to contribute to the attainment of Vision 2030 and provision of universal health care (UHC), aims at providing equitable and affordable health care of the highest affordable standard to all citizens. Siaya County consists of a more rural population that may not be able to access skilled attendance during childbirth as evidenced by 42% of unaccounted deliveries (Siaya CHIS, 2014). A midwife at the primary healthcare level is more cost-effective in terms of service fee by the community women as well as wages from the employer. They are also with the women all the time unlike the obstetrician-led or family doctor led models that are not usually able to provide the same midwife/wives throughout. This study hopes to assess the type of model being practiced bring out challenges facing the midwifery practice in Siaya and how best to address the challenges for possible upscaling in other counties in similar circumstances to achieve the desired levels of sustainability.

Insight into how nurse-midwives could be best placed and supported to deliver care to address the health needs of vulnerable groups at the primary health care (PHC) level, or the first level of contact, should inform the decisions of policy makers with respect to realizing efficient workforce and service planning to achieve health equity (Moghasemi, Vedadhir et al. 2018). The midwife (or equivalent) is a member of the chain of professionals, necessary for maternal health ranging from community to referral services, and is an important part of the solution to reduction of MMR because of their cost-effectiveness to both the women the County as well as other stakeholders compared with the physician led midwifery. Scale-up of midwifery resources is therefore a cost-effective way of increasing the rates of skilled birth attendance and reduce MMRs.

1.6 Assumptions of the study

This study holds the following issues as constant

i. Midwives are adequately prepared to manage women during childbirth without any surgical intervention.
ii. The facility midwives are available all the time

iii. The midwifery model of practice at the primary care level improves the uptake of skilled attendance.

iv. The practice of a midwifery service delivery had no challenges

CHAPTER TWO:

LITERATURE REVIEW

2.1 Introduction

This chapter reviews literature on midwifery practice models, their sustainability, effectiveness and challenges. The review should facilitate development of theoretical framework and a workable conceptual model for use as a basis for evaluating midwifery practice models in the study area.

The sources of the literature review included peer reviewed journal articles, articles in professional journals, appropriate textbooks, statistical data from government websites and website material from professional associations

2.2 Concept of Midwifery

The International Confederation for midwives (ICM) has a philosophy of midwifery in which it states that "Midwifery care takes place in partnership with women, recognizing the right to self-determination, and is respectful, personalized, continuous and non-authoritarian (ICM, 2014). Ethical and competent midwifery care is informed and guided by formal and continuous education, scientific research and application of evidence". Midwifery, according to ICM, encompasses care of women during pregnancy, labor, and the postpartum period, as well as care of the newborn. It includes measures aimed at preventing health problems in pregnancy, the detection of abnormal conditions, the procurement of medical assistance when necessary, and the execution of emergency measures in the absence of medical help. Midwifery is the profession of midwives, only midwives practice midwifery. It has a unique body of knowledge, skills and professional attitudes drawn from disciplines shared by other health professions such as science and sociology, but practiced by midwives within a professional framework of autonomy, partnership, ethics and accountability (ICM, 2014).

2.2.1 The Ideal Midwife

A midwife is a person who has successfully completed a midwifery education programme that is based on the ICM Essential Competencies for Midwifery Practice and the framework of the ICM Global Standards for Midwifery Education and is recognized in the country where it is located; who has acquired the requisite qualifications to be registered and/or legally licensed to practice

midwifery and use the title ‘midwife’; and who demonstrates competency in the practice of midwifery. According to the International Confederation of Midwives (ICM), Essential Competencies for Basic Midwifery Practice and the framework of the ICM Global Standards for Midwifery Education, a midwife must have successfully completed a midwifery educational program that is duly recognized in the country where it is located. What is more, a midwife must have acquired the requisite qualifications to be registered and/or legally licensed to practice midwifery and use the title "midwife", and demonstrate competency in the practice of midwifery (Li, Lu et al. 2018). Midwives are primary providers of care for childbearing women around the world (Sandall, Soltani et al. 2016). A midwife’s role in the care includes all aspects of reproductive health promotion whose outcome would be normal birth resulting to a healthy mother and baby. Other roles include the detection of complications in mother and child, accessing medical care or other appropriate assistance and the carrying out of emergency measures for the benefit of the women. She/he has an important task in health counseling and education, not only for the woman, but also within the family and the community. A midwife may practise in any setting including the home, community, hospitals, clinics or health units (Thompson, Fullerton, & Sawyer, 2011). According to the Swedish Association of Midwives, the midwife's field of work includes women's sexual and reproductive health viewed from a life cycle perspective. They provide both preventive and medical care measures as limited by the laws of the land. They are also responsible for midwifery research, development, and education (Li, Lu et al. 2018).

Midwives are primary health care providers whom clients may choose as their first point of entry to the maternity care system. As primary health care providers, midwives make autonomous decisions in collaboration with their clients and are fully responsible for the provision of primary health services within their scope of practice. They coordinate services to ensure continuity of care, identify conditions requiring management outside their scope of practice and refer such cases to other providers (Scurfield 2002). In addition to being primary care providers, midwifery care is shaped by five basic principles: continuity of care (or carer), informed choice, community-based, choice of birth setting and evidence-informed practice (Fairbairn 1921)

In Sweden, for instance, the midwife's work is of great importance for public health (Li, Lu et al. 2018). Midwives in Sweden take care of male and female patients, children, teenagers, and

adults. They independently handle normal pregnancy, labor, and aftercare, and they have the authority to prescribe drugs for birth control purposes. A study done by Li et al (2018) noted that all countries provide for the scope of practice of midwives in the following respects: an autonomous environment, the object of care, the period of care involved, and emergency treatment. Most midwives had prescribing rights related to gynecology and obstetrics and that consultation was also an important task for midwives. Most midwives worked not only in hospitals but also in community, home, and other maternity services for female, infant, family, and even male and teenaged patients, and provided sexual and reproductive health consultations from a life cycle perspective.

In Australia, as in many developed countries, public maternity care has traditionally been fragmented, with different groups of caregivers providing care at different stages. In a typical example, a woman may have her antenatal care provided by one or a number of medical practitioners or midwives, and the care may be hospital or community based. In standard care models, labour and birth care is often provided by a midwife unknown to the woman and in more than 95% of cases takes place in hospital (Forster, Newton et al. 2011)

The foregoing literature contributes to the current study by providing variables to assess the type of midwife practicing in the community around Siaya county. A gap is however left regarding the extent to which the midwives operating within Siaya exhibit these qualities in the process of implementing the model they have knowingly or unknowingly adapted. This gap in literature was filled by the current study.

2.3 Midwifery Practice Model

A model of care is a multidimensional concept that defines the way in which health care services are delivered whose development and evaluation is entrenched in a desire to improve patient and organisational outcomes. Thus, it can be seen to be informed by quality improvement (QI) principles (Davidson, Halcomb, Hickman, Phillips, & Graham, 2006). Health professionals are continually evaluating models of care in their search for more efficient service delivery and improved client outcomes. The Midwives Model of Care is based on the fact that pregnancy and birth are normal life processes and includes monitoring the physical, psychological, and social well-being of the mother throughout the childbearing cycle and providing the mother with individualized education, counseling, and prenatal care, continuous hands-on assistance during labor and delivery, and postpartum support. It also includes minimizing technological

interventions and identifying and referring women who require obstetrical attention. The application of this woman-centered model of care has been proven to reduce the incidence of birth injury, trauma, and cesarean section (Force, 1996).

Midwife managed care models have various advantages for mothers and babies; they bring about a high level of satisfaction among pregnant women, reduction of undesirable outcome for mothers and babies, and empowerment of women (Moghasemi, Vedadhir et al. 2018). The care means that doctors are only involved in the event of a complication else there are consultant-led care (Pitchforth, Watson et al. 2008). Sometimes, an obstetrician or another doctor is the lead healthcare professional and at other times it is a midwife. Sometimes, the responsibility is shared between obstetricians and midwives (Sandall, Soltani et al. 2016). One of the models is called 'the midwife led continuity model'. This is where the midwife is the lead professional starting from the initial booking appointment, up to and including the early days of parenting (Sandall, Soltani et al. 2016).

2.3.1 The ICM Model of Midwifery Care

ICM recognises midwives as the professionals of choice for childbearing women in all areas of the world. This universal standard is based on initial and ongoing midwifery education that is competency based. ICM promotes the midwifery model of care based on respect for human dignity, compassion and the promotion of human rights for all persons. Midwifery-led care models have various advantages for mothers and babies as they bring about a high level of satisfaction among pregnant women, reduction of undesirable outcome for mothers and babies, and empowerment of women (Moghasemi, Vedadhir et al. 2018).

The ICM Model of Midwifery Care stipulates that: midwives promote and protect women's and newborns' health and rights; midwives respect and have confidence in women and in their capabilities in childbirth; midwives promote and advocate for non-intervention in normal childbirth; midwives provide women with appropriate information and advice in a way that promotes participation and enhances informed decision-making; midwives offer respectful, anticipatory and flexible care, which encompasses the needs of the woman; her newborn, family and community, and begins with primary attention to the nature of the relationship between the woman seeking midwifery care and the midwife.; Midwives empower women to assume responsibility for their health and for the health of their families; midwives practice in collaboration and consultation with other health professionals to serve the needs of the woman,

her newborn, family and community; midwives maintain their competence and ensure their practice is evidence-based; midwives use technology appropriately and effect referral in a timely manner when problems arise.; midwives are individually and collectively responsible for the development of midwifery care, educating the new generation of midwives and colleagues in the concept of lifelong learning.

The foregoing literature points to an ideal model of midwifery care that provides the study with variables against which to compare the models on the ground.

The midwifery model has advantages for many women because it avoids unnecessary interventions during labor, thus helping the process remain normal, and because it addresses needs that are often not adequately met by the medical management model (Rooks 1999). According to the American College of Nurse-Midwives, benefits of receiving midwifery care include: Decreased risk of needing a cesarean, reduced rates of labor induction and augmentation, reduced use of regional anesthesia, decreased infant mortality rates, and decreased risk of preterm birth. Midwife-led continuity of care may be defined as care where the midwife is the woman's lead service provider, but one or more consultations with medical staff are often included as part of routine practice as appropriate (Hatem, Sandall et al. 2013). Midwifery continuity of care is taken to mean that care is provided by the same midwife or by a small group of midwives who will care for the woman throughout her pregnancy and labour as well as after delivery.

The Midwives Model of Care assumes that pregnancy and birth are normal life processes. The model includes: monitoring the physical, psychological, and social well-being of the mother throughout the childbearing cycle and providing her with individualized health education, counseling, and prenatal care as well as giving continuous hands-on assistance during labor and delivery, and postpartum support. The model also minimizes technological interventions during childbirth and the midwives are able to identify and refer women who require further obstetrical attention that they may not be able to offer (Force 1996).

According to Tracy (2005), the maternity has become a primary service facility offering 24-hour midwifery care for women having uncomplicated pregnancies and birth and has the capacity to respond to unexpected emergencies that may arise during the course of normal labour and birth (Tracy, Hartz et al. 2005). In view of this, midwife led continuity models aim to ensure support for women in the achievement of healthy pregnancy and birth, enabling women to receive care

from a known and trusted midwife during the pregnancy, birth and early parenting journey (Hatem, Sandall et al. 2013). It is therefore provided in a multi-disciplinary network of consultation and referral with other care providers as appropriate and consequently, contrasts with medical-led models of care where an obstetrician or family physician would primarily be responsible for the woman's care. In shared-care models, responsibility is shared between different healthcare professionals (Hatem, Sandall et al. 2013).

In order to reduce maternal mortality, coordinated and long-term efforts are required, and appropriate interventions are therefore needed within families and communities, in society as a whole, in health systems, and at the level of national legislation and policy (Costello, Osrin et al. 2004). A continuum of care is also needed throughout pregnancy hence efforts should focus on building capacities at individual and family levels for the improvement of the outcome trends. This was confirmed by the community based interventional studies which were done in India and Guatemala where as a result of capacity building, neonatal mortality rate and infant mortality reduced by 25% and 85% respectively (Wangalwa, Cudjoe et al. 2012).

Recommendations from a study done in Australia suggested the development of new models of care that provide continuity, increasing collaboration between midwives, obstetricians and general practitioners and moving antenatal care to community settings. Despite reviews and recommendations, widespread change in the provision of maternity services and the development of new models of care did not occur (Homer, Davis et al. 2001)

The International Confederation of Midwives (ICM) has developed a core document that outlines the organization's model of midwifery care with an underpinning philosophy of care. According to Eri et. al (2020), there appears to be a gap in the overview of existing models and no overview of existing scientifically-developed theoretical models for midwifery care has been published (Eri, Berg et al. 2020). Overall, scarcity exists in relation to theoretical models for midwifery care with explicit epistemological status, contrary to the existence of many descriptions of ways of organizing care that are not epistemologically underpinned. This might be because of the recent and relatively short history of scientific theory-development and research in the field of midwifery care. Midwifery has been seen as a profession that does practical work (Eri, Berg et al. 2020). Homer (2016) in one of her projects, identified the major categories of models of care, including midwifery models of care that provide continuity of care. Midwife-led continuity of

care models include midwifery group practice caseload care, team midwifery care and private midwifery care (Homer 2016).

The main focus of strategies to increase skilled birth attendance in East and Southern Africa had been to provide comprehensive antenatal care, ensure that pregnant women were prepared for the birth and that obstetric care provided within facilities was strengthened. Access to care was expected to be improved by training and enabling mid-level and lay health workers to perform specific interventions that were otherwise being provided by cadres of workers with longer and/or more specialized training (Mushi 2010).

The key elements of effective implementation of midwifery model among the communities in Mtwara included training of safe motherhood promoters (also known in PHC as CHVs), conducting home visits, educating pregnant women and their husbands and key community members about danger signs and complications of pregnancy. The home visits to pregnant mothers were also carried out in order to inform them on early and complete ANC visits and the importance of a birth preparedness plan with the aim of promoting skilled birth attendance (Mushi 2010). Community input is fundamental to the development and evaluation of midwifery practice across all settings. Community participation must be structured into the midwifery system during the development and ongoing planning of midwifery services and education. This would be achieved by: Facilitating ongoing community input into midwifery practices in all sites (e.g. community forums, community boards, formal liaison with consumer organizations, consumer representation on governing body), each and every client being able to give input at some level (e.g. client evaluation care) each midwife being responsible for soliciting client and community input (e.g. client evaluation of care), education about the role of community input at all levels incorporated into the education of midwives (e.g. public representatives on advisory committee(s); consumer participation in the teaching of midwives) (Scurfield 2002). The education and training, as well as the socio-culturally diverse composition of the midwifery workforce, may facilitate the appropriate delivery of relevant health care and promote health equity among distinct populations. Therefore, the design and implementation of midwifery care models must correspond with the culture, beliefs, and knowledge native to each region and with constant protection of security and cultural safety of mothers during childbirth (Dawson, Nkowane et al. 2015).

In the British Columbia, a study done in 2013 showed that women who left their communities to receive essential maternity care suffered increased stressors and health risks for both the mother and baby, and also significantly increased costs to the families and the provincial health care system. It was felt that there was need for the community and the health systems to work together to find solutions to meet the maternity care needs of communities within their provincial government's economic plan. So far awareness of midwifery in Columbia has grown and more women are exercising their right to choose their maternity care provider, consequently increasing the demand for midwifery services (MIDWIVES 2014).

In Sri-Lanka while delivery at midwifery clinics was encouraged, midwives also attended the majority of rural home births during this time. In order to facilitate community partnerships and promote the use of midwives' services in rural areas, home deliveries and antenatal care provided by government midwives were free of charge. Once midwives had completed their training, they were deployed to a Health Unit, and were responsible for overseeing maternal healthcare within designated public health maternity areas that served a population of 3,000 to 5,000 each (Farooqi 2009).

In Kenya the implementation of any health programme is based on the key concepts and principles stipulated in the provision of health care as noted in the National Health Sector Strategic Plan II (NHSSP II). The concepts and principles encompass access, coverage, quality, safety, equity, effectiveness, efficiency, life cycle approaches, rights-based approaches/client centred services, and sustainability. The implementation of the midwifery practice model was expected to achieve the same. Consistent with the Kenya Essential Package for Health (KEPH), the community strategy concept recommends the delivery of maternal and newborn health interventions at the primary level of healthcare.

2.3.1.1 Caseload Model

This is a Midwifery Group Practice (MGP) which enables women to be cared for by the same midwife (primary midwife) supported by a small group of midwives throughout their pregnancy, during childbirth and in the early weeks at home with a new baby. In this model a group of midwives work alongside each other with individual caseloads and provide back-up and support for each other thus working in a midwifery group. The midwives tend to construct on-call arrangements to maximize the opportunity for them to be present during labour period of the

women for whom they are the primary care providers (Homer, Passant et al. 2009). It is different from 'team midwifery' where a team of midwives take the responsibility for an agreed number of women each month.

Maternity care should ideally be based on collaboration and cooperation across all levels of health service provision and the care needs to address social, emotional and cultural health needs, and be as close to families as possible (Tracy, Hartz et al. 2005). The aim of caseload midwifery is to provide women with the same midwife (or small group practice of midwives) to look after them, from the time of booking into the prenatal care clinic through until the time they are discharged from care at about six to eight weeks following the birth of the baby (Henderson, Hornbuckle et al. 2007). The role of midwives can be enabled to provide comprehensive, quality care within a collaborative team that includes women, community and medical colleagues. The service provision should be reorganized to match the needs of the mother through the provision of caseload midwives and midwifery group practices across the country (Kildea, Kruske et al. 2010). Caseload midwifery care is offered in a collaborative manner between hospital and community, and the caseload midwife is on-call for extended periods of time. A group practice of six to eight midwives is able to allocate caseloads evenly, provide mutual support, a forum for peer review of practice, and back-up in times of crisis such as sickness or long periods of sleeplessness (Tracy, Hartz et al. 2005). Midwives opting for caseload practice recognize the need to engage in continuing education as a means of capacity building for continuing professional development and some would require mentoring until they become familiar with managing the change of practice (Kildea, Kruske et al. 2010)

2.3.1.2 Team Model of Care

In a Team model, midwives provide total care for a defined number of women. Forty women per year per midwife and 40 back-up cases are generally considered a full time caseload, with an allowance for annual leave. The primary midwife provides antenatal, labour and postnatal care for the same woman. When complications arise at any time during the pregnancy or birth there is a defined mechanism for consultation and referral, through guidelines specifically designed to assist in this process (Kildea, Kruske et al. 2010). Each team midwife works with an associate midwife, and both get to know the women in each other's caseload to cover for time off. This model came from the concept of midwives with individual responsibility for providing continuity of care to a specified number of women, working within a supportive group of midwives. It

provides individualized midwifery care from a primary skilled attendant and it is mostly hospital based (Homer, Passant et al. 2009).

2.4 Sustainability of Midwifery Practice Model of Care

The concept of sustainability in public funded health care embraces questions of what is socially and ethically acceptable, or how societies decide what they can afford. One key to a sustainable health care system is a healthier population, while living sustainably is about living within the means of one's natural systems (environment) and ensuring that lifestyle does not harm the society and their culture (Open Sustainability, 2013).

Sustainability can also be defined as the durability and permanence of a programme or project results at the end of the project and the expiration of the technical cooperation with a donor or sponsor (Mugenda and Mugenda 2012). It indicates that the system or service can be maintained at a steady state without exhausting the resources available to support it. It involves concepts such as long-term cost-effectiveness, maintenance of quality, equity of resource allocation and so on ((MOH 2011). While sustainability is about the future of our society, it is also about the success of a community program to endure. The three key attributes of sustainability are the benefits that are produced over time for individuals and populations, the contingencies which cause the benefits, and the costs of the program resources that are required to achieve them. Programmes could be judged as unsustainable because sufficient benefit was not produced, the contingencies which cause outcomes could not be produced or maintained and the cost of the programme resources required to achieve the benefits were too high (Kornelsen 2007). For a health care delivery system to be sustainable it would need to be accessible to all, financially viable and delivered with little impact to the environment (Open Sustainability, 2012). It would be critical to recruit and retain high quality health personnel with efforts made to recruit individuals locally and provision made for extensive and on-going training for capacity building (Jorgensen et al 2010). Long-term political commitment is an essential prerequisite for sustainability of a programme. When decision-makers at the highest levels are resolved to address maternal mortality, the resources needed would be mobilized and the essential policy decisions would be taken. Without this level of commitment over the long term, projects cannot become programmes and activities cannot be sustained (Costello, Osrin et al. 2004). A supportive social, economic, and legislative environment allows women to overcome the various obstacles that limit their access to health care, such as distance from their homes to appropriate

health facilities, lack of transport and, more critically, financial and social barriers. Proper maternal health care is limited when women have to pay for services and essential drugs, and when they must bear substantial hidden costs such as time lost for housework, paid employment, food production, and child care. Legislation that supports women's access to care must be formulated to permit health workers at the periphery of the health system to perform specific life-saving functions. Failing this, only highly skilled health professionals, based largely in urban centres, could provide such care, and only women with sufficient money and the means to reach such centres could benefit from it (Costello, Osrin et al. 2004). The community midwifery model in Australia had extra costs in on-call and postnatal home care, but these were much smaller than the savings in other areas. Savings mostly arose from reduced demand on services other than primary midwifery care and were largely due to the preventative and early intervention characteristics of care (Homer, Matha et al. 2001). In a study done in Zambia it was observed that for any intervention, for improving maternal health care, it was important to know whether it was sustainable, scalable and cost effective (Johri, Ridde et al. 2014).

According to the Kenyan Health System Technical Learning Aid, sustainability requires designing and implementing models of health financing that are affordable, ensures cost containment, and special consideration for special groups. It focuses on 2 areas namely, local responsibility and viability which is the sustainability of systems, the generation and/or preservation of demand for health services, and the willingness to practice healthy behaviors which is sustainability of demand. Systems sustainability consists of financial sustainability, institutional capacity and an enabling environment while the demand sustainability considers the ability of the clients to pay and attitude. Financial sustainability in health systems is measured by having enough reliable funding to maintain planned health services and whose sub-elements include resource mobilization and efficient allocation and use of Resources. Institutions with well-developed systems are more likely to remain viable in the future than institutions without systems. The capacity is therefore measured by the presence of institutional systems that are likely to be used and sustained even when changes occur in institutional staffing. The current effective use of the systems is an indicator of the quality of services and the sustainable institutional capacity indicators are defined under categories that include planning and management, human resources, information systems, and logistics systems. The sustainability of demand focuses on sustaining a sufficient level of demand to maintain the uptake of health

services and outcomes at acceptable levels and how well demand is sustained as local resources replace donor support. The dimensions of demand sustainability should be monitored to include: ability to pay, protection mechanisms, attitude, community support, behavior change communication and willingness to pay/use (MOH 2011).

Sustainability must be supported through low resource use by minimizing unnecessary interventions, offering community based primary health, supporting health promotion through local foods, food access and breastfeeding and engaging in environmentally-friendly clinic practices. Programmes are sustainable when physical and social contingencies can be arranged to achieve better health outcomes which maintain over time at an acceptable level of disruption to established benefits. Programmes are also sustainable when the costs of reallocating resources are justified by the health benefits that are achieved (Kornelson 2009). Costello (2004) observed that health facilities and community committees could be established to help identify and implement strategies for improvement in areas such as referral, emergency transport, deployment and support of healthcare providers, and cost-sharing for the effectiveness of community midwifery model of care. Among the aborigines, it was observed that for the effectiveness of the midwifery model, the skilled attendants and other key professionals had to be supported by the creation of an enabling environment that included policy support, access to basic supplies, drugs, transport and relevant emergency obstetric and newborn health care (Kildea, Kruske et al. 2010).

2.4.1 Accessibility of The Midwifery services as measure of Sustainability

One way in which sustainability can be measured is through enhanced accessibility by way of home visit programs. Access is a measure of the ability of a person to receive health care services. It defines the capacity, and the factors that influence the entry into or use of the health care system. It also relates to geographic, economic, social, cultural, organizational and linguistic barriers. Good access is a prerequisite to high utilization of health services as it brings services closer to the people and makes them cheaper. It is measured in terms of availability, geographical accessibility, affordability, adequacy and socio-cultural acceptability

2.4.2 Acceptability of the Midwifery services as a measure of Sustainability

2.4.2.1 Acceptability through Involvement of Community Health volunteers

Community participation is an essential part of health service delivery in developing countries where community health volunteers have been used in a number of programs ranging from large to small scale initiatives to encourage community involvement and to compensate for the severe shortages of health professionals in the health sector (Sakeah, McCloskey et al. 2014). Community Involvement is an indication of acceptability, which contributes to sustainability of any initiative.

In Zambia, in 2003, Safe Motherhood Action Groups were established as part of a national safe motherhood programme. The aim was to mobilize communities in order to improve the health of women, men and children and reduce the number of human immunodeficiency virus infections (Johri et al. 2014). Internationally, health authorities have recognized the key role community members play in service delivery in the sub-Saharan African countries thus engaging them in the implementation of the health care programmes. It was important to note that community participation is a useful tool in accelerating the attainment of the MDGs thus the community had to be engaged to greatly help make progress towards MDG 5, in order to improve maternal health (Sakeah et al. 2014). However, Costello et.al. on the other hand noted that the long-term commitment of politicians, planners, and decision-makers to safe motherhood programmes depended on community popular support and therefore the input from a wide range of groups and individuals was essential, including community and religious leaders, women's groups, youth groups, other local associations, and healthcare professionals (Costello, Osrin et al. 2004). Health facility and community committees can also be established to help identify and implement strategies for improvement in such areas as referral, emergency transport, deployment and support of healthcare providers, and cost-sharing (Costello et al., 2004).

Scurfield noted that community input is fundamental to the development and evaluation of midwifery practice across all settings. The evaluation promotes community ownership and therefore acceptability. Community participation must be structured into the midwifery system during the development and ongoing planning of midwifery services and education. This would be achieved by: a) Facilitating ongoing community input into midwifery practices in all sites. (e.g.community forums, community boards, formal liaison with consumer organizations, consumer representation on governing body) b) Each and every client being able to give input at

some level. (e.g., client evaluation care) c) Each midwife being responsible for soliciting client and community input. (e.g., client evaluation of care) d) Education about the role of community input at all levels incorporated into the education of midwives. (e.g. public representatives on advisory committee(s); consumer participation in the teaching of midwives) (Scurfield 2002). In Burkina Faso, NGOs like Family Care International have mobilized village chiefs and traditional leaders to visit women in their communities and urge them to give birth in a local clinic where skilled care can be received. Clearly, there is no single model that has been used to increase skilled attendance internationally (MOH 2008-09).

2.4.2.2 Acceptability through Community Involvement in Health Information Documentation

Acceptability (or Socio-Cultural Access) is one dimension of access looks at how well the characteristics of the individual service providers are in line with the clients' expectations. The health services need to take into consideration local cultural and social values, and the providers must command a high level of trust and respect from the community in order to gain their confidence. Socio-cultural barriers associated with low literacy levels, religious beliefs and gender bias hinder access to health services, especially by women, children, and adolescents, the disabled and other vulnerable groups. Recognizing this problem, there is need to make the provision of healthcare services more humane, respectful, compassionate and dignified. Targeted measures include ensuring privacy in the course of service delivery, especially for women and youth. Involvement of the community in as many aspects as possible, including health information documentation serves to enhance acceptability, and therefore sustainability.

2.4.2.3 Acceptability through Satisfaction with and Uptake of the Services

A study done on the reduction of maternal and perinatal mortality in rural Burkina Faso showed that the use of health professionals together with community participation in providing maternal and child care significantly increased institutional births and reduced maternal and perinatal deaths (Sakeah, McCloskey et al. 2014). Another study done in Tanzania between 2004 and 2006 demonstrated effectiveness of community-based safe motherhood intervention in promoting the utilization of obstetric care and skilled attendance at birth, and attributed the improvement to community participation through home visits, and the close collaboration with

existing community structures as well as health services (Mushi 2010). Fulfillment theories state that a person's satisfaction is determined by the outcome of the experience. For example, research looking at satisfaction with maternity care suggests that the following dimensions are important: staff-woman interaction, information, involvement in decision making, pain relief, and birth environment (Sawyer, Ayers et al. 2013). Owing to considerable gaps in services, understanding maternal perception of care and satisfaction with services is important in developing countries that emphasize on increasing service availability and maintaining acceptable standards. Maternal perception of care and satisfaction with services is important in this regard as perceived quality is a key determinant of service utilization. Users who perceive the quality of care in a health center to be good are more likely to visit it again thereby increasing demand for services (Srivastava, Avan et al. 2015). In a study done by Morgan to compare two midwifery models, midwifery led schemes based on both models were acceptable to women. The study also observed that more important determinants of quality and women's satisfaction were the approach and consistency of care, good communication, and participation in decisions (Morgan, Fenwick et al. 1998).

2.4.3 Availability of the midwifery Services as a Measure of Sustainability

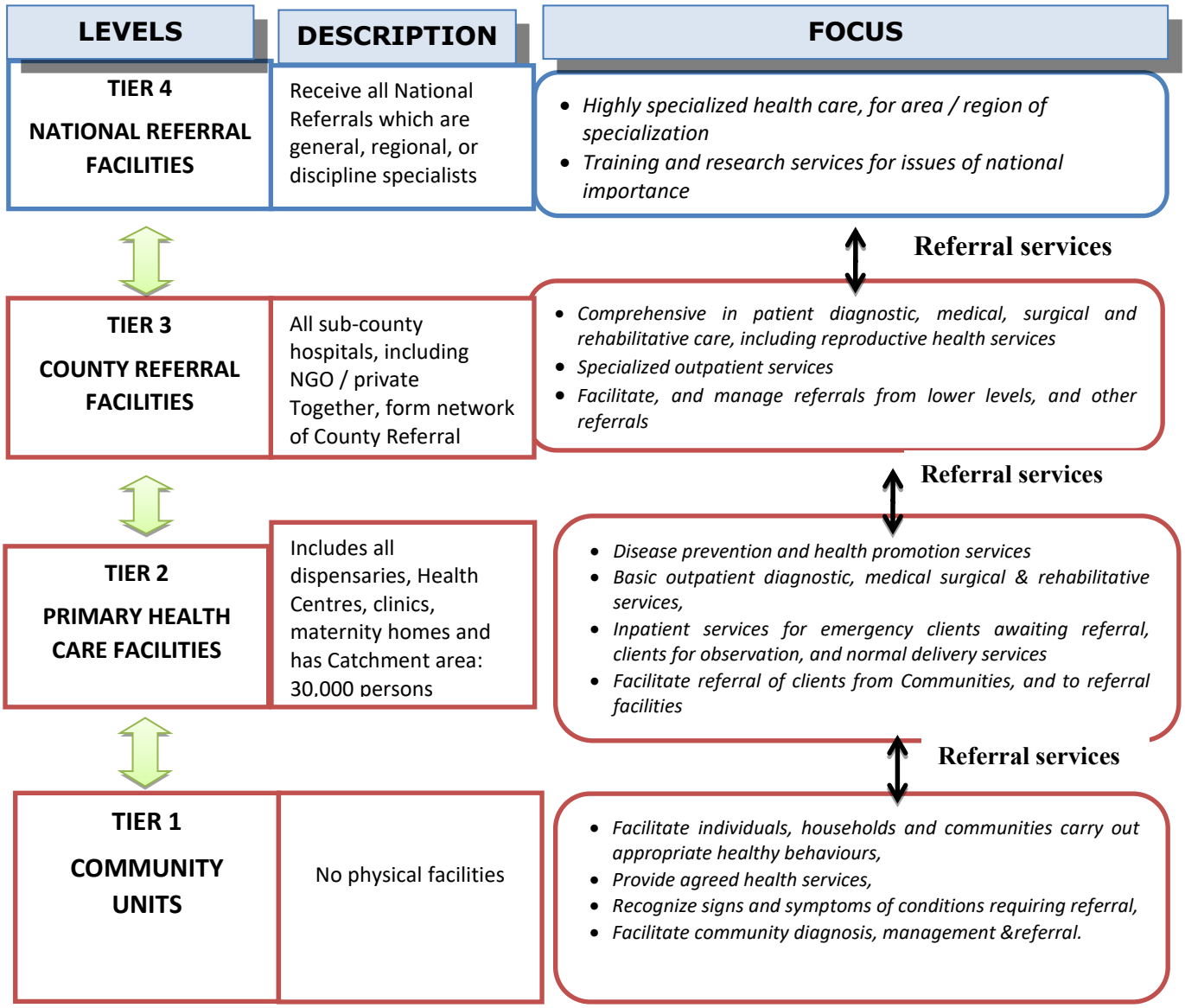
Provision of quality maternal and newborn care, perhaps more than any other service, is a litmus test for a functional health system. It requires locally accessible and affordable 24 hour provision of highly skilled staff able to make rapid life-saving decisions with access to proper facilities, supplies, and support personnel (Swerissen 2007). In Australia where midwives had made the change to caseload practice, some of the key principles to sustainability were reported as: the ability to make meaningful relationships with aboriginal women, offering continuity of care, the occupational autonomy and flexibility and support at home and work.

2.4.3.1 Facility Type

The manner in which a health system is organized and managed can either help or hinder sustainable service delivery. Health systems are organized in different ways in different countries. In Kenya they generally follow government administrative levels namely: national, county or regional, sub-county and community. Health care services are generally organized on the basis of the type and level of health care Services provided. Other aspects of organization include

management structures, service delivery, integration of service provision and the way services are organized in health facilities. These different aspects are described in Figure 2.1.

Figure 2.1: Description of the Kenya health systems levels



SOURCE: Adopted from the Technical Aspects of Leadership and Management for Health System Managers' Training (2011)

2.4.4 Management Structures at Health Centre and Dispensary

The management teams at health centres and dispensaries are composed of an officer in-charge, who is usually a clinician, a public health nurse and a public health officer. At community level, there are no formal management structures with the health facilities providing the supervisory

function. The link person between the community and Tier 2 facilities is called a Community Health Assistants (CHAs), [previously called Community Health Extension Workers (CHEWs)]. The other people involved in the management of community interventions include CHC/VHC, CHVs who are charged with the following responsibilities: Collecting vital community-based health data, mobilizing and accounting for local resources, initiating formal and non-formal education on healthy lifestyles, acting as a link between community and health facility staff; initiating and participating actively in health-related activities at household and community level (for example, community transport for patients) and developing mechanisms for sustainability of CHVs and CORPs. They also Initiate and work to strengthen all local health development initiatives, with other government sectors.

Integration of care is important and means that one health unit with one team in the community takes care of all health problems of this community through curative, rehabilitative, preventive and promotive activities. Every contact with individuals, households and communities is used to ensure this set of activities and this is done by the help of the CHVs. Community Involvement is expressed in people taking responsibility for their own health; it provides them with a sense of ownership of all that they undertake relating to their health. Being involved includes both individual participation in the health activities of the health unit, and collective participation through management of the health facilities. The establishment of health committees and the setting up of principles of community financing within the system are examples of how this collective involvement can take shape.

2.3.3.2 ANC Coverage

Coverage encompasses aspects of improving the range of services and the population that is able to benefit from the services. The actual services and their characterization are defined in the access dimension as described earlier. Once these are defined, the health service would focus its efforts on how much the population is utilizing these services. As such, coverage is a measure of the level of utilization of the available health services. It is a function of both access (availability) and use (acceptability) of services. The major focus of improvement in coverage is on extending the defined package of services to more population groups. Adequate coverage is attained when there is universal coverage by the service. Generally, different programme interventions are therefore measured by the level of coverage with the services they are providing. Coverage is measured in terms of both the level attained (numbers of clients receiving the defined service)

and the equality of distribution (persons receiving the service based on their need). Distribution of the coverage is critical to understanding the challenges to sustaining services. These aspects of service coverage then become an integral part of the principle of equity.

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2.3.3.3 Availability of Skilled Staff and midwifery Guidelines

Availability looks at how well the defined health services meet the needs of the clients/target population. The services should provide the health care interventions that address those needs. In the primary healthcare setting, availability of skilled staff and guidelines for operations are both important.

2.3.3.4 Staff Competence

Competence of both the facility staff as well as community health volunteers serving as midwives is an important aspect of sustainability through ensuring availability of appropriate services. In the context of a study done on the midwifery model, sustainability was meant to enable something continue to exist, whilst maintaining the integrity of the mental and physical wellbeing of the agent (McAra-Couper, RGON et al. 2014). To ensure both effective and sustainable businesses, CHWs must be trained and deployed locally for personalized door-to-door interactions promoting demand for health services through referral and follow-up (Swerissen 2007)

2.3.3.5 Training of Midwives

Competence comes with both practice and training. It contributes to sustainability by ensuring that staff have the skills to remain relevant in the services they are providing. Midwives who opt for caseload practice also recognized the need to engage in continuing education and some would require mentoring until they became familiar with managing the change of practice (Kildea, Kruske et al. 2010).

2.4.5 Effectiveness as a Measure of Sustainability

In the maternity sector there is considerable debate about which model of care provides the best outcomes for women, while being sustainable in the organisational setting. There is also evidence that in addition to safe maternity care, women want choice, control and continuity, and that increasingly, consumers of maternity services want greater access to midwifery led models of care and the opportunity to know their caregiver (Forster, Newton et al. 2011).

Effective health service delivery adheres to a set of globally recognized principles and depends on having some key resources in place: motivated staff, appropriate equipment, information and finance, and adequate drugs (MOH, TLA 2011). Effectiveness is the ability of the model to achieve the expected outcome of increased skilled birth attendance. This in itself is a measure of sustainability. It aims to ensure that the interventions we prioritize are the ones that give our clients the best possible health outcomes. It is measured after the functioning of individuals or groups following an intervention either by routine epidemiological data based on record keeping or surveillance. The intervention should be able to restore the health of the client to as near normal a position as is feasible. Thus, in selecting interventions service providers would pick the one that would achieve the best health outcome at the lowest cost (MOH, CLA 2011).

With changes in policy processes to emphasize country ownership, funding harmonization, and results-based financing, the capacity of countries to implement services urgently needed to be strengthened. The implementation effort should focus on specific steps for strengthening the capacity of the district health system to convert inputs into functioning services that are accessible to and used by all segments of the population (Freedman, Graham et al. 2007).

Effectiveness can be measured by noting the situation of individual, group, or population before the intervention as well as afterwards to assess the positive change in the situation in this case the intervention was the community midwifery model of practice (MOH, 2011 TLA). Outcomes are not always easy to measure due to the difficulty in valuation of outcomes; some programs may

be measured using units of intermediate output like access to service, coverage of the program. These measures indicate effectiveness in extending service provision. A diverse range of consequences must be valued in order to assess the health impact of programs. These include: Changes in health status, Savings in expenditure on treatment or Economic returns from increased productivity (MOH, 2011 TLA). According to Sandall, Midwife-led continuity models of care contributed to improving quality and safety of maternity care at no additional cost. She also noted that women who received care in these models were more likely to have effective care, a better experience, improved clinical outcomes, improved access to care by women who found services hard to reach and better co-ordination of care with specialist and obstetric services. Midwives also provided services for all women across all settings, whether women were classified as high or low risk and evidence showed improved outcomes with no adverse effects in populations of mixed risk. In addition improved birth outcomes resulted where care was provided in obstetric units, although it was clear that women planning to give birth in midwife-led birth settings had fewer intrapartum interventions including caesarean section (Sandall, Soltani et al. 2013);(Sandall, Hatem et al. 2009).

In Palestine, the positive change in facility-level outcomes showed that clinics with the midwifery model in the regions of Nablus and Jericho improved services during pregnancy and during postnatal period. The findings indicated the improvement of uptake and some quality indicators linked to facility-level outcomes, such as continuity, functioning referral system and postnatal home visits (Mortensen, Lukasse et al. 2018). According to the MOH (2012) maternal and Newborn Health-strengthening of maternal death review by development of guidelines, increased access to obstetric fistula services, and increased access to skilled attendance at delivery through the community midwifery programme (MOH, 2012). Findings from a recent study in Kenya showed that community midwives had now improved clients' access to a comprehensive package of RH/HIV services. These are: ANC, delivery, post-natal care services including long-term family planning methods, HTC among other. The results also showed that although the majority of women in the reproductive age group were interested in receiving services from community midwives, few of them were willing to pay for the full cost of these services. For instance, over 90% of clients were interested in receiving delivery services from community midwives, and yet only 15% of previous clients and 8% of potential clients were willing to pay for the modest increases in the current prices (Ouma et al. 2010).

2.4.6 Affordability as a Measure to Sustainability

Globally, public spending on health from domestic sources has been on an upward trend since the year 2000 (Mwangi 2019). The economic crisis brought an unprecedented attention to the issue of health system sustainability in the developed world. The discussion, however, has been mainly limited to "traditional" issues of cost-effectiveness, quality of care, and, lately, patient involvement. Not enough attention has yet been paid to the issue of who pays and, more importantly, to the sustainability of financing (Liaropoulos and Goranitis 2015). Evidence from Canada, where health is financed mainly through taxation, suggests that patient satisfaction, hospital performance and health outcomes were maintained despite the financial strain. However, in Greece, Social Insurance historically covered approximately 40 % of health care cost. In the face of severe unemployment (27 %) caused by 25 % GDP contraction, reliance on employer-employee contributions proved an inadequate funding base for health care. (Liaropoulos and Goranitis 2015). Given that most of Kenyan communities are rural and therefore, would not afford healthcare, the government has put in place the Universal Health Care policy to assist the more poverty-stricken community. The Kenyan context, like in Canada and Greece therefore relies on the government for health financing. It is therefore imperative that affordability of midwifery services be studies as a measure of sustainability.

Affordability or Financial Access to Care is a dimension concerned with how much the clients can afford to pay for the services. Again, the services may be appropriate and within geographical access to the clients, but the cost of accessing them may be beyond the reach of the clients. Economic barriers to access include low household income, low prioritization of health care at household level and low allocation of state resources to the health sector. Kenya's health care financing measures to date include introduction of the National Health Insurance Fund (NHIF), review of the cost-sharing strategy, community pre-payment schemes, and development of criteria for the rationalization of allocation of public funds. The MDGs acknowledged the need to improve the availability of affordable health services to the world's poor.

2.5 Challenges to Sustainability of Midwifery Models

Irrespective of how good a model is on paper, there are bound to be challenges when put to the test in application. this is no different when it comes to midwifery models put in practice. They have the potential to deliver results sustainably, but the path is littered with challenges.

2.5.1 Challenges to Accessibility of the Midwifery services

In Kenya, the findings of a study done to evaluate effectiveness of community health strategy in Busia showed that continuum of care throughout pregnancy, childbirth and postnatal period was key in improving maternal and newborn health in order to reduce maternal and child morbidity and mortality (Wangalwa, et al., 2012). However, promoting change in maternal and newborn health (MNH) behaviour was challenging due to knowledge barriers and service delivery gaps, traditional cultural beliefs and practices, lack of social support networks, financial constraints and inaccessibility of health units. Many women attended antenatal care (ANC) only once to get an ANC card, and they perceived traditional birth attendants (TBAs) to be effective care-givers. Maternal and neonatal danger signs were usually first treated with herbs, and women and caregivers only seek medical care when the condition worsens (Wangalwa, Cudjoe et al. 2012). A study done in Kenya by Ouma et al (2010), noted that common reasons for home deliveries by women included long distances, high cost of hospital fees and uncooperative staff in some health facilities. Geographical Access to Care is a dimension concerned with whether the location of the supply of services is within the range of the clients. The system may provide the proper services based on need, but the service delivery points may not be placed where the clients can make use of them, because of long distances, lack of transport among others. Geographical access is determined by the distribution of facilities, the availability of public transport and the effectiveness of referral systems. Insufficient healthcare services and poor collaboration with other service providers are also considered as they have exacerbated poor geographical access to health services. Imbalances in geographical distribution of health facilities relate to the numbers and types of facilities available, with some areas having disproportionately more facilities than others. Lack of defined norms and standards for infrastructure development largely explains the inequity. Geographic access may be measured by modes of transportation, distance, travel time or any other physical barriers that could keep the client from receiving care. Poor transport services resulting from inadequate ambulances, low budgetary provisions and poor preventive maintenance are a major barrier to accessing health care.

2.5.2 Challenges to Acceptability of the Midwifery services

If the service is not adequate it poses a challenge to its acceptability by the community.

Adequacy is a dimension that looks at how well the organization of health care meets the expectations of the clients. At times, services are organized in a manner that hinders access. For example, the services may be available at times when clients are not (they are out farming, for example), or a service may be placed in a location at the facility that the clients are not comfortable using, for example, men may not want to come to the same clinic that serves their wives and children; Or a vertical approach to service provision may require a visit to the child health clinic one day and a general visit another day. This calls for integration of services to allow having one stop-shop kind of services throughout the week.

2.5.3 Challenges to Availability of the Midwifery services

Health care systems in resource poor settings face multiple challenges. The most common include insufficient drugs and diagnostics, inadequate knowledge or capacity to provide the most effective treatments, and limited information on patient characteristics or history. Of these, perhaps the most critical is the need for a sound and dependable patient information system (Jorgensen et al 2010). The Indonesian Government's strategy of a midwife in every village clearly brought high quality obstetric services closer to women. However, one of the key challenges that faced the Government then was how to sustain the extensive village based midwifery program, and how to increase access to specialized care for the few women needing it (Ronsmans, Endang et al. 2001).

A study done by Chanza et al in Malawi identified four main factors that determined home deliveries as long-walking distance to a health facility (78%); lack of financial support while in hospital (52%); hostile behavior of health personnel towards women in labour (40%) and traditional beliefs (31%). It also found that there was need to provide bicycle ambulances to each group village headman for easy transportation of pregnant women to health facilities, create awareness of birth preparedness and complications, upgrade existing primary health care centres to provide emergency obstetric and neonatal care services and empower the women financially through income generating activities (Chanza, Chirwa et al. 2012)

In a study to measure the process and impact of implementing nursing guidelines on delivery of care in hospitals it was observed that there were two unique strategies applied to guideline

implementations that resulted in improvements in more than 50% of the maternal and child health indicators. Lack of time and workload considerations were reported as barriers across all guideline implementation initiatives. Cost considerations such as staffing for increased workload due to new procedures recommended in the guidelines were critical for decision-makers (Davies, Edwards et al. 2008). A study done in Ontario, Canada about the impact of implementing nursing-oriented best practice guidelines on the delivery of patient care in either hospital or community settings, it was observed that lack of time and workload considerations were also barriers across all guideline implementation initiatives. Cost considerations such as staffing for increased workload due to new procedures recommended in the guidelines were critical for decision-makers (Davies, Edwards et al. 2008).

2.6 GAPs Identified

There are many midwifery models of practice including those described in the literature. In Kenya little is known about the midwifery model being practiced at the basic levels of health care systems in spite of the one proposed by the DRH, Ministry of Health, which was not rolled out nationally as expected. According to the models described in the literature above, there is need for Kenya to develop its model that would benchmark with the rest of the world. Little is also known about the status of the sustainability features of the model that is in practice. Finally, literature is scant on the challenges faced in the sustainability of the models and practices on the ground in Siaya County of Kenya. These gaps in literature gave direction to the study.

2.7 Theoretical Grounding for the Study

The theoretical grounding for the study was drawn from the Health Systems Strengthening Conceptual Learning Aid of 2011. This model provided the study with a template displaying the likely relationship between the variables. In particular, it pointed to the indicators for measuring sustainability. The Health Systems Strengthening Conceptual Learning Aid of 2011, was used in training of health systems managers. The principles can be grouped into two categories namely those related to intermediate outcomes and those related to final outcomes. Intermediate goals of the health system, access, coverage, quality and safety are the basic principles around which the system's building blocks should be managed. In addition, the focus of the outcome/goal of the health system also provides additional principles of efficiency, equity, effectiveness; ethics, sustainability and client centred (rights-based) services. The principles of service delivery that affect intermediate outcomes includes access, coverage, quality and safety while those affecting

final outcomes include efficiency, equity, effectiveness, rights-based approach, ethics and sustainability. Financial Access, Geographical Access and Adequacy and availability are important factors in determining a sustainable health system. The same applies to acceptability (socio cultural access) and affordability of the service and adequacy in terms of meeting the needs of the client are similarly factored in as critical to sustainability.

2.7.1 Quality of Healthcare Services

These are services conforming to requirements or fitness for use. The degree of quality is a measure of the extent to which the care provided manages to achieve the most favourable balance between risks and benefits. To measure quality the services are normally characterized into three categories namely: structure (the personnel, equipment, buildings, record systems, finance, supplies and facilities); process (all aspects of the performance of activities of care); and outcome (the end results of care/service). All these three categories need to be considered to obtain a balance of quality. The quality of care also includes issues such as availability or non-availability of supplies/drugs; staff with the required skills or not; or the quality of patient–provider communication and interaction. These are obviously very important ingredients for a proper, technically sound provision of services. It also encompasses process elements (the production process of services) such as the tools necessary for the resources to be effective and efficient that includes guidelines and instruments to ensure rational performance, and result elements. Measurement of quality of service delivery, therefore, needs to take into consideration all its dimensions and ensure it is differentiated from quality of care. However, quality of care in this context refers to the characteristics of the health care system that enable it to take care of clients, taking into consideration all their socioeconomic and medical dimensions. The system approach to quality of care refers to health care as it is delivered in a functional system. These systemic qualities of care include relevance, continuity, integration and comprehensiveness.

27.2 Relevance and Acceptability

Health care must take into consideration the demand for care and respond to the real and priority needs of the population. It should be rooted in the cultural and social reality of communities and integrate user satisfaction elements into the health care service delivery. The continuity of care means that a functional referral and counter-referral system should exist to ensure referral services for a sick person or a person at risk who needs it. Included here is the active follow-up

of certain patients/persons at risk because of the critical need to do so for the individual's own sake and/or for the community at large. Community involvement is therefore a critical component.

2.7.3 Safety of Health Services

Safety is a principle that aims to ensure that the care provided does not become, in itself, a cause of ill health. Patient safety aims to limit/eliminate preventable adverse effects of care, whether or not these are evident or harmful to the patient. In this case the women should be empowered with information regarding the consequences of non-skilled attendance. The safety may be measured in terms of variations in health care provider training and experience, fatigue, and provider burnout. Safety of care may be compromised due to, among others, the health system failures which include an overall mismatching of investments in the system that lead to compromised patient safety. These include factors such as: poor communication, unclear lines of authority amongst the care providers; increased patient-to-health-worker staffing ratios; disconnected and weak reporting and accountability systems; fragmented referral systems in which numerous hand-offs of patients result in lack of coordination and errors; environment and design factors for example, in emergency situations where care may be rendered in areas poorly suited for safe monitoring; and infrastructure failures.

2.8 Conceptual Model for the Study

The literature and models reviewed in this chapter facilitated the development of a conceptual model to guide the study. Drawing and modifying items from the CLA (2011) model, the study was guided by a model in which the independent variable was the Midwifery Model, the dependent variable was sustainability while the proximate and modifying variables were the distal factors affecting midwifery practices, and the challenges to sustainability, respectively. The conceptualized relationship between these variables is diagrammatically presented in figure 2.3.

Figure 2.3: Conceptual Model for the Study

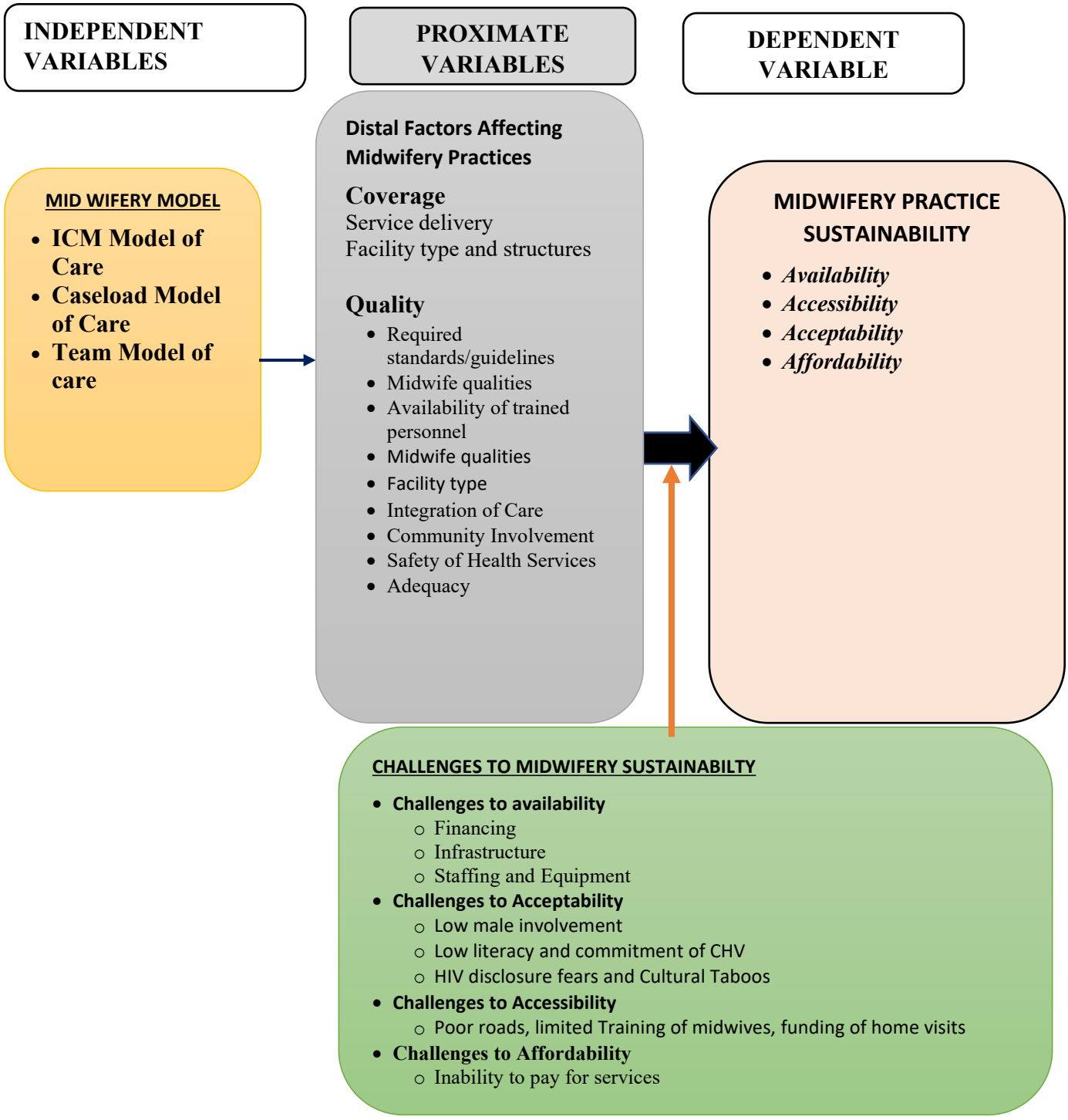
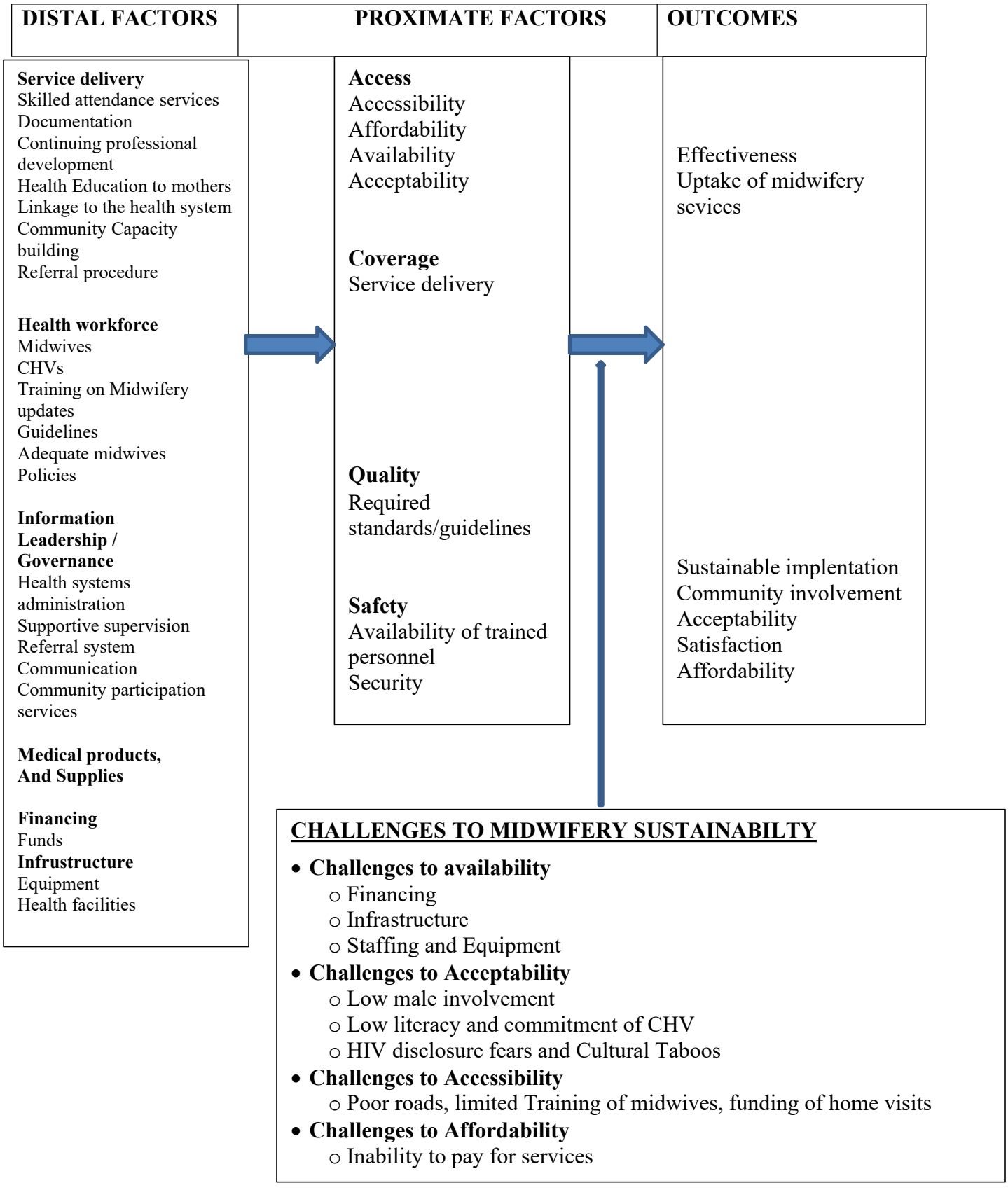


Figure 2.2 OPERATIONAL CONCEPTUAL FRAMEWORK



CHAPTER THREE

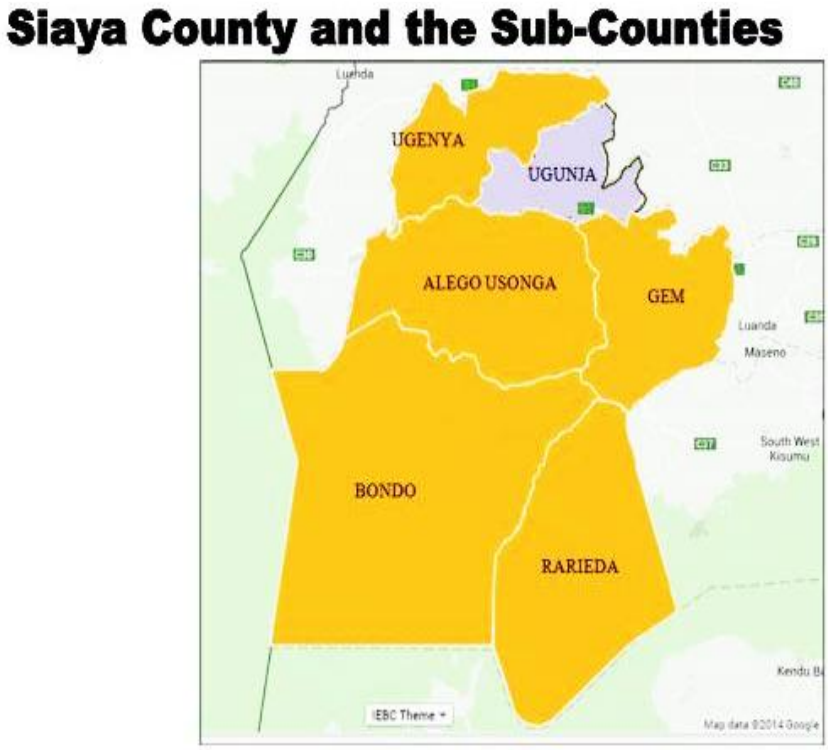
MATERIALS AND METHODS

3.1 Study Site

The study was carried out in Siaya County of Western Kenya. Siaya is one of the counties in the Lake Victoria region and borders Busia County to the North, Kakamega County to the Northeast, Vihiga County to the East, Kisumu County to the South East with Lake Victoria to the South and West. It covers an area of 2,530 Km^2 with a total population of 993,183 out of whom 211648 (23%) were women of reproductive health (15-49 yrs) (Siaya county 2019). The vast majority of the population here are members of the Luo community whose main means of livelihood is through subsistence farming and fishing.

The region was chosen because of its high non-skilled birth attendance rate (42%) and high rates of non-postnatal check-ups (59%) (DHIS, 2013). The study concentrated on four sub-counties of Ugenya, Ugunja, Gem and Alego Usonga out of the six sub-counties of Siaya County. These sub-counties were conveniently selected because of their proximity to each other for logistics re. Siaya County has 124 health facilities with 2 County referral Hospitals, 3 Sub- County referral Hospitals, 83 Dispensaries, 26 Health Centres and 10 other institutions. Figure 3.1 shows the map of Siaya County. The study population included the Sub- County public health nurses, the health facility administrators who took part in in-depth interviews, the midwives working in the health facilities and the women who had given birth within the previous 6 months. The midwives had self-administered questionnaires while the women had structured interviews using questionnaires.

Figure 3.1: MAP OF SIAYA COUNTY



Source: Google Maps. The bright grey part of the map is Siaya Count

3.2 Study Design

This was a descriptive cross-sectional study that used both quantitative and qualitative approaches of data collection. The quantitative data was collected from the interviews while qualitative data was obtained from the Key informant interviews and focus group discussions (FGDs). The study also used checklist and observations as well as review of documents as appropriate.

3.3 Sample Size Determination

According to Practical Tools for International Development publications a minimum sample size is 10% of a population of less than 1000 (tools4dev.org, 2014). However, this would produce insignificant sample size of facilities for some sub-counties. The investigator therefore, decided to take 30% of the health facilities in the selected sub-counties for the study since the total population for the facilities was less than 1000. This was used to provide a convenient sample that was not too small and not too large to be unmanageable for the investigator yet still give the

required results. The calculation on table 3.1 was done to ensure the proportionate distribution of the sample sizes for the health facilities.

Table 3.1: The sample of facilities per county

SUB-COUNTY	No. of facilities	30%
Ugenya	14	4
Ugunja	12	4
Gem	31	9
Siaya	31	9
TOTAL	**88**	**26**

The formula for Fisher *et al* [1998] was used to determine the sample size for the community respondents (mothers). i.e **$n= Z^2pq/d^2$.** The formula was used because the population of post-natal mothers for the previous year (2013) before the year of study was above 10,000.

Where **n** was the required minimum sample size, **Z** was the normal standard deviation set at 1.96 which corresponded to 95% CI, **p** was the population proportion of mothers attended to by skilled attendants i.e. 58%. **q (1-p)** was the proportion of non-skilled attendance and **d** represented the degree of accuracy set at 0.05. Therefore, the sample size of the mothers in the community was calculated as follows:

$$n= (1.96^2) (0.58) (0.42)/0.05^2$$

$$n=374$$

To ensure the proportionate distribution of the sample size for the women, the sample per Sub-County was calculated as per Table 3.2. The calculations were against the total number of deliveries per the selected sub counties in order to get the percentages. The investigator first calculated the proportion of the deliveries per sub-county then used the percentage to calculate the required sample size per sub-county. The proportionate quota sample of mothers for every sub-county was distributed as shown in Table 3.2.

Table 3.2: The sample size for the community women respondents

Total deliveries in 2013 = 13570 n=374

SUB-COUNTY	No. of deliveries	% of total deliveries	n
Ugenya	1803	13	49
Ugunja	1888	14	52
Gem	4060	30	112
Alego-Usonga	5819	43	161
TOTAL	**13750**	**100**	**374**

At the health facilities, all nurse-midwives were interviewed while the key informant interviews were held with the nurse/midwives in charge of the said sampled health facilities and four sub-county public health nurses. Four FGDs were held with 10-12 community health volunteers who were conveniently and proportionately selected from all the health facilities of study.

3.4 Sampling Method

The study involved a multi-stage sampling method that first, purposively selected four out of the six sub-counties in Siaya County, based on the ones most exhibiting the characteristics of interest to the study. From the sampled sub counties, the health facilities were sampled using systematic random sampling. The health facilities were listed and given numbers making the lists act as sampling frames for each county. The Kth element was then calculated by dividing the sub-county facility population by the required sample size in order to give interval for selection within the list. The populations and the sample sizes of the sub-counties were as shown in Table 3.1. This was followed by purposively selecting the required sample of the women who had given birth in the previous year and who had resided within the sampled health facility catchment area for a minimum one year. The mothers were systematically sampled from the selected facilities until the required quota was reached, with the help of their respective community health volunteers and the community strategy focal persons. This was necessary because the study was concerned with women who had delivered in the previous one year regardless of where they gave birth. The community health volunteers were selected by their

respective community strategy focal persons who are the overall community healthcare supervisors, answerable to the Sub-county public health officer (SCPHO). All nurse midwives who were involved in the provision of midwifery services took part in the study using self as study respondents. All nurse/midwives who were in charge of the health facilities were interviewed. The CHVs who participated in the four FGDs were purposely selected through their respective health facilities that had been sampled, and consisted of 12 CHVs per FGD. This was done by the community strategy focal persons who worked with them and were conversant with those that were actively involved in the activities within the community in the last one year, as evidenced by the health facility midwife in charge in consultation with the community strategy focal person. These would therefore be able to give the required information.

3.5 Inclusion Criteria

The study respondents included:

- All nurse/midwives in the health care facilities who provided midwifery services and who had worked in the facilities for a minimum of six months.
- Sampled community health volunteers who provided community health services in the villages served by the selected health facilities.
- Women who lived in the communities within the coverage of the selected health facilities and who had given birth within the previous year prior to the study.
- Women who had resided in the community for a minimum one year
- Respondents who were willing to participate in the study.
- The nurse/midwives who were in charge of the sampled health facilities of study and who had been in-charge for a minimum of six months.

3.6 Exclusive Criteria

- All nurse-midwives who have worked in the facilities for less than six months.
- Women who were not living within the coverage of the selected facilities.
- Respondents who were unwilling to participate in the study.
- Women who had lived in the community for less than a year.
- Nurse-midwives who were not providing midwifery services.
- Women whose children were older than one year.

3.6 Study instruments

The study employed quantitative and qualitative data tools.

3.6.1 Semi structured Individual Questionnaire

This was used to collect quantitative data from the midwives who worked at the health facilities. They were self-administered. Questionnaires were also used to collect information from the mothers. The questionnaires consisted of both closed and open ended questions.

3.6.2 Key Informant Interview Guides

These were used for in-depth interviews to obtain in- depth qualitative information from the county public health nurses and the midwives in charge of the health facilities. The questions were open ended with probes. They were arranged according to the themes of the study.

3.6.3. Focus Group Discussion Guide.

This tool was used to collect qualitative data from the sampled community health volunteers. It was designed to capture ‘why’ and ‘how’ of the phenomena under investigation, It consisted of open ended questions with probes, also along the themes of the study as informed by the specific objectives.

3.6.4 Observation Checklist

This tool was used to verify and supplement the collected data . it was used to help assess the availability of the appropriate midwifery practice implementation requirements.

3.7 Data Collection

Enumerators were recruited from the healthcare providers to help in data collection while community health volunteers were recruited to assist with the identification of the women in

their respective households. The CHVs also assisted in the translation of the questions as appropriate. They had one day training on the instruments to ensure that they understood the questions as well as measuring the validity of the instruments. The importance of collecting accurate information was emphasized to them and a pretest of the questionnaires was done on respondents who were not to participate in the study. This was done in the facilities that were not part of the study in order to avoid any bias. Data collection from the mothers was done within the community while the health care providers were interviewed at the health facilities.

Self-administered questionnaires were issued to all skilled birth attendants involved in the provision of midwifery services at the health centres, while the sampled women who had given birth within the previous year were also interviewed using questionnaires. The women were interviewed at their respective households as directed by the community health volunteers. Review of the records from the service area was also done for verification of information as well as checking availability of midwifery requirements using check-lists. The questionnaires used to interview community mothers were translated into Luo which is the local language, which is the local language, for ease of communication. The data was collected in the communities served by the sampled health centres. Self administered questionnaires were given to the head of the facilities and the skilled attendants working in the said health facilities. This was done concurrently with the review of facility records using the checklists as study guides. The KIIs were also held with the sub-county public health nurses and the heads of the selected health facilities using KII study guides. Focus group discussions were held with four groups of community health volunteers who were selected from the selected health facilities. The data from the mothers was collected from the homesteads by the enumerators, with the help of the community health volunteers as their guides to the homes.

The information was obtained from both quantitative and qualitative data. Quantitative data was obtained from closed-ended items in the questionnaire while qualitative information was obtained through KII with the administrators of the facilities as well as holding FGDs with the CHVs. This was necessary in order to supplement the quantitative information. The verbatim responses are therefore noted as part of the results

To measure the implementation of the midwifery practice, there was need to first find out the midwifery being practiced the Sub-counties. The level of implementation of the midwifery practice was assessed by interviewing the administrators, healthcare providers and clients. In addition, it was also assessed qualitatively using KII and FGD methods. The administrators interviewed included the sub-County public health nurses, the administrators of the health facilities using KIIs. Focus group discussions were also held with the community health volunteers since they were the community health workers on the ground. The skilled attendants working at the facilities and the mothers who had infants were also interviewed using questionnaires. The effectiveness of the functional midwifery practice was assessed by interviewing administrators, health workers and clients in the study area. We looked mainly at the uptake of the midwifery services and the short-term outputs of the practice. Sustainability of the practice was also assessed qualitatively. This was to determine whether the practice was feasible and that it could be sustained in the study area.

3.8 Validity

Validity refers to the accuracy of the information in a study and is broadly concerned with the soundness of the study's evidence. It is defined as the extent to which the study instruments captured what they purported to measure. In this study the validity was ensured through the triangulation of methods whereby both qualitative and quantitative methods of data collection as well as review of records and checklists, were used. The study tools were also pretested in the communities that were not included in the sample in order to prevent any sensitization of the study respondents. This was done in order to prevent any biases that would affect the validity and reliability of the study. The questions were then reviewed and scrutinized in order to identify any ambiguity and unclear questions for purposes of improving the outcome of the results. The data collected during the pretest was then entered into the computer using SPSS version 24 and correlation of the variables was done and the accuracy of the measure was set at the significance level of 0.005 (2-tailed). The items that failed to measure the variable intended were modified and others discarded. Expert advice was also sought from the supervisors who critically examined the items of the instruments and gave professional advice that found a basis for the modification and improvement of the instruments.

3.9 Reliability

Reliability refers to how consistent a research procedure or instrument is. It therefore, means the measure to which research instruments yield consistent results or data after repeated trials as well as the ability of the replicability of the study elsewhere. To ensure the reliability of the instrument the enumerators were trained and taken through the study tools to ensure they understood the questions and how to ask the questions on them.

Pre-testing of the instruments was then done by the enumerators immediately after the training, in areas whose respondents were not part of the samples of the actual study. The pretest was done on 10% of the study sample, in an area that was not included in the study to avoid contamination of data. After the pre-test data collection, the review of the tools was done together with the enumerators for purposes of appropriate correction in order to ensure accuracy and consistency in the data collection and understanding of the questions by both the enumerators and the respondents before exposing the tools for the actual data collection. This ensured the standardization of the data collection. Reliability test was done through Cronbach's coefficient using SPSS version 24, and the output showed a Cronbach's Alpha of 0.86530 which was above 0.7 thus considered reliable.

3.10 Data analysis

Questionnaires were reviewed immediately after field work in order to allow for any omissions to be corrected while still in the field. Coding was done, as appropriate, before data entry into the computer. Manual data cleaning was done before the analysis and quantitative data was entered into the computer using Statistical Package of Social Sciences (SPSS) version 24 while qualitative data was transcribed and analysis done using Atla.ti software. The analysis started by looking at the health workers recruitment as well as their training on the midwifery practice as well as the presence of any guidelines documented to facilitate implementation of the model. The analysis was aimed at measuring the level of implementation, effectiveness and the sustainability of the functional midwifery model. The variables used to measure implementation were the availability of the guidelines, sensitization and training of the midwives, availability of adequate skilled birth attendants at the health facilities as per the model requirement. To measure the implementation of the practice, there was need to first find out whether the stipulated midwifery model was being practiced. The variable used to measure effectiveness was the community's

uptake of skilled birth attendance while sustainability was measured from the community involvement, satisfaction with the services of the CHVs and the midwives, the acceptability of the functional model by both the community and the midwives and the affordability for both the community and the health system.

Since the CHVs were responsible for collection and documentation of the community health information they were asked about the chain of command in terms of documentation. Chi-square test, where the cell counts were less than 5 were used to test association as was necessary and statistical significance was considered if $p < 0.05$. Fisher's exact test was used to determine if there was any statistically significant difference in the model implementation between the sub-counties. Associations were reported in terms of unadjusted odds ratios (OR) with 95% confidence interval (CI). Statistical significance was determined if $p < 0.05$. The qualitative data was obtained from the KIIs and from the FGDs, and was transcribed and analyzed using the thematic method. It was grouped into different categories/themes consistent with research objectives and deduction and generalization made using patterns and trends of the responses.
The results were presented using tables, graphs and pie charts as appropriate while the qualitative results were presented using extracts of the themes.

Table 3.3: Matrix for analysis

Objectives	Data needs	Data sources	Data collection methods	Data Output
Midwifery Model in pratice	Availability of adequate Midwives. Guidelines, Trainings, deliveries by SBAs. Training on a Midwifery practice, Availability of resources, supportive leadership.	SCPHNs, Midwives, CHVs Mothers SCPHNs	KII, FGD, Questionnaires	Standardised Mid-wifery practice in place
Sustainability of the practice	Availability, Accessibility and Acceptability of the practice evidenced through: Community satisfaction Community involvement Affordability Capacity building of the women, uptake of the midwifery services, skilled attendance	Women, CHVs, Midwives Facility In-charges SCPHNs	KII, FGD, Questionnaires	Community satisfaction and acceptability of the practice and midwives. Affordability by both community and the health system, consistency of resources
Challenges to sustainability of the Midwifery pmodel in practice	Health systems Financial support Community based challenges Individual challenges	CHVs, Midwives Facility In-charges SCPHNs	KII, FGD, Questionnaires	Successful midwifery practice

3.11 Ethical and logistical issues

Approval to carry out the research was given by JOOUST Board of Post Graduate Studies while ethical clearance was sought from the Ethics Review Board of Jaramogi Oginga Odinga Teaching and Referral Hospital (JOOTRH) after-which permit to collect data in Siaya county health facilities was obtained from the County Director of Health Services (CDHS). Consent was sought from the respondents before the interviews began and they were assured of their security and confidentiality regarding the information they provided. The benefits of the study were also explained to them. The information was kept anonymous and under strict confidentiality deserved during and after analysis.

CHAPTER FOUR

RESULTS

4.1 Midwifery practice model in Siaya County of Kenya

The results in this subsection are for the first objective which was to determine the nature of the midwifery models in practice in Siaya county of Kenya.

4.1.1 Study characteristics

4.1.1.1 Facility baseline information

As detailed in Table 4.1, all the 23 facilities were government owned, 11 (48%) of which were health centres serving a population of between 5,000 to 10000 people and 10 (46%) were dispensaries. Bed capacity for those with in-patient facilities was determined for each regardless of the facility type. There were health centres with higher bed capacity especially those that were yet to be upgraded to tier 3 status. Ante-natal care (ANC) coverage was 50-99% in 11 (48%) of the facilities (Table 4.1). Sixty five percent (65%) of the facilities reported coverage of 50-99% of skilled deliveries. Forty-eight (48) skilled healthcare providers from the selected study healthcare facilities were interviewed, out of whom 36 (75%) worked in health centres while 12 (21%) worked in dispensaries.

In order to establish whether the Sub-counties had the capacity to implement a Midwife-led practice, the staffing of the skilled birth attendants was also assessed. As shown in Table 4.1, the skilled workforce consisted of registered midwives 14 (29%), registered community health nurses 19 (40%), Enrolled community health nurses 13 (27%). Slightly more than a third of these healthcare providers 18 (41%) had 0 – 5 years of work experience, while 16 (36%) had between 6 and 15 years of work experience leaving 10 (23%) of very senior midwives. To aid in implementation of the model, there were some requirements to be met and the most important ones were that the midwives be trained on the practice and capacity building on midwifery competencies be stepped up. On the assessment of the availability of any pre-requisites for the implementation of a Midwife-led practice, it was observed that there was no orientation on the midwifery-led practice prior to the implementation was given. There were no documented midwife-led model guidelines available in 5 out of the 23 facilities. The services that supported the practice were also observed in all the 23 facilities. These determine the capacity of the facilities to be able to offer comprehensive midwifery services. They included maternity, family

planning and child health services. It was also noted that 75% of the facilities managed some complicated deliveries.

Table 4.1: Facility information

Information		Facilities (n = 23)	Proportion (%)
Facility type	Hospital	1	4
	Health Centre	11	48
	Dispensary	11	48
Population served by facility	<5000	4	18
	5000 – 10000	10	46
	>10000	8	36
ANC attendance per month		8	35
	< 50		
	50 -99	11	48
	> 100	4	17
Delivery Coverage per month			
	< 50	6	26
	50 -99	15	65
	> 100	1	4
No. of Beds per facility	0-5	11	48
	6-10	7	30
	11-20	3	13
	>20	2	9
Staffing:			
From health centres		36	75
From dispensaries		12	25
Registered Midwives		14	29
Reg. Community Health Nurses		19	40
Enrolled community health nurses		13	27
Midwifery practice Requirements			
Training on midwife-led practice		0	
Presence of guidelines		5	22
Availability of midwifery services		23	100
ANC			
FP		23	100
Child health services		23	100
Care of complicated deliveries		16	70
Maternity services at night and weekend		2	9

4.1.1.2 Health facility baseline information by Sub County

The facility baseline information analysis by Sub-County in Table 4.2 showed the distribution of facilities by each selected sub-Counties. Ugenya and Ugunja had fewer facilities sampled since they had correspondingly fewer facilities when compared to Alego Usonga and Gem sub-Counties. Looking at the bed capacity it might be observed that the facilities in Alego Usonga and Gem had higher bed capacity than Ugenya and Ugunja sub-Counties. It is also observed that Ugenya and Ugunja rated lower than Alego Usonga and Gem in both facility distribution and the ANC coverage while Ugunja rated lower in skilled delivery coverage at 50%. The distribution of midwives was varied especially in Ugunja where it had fewer midwives (3) equivalent to one midwife per facility. To measure the availability of the guideline requirements by sub-County, it was noted that none of the 48 midwives was given any orientation on midwifery-led model of practice in all the sub-Counties while the guideline documents were available in few sub-County facilities.

Table 4.2: Facility baseline information by sub-County

Information	Sub County (n=23)			
	Ugenya	Alego Usonga	Gem	Ugunja
Facility Type				
Hospital	1	0	0	0
Health Centre	3	3	5	0
Dispensary	0	4	4	2
No. of Beds				
0-5	2	2	4	2
6-10	1	3	3	0
11-20	1	0	2	0
>20	0	2	0	0
ANC attendance/day				
< 50	3	2	2	1
50 -100	1	5	7	1
Delivery Coverage/month				
< 50	1	1	2	2
50 -99	2	5	7	0
> 100	0	1	0	0
Midwives' years of Experience 0-5	3	4	10	1
6-10	1	4	3	0
11-15	4	1	1	2
16-20	1	0	0	0
21-25	0	1	2	0
26-30	1	0	3	0
> 30	1	0	1	0
Total	**11**	**10**	**20**	**3**
Requirements				
Training on the practice (n=48)	0	0	0	0
Presence of guidelines	1	2	2	0

4.1.1.3 Respondents baseline information

Table 4.3 shows that from the 373 mothers who were interviewed, 87% were aged 19 and 35 years. They were asked about the number of children each of them had and 335 (90%) of them had 0 – 4 children, while only 35 (10%) had more than 5 children. Most of the clients had their

ANC checkups done in a facility by a midwife (95%) while 82% of them had skilled birth attendance at the facilities. Asked when they had a first post-natal home visit by a healthcare provider, 89 (24%) said they were visited within the first week of delivery while 270 (72%) were visited after 1 week and within 6 months following delivery.

Table 4.3: Community's childbirth information

Information	Mothers (n=373)	Proportion (%)
Age in Years		
< 18	19	5
18 – 25	171	46
26 – 35	152	41
36- 50	26	7
Parity		
0 -2	169	45
3 – 5	166	45
6 – 7	33	9
> 7	2	1
ANC Attendance		
Facility by a midwife	356	95
TBA	9	2
None	8	2
Skilled birth delivery	307	82
Non-skilled birth delivery	66	18
Age of baby at first Post Natal visit by CHVs		
< 1 week	89	24
1week - 1 month	195	52
1month - 6 months	75	20
6 months - 1 year	3	1
Can't remember	3	1

4.1.2 Results regarding qualities of the midwife in Siaya County

The study found that there was a mix of models being practiced in Siaya County as a whole namely: doctors, midwives and clinical officers, all trained in midwifery services and that the midwives had a mix of competencies, some of which were influenced by whether or not they had undergone the various trainings on the updated management of various conditions. However at

the primary healthcare levels the midwifery practice was midwife-led. Asked whether they had any midwifery practice in Siaya County and to explain how they practiced it, the responses from the administrators revealed that the health facilities were run by nurse-midwives and that there was no community midwifery as was stipulated by the MOH, instead the mothers were referred to the health centres and dispensaries for midwifery services. This was also echoed by the responses obtained from the other key informants and focus group discussants.

"CHVs refer women to the health facilities to be delivered by the midwives" (KII 3).

"*No training on this practice was given in our Sub- County but I am also aware that there was a midwifery model that was to be practiced in the community but this is not possible"* (KII 2).

Their responses were also supported by SCPHNs from Ugunja and Siaya sub-counties who even gave reasons for lack of implementation of the DRH community midwifery model as stipulated. However, the women were referred to the health facilities and attended to by the midwives.

"We are aware that CM was advocated by the Division of Reproductive Health but it is easier to refer the mothers to the facility because of shortage of resources" (KII SCPHN 3).

The current midwifery being practiced borrowed a lot from the Community Strategy as well as primary health care (PHC) concept.

"We have CHVs; we have CUs attached to the facility. For the 6 CUs there are CHVs; we call them level 1. They help us with working with community through home visits and referral of mothers to the health facilities", (KII 3).

4.2 Sustainability of the midwifery models practiced in the public health care centres of Siaya County, Kenya

The results in this subsection are for the second objective which was to assess the sustainability of the midwifery models in practice in Siaya County of Kenya.

4.2.1 Accessibility of the midwifery services

Accessibility is a measure of sustainability as conceptualized in this study. The accessibility itself was found demonstrated through a number of functions.

4.2.1.1 Accessibility through Home Visits

The study found that by and large, home visits were conducted to the majority of the women (71%) of the 373 CHVs surveyed in this study as indicated in figure 4.1. During the visits the women are educated on issues that concern pregnancy, child birth and after childbirth. This in turn would translate into increased skilled attendance by the midwives.

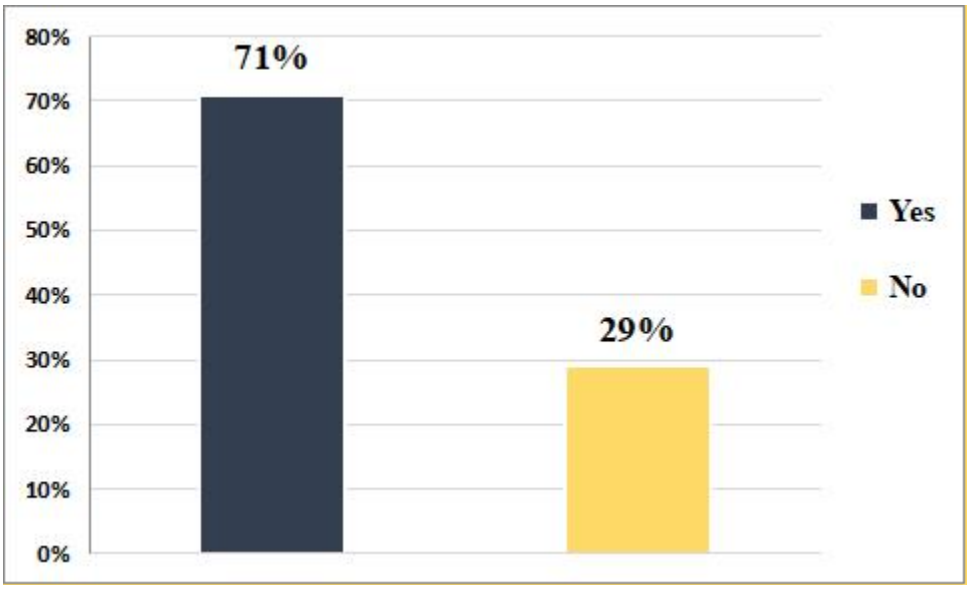


Figure 4.1 Women who were visited by the CHVs

The results showed variability in the performance among the sub-counties with Ugenya and Ugunja showing low performance in home visits [30(62%) and 31(59%) respectively], while Siaya and Gem showed higher performance [107(67%) and 97(87%) respectively] (Table 4.1). These differences in the sub-counties' performance were found to be statistically significant (χ =21.491, P=0.001) which showed that the performance of home visits were highly associated with the specific Sub-county.

Table 4.1: Home visits by CHVs, by Sub-Counties

Home visit	Sub-county (n=373)				Total	P-value
	Ugenya(1)	Alego Usonga (2)	Gem (3)	Ugunja(4)		
Yes	30(62%)	107(67%)	97(87%)	31(59%)	265(71%)	**0.001**
No	18(38%)	52(33%)	15(13%)	22(41%)	107(29%)	
Total	48(100%)	159(99%)	112(100%)	53(100%)	372(98%)	

One of the activities of the CHVs was to conduct home visits in order to educate families on, among other health topics, issues pertaining to childbirth and especially to promote skilled birth attendance. Figure 4.2 shows that, of the women who delivered in the health facilities, 165(67%) had been visited at home by the CHVs within the last six months of their pregnancy while 99(37%) of them were not visited. However, there was no statistical relationship between the home visits and the delivery by a midwife.

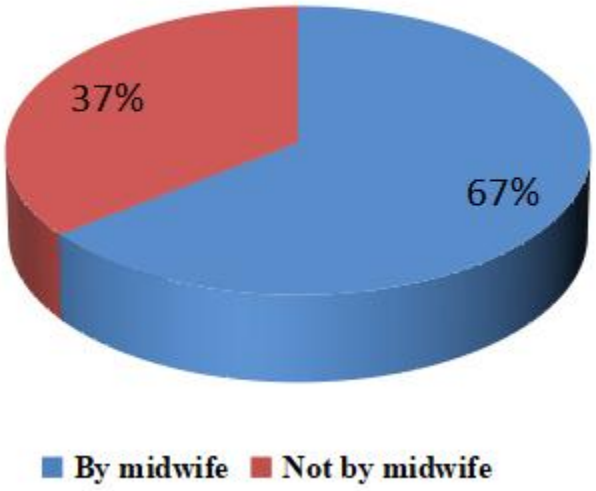


Figure 4.2: Proportion of mothers visited by CHVs who delivered in the facility

The facility administrators were asked whether there was any improvement on the skilled attendance during ANC and childbirth to which they responded positively and that the attendance was mainly at the facilities. This was because of the health education the community received from the CHVs and the referrals given them by the same CHVs. There was no indication that care was given at the community or households by any community midwives. Their responses included:

"Skilled birth attendance increased by over 100%. It used to be 20 deliveries but now we are doing over 40 deliveries (KII 3).

"Home delivery reduced; I would say to less than 10%. Those that do not deliver at the facility would consist of cases that deliver on the way to hospital or are not able to reach because of the night and have no means. These are unplanned home deliveries" (KII 3).

"Yes. Initially we had 10 deliveries per month but now we have over 20" (KII 2).

"The deliveries have increased. I may not know what percentage. But recently we were at 63% skilled deliveries" (KII 4).

"The numbers have gone up because most of them have known the benefits of skilled attendance." (FGD, 4).

When asked about the proportion of women that still received non-skilled birth attendance, there were still some women who were attended by unskilled attendants. However, the percentage was lower than before. It was stated in both the KIIs and the FGDs that this was because the CHVs emphasized on skilled birth attendance during their home visits or during the community meetings (Chief's Barazas). There were also close follow-ups by the CHVs on the pregnant women to ensure they went to the facility as soon as labour pains began. The reasons given for the non-facility deliveries included poor services at the facility, insecurity for women who labour at night, harassment of motorbike riders by the police, and those that started their journey to the facility late therefore, did not manage to reach but gave birth before arrival to the facility.

The CHVs lamented that the lateness came about because the women did not give the correct expected date of delivery and so they were caught unaware and therefore, they were referred to the facility late causing the first delay in obstetrics. It should be noted that in most cases the CHVs escorted the mothers to the facilities. There were other reasons for out of facility delivery say, attitude of midwives and quality of services.

"I would say the unskilled birth attendance is less than 10%. These would consist of cases that deliver on the way to hospital or are not able to reach because of the night and have no means. These are unplanned home deliveries (KII 3).

"Sometimes it is 11p.m and you have told her to go to the hospital. But she feels she cannot reach the facility" (FGD 1).

"They also have a problem of distance to the facility during labour. They miss fare to go".
"Women also fear sisters. They say the sisters are harsh. So they would rather go to TBAs"(FGD 1).

"*Also, the hospitals that we have do not give quality services. You find that in a dispensary there is only one nurse/midwife doing everything including a woman in labour on the couch" (FGD 4).*
"The mothers have realized that when they go to the hospital their status will be checked and they do not want anybody to know. So that discourages them to go to the hospital" (FGD 4).

4.2.2 Acceptability of the Midwifery services

4.2.2.1 Acceptability through Involvement of Community Health volunteers

Having the community's own resource persons participate in an exercise promotes acceptance and ownership of any initiative aimed at benefitting the community. The community is involved in midwifery practice mainly through activities of CHVs whose participation include their spelt-out roles as evidenced by the responses obtained from the KIIs and the FGDs. This is to promote skilled birth attendance among the women in the community through health education. According to the facility administrators interviewed, the CHVs carry conduct home visits where they interact with the families on a one-on-one basis to give health education.

Health education include issues pertaining to maternal and child health on issues concerning pregnancy like how to identify danger signs, as well as signs of labour and to report to the health facility as soon as labour begins; and to encourage them to ensure skilled ante-natal care. They also refer and even escort the women to the health facilities, according to their needs. They also follow-up the mothers in their homes after delivery to educate them on care of themselves as well as their newborn. They also keep records of the community health vital statistics and report to the facilities and to the public health office as appropriate.

"We keep records according to the referral book. We remain with the duplicate and take other copies to the facility" (FGD1)

"We have big hard books where we register occurrences then we have referral forms" (FGD4)

"Yes, that is how we were taught. That we give them referrals".

"We visit the mothers as soon as they deliver" (FGD3)

"We do a follow-up by visiting them every month. This helps us identify those who are pregnant whom we visit weekly to find out how she is so that when she gives birth then I will visit her frequently to find out when she delivers. I also have a form to track who has delivered or not" (FGD1).

"We follow them up to encourage them to go to the clinic and to attend ANC four times" (FGD4)

"*I start educating her early; we tell them that when they notice signs of labour, they should go to the facility they do not have to wait" (FGD1).*

"*When we visit them after delivery we find out about immunization and educate them on the importance. We also advise on exclusive breastfeeding and minor disorders as well as how to identify bleeding whether excess or normal. We check the cord and advise on care. We also tell them to eat well". (FGD4)*

"When they have HIV we also educate them on PMTCT of HIV". (FGD4)
We encourage skilled attendance and discourage home/TBA delivery. We tell them to go to trained personnel. (FGD3)

"In case of any medical problem we refer them to the facility using our referral forms" (FGD4)

"When someone is sick and is far, you can be called even at night"(FGD4)

"Many a times we escort the mothers to the facility" (FGD1,2,3,4)

4.2.2.2 Community Involvement in Health Information Documentation

Given that the health information should be captured right from the household, there had to be a system of documentation to ensure accurate health records. The CHVs collect information and write it daily on a board at the CU and health facility. They then compile the information and write a report which they give to the community health assistant (CHA) every end of the month. The CHA in turn gives the report to the community strategy focal person who submits it to the Public health officer, the health facility and the Sub-County Public Health Nurse as appropriate. They also keep records of their facility referrals in a referral book whose copies they keep for follow-up purposes. These form part of data for the county information system regarding maternal and child health.

*"We write community activities in a report that we take to Community Health Assistants and we remain with a copy." (*Resp. 16, FGD, 4).
"We keep records according to the referral book. We remain with the duplicate and take other copies to the facility." (FGD, 4).

The above responses were received from all the FGDs with the CHVs. From the KIIs the responses were not any different as follows:

"We have CUs well covered. The CHVs give reports to CHEWs who give the report to community focal person who gives report to SCPHN" (KII, 3*).*

"Once in a month the CHVs meet to bring report and share their feedback" (KII SCPHN 3).

"*CHVs have their registers. Whenever they do home visits they document in the registers the activities they have done then at the end of the month they all meet and the CHA makes a summary for all the indicators. Then the CHA keeps a copy and one copy goes to the sub-county*

*community focal person, who will then analyze, pick any problem and raise it up with the CHVs. Then the records are submitted to the sub-county records officer who will in turn enter them into the SCHIS. If there are any issues arising from the community, which are RH related then the office of the SCPHN 3 will be informed" (*KII, SCPHN 3 and 4).

"*Yes. When they bring referral forms we file them. When they bring reports, we go through and the CHA writes them on the board monthly. In our monthly reports we use CHV reports to the sub-county" (KII 2).*

4.2.2.3 Uptake of the Services

From the study it was observed that the midwifery being practiced improved the skilled attendance both in ANC 356(95%) from 84% and childbirth 307(82%) from 46% as shown in Table 4.2 and that 296(79%) of the women were generally satisfied with the services of the midwives (χ = 89.262 P=0.000)

Table 4.2: Proportion of mothers who had skilled attendance and their satisfaction with the services

N=373

ANC	Mothers	Proportion (%)
By a midwife	356	95
TBA	9	2
None	8	2
Recent delivery		
In facility	307	82
Not in facility	66	18
Satisfaction with Midwives' services		
Not satisfied	61	16
Satisfied	296	79

4.2.2.4 Midwifery Service uptake at the facilities

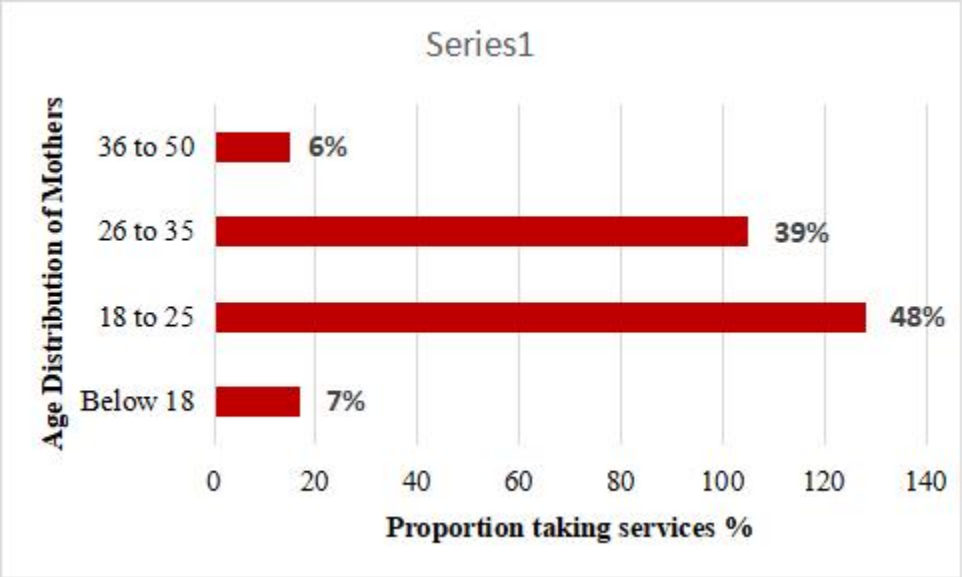
The total number of women who were interviewed was 373 out of whom 267(71%) had skilled birth attendance by the midwives. This level of uptake is an indication of the acceptability of the service, one of the measures of sustainability for this study. In further delving into the factors that could have influenced the midwifery service uptake, it was observed that the younger women (18-35 years) had a higher skilled birth attendance uptake while those below 18 and above 35 had lower uptake. This implies that age is a factor in uptake as evidenced in Figure 4.3.

However, there was no statistic relationship between the age and skilled birth attendance uptake (P= 0.128). There was also no relationship between parity and skilled delivery (P= 0.20). The mothers who had skilled ANC attendance at the health facilities were generally 356 (95%) of the 373 respondents and out of these, 265(74%) were assisted by midwives at birth. There was a strong relationship between the skilled ANC attendance and skilled delivery (P = 0.000). The results on the table below also show that 217(81%) of the mothers attended by the midwives did not pay for their childbirth services while the rest (19%) paid for the deliveries. This indicates that the women can afford skilled birth assistance at the facilities. There was a strong relationship between payment for services and midwifery service uptake (P= 0.00). With free maternity care most women would access midwifery services thus increasing the midwifery services uptake thus making the midwifery practice model effective as well as sustainable in terms of accessibility and affordability.

Table 4.3 Midwifery service uptake at birth among women (n=373)

Factors		
	Women	**Proportion (%)**
No. of children		
0 to 2	132	49
3 to 5	112	42
6 to 7	21	8
Above 7	2	1
ANC uptake		
Facility by a midwife	356	95
Payment at birth		
No	217	81
Yes	50	19

Figure 4.3 Age distribution of Women Taking Up Service



4.2.3 Availability of the midwifery Services

The study sought to establish the capacity of the facilities to support the midwifery practice model in place. The midwifery services were available in all the facilities as observed in Table 4.4 however, it was noted that the services were not available throughout the day yet there should be continuity of these services since women give birth any time. This means that the community can access midwifery services within their reach given that the facilities are nearer to them.

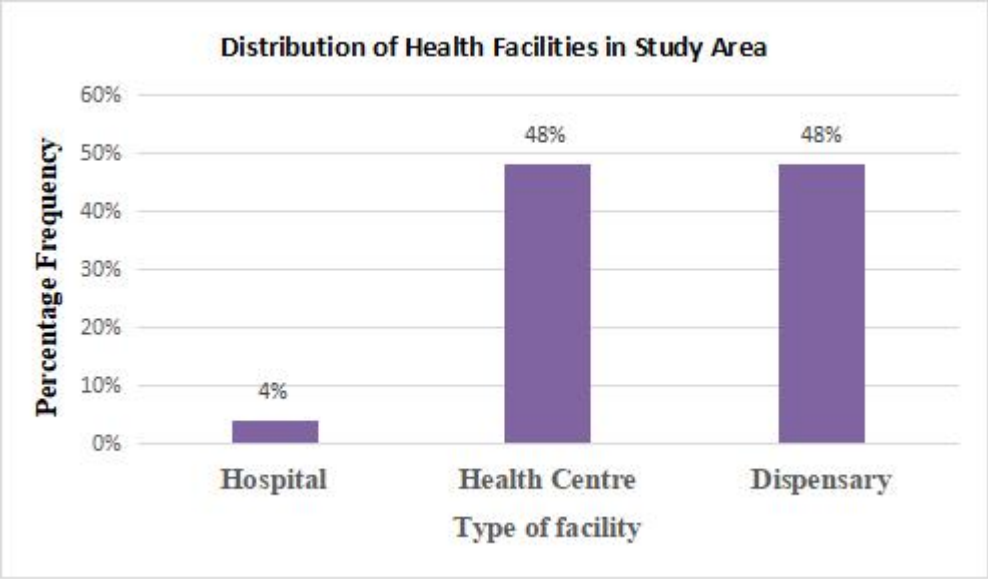
Table 4.4 Availability of Midwifery Services

Availability of midwifery services		
Service	**Facilities n=23**	**Percentage**
ANC	23	100
FP	23	100
Child health services	23	100
Care of complicated deliveries	16	70
Maternity services at night and weekend	2	9

4.2.3.1 Availability of structures; Facility type, bed capacity

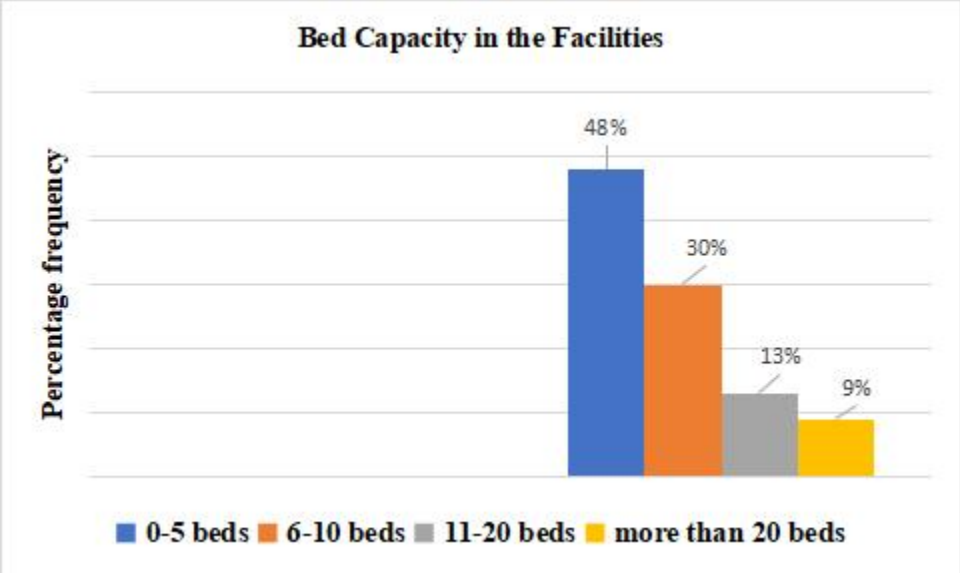
As detailed in Figure 4.1, of the 23 government -owned facilities, 11 (48%) were health centres serving a population of between 5,000 to 10000 people each and 11 (48%) were dispensaries

Figure 4.4 Type of Facilities Available



Bed capacity for those with in-patient facilities was determined for each regardless of the facility type (Figure 4.2). There were health centres with higher bed capacity especially those that were yet to be upgraded to tier 3 status. Bed capacity of a facility determines the coverage and accessibility of maternity services which are provided by the midwives.

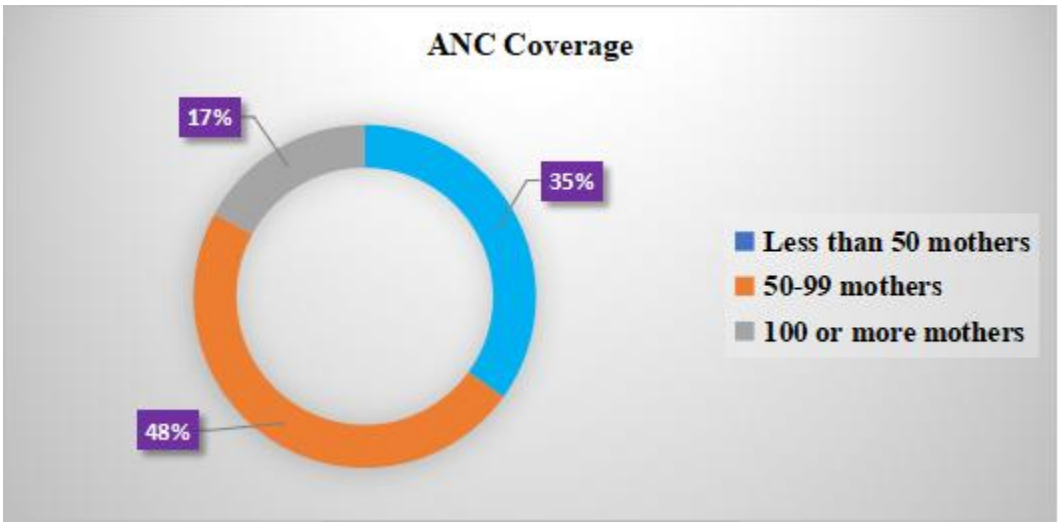
Figure 4.5 Availability of Beds for Inpatient Services



4.2.3.2 ANC Coverage

Ante-natal care (ANC) coverage was 50-99% in 11 (48%) of the facilities, more than 100 mothers in 17% of the facilities, and less than 50 mothers in 35% of the facilities (Figure 4.3). Sixty five percent (65%) of the facilities reported coverage of 50-99% of skilled deliveries. Forty eight (48) midwives from the selected study healthcare facilities were interviewed, out of whom 36 (75%) worked in health centres while 12 (21%) worked in dispensaries.

Figure 4.6: ANC Coverage



4.2.3.3 Availability of Skilled Staff and midwifery Guidelines

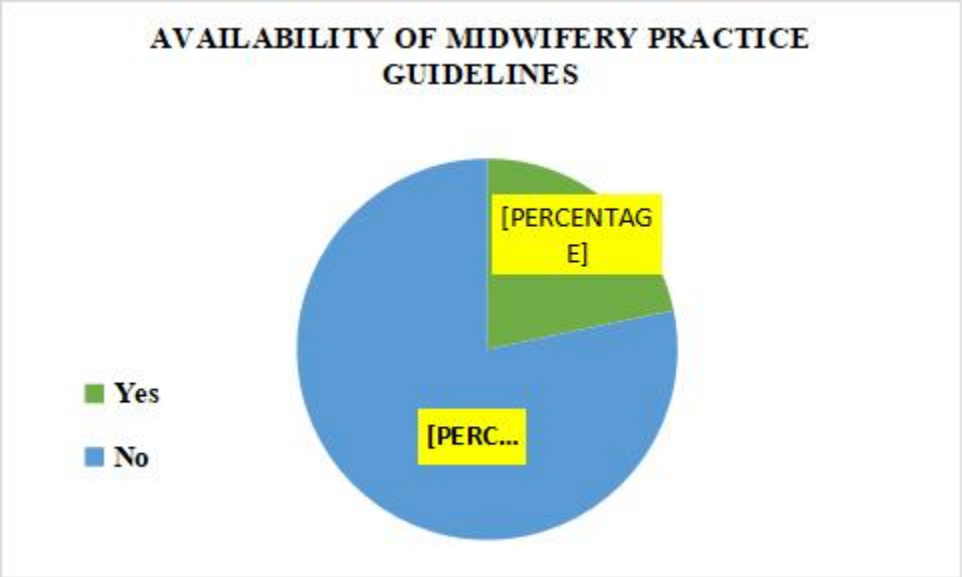
In order to establish whether the Sub-counties had the capacity to implement a Midwife-led practice, the staffing of the skilled birth attendants was also assessed. As shown in Table 4.5, the skilled workforce consisted of registered midwives, registered community health nurses, and Enrolled community health nurses which meant that not all skilled birth attendants were midwives.

Table 4.5 Availability of Skilled Manpower

Skilled Staff	Facilities	Percentage
From health centres	36	75
From dispensaries	12	25
Registered Midwives	14	29
Reg. Community Health Nurses	19	40
Enrolled community health nurses	13	27

On the assessment of the availability of any pre-requisites for the implementation of a Midwifery practice, it was observed that there was no orientation on the midwifery practice prior to the implementation. There were no documented midwifery practice guidelines available in 18 out of the 23 facilities. The services that supported the practice were also observed in all the 23 facilities. These determine the capacity of the facilities to be able to offer comprehensive midwifery services. They included maternity, family planning and child health services. In general, there were no of maternity services at night and weekends.

Figure 4.7 Availability of Midwifery Practice Guidelines



4.2.3.4 Staff Competence

To measure the likelihood of the midwives to be able to implement midwifery-led practice, logistic regression was used. There were significant differences in the general midwifery practice among the sub-counties (p=0.027). The midwives who had not attended to any deliveries in the past 6 weeks were 1.6 times more likely to be less confident in their performance in the midwifery-led practice as a whole compared to those who had attended to delivery in the more recent days or weeks (OR = 1.62, 95% CI, p =0.6982). The midwives who encountered and managed complications in the past week were 2.5 times likely to practice confidently and competently in the management of emergencies, as compared to those who never received or managed any complications (OR = 2.50, 95%CI [0.16-38.60], p =0.512). The results are as shown in Table 4.6

Table 4.6: Factors associated with capacity of midwives to perform in a midwife-led practice

(n=23)

Factors	Response (%)	OR(95%CI)	p value
Last delivery attendance			
Past week	21(91)	*ref.*	
Past One month	0	-	
Past 6 weeks	2(9)	1.62(0.14-19.41)	0.704
Encountered complication			
Never	1(4)	*ref.*	
Previous week	5(22)	2.50(0.16-38.60)	0.512
Previous month	12(52)	3.43(0.26-45.03)	0.348
Within 1-6 months	3(13)	1(0.06-15.99)	1
> 6 months	2(9)	4.00(0.13-119.23)	0.423

4.2.3.5 Training of Midwives

As required before introduction of a programme, training of the personnel on midwifery practice process was a pre-requisite for the implementation, as an orientation programme as well as continuing professional development for updates and best practice. In most of the KIIs it was

noted that the midwives had participated in other trainings but not on those concerning the functional midwifery practice.

"Training yes, I am happy to note that I am among the EMOC TOTs for the county. Most of our staff members have been trained on basic skills but not community midwifery" (KII, 3).
However, one administrator reported not receiving any trainings at all.

"This sub-county, for the one and a half years I have been here, there has not been any trainings" (KII, 3).
The CHVs also reported being trained on their work pertaining to mother and child health care by other organizations. Their responses were:

"Yes, First GLUK then TICH used to come to the ground in collaboration with MOH to train us." (KII, 2).

"We were trained on how to talk to mothers and how to deal with children and how they grow." (FGD, 4)
"Yes, we were taught."(FGD, 4).

From the results it was observed that the midwives would not be able to implement some of the midwifery services without any orientation or training on them. It was also evident that the midwifery that was practiced at the primary level of care in Siaya was not the one stipulated by DRH which was to be community based.

4.2.4 General Qualitative views on sustainability

From the KIIs the midwives in charge of the facilities felt that the functional midwifery practice was sustainable, however, they felt that staffing was inaddequate and should be stepped up and the funds be availed in time especially for payment of stipends for the CHVs. The CHVs felt that their stipend was not comensurate to their tasks. This was also noted from the responses recorded during the interviews and FGDs. In terms of acceptability, the functional midwifery model was acceptable to the midwives, CHVs as well as the mothers. However, they all felt that the midwifery model, as stipulated in the guideline by the division of reproductive health, was not possible because it would reqiure more resources than when the women are referred to the health facility as is being done currently. It would also be difficult to manage emergencies since there would be no midwife left at the facility when one goes to attend to a client in the community. Because of the terrains and seasonal roads the ambulances would not be able to reach some households while at night there would also be insecurity issues making it difficult for the midwife to reach the women in need. The following were some of the verbatim responses

"Sustainability will depend on how the CHVs are engaged in the programme. Stipend should not be a motivation but let the motivation be intrinsic. They should be motivated to own the programme. If they are appreciated, they will be motivated to support us." (KII, 3)

*"Employ more midwives, expand facility. Will there be support? What about transport, if not how does one move from facility to village? That one will need transport. It will also mean that you dip into your pocket, unless there is a supporting unit where we get transport or reimbursement" (*KII, 2).
"*Suppose sister is one, like this one of ours. So, when I call her, and there are two at the facility, who will take care of these five others while she is at the community" (*FGD 2).

***"Instead** of allowing them to deliver at home with the help of the sister we cannot allow that because that is why we are encouraging them to deliver at the facility*" (FGD 2).

Concerning the perception of their acceptance and appreciation by the community, the CHVs felt that they were accepted and appreciated by the community that nominated them and called them in case of health need. This was confirmed by the KIIs with the administrators who said that no community member would respond to anyone regarding health issues in the absence of the CHVs, which showed that the community had confidence and trust in the CHVs. The fact that the women reported to the CHVs when in labour showed that they trusted them with their health; even the men would relegate their pregnancy responsibility with them. The midwives also relied on them to keep records and give reports on the events taking place in the community.

*"Before, they were reluctant but now they have accepted us and they appreciate our work." (*FGD, 3)

*"They are happy with us because we get information and disseminate to them (amid laughter)" (*FGD, 4).

"Most of them are happy with our work." (FGD, 4)

"They like us. Like now if you yourself would go to them, they would tell you "no we want our CHV". They must see their CHV before they are treated or tested" (FGD 2).

To assess the relationship between the midwives and the community health care providers, it was noted that the relationship was well structured for the ease of communication which was effective. The CHVs depended on the midwives at the health centres for support and guidance while the midwives depended on the CHVs for collection and record-keeping of community health information which was submitted through the CHAs. The CHVs involve the midwives in their community dialogue days for technical support. This also helped in ensuring that the CHVs passed accurate health information to the community.

Meetings between the facility personnel, CHAs and CHVs were held monthly for purposes of community updates as well as passing any new information from the County Department of Health. The same report from the community was submitted to the Sub-County Public Health office through the Community Strategy Focal Person who was the overall overseer of the events that took place in the community and was answerable to Sub-County Public Health Officer. This indicated that there was clear linkage between the community and the mainstream health care system. The following verbatim responses were noted:

"For the CHAs and CHVs, I would say that the relationship is very productive, productive in the sense that we are in a link. They involve us in dialogue days. In case we have action day in the facility or in the community we welcome them. When we have any problem at the health centre, especially with supplies, I would go to the DPHN and she would assist." (KII, 3).

"The relationship with the CHAs/CHVs is not bad because most of the time they usually assist us" (KII 3).

"The relationship is good. The CHVs have been told to be free with us and to report any issue/problem for discussion when we meet at the end of the month or as necessary" (KII, 2)

"At the end of the month we meet and we give a report to the CHA. We were also given phones here" (FGD, 2).

"*We submit reports monthly. But we give reports to the CHA. She is the one who analyzes".*
"*Our chalkboard is at the office of the assistant chief. But all reports we give the CHEW. We write on the chalkboard but we also have our books"(FGD 4).*

4.3 Challenges to Sustainability of the Midwifery Models Practiced in the Primary Health Care Setting of Siaya County in Kenya.

The results in this subsection are for the third objective which was to find out the challenges to sustainability of the midwifery models in practice in the primary health care setting in Siaya County.

4.3.1 Results on Challenges to Accessibility of the Midwifery services

4.3.1.1 Financial Challenges to Home Visits and Access to Health Services

Financial constraints were a challenge when it came to accessing the services. During qualitative data collection, it was revealed that Community Health Volunteers often used their money to transport the women when they were abandoned by their husbands who sometimes felt that there was no need to deliver at the facility. Sometimes they also bought food for the women after

taking them to the facility. Lack of finances at the facility was as a result of late reimbursements of funds by the county government. The bills might also pile so that settling of bills and transport was a problem. The CHVs were sometimes not paid their allowances for many months and this affected their work as they would not be able to pay for their transport during their home visits.

*"The greatest challenge is the irregular financing by the County government. Like now, the last time we received our finances was September last year" (*KII, 3).

"Reimbursements not forthcoming promptly as promised and when it comes, it comes in bits. Like now we have stayed for a long time without the money and at times we cannot even pay for electricity bill and KPLC has disconnected it. It is the money we use to buy gas for cooking, making tea for the mothers, etc" (KII, 3).

"We do a lot of work outside our homes. Walking is difficult due to lack of transport" (FGD 3).

"Funds delay, causing shortages of non-pharmaceuticals. The CHVs are not paid so they are not motivated to work. They have not been paid for 4 months" (KII, 2).

In addition, concerns were also raised on financial challenges that affected pregnant women ranging from poverty, to lack of transport. They were not able to afford their basic needs like sanitary towels etc. and the facility might not have enough resources due to lack of funds. This affected the skilled attendance as the women would not go to deliver at the health facility due to inability to meet the needs for childbirth.

"The delivery is free yet the mothers expect to be supplied with food, baby clothing etc." (KII, 3).
"Another one is poverty. Sometimes you find that even after advising, a woman cannot afford even sanitary pads" (FGD, 4).

4.3.2 Results on Challenges to Acceptability of the Midwifery services

4.3.2.1 Challenge of Low literacy and lack of commitment

Qualitative data revealed that a general lack of commitment and low literacy levels among CHVs affected uptake and practice of midwifery. Some were not able to master information enough to give them confidence to pass the correct information to the community. Others were not committed due to lack or less stipend from the county government.

"Some are committed others are not. They complain they are not ready to do voluntary work" (KII, 3).

"Some have low literacy level, so slow to catch up" (KII, 2).

4.3.2.2 Challenge to Community Involvement through Low Male involvement

It was noted that low male involvement reduced the pace in the midwifery practice as a strategy for skilled attendance among the community members, and consequently affected sustainability. From the FGDs with the CHVs it was also noted that the men were less interested in issues to do with childbirth as they believed that traditionally it was a female affair. The responsibility is therefore left for the CHVs to ensure that the woman goes to the health facility. They believe that theirs was to look for income for the family.

"..When you investigate you find that even the man is not around and not responsible" (FGD, 4).

"Men do not bother about issues to do with maternal and child health. They are always busy."(FGD, 3)

"Men are difficult to find (amid laughter). Most of them go to look for income, some of them even when they see you (CHV) they just leave (amid laughter)" (FGD, 1)

"We try to educate them but most of them are reluctant but there are others who listen and take action" (FGD, 2).

"In our culture it is believed that the issues of babies/children are left to the women. So even when told to accompany their spouse to the clinic they see it as very difficult and shameful." (FGD, 3).

4.3.2.3 Challenges to uptake through Disclosure fears and cultural beliefs

Through Focus Group Discussions it was revealed that fear of disclosure of the pregnant women's HIV status was a major challenge to the success and sustainability of midwifery practice. It was noted that some women didn't go for skilled attendance for fear of being tested for HIV thus, making PMTCT of HIV difficult. Some women did not also disclose their last menstrual period. This was said that it made the CHVs not able to calculate and monitor the actual expected date of delivery thus; the women called them when it was too late for them to reach the health facility. This was one of the causes for unskilled birth attendance thus, reduced the skilled birth attendance.

*"The other thing the CHVs try to finish but they cannot is the fact that the mothers have realized that when they go for skilled attendance their status will be checked and they do not want anybody to know. So that discourages them to go to the facility" (*FGD, 4).

"Some mothers hide their LMP and so it is difficult to know when she is due. Before you know it, she calls you that she is in labour. Sometimes, she is positive. This would be a problem in terms of PMTCT" (FGD, 4).

Similarly, focus group discussants reported that strong cultural beliefs affect uptake of midwifery and instead the women went to the traditional birth attendants or relatives or even self. The beliefs included those affecting male involvement in prenatal preparation and childbirth. Most men believed that anything to do with the actual childbirth was a female issue. Some did not even escort their wives to the health facility because it is not manly. It was also believed that when a family builds a new home the woman must deliver at home to cleanse the home and give way for her son's wives to do the same.

"Most would deliver in health facility except traditionalists who had built new homes said that they had to deliver at home to give way for their children to deliver in the same home"
*(*FGD, 4).

"There is also a culture, when someone has a new home, she tells you that she has to pour blood and bury the placenta in this new home first before she goes to the hospital. There are also religious sects that tell you that our church does not allow the doctor to touch, our church does not allow a baby to be given a vaccine before two weeks, our church does not allow…….etc" (FGD, 1).
"In our culture it is believed that the issues of babies/children are left to the women. So even when told to accompany their spouse to the clinic they see it as very difficult and shameful." (FGD, 3).

4.3.3 Results on Challenges to Availability of the Midwifery services

4.3.3.1 Challenge of Financial Constraints

Finance was a major challenge for the CHVs and the facilities. Financial constraints were found to be a major challenge for the facilities, many of which were not able to buy food for the mothers during their stay at the maternity unit. After delivery the mothers felt hungry and even required a cup of tea to help in the flow of milk yet they were not able to buy. It forced some midwives to use their own money to buy food for the women since sometimes the women were not be able to afford.

4.3.3.2 Challenge to Availability of Skilled Staff and Midwives

Through qualitative data it was noted that lack of enough midwives was an obstacle to midwifery practice as expected. It was noted that the same staff who worked in the clinics/hospital/dispensary, were expected to perform midwifery services too, yet the same facilities were already understaffed.

"...most of the time we have shortage of staff. We can therefore practice it when we have enough staff. You know sometimes you are the only one in the facility. If you leave the facility, no one will remain here." (KII, 3)

"If they will be attended to by qualified midwives, it will not be practical because of staff shortage. The number of midwives we have cannot allow us to manage the facility and community." (KII, 1).

"When RH introduced it (CM model), because of shortage we were advised to use the retired midwives. At present they are hard to come by. Because of shortage we may not be able to implement." (KII,3).

"……. To add another sister to help the one here so that the facility does not remain without a midwife." (FGD, 2).

*"Instead of allowing them to deliver at home with the help of the sister we cannot allow that because that is why we are encouraging them to deliver at the facility." (*FGD, 3).

"We cannot agree because one sister cannot manage." (FGD, 3).

4.3.3.3 Challenge to Training of Midwives

The midwives were supposed to be given re-training on other midwifery courses for the updates on midwifery procedures especially on the process of midwifery-led practice, which would form part of continuing professional development (CPD). Key informants and Focus Group Discussants revealed that the trainings were not done as per implementation requirement.

"The trainings organized especially on EMOC so many midwives have not been trained. Many people are not good at giving feedbacks so those trained may not give enough feedback. Again, this sub-county has been left because some counties are given more slots than us" (KII, 3).

*"We suggest that we get trainings that target this region. By this I mean Ugenya and Ugunja so that we can train many of our people i.e., on life saving skills, EOC. I am happy that we have not recorded maternal deaths in the last two years" (*KII, 4).

4.3.3.4 Challenge of Poor Infrastructure

Focus Group Discussants and Key Informants reported that poor infrastructure was a major impediment in the midwifery practice. The qualitative data reveals that there was a general lack of necessary resources like ambulances, toilets, means of transport, and supplies to ease the implementation of a midwife-led model. Some facilities were too small to accommodate the number of deliveries and postnatal mothers. Some had no bathrooms and toilets for the mothers

and nowhere to dispose placentae. There was also shortage of non-pharmaceuticals which were not supplied in time after placing orders. They also had problems with their referrals to the hospitals. The ambulances were shared with other facilities so in an emergency the ambulance might not be available, causing the relatives to look for alternative transport since the facility might have no funds to pay an alternative means of transport. The poor state of roads also made it difficult for the women to reach the facility in time for skilled birth attendance. The motorcycles might not be able to reach the homestead or the facility due to the terrains. There was also the issue of insecurity and harassment of the riders by the police making them fear going to the facilities at night when there were no public vehicles.

"Our maternity is not complete there are no toilets and bathroom, there is no drainage, there is no placenta pit so we use pit latrines to dispose of placenta. If maternity is extended, to have new born unit, post-natal rooms for mothers to rest post-delivery so that we can increase the hours to observe our clients" (KII, 2).

"Non-pharmaceuticals. The supplies are not enough" (KII, SCPHN 3)

"We need an ambulance at this facility or even a motorbike. Sometimes you are called and you reach to find the head of the baby out" (FGD, 2)

*"There should be enough toilet facilities and bathroom" (*FGD, 2).

"Sometimes it is at night. The motorbike may not go past the police post for fear of being harassed by the corps. This forces you to walk to the hospital in vain and deliver on the way" (FGD, 4).

CHAPTER FIVE

DISCUSSION

5.1 Introduction

This study aimed at assessing the midwifery practice at the primary level of the health care in Siaya County in order to identify the functional practice and model in place, its effectiveness and sustainability.

A study done by Li et al (2018) noted that all countries provided an autonomous environment among other things, for the midwives to practice and that midwives had prescribing rights related to gynaecology and obstetrics and that consultation was also an important task for them. In view of this, midwife-led continuity models aim to ensure support for women in the achievement of healthy pregnancy and birth, enabling women to receive care from a known and trusted midwife during the pregnancy, birth and early parenting journey (Hatem, Sandall et al. 2013).

A continuum of care is also needed throughout pregnancy hence efforts should focus on building capacities at individual and family levels for the improvement of the outcome trends. This could be related with the community based interventional studies which were done in India and Guatemala where as a result of capacity building, neonatal mortality rate and infant mortality reduced (Wangalwa, Cudjoe et al. 2012). There was need for the same study to be done in Kenya in view of the impact of midwife-led healthcare against the medical model of obstetric care.

Initially in Kenya, it was proposed that community midwifery, as a community intervention, would be the best practice in reaching the rural community in order to increase skilled birth attendance among women of reproductive age thus, reduce maternal and neonatal mortality. However, the community midwifery model as proposed by the DRH of the Ministry of Health was never rolled out as intended and therefore not implemented in most counties including Siaya County. However, it was observed that there was a midwifery practice at the primary levels of the health care given that women still had skilled attendance at the health facilities. It was therefore necessary to assess the midwifery practice in place in terms of its implementation, effectiveness and sustainability as well as the challenges of the implementation.

5.2 Midwifery Models Practiced in Siaya County of Kenya

This section discusses the results for the first objective.

The study observed that the health centers and dispensaries, like in any other counties in Kenya offer maternity services that are provided by nurse-midwives. The women are referred from the community by the CHVs to give birth in the said health facilities. In cases of complications that require a doctor's intervention the women are referred to the sub-county hospitals for further management. The midwifery practiced in Siaya was observed to have adopted a lot from the Community Strategy concept and the primary health care that aimed at taking the Kenya essential package for health (KEPH) to the community. There was thus, the involvement of the CHAs and the community strategy focal persons in the supervision of community maternal health interventions but reporting to the midwife. This was noted from one of the KII with one of the facility administrators who mentioned that the current community midwifery practiced in Siaya County is borrowed from the community strategy. The implications of norms and standards for the community services are that one Community Own Resource Person (CORP) serves 20 households or 100 people; one health extension worker supervises and supports 25 CORPs of whom CHVs are part. One tier 1 community unit (CU) would serve 5,000 people and would require, 50 CORPs and 2 community health extension workers (MOH 2006, Fauveau, Sherratt et al. 2008). For the CORPs to be effective they need the support of the trained community health assistant, whose main roles include training and continued support for the CORPs according to the felt needs of the community. The CHAs are based at a health facility but assigned to work within a specific sub-location to ensure acceptable standards of care at tier 1(level 1 and 2). They provide continuing training to CORPs through demonstration and instruction based on immediate learning needs.

The CHAs are formal employees of the health system hired and paid through the local Health Facility Management Committee (MOH 2006). From this explanation there is community involvement in the midwifery practice at the primary health care levels. This is important to note given that there is currently emphasis on PHC concept whose pillars include community participation. In general, it might be observed that people need motivation in order for them to accept an intervention. In the case of midwifery practice the community needed a lot of awareness on the importance of skilled birth attendance as well as promotion of same which was done by the CORPs. Like the midwifery practice, the community strategy, as another community

health care concept, involves the maternal and child health interventions within the community. Working in close collaboration with the Community Health Assistants (CHAs) and the CHVs, the midwife was the principal actor in the provision of maternal and newborn health services at the primary level of healthcare. In order to work effectively and to enable families to access these services, the midwife linked with other players at the community level and also established regular contacts with various teams as well as the formal health system. For example, the midwives hold a monthly meeting with the CHAs and the CHVs in order to receive and discuss monthly reports from the community as a means of monitoring and evaluation of community maternal and child health interventions and to set way forward. In the meantime, they also meet regularly to receive the daily records from the community from the CHVs. Unlike in other countries where the midwife is called to deliver women in their households at a fee, here the midwife works with the CHVs to bring the women to the facility to give birth. Given that the primary health care levels are more rural, it is expensive for them to pay for services from private midwives, which forms another midwifery model of care called case-load midwifery model.

The overall goal of the community strategy is to enhance community's access to health care in order to improve productivity and thus reduce, among others, child and maternal deaths. This accessibility is critical in the achievement of the universal health care (UHC). The health sector reforms (HSR) expanded the community-based health care (CBHC) principles by decentralization in order to formalize people's power in determining their own health priorities and to link them with the formal health system in order to reflect their decisions and actions in health plans. It was therefore, necessary that the midwives rely on the CHVs to mobilize the community in order to promote skilled birth attendance by visiting households and giving health education on maternal and child health and encouraging them to give birth at the facilities. There was therefore a high level of community involvement through the activities performed by the said CHVs. They educated the mothers on health issues related to pregnancy and childbirth as well as child care and encouraged male involvement. They documented and kept the community health records and also referred cases to the health facilities as appropriate. This, from the result of this study, showed an increase in the health facility deliveries compared with the home deliveries. This meant that the uptake of skilled birth attendance was stepped up even without the presence of the out-of- work community midwives in the community as required by the then proposed community midwifery guidelines. As noted earlier in the literature review, there are

three main elements of community based midwifery namely; extending health centres and dispensaries to provide delivery services, linking retired midwives to health facilities to provide care at home and, to improve competency and skills within the community (MOH 2012). The midwives were supposed to collect information and keep records, and subsequently give reports to the respective authorities. However, from this study, all these activities and roles were carried out by the CHVs living in the community and who reported to the CHAs. The CHAs would then present the report to the midwife. The results also showed that the facilities involved, worked with the community and that whatever activities carried out within the community helped improve the performance of the midwife at health center or dispensary. The community health volunteers were heavily involved in both the promotion of skilled birth attendance and the health education to the community members as well as even referring and escorting the women to the health facilities. This was evidenced by the increased skilled birth attendance as well as by the FGD responses where they mentioned what their roles included the promotion of skilled delivery as observed in the extracts in chapter four. From the FGD responses the women found it difficult to have the midwives go to assist them in their homesteads or community units, meaning that they preferred a formal healthcare facility. This would be related to a study done to evaluate community midwifery in Kakamega County that showed that the women did not want to be delivered in their houses for lack of privacy (Van Eijk et al., 2006). In Indonesia, evidence showed that the health center childbirth care strategy was likely to be the best option because even though midwives were the main providers, they worked with other attendants in a team. Such care is referred to as basic, primary, routine, or basic essential obstetric care, and most recently skilled care at the first level (Pambudi, Srivanichakorn et al. 2012). This model seemed to be replicated in Siaya County where the health centers and dispensaries offered midwifery services but with the involvement of the other community actors which also conforms to a study by Mushi in Tanzania, which showed that community level interventions to promote access to obstetric care must be built around functioning health care facilities. Mushi also observed that the use of community health volunteers, to follow-up pregnant women, could substantially improve utilization of midwives during delivery (Mushi 2010). In this study the CHVs visited the households and promoted skilled birth attendance (SBA) as evidenced by the improvement of the ANC and skilled birth attendance in Siaya Sub-County. This means that like in Tanzania they promoted access to midwifery care at the primary health facilities. Most advisers concerned with

maternal mortality reduction concur that to promote births in facilities with professional attendants is the ultimate strategy (Fauveau et al. 2008). This would also help improve on infection control during delivery thus reduce puerperal sepsis which is one of the major causes of maternal mortality as well as reduce maternal morbidity as a result of the infections. In conclusion, based on the above information, the basic facilities in the communities are being used for midwifery service delivery for cases that would not require medical interventions thus midwife-led practice.

According to Homer, midwifery continuity of care is taken to mean that care is provided by the same midwife or by a small group of midwives whom the woman is able to get to know throughout her pregnancy. The midwife provides the majority of the woman's care through pregnancy, labour and birth and the postnatal period (Homer et al. 2008). This conforms with the findings of this study as evidenced by the fact that the women in Siaya County used the dispensaries and health centres, that provided primary health care and that the midwifery practice gave the women the chance to have a sense of belonging because they were likely to be cared for by the same midwives in a health facility that is within their reach and who would be in constant contact with them as appropriate thus providing continuity of care. The midwives working at the health facilities were constantly there such that the community could identify with them as well as provide continuity of care. The KEPH and the community strategy approaches of care in Kenya, whose performance had been found to be effective in maternal and child health care, use the dispensaries and the health centers as their bases therefore, the midwifery practice would be justified to use the same concept for accountability purposes as long as there would be clear guidelines and standards for the implementation of same.

According to the College of Midwives of Manitoba (CMM) (2000), Midwives are supposed to facilitate decision-making by making relevant, objective information available to their clients so that the clients would make informed choices. Midwives support the principle of informed choice by, among others, encouraging clients to actively participate in their care and to make choices about the services they will receive and the manner in which care is provided which is like a bottom-up approach of health care. This helps involve the women in their health care management unlike before when the health care providers, as the experts, decided for them and they had no say. In this study the actual information regarding childbirth was given to the community, who were the midwives' clients, by the CHVs but under the supervision of the

midwives who remain the trainer-of-trainers (TOTs). The information from the community would then be passed to the midwife by the CHVs through the CHAs. From the above-described implementation, it might be observed that there was community involvement in the midwifery practice in Siaya County, which is acceptable given the context and circumstances surrounding the county and the nation at large. For successful implementation of midwifery-based practice at the community and primary health care levels, all levels of the national health system (National, County, Sub-County and community) have to play complementary and supportive roles. As observed in a study by Mwangi and Warren (2009) good working relationships should be nurtured through all phases of program planning and implementation (Mwangi and Warren 2009) and so the involvement of CHVs in the implementation of midwifery practice at the primary levels of the health care systems in Siaya County was not misplaced. The recommended complementary and supportive roles of the health systems were also emphasized by the midwives during the in-depth interviews ho also mentioned as one of the barriers to effective implementation of their practice.

In conclusion, the maternal and child health care services provided at the basic health care facilities was midwife-led and the practice involved other community actors for its effectiveness. Compared with the other international midwifery models Siaya county therefore, practices equivalent of group or team midwifery model of practice whereby the midwives back-up each other as long as they are on duty. In group practices, continuity of care would be achieved by a small team of midwives (not greater than four) provided that the client has the opportunity to establish relationships with all the members of the team. Midwives involved in group practice must share a common philosophy in order to support continuity of care. Women must have input into the manner in which continuity of care is provided (Scurfield 2002). This is different in the case-load midwifery model where a midwife has specific cases for herself and even visits them as a private midwife at a fee and works with less client load but with many midwives. This would make it expensive for both the clients and the health care system as a whole

5.3 Sustainability of the midwifery models practiced in the primary health care setting of Siaya County, Kenya

This section discusses the results for the second objective.

The mobilization of the community increases the level of community participation that would result to high level of ownership thus make the practice sustainable given the fact that the resources are affordable, acceptable, accessible and available. This is because the CHVs remuneration is usually much lower than that of the skilled birth attendants, they live in the community they serve and so they are available any time and with the required information to avail to their clients. Because they were selected by the same community, they were acceptable to them and as the study observed the community members trusted them. This obviously makes the midwifery-led practice sustainable though with some challenges would require to be looked into for more sustainability.

As noted earlier in chapter two, the concept of sustainability in public funded health care embraces questions of what is socially and ethically acceptable, or how societies decide what they can afford. A study done by Williams et al (2005) to evaluate the Midwifery model of care in Australia focused on clinical outcomes and consumer acceptance and the results demonstrated that a model of continuous primary care by midwives could operate safely and effectively, with very high levels of consumer satisfaction. Data sources included satisfaction surveys of the women who took part. In this study the level of community's satisfaction with the midwives' services was noted to be high. This showed that the current midwifery practice was acceptable thus; it would be sustainable based also on the acceptance of CHVs by the mothers. The acceptance was also noted during the FGDs that illustrated the roles of the CHVs and the responses received during the discussions with the CHVs as well as the key informant interviews with the facility heads. Given the cost of employing more personnel who will be paid big salaries, the CHVs had shown that they could promote skilled birth attendance thus encourage women to deliver in the facilities where there would be no institutional costs or if any it would be minimal. The CHVs would also be renumerated less than the professionals. The facilities would also employ fewer midwives who would practice in the facilities rather than employing more midwives to provide services in the community set-up. As noted by Swerissen, on matters of sustainability, the provision of quality maternal and newborn care is a litmus test for a functional health system that requires locally accessible and affordable 24 hour provision of highly skilled staff who would make rapid life-saving decisions (Swerissen 2007). Most maternal and newborn recommended practices were acceptable to the community, however health systems and community barriers were prevalent and as noted by Wangalwa, this would require longer period

to make women in rural settings prefer to deliver in health facilities. He also noted that the skilled birth attendance was constrained by exorbitant delivery charges in poverty stricken regions, absence of emergency transportation and inaccessible health units (Wangalwa et al. 2012).

In Siaya this would also be a barrier to timely referrals because of lack of ambulances that are used to transport mothers from community to the hospitals. The available ambulances were shared and were at the same time inadequate. As noted by Oyetunde, new and creative approaches are needed if midwifery practice as a prominent profession in health care delivery would professionally remain competitive and contribute effectively to the demands of community's health care services thus make it sustainable (Oyetunde & Nkwonta, 2014). This calls for an improvement of the facilities' infrasructure, of which the ambulances are part of, supplies and human resource and to factor in the cost of the services for the sustainability of the practice. As observed by Davies et. al. (2008) these were barriers to implementation initiatives, and therefore if not taken care of there would be no effectiveness and sustainability of a program. There is therefore, need for more input into the midwifery practice for it to be completely sustainable for both the community and the stakeholders. As noted from the KIIs and FGDs the skilled birth attendance at the health facilities would be easier and cheaper for the community and the health systems in terns of resources and logistics. With the current economic situation in the country and counties the current practice would be sustainable.

Results of a study done in Australia in 2015 demonstrated the effectiveness of continuity midwifery models, suggesting that a midwifery model is an important strategy for improving outcomes in a population (Wong, Browne et al. 2015) just as it was observed in this study where there was improvement of skilled birth attendance uptake. As mentioned earlier that the proposed community midwifery model was not implemented because it was never rolled out in Siaya county, the current midwifery practice on the ground was observed to be effective, with the community being involved in the services, through the CHVs and the CHAs, thus improving the skilled birth attendance as observed in a study by Mushi (2010). In this midwifery practice the women were encouraged to go to the health facilities by the CHVs as this was the best practice, as expressed by the CHVs in their FGDs. The high proportion of skilled birth attendance through the midwives showed that the functional midwifery practice was effective. The improvement in the skilled birth attendance is attributed to the free maternity services and the incentives given to

mothers who delivered in the facilities as well as the SBA promotion tips given by the CHVs. However, there were still some women who delivered outside the facilities. The fact that most of the women said they were visited by the CHVs within the previous 6 months translates to the improved rate of skilled deliveries although there was no statistical association between the improvement of skilled deliveries and the home visits meaning that there could be another motivating factor, possibly the free maternity services or the incentives given to the mothers after delivery. This was also observed in a study by Johri et al. (2014) which noted that eliminating user fees for pregnant women and children was suggested as a strategy to increase coverage of high-impact interventions to achieve the then MDGs and that Previous studies had also shown that when user charges were abolished, the use of health services tended to increase (Johri et al. 2014). The findings of this study were a replication of the above-mentioned studies whereby the utilisation of health facilities for maternity services significantly increased after declaration of free maternity services in 2014. It can therefore, be concluded that the improvement of facility deliveries was due to the introduction of free maternity services as well as the incentives the mothers got when they delivered at the facilities as evidenced by the responses from the KIIs and the FGDs. However, the positive health outcomes documented by the study also came about because the women had also been empowered by the CHVs to make informed decisions concerning maternal health needs. The strengthened linkages between the community and dispensaries and health centres also enabled effective referrals from the community. The CHVs were responsible for referring women who identified any danger signs of pregnancy, to the health facilities. It was an effective process which contributed to the improvement of the skilled birth attendance as evidenced by the findings from this study. The referral of women by the CHVs in Siaya County can be seen to prove the study in Tanzania by Mushi in 2010 where the referrals were done by TBAs. The bivariate logistic regression to determine the correlates of the effectiveness of the model showed significant relationship between the home visits by CHVs and the increased skilled birth attendance given that the women who were health educated by the CHVs were more likely to deliver in a health facility because they were empowered with information that help them make informed decisions in time for childbirth. However, the involvement of the male partners was found to be affected by cultural issues as observed during the FGDs.

The involvement of the community consisted, to a bigger extent, of the community health volunteers and the other community members who gave support in one way or the other to ensure that the mothers reached the facility or called the CHVs when there was an emergency as well as ensuring that the mothers and their babies were well cared for after delivery. This, the CHVs did by conducting home visits before and after delivery thus the measurement of whether the women were visited in their homes by the CHVs. The visits were necessary for ensuring that the mother and her baby remained healthy. The CHVs were expected to provide health education on post partum care of the mother and newborn in order to prevent any complications that may cause maternal and neonatal death. This is with the knowledge that maternal death occurs during immediate post-partum period especially haemorrhage and onset of infection called puerperal sepsis. The village committees also acted as the managers of the community to ensure that the community members acted appropriately on matters concerning childbirth. This is a replication of the Zambian safe-motherhood action groups in 2003 where the groups were meant to mobilize communities in order to improve the health of women, men and children and reduce the number of human immunodeficiency virus infections (Johri et al. 2014). Fauveau (2008) questioned whether MDGs could have been achieved faster with the scaling up of multipurpose health workers operating in the community or with the scaling up of the professional skilled birth attendants working in the health facilities. From the findings of this study the multipurpose health workers, namely community own respected persons of whom the CHVs are part, could have helped achieve the MDG 5 with availability of adequate support both technically and in capacity building. They gave health education regarding MCH matters, they referred the women as appropriate, they followed them up and they kept health records, meaning that they played a very important role in the promotion of skilled birth attendance by the community. Even though the improved skilled birth attendance could had been attributed to the free maternity services, however, it may be argued that someone needed to emphasize to the women the importance of skilled attendance for the mothers to even spend their money on transport in order to go to the health facility. The improvement was likely to be as a result of the CHVs efforts made by the home visits and health education given at the chief's Barazas proving that home visits play an important role in the promotion of skilled delivery. As in the case of Zambia (Johri et al. 2014), there was growing evidence that better utilization of maternal health-care services depended on mobilizing the entire community. The midwives' role in the basic health facilities was effective

but needed enough support from the county directorate of health in terms of employing adequate midwives and remuneration for the CHVs, as well as meeting other service needs. The safest care could be provided at birth when there were two qualified persons present at any one time. The Canadian standard of care requires that there have to be two attendants skilled in neonatal and maternal emergencies, at each birth. The second birth attendant must understand and support the midwifery practice and could be another midwife or a health care practitioner with the knowledge and skill required to assist the midwife. Currently most of the facilities have one nurse-midwife which is far below the adequate requirement

5.4 Challenges to sustainability of the midwifery models practiced in the primary health care setting of Siaya County in Kenya.

This section discusses the results for the third objective. The difference in the service delivery among the sub-counties might be associated with the various challenges faced by the Sub-counties as mentioned in their KIIs and FGDs. The midwives, in this study, discussed a number of environmental issues that were significant in considering their role and scope of practice which undoubtedly had an impact on the practice of midwifery in Siaya County. These were evidenced by the challenges mentioned in their findings. Both CHVs and midwives accepted the midwifery practice based at the health facilities but not that the midwives conduct deliveries in the community or households. Their reasons, however, were varied as documented in the qualitative findings. The midwives felt that if there would be adequate midwives and means of transport, they would probably be able to conduct deliveries in the homes. However, the CHVs on the other hand felt that it would be difficult to deal with emergencies at the household level since the midwife might not be able to carry all the required equipment that she may need to manage the delivery. There might also be difficulty for transport to reach the community in time during an emergency because of poor communication infrastructure. These being considered gives a reason why the facility deliveries were an acceptable option for all. This information would be important for the policy makers at the DRH in order to review the previously proposed community midwifery as they consider the aforementioned challenges, as obtained from the qualitative information.

The issue of funds was a major problem thus; the facilities could not meet their obligations, while the CHVs had not been paid for four months. It was also observed that for the CHVs to be sustained their stipend needed to be paid on time so that they could work without worrying about how to fend for their families. This would enable them to concentrate on their community activities without having side hustles that would take them away from their community roles. For sustainability purposes, the county government would be required to improve the infrastructure more and improve on the regular and timely funding of the facilities. This would ensure that the midwives have equipment, supplies, and stipend for community midwifery services as required by the Ministry of Health (MOH, 2012).

As mentioned in the FGDs, the midwives were not able to do 24-hour calls because of insecurity and distance from their residence. If there were houses for them within the health facilities, the clients would enjoy the 24-hour services without being referred to level 4 health facilities for services the midwives would be able to provide within their reach at affordable costs. This would also be cheaper in terms of paying for the ambulances by either the client or the health facility when referring a client. Referrals are expensive for them because they have to pay for their transportation whether by ambulance or private means as well as some fee at the hospital.

As noted by the College of Midwifery in Manitoba, Canada, (2000), continuity of care is facilitated through a one-to-one relationship between midwife and client. There must be a 24-hour on-call availability of the primary care midwives who are known to the mothers. Every midwife must make the time commitment necessary to develop a relationship of trust with the mothers during pregnancy, in order to provide safe individualized care and support the woman during the childbearing year. It would subsequently mean that a sustainable midwifery model of care would consider the specific communities for purposes of acceptability which would comprise many ideals e.g., equity, choice, compassionate care, confidence and quality. Generally, a midwifery practice model has economic, social and political dimensions therefore, care must be taken about its scope for sustainability purposes.

CHAPTER SIX

CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusions

i. The first objective of the study which sought to establish the midwifery practice model in Siaya County was fulfilled. It was found that the midwifery practice model at the primary health care levels of Siaya County was completely midwife-led with referrals to the level four hospitals only when there was an emergency that the midwife could not manage. It adopted both the primary health care and community health strategy concepts. However, there was neither a guideline for the practice nor prior orientation to the exisiting practice.

ii. From this study findings, this is a bottom-up midwifery practice model approach with components of community participation of CHVs and CHAs assisting the midwives in ensuring promotion and improvement of skilled birth attendance. This would be complimented with a suitable strategy for community mobilization and efficient facility infrastructure to add to the free maternity care.

iii. The second objective of the study was also fulfilled. It aimed to determine the sustainability of the functional midwifery practice model at the primary health care settings of Siaya County, Kenya. Based on the results, it can be concluded that the model is socially and environmentally sustainable as it possesses the characteristics of availability, accessibility, affordability and acceptability by the community. It involves the CHVs and the CHAs who collaborate with the midwives at the health centers and dispensaries thus creating a link between the communities and the health facilities. However, it is not economically sustainable for the government due to the finacial challenges observed.

iv. Finally, the third objective of the study was met; it set out to identify the barriers to sustainability of the existing midwifery practice. These were found to include a lack of male involvement; poor infrastructure; little training of midwives; lack of enough midwives; HIV disclosure fears and cultural beliefs; lack of commitment and low literacy levels among CHVs; and lack of finances at the facility as a result of late

reimbursements of funds by the county government. Community Health Volunteers often used their money to transport the women to the facility.

6.2 Recommendations for Action and Further Research

i. The functional midwifery practice model in Siaya county should be scaled up and fully supported because it has a clear link between the community and the health system. There should be adequate human resource allocation and establishment of documented guidelines for the standardization of the model implementation.

ii. The hours of service provision at the maternities should be extended to cover 24 hours for the continuity of maternal and child health care. This would require that the county health department consider building residential houses for the midwives within the facilities to allow for calls in cases of emergency.

iii. For the success and financial sustainability of the midwifery practice model, there should be prompt disbursement of funds to make the facilities be functional throughout thus avoid stockouts and improve the accessibility of health services by the community.

iv. The Challenges to the sustainability of the Siaya model should be systematically addressed. For instance, the bed capacity should be increased as well as labour rooms in all the primary health care facilities. They should also be adequately equipped as appropriate in order to accomodate all midwifery services. The stipend for the CHVs should be increased in order to motivate and enable them concentrate on their work with ease to ensure sustainability of the model

v. Innovative approaches should be explored to further improve infrastructure and to retain contentd midwives and community health workers in general. This would enhance the ownership and sustainability of the adopted midwifey model.

6.3 Areas of further research

Following the findings from this study, further studies like this may be done elsewhere for comparison purposes, the findings of which would be evidence of whether to adopt the model nationally or not. It would then form a stronger basis for the development of a new midwifery guideline for the standardization of the practice model at the primary healthcare settings.

A further research may also be done to evaluate the effectiveness of the said model in the reduction of maternal and child mortality and morbidity.

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APPENDIX 1
CONSENT

Edwinah Atieno Syagga is a student at Jaramogi Oginga Odinga University of Science and Technology, School of Health Sciences pursuing Doctor of Philosophy in Public Health. The focus of this interview is to assess the midwifery practice and the model that has been implemented and how the model fits in with the midwifery needs. Findings from this study will be shared with caregivers, community health workers, policy makers and other stakeholders to facilitate designing, implementing and strengthening of midwifery model of practice that will aim at improving skilled birth attendance thus reducing the maternal and child morbidity and mortality. Your participation in this discussion is voluntary and any responses given to the questions will be treated with confidentiality. There will be no right or wrong answers.

Thank you for taking your time to participate in this study.

By signing this form, I understand the conditions and willingly participate in the research as indicated above.

Signature: ..... Date: .....

Age of respondent: _____ Gender: _____

APPENDIX 2

ASSESSMENT OF EFFECTIVENESS AND SUSTAINABILITY OF THE MIDWIFERY PRACTICE MODEL AT THE PRIMARY HEALTHCARE LEVEL OF THE HEALTH SYSTEM

DATE: _____ LOCATION CODE: _____

HEALTH FACILITY TIER: _____

TOOL FOR INTERVIEW WITH MIDWIFE OR MATERNITY NURSE

Facility name:	Facility code:		Sub-County code:	
Type of facility (enter H=Hospital; C=Health Centre; P=Health Post):				
Facility administration (enter G=Government; M=Mission; P=Private):				
Date today:			Surveyor code:	

What is your qualification? ***Tick one box***	1 Registered midwife 2 Registered nurse/midwife 3 Enrolled midwife 4 Enrolled nurse/midwife 5 Reg. community health nurse 6 Enrolled community health nurse 8 Other - specify:
Years of experience since qualification as CHN/Midwife	
When was the last time you attended a delivery? ***Tick one best response*** ***If respondent has never conducted a delivery, thank her and close interview.***	0 Never 1 In the past week 2 In the past month 3 In the past 6 months 4 6 months ago or longer
When was the last time you encountered a woman with a complication? ***Specify*** ***Tick one best response***	0 Never 1 In the past week 2 In the past month 3 In the past 6 months 4 6 months or longer

How did you manage the woman? ***Do not probe***	1 Referred to hospital 2 Called the obstetrician 3 Asked the relatives to transfer her to hospital 4 Others (specify).....
When was the last time you received any midwifery training. By training, I mean pre-service, in-service, or continuing education. ***Tick one best response.*** ***If no training received, go to question***	0 Never 1 In the past week 2 In the past month 3 In the past 6 months 4 In the past year 5 In the past 5 years 6 5 years ago or longer 9 Do not know
What training did you undertake	1 2 3 4
Is Midwifery being practised in this facility?	
How would you rate the midwifery practice in this facility?	1 Not active 2 Fairly active 3 Active 4 Very active
Do you think that the current midwifery practice is acceptable to the midwives? ***Explain***	
Have you ever been trained on the following? ***Tick all as appropriate***	1 Emergency Obstetric care 2 Community Midwifery 3 PMTCT 4 VCT 5 Others (*Specify*)
THANK YOU FOR TAKING THE TIME TO SPEAK TO US TODAY. DO YOU HAVE ANY QUESTIONS THAT YOU WOULD LIKE TO ASK US?	

APPENDIX 3

ASSESSMENT OF EFFECTIVENESS AND SUSTAINABILITY OF THE MIDWIFERY PRACTICE MODEL AT THE PRIMARY HEALTHCARE LEVEL OF THE HEALTH SYSTEM

DATE: _____ **LOCATION CODE:** _____

HEALTH FACILITY TIER: _____

TOOL FOR FACILITY MANAGEMENT/FACILITY IN CHARGE

Facility name:		Facility code:		District code:	
Type of facility (enter H=Hospital; C=Health Centre; D=Dispensary):					
Facility administration (enter G=Government; M=Mission; P=Private):					
Date today:		Team code:		Surveyor code:	

What is the estimated population served by this facility? ***Enter population; if not known enter 0***	
How many beds are there at this facility (including maternity) ***Enter number***	
What is the monthly antenatal care coverage rate for this facility? ***Enter percentage; if not known do not calculate, enter 0***	%
What is the delivery coverage rate for this facility? ***Enter percentage; if not known do not calculate, enter 0***	%
What do you understand midwifery practice to mean?	
Is community Midwifery being practised in the community served by this facility?	
How would you rate the midwifery practice in this facility?	1 Poor 2 Fairly good 3 Good 4 Very good 5 Exellent
Do you think that the current midwifery practice is acceptable to the midwives and the community? ***Explain***	
Have you ever been trained on the following? ***Tick all as appropriate***	1 Emergency Obstetric care 2 Midwifery process 3 PMTCT

	4 VCT 5 Others (*Specify*)	
Does the facility have any midwifery practice guidelines from Division of Reproductive Health or from the county health department? (*Request to be shown one if available)*		
Does the facility have any IEC materials? (Request to be shown if available)		
At this facility how many full-time and part-time occupied posts are there for:	Enter number of posts occupied	
	Full-time	Part-time
Registered midwives and nurse/midwives (fully qualified)		
Enrolled midwives and nurse/midwives (limited qualifications)		
Physicians (Both generalist and Obstetrician/Gynaecologist)		

Which of the following complications have occurred and have been managed at this facility within the past **six months?** *ask about each service separately*	*Tick one box* *For each item*	
Antepartum haemorrhage	1 YES	0 NO
Pre-eclampsia	1 YES	0 NO
Eclampsia	1 YES	0 NO
Postpartum haemorrhage	1 YES	0 NO
Retained placenta	1 YES	0 NO
Sepsis	1 YES	0 NO

Are the following services provided every day that this facility is open? ***ask about each service separately***	*Tick one box* *For each item*	
Antenatal care	1 YES	0 NO
Family planning services	1 YES	0 NO
Child health services	1 YES	0 NO

EMERGENCY SERVICES AND REFERRAL		
Are maternity services available at night and at weekends?	1 YES	0 NO
How far is the nearest referral facility, in kilometres? ***Enter number of kilometres, one way*** ***Enter 0 for referral centre/hospital***		
Who, apart from the driver, usually accompanies an emergency referral patient to the referral hospital? ***Tick one box***	0 patient is not accompanied (driver only) 1 nurse/midwife 2 other health personnel 3 family member 4 other - specify	
Thank you for taking the time to speak to us today. Do you have any questions that you would like to ask us?		

APPENDIX 4

ASSESSMENT OF EFFECTIVENESS AND SUSTAINABILITY OF THE MIDWIFERY PRACTICE MODEL AT THE PRIMARY HEALTHCARE LEVEL OF THE HEALTH SYSTEM

DATE: _____ LOCATION CODE: _____

HEALTH FACILITY TIER: _____

TOOL FOR POSTPARTUM CLIENT INTERVIEW

Facility name:		Facility code:		District code:	
Type of facility (enter H=Hospital; C=Health Centre; D=Dispensary):					
Facility administration (enter G=Government; M=Mission; P=Private):					
Date today:					

What is your age? *Enter age in years*	
How many children do you have? *Enter number*	
HOW OLD IS YOUR MOST RECENT BABY? *If more than one year exclude from study* *Tick one best response*	1 Less than one week 2 Less than one month 3 Less than 6 months 4 Less than one year 9 Do not know
Where did you have most of your antenatal check-ups?	1. Facility by a midwife 2. Community by a midwife 3. TBA 4. None
Were you at any time attended to by a doctor and not a midwife, during your last pregnancy	1 Yes 0 No
Where was your most recent baby born	1 In health facility 2 NOT in facility
During previous birth, who helped you at the that the baby was born? *tick one box*	1 Nurse or midwife 2 Doctor or clinical officer 3 Ward or patient attendant 4 Medical assistant 5 Traditional birth attendant (TBA) 6 Mother or other family member 9 Other (specify):
How old was your baby when you first came back to the facility	1 Less than one week

after the birth? *Tick one best response*	2 Less than one month 3 Less than 6 months 4 Less than one year 9 Do not know
Did you have to pay for this birth? If yes, how much did you pay, including all fees, drugs and supplies? *Enter amount in local currency. If no payment was made, enter 0*	1 Yes 0 No
How soon after the birth did you leave the facility? ***Do not probe Tick one box***	1 Same day as birth 2 Day after birth 3 More than one day after birth
Did a health worker visit you at home after the birth of your baby? *Tick box*	1 Yes 0 No
How old was your baby when the health worker visited you at home for the first time after delivery? *Tick one best response*	1 Less than one week 2 Less than one month 3 Less than 6 months 4 Less than one year 9 Do not know
I would now like to know more about the services That you received during your post partum visit. Did the staff... *Ask about each service separately*	*Tick one box for each service*
Measure your blood pressure	1 Yes 0 No
Examine the baby	1 Yes 0 No
Give you advice and information on how to care for baby	1 Yes 0 No
Discuss family planning	1 Yes 0 No
Discuss breast-feeding	1 Yes 0 No
Overall, how satisfied were you with the services you received from the midwives? ☐	1. Very happy 2. Happy 3. Neither happy nor unhappy 4. Unhappy 5. Very unhappy
Have you ever seen any midwives attending to mothers within the village?	1 Yes 0 No
If yes, what do they do? *Do not probe*	
Do you think it is a good idea for midwives to come and attend to women giving birth, in the community? *Give reasons for the answers*	1 Yes 0 No

Has the CHW visited you in the last six months?	1 Yes 0 No
If yes, what activities did she do for you?	
Are you satified with the services of a CHW?	1. Not satisfied 2 Satisfied 3 Very satisfied
THANK YOU FOR TAKING THE TIME TO SPEAK TO US TODAY. DO YOU HAVE ANY QUESTIONS THAT YOU WOULD LIKE TO ASK US?	

APPENDIX 5

ASSESSMENT OF EFFECTIVENESS AND SUSTAINABILITY OF THE MIDWIFERY PRACTICE MODEL AT THE PRIMARY HEALTHCARE LEVEL OF THE HEALTH SYSTEM

DATE: _____ LOCATION CODE: _____

HEALTH FACILITY NAME: _____

FACILITY ASSESSMENT CHECKLIST

INFRASTRUCTURE AND EQUIPMENT	
Which of the following items are available and in satisfactory condition? *Ask about each item separately. Code as unsatisfactory items which in your judgement are not functional, have missing parts, are unhygienic, or otherwise sub-standard. Be sure to **look** at each item.*	*Enter correct number below* 0 = not available 1 = available but not satisfactory 2 = available and satisfactory 9 = not applicable for this facility
Examination room or area providing client privacy (room for screening, counselling and examination)	
Table and stool for gynaecological examinations	
Storage area or cupboard for drugs and other supplies	
Toilet facilities or latrine	
Delivery or labour room with bed and lighting	
Refrigerator	
Water supply	
Telephone or radio transmitter	
Ambulance or vehicle to refer an obstetric emergency	
Which of the following items are available and in satisfactory condition? *Ask about each item separately. Code as unsatisfactory items which in your judgement are not functional, have missing parts, are unhygienic, or otherwise sub-standard. Be sure to **look** at each item.*	*Enter correct number below* 0 = Not available 1 = Available but not satisfactory 2 = Available and

	satisfactory 9 = Not applicable for this facility	
REGISTERS		
Clinical management guidelines/flow charts for maternal health care		
Delivery register or log book		
Antenatal care register or log book		
Family planning register or log book		
BASIC EQUIPMENT		
Blood pressure apparatus (sphygmomanometer)		
Stethoscope		
Infant weighing scale		
Fetal stethoscope		
Sterilizer		
Clinical oral thermometer		
Manual vacuum aspirator (mva)		
Protective clothing (shoes, aprons)		
Speculum (various sizes)		
Vacuum extractor		
Obstetric forceps		
Absolute minimum equipment for delivery		
Scissors		
Suture needles and suture material		
Needle holder, long		
Absolute minimum for care of neonate		
Cloth or towel to dry baby		
Blanket to wrap baby		
Bag and mask for neonatal resuscitation		
Is all equipment that you require for family planning/contraception available? *If equipment is not available or unsatisfactory, please specify below:*	1 YES	0 NO
Essential drugs and consumable supplies		
For essential drugs and consumable supplies, it is sufficient to look for and see that a particular item is available, regardless of condition or	*Enter correct number below* 0 = Not seen at facility	

expiration date.	1 = Seen at facility 9 = Not applicable for this facility
Gloves	
Disposable Syringes and Needles	
IV kit	
Blank "labourgraphs" or "partographs"	
Blank antenatal client cards or maternal records (as appropriate)	
Cord ties	
Blood giving sets	
Syphilis test kits	
Urine dip stick / proteinuria test supplies	
Anaesthetics: general	
Nitrous oxide or other general anaesthetic agent	
Diazepam (injection)	
Ketamine (injection)	
Anaesthetics: local	
Lidocaine 2% or Other	
Analgesics	
Pethidine	
Anti-infective drugs: antibacterial (mother)	
Ampicillin (Capsules or injection)	
Benzathine Benzylpenicillin **or** procaine benzylpenicillin (injections)	
Ceftriaxone (injection) **or** ciprofloxacin (capsule)	
Gentamicin (injection)	
Kanamycin (injection)	
Sulfamethoxazole+trimethoprim (400 mg + 80 mg tablets)	
For essential drugs and consumable supplies, it is sufficient to look for and see that a particular item is available, regardless of condition or expiration date.	Enter correct number below 0 = Not seen at facility 1 = Seen at facility 9 = Not applicable for this facility
Anti-infective drugs: antibacterial (neonate)	
Tetracycline (ointment) **or** silver nitrate (eye drops)	
Anti-infective drugs: antimalarials	
Quinine (injection) **or** chloroquine (injection)	
Antianaemia drugs	
Ferrous salt+folic acid (in combined form or separately)	
Antihypertensive drugs	

Methyldopa **or** propranolol **or** any other antihypertensive	
Hydralazine (injection)	
Anticonvulsive drugs	
Magnesium Sulfate (injection) **or** Diazepam (injection)	
Contraceptives	
Oral contraceptives (any type)	
Injectable contraceptives (any type)	
Condoms	
IUCD/IUD	
Immunologicals: vaccines	
Tetanus Toxoid (injection) stored in refrigerator	
BCG Vaccine (Injection)	
Oxytocics	
Ergometrine (injection) **or** Oxytocin (injection)	
Disinfectants and antiseptics	
Chlorhexidine **or** surgical spirit **or** any other	
Intravenous solutions	
Saline solution **or** sodium lactate compound solution **or** any other	

Family Planning Register	
*Ask to see the family planning register or log book. Tally information on the number of users of various contraceptive methods **for the past 3 months**. For sterilization, it might be necessary to look at the operating theatre register. Space is provided under each family planning type for tallying the number of clients. After completion, enter numerical totals in the right-hand column.*	
	Enter number below
Oral contraceptives/pill	
Injectable (e.g. depot-medroxyprogesterone acetate/depo- provera, norethisterone enanthate/"norestat")	
Condoms	
Diaphragms	
IUCD or IUD	
Subdermal implants (e.g. norplant)	
Spermicide (e.g. foam tablet, foam, cream, jelly)	
Sterilization: female	
Sterilization: male	

28 March 2022

APPENDIX 6

KEY INFORMANT INTERVIEW GUIDE FOR SUB-COUNTY NURSING OFFICER

ASSESSMENT OF EFFECTIVENESS AND SUSTAINABILITY OF THE MIDWIFERY PRACTICE MODEL AT THE PRIMARY HEALTHCARE LEVEL OF THE HEALTH SYSTEM

DATE: _____ SUB-COUNTY CODE: _____

Introduction

Thank you for agreeing to be interviewed. Your assistance and comments are valuable and important. This interview is informal, like a conversation and I am very interested in all your ideas, comments and suggestions. There will be no right or wrong answers. Results from this interview will be combined with other interviews to assist in developing policies that will help improve midwifery practice at the primary levels of healthcare thus reduce maternal and neonatal mortality.

Procedure

About 30 – 45 minutes

I will be audio taping this interview as well as taking notes. This interview is confidential. You may stop the interview at any time.

Objectives:

- Explore experiences of coordinators of the midwifery practice programme
- Explore individual experiences with the program
- Explore factors that enhance or hinder the smooth implementation of the Programme

Introduction:

- Introduce the study and explain the objective of the interview
- Explain that there are no wrong answers
- Explain that if it is fine to skip a question if the participant does not feel comfortable answering it

Q 1. Experience with the midwifery practice of healthcare

Tell me more about midwifery practice in your Sub-county

PROBE

Programme in general? Good and bad experiences? Challenges? How can they be handled?

Q 2. Definitions

In your opinion, who are midwives?

What do you understand by a midwifery practice/model?

Q.3. Support to the programme

Which type of support do you provide for the Midwifery practice at the primary levels?

PROBE

Financial? Material? Transportation? Communication? Training? Others?

Q 4. Service provision

- In your opinion, what range of services do midwives provide?
- Are there any efforts made to include community-based midwives in the mainstream of the public health sector?
- Do you think it would be a good idea to include them in the mainstream?

Q. 5. Determinants of relevance or acceptability of Midwifery Model and factors that support home-based deliveries and hinder performance of CMs

- In your opinion, are the women satisfied with the services provided by the midwives?
- What is the community perception especially men regarding midwifery practice?

Q. 6. Strategy to increase Skilled Birth Attendance and sustainability of the functional midwifery practice

- What is currently done to increase skilled birth attendance in this community?
- How has work with the community healthcare providers been like?
- What in your opinion can be done to enhance the performance of the community in their involvement in ensuring skilled birth attendance?

  PROBE

  - Inhibitive factors as well?
  - How has the health system supported the midwifery programme?
  - How should it support its effectiveness?

  PROBE

  - Probe the contribution of the specific programme e.g. RH Division or NGO?
  - How can the midwifery programme be sustained in Kenya?
  - International and national support?

- What is currently done to increase skilled birth attendance in this community?
- How has work with the community healthcare providers been like?
- What in your opinion can be done to enhance the performance of the community in their involvement in ensuring skilled birth attendance?

PROBE

- Inhibitive factors as well?
- How has the health system supported the midwifery programme?
- How should it support its effectiveness?

PROBE

- Probe the contribution of the specific programme e.g. RH Division or NGO?
- How can the midwifery programme be sustained in Kenya?
- International and national support?

Do you have any questions or comments?

Thank the participant for their participation. Make sure you allow the participant to discuss anything after interview has finished?

APPENDIX 7

KEY INFORMANT INTERVIEW GUIDE

ASSESSMENT OF EFFECTIVENESS AND SUSTAINABILITY OF THE MIDWIFERY PRACTICE MODEL AT THE PRIMARY HEALTHCARE LEVEL OF THE HEALTH SYSTEM

HEALTH FACILITY IN-CHARGE
DATE: _____ SUB-COUNTY CODE: _____

Introduction

Thank you for agreeing to be interviewed. Your assistance and comments are valuable and important. This interview is informal, like a conversation and I am very interested in all your ideas, comments and suggestions. Results from this interview will be combined with other interviews to assist in developing policies that will help improve midwifery practice thus reduce maternal and neonatal mortality.

Procedure

About 30 – 45 minutes

I will be audio taping this interview as well as taking notes. This interview is confidential. You may stop the interview at any time.

Objectives:

- Explore experiences of coordinators of the midwifery practice.
- Explore individual experiences with the practice.
- Explore factors that enhance or hinder the smooth implementation of midwifery practice.

Q 1. In your opinion, who are midwives?

- What do you understand by midwifery practice?
- Can you tell me the much you know regarding the implementation of midwifery practice?

Q 2. Experience with the midwife-led practice

- Is community midwifery implemented in this Sub-county?
- If not, give reason

PROBE

- How has the experience with midwifery practice been?
- Is it effective?
- Practice in general? Good and bad experiences? Challenges? How can they be handled?
- With your experience, do you think midwifery practice can be improved? How?
- How has work with the community healthcare providers been like?

Q4. Service provision

- What range of services do midwives provide?
- Are there doctors who also provide maternity services?

Q5. Strategy to increase Skilled Birth Attendance and sustainability of the current practice.

- What is currently done to increase skilled birth attendance in this community?
- What is your opinion on community midwifery?
- Community health workers?

PROBE

- How do you think the health system should support the midwifery practice for its effectiveness?

Q6. Referral system

- Please explain how the mainstream health system links with the community in terms of MCH.
- Explain the referral procedure from the community to the mainstream health system in terms of childbirth

Q7. Have you ever thought of a possibility of a facility midwife going to conduct a delivery in the community whether CU or household?

Discuss this further.

Do you have any questions or comments?

Thank the participant for their participation. Make sure you allow the participant to discuss anything after interview has finished?

APPENDIX 8

ASSESSMENT OF EFFECTIVENESS AND SUSTAINABILITY OF THE MIDWIFERY PRACTICE MODEL AT THE PRIMARY HEALTHCARE LEVEL OF THE HEALTH SYSTEM

CHW FOCUS GROUP DISCUSSION GUIDE.

Facility name:	Facility code:		S/County code:	
Type of facility (enter H=Hospital; C=Health Centre; D=Dispensary):				
Facility administration (enter G=Government; M=Mission; P=Private):				
Date today:				

Introduction

Thank you for agreeing to be interviewed. Your assistance and comments are valuable and important. This interview is informal, like a conversation and I am very interested in all your ideas, comments and suggestions. There will be no right or wrong answers. Results from this interview will be combined with other interviews to assist in developing policies that will help improve midwifery practice thus reduce maternal and neonatal mortality.

Procedure

About 30 – 45 minutes

I will be audio taping this interview as well as taking notes. This interview is confidential. You may stop the interview at any time.

General statement: Let's talk about the work you have been doing in the community.

What has it involved?

Q1. Have you ever seen a midwife conducting a delivery in the community?

Who conducts most of the deliveries?

Give reasons for the answer

Do you think there are many TBAs in your community?

Why do you think some women prefer going to them?

Currently women are required to deliver with the assistance of a trained midwife. What can you say about this?

Q 2. How many of you have been involved in health issues regarding maternal and child health within your communities? **(Take the number of people raising their hands).**

PROBE:

- What areas of skilled birth attendance promotion have you been involved in?
- Do you think you have been doing what you are expected to be doing?
- Do you think your work has improved the number of women attending ANC and delivery at the health facility?
- In your opinion do you think women would like to be delivered by midwives at their homes?

Q3. What challenges have you encountered during your work as a CHW with regard to maternal and child care?

PROBE:

- What do you think should be done to make midwifery practice acceptable to the community

Q4. Do you think something could be done to make the practice succeed? If so, how?

PROBE:

- Do you think the community would assist in making the practice better? If so, How?
- How do you think the local administration would assist in ensuring that midwifery practice succeeds?

Q5. Generally, do you think your service as an assistant to the midwife has been worthwhile?

PROBE:

- Where do women in your community mostly go for help when they have problems concerning childbirth?
- Have you ever been trained on your work as a community health worker regarding

Maternal and child health matters?

- If the answer to the above is YES, what were you told are your roles?
- How many households do you serve in your community?
- What activities do you carry out during your visit to a postnatal mother?
- After a delivery, when do you visit the postnatal mothers

Q6. Determinants of relevance or acceptability of the midwifery practice/model and factors that may support home-based deliveries

- Do you think women are utilizing the services especially delivery by midwives?
- What barriers within the community discourage women from delivery by a midwife?
  - In your opinion, are the women satisfied with the services provided by the midwives?
  - What is the community perception especially men regarding midwives' services?
  - How much is the community involved in the maternal and child services?

Do you have any questions or comments?

Thank the participant for their participation. Make sure you allow the participant to discuss anything after interview has finished?